



Engineering Ltd.



Final Report for:

VILLAGE OF HALKIRK

INFRASTRUCTURE ASSESSMENT AND 10-YEAR CAPITAL PLAN

Prepared by
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Date: September 30, 2021
Project Number: 4460-005-00

Proud of Our Past... Building the Future

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Village of Halkirk
P.O. Box 126
Halkirk, AB
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September 30, 2021
File: N:\4460\005\R01-1.0

**Attention: Marcy Renschler
Chief Administrative Officer**

Dear Ms. Renschler:

**Re: Village of Halkirk
Infrastructure Assessment and 10-year Capital Plan**

MPE Engineering Ltd. (MPE) is pleased to submit the final copy of the above noted study for your records.

If you have any inquiries regarding our report or if clarification is required, please contact the undersigned at 403-314-6128.

Yours truly,

MPE ENGINEERING LTD.

A handwritten signature in black ink that reads "Taylor Sunderman". The signature is written in a cursive, flowing style.

Taylor Sunderman, P.Eng.
Project Engineer

TS/ts
Enclosure


CORPORATE AUTHORIZATION

This report has been prepared by MPE Engineering Ltd. under authorization of the Village of Halkirk. The material in this report represents the best judgment of MPE Engineering Ltd. given the available information. Any use that a third party makes of this report, or reliance on or decisions made based upon it is the responsibility of the third party. MPE Engineering Ltd. accepts no responsibility for damages, if any, suffered by a third party as a result of decisions made or actions taken based upon this report.

Should any questions arise regarding content of this report, please contact the undersigned.

MPE ENGINEERING LTD.

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PERMIT TO PRACTICE MPE ENGINEERING LTD.	
Signature	<u></u>
APEGA ID	<u>73624</u>
Date	<u>October 1, 2021</u>
PERMIT NUMBER: P 3680	
The Association of Professional Engineers and Geoscientists of Alberta (APEGA)	

October 1, 2021
Taylor Sunderman, P.Eng.

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Corporate Permit

EXECUTIVE SUMMARY

The Village of Halkirk (Village) and County of Paintearth (County) are interested in implementing a work plan that will allow staff to be proactive in decision making, especially when dealing with repairing aging infrastructure. This plan provides a clear indication of what facilities are required, when, and at what cost.

The Village retained MPE Engineering Ltd. (MPE) to prepare an Infrastructure Assessment and 10-year Capital Plan which provides a cursory review of the state and capacity of the Village's municipal infrastructure including the water, sanitary sewer, as well as the road network, and considers expansion requirements to accommodate anticipated future growth. This plan also provides an upgrading/maintenance schedule which can be used for the Village's budgeting purposes.

Population Projection

The projected populations were estimated by adopting a long-term average growth rate of 1.0%, which is a conservative estimate of actual growth experienced by the Village. While these projected populations may not be met, they are adequate for planning purposes. The population projections adopted in this plan are:

<u>Year</u>	<u>Population</u>
2021	118
2026	124
2036	137
2046	151

This translates into a 30% population increase in approximately 25 years.

Findings of the Study

Much of the municipal infrastructure was built prior to 1980. In general, the findings of the infrastructure systems review are:

Water System

The water system has sufficient capacity for current everyday water use but falls short of meeting current standards. These standards include maintaining adequate pressures throughout the system, adequate fire flow availability, and hydrant coverage. Most of the system is 50 to 70 years old and reaching the end of its useful operating life and water main breaks have begun to occur, so a replacement plan is needed. The water reservoir was constructed in 2010 and is in overall good condition and is expected to meet current and future supply demands. However, there is a Pressure Reducing Valve (PRV) downstream of the reservoir that is restricting pressures in the system. Some water mains will need to be upgraded, and the PRV will need to be removed (or pressure reduction adjusted) to meet standards.

Sanitary System

The sanitary system has sufficient capacity for the current and future population. Much of the infrastructure is vitrified clay pipe (VCT) which has been in service for at least 40 years and was relined

in 2009. Components of the system appear to fall short of meeting current standards (e.g. minimum gradients and minimum cover) and sags are a common problem in most sections of sanitary main. The expansion of the lagoon will not be required; however, the existing configuration does not meet current standards and should repair or maintenance work be required, the configuration may have to be upgraded.

Stormwater Management

The storm drainage system was assessed by MPE in 2017. This report summarized that in many cases low areas of standing water are caused by road surfaces being well above the elevations of adjacent sidewalks.

Road Network

Approximately half of roads in the Village are in poor condition and require maintenance in the future. A maintenance/upgrading plan is provided.

A complete listing of the capital projects and recommended upgrades is included in this report. A 10-year Capital Plan is included in **Appendix Q** which can be used as a quick reference by the Village. The cost estimate integrates the prioritized requirements of each infrastructure type so financial resources can be used efficiently. This list is intended to be a ‘living’ document, which is to be updated as new information arises and budgets allow.

Based on the findings of this plan, the Village should also consider the following remedial actions.

Water Distribution

- Remove or reset the pressure reducing valve downstream of the reservoir.
- Replace some of the 150 mm diameter water mains with 200 mm diameter polyvinyl chloride (PVC) pipe to provide adequate fire protection coverage at a minimum 4,500 L/min (1,189 lpm) level throughout the Village.
- Close loops to provide improved water quality and supply during fire suppression.
- Add and replace hydrants in appropriate locations to meet or exceed existing fire suppression standards.
- When practical and budget allows, replace AC mains when sanitary lines are replaced.

Sanitary Collection

- Replace sanitary main sections or perform spot replacement in locations of sags where appropriate.
- Replace manholes that are in poor condition.

Sanitary Treatment

- Stabilize inside slopes of anaerobic cells.
 - Add recycled concrete as required and when available.
 - Ensure exposed rebar is removed prior to placement.

- Replace the collapsed inlet pipe into the north anaerobic cell and the inlet structure.
- Replace the transfer structure between the north anaerobic cell and the storage cell.
- Maintenance work may trigger the requirement to construct a facultative cell.

Storm Drainage

- Follow the Stormwater Management Plan prepared in 2017.

Road Network

- Maintain and upgrade the roadway network as presented in the 10-year Capital Plan.

It is worth noting that when considering projects to replace or upgrade one utility, it is prudent to consider the implications to the entire utility, as well as all other utilities, so resources can be used efficiently.

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1.0 INTRODUCTION

1.1 OVERVIEW

The Village of Halkirk (Village) requires an assessment of capital assets for purpose of planning infrastructure maintenance and capital upgrades. A Site Plan can be seen in **Drawing 1.1 in Appendix A**. The Village has authorized MPE Engineering Ltd. (MPE) to perform an inventory of their capital infrastructure and provide recommendations for upgrades to the infrastructure.

1.2 STUDY SCOPE

The focus of this study is to review the condition and capacity of all Village-owned capital assets including water, sanitary infrastructure, stormwater infrastructure, road systems, municipal buildings, parks, vehicles, and other infrastructure as identified herein.

The major tasks included in this project were as follows:

- Review all existing information pertaining to all Village assets.
- Overview meetings with Village staff.
- Inspect and identify the condition and capacity of the assets.
- Identify maintenance and upgrades required to protect user health and safety and to prolong the life of the asset.
- Develop a 10-year capital plan for the identified infrastructure upgrades.

1.3 OBJECTIVE

The objective of this project is to collect, summarize and present information on all Village assets and provide recommendations for upgrades based on condition, capacity, engineering standards and guidelines, and projected future growth to assist in determining the current viability of the Village.

2.0 EXISTING MUNICIPAL BUILDING AUDIT

2.1 OVERVIEW

MPE performed a site visit with Village staff on July 28, 2021, to assess the existing condition of 11 Village-owned buildings/sites which included:

1. Berry Street Campground
2. Church
3. Community Hall
4. Curling Rink
5. Fire Hall
6. Mini Arena
7. Post Office
8. Recreation Grounds
9. Senior Center
10. Village Office and Shop
11. Water Tower and Playground

The following sections summarize the condition of the site, architectural, structural, mechanical, and electrical components in the 11 buildings based on visual observation at the time of the walkthrough and information provided by the Village.

All accessible areas within the buildings were reviewed. Any deficiencies, repairs, and upgrades are noted within the assessment to ensure that the life expectancy of the building can be achieved or prolonged, as well as to maintain a safe environment for occupants and improve building efficiencies. Detailed assessments listing all building components are available in **Appendix B**. Deficiencies are rated using the condition rating table shown in **Table 2.1** which provides a recommended timeframe for the work to be completed.

Cost estimates of the deficiencies, repairs, and upgrades of the components are also provided in this report. Please note that the estimations are high-level estimates, valued in the current year, and do not include GST or account for extreme fluctuations in the construction market. Costs vary significantly depending on the size of the scope, availability of labour in the area, and inflation rate.

Table 2.1: Condition Rating Table

Condition Rating	Condition Description	Time Frame
1 – Emergency/ Critical	Component represents an unacceptable, unhealthy, or unsafe condition requiring immediate attention to ensure continued access, use, and safety to staff and public.	Work must be completed within 1-2 years.
2 – Poor/ Unsatisfactory	Component has general to extensive deficiencies that have an impact on operational functions and/or may lead to health or safety concerns. Condition has deteriorated to a point where repair or replacement is recommended; otherwise, high levels of ongoing maintenance and/or repairs will be required. Condition may lead to a Level 1 rating if not addressed.	Work must be completed within 3-5 years.
3 – Marginal	Component is marginally acceptable for intended use but has deteriorating conditions that will need to be addressed within the next 5-10 years. It may have minor deficiencies, which if corrected would result in improved conditions, comfort, and/or ease of operations. An average level of ongoing maintenance will be required.	Work should be completed within the next 5-10 years.
4 – Good	Present condition of component has minor or no deficiencies, is performing well, and will only require routine/average maintenance over the next 10-15 years.	Present condition should allow 10-15 years of continued service.
5 – Excellent	Component meets all current requirements and will require routine maintenance only over the next 15+ years.	Present condition should allow more than 15 years of continued service.
FI – Further Investigation Required	Component requires further analysis to determine condition and/or service life. Observation indicates that a problem is complex and may need interpretation or negotiation of code requirements. There is insufficient information for evaluator to make an assessment.	Further investigation should be completed within one year.

2.2 BERRY STREET CAMPGROUND

The Berry Street Campground is located on Berry Street. Constructed in 2006, the Berry Street Campground consists of eight camp sites completed with water, sewer, and power. The site is generally grassed area with gravel pads at each of the camp sites.

A total of \$9,500 of deficiencies was noted for the next ten years including the replacement of leaking hydrant piping for camping services and replacement of some broken plug receptacle covers.



Figure 2.1: Berry Street Campground

2.3 CHURCH

The Church is located along Alberta Avenue between George Street and Main Street. The Church is a single-story wood framed building constructed in 1918. The building area is approximately 107 m². The building was moved to the current site in 1994 when the new foundation was constructed. In 1994, the shingles were replaced with new cedar shingles and the building was refinished. The building's exterior was repainted in 2007. The building is currently not in use and power in the building is shut off.



Figure 2.2: Church Exterior

The following deficiencies were noted:

- No handheld fire extinguishers are located in the building.
- The Steeple is in poor condition and allows pigeons in the building.
- Wood fascia, siding, ceiling, and flooring requires repainting.
- Incandescent fixtures should be replaced with LED bulbs for energy efficiency.
- No exhaust for congregation space.
- Furnace is in poor condition.
- "Halkirk Community Church" sign is in fair condition and should be replaced.
- Cedar shingles are reaching the end of their theoretical life.
- Tree branches overhang the north building eavestrough and may block flow.



Figure 2.3: Church Interior

An estimated total cost of \$118,000 would be required to correct the above deficiencies over the next ten years.

2.4 COMMUNITY HALL

The Community Hall is located along Main Street between Alberta Avenue and Railway Avenue. The Community Hall is a single-story wood framed building constructed in 1950. The original building is approximately 232 m² in area. An addition of approximately 301 m² was completed in 1985 and consists of a dining area. The 1985 addition is also a wood framed construction complete with basement. The following building upgrades were completed:

- 1990: Finished the basement.
- 1995: Refinished the exterior stucco walls.
- 2002: New washrooms added.
- 2005: Installed new metal roof, installed rear patio and replaced two main furnaces.
- 2006: New flooring installed.
- 2010: Refinished the basement due to flooding.
- 2019: Refinished the interior and lighting upgrade.



Figure 2.4: Community Hall Interior

The following deficiencies were noted:

- No exhaust in basement washrooms.
- No fire suppression on kitchen range exhaust hood.
- Fire pulls, smoke and heat detectors, and bell annunciators located throughout the building are past their expected life and the main panel could not be located.
- Front entry cement pad heaved due to tree roots.
- Stucco exterior shows some cracks and damage throughout the building.
- T-8 fluorescent fixtures and incandescent fixtures should be replaced with LED bulbs for energy efficiency.
- Fixtures in abandoned washrooms should be decommissioned completely and removed.
- “Halkirk Community Hall” sign has some minor peeling of paint.
- The basement gets some dampness at spring melt and heavy rain. It is likely the water table around the building. Weeping tile and waterproofing membrane are recommended to be installed around the foundation.

An estimated total cost of \$257,500 would be required to correct the above deficiencies over the next ten years.

2.5 CURLING RINK

The Curling Rink is located at the corner of Alberta Avenue and George Street. The Curling Rink consists of a lobby/lounge area at the south, the curling rink, and the mechanical room in the north end of the building. The Curling Rink, constructed in 1956, consists of an Arch-rib structure building and artificial ice. The lobby/lounge (two-storey with basement) was added in 1985 and consists of a wood framed structure on top of a concrete foundation. The building has an approximate area of 674 m².



Figure 2.5: Curling Rink Exterior

The Curling Rink is generally in poor condition. A total cost of \$282,600 of deficiencies were noted to be completed in the next ten years. A summary of the deficiencies is as follows:

- Ice plant room currently does not meet CSA B52 requirements for maintaining a vestibule between the ice plant and curling arena.
- No fire suppression on kitchen range exhaust hood.
- Excess moisture and mold growth in the basement and mechanical room.
- Door to the basement is warped.
- Basement foundation walls are in critical condition and there is evidence that lateral pressure exerted by soil outside the foundation has at some point exceeded what the foundation can support. Additional investigation is required to determine suitable remediation.
- The north end of the roof appears to have sunk in relation to the building. However, there is no sign of roof structure drop inside the curling rink and the roof structure is not visible for detailed review. The inside ceiling finish must be removed at the north end to allow for a more detailed condition assessment of the roof structure.
- Existing sand surface is in poor condition.
- Lack of reinforcement in the foundation has created uncontrolled cracks in the curling rink foundation.
- Distribution panel in the basement has no cover and should be replaced or relocated because of humid conditions.
- Furnace is in poor condition.
- Concrete sidewalk is cracked and has grass growing through.
- Incandescent and fluorescent fixtures should be replaced with LED for energy efficiency.
- There is no clear control system and all equipment is manually operated.
- Freon distribution pumps and condenser water pumps are past their expected life cycle.
- Ice plant system consisting of a compressor, chiller, and condenser is past its expected life cycle.
- Exterior exhaust hoods are damaged.



Figure 2.6: Curling Rink Basement Wall

- Ceiling hung and fan-coiled heaters are past their expected life.
- Some piping in lobby is exposed and could be damaged more easily.
- No hazardous materials audit available.
- Minor damage noted in front of bleachers.
- Wall, floors in lobby, doors, and door frames should be repainted.
- The rear exit door has no seal and requires a door sweep and threshold.
- Section of metal fascia is missing at the front of the building.
- Concrete slab in mechanical room is in poor condition.
- “Halkirk Curling Club” sign is in fair condition.

2.6 FIRE HALL

The Fire Hall is located at the corner of Berry Street and Railway Avenue. The Fire Hall consists of the original building constructed in 1991 (151 m²) and an addition was completed in 2019 (168 m²). The building is a single-story wood framed building consisting of a total of five parking bays, office, and storage space. New interior metal cladding, windows and lights were installed in the original building in 2019. Emergency wiring and a new concrete driveway were installed in 2020.



Figure 2.7: Fire Hall Exterior

A total cost of \$23,500 of deficiencies were noted to be completed in the next ten years. A summary of the deficiencies are as follows:

- No exhaust in parking bays which is required by ASHRAE 62.1 for mechanical shops or parking garages.
- Damaged wired glass noted on the metal doors between garage bays and storage room.
- Loose metal fascia noted on the east side of the building.
- Furnace is near its expected life.
- Gaps noted between door seals and the bottom of the original building and the existing floor as well as the weatherstripping around the doors.
- “Halkirk Fire Dept.” sign is peeling.

2.7 MINI ARENA

The Mini Arena is located on Alberta Avenue between Howard Street and Range Road 160. The Mini Arena is a wood framed structure constructed in 1976 and consists of approximately 390 m² building area. A building was constructed in 1950 and moved to site in 1976 as an addition to the original building.

A total cost of \$8,000 of deficiencies were noted to be completed in the next ten years. A summary of the deficiencies are as follows:

- Sagged bottom chords were observed in the trusses in the front of the arena.
- The unit heater is in poor condition.
- Overhead door needs repair.
- Wood sheathing is loose.
- Wood walls and floors should be repainted/painted.



Figure 2.8: Mini Arena Exterior



Figure 2.9: Mini Arena Interior

2.8 CANADA POST OFFICE

The Post Office is located on the Main Street between Alberta Avenue and Railway Avenue. The Post Office building was constructed in 2007 and consists of wood frame construction on a concrete pad with in-floor heating. The Post Office has approximately 97 m² of building area.

A total cost of \$11,500 of deficiencies were noted to be completed in the next ten years. A summary of the deficiencies are as follows:

- Some of the vinyl siding is damaged.
- T-8 fluorescent and incandescent fixtures should be replaced with LED bulbs for energy efficiency.
- Painted surfaces and floor should be repainted.



Figure 2.10: Canada Post Office Exterior

2.9 RECREATION GROUNDS

The Recreation Grounds are located on Pioneer Avenue. The Recreation Grounds consist of bleachers, a pole shed, and a new washroom/concession building. The pole shed was constructed in 2006 and is a wood framed building completed with metal cladding and roof. The building is uninsulated, and unheated and consists of 387 m² of building area. The washroom/concession building is still in construction and is not included as part of this report.



Figure 2.11: Pole Shed Interior

A total cost of \$11,500 of deficiencies were noted to be completed in the next ten years. A summary of the deficiencies are as follows:

- Damage to bleachers was noted at several locations.
- Further investigation required to determine the reason of the Pole Shed sags at the East end of the building.
- Peeling of paint on the bleachers.
- The pole shed has incandescent fixtures that should be replaced with LED bulbs for energy efficiency.

2.10 SENIORS CENTRE

The Senior Centre is located at the corner of Main Street and Railway Avenue. The Senior Centre was originally a Royal Bank Building constructed in 1921. The Village purchased the building in 1976 and converted the building into a Senior Centre in 1980. The original building is a brick and wood frame construction building consisting of two-storeys and a basement. An addition, consisting of a single storey, was constructed in 1984 and added another 108 m² of building area to the existing 88 m² area. It is understood that the upper floor in the original building has not been in use since the building was purchased from the Royal Bank. The upper floor still has the original building finishes.



Figure 2.12: Senior Centre Exterior

A total cost of \$288,500 of deficiencies were noted to be completed in the next ten years. A summary of the deficiencies is as follows:

- No exhaust in the basement.
- There is no barrier-free access to the washroom, or the second floor, and the ramp to the building is not at a standard grade.
- Water fixtures on the second-floor suite are in poor condition.
- Majority of the doors on the second floor are missing.

- Water pools on the top of the basement slab, the basement is consistently wet and there are cracks in the concrete foundation.
- Paint is peeling on the ceiling on the second floor.
- Original building wall finishes are in poor condition.
- Vinyl flooring on second floor is in poor condition.
- Wood flooring should be refinished.
- Fence should be replaced.
- T-8 fluorescent and incandescent fixtures should be replaced with LED bulbs for energy efficiency.
- Power distribution panels are past their expected life spans.
- Cables, wiring, and switches have no visible issues but should be replaced to comply with current standards.
- Main panel is past its expected life span.
- Furnace may have been subject to high humidity and has sustained some corrosion.
- No availability of hazardous material available.
- Windows on the main floor of the building are at the end of their expected life span.
- Cracks noted in the side of the building.
- Wood columns supporting the main floor have visible signs of rot at the bottom.
- Built-up roof on top of the original building should be replaced.
- “Halkirk Senior Centre” sign is in fair condition.
- Surface of the concrete floor in the basement is crumbling due to age and moisture.

2.11 VILLAGE OFFICE AND PUBLIC WORKS SHOP

The Village Office and Public Works Shop is located on Main Street between Railway Avenue and Alberta Avenue. The Village Office and Shop is a single-story wood framed building constructed in 1980. The building is approximately 151 m² in area. Since construction, the furnace, water heater and the office front step have been replaced. The building houses the Village Offices as well as a Public Work Shop’s storage garage.



Figure 2.13: Village Office and Public Works Shop Exterior

A total cost of \$182,000 of deficiencies were noted to be completed in the next ten years. A summary of the deficiencies are as follows:

- No exhaust in shop which is required by ASHRAE 62.1 for mechanical shops or parking garages.
- Not barrier-free accessible.
- Unit heater is past its expected life span.
- Floor heaves and door sticks in winter (likely due to high water level in the area).
- Original wall finishes are at the expected end of life span.
- Original carpet and vinyl finish are in poor condition.
- Siding on building is near its expected end of life.
- Fence is near its expected end of life.

- T-8 fluorescent and incandescent fixtures should be replaced with LED bulbs for energy efficiency.
- Office area requires more outlets than are currently available.
- No availability of hazardous material available.
- Windows are at the end of their expected life span.

2.12 WATER TOWER AND PLAYGROUND

The Water Tower and Playground is located at the corner of Main Street and Alberta Avenue. The Water Tower was constructed in 1977 and Playground was constructed in 1985. The Water Tower is currently not in use and has been kept as a landmark only. Over the years, upgrades have been made to the play structures in the Playground and a new gazebo, tables, and benches have been installed.

A total cost of \$38,000 of deficiencies were noted to be completed in the next ten years. A summary of the deficiencies are as follows:

- The plywood on the Water Tower is recommended to be replaced.
- Fence is nearing the end of its expected life.
- Replace existing door.



Figure 2.14: Water Tower and Playground

3.0 ASSESSMENT OF MUNICIPAL UTILITIES

3.1 GENERAL INFORMATION

MPE has assessed the general condition of infrastructure within the Village in preparation for the development of a 10-year capital projection and budget for the maintenance and rehabilitation of the system.

Population data was gathered from municipal and federal census between 1966 and 2016. This data was used to extrapolate the current population as well as to project future growth. For the purpose of this study, a conservative 1% growth rate is used, which results in a calculated current (2021) population of 118 people and a 25-year (2046) projected population of 151. **Table 3.1** and **Figure 3.1** present the historical and projected population using a 1% growth rate.

Table 3.1: Halkirk Populations

	Year	Population	Annual Growth Rate
ACTUAL	1966	190	
	1971	177	-1.41%
	1976	147	-3.65%
	1981	152	0.67%
	1986	160	1.03%
	1991	150	-1.28%
	1996	131	-2.67%
	2001	117	-2.24%
	2006	113	-0.69%
	2011	121	1.38%
	2016	112	-1.53%
Average Actual Growth Rate:		1966-2016	-1.05%
Adopted Growth Rate for Projections:			1.00%
PROJECTED	2021	118	1.05%
	2026	124	1.02%
	2031	131	1.05%
	2036	137	1.01%
	2041	144	1.01%
	2046	151	1.00%

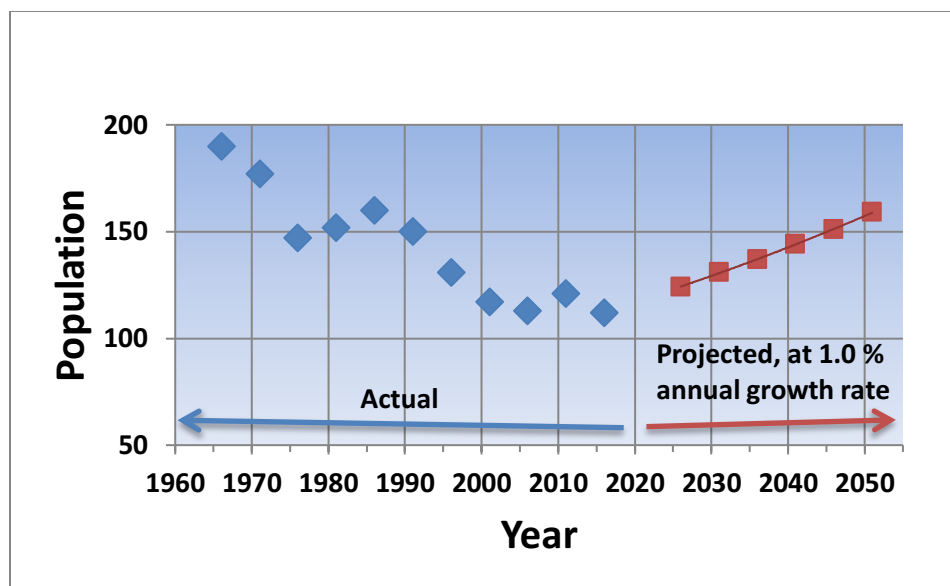


Figure 3.1: Halkirk Populations

3.2 POTABLE WATER INFRASTRUCTURE

3.2.1 HISTORICAL WATER CONSUMPTION

Annual reports for the last six and a half years were reviewed to determine historical water demands in the Village. **Table 3.2** provides a summary of the water consumption records; it should be noted that this water consumption includes water usage from the truck fill station and thus is a conservative estimate of actual water used within the Village. The water consumption results are summarized below:

- **Average Day Demand (ADD):** 451 litres per capita per day (Lpcd)
- **Maximum Day Demand (MDD):** 1,315 Lpcd
- **MDD to ADD Ratio:** 2.92
- **Peak Hourly Demand (PHD):** 2,630 Lpcd (or two times Maximum Day Demand)

The average day demand is larger than industry average and indicates higher water consumption (due to the truck fill station); however, the ratio for Max Day/Average Day is similar to the industry average. County of Paintearth Policy ESU 001 included in *Policies - Environmental Services – Utilities* (County of Paintearth, 2017) states that any developments or improvements to Potable Water systems should follow the Lacombe County *Standards Manual* (Lacombe County, 2017) for minimum requirements. Lacombe County states that an average day demand of 375 Lpcd should be used to design water systems. The recorded average day demand is larger than the Lacombe County standards.

In the document *Standards and Guidelines for Municipal Waterworks, Wastewater and Storm Drainage Systems* (AEP, 2021), Alberta Environment and Parks (AEP) recommends that MDD is assumed to be equal to 1.8 to 2.0 times the ADD. This was more conservative than the standard provided by Lacombe County but is less conservative than the ratio observed from the data. Therefore, the above historical water use quantities have been adopted as the basis of the assessment.

Table 3.2: Historical Water Demands

Month	2015 (m ³)	2016 (m ³)	2017 (m ³)	2018 (m ³)	2019 (m ³)	2020 (m ³)	2021 (m ³)	Average (m ³)
January	906	1,497	1,179	1,476	1,149	1,488	1,474	1,310
February	1,639	1,228	1,298	1,373	1,319	1,213	1,330	1,343
March	1,849	1,517	1,614	1,568	1,441	1,211	1,515	1,531
April	1,519	1,836	1,769	1,495	1,468	1,216	1,639	1,563
May	2,006	2,045	1,954	1,982	1,732	1,873	2,114	1,958
June	2,292	1,996	1,817	2,037	2,012	1,803	2,504	2,066
July	2,330	1,612	2,563	2,082	1,843	1,497	1,980	1,987
August	1,785	2,132	2,139	2,271	1,857	1,560		1,957
September	2,178	1,891	1,662	1,578	1,605	1,786		1,783
October	1,802	1,759	1,315	1,546	1,329	1,883		1,606
November	1,895	2,032	1,207	1,396	1,420	1,821		1,629
December	1,008	1,591	1,715	1,025	1,303	1,550		1,365
Total Year Usage	21,209	21,136	20,232	19,829	18,478	18,901	12,556	20,098
Population	114	112	114	115	116	117	118	
Avg Day (m ³)	58	58	55	54	51	52	34	52
Avg Day (Lpcd)	510	517	486	472	436	443	292	451
Max Day (m ³)	133	113	168	108	148	89	131	168
Max Day (Lpcd)	857	991	679	1,065	784	1,315	901	1,315
Avg to Max Ratio	1.68	1.92	1.40	2.25	1.80	2.97	3.09	2.92

3.2.2 FORECAST WATER CONSUMPTION

Using the historical demands and the projected population for the Village, future (2046) water demands were calculated. Per capita consumption for future demands was assumed to remain at 451 Lpcd. For the Village as a whole, total ADD in 2046 will rise to 68 m³/day, MDD will be 199 m³/day, and PHD will be 398 m³/day. **Table 3.3** summarizes the current and projected water demands for the Village.

Table 3.3: Projected Water Demands

Historical Water Demand					Projected Water Demand			
Population (Current)	Per Capita (Lpcd)	Average Day (m ³ /day)	Max Day (Lpcd)	Max Day (m ³ /day)	Population (2046)	Per Capita (Lpcd)	Average Day (m ³ /day)	Max Day (m ³ /day)
118	451	52	1,315	168	151	451	68	199

3.2.3 FIRE DEMAND

The two main determinants of fire protection available to a community are the effectiveness of the fire fighting force and the adequacy of the water supply system. Only the adequacy of the water supply system is addressed in this report.

Based on the latest Fire Underwriters Survey (FUS) criteria, a water system is considered fully adequate if

it can deliver the necessary fire flow at any point in the distribution system for the applicable time frame. It is further specified that the distribution system must be capable of delivering the necessary fire flow when water consumption is at the maximum daily rate of a normal year (i.e. Maximum Daily Flow plus Fire Flow).

Based on the FUS criteria, residential fire flow should be 4,000 L/min for a duration of 1.5 hours. Lacombe County criteria specifies that municipal system requires 4,500 L/min for a duration of 2 hours. The Lacombe criteria is the more conservative value so it was used for the assessment.

3.2.4 WATER SUPPLY AND PUMPING ASSESSMENT

3.2.4.1 OVERVIEW

Halkirk is a member of the Shirley McClellan Regional Water Services Commission (SMRWSC) and receives water from the Phase One pipeline to a reservoir and pump station at Halkirk that services the Village. The water reservoir was constructed in 2010 and commissioned in 2011 and is jointly owned by the Village (1/3) and the County (2/3), who operates the reservoir, truck fill station, and the Village's distribution system.

3.2.4.2 MECHANICAL

Distribution Pumps

The reservoir has six Peerless End Suction pumps. Two of the six pumps are smaller and alternate to maintain pressure in the system. The four larger pumps only run when there is a higher flow demand. The pumps are relatively new and in good condition. The only maintenance performed has been on the two smaller pumps, one of which was rebuilt four years ago, the other was replaced two years ago. The original motors are still in use.

According to County personnel, the pressure inside the reservoir is approximately 448 kpa (65 psi) and the main outside the reservoir has a pressure reducing valve (PRV) before supplying the Village with water. It was indicated that another engineering firm recommended that the PRV be installed at the time of construction to restrict the pressure in the main to 289 kpa (42 psi) to prevent excess pressure from over taxing the water system and causing main breaks. **Table 3.4** describes the existing pump specifications.

Table 3.4: Existing Pump Specifications

	Pumps 1-2	Pumps 3-6
Flow	227 l/min (60 US gpm)	1,699 l/min (449 US gpm)
Pressure	439 kpa (63 psi)	439 kpa (63 psi)

The existing distribution pumps have sufficient capacity for the current and 25-year design horizon and fire flow. However, the PRV immediately downstream of the reservoir will restrict the flow and pressure throughout the Village.

Mechanical Piping

The water main pipe to the Village exits the building through the north wall.

3.2.4.3 SUMMARY

The overall condition of the water supply and pumping is good. The only current limitation is the PRV before discharging into the Village.

3.2.5 TREATED WATER STORAGE

The reservoir is split into two tanks each having a capacity of 400 m³ (or a total of 800 m³). According to County staff, the second tank has never been used. According to AEP's Standards and Guidelines, treated water storage required for any community where a water system can only provide the maximum daily design flow is determined by the following empirical relationship:

- (A) Fire Protection: As deemed necessary by the municipality (see below).
- (B) Equalization Storage: 25% of Projected MDD (50 m³).
- (C) Emergency Storage: 15% of Projected ADD (11 m³).
- (D) Ct Disinfection: As determined by historical data (not applicable)

Total Treated Water Storage Required = (A) + (B) + [the greater of (C) or (D)]. For Halkirk, this equates to 61 m³ plus fire storage.

The level of fire protection is the responsibility of the municipality and is addressed in Section 3.2.3 of this report (4,500 L/min for 2 hours), which equates to 540 m³. Therefore, the required treated storage should be 601 m³ (540 + 61), based on the preferred level of fire protection for a residential community, which is less than what is currently available (800 m³). Note that in the event of a fire, the second tank will be required for additional water supply. The current capacity of the larger pumps is 1,699 L/min each for four pumps. Three of the pumps would be sufficient to provide the required fire flow. However, the PRV downstream of the reservoir is limiting pressure and flow into the system and therefore may prevent adequate fire flow at hydrants.

3.2.6 WATER DISTRIBUTION SYSTEM

The water distribution system is comprised of approximately 560 m of 150 mm PVC pipe, 1400 m of 150 mm Asbestos Cement (AC), and 400 m of 50 mm plastic pipe as shown in **Drawing 3.1 of Appendix A**. Village documentation indicates that installation of original water main and services commenced in 1963 and continued to 1981.

As part of this report, MPE reviewed the general condition and ability of the water distribution system to meet the pressure and flow requirements of the Village of Halkirk. A review of historical records and modelling of the existing system was completed. A site survey and hydrant testing were performed in May 2021 and July 2021, respectively.

3.2.6.1 GENERAL CONDITION

Approximately 70% of the water system is AC pipe which has an estimated lifespan of 50 to 70 years. Therefore, the majority of the system has reached the end of its useful life. There was a single known water main break that occurred at Alberta Avenue and George Street in the winter of 2020/ 2021. As the system has reached the end of its useful life, breaks are expected to become more frequent.

3.2.6.2 WATER MODELLING

The hydraulic analysis of the water distribution system was completed using Bentley WaterCAD, Version 10.03.03.72 computer modelling software. Data relevant to the water distribution system was assembled from available records. Data included pipe materials, diameters, pipe length and locations, interconnections, hydrants, water consumption records, etc.

2021 Fire Flow Test

There are nine hydrants throughout the Village, two of which do not work and are not in service. Flow testing on the seven remaining hydrants was performed by SFE Global on July 20, 2021. The results are presented in the SFE Global report in **Appendix C**. In summary, the testing results suggested the following:

- No defects were noted regarding the operating condition of the tested hydrants.
- The hydrant flows and pressures were lower than the required minimums from Lacombe County and Alberta Environment.

Model Assumptions

For the purposes of this assessment, the following assumptions were considered reasonable and adopted.

Water Mains

- No physical or video inspections of water mains were performed and there is only one known occurrence of a breakage. However, the condition of the mains is assumed to be satisfactory for the purposes of modelling.

Hydrants

- All hydrants are assumed to be in acceptable working condition (except the two not currently in service).

Water Demand Rates

- Fire Flow Standards
 - As discussed in Section 3.2.3, a fire flow of 4,500 L/min was adopted for the study and modelling.
- Alberta Environment and Lacombe County guidelines and standards were used:
 - For ADD and MDD, pressure should be maintained between 350 kPa (51 psi) and 550 kPa (80 psi) at all points in the system.
 - For PHD, pressure should be no less than 300 kPa (44 psi).

- For fire flow analysis, impose a fire flow when the system is experiencing MDD and the resulting residual pressure anywhere in the system should be no less than 150 kPa (22 psi).

Water Demand Allocations

- For the current and future model, existing demand was divided equally amongst the number of services to develop a per service demand and then was applied to the appropriate junctions in the model.
- For the future build-out model, the demands applied to the current model junctions were left unchanged and the additional demand expected from projected population was applied to potential areas of development in the system.

Model Calibration

The WaterCAD model was calibrated to ensure that the model output mirrored actual flow behavior in the distribution system. Model calibration was performed by adjusting values of model parameters (coefficients and pipe diameters) within acceptable ranges, so that model output matched the fire flow testing results obtained by SFE Global. If the value of any of the model parameters were required to be outside the accepted range, this would indicate a potential problem in the system.

The calibration resulted in the following model adjustments:

- Based on the Hydrant testing that was performed, it was concluded that the pressure from the reservoir is closer to 241 kpa (35 psi) which was used in the model instead of the 289 kpa (42 psi) as suggested by the County.
- Friction coefficient (Hazen-Williams method) of the plastic pipe was set to 125. The industry standard value for new, straight PVC pipe is 150. The value of 125 is reasonable to reflect additional friction loss from valves, fittings, and scaling deposits. In the Hazen-Williams formula, flow capacity is directly proportional to the friction coefficient.
- Friction coefficient (Hazen-Williams method) of the asbestos-cement pipe was set to 90. The industry standard value for AC pipe is 130. The value of 90 is reasonable to reflect additional friction loss from valves, fittings, and scaling deposits.
- The diameter of the water main from the reservoir to George Street was reduced to 125 mm.
- The diameter from the corner of Railway Avenue and George Street to Main Street, and the small section connecting the main on Railway Avenue and George Street was reduced to 140 mm.
- The diameter of the mains on Berry Street and Howard Street south of Alberta Avenue were reduced to 125 mm.
- The diameter of the main on Alberta Avenue east of Howard Street was reduced to 120 mm.
- The variations in pipe diameter may not reflect a diameter change, but a restriction from a valve, fitting, etc.

Model Scenarios

ADD, MDD, PHD, and MDD plus fire flow were modelled for each of the following scenarios:

- Current (2021) Conditions:
 - Current population and demands.
 - Current system layout.
- Future (2046) Conditions:
 - Future population and demands.
 - Current system layout (assumes some population growth but no development in Halkirk).
- Future (2046) Full Build-out Conditions:
 - Future population and demands.
 - Current system layout with additional water mains to service the areas identified in the Village of Halkirk Municipal Development Plan.

3.2.6.3 WATER MODELLING RESULTS

Details of the model results are described below. It should be noted that:

- For ADD, MDD, and PHD under current and future scenarios, **supply pressure was inadequate throughout the Village.**
- For MDD plus fire flows under current and future scenarios, all hydrants have available fire flows of less than 1000 L/min.

The level of concern regarding hydrant flows are as follows:

- Hydrants with available fire flow above 4,500 L/min are not a concern.
- Hydrants with available fire flows between 3,600 L/min and 4,500 L/min are below current industry practice but are deemed to provide sufficient flow until upgrades can be completed.
- Hydrants with available fire flows between 3,000 L/min and 3,600 L/min are considered a concern and should be scheduled for upgrades as soon as budgets allow.
- Hydrants with available fire flow below 3000 L/min are an immediate priority and a safety concern.
- According to this priority list all the hydrants in Halkirk are an immediate priority and safety concern.

The low pressures throughout the system are due to the PRV downstream of the reservoir, smaller diameter water mains and/ or inadequate looping. Even though population projections and estimated water consumption are considered conservative and may not be realistic for the community, fire flow is the more critical issue in the system.

Current (2021) and Future (2046) Conditions Models

To eliminate insufficient pressures and fire flows in the system, improvements were made to the Current (2021) and Future (2046) Conditions models. Two improvement options were modelled:

Improvement Option 1: Involves installing larger main around the perimeter of the Village and included the following model changes:

- The system was modelled as if the PRV were removed and the available pressure of 448 kpa (65 psi) in the reservoir was utilized to supply the system.
- Replaced the 150 mm main from the reservoir to Main Street with a 200 mm main.
- Brought Hydrants 2 and 7 back into service.
- Installed two additional hydrants for improved coverage (along Alberta Avenue between Main Street and Berry Street and between Howard Street and Range Road 160).
- Added 200 mm main on Railway Ave from Main Street to Howard Street to complete looping.
- Added 200 mm main on Railway Avenue from Howard Street to Range Road 160, and on Range Road 160 from Railway Avenue to Alberta Avenue to complete looping. This has the added benefit of servicing potential future development.
- Added 200 mm main on Mercer Street from Railway Avenue to Alberta Avenue and replaced the 50 mm main on Alberta Avenue from Mercer Street to George Street with 200 mm main. This has the added benefit of servicing potential future development.
- Results:
 - This alternative improved the system and met most pressure and fire flow requirements. The only exception was the proposed new hydrant along Alberta Avenue between Howard Street and Range Road 160 which still did not have sufficient fire flow.

Improvement Option 2: Involves replacing some of the existing aging infrastructure with larger diameter pipe and includes the following model changes:

- The system was modelled as if the PRV were removed and the available pressure of 448 kpa (65 psi) in the reservoir was being utilized to supply the system.
- Replaced the 150 mm main from the reservoir to Main Street with a 200 mm main.
- Brought Hydrants 2 and 7 back into service.
- Installed two additional hydrants for improved coverage (along Alberta Avenue between Main Street and Berry Street and between Howard Street and Range Road 160).
- Replaced the 150 mm main on Main Street between Alberta Avenue and Railway Avenue with 200 mm main.
- Replaced the 150 mm main on Alberta Avenue between Main Street and Range Road 160 with a 200 mm main.
- Replaced the 150 mm main on Berry Street between Alberta Avenue and Railway Avenue with 200 mm main.
- Replaced the 150 mm main on Howard Street between Alberta Avenue and Railway Avenue with 200 mm main.
- Results:
 - This alternative improved the system enough to meet all standards.

Improvement Option 2 offers the following benefits in comparison to Option 1:

- All pressure and Fire Flow standards were met.
- As the AC water main is at the end of its expected life, replacing these mains with larger diameter PVC pipe could prevent emergency repairs on water mains later as they break. If water mains were installed around the perimeter of the community, there is still potential that existing mains will break and require replacement, resulting in greater overall costs.
- The cost of upsizing PVC pipe from 150 mm to 200 mm diameter pipe is negligible.
- Many of the water mains are located within the same roadways as the sanitary main. If water mains and sanitary mains in the same roadway require replacement, there are cost saving benefits to performing upgrades to both systems at once.

Therefore, Improvement Option 2 is the recommended strategy for upgrades and the cost estimates presented in this report for water main upgrades are in alignment with this repair option.

Future (2046) Full Built-out Conditions Model

In addition to the Current (2021) and Future (2046) models, a full build-out system was modelled. The expansion areas are shown in **Drawing 1.1 in Appendix A**, the following changes were made to the original models to account for servicing these areas:

- Added 200 mm main on Railway Avenue from Howard Street to Range Road 160, and on Range Road 160 from Railway Avenue to Alberta Avenue.
- Added 200 mm main on Mercer Street from Railway Avenue to Alberta Avenue.
- Added 200 mm main on Range Road 160 from Alberta Avenue to Pioneer Avenue, and along the Pioneer Avenue alignment from Berry Street to Range Road 160.
- Expansions to the system included hydrants where required.

These expansions to the system were not enough to meet pressure and fire flow demands. One of the improvement options discussed above needs to be implemented in order for the future build-out scenario to provide adequate service.

The available fire flow values calculated in the model are theoretical capabilities. The Water Model results are provided in **Appendix D**.

3.2.6.4 FIRE HYDRANTS

The FUS suggests hydrant spacing of 180 m for single-family residential areas and 90 m for commercial, industrial institutional, and multifamily residential areas. The maximum distance from any point on the street or road frontage to a hydrant is 85 m for the required fire flow. County of Lacombe states that the distance from a residence to the nearest hydrant shall not be greater than 100 m. For this study, a radius of 90 m from each hydrant to a neighboring building was used to assess the adequacy of hydrant spacing. Based on this criterion, a number of areas throughout the Village do not have adequate coverage. It is proposed that Hydrants 2 and 7 be replaced and that two additional hydrants be installed throughout the Village to correct these coverage holes as shown on **Drawing 3.2 in Appendix A**.

3.2.6.5 WATER DISTRIBUTION SYSTEM LOOPING

As stated in Section 3.2.6.3, some of the improvements made to the models included adding looping at a number of locations which were required to improve pressure and fire flows. Providing adequate looping in a water distribution system allows the system to adapt to changing flow conditions such as those present during fires, water main breaks or regular flushing operations. AEP indicates that dead-end sections in water distribution systems should be eliminated whenever possible.

Completing loops in the system also has the added advantage of improving water quality and service reliability. Improved reliability will be the result of water having alternative routes to reach a service location if a particular pipe is out of service. With respect to water quality, water at the end of a dead-end line tends to stagnate which causes chlorine residuals to decay, which in turn allows bacteria to grow. An indication of deteriorating water quality is when hydrant flow tests are conducted and black water flows from the hydrant for a significant time before clearing.

There are a few dead-ends in the Village's current water system. The locations where looping is recommended is listed below:

- Along Railway Avenue between Berry Street and Howard Street.
- Along Railway Avenue from Howard Street to Range Road 160, and on Range Road 160 from Railway to Alberta Ave (If the Village does not expand this installation is still recommended in order to loop the line at the east end of Alberta Ave).

3.2.7 CONCLUSIONS AND RECOMMENDATIONS

The following briefly summarizes the conclusions and recommendations for the Village water system:

- The reservoir is adequate for supplying water to the Village but the PRV valve downstream of the reservoir will need to be removed.
- The main from the reservoir will need to be replaced with a larger diameter pipe (or an additional water source is required).
- Replace AC mains with PVC pipe as infrastructure upgrades to streets are completed. Replacement pipe diameter will be based on modelling performed.
- Additional hydrants are required to achieve adequate coverage and fire protection.
- Looping is required to improve system pressures and fire flow.
- The proposed upgrades are shown in **Drawing 3.3 in Appendix A**.

Order-of-magnitude cost estimates have been completed for the proposed upgrades and expansions to the water system. The cost to replace and install new hydrants was included with the upgrades for each section of water main. The expansion cost estimates are approximated for the alignments shown on the drawings. Actual cost will depend on the specific development plan and chosen water main alignments for the area. **Table 3.5** summarizes the proposed improvements and costs including contingencies and engineering. The cost to replace AC mains with PVC has been included in **Table 3.5** for sections that require upgrades to other infrastructure. Further detail is provided in **Appendix Q**. Water improvement projects may be combined with one another or other infrastructure and roadway projects to save costs. For example, completing water main, sanitary, and roadway improvements at the same time will result in the

greatest cost effectiveness and will ensure that work done on a previous project won't be undone in a future project.

Table 3.5: Proposed Project Costs

Project	Order-of-Magnitude Cost Estimate
Improvements	
Reset the PRV downstream of the reservoir to eliminate pressure reduction.	\$3,000
Replace the 150 mm main from the reservoir to Main Street with a 200 mm main.	\$268,000
Replace the 150 mm main on Main Street between Alberta Avenue and Railway Avenue with 200 mm main.	\$161,000
Replace the 150 mm main on Alberta Avenue between Main Street and Range Road 160 with a 200 mm main.	\$441,000
Replace the 150 mm main on Berry Street between Alberta Avenue and Railway Avenue with 200 mm main.	\$183,000
Replace the 150 mm main on Howard Street between Alberta Avenue and Railway Avenue with 200 mm main.	\$156,000
Replace the 50 mm main on Alberta Avenue between Mercer Street and George Street with 150 mm main.	\$75,000
Install 200 mm water main on Railway Avenue between Berry Street and Howard Street.	\$114,000
Replace the 150 mm main on Berry Street between Pioneer Avenue and Alberta Avenue	\$147,000
Replace the 150 mm main on George Street between Pioneer Avenue to Alberta Avenue	\$138,000
Replace the 150 mm main on Main Street between Pioneer Avenue and Alberta Avenue	\$159,000
Expansions	
Install 200 mm main on Railway Avenue from Howard Street to Range Road 160, and on Range Road 160 from Railway Avenue to Alberta Avenue to complete looping.	\$291,000
Install 200 mm main on Mercer Street from Railway Avenue to Alberta Avenue.	\$126,000
Install 200 mm main on Range Road 160 from Alberta Avenue to Pioneer Avenue, and along the Pioneer Avenue alignment from Berry Street to Range Road 160.	\$334,000
Total	\$2,596,000

3.3 SANITARY INFRASTRUCTURE

3.3.1 OVERVIEW

The sanitary collection system in the Village consists of a typical network of gravity flow pipes that flow to the wastewater stabilization ponds located east of the Village. MPE reviewed the ability of the sanitary collection system and treatment system (lagoon) to meet the loading generated by the Village. A condition assessment was also completed which included flushing and CCTV inspection of approximately 80% of the collection system, and visual inspection of the manholes. A field level survey of the manhole rims and measurements to inverts was also completed.

3.3.2 CURRENT AND PROJECTED WASTEWATER FLOWS

The historical water demands were used to estimate a sewage generation rate. The average daily sewage flow rate adopted is 451 Lpcd which is equivalent to the ADD for water. This is considered a conservative estimate of sewage generation given that the water consumption data includes the water truck fill volumes. Maximum flows are calculated based on the peaking factor derived from the Harmon equation.

As sewage flow rates have not been measured, the levels of inflow and infiltration (I/I) cannot be quantified. Therefore, for the purposes of this report the levels of I/I have been adopted from the Lacombe County *Operations Standards Manual*. Lacombe County uses 0.28 L/s/ha to estimate the amount of I/I. It should be noted that this is likely a very conservative estimate as most of the sanitary mains in the Village have been relined which should prevent most I/I.

Table 3.6 summarizes the current and projected sanitary flows.

Table 3.6: Current and Projected Wastewater Flows

Year	Population	Dry Weather – Residential			Peak Flow (m ³ /day)	Inflow/Infiltration			Total Peak Wet Weather Flow (m ³ /day)
		Per Capita Flow (Lpcd)	Average Day (m ³ /day)	Harmon Peaking Factor		Developed Area (ha)	Inflow Allowance (L/sec/ha)	Inflow Allowance (m ³ /day)	
Current (2021)	118	451	53	4.22	225	13.5	0.28	327	551
Projected (2046)	151	451	68	4.19	285	32	0.28	774	1,059

A sanitary system model was completed using Bentley SewerGEMS, 10.03.02.04 software. Data relevant to the sanitary collection system was assembled from available records. Data included pipe materials, diameters, pipe length and locations, manhole locations, and the current and projected wastewater flows from the table above. The model assumes that pipes and manholes are in satisfactory condition and is meant to assess the capacity of the mains only. Based on the model results, the current sanitary main diameters are able to meet current and future projected demands.

3.3.3 COLLECTION SYSTEM

3.3.3.1 SANITARY MAINS

The sanitary collection system is comprised of approximately 2.4 km of 150 mm and 200 mm pipe, as shown on **Drawing 3.4 in Appendix A**. The system located within the Village is Vitrified Clay Tile (VCT) and the main running from the Village to the lagoon is the only portion of the system that is PVC pipe. Based on documentation from the Village, the original sanitary services, mains, and manhole installations commenced in 1962 and continued until 1981. Most of the VCT pipe was relined in 2009, the only exceptions being Alberta Avenue between manholes 1 and 2, Howard Street, and the main to the lagoon. The results of the CCTV survey are attached in **Appendix E**.

To perform a thorough condition assessment of the collection system, the video footage was reviewed. To evaluate the sanitary pipes and current conditions, a weighted rating system was developed.

The weighted rating system took the following features into consideration:

- Adequacy of the slope relative to Alberta Environment Guidelines.
- Pipe material (i.e. PVC, AC, or VCT). PVC is the most durable material while VCT usually has the shortest life span.
- Pipe damage, the number of breaks, offsets or cracks along the length of main.
 - Breaks are categorized as a section of the pipe where a portion of the wall is missing.
 - Cracks are defined to be segments where there is a visible fracture; however, no portion of the pipe is missing.
 - Offsets are counted where the pipe bell and spigot joints are misaligned, in many cases this leads to gaps between the pipe connections.
- Severity of pipe sags.
- Intrusions into the mains caused by entering services.
- Intrusions into the mains caused by invasive roots.
- Intrusions into the main caused by mineral deposits.

Based on the criteria, a point system was developed. Sanitary mains in better condition scored higher. In order to rank the mains, a score between 0-5 was given for each category, along with a weighted percentage. Example photographs from previous video inspections of the various defects follow in **Figures 3.2 to 3.6**. A summary of the rating system is shown in **Table 3.7**.



Figure 3.2: Typical Mineral



Figure 3.3: Moderate Offset



Figure 3.4: Severe Offset

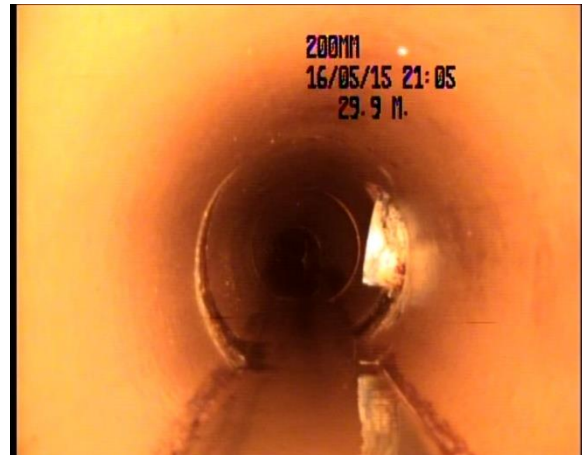


Figure 3.5: Protruding Service

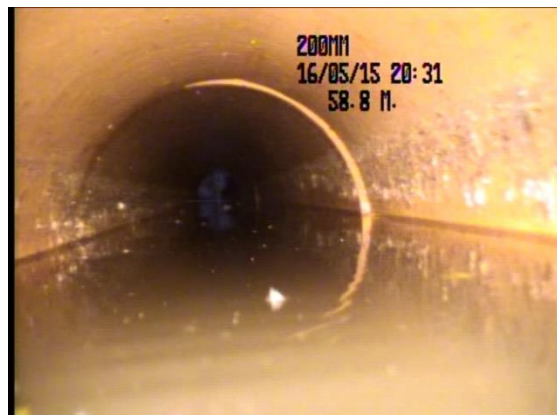


Figure 3.6: Typical Sag

Table 3.7: Sanitary Main Rating System

Category	5 Points	4 Points	3 Points	2 Points	1 Point	0 Points	Weighted Percentage
Slope Adequacy	Adequate Slopes	N/A	N/A	N/A	Inadequate Slope	N/A	12.5
Pipe Material	PVC	N/A	AC	N/A	VCT	N/A	5
Pipe Damage	0 defects	1 defect	2-3 defects	4 defects	5-6 defects	7 or more defects	30
Sag Depth (% of Diameter)	15% or less	15% - 30%	30% - 45%	45% - 60%	60% - 80%	80% or more	20
Root Intrusions (% of pipe blocked)	0% - 10%	10% - 15%	15% - 20%	20% - 25%	25% - 50%	50% or more	7.5
Mineral Intrusions (% of pipe blocked)	0% - 10%	10% - 15%	15% - 20%	20% - 25%	25% - 50%	50% or more	12.5
Intruding Services (% of pipe blocked)	0% - 10%	10% - 15%	15% - 20%	20% - 25%	25% - 50%	50% or more	12.5

Utilizing MPE's rating system, the following criteria was utilized:

- The condition of sanitary mains was divided into four categories: Good, Fair, Poor, and Not Rated. Not Rated segments were the result of incomplete surveys.
- Rating scores are out of a possible 100.
- Sanitary mains with a rating between 85 and 100 were considered "Good" pipes. These generally had no or very few defects such as some minor mineral deposits.
- "Fair" condition mains represented mains with a ranking from 75-84. These mains have a small number of deficiencies including some significant sags, but do not require immediate attention.
- Mains rated as "Poor" typically contain multiple deficiencies, a single large problem, or a combination of both and received a ranking of 74 or less. These mains require the most urgent attention.

A summary of the results is shown in **Table 3.8**. A complete listing of the results is provided in **Appendix F** and the overall condition of the sanitary collection system is shown in **Drawing 3.5 of Appendix A**.

Table 3.8: Sanitary Main Condition Rating

Rating	Length (m)	Percentage (%)
Good	414	17
Fair	1,005	40
Poor	574	23
Non Rated	498	20

As most of the sanitary main has been relined, small defects such as cracks, breaks, root intrusions, etc. are minimal. Sags ranging from 30% to 70% of the pipe diameter are the most significant defects present

in the system. Pipes in the “Fair” category tend to have sags ranging from 30% to 50% of the diameter and pipes rated as “Poor” tend to have sags ranging from 50% to 70% of the diameter.

3.3.4 COLLECTION SYSTEM REHABILITATION OPTIONS

The current condition of the pipe is used to determine the order in which the mains are replaced. Recommended rehabilitation methods fall into three main categories: i) full line replacement, ii) in-situ (trenchless method), and iii) spot repair. The method of rehabilitation chosen is based on the type of defects associated with the sanitary main.

3.3.4.1 IN-SITU REPAIR

Sanitary mains are only recommended for in-situ repair if the method can amend all identified defects. Because the in-situ liner follows the same slope and alignment as the existing main, problems with slope, sags, and minimum cover cannot be remedied with in-situ repair and require full replacement or spot repair. The majority of the sanitary system has already been relined; any remaining pipes are not good candidates for in-site repair.

3.3.4.2 FULL REPLACEMENT

This category applies to mains that are in poor or fair condition that cannot be rehabilitated with in-situ methods due to the presence of sags, sewer offsets, inadequate slope, or inadequate cover. The mains that require a full line replacement are summarized in **Table 3.9** and are shown on **Drawing 3.6** in **Appendix A**.

Note, improvements to inadequate slope and cover are limited as invert elevation adjustments are restricted due to upstream and downstream sanitary main connections. Any mains with a diameter smaller than the recommended minimum diameter suggested by Alberta Environment are recommended for replacement and are included in **Table 3.9**. Additionally, any mains could not be surveyed during this Infrastructure Assessment, and do not have any previous inspection reports are estimated as being in fair or poor condition, are recommended for replacement, and are included in **Table 3.9**.

Table 3.9: Rehabilitation Suitable for Full Replacement

Street	Start Manhole	End Manhole
Priority 2		
Berry Street	16	15
Howard Street	18	17
To the Lagoon	23	24
Priority 3		
Alley between Mercer Street and George Street	1B	1A
Alley between Mercer Street and George Street	1A	1
Alberta Avenue	5	4

3.3.4.3 SPOT REPAIR

Spot repair is sufficient for lines that are in good condition but have an isolated defect that affects the performance of the sanitary main. Spot repair can be performed with both trenchless and traditional replacement methods. This method is best suited for lines that still have reasonable life expectancy (ten years or longer) and where the isolated problem is creating maintenance issues or prevents the main from working effectively (e.g. service protruding into the main). As the majority of the system has been lined, the mains are in relatively good condition overall with the exception of a few isolated and large problems, mostly sags. As such, most of the sanitary main defects can be corrected with spot repair. Mains that are candidates for spot repair are included in **Table 3.10**.

Table 3.10: Rehabilitation Suitable for Spot Repair

Street	Start Manhole	End Manhole
Priority 1		
Main Street	12	10
Main Street	10	9
Alberta Avenue	17	19
Alberta Avenue	14	17
To the Lagoon	21	21A
Priority 2		
Alberta Avenue	20	21
Alberta Avenue	19	20
Berry Street	15	14
Pioneer Avenue	7	16
Railway Avenue	1	2
Railway Avenue	2	12
To the Lagoon	25	Lagoon Inlet Structure
To the Lagoon	24	25
To the Lagoon	22	23
To the Lagoon	21A	22
Priority 3		
George Street	6A	6
Main Street	8	7

3.3.5 SANITARY MANHOLE ASSESSMENT

During a site survey, MPE conducted a manhole condition assessment. The detailed results of this assessment are found in **Appendix F**.

3.3.5.1 MANHOLE RATING SYSTEM

Each manhole component was rated on a scale of one to five during the inspection. A rating of five is good, three is acceptable, and a rating of one indicates that the component is inoperable or poorly functioning. Each component was then weighted. This weighting factor is based on the impact the component has relative to a manhole's overall ability to function. The weighting factors used are found in **Table 3.11**.

Table 3.11: Manhole Component Weighting Factor

Component	Weighting Factor
Benching	42
Barrels	25
Ladder Rungs	8
Collars	17
Surface	8
Total	100

The rating system was used to develop a condition assessment chart for the sanitary manholes, as shown in **Table 3.12**. The table illustrates the relative state of functionality of the manhole and provides an overall manhole rank, as well as individual manhole components in a priority sequence.

Table 3.12: Condition Assessment Chart

Rank	Overall Grade	Manhole	Surface	Collars	Steps	Barrels	Base
1	46.6	1A	4	4	2	3	1
2	48.2	6	2	1	4	2	3
3	53.2	1B	5	4	2	4	1
4	63.2	5	5	4	3	4	2
5	63.2	13	5	3	3	3	3
6	66.4	18	5	2	5	2	4
7	66.6	1	5	4	3	3	3
8	66.8	22	2	3	3	3	4
9	68.4	8	1	4	5	4	3
10	69.8	6A	5	3	4	4	3
11	69.8	17	5	2	4	3	4
12	71.6	19	5	3	3	3	4
13	71.8	20	4	3	1	4	4
14	73.2	4	5	4	4	4	3
15	75.2	7	1	4	4	4	4
16	75.2	10	1	4	4	4	4
17	78.4	2	4	4	3	4	4
18	80.2	21	4	4	1	5	4
19	80.2	21A	2	5	4	4	4
20	81.6	14	5	4	4	4	4
21	81.6	16	4	5	5	5	3
22	85	12	5	5	4	4	4
23	86.6	23	5	4	5	3	5
24	86.8	15	4	4	3	4	5
25	89.8	3	5	2	5	5	5
26	90	9	5	4	4	4	5
27	95	24	5	5	5	4	5
28	98.4	25	5	5	4	5	5

3.3.5.2 MANHOLE BENCHING

Efficient, unobstructed flow through the manhole benching is the most important feature of a properly functioning manhole. Poor benching leads to debris build-up in the manhole, which restricts and backs sewage into the sanitary main and services. This can reduce system capacity and increase the frequency of required flushing and risk of sewer backups. Stagnant sewage in the manholes can also lead to concrete deterioration and build-up of sewer gas (H₂S).

Manhole benching in the Village consists of cast-in-place concrete. Most (64%) of the bases are in good condition, 25% are in fair condition, and 11% are in poor condition. The bases of manholes 13, 16, and 18 were not inspected because the manholes were partially filled with sewage. This is because the pipe inverts are not located at the base of the culvert and is also the reason why video inspection could not be performed on the adjoining mains.

3.3.5.3 MANHOLE BARRELS

Over half of the manholes in Halkirk have block barrels and the remainder have concrete barrels. Most (68%) of the barrels are in good condition, 25% are in fair condition, and 7% are in poor condition. The barrels in poor condition have evidence of water leakage, chips in the concrete, missing grout, or rings out of alignment.

3.3.5.4 COLLARS

Over half of the manholes in Halkirk have brick collars and the remainder have concrete collars. Most (68%) of the barrels are in good condition, 18% are in fair condition, and 14% are in poor condition. The collars in poor condition are misaligned, cracked, or have missing grout.

3.3.5.5 LADDER RUNGS

The ladder rungs in 61% of the manholes are in good condition, 25% in fair condition, and 14% in poor condition. There are two manholes with no ladder rungs and the remaining ladder rungs in poor condition are corroded, twisted, and misaligned.

3.3.5.6 MANHOLE SURFACE AND RIMS

The manhole surfaces and rims are generally in good condition with only 21% in poor condition. The surfaces and rims in poor condition are partially/completely buried or are located in low spots.

3.3.5.7 MANHOLE REHABILITATION

In the manhole assessment, the greatest concerns were the missing ladders rungs in manholes 20 and 21 and the sewage in manholes 13, 16, and 18. Until ladder rungs are replaced, a tripod and harness should be used for entry into these manholes. This is an option that could be adopted for manhole entry to negate the need (and cost) of replacing ladder rungs.

The sewage in the bottom of manholes 13, 16, and 18 was caused by the pipe inverts not being located at the bottom of the manhole. It is recommended that when the sanitary mains in these locations are replaced that the manhole bases be repaired, and that the pipes be benched into the manhole bases. As

the mains downstream of these manholes could not be inspected, priority or scheduling for replacement is not known.

3.3.6 SANITARY LAGOON ASSESSMENT

The sanitary lagoon is located east of the Village with access from Range Road 160 and was built in 1977. At this time, sewer mains and manholes that connected to the lagoon were either relined or replaced. The old lagoon was located along the east side of Range Road 160 near the northeast corner of Village and was reclaimed in 1979. In 2015, some lagoon rehabilitation was performed which included cleaning of the two anaerobic cells, pipes and manholes, and installation of new fences and gates. The lagoon is clay lined and has two anaerobic cells that were designed to have six day retention and a single storage cell that was design to have 12 months retention and was meant to service 300 people. The inlet structure has two pipes that discharge into each of the anaerobic cells. The inlet into the north anaerobic cell has collapsed so sewage is directed to the south anaerobic cell, then the north anaerobic cell, and then into the storage cell. The lagoon was last drained in 2008 and there is no clear evidence of seepage around the perimeter of the lagoon, so lower levels in the storage cell could be due to evaporation. The existing treatment system is illustrated in **Drawing 3.7 in Appendix A**.

3.3.6.1 EXISTING LAGOON CAPACITY

Record drawings of the lagoon site were used to identify the capacity of each cell in the lagoon. These drawings indicate that the storage cell has a capacity of 32,850 m³ which would suggest that the anaerobic cells have a capacity of 540 m³. The capacity of the storage cell and the design population of 300 people suggests that the sewage generation rate used to design the lagoon was 300 Lpcd.

3.3.6.2 LAGOON STORAGE REQUIREMENTS

Lagoon storage requirements for the Village of Halkirk are dictated by Alberta Environment and based on a standardized set of guidelines for municipalities. Lagoon guidelines are not dependent on effluent water quality but are instead built around designated retention times for treatment processes occurring in each cell of the lagoon. Alberta Environment guidelines state that a conventional sewage lagoon should have anaerobic cells, a facultative cell, and a storage cell.

Anaerobic Cells

The anaerobic cells in a lagoon should have a minimum depth of 3 m and are sized for a retention of two days. Anaerobic cells are only required when the average daily design flow is 500 m³ or more. Should anaerobic cells be required, either two or four cells should be constructed and operate in series.

Facultative Cell

In the facultative cell, both anaerobic and aerobic bacteria act on the sludge in different layers. The Alberta Environment guidelines for facultative cells dictate a maximum depth of 1.5 m for these cells, which increases the volume of oxygen that can be absorbed through the water's surface to support the growth of aerobic bacteria.

Alberta Environment dictates a retention time in the facultative cell of a lagoon system of 60 days. This retention time allows most of the remaining solids to settle out and significantly reduces the concentration of Biochemical Oxygen Demand (BOD) in the waste stream.

Storage Cell

The storage cell in the lagoon is sized to store 12 months of flow at a given time as per Alberta Environment standards. This size allows for final finishing of the wastewater effluent to further reduce the environmental loading caused during annual releases. Alberta Environment identifies that the maximum depth of the storage pond should be 3 m. Most treatment occurs in the facultative cell and as such sedimentation of the storage cell is not a concern unless qualitative observations made after the lagoon has been discharged identifies sedimentation as an issue.

Cell Storage Requirements

MPE calculate the required storage volumes for the sanitary lagoons based on the flow information adopted for this report. An additional 10% was added to the average daily design flow to account for inflow and infiltration into the system. **Table 3.13** outlines the results of the assessment of storage requirements under current and projected flows.

Table 3.13: Lagoon Storage Requirements

Cell	Required Storage (m ³)		Available Storage (m ³)	Meets Requirements	
	2021	2046		2021	2046
Anaerobic (Per Cell)	117	150	540	Yes	Yes
Facultative	3,498	4,488	N/A	N/A	N/A
Storage	21,280	27,302	32,850	Yes	Yes

Using the 1% population growth rate adopted for this study, the anaerobic and storage cells are adequately sized to meet future demands. Based on the Alberta Environment guidelines and the average daily design flow, the Halkirk Lagoon is not required to have anaerobic cells currently or in the future. The lagoon is required to have a facultative cell. In most cases, conventional lagoons installed prior to the implementation of Alberta Environment guidelines are not required to immediately be brought up to current standards. Should the lagoon require an upgrade or change of some kind, it is expected that the system be brought up to current standards at that time. Currently, the configuration of the lagoon is suitable, but should any upgrades be required, a facultative cell will need to be installed at that time.

3.3.6.3 LAGOON CONDITION

The lagoon berms have wide driving banks but there is some erosion and sloughing present around the anaerobic cells. Recycled concrete has already been placed along the east side slope of the storage cell to address erosion. This is a suitable option for erosion protection in the anaerobic cells if the recycled concrete does not have any protruding rebar that can cause a safety concern for the Village or County personnel. Although there has not been any need to drain the storage cell since 2008, the County has operated the valve to ensure it still functions.

The fence around the west, north, and east perimeters of the lagoon have been rehabilitated by adding in additional fence posts and barbed wire to the existing fence. The fence along the south side of the property is in poor condition or no longer exists in some locations.

The inlet structure (Structure 1) into the lagoon has two pipes that discharge into each of the anaerobic cells. The structure is in acceptable condition but the inlet pipe into the north anaerobic cell is blocked or collapsed. It is recommended that this inlet pipe be replaced so that treatment isn't disrupted should the south cell need to be bypassed for maintenance. The transfer structure between the anaerobic cells (Structure 2) allows effluent to pass from the south cell to the north cell and has a weir that can be blocked with a plate to isolate or change the direction of flow in the lagoon. Overall, the structure is in acceptable condition.



Figure 3.7: South Anaerobic Cell Erosion



Figure 3.8: Structure 2

The transfer structure between the south anaerobic cell and the storage cell (Structure 3) has a weir inside that has been blocked off with a steel plate and debris. Overall, the structure is in acceptable condition. The transfer structure between the north anaerobic cell and the storage cell (Structure 4) has a weir like the previous two structures which has been left open to allow effluent to pass to the storage cell. The structure is showing significant deterioration and cracking of the concrete. It is recommended that this structure be replaced.



Figure 3.9: Recycled Concrete Erosion Protection



Figure 3.10: Structure 3



Figure 3.11: Structure 4

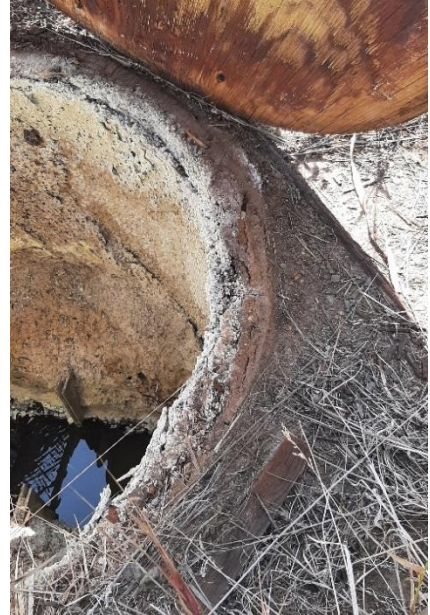


Figure 3.12: Structure 4 Concrete Deterioration

3.3.7 CONCLUSIONS AND RECOMMENDATIONS

A summary of the sanitary sewage assessment is provided below:

- The Halkirk sanitary system is generally in good to fair working condition and has the capacity to convey dry weather and wet weather flows under current and future conditions.
- Upgrades have been identified in locations where the system is considered in poor condition, primarily at locations of large sags. All proposed sanitary collection system upgrades are shown on **Drawing 3.6 in Appendix A.**

- Half the manholes in the Village are in good condition with the remaining being in fair to poor condition. The manholes rated as being in poor condition typically have poor benching or damaged ladder rungs.
- Although the lagoon configuration doesn't comply with Alberta Environment guidelines, the capacity of the lagoon meets current and projected future demands.
- Most of the inlet and transfer structures are in acceptable condition except for the transfer structure between the north anaerobic and storage cell, which may need to be replaced should the condition continue to deteriorate. The inlet into the north anaerobic cell should be reestablished so treatment is not disrupted should the south inlet pipe become blocked as well; the inlet structure would be replaced at this time.
- Lagoon repairs could be completed at the same time to reduce mobilization and demobilization as well as care of water costs. These repairs could potentially trigger the need for the construction of a facultative cell.
- It is recommended that eroded banks along the anaerobic cells be protected. Use of recycled concrete is acceptable.

Order-of-magnitude cost estimates have been completed for the proposed upgrades to the sanitary system. **Table 3.14** summarizes the proposed project costs including contingencies and engineering. Further detail is provided in **Appendix Q**. Sanitary system projects may be combined with one another or other infrastructure and roadway projects to save costs. The sanitary main cost estimates for each section have been prepared assuming that the connecting manholes are being replaced (if required). In reality, a manhole that was recently replaced on previous project upgrade would not need to be replaced again. Lagoon projects may be delayed until the Village is financially prepared to bring the lagoon up to current Alberta Environment guidelines.

Table 3.14: Proposed Project Costs

Project	Order-of-Magnitude Cost Estimate
Spot Repair sanitary main between MH12 and MH10	\$81,000
Spot Repair sanitary main between MH10 and MH9	\$58,000
Spot Repair sanitary main between MH17 and MH19	\$103,000
Spot Repair sanitary main between MH14 and MH17	\$69,000
Spot Repair sanitary main between MH21 and MH21A	\$44,000
Spot Repair sanitary main between MH20 and MH21	\$69,000
Spot Repair sanitary main between MH19 and MH20	\$92,000
Spot Repair sanitary main between MH15 and MH14	\$69,000
Spot Repair sanitary main between MH7 and MH16	\$51,000
Spot Repair sanitary main between MH1 and MH2	\$26,000
Spot Repair sanitary main between MH2 and MH12	\$33,000
Replace 200 mm sanitary main between MH16 and MH15	\$90,000
Replace 150 mm sanitary main with 200 mm between MH18 and MH17	\$101,000
Spot Repair sanitary main between MH25 and Lagoon Inlet Structure	\$44,000
Spot Repair sanitary main between MH24 and MH25	\$86,000
Replace 200 mm sanitary main between MH23 and MH24	\$74,000
Spot Repair sanitary main between MH22 and MH23	\$26,000
Spot Repair sanitary main between MH21A and MH22	\$26,000
Replace 100 mm sanitary main with 200 mm between MH1B and MH1A	\$72,000
Replace 150 mm sanitary main with 200 mm between MH1A and MH1	\$41,000
Replace 100 mm sanitary main with 200 mm between MH5 and MH4	\$40,000
Spot Repair sanitary main between MH6A and MH6 and replace MH6	\$61,000
Spot Repair sanitary main between MH8 and MH7	\$61,000
Benching Repair in MH13 and MH14	\$14,000
Place erosion protection along the banks of anaerobic cells	\$0
Replace Lagoon Inlet Structure and Piping	\$69,000
Replace Lagoon Transfer Structure 4 and Piping	\$66,000
Total	\$1,566,000

3.4 STORM DRAINAGE ASSESSMENT

3.4.1 OVERVIEW

A stormwater management plan was prepared by MPE in 2017. The report summarized that Halkirk's stormwater system consists entirely of above ground infrastructure and that in many cases, low areas of standing water are caused by road surfaces being well above the elevations of adjacent sidewalks. The report also shows the catchment areas and runoff rates, the capacities of culverts, and provides some conceptual options for improvements. It is recommended that the *Village of Halkirk Stormwater Management Plan* be referred to prior to the design of future infrastructure upgrades as well as making any drainage improvements to alleviate current drainage issues. The 2017 stormwater management plan is included in **Appendix G**.

4.0 ROAD DATA COLLECTION

4.1 PROJECT OVERVIEW

The Village is responsible for the administration of an infrastructure network consisting of paved and gravel roadways. MPE conducted an evaluation including pavement roughness, surface distress, and structural testing on the paved road network, totalling 5 lane-kilometres. MPE also conducted a visual assessment of the gravel road segments totalling 1 lane-kilometres. The breakdown of the current data collection and reporting program are as follows:

- Collection of pavement roughness and surface distress data on the paved road network.
- Collection of gravel road conditions using the PASER methodology.
- Implementation of the RUBIX rMD asset management dashboard to facilitate the data analysis and reporting.

Over time, weathering, traffic loading and aging cause pavement quality and adjacent facilities (sidewalks and trails) to deteriorate. Maintenance and/or rehabilitation options applied at the appropriate time can renew and extend the life of these municipal networks. The objective of pavement management is to maximize the present and future value and level of service of the road network through cost effective management of available public capital funds.

An effective pavement management system should have the following qualities:

- Method of data collection that is uniform, consistent, and repeatable.
- Logical and functional database.
- Objective method of present status calculation and reporting.
- User-definable methodology of needs analysis to develop rehabilitation strategies.
- Analytical engine for optimization of network rehabilitation, following a user-definable set of goals.

Drawing 4.1 in Appendix A shows the 2021 road survey coverage.

4.2 DATA COLLECTION

4.2.1 NETWORK DEFINITION AND ATTRIBUTE DATA

The 2021 network definition and attribute data setup consisted of the following:

- Define the Village's roadway network based on modifications to the Village's existing GIS road centreline file. Roadway segments were identified using unique Asset IDs stored in the GIS database.
- Activate and load the RUBIX asset management framework.
- Classify network attributes used for analysis (traffic, structure, geometrics, etc.).

The road survey also included a small and separate visual assessment of three gravel segments within the Village road network:

- Visually assess the condition of 360 m of gravel roads using the PASER methodology. The condition of the gravel network is assessed and reported at the network level only and is not included in the pavement management analysis.

The roadway network definition used for the purpose of the 2021 report is based on an evolution of the Village's current GIS network centreline files. The network definitions were cleaned up and each network segment was assigned a unique Asset ID. As part of this step, the network geometrics used for the analysis and reporting were established. Additional modifications were made to the network definitions based on actual conditions encountered during the field surveys.

For the purpose of the analysis, the traffic levels, pavement thicknesses, and subgrade strength were estimated based on experience in other rural community infrastructure studies.

Table 4.1 shows the roadway attribute classifications used for the 2021 pavement condition analysis.

Table 4.1: Traffic and Pavement Default Attributes

Function Class	Traffic	Pavement Thickness	Subgrade Condition
Paved Road Network	Low	Medium	Weak*

**The inclusion of FWD structural testing on future assessments will provide an accurate assessment of the subgrade conditions through out the network.*

4.2.2 2021 FIELD SURVEY

The roughness of each segment was measured using MPE's data collection vehicle. The data collection vehicle is a Class I Profiler, specially equipped with accelerometers and laser sensors mounted to the front bumper. This technology was used to measure the longitudinal profile of the pavement surface in each wheel path of the survey travel lane. The profile data was then used to calculate an International Roughness Index (IRI) reported at 30-metre intervals (stations).

The surface distress survey recorded the extent and severities of key distress classifications including load associated cracking, non-load associated cracking, surface deformations, and surface defects. The following 12 distress types were inventoried:

- Patching and Utility Cut Patching
- Corrugation and Shoving
- Raveling and Weathering
- Bleeding
- Distortions (Depression, Swell, Bumps, and Sags)
- Edge Cracking
- Alligator Cracking (Fatigue)
- Potholes
- Block Cracking
- Longitudinal/Reflective Cracking

- Transverse/Reflective Cracking
- Rutting (Wheel Path)

MPE's Pavement Profiler is fitted with two forward-facing camera configuration and the Trimble T3D Cam Capture video acquisition system. The geo-spatial digital images provide MPE with the ability to conduct thorough quality checks of the pavement inspections collected in the field. All pavement data collected using the automated onboard system is identified with GPS coordinates.

The following image show MPE's mobile road-testing equipment used for the pavement data collection.



Figure 4.1: MPE Engineering Ltd. Data Collection Vehicle (Class I Profiler)

4.3 ROAD DATA ANALYSIS

MPE implemented the RUBIX Management Dashboard (rMD) solution to enable the 2021 evaluation and the future management of the roadway network. The RUBIX asset management solution is a lightweight, user-definable, cloud-based application that enables the user to collect, analyze, monitor, and report on the performance of various infrastructure assets including pavements. The RUBIX platform supports multiple data collection and analysis methodologies including Paver (ASTM D6433). MPE utilized the rMD application as the primary analysis and database platform for the pavement evaluation analysis and reporting.

The roadway pavement condition data is summarized into the following key performance indicators:

- Pavement Distress Index (PDI) – based on the surface distress inventory.
- Ride Comfort Index (RCI) – based on the longitudinal profile data.
- Overall Condition Index (OCI) – as a function of the PDI and RCI conditions.

The pavement condition results provide the Present Status, or current condition, of the roadway network. The condition of the network is summarized by GIS segment and provided to the Village as defined in the GIS database.

Rehabilitation triggering levels are typically established for each functional classification in the network based on the OCI. They determine the condition threshold at which a roadway segment is considered in need of rehabilitation. Due to the uniformity of the road network, a single rehabilitation trigger level was set for all the paved roads.

Pavement deterioration curves are used to predict the future performance of the OCI score for a given segment. The rMD application defines six deterioration models based on pavement classifications built around traffic volume, structure thickness, and subgrade strength levels. The results indicate the Need Year in which a given segment will require treatment and provide the current needs, or backlog, as well as the predicted future needs of the roadway network.

The rMD application utilizes a decision matrix methodology to determine the recommended treatment based on the performance characteristics of the pavement segment.

The decision matrix methodology is designed around the fundamentals of pavement management and the four (4) main drivers of pavement deterioration. Performance condition results from the analysis of the field data are further analyzed to produce condition levels for these four main causes of Load, Environment, Construction, and Material.

The appropriate rehabilitation treatment option is defined in the matrix at the various levels of these 'cause-condition' combinations. A decision matrix will be built for each functional class, as treatment options and constraints vary between lower and higher-volume roadways.

The final stage of the workflow is the Budget Optimization Analysis. During this step of the analysis, several multi-year budget scenarios are applied to the rehabilitation needs results. MPE analyzed three (3) budget scenarios. These scenarios show the annual cost to do all the recommended work (Needs Budget), the impact on the network level of service if no work is done (Do Nothing), and the recommended capital planning program.

4.3.1 ROUGHNESS – RIDE COMFORT INDEX (RCI) ANALYSIS

One of the primary operating characteristics of a road, from the user's perspective, is the roughness which represents the travelling public's opinion of the smoothness, and hence, the quality of service provided by a pavement. The data collection vehicle measures the longitudinal profile of the pavement surface, reported as an International Roughness Index (IRI) value. Roughness measurements were correlated to an assessment of ride quality as perceived by the users of the pavements. This subjective assessment is termed the RCI.

The RCI condition score for each road segment ranges from zero (0) to 100, where 100 is indicative of an extremely smooth pavement and an index of zero (0) is indicative of an extremely rough pavement. When pavements are rehabilitated with an overlay or heavier treatment, an override RCI value of 80+ (IRI < 1.3 m/km) is applied. The detailed RCI methodology is provided in **Appendix H**.

4.3.2 SURFACE DISTRESS – PAVEMENT DISTRESS INDEX (PDI) ANALYSIS

The PDI is a measure of physical pavement cracking, deformations, and surface defects collectively referred to as distresses. The surface distress survey provided an inventory of the severity and extent for 12 surface distress types in each station (30-metre intervals) of every segment in the network.

These distress ratings were analyzed to produce % Area quantities at each severity level, which were further combined using distress-specific weighting factors to generate an overall PDI for each station. A summary PDI score was then computed based on the aggregated station PDI scores for each GIS segment.

The PDI condition score for each road segment ranges from zero (0) to 100, where 100 indicates a perfect (no distress) surface and an index of zero (0) indicates a significant level of surface distress. When pavements are rehabilitated with an overlay or heavier treatment, an override PDI value of 100 is applied. The detailed PDI methodology is provided in **Appendix I**.

4.3.3 COMBINED – OVERALL CONDITION INDEX (OCI) ANALYSIS

The OCI provides an overall indication of the pavement condition regarding present and future service to the user and is derived through a combination of the segment RCI and PDI values.

The available methods used to calculate OCI are as follows:

For roadways without structural condition data:

$$\text{OCI} = f(\text{RCI}, \text{PDI})$$

For asphalt structures with surface distress data only (Trails):

$$\text{OCI} = f(\text{PDI})$$

As is the case with RCI and PCI, the OCI ranges from zero (0) to 100, where zero (0) represents the worst condition of a pavement and 100 represents the best condition of a pavement. The detailed OCI methodology is provided in **Appendix J**.

4.3.4 PERFORMANCE PREDICTION

The OCI values of pavements typically decrease over time. To estimate future rehabilitation requirements of a pavement network, it is necessary to model the deterioration of OCI values. The rate of deterioration of OCI depends on several factors, but it can be demonstrated that the principal factors are the traffic loading conditions, the properties and thickness of the pavement structure layers, and the strength of the underlying subgrade.

The factors used to model pavement performance within the rMD application are as follows:

- Equivalent granular thickness (EGT) in three levels (thin, medium, thick).
- Traffic volume or average annual daily traffic (AADT) in three levels (low, medium, high).
- Subgrade strength in two levels (strong/adequate, weak/inadequate).

No detailed structure or traffic data was readily available for the preparation of this report. MPE defaulted the network traffic level and pavement thickness to represent a Low traffic and Medium (Average) pavement thickness condition.

The criteria used to classify traffic (AADT) and structural (EGT) threshold levels are shown in **Table 4.2**.

Table 4.2: Structure Thickness and Traffic Classification Limits

Function Class	Thickness Level (EGT mm) Thin ≤ Med < Thick	Traffic Level (AADT) Low ≤ Med < High
Paved Road	399 ≤ Medium < 700	199 ≤ Medium < 1,500

Based on an assessment of the age and roughness condition of the roadways, the network was defaulted to a Weak/Inadequate subgrade condition.

The combination of the three classification parameters—pavement structure thickness, traffic loading, and subgrade strength—result in six possible performance classes of pavements and each roadway segment in the network is assigned an individual performance curve based on its performance classification. The performance curves plot the deterioration of the OCI over time, and the difference between the curves is based on variations in levels of the pavement thickness, traffic, and subgrade strength.

The OCI performance deterioration models used for the Village are shown in **Figure 4.2**.



		EGT					
		Thin		Med		Thick	
		Subgrade					
		Weak	Strong	Weak	Strong	Weak	Strong
Traffic	Low	3	3	4	5	5	6
	Med	2	2	3	4	5	6
	High	1	2	2	3	4	6

Figure 4.2: OCI Deterioration Models

The OCI performance curves used in the analysis were established based on the historical performance of other municipal networks in Alberta.

Based on the default analysis parameters setup, the Village’s roadways are deteriorating along the Class 3 curve.

4.3.5 PRIORITY PROGRAMMING ANALYSIS

4.3.5.1 NEED YEAR ANALYSIS

The Needs analysis is the identification of pavement segments that are deficient based on some specified criterion or criteria. When a given pavement segment deteriorates to, or is below its OCI trigger level, it is considered a Need candidate. For a paved road network, segments that are currently deficient are referred to as *present needs*; segments that will be deficient in the future years are referred to as *future needs*.

A Need Year Distribution graphically illustrates the annual network rehabilitation needs for segments that fall below a given level of service (i.e. OCI) and require rehabilitation. The Need Year analysis assumes an unrestricted budget for rehabilitation.

For this analysis, the minimum acceptable OCI (OCI_{min}) is the threshold level of service used to determine if any rehabilitation should take place. The minimum acceptable OCI for each functional classification within the rMD is shown in **Table 4.3**.

Table 4.3: Minimum OCI Thresholds

Function Class	Lane-Length (km)	Minimum OCI
Paved Road Network	5.0	45

The minimum OCI of 45 was selected to establish a balance between maintaining a viable level of service in the network and keeping roadway rehabilitation backlog manageable.

4.3.5.2 REHABILITATION DECISION MATRIX

Once a Need Year has been calculated for a pavement segment, any potential rehabilitation strategies that may be applied to the pavement segment must be determined. The optimal rehabilitation strategy is determined using the life cycle economic analysis techniques, which involves the assessment of the effectiveness and an estimate of the capital cost to implement the strategy.

The effectiveness of a strategy is determined by the area between the after-rehabilitation performance and the Do Nothing performance curves. The ratio of the effectiveness to the cost produces the cost effectiveness (CE), or net benefit/cost, which allows rehabilitation strategies to be compared to each other on a relative basis.

The rehabilitation ‘benefit-to-time’ relationship is illustrated in **Figure 4.3**.

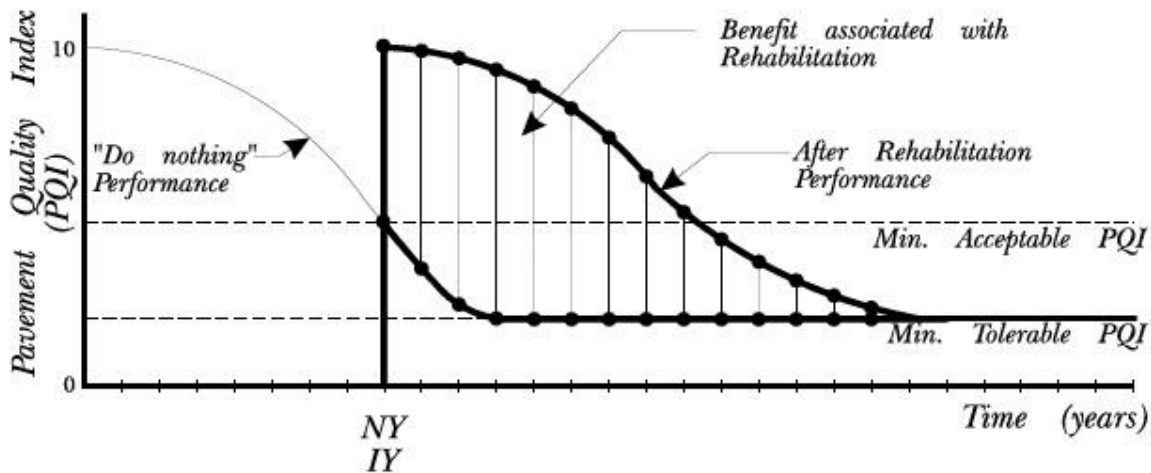


Figure 4.3: Rehabilitation Benefit

The foundation of the decision matrix approach is based around the causes of various distresses as outlined in the Pavement Management Guide (RTAC). The approach is centred on the relationship between Load, Environmental, Construction, and Material causes for various pavement distresses.

Using the guidelines provided by the ASTM D6433 PCI Standard, the distress and roughness data collected in the field were classified for three levels of condition (Good, Fair, and Poor). The principles of distress causes were then utilized to consolidate and group these performance indicators into condition-matrices for the four main pavement deterioration drivers of Load, Environmental, Construction, and Material. The classification matrices for each driver are provided in **Appendix K**.

Table 4.4 illustrates the relationship between deterioration cause and defect type.

Table 4.4: Defect-Cause Relationship

Defect Type	Load	Material	Environmental	Construction
Surface Defects (Class 4)		⚠	⚠	⚠
Raveling		✓		✓
Bleeding/Flushing		✓	✓	✓
Potholes		✓	✓	✓
Deformations (Class 3)	⚠			⚠
Rutting	✓	✓		✓
Rippling	✓	✓		✓
Depressions (Distortion)	✓			✓
Upheaval (Distortion)			✓	
Slippage/Edge Lipping	✓			✓
Excessive Crown	✓			✓
Cracking (Classes 1 & 2)	⚠	⚠	⚠	
Alligator/Fatigue	✓			
Longitudinal/Meandering	✓	✓	✓	
Transverse		✓	✓	
Progressive Edge		✓	✓	
Block/Map	✓	✓	✓	

The final decision making input is done at the Rehabilitation decision matrix level. At this level, the four main deterioration drivers are grouped in pairs in a cross-relational matrix structure based on common distress types and influence factors. Load and Construction are grouped on one axis and Environmental and Material on the other.

By applying the available rehabilitation treatment levels to the appropriate condition levels of the combined deterioration drivers, a reliable program of recommended work can be generated from the

pavement condition results using the cause-driven matrix approach. The decision matrices for each functional classification are provided in **Appendix L**.

Table 4.5 shows the rehabilitation treatments and associated parameters used in the analysis.

Table 4.5: Rehabilitation Alternatives

Code	Treatment Options	Type	Cost/Lane-km	OCI Benefit
1	Micro Surface/Surface Treat	G. Maintenance	\$83,250	25
2	Overlay 50 mm	Rehabilitation	\$128,250	50
3	Overlay 75 mm	Rehabilitation	\$157,500	60
4	Edge Mill and Overlay 50 mm	Rehabilitation	\$146,250	55
5	Full Mill and Overlay 50 mm	Rehabilitation	\$171,000	60
6	Full Mill and Overlay 75 mm	Rehabilitation	\$207,000	70
7	Full Mill and Overlay + LBR	Rehabilitation	\$261,000	80
8	Local Reconstruction	Construction	\$742,500	100

4.3.5.3 PRIORITY PROGRAMMING AND OPTIMIZATION

Budgetary constraints often determine the timing and implementation of rehabilitation strategies. Using different budget scenarios, the rehabilitation program analysis assembles an optimized multi-year rehabilitation program, estimates the impact on the overall network performance, and calculates the annual rehabilitation backlog. The budget optimization analysis generates prioritized work programs that are the most cost effective based on annual budget constraints. For the purpose of this report, the analysis was run over a 10-year programming period, with the first year of the programming set to 2021.

The network programming analysis was run using the following funding scenarios:

- Need Driven Budget – Unlimited funding.
- Do Nothing Budget – No funding.
- Capital Budget – Capital Plan funding.

4.4 ROAD DATA ANALYSIS

The following section discusses and summarizes the condition of the Village's paved roadway network and includes individual performance indicator and Need Year distribution graphs. A summary of the Defect-Cause analysis is also provided showing the breakdown of the network across the four main deterioration drivers

The 2021 present status of the Village's roadway network is summarized in **Table 4.6**.

The Cause-Condition levels for the Village's roadway network are summarized by %Lane-kilometres in **Table 4.7** and graphically in **Figure 4.4**.

The complete present status and rehabilitation recommendation listing, by network segment, is provided in **Appendix M**.

Table 4.6: 2021 Network Performance Summary

Functional Class	Segments	Lane-km	OCI	PDI	RCI	IRI (m/km)
Paved Road Network	18	5.0	58	62	46	4.19

Table 4.7: 2021 Cause-Condition Summary

Conditional Level	Load	Environment	Material	Construction
Good	19%	63%	71%	65%
Fair	45%	8%	29%	35%
Poor	36%	29%	0%	0%

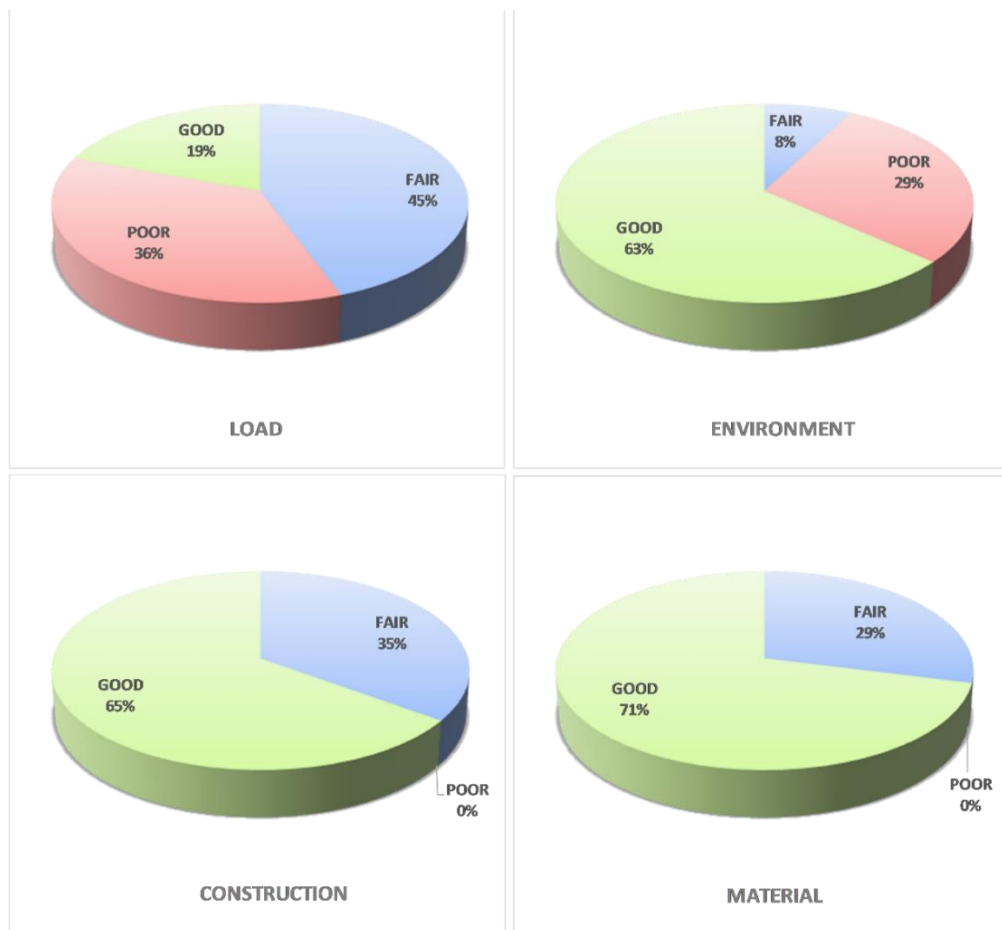


Figure 4.4: Network Cause-Condition Distribution

The results show that Load and Environment related defects are the major drivers of the deterioration in the paved road network.

4.4.1 PRESENT STATUS ANALYSIS RESULTS – PAVED ROAD NETWORK

4.4.1.1 ROUGHNESS (RCI) ANALYSIS RESULTS

The results indicate most of the roadway network is exhibiting marginal-to-poor ride quality. **Figure 4.5** shows the distribution of RCI values, weighted by lane-kilometres.

The plot indicates a mean RCI of 46 for the Entire Paved Network.

Table 4.8 shows the distribution of the network between poor, marginal, and acceptable RCI values.

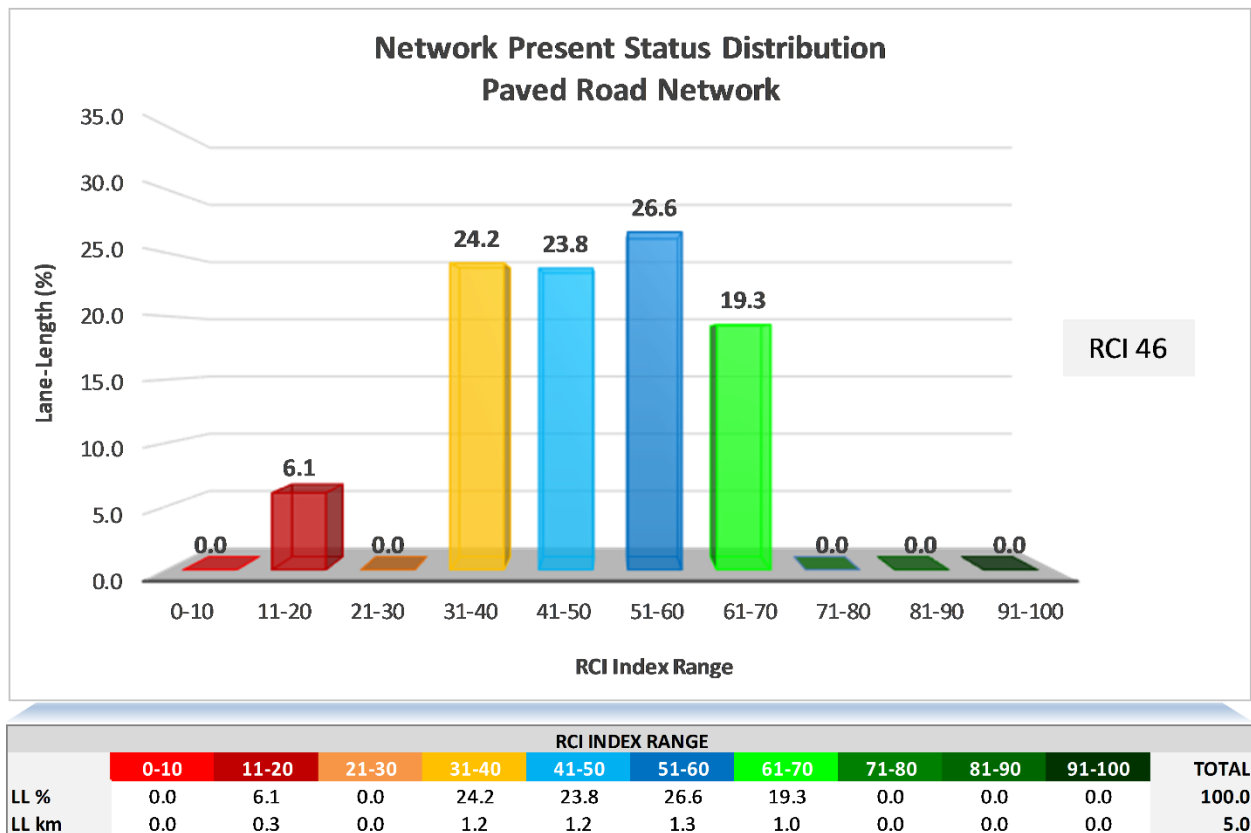


Figure 4.5: RCI Distribution – Paved Road Network

Table 4.8: RCI Distribution – Paved Road Network

RCI Range	Ride Condition	Lane-km	% Of Network
RCI ≤ 40	Poor	1.5	30.3
40 < RCI ≤ 60	Marginal	2.5	50.4
RCI > 60	Acceptable	1.0	19.3

4.4.1.2 PAVEMENT DISTRESS (PDI) ANALYSIS RESULTS

The results show most of the network is exhibiting marginal-to-good performance with respect to the pavement distress. **Figure 4.6** shows the distribution of PDI values, weighted by lane-kilometres.

The plot indicates a mean PDI of 62 for the Entire Paved Network.

Table 4.9 shows the distribution of the network between poor, marginal, and acceptable PDI values.

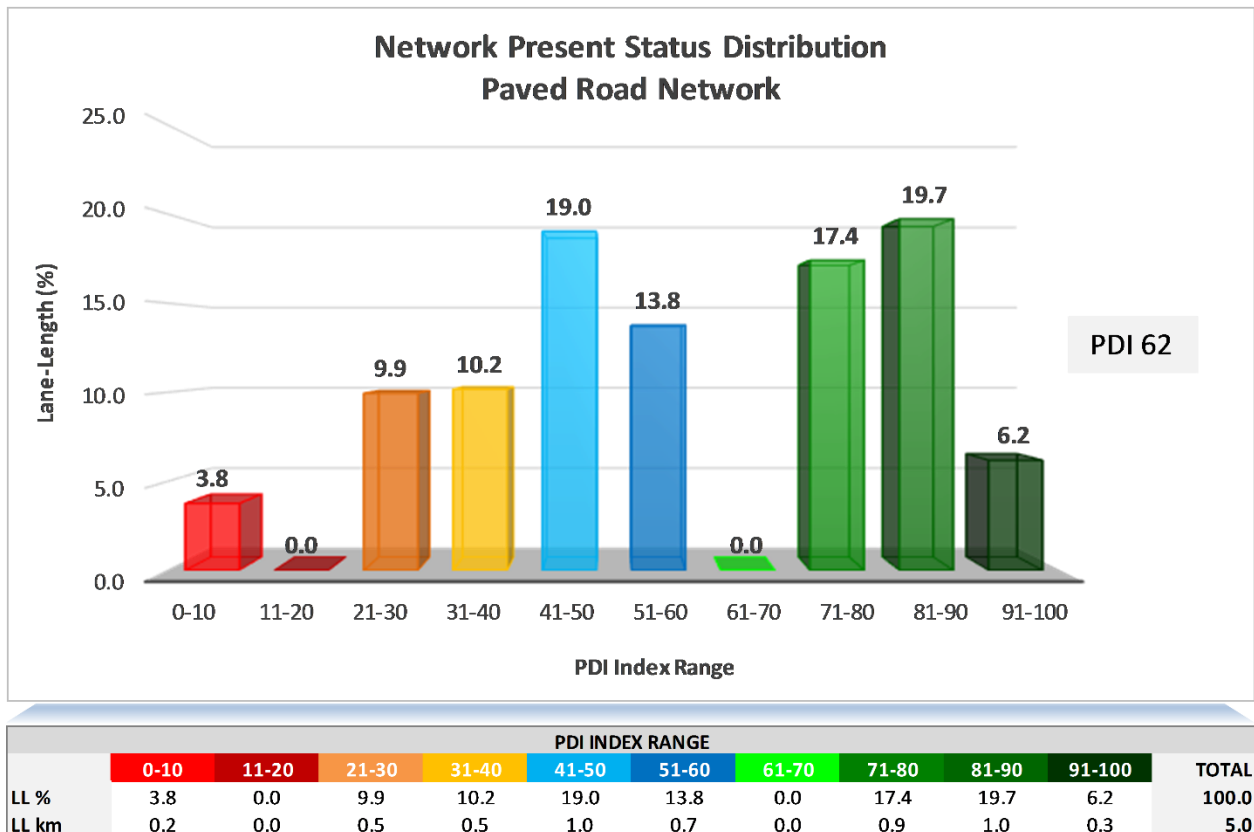


Figure 4.6: PDI Distribution – Paved Road Network

Table 4.9: PDI Distribution – Paved Road Network

PCI Range	Distress Condition	Lane-km	% Of Network
PDI ≤ 40	Poor	1.2	23.9
40 < PDI ≤ 60	Marginal	1.7	32.8
PDI > 60	Acceptable	2.2	43.3

4.4.1.3 OVERALL CONDITION (OCI) ANALYSIS RESULTS

The results indicate most of the roadway network is exhibiting signs of acceptable performance, with the roughness condition showing the most deterioration. **Figure 4.7** shows the distribution of OCI values, weighted by lane-kilometres.

The plot indicates a mean OCI of 58 for the Entire Paved Network.

Table 4.10 shows the distribution of the network between in-need and acceptable OCI values.

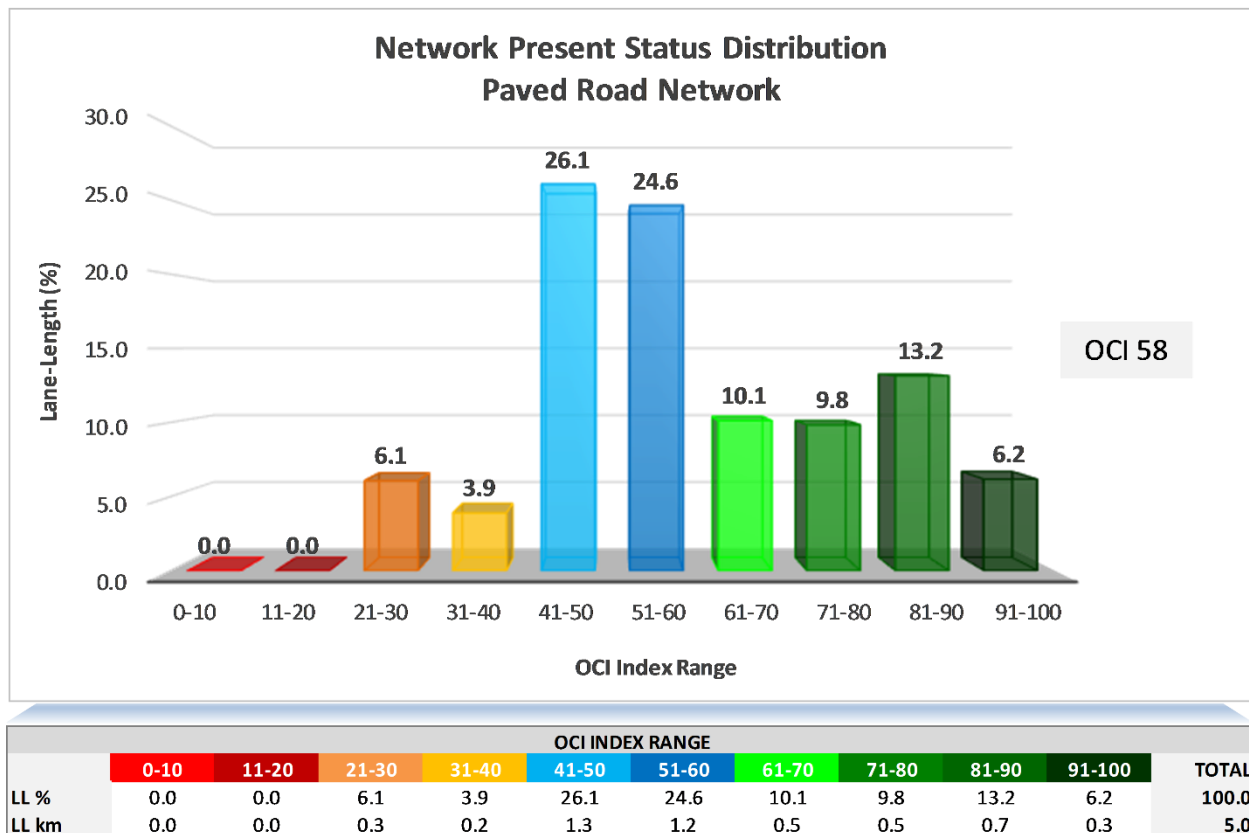


Figure 4.7: OCI Distribution – Paved Road Network

Table 4.10: OCI Distribution – Paved Road Network

OCI Range	Overall Condition	Lane-km	% Of Network
OCI ≤ Trigger ¹	In Need	1.3	26.2
OCI > Trigger ¹	Acceptable	3.7	73.8

¹ Trigger level = OCI 45.

4.4.2 REHABILITATION NEEDS ANALYSIS RESULTS

The Need Year of a pavement is defined as the year in which the OCI of the pavement falls to, or below a critical value, known as the OCI Trigger Level. For the purpose of the 2021 report, the Base Year of the analysis was set to 2021.

Table 4.11 shows the current rehabilitation needs summary by functional class and for the Village’s paved roadway network.

Table 4.11: 2021 Network Needs Summary

Functional Class	2021 Network Needs (% Lane-Length)	2021 Network Needs (Lane-km)
Paved Road Network	26.2	1.3

The summary of the accumulating 10-year program Needs (non-funded scenario) is reported in % Lane-Length for paved road network and shown in **Figure 4.8**.

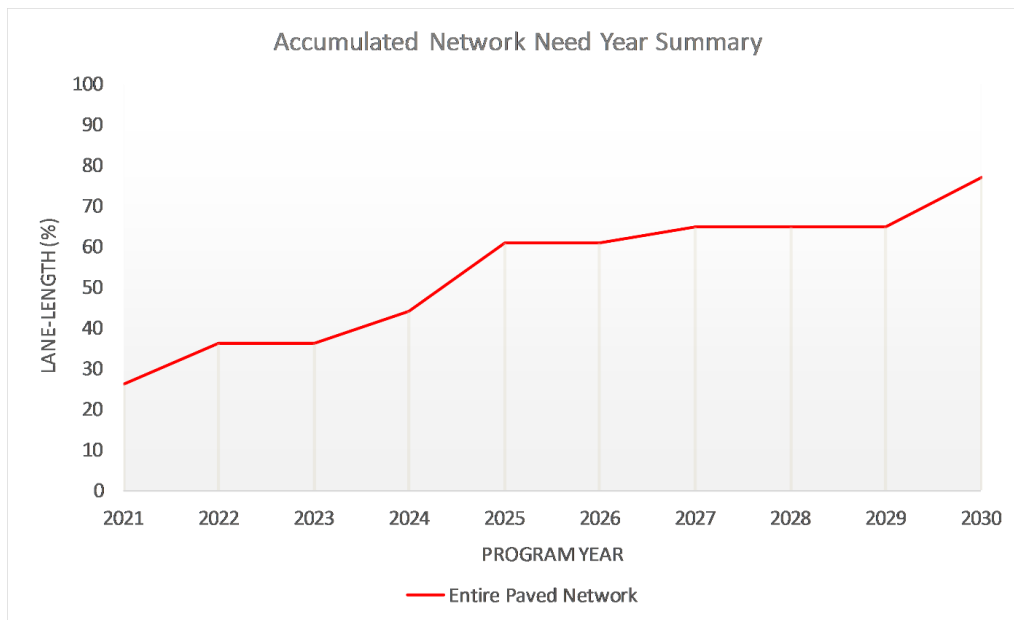


Figure 4.8: Accumulated Needs Summary (2021–2030)

4.4.2.1 NETWORK NEEDS DISTRIBUTIONS – PAVED ROAD NETWORK

The results show that 26.2% of the network is in current need of some form of rehabilitation.

Table 4.12 shows the summary of the 10-year need driven program.

The full Need Year distribution for the Village’s Paved Network is presented in **Figure 4.9**.

Table 4.12: Paved Road Network: Accumulating 10-Year Needs Summary

Program Period	Network Needs (% Lane-Length)	Network Needs (Lane-km)
Current (2021)	26.2	1.3
5-Year (2021 – 2025)	60.7	3.1
10-Year (2021 – 2030)	76.8	3.9

The remaining **23.2%** of the network will become a Need beyond the 10-year programming period.

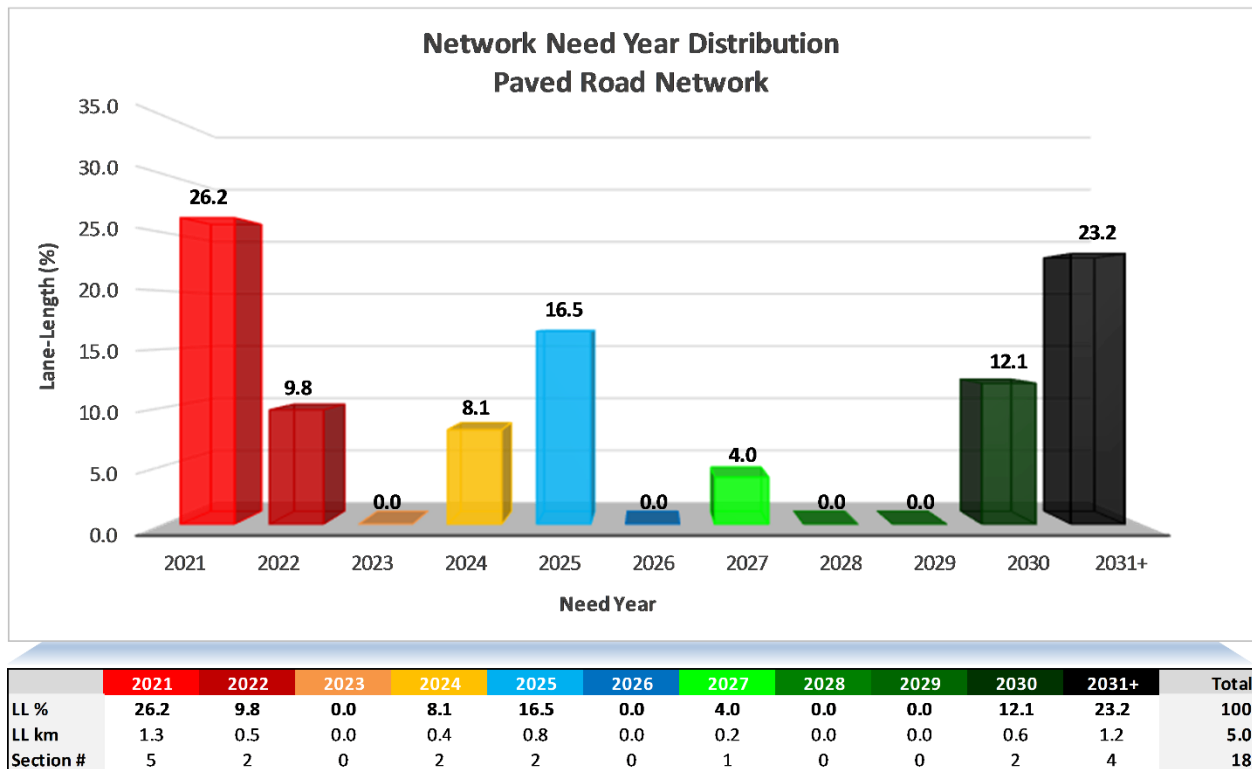


Figure 4.9: Need Year Distribution – Paved Road Network

4.4.3 2021 PRIORITY PROGRAMMING ANALYSIS RESULTS

The following section summarizes the results of the priority programming analysis run in the rMD application. **Table 4.13** presents the budget program results by budget scenario, network subset and impact on the overall network performance.

Table 4.13: Priority Programming Summary

Budget ID	Budget Scenario	10-Year Budget	2021		10-Year (2030)	
			OCI	% DEF	OCI	%DEF
Do Nothing	No Funding	\$0	58	26.3	37	76.9
Need Driven	Unconstrained	\$1.0 M	75	0.0	71	0.0
Capital Budget	Capital Plan	\$1.0M	58	20.2	73	0.0

4.4.3.1 THEORETICAL ANALYSIS SCENARIOS

The Do Nothing and Need Driven optimizations run on the Entire Paved Network show the impact on the network performance of these two extreme theoretical scenarios. The analysis is run with these scenarios as a “what if” reference datum and it is understood they are not realistic in practice.

The analysis results show the paved road network requires approximately \$1.0 M over the next ten years to address the current and predicted deficiencies. The recommended work programs will result in a network average OCI of 71 and a backlog of 0%.

Table 4.14 and **Table 4.15** show the annual funding levels and performance impact on the network of the two theoretical budget scenarios.

Figure 4.10 illustrates the program summaries for theoretical budget scenarios.

Table 4.14: Do Nothing Program Summary (No Funding)

Year	Annual Budget	Budget Spent	OCI	% DEF
2021	\$0	\$0	58	26.3
2022	\$0	\$0	55	36.1
2023	\$0	\$0	52	36.1
2024	\$0	\$0	50	44.2
2025	\$0	\$0	47	60.8
2026	\$0	\$0	45	60.8
2027	\$0	\$0	43	64.8
2028	\$0	\$0	41	64.8
2029	\$0	\$0	39	64.8
2030	\$0	\$0	37	76.9
TOTAL	\$0	\$0		

Table 4.15: Need Driven Program Summary (Unlimited Funding)

Year	Annual Budget	Budget Spent	OCI	% DEF
2021	\$606,737	\$606,737	75	0.0
2022	\$84,605	\$84,605	77	0.0
2023	\$0	\$0	74	0.0
2024	\$70,016	\$70,016	77	0.0
2025	\$142,829	\$142,829	79	0.0
2026	\$0	\$0	75	0.0
2027	\$29,765	\$29,765	75	0.0
2028	\$0	\$0	71	0.0
2029	\$0	\$0	68	0.0
2030	\$89,294	\$89,294	71	0.0
TOTAL	\$1,023,246	\$1,023,246		

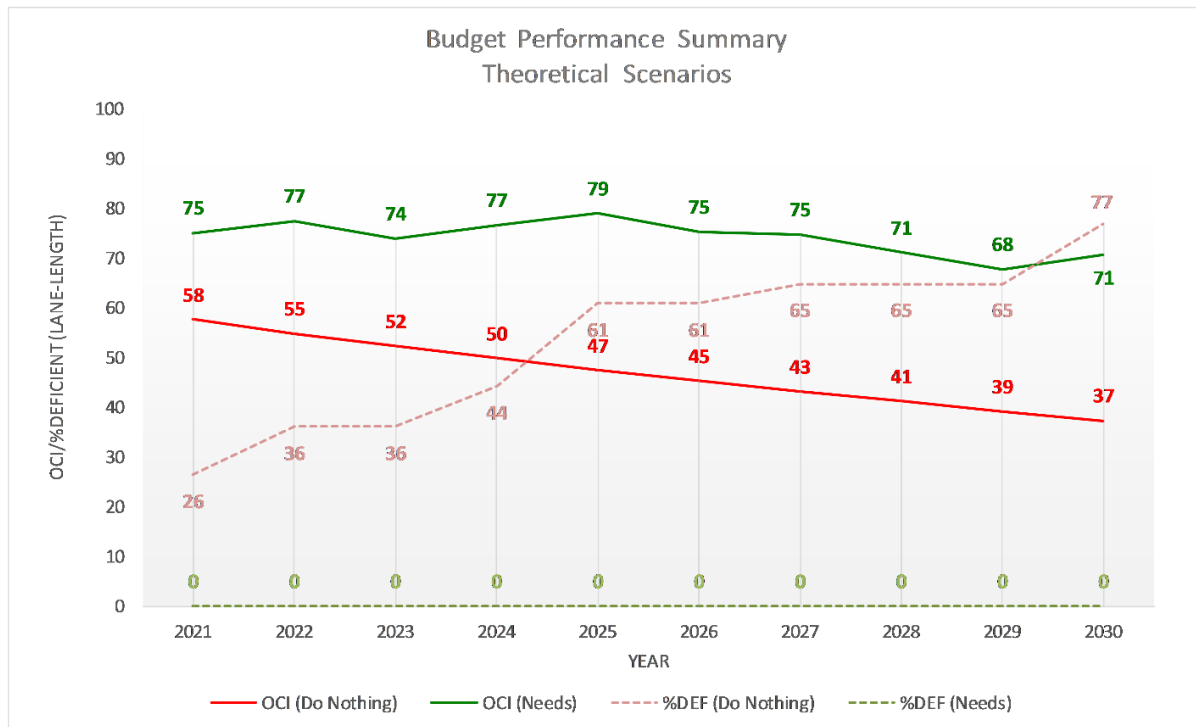


Figure 4.10: Need Driven and Do Nothing Program Performance

4.4.3.2 CAPITAL PLAN BUDGET

The budget run on the paved road network shows the performance impact of the capital plan scenario selected for the analysis. The scenario was built around a committed work program based on a balance between the pavement management needs and the Village’s intended road works over a 10-year programming period. This budget shows the predicted performance of the Village’s roadway network at this funding level.

Table 4.16 shows the annual funding details and performance impact on the network of the capital plan scenario.

Figure 4.11 illustrates the capital plan program summary.

Table 4.16: Capital Plan Program Summary

Year	Annual Budget	Budget Spent	OCI	%DEF
2021	\$80,698	\$80,698	58	20.2
2022	\$229,616	\$229,616	59	23.8
2023	\$136,274	\$136,274	69	16.0
2024	\$52,114	\$52,114	69	10.1
2025	\$227,904	\$227,904	71	20.6
2026	\$0	\$0	67	20.6
2027	\$130,527	\$130,527	74	8.9
2028	\$76,818	\$76,818	74	0.0
2029	\$0	\$0	70	0.0
2030	\$89,294	\$89,294	73	0.0
TOTAL	\$1,023,245	\$1,023,245		

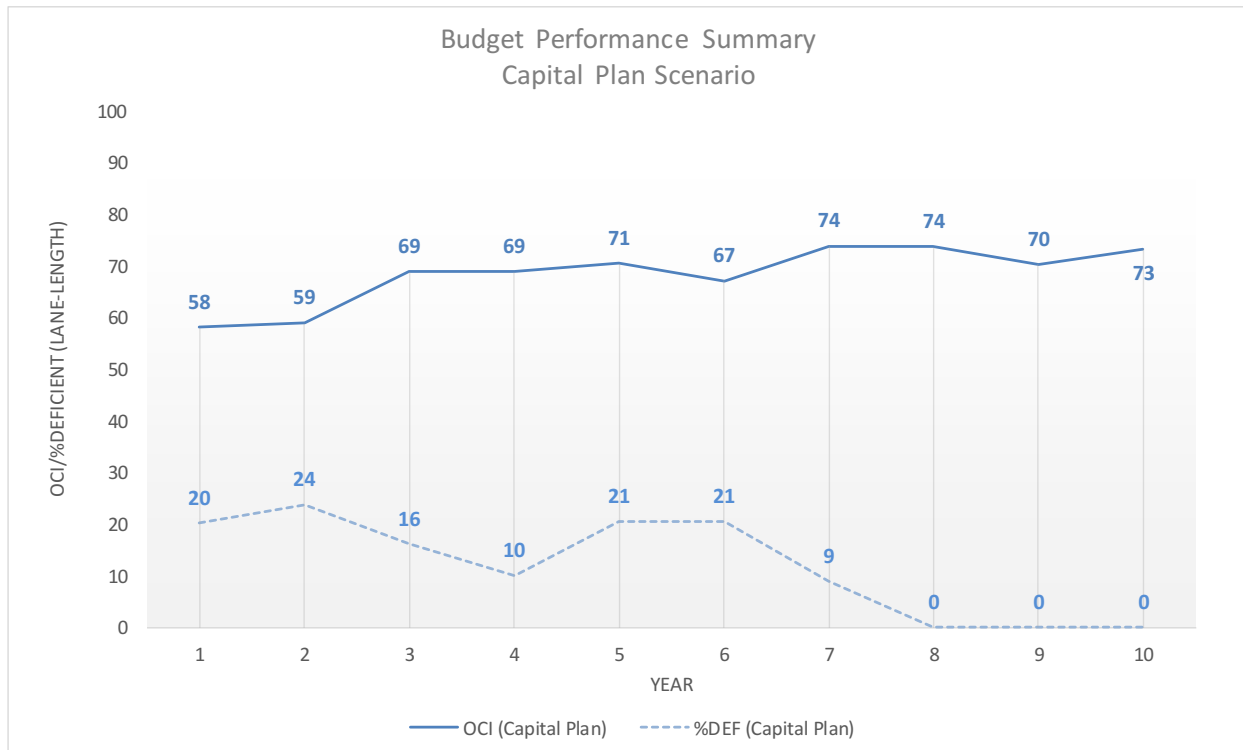


Figure 4.11 Capital Plan Program Performance

4.5 CONCLUSIONS AND RECOMMENDATIONS

4.5.1 PAVED ROAD NETWORK

4.5.1.1 ROAD NETWORK: PRESENT CONDITION

The analysis of the collected condition data indicates the majority of the Village's network is providing a marginal level of service given the network average OCI is 58 and the 2021 needs backlog is 26%. The rehabilitation backlog is just above the range of 10%–25%, traditionally considered a healthy backlog.

The results show the Village's paved roadway network is showing some distress-related deterioration in each functional classification, with a network average PDI of 62. The LOAD condition related defects are showing the most deterioration with 81% of the network in the Marginal-to-Poor range. Approximately one third of the network is showing in the Marginal-to-Poor condition of the ENVIRONMENT related defects.

The roughness condition of the network is showing the lowest performance of the measured indices. The roughness condition of the network is close to the threshold between the Marginal and Poor range, with a network average RCI of 46. The portion of the network defined by the approaches to the intersections of Railway Avenue and Main Street, and Main Street and Alberta Avenue are showing the roughest pavement conditions.

The present condition of the road network is shown in **Drawing 4.2 in Appendix A**.

4.5.1.2 PAVED ROAD NETWORK: REHABILITATION PROGRAMMING

The analysis results show the paved road network requires approximately \$1.0M over the next ten years to address the current and predicted deficiencies. The recommended work programs will result in a network average OCI of 71 and a backlog of 0% in 2031.

The current level of backlog in the network will require \$600K (59%) of the needs budget allocations in the first year of the program (2021). The results of the rehabilitation decision analysis show two network segments, or 0.6 lane-kilometres, of the network will require reconstruction over the next ten years, requiring \$458K in funding.

The results of the capital plan funding scenario (\$1.0M) show that the network performance will improve from an OCI of 58 to 73, with the 10-year backlog decreasing to 0%. This scenario indicates that the Village's capital plan for roadways will address the program rehabilitation backlog by 2030 with network performance forecast to be in the good range.

4.5.1.3 ROAD NETWORK: RECOMMENDATIONS

The paved road network in the Village of Halkirk is showing the need for investment in pavement lifecycle renewal. MPE recommends the Village focus its infrastructure planning to address at least half of the network backlog over the next ten years. As rehabilitation backlogs approach extremely high levels, networks are at risk of reaching a state of 'rust-out' and require heavier treatment alternatives (usually reconstruction) as there are few available options to improving network performance.

The rehabilitation needs results should be taken in context with other infrastructure improvement recommendations, as timing of certain roadway capital improvement projects should be optimized to strike a balance between network level of service and future development goals.

4.5.1.4 GRAVEL ROAD NETWORK

The gravel portion of the network is summarized by the PASER score:

- PASER Index (PSR) – based on a needed maintenance or repair level and reported on a scale of 1-5 where 1 indicates a Failed condition and 5 indicates an Excellent condition.

The results of the gravel condition analysis show this portion of the network performing at a **PASER Rating 3** (PSR₅ = 3.3) which indicates a **FAIR** condition with the following observations:

- Gravel segments show traffic effects. Need regrading, minor drainage (edge) maintenance, and spot gravel application.
- Continue routine maintenance.

The gravel segments on Pioneer Avenue and Main Street are showing Failed or Poor Crown and Drainage conditions. These areas should be addressed as a priority with the Village's gravel maintenance cycles.

The present condition and rating of each segment is shown in **Appendix M**.

5.0 SIDEWALK DATA COLLECTION

The Village of Halkirk is responsible for the administration of a sidewalk network totalling approximately 3 centreline-kilometres. A sidewalk inventory and condition assessment were completed as part of this study. **Drawing 5.1 in Appendix A** shows the sidewalk survey coverage.

5.1 NETWORK DEFINITION AND ATTRIBUTE DATA

The 2021 network definition and attribute data setup consisted of the following:

- Define and create the sidewalk network GIS layer based on the Village’s existing sidewalk placements. Sidewalk segments are identified using unique Asset IDs stored in the GIS database.
- Activate and load the RUBIX asset management framework (rDash).
- Classify network attributes used for analysis (pedestrian exposure, geometrics, etc.).

The sidewalk network definition, used for the purpose of the 2021 report, was created by MPE on behalf of the Village. The network definition maintains a direct link to a unique Asset ID convention established along similar guidelines to those used by the Village of Halkirk. Some modifications were made to the network definition based on actual conditions encountered during the field surveys.

An important step in the setup of the sidewalk inspection framework is the definition of the ‘unit-of-inspection’. For the purpose of the sidewalk inspections, MPE selected the single sidewalk slab as this unit. This is not to be confused with ‘Panels’ that are represented in the field by the ‘stamped’ configuration of a sidewalk structure. Typically, a sidewalk slab (construction joint-to-construction joint) has two to three stamped panels as shown in **Figure 5.1**.

MPE conducts sidewalk inspections at this level as it is the smallest unit of maintenance typically applied to sidewalk facilities. The field survey recorded the defect conditions at each slab affected. Representative slab dimensions (length and width) are recorded with each block face, and used to calculate the total number of slabs along a sidewalk segment. Defect quantities are determined as a function of the #slabs-affected/#total-slabs.

For the purpose of this study, MPE field inspections included the classification of sidewalk exposure based on their observed placement and pedestrian usage.

5.2 2021 FIELD SURVEY

The sidewalk inspections were conducted by walking survey over the full length of the sidewalk network and recording the occurrence of defects at each affected slab. In the field, additional data is collected for geometrics, condition of para-ramps, and curbs. The sidewalk inventory logged the presence and severity of trip hazards and obstructions, as well as the extent and severities for the main distress types affecting concrete sidewalk structures.

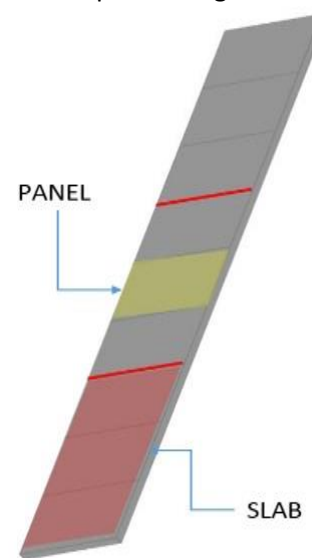


Figure 5.1: Sidewalk Slab and Panels

The following ASTM concrete distress types, and other conditions, were inventoried:

- Distress Types
 - Divided Slab
 - Corner Break
 - Spalling, Corner
 - Spalling, Joint
 - Linear Cracking
 - Faulting
 - Scaling, Map Cracking, Cracking
 - Patching, Small
- Other Conditions
 - Trip Hazards
 - Obstructions
 - Para Ramp Condition
 - Curb Condition
 - Other (Notes)

The following image depicts MPE's hand-held tablet with the RUBIX rRate/rInspector application that was used for the logging of the sidewalk inspections.



Figure 5.2: MPE rRate Data Collection Tablet (RUBIX)

5.3 SIDEWALK DATA ANALYSIS

The detailed sidewalk inspection data was analyzed to produce key performance indicators for each sidewalk segment. The main indicator is the Sidewalk Condition Index (SCI) score, or sidewalk PCI, which is calculated based on the ASTM concrete PCI methodology. The SCI represents the current condition of the sidewalk segment and/or interval. The inspection data is further analyzed to produce a Hazard Index (HI) and a Distress Index (DI) for each segment.

The sidewalk condition results provide the present status, or current condition, of each sidewalk segment. The condition is also summarized for the entire sidewalk network.

The next phase of the analysis takes into consideration the pedestrian exposure level in the sidewalk network. A matrix methodology is applied to quantify the level of exposure of the facility to pedestrian liability, defined as the Pedestrian Index (PI).

The Pedestrian Index is a function of the following:

- Urgency/Severity (Hazard Condition) – assessed based on the Hazard Index (HI) calculation from the field inspections.
- Importance/Context (Placement) – assessed based on frontage or zoning (e.g. Retirement Home, Hospital, School, etc.).
- Pedestrian Generation (Usage) – assessed based on the pedestrian traffic (e.g. CBD, retail corridors, residential neighborhoods etc.).

The PI score is represented on a 10-scale, or converted to a 100-scale, where the higher the index value the more critical the pedestrian exposure.

Once the pedestrian exposure has been defined, a Priority Value (PV) is calculated. The PV differentiates the sidewalk network based on urgency and is calculated as a function of the Distress Index (DI) and the Pedestrian Index (PI). It provides a numerical value representing the combined sidewalk condition and pedestrian exposure level. When sorted from highest to lowest, it produces an action priority ranking.

Sidewalk prioritization lists are created by sorting the network based on a combination of summary indicators, reflecting the objectives of the municipality. Typically, priority sorts are based first on the Hazard Index (highest-to-lowest) and then by the Priority Value (highest-to-lowest).

5.3.1 SURFACE DISTRESS – SIDEWALK CONDITION INDEX (SCI) ANALYSIS

The detailed sidewalk inspection data is analyzed to produce key performance indicators for each station and sidewalk segment. The main indicator is the Sidewalk Condition Index (SCI) score, which is calculated based on the ASTM concrete PCI methodology.

Modified ASTM Deduct Value (DV) models are assigned to each sidewalk defect type. These models calculate the individual defect deduct scores. Multiple defect scores are combined using further models

to produce Adjusted Deduct Values. The resulting scores are referred to as the DI and are reported on a 10-scale, or converted to a 100-scale, where the higher the value the more severe the distress condition.

The SCI score is calculated as a function of the DI score and is reported on a 100-scale.

As part of the defect analysis, the HI is calculated from the aggregation of the individual Trip Hazards identified for each sidewalk segment. A separate DV model is used to calculate the HI based on the trip hazard inspections. The results of the HI analysis determine whether a segment is considered to have a Low, Moderate, or High hazard level.

5.3.2 PEDESTRIAN EXPOSURE – PEDESTRIAN INDEX (PI) ANALYSIS

The pedestrian exposure analysis takes into consideration the importance/usage of the sidewalk structure, the level of pedestrian traffic, and most importantly, the criticality of the pedestrian hazards (trip and slip) identified in the field inspections. Each of these three influence factors are summarized as Low, Medium, or High for each unique block-face.

The combination of the influence factors analyzed through a criticality matrix produces a sidewalk Pedestrian Index (PI) based on a 10-scale, or converted to a 100-scale, where the higher the index score the more critical the asset from a pedestrian exposure perspective.

Figure 5.3 illustrates the pedestrian exposure matrix used for the 2019 analysis.

PEDESTRIAN INDEX		Importance/Context								
		High			Med			Low		
		Pedestrian Generation								
		High	Med	Low	High	Med	Low	High	Med	Low
Urgency/Severity	High	10	10	10	9	9	8	9	8	7
	Med	8	8	7	7	6	5	6	5	4
	Low	6	5	5	4	4	3	3	2	1

Figure 5.3: Pedestrian Exposure Matrix

5.3.3 PRIORITIZATION – PRIORITY VALUE (PV) ANALYSIS

Once the pedestrian exposure has been defined, a Priority Value (PV) is calculated. The PV differentiates the sidewalk network based on urgency and is calculated as a function of the Distress Index (DI) and the Pedestrian Index (PI). It provides a numerical value representing the combined sidewalk condition and pedestrian exposure level. When sorted from highest to lowest, it produces a priority ranking from most urgent to least urgent.

Sidewalk prioritization lists are created by sorting the network based on a combination of summary indicators, reflecting the objectives of the Municipality. Typical priority sorts are based first on the Hazard Index (highest-to-lowest), and then by the Priority Value (highest-to-lowest).

5.3.4 OTHER CONDITIONS

As part of the detailed inspections, the condition of several other sidewalk-related facilities was also collected.

The other conditions analyzed as part of the sidewalk assessment are as follows:

- Curb Condition – classified as a Good, Fair, or Poor condition level.
- Para-Ramp Condition – classified as a Good, Fair, or Poor level of service.
- Obstructions – classified as having a Low, Medium, or High impact on pedestrian movement. They include vegetation overgrowth, utility encroachment, debris and other obstacles within the sidewalk right-of-way.

5.3.5 MAINTENANCE ANALYSIS

The maintenance analysis uses a defect treatment approach to determine the number of slabs that require a specific application of maintenance or rehabilitation. The defects identified in the field survey are summarized by segment and the matrix methodology is applied to determine the treatments required for each affect panel in the sidewalk segment. Additional criteria are applied to identify short (partial segment), and long run (full segment) reconstruction requirements.

Table 5.1 summarizes the sidewalk maintenance methodology used for the 2021 analysis.

Table 5.1: Maintenance Criteria

Application Level	Maintenance Criteria	Maintenance Activity
Slab	Recommended to repair localized areas of moderate severity corner and joint spalling	Patching
Slab	Recommended to treat linear cracking of medium to high severity	Crack Sealing
Slab	Applied in areas of high severity scaling, medium to high severity corner breaks, and high severity corner and joint spalling	MG-KRETE Surface Repair
Slab	Recommended to treat faulting of all severities	PCC Grinding
Slab	Recommended for high severity joint faulting when no other distresses are present in the slab	Mudjacking
Partial Segment	Recommended when more than 25% of the panels within a segment contain a high severity distress of any type, and the SWCI of the segment is less than 60	Replacement
Full Segment	Recommended when more than 35% of the panels within a segment contain a high severity distress of any type, and the SWCI of the segment is less than 60	Replacement

The maintenance unit costs applied to the analysis are based on similar project experience with other municipalities and the 2021 unit rates are shown in **Table 5.2**.

Table 5.2: Maintenance Costs

Application Level	Unit Cost	Unit
Crack Sealing	\$15.00	m
Patching	\$20.00	m ²
PCC Grinding	\$22.00	m ²
Mudjacking	\$120.00	m ²
MG-KRETE Surface Repair	\$150.00	m ²
Partial Segment Reconstruction	\$400.00	m ²
Full Segment Reconstruction	\$550.00	m ²

5.4 SIDEWALK ANALYSIS RESULTS

The following section discusses and summarizes the condition of the Village’s Sidewalk Network. The complete sidewalk condition and prioritized listing, summarized by network segment, is provided in **Appendix N**.

The 2021 present status of the Village’s sidewalk network is summarized in **Table 5.3**.

The results of the other conditions analysis including trip hazards, para-ramp deficiencies, and curb rail failures are summarized in **Table 5.4**.

The results of the pedestrian exposure analysis show the network distribution across the matrix classes and is summarized in **Table 5.5**.

Table 5.3: 2021 Sidewalk Network Performance Summary

Facility	Segments	Length (km)	# Slabs	SCI
Halkirk Sidewalk Network	30	2.841	946	75

Table 5.4: 2021 Sidewalk Critical Conditions Summary

Facility	Trip Hazards (Mod&Sev)		Missing/Failed Sidewalks (#Segements)	#Para-Ramps (Mod/Sev)	Failed Curb (#Rails)
	#Slabs	%Slabs			
Halkirk Sidewalk Network	44	4.7%	0	0	0 ²

² The Village sidewalk network is almost entirely monolithic with no curb construction.

Table 5.5: Pedestrian Exposure and Condition Summary

Condition Level	Length (km)	Hazards		Importance		Ped. Level	
		Length	%Len	Length	%Len	Length	%Len
Low	2.84	2.19	77.1	2.84	100.0	2.84	100.0
Medium		0.19	6.7	0.0	0.0	0.0	0.0
High/Severe		0.46	16.2	0.0	0.0	0.0	0.0

5.4.1 SIDEWALK CONDITION ANALYSIS (SCI) RESULTS

The majority of the sidewalk network is exhibiting signs of acceptable condition with respect to the defects present. **Figure 5.4** shows the distribution of SCI values, weighted by centreline length.

The plot indicates a mean SCI of 75 for the sidewalk network.

Table 5.6 shows the distribution of the network between poor, marginal and acceptable SCI values.

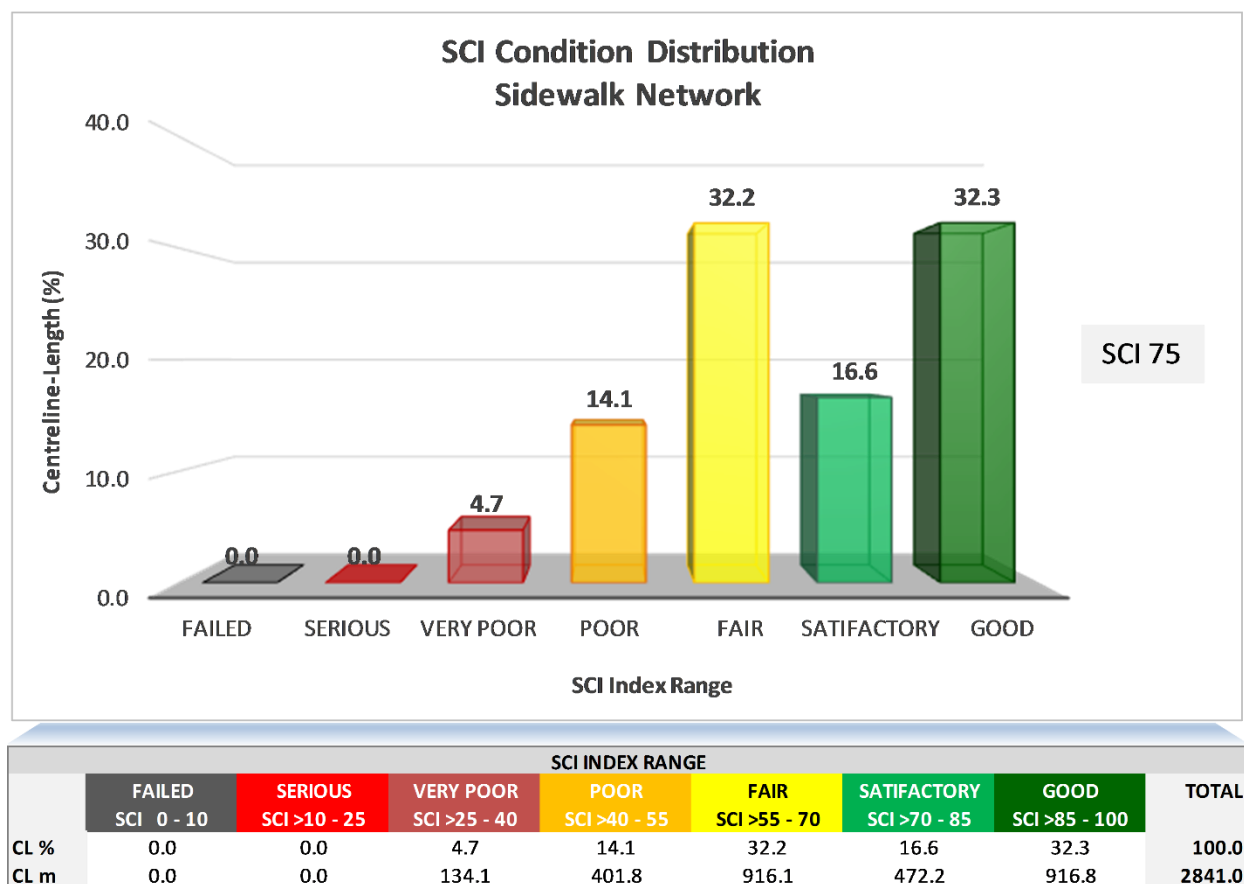


Figure 5.4: SCI Distribution – Sidewalk Network

Table 5.6: SCI Distribution – Sidewalk Network

SCI Range	Sidewalk Condition	Length-km	% of Network
SCI ≤ 40	Poor	0.14	4.9
40 < SCI ≤ 60	Marginal	0.69	24.3
SCI > 60	Acceptable	2.01	70.8

5.4.2 MAINTENANCE ANALYSIS RESULTS

The results of the maintenance assessment show the number of panels requiring treatment at each maintenance level.

Table 5.7 shows the current maintenance needs summary for the Village’s sidewalk network.

Table 5.7: Sidewalk Maintenance Level Summary

Treatment	Maintenance Program	Treatment Length (m)	Treatment Cost	Total Cost
Crack Sealing	Maintenance	120	\$1,800	\$57,672
Patching		24	\$720	
PCC Grinding		9	\$297	
Mudjacking		6	\$1,080	
MG-KRETE Surface Repair		63	\$14,175	
Partial Segment Reconstruction		48	\$39,600	
Full Segment Reconstruction	Capital Projects	0	\$0	\$0
TOTAL		270		\$57,672

The summary of the maintenance cost requirements show that the sidewalk network only requires maintenance programs (100%) with no capital projects (0%) identified. Maintenance needs are primarily slab replacement, surface repair treatments, and crack sealing.

A review of the segment results indicates that approximately 0.5 km (16%) of the network have a high priority for maintenance, requiring an estimated \$43,353 in treatment costs, the majority of which is for slab replacement costs.

5.5 CONCLUSIONS AND RECOMMENDATIONS

5.5.1 SIDEWALK NETWORK: PRESENT CONDITION

The analysis of the collected condition data indicates the majority of the Village's sidewalk network is providing a satisfactory level of service, given the network average SCI is 75. The sidewalk results show only 44 sidewalk slabs (4.7% of the network length) are affected by moderate to high levels of trip hazards.

The overall condition of Sidewalks is shown in **Drawing 5.2 in Appendix A**.

5.5.2 SIDEWALK NETWORK: MAINTENANCE PRIORITIZATION

The results of the maintenance level review identify 270 m (~10%) of the sidewalk network require maintenance or replacement. The budget analysis shows the sidewalk network requires \$57,672 in total funding.

5.5.3 SIDEWALK NETWORK: RECOMMENDATIONS

The Village's sidewalk network is performing at a satisfactory level and it is recommended that the Village continue to monitor and routinely maintain the sidewalk facilities as the Village's infrastructure demands and usage grow. Attention should be paid to segments with high and moderate hazards identified.

6.0 OTHER VILLAGE INFRASTRUCTURE

6.1 CEMETERIES

The Village has two cemeteries located along Township Road 384, the “Halkirk Cemetery” and the “Catholic Cemetery”. The Halkirk Cemetery (pictured below) has an access road and formal signage. The Catholic Cemetery does not have an access road or formal signage but both Cemeteries appear to be well maintained. The Halkirk Cemetery can be seen in **Figures 6.1 and 6.2**.



Figure 6.1: Cemetery Sign



Figure 6.2: Cemetery Road

6.2 WASTE TRANSFER SITE

The Halkirk Waste Transfer Site is operated by Paintearth Regional Waste Management and is located west of the Village with access from Alberta Avenue/Township Road 383B. The site has dedicated areas to separate the types of waste. The main dumping area consists of four large bins for everyday waste with a loading ramp. There are also dedicated areas or bins for cardboard, propane bottles, tires, electronics, fridges/freezers, construction materials, metals (including washers, dryers, hot water tanks), a wood burning pit, and furniture. **Figures 6.3 to 6.6** show some of the areas of the waste transfer site.



Figure 6.3: Main Loading Area, Ramp, Propane Bottle, and Tire Area



Figure 6.4: Electronic Waste Area



Figure 6.5: Fridge and Freezer Area



Figure 6.6: Wood Burning Area

6.3 SHALLOW UTILITIES

Shallow utilities are located throughout the Village including natural gas lines, power lines, and phone lines.

A list of the shallow utility providers is provided below:

- Natural Gas – Owned by the Village, operated by Paintearth Gas Co-op
- Phone – Telus

Hames Engineering Ltd. (Hames) was retained to perform an assessment of the natural gas system. Hames summarized that the system currently has adequate delivery pressures and that 75% capacity is still

available in the system to meet future demands. There is a low urgency to upgrade the system. The assessment is included in **Appendix O**.

6.4 VILLAGE-OWNED VEHICLES AND EQUIPMENT

The Village owns the following vehicles and equipment:

- 2010 Kubota Tractor with the following attachments:
 - Bucket
 - Snow Plow
 - Fork Lift
 - 2019 Finishing Mower
- 2018 Kubota Riding Lawn Mower
 - Approximately 5,150 hours
 - No issues with the mower to date
- 2003 Ford Diesel Public Works Truck
 - Approximately 78,000 km
 - Bought second hand
 - With Gravel box
- Fire Trucks
 - 2004 Chevrolet Silverado 3500
 - Approximately 263,613 km
 - Water tank was installed in 2014 and is used as a rapid response unit
 - 1996 Ford E350
 - Approximately 106,060 km
 - Was an ambulance converted to be used by the Fire Department



Figure 6.7: Public Works Tractor



Figure 6.8: Lawn Mower



Figure 6.9: Chevrolet Fire Truck



Figure 6.10: Ford Fire Truck

6.5 PHASE 1 ENVIRONMENTAL SITE ASSESSMENT

As part of the Infrastructure Assessment, a Phase 1 Environmental Site Assessment (ESA) was completed on ten public sites throughout the Village to identify potential environmental contamination. Environmental concerns for each site are outlined below with recommendations for further investigation on the sites with moderate to high environmental risk levels. The full report can be found in **Appendix P**.

6.5.1 RECREATION AND CAMPGROUND

The site is considered a low to moderate environmental risk due to the proximity to the former landfill site. It is recommended that further correspondence with Alberta Environment be conducted to locate records of landfill footprint, operating period, closure and/or capping of the landfill, and any other environmental assessments.

6.5.2 CHURCH

The site is considered a moderate to high environmental risk due to proximity to underground storage tanks (UST) at a neighboring lot and the potential for hazardous building materials (HBM) in the building. It is recommended that a Phase II ESA be performed to assess the adjacent historical USTs and that a Hazardous Building Materials Assessment (HBMA) be performed prior to any renovations or demolition.

6.5.3 CURLING RINK

The site is considered a high environmental risk due to the historical use of freon and calcium chloride for ice production, potential for HBM, and the condition of the foundation. It is recommended that a Phase II ESA be performed to assess the adjacent historical underground storage tanks (USTs) and the potential Calcium chloride impacts, that a Building Condition Assessment (BCA) be completed to assess the basement foundation, and that a HBMA be performed prior to renovations or demolition.

6.5.4 BERRY STREET CAMPGROUND

The site is considered a moderate environmental risk due to the presence of a former lumber yard on the site and possible presence of creosote and other wood treatment chemicals. It is recommended that a

Phase II ESA be completed to assess the potential contaminants and impacts from historical lumber yard activity and storage.

6.5.5 SENIOR CENTRE, VILLAGE OFFICE, AND PUBLIC WORKS SHOP

These sites are considered a low environmental risk due to the potential presence of HBMs and the condition of the foundation. It is recommended that a BCA be completed to assess the basement foundations.

6.5.6 COMMUNITY HALL

The site is considered a low to moderate environmental risk due to the proximity to USTs at a neighboring lot and the potential for hazardous building materials (HBM) in the building. It is recommended that a Phase II ESA be performed to assess the adjacent historical USTs and that a HBMA be performed prior to any renovations or demolition.

6.5.7 WATER TOWER AND PLAYGROUND

The site is considered a moderate to high environmental risk due to the proximity to USTs at a neighboring lot. It is recommended that a Phase II ESA be performed to assess the adjacent historical USTs.

6.5.8 FIRE HALL

The site is considered a moderate environmental risk due to the proximity to USTs and historical lumber yard activities at neighboring lots. It is recommended that a Phase II ESA be completed to assess the adjacent historical USTs and the potential contaminants and impacts from historical lumber yard activity and storage.

6.5.9 CANADA POST AND BANK

These sites are considered a moderate environmental risk due to the proximity to USTs and potential historical dry cleaner at neighboring lots. It is recommended that a Phase II ESA be completed to assess the adjacent historical USTs and the potential dry-cleaning chemicals at neighboring lots.

6.5.10 MINI ARENA

The site is considered a low environmental risk and no further action is recommended at this time.

6.6 CONCLUSION AND RECOMMENDATIONS

The following conclusions and recommendations are provided for the other Village infrastructure:

- The recreation grounds, cemeteries, and waste transfer site are all in good working condition.
- The Phase II ESA report outlined the environmental risks associated with each of the Village-owned lots. For the lots with moderate to high environmental risk, it is recommended that the Village complete further investigations required to determine the environmental impact.
- The Phase I ESA also recommends that any basements showing structure damage undergo a BCA and that HBMA be completed prior to renovations or demolition.

7.0 CAPITAL PLAN

Undertaking this Infrastructure Assessment for the Village has developed the background and framework for maintaining the infrastructure in the community. Upgrades and expansions have been identified for the various systems, and cost estimates have been developed in association with the proposed works.

The Capital Plan is intended to be an evolving plan to address infrastructure items, both those included here and others that may arise. Therefore, the Capital Plan presented may represent priorities as they exist this year, but next year some items may shift either ahead or back in the plan. The value in laying out projects in this Capital Plan is that the Village can use the plan to pursue Provincial and Federal funding, seek debentures, assign off-site levies, and judge appropriate levels of taxation.

The Capital Plan has been split into two different sections. The first dealing with the municipal buildings upgrades which can be completed separately from the infrastructure and transportation projects. The second section combines the remaining 10-year infrastructure and transportation projects. Various projects can be completed in conjunction with others to use funds efficiently and avoid duplication of cost on items such as roadwork. The proposed 10-year Capital Plan is included in **Appendix Q**.

7.1 EXISTING MUNICIPAL BUILDINGS

The 10-year Plan is the summary of all the works identified in the detail assessment report that are recommended to be completed and prioritized based on the rating of each component. It is advised that because the rate of deterioration of each component can change as a result of unforeseen conditions, the Village should review the 10-year Plan every five years (at a minimum) to adjust for these unforeseen conditions. The Village may also adjust the 10-year Plan to meet the Village's annual budget.

During the first five years, it is very likely that additional deficiencies will arise and items identified as close to end-of-life expectancy will last longer than estimated. Please note that items rated 1 and 2 are generally items related to life safety and code requirements. Therefore, these items are recommended to be completed as soon as possible. A summary of the estimated building deficiencies cost for the next 10 years is shown in **Table 7.1** and a detailed list is included in **Appendix Q**.

Table 7.1: Yearly Estimated Cost

Year	Estimated Cost
2022	\$85,500
2023	\$296,600
2024	\$140,000
2025	\$100,000
2026	\$149,500
2027	\$87,000
2028	\$150,000
2029	\$88,500
2030	\$64,500
2031	\$69,000
Total Cost for Next 10 Years	\$1,230,600

7.2 INFRASTRUCTURE AND TRANSPORTATION

The projects that are recommended for completion within the next ten years are the most critical infrastructure components that either need upgrading to satisfy guidelines, increase level of service, or are in poor condition and not functioning as intended. Some roadways that were identified in the report as needing overlays were not included as separate projects in the capital plan as they would require replacement in association with other infrastructure projects (such as water or sewer upgrades). For these projects, the approximate cost of roadwork was removed from the cost estimate for the corresponding infrastructure projects. Certain infrastructure may be scheduled for rehabilitation earlier than required if other infrastructure in the same roadway is a higher priority.

7.3 FUNDING

The capital plan has outlined a total expenditure for the municipal building's capital plan, and the road and municipal infrastructure capital plan of \$972,600 and \$8,872,000, respectively. Government grants and funding support such as the Alberta Municipal Water/Wastewater Partnership are available to communities like Halkirk to undertake infrastructure projects, which if secured, would enable these projects to become more feasible.

8.0 CLOSURE

This Infrastructure Assessment has been prepared with input from the Village and County personnel. The projects identified in Section 7.0 have been prioritized to meet the Village's specific infrastructure needs. The Village is encouraged to develop a project implementation plan to deal with priorities to keep its infrastructure in good operating order and to retain the integrity of the overall system. It is recommended that possible government funding sources and programs be identified for use in budget deliberations to determine which projects may be feasible.

The Village of Halkirk should consider the projects identified in this report and its appendices for the development of future staging plans. It is suggested that the identified underground infrastructure projects and overlays be considered primary priorities, with the remaining projects deemed as secondary or other priorities.

9.0 REFERENCES

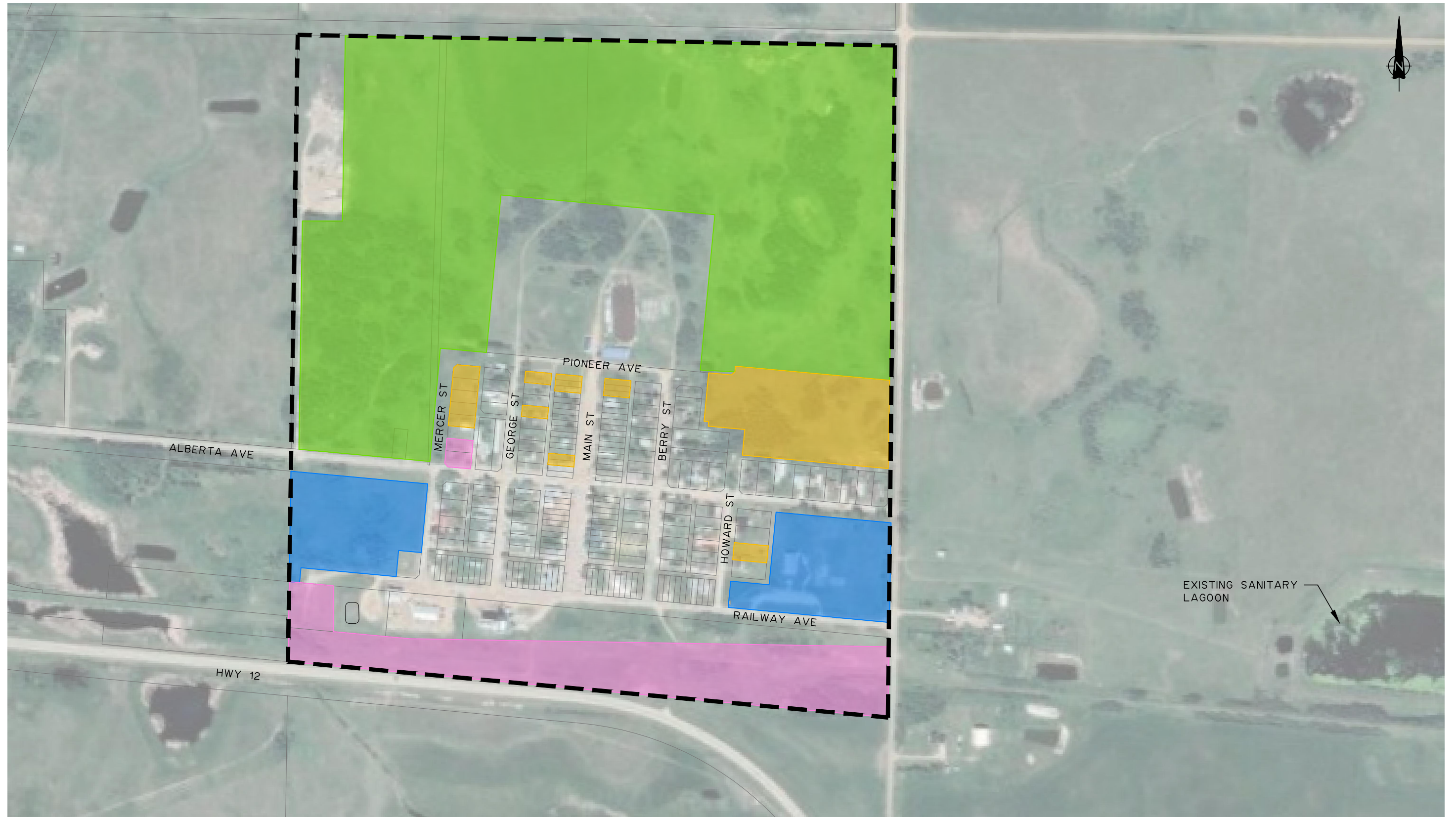
County of Paintearth No. 18, *"Policies - Environmental Services – Utilities"*, Prepared by County of Paintearth, September 2017.

Lacombe County, *"Standards Manual"*, Prepared by Lacombe County, May 2017.

Alberta Environment and Parks, *"Standards and Guidelines for Municipal Waterworks, Wastewater and Storm Drainage Systems"*, Prepared by Alberta Environment and Parks, April 2012.

APPENDIX A

Municipal Infrastructure Drawings



LEGEND:

- VACANT COMMERCIAL/INDUSTRIAL
- VACANT ENVIRONMENTAL/AGRICULTURAL
- VACANT GENERAL
- VACANT RESIDENTIAL
- VILLAGE BOUNDARY



VILLAGE OF HALKIRK
 INFRASTRUCTURE ASSESSMENT
 SITE PLAN

SCALE: 1:5000

DATE: SEPT 2021

JOB: 4460-005-00

DRAWING: 1.1



- NOTES:**
1. ALL ELEVATIONS, STATIONS, PIPE LENGTHS AND DIMENSIONS IN METRES AND PIPE SIZES IN MILLIMETRES UNLESS NOTED OTHERWISE.
 2. ALL UNDERGROUND UTILITIES, INCLUDING GAS, OIL, TELEPHONE, PIPELINES, ELECTRICAL, ETC. AS SHOWN ON THIS PLAN, ARE BASED ON THE INFORMATION RECEIVED FROM THE RESPECTIVE AUTHORITIES. NO RESPONSIBILITY IS IMPLIED OR ASSUMED BY THE ENGINEERS AS TO THE LOCATION, ELEVATIONS, OR OMISSIONS. THE CONTRACTOR MUST CONTACT THE VARIOUS UTILITIES FOR ON-SITE INFORMATION AS TO THE ACTUAL LOCATIONS.
 3. EXISTING INFORMATION IS BASED ON UTM 12 NAD 83 COORDINATES.



- LEGEND:**
- W 150 PVC
 - W 150 ASBESTOS CEMENT
 - W 50 BLACK PLASTIC
 - ◆ HYDRANT
 - ✕ VALVE
 - VILLAGE BOUNDARY



VILLAGE OF HALKIRK
INFRASTRUCTURE ASSESSMENT
EXISTING WATER DISTRIBUTION SYSTEM

SCALE: 1:2500	DATE: SEPT 2021	JOB: 4460-005-00	DRAWING: 3.1
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- NOTES:**
1. ALL ELEVATIONS, STATIONS, PIPE LENGTHS AND DIMENSIONS IN METRES AND PIPE SIZES IN MILLIMETRES UNLESS NOTED OTHERWISE.
 2. ALL UNDERGROUND UTILITIES, INCLUDING GAS, OIL, TELEPHONE, PIPELINES, ELECTRICAL, ETC. AS SHOWN ON THIS PLAN, ARE BASED ON THE INFORMATION RECEIVED FROM THE RESPECTIVE AUTHORITIES. NO RESPONSIBILITY IS IMPLIED OR ASSUMED BY THE ENGINEERS AS TO THE LOCATION, ELEVATIONS, OR OMISSIONS. THE CONTRACTOR MUST CONTACT THE VARIOUS UTILITIES FOR ON-SITE INFORMATION AS TO THE ACTUAL LOCATIONS.
 3. EXISTING INFORMATION IS BASED ON UTM 12 NAD 83 COORDINATES.

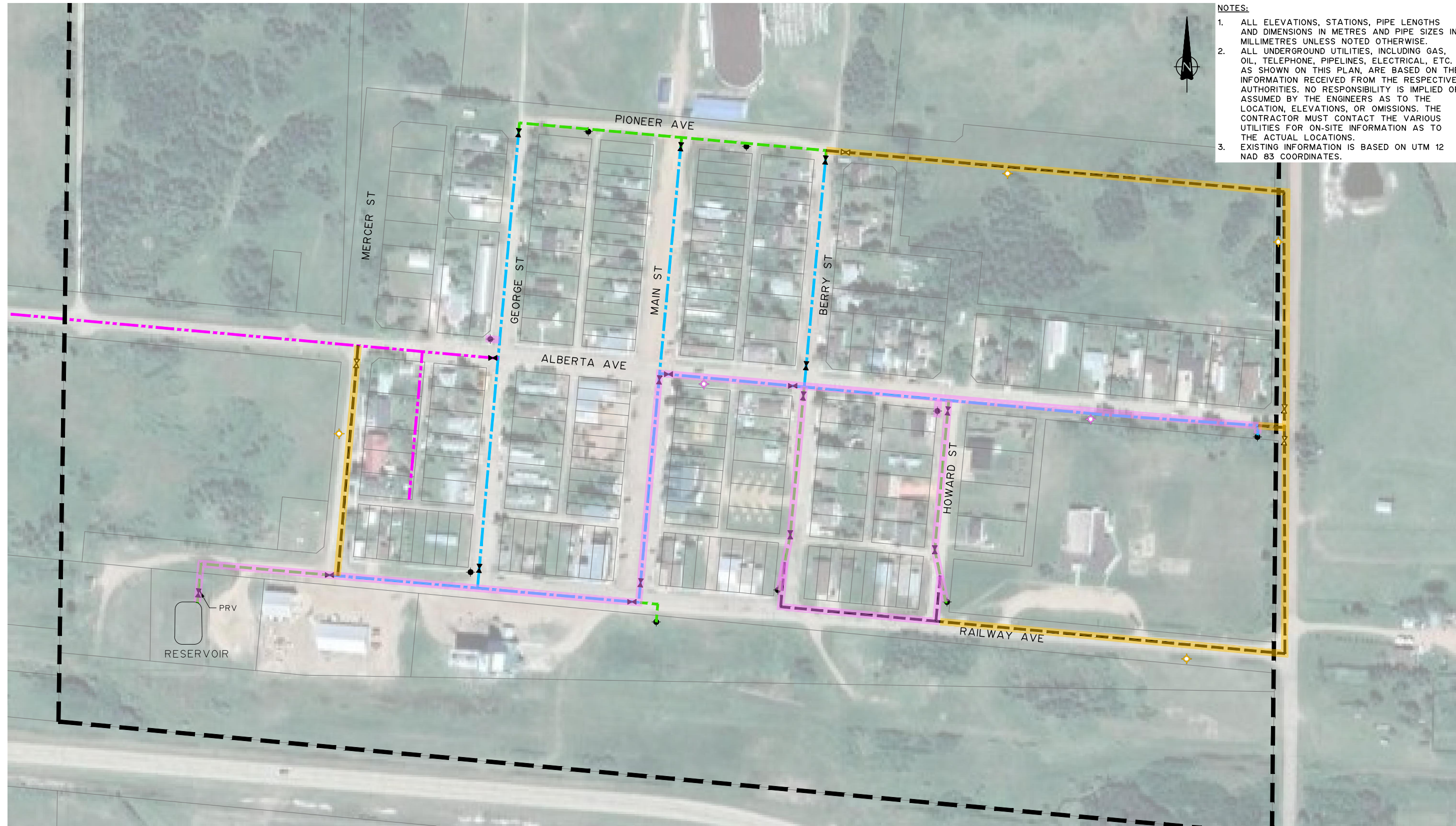
LEGEND:

- W 150 PVC
- W 150 ASBESTOS CEMENT
- W 50 BLACK PLASTIC
- ◆ HYDRANT
- ✕ VALVE
- VILLAGE BOUNDARY



VILLAGE OF HALKIRK
 INFRASTRUCTURE ASSESSMENT
 HYDRANT COVERAGE

SCALE: 1:2500	DATE: SEPT 2021	JOB: 4460-005-00	DRAWING: 3.2
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- NOTES:**
1. ALL ELEVATIONS, STATIONS, PIPE LENGTHS AND DIMENSIONS IN METRES AND PIPE SIZES IN MILLIMETRES UNLESS NOTED OTHERWISE.
 2. ALL UNDERGROUND UTILITIES, INCLUDING GAS, OIL, TELEPHONE, PIPELINES, ELECTRICAL, ETC. AS SHOWN ON THIS PLAN, ARE BASED ON THE INFORMATION RECEIVED FROM THE RESPECTIVE AUTHORITIES. NO RESPONSIBILITY IS IMPLIED OR ASSUMED BY THE ENGINEERS AS TO THE LOCATION, ELEVATIONS, OR OMISSIONS. THE CONTRACTOR MUST CONTACT THE VARIOUS UTILITIES FOR ON-SITE INFORMATION AS TO THE ACTUAL LOCATIONS.
 3. EXISTING INFORMATION IS BASED ON UTM 12 NAD 83 COORDINATES.

LEGEND:

- | | |
|-------------------------|--|
| — W 150 PVC | — VILLAGE BOUNDARY |
| — W 150 ASBESTOS CEMENT | ◇ NEW HYDRANT FOR EXPANSION |
| — W 50 BLACK PLASTIC | ◇ NEW HYDRANT FOR IMPROVEMENTS |
| ◆ EXISTING HYDRANT | — W 200 EXPANSION FOR FUTURE DEVELOPMENT |
| ⊗ EXISTING VALVE | — W 200 PVC IMPROVEMENTS |
| ⊗ NEW VALVE | |



VILLAGE OF HALKIRK
 INFRASTRUCTURE ASSESSMENT
 WATER DISTRIBUTION SYSTEM -
 RECOMMENDED IMPROVEMENTS

SCALE: 1:2500	DATE: SEPT 2021	JOB: 4460-005-00	DRAWING: 3.3
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- NOTES:**
1. ALL ELEVATIONS, STATIONS, PIPE LENGTHS AND DIMENSIONS IN METRES AND PIPE SIZES IN MILLIMETRES UNLESS NOTED OTHERWISE.
 2. ALL UNDERGROUND UTILITIES, INCLUDING GAS, OIL, TELEPHONE, PIPELINES, ELECTRICAL, ETC. AS SHOWN ON THIS PLAN, ARE BASED ON THE INFORMATION RECEIVED FROM THE RESPECTIVE AUTHORITIES. NO RESPONSIBILITY IS IMPLIED OR ASSUMED BY THE ENGINEERS AS TO THE LOCATION, ELEVATIONS, OR OMISSIONS. THE CONTRACTOR MUST CONTACT THE VARIOUS UTILITIES FOR ON-SITE INFORMATION AS TO THE ACTUAL LOCATIONS.
 3. EXISTING INFORMATION IS BASED ON UTM 12 NAD 83 COORDINATES.

LEGEND:

- - - - - S 100 VCT
- - - - - S 150 VCT
- - - - - S 200 VCT
- - - - - S 200 VCT - RELINED
- - - - - S 200 PVC
- MANHOLE
- VILLAGE BOUNDARY






VILLAGE OF HALKIRK
 INFRASTRUCTURE ASSESSMENT
 EXISTING SANITARY COLLECTION SYSTEM

SCALE: 1:2500	DATE: SEPT 2021	JOB: 4460-005-00	DRAWING: 3.4
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- NOTES:**
1. ALL ELEVATIONS, STATIONS, PIPE LENGTHS AND DIMENSIONS IN METRES AND PIPE SIZES IN MILLIMETRES UNLESS NOTED OTHERWISE.
 2. ALL UNDERGROUND UTILITIES, INCLUDING GAS, OIL, TELEPHONE, PIPELINES, ELECTRICAL, ETC. AS SHOWN ON THIS PLAN, ARE BASED ON THE INFORMATION RECEIVED FROM THE RESPECTIVE AUTHORITIES. NO RESPONSIBILITY IS IMPLIED OR ASSUMED BY THE ENGINEERS AS TO THE LOCATION, ELEVATIONS, OR OMISSIONS. THE CONTRACTOR MUST CONTACT THE VARIOUS UTILITIES FOR ON-SITE INFORMATION AS TO THE ACTUAL LOCATIONS.
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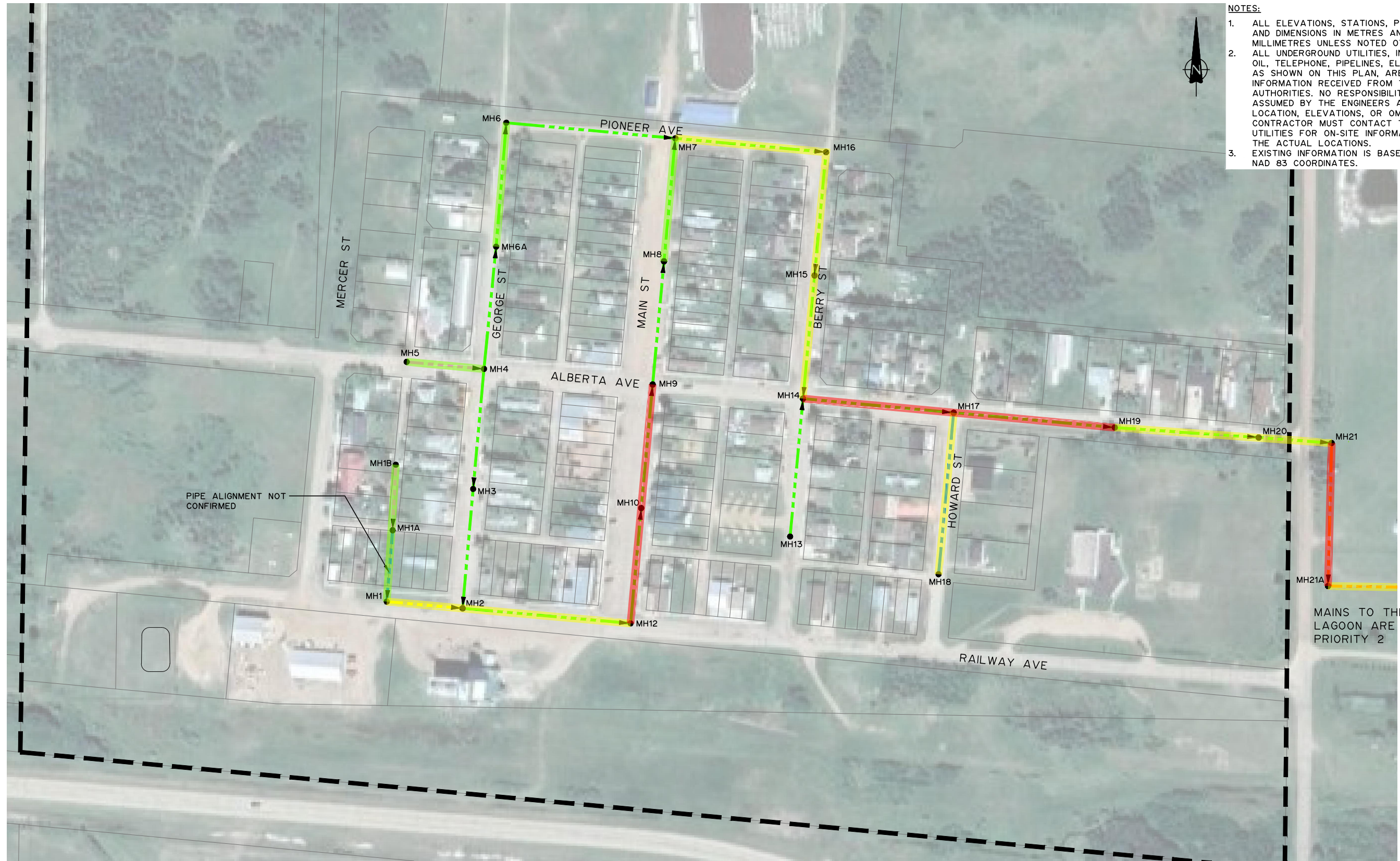
LEGEND:

- | | |
|---|--|
|  S MAIN CONDITION - GOOD |  VILLAGE BOUNDARY |
|  S MAIN CONDITION - FAIR |  S MH CONDITION - GOOD |
|  S MAIN CONDITION - POOR |  S MH CONDITION - FAIR |
|  S MAIN - NO SURVEY |  S MH CONDITION - POOR |













VILLAGE OF HALKIRK
 INFRASTRUCTURE ASSESSMENT
 EXISTING SANITARY COLLECTION SYSTEM -
 PIPE CONDITION

SCALE: 1:2500	DATE: SEPT 2021	JOB: 4460-005-00	DRAWING: 3.5
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- NOTES:**
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 2. ALL UNDERGROUND UTILITIES, INCLUDING GAS, OIL, TELEPHONE, PIPELINES, ELECTRICAL, ETC. AS SHOWN ON THIS PLAN, ARE BASED ON THE INFORMATION RECEIVED FROM THE RESPECTIVE AUTHORITIES. NO RESPONSIBILITY IS IMPLIED OR ASSUMED BY THE ENGINEERS AS TO THE LOCATION, ELEVATIONS, OR OMISSIONS. THE CONTRACTOR MUST CONTACT THE VARIOUS UTILITIES FOR ON-SITE INFORMATION AS TO THE ACTUAL LOCATIONS.
 3. EXISTING INFORMATION IS BASED ON UTM 12 NAD 83 COORDINATES.

LEGEND:

- | | |
|---|--|
|  S 100 VCT |  MANHOLE |
|  S 150 VCT |  VILLAGE BOUNDARY |
|  S 200 VCT |  S MAIN REPLACEMENT - PRIORITY 1 |
|  S 200 VCT - RELINED |  S MAIN REPLACEMENT - PRIORITY 2 |
|  S 200 PVC |  S MAIN REPLACEMENT - PRIORITY 3 |



VILLAGE OF HALKIRK
 INFRASTRUCTURE ASSESSMENT
 EXISTING SANITARY COLLECTION SYSTEM -
 RECOMMENDED IMPROVEMENTS

SCALE: 1:2500	DATE: SEPT 2021	JOB: 4460-005-00	DRAWING: 3.6
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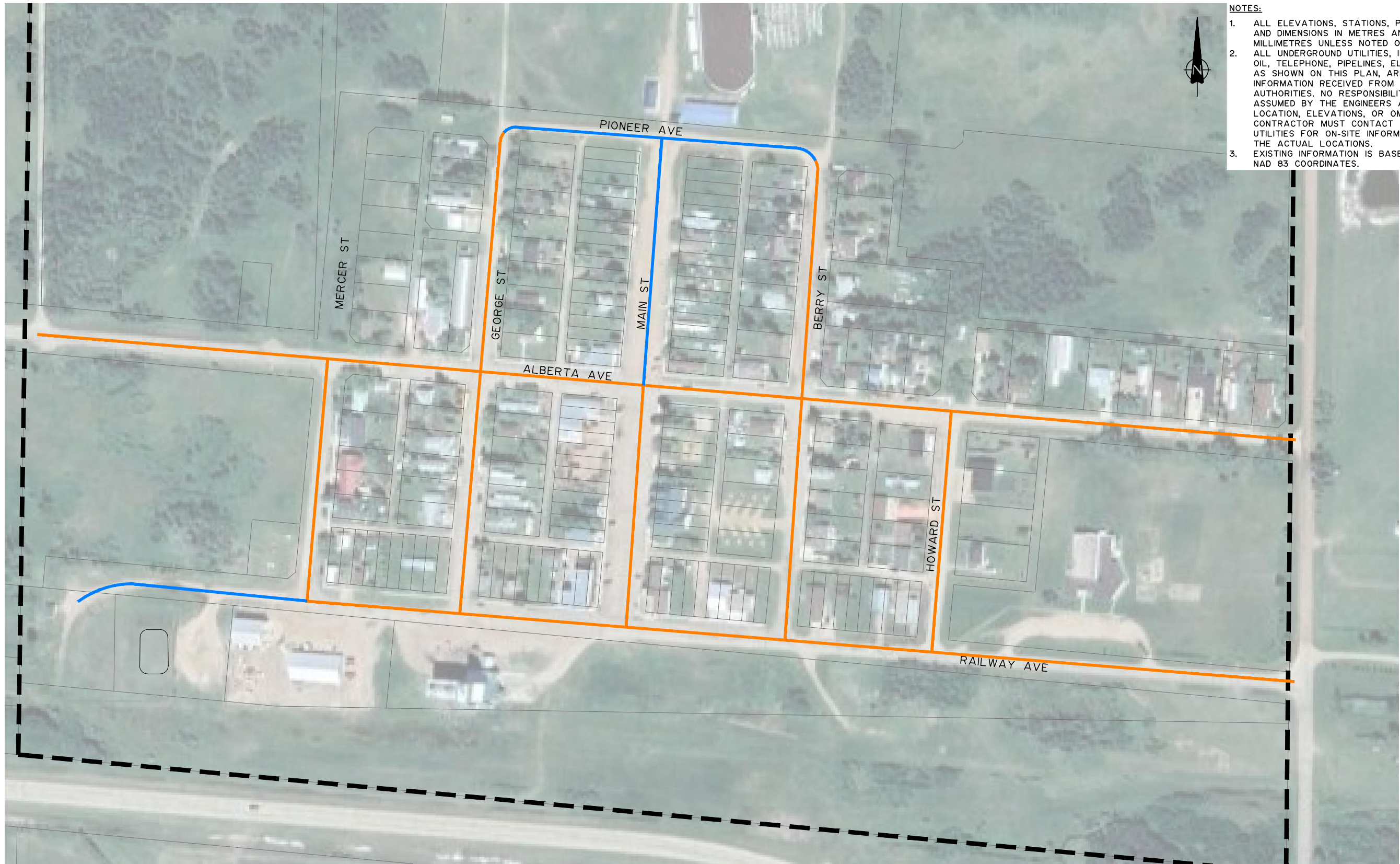
- NOTES:**
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 3. EXISTING INFORMATION IS BASED ON UTM 12 NAD 83 COORDINATES.



LEGEND:

- | | | | |
|--|----------------------------|--|---------------------------------|
| | S 200 VCT | | VILLAGE BOUNDARY |
| | S 200 PVC | | INLET/OUTLET STRUCTURE |
| | S MANHOLE CONDITION - GOOD | | S MAIN REPLACEMENT - PRIORITY 1 |
| | S MANHOLE CONDITION - FAIR | | S MAIN REPLACEMENT - PRIORITY 2 |
| | S MANHOLE CONDITION - POOR | | S MAIN REPLACEMENT - PRIORITY 3 |
| | MANHOLE | | |

		VILLAGE OF HALKIRK	
		INFRASTRUCTURE ASSESSMENT WASTEWATER TREATMENT SITE	
SCALE: 1:2500	DATE: SEPT 2021	JOB: 4460-005-00	DRAWING: 3.7



- NOTES:**
1. ALL ELEVATIONS, STATIONS, PIPE LENGTHS AND DIMENSIONS IN METRES AND PIPE SIZES IN MILLIMETRES UNLESS NOTED OTHERWISE.
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 3. EXISTING INFORMATION IS BASED ON UTM 12 NAD 83 COORDINATES.

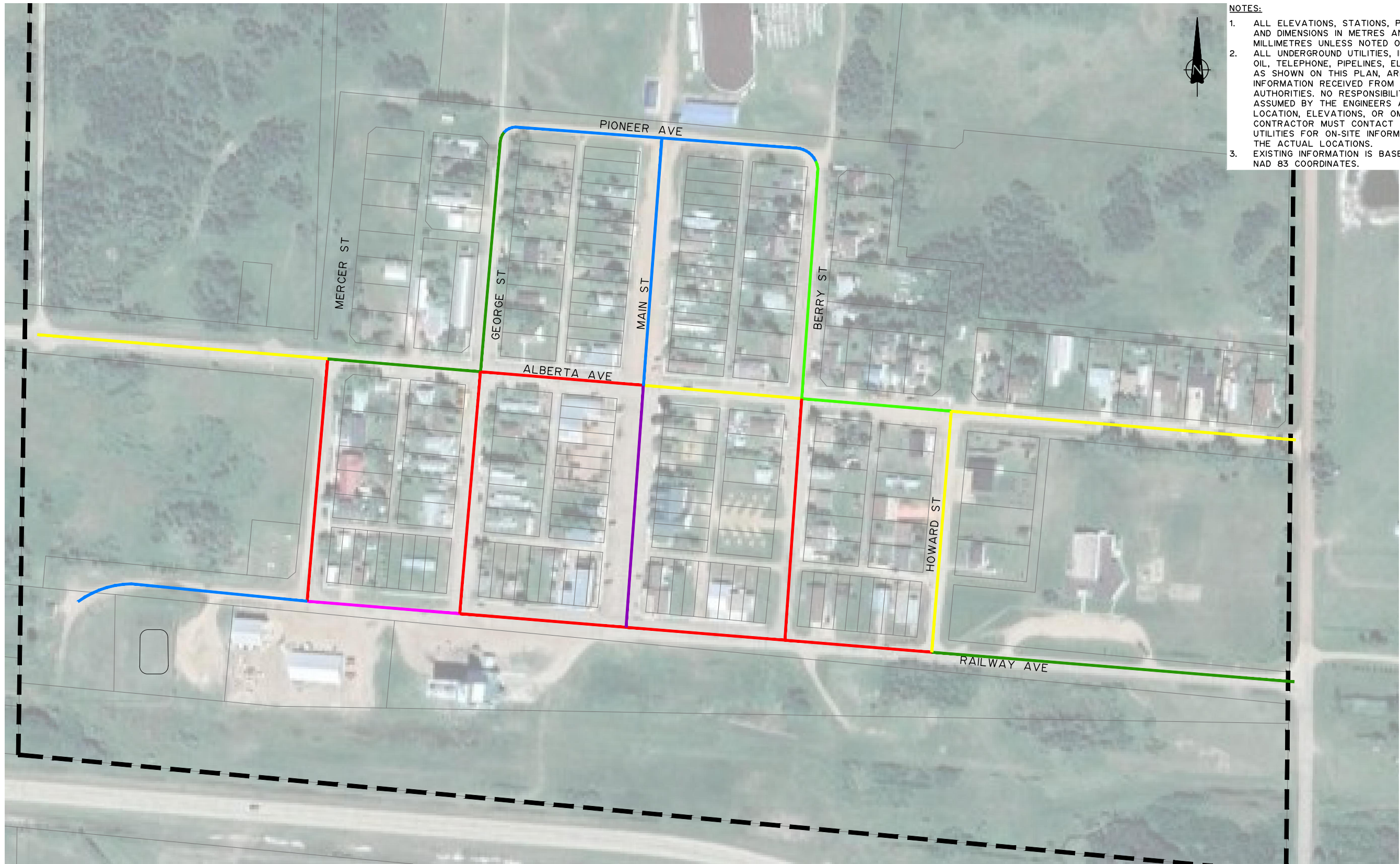
LEGEND:

- ASPHALT
- GRAVEL
- VILLAGE BOUNDARY



VILLAGE OF HALKIRK
 INFRASTRUCTURE ASSESSMENT
 2021 ROAD COVERAGE


SCALE: 1:2500	DATE: SEPT 2021	JOB: 4460-005-00	DRAWING: 4.1
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- NOTES:**
1. ALL ELEVATIONS, STATIONS, PIPE LENGTHS AND DIMENSIONS IN METRES AND PIPE SIZES IN MILLIMETRES UNLESS NOTED OTHERWISE.
 2. ALL UNDERGROUND UTILITIES, INCLUDING GAS, OIL, TELEPHONE, PIPELINES, ELECTRICAL, ETC. AS SHOWN ON THIS PLAN, ARE BASED ON THE INFORMATION RECEIVED FROM THE RESPECTIVE AUTHORITIES. NO RESPONSIBILITY IS IMPLIED OR ASSUMED BY THE ENGINEERS AS TO THE LOCATION, ELEVATIONS, OR OMISSIONS. THE CONTRACTOR MUST CONTACT THE VARIOUS UTILITIES FOR ON-SITE INFORMATION AS TO THE ACTUAL LOCATIONS.
 3. EXISTING INFORMATION IS BASED ON UTM 12 NAD 83 COORDINATES.

LEGEND:

- ROAD CONDITION - GOOD
- ROAD CONDITION - FAIR
- ROAD CONDITION - SATISFACTORY
- ROAD CONDITION - POOR
- ROAD CONDITION - VERY POOR
- ROAD CONDITION - SERIOUS
- VILLAGE BOUNDARY
- GRAVEL ROAD

 MPE Engineering Ltd.		VILLAGE OF HALKIRK INFRASTRUCTURE ASSESSMENT 2021 ROAD OVERALL CONDITION INDEX	
SCALE: 1:2500	DATE: SEPT 2021	JOB: 4460-005-00	DRAWING: 4.2



- NOTES:**
1. ALL ELEVATIONS, STATIONS, PIPE LENGTHS AND DIMENSIONS IN METRES AND PIPE SIZES IN MILLIMETRES UNLESS NOTED OTHERWISE.
 2. ALL UNDERGROUND UTILITIES, INCLUDING GAS, OIL, TELEPHONE, PIPELINES, ELECTRICAL, ETC. AS SHOWN ON THIS PLAN, ARE BASED ON THE INFORMATION RECEIVED FROM THE RESPECTIVE AUTHORITIES. NO RESPONSIBILITY IS IMPLIED OR ASSUMED BY THE ENGINEERS AS TO THE LOCATION, ELEVATIONS, OR OMISSIONS. THE CONTRACTOR MUST CONTACT THE VARIOUS UTILITIES FOR ON-SITE INFORMATION AS TO THE ACTUAL LOCATIONS.
 3. EXISTING INFORMATION IS BASED ON UTM 12 NAD 83 COORDINATES.

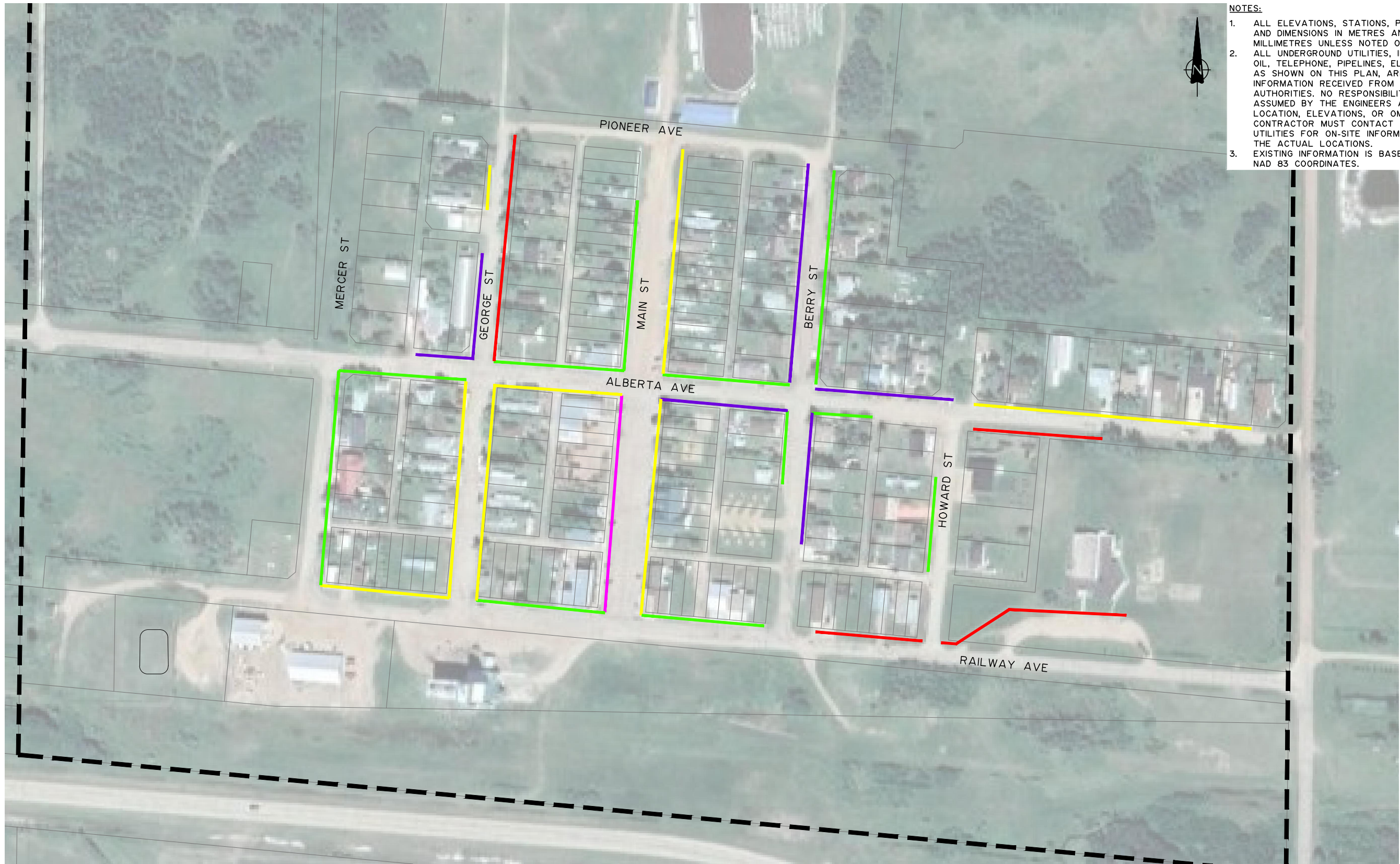
LEGEND:

- SIDEWALK
- VILLAGE BOUNDARY




VILLAGE OF HALKIRK
 INFRASTRUCTURE ASSESSMENT
 2021 SIDEWALK COVERAGE

SCALE: 1:2500	DATE: SEPT 2021	JOB: 4460-005-00	DRAWING: 5.1
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- NOTES:**
1. ALL ELEVATIONS, STATIONS, PIPE LENGTHS AND DIMENSIONS IN METRES AND PIPE SIZES IN MILLIMETRES UNLESS NOTED OTHERWISE.
 2. ALL UNDERGROUND UTILITIES, INCLUDING GAS, OIL, TELEPHONE, PIPELINES, ELECTRICAL, ETC. AS SHOWN ON THIS PLAN, ARE BASED ON THE INFORMATION RECEIVED FROM THE RESPECTIVE AUTHORITIES. NO RESPONSIBILITY IS IMPLIED OR ASSUMED BY THE ENGINEERS AS TO THE LOCATION, ELEVATIONS, OR OMISSIONS. THE CONTRACTOR MUST CONTACT THE VARIOUS UTILITIES FOR ON-SITE INFORMATION AS TO THE ACTUAL LOCATIONS.
 3. EXISTING INFORMATION IS BASED ON UTM 12 NAD 83 COORDINATES.

- LEGEND:**
- SIDEWALK CONDITION - GOOD
 - SIDEWALK CONDITION - FAIR
 - SIDEWALK CONDITION - SATISFACTORY
 - SIDEWALK CONDITION - POOR
 - SIDEWALK CONDITION - VERY POOR
 - VILLAGE BOUNDARY

 MPE Engineering Ltd.		VILLAGE OF HALKIRK INFRASTRUCTURE ASSESSMENT 2021 SIDEWALK CONDITIONS	
SCALE: 1:2500	DATE: SEPT 2021	JOB: 4460-005-00	DRAWING: 5.2

APPENDIX B


Detailed Building Assessments

Facility Evaluation Form


Part I - Site Conditions

Section 1	Site Conditions	Rating	Photo	Comments/Concerns	Estim. Cost
1.1	General Site Conditions				
1.1.1	Overall site size.			- Berry Street Campsite: 150'x115'	
1.1.2	Outdoor areas.	4		- 8 campsites at the Berry Street Campsite. - No issue or concern noted.	
1.1.3	Site landscaping.	4		- Gravel pads, grass and trees - No issue or concern noted.	
1.1.4	Site accessories (i.e., perimeter and other fencing, guard rails, bike stands, flag poles).	4		- Planters - No issue or concern noted	
1.1.5	Surface drainage conditions (i.e., drains away from building, signs of ponding).	4		- No issue or concern noted	
1.1.6	Evidence of sub-soil problems.	4		- No issue or concern noted	
1.1.7	Safety and security concerns due to site conditions.	4		- No issue or concern noted	
1.2	Access/Drop-Off Areas/Roadways/Bus Lanes				
1.2.1	Vehicular and pedestrian access points (i.e., size, number, visibility, safety).	4		- Berry Street Campsite access from Berry St. - No issue or concern noted	
1.2.2	Surfacing of on-site road network (note whether asphalt or gravel).	4		- Berry Street Campsite consists of gravel roads - No issue or concern noted	
1.2.3	Bus lanes/drop-off areas (note whether on-site or off-site).			N/A	
1.2.4	Fire vehicle access.	4		-Fire vehicle access available from Berry St. - No issue or concern noted	
1.2.5	Signage.			N/A	
1.3	Parking Lots and Sidewalks				
1.3.1	Number of parking spaces for staff, students and visitors (including stalls for disabled persons).			N/A	
	Overall Site Conditions & Estimated Costs				\$ -

Facility Evaluation Form
Part IV - Mechanical Systems



Section 4	Mechanical Systems	Rating	Photo	Description/Condition	Estim. Cost
4.1	Mechanical Site Services				
4.1.1	Site drainage systems (i.e., surface and underground systems, catch basins).	4		Surface drainage.	
4.1.2	Exterior plumbing systems (i.e., irrigation systems, hose bibs).	3		Yard hydrants for camping services. Piping has history of leakage, half have been repaired recently, expected to repair the other half within 10 years.	\$ 9,000.00
4.2	Fire Suppression Systems				
4.2.1	Hand extinguishers, blankets and showers (i.e., in CTS areas).			N/A	
4.3	Water Supply and Plumbing Systems				
4.3.1	Domestic water supply (i.e., pressure, volume, quality - note whether municipal or well supply).	4		Yard hydrants, see 4.1.2	
	Overall Mech Systems Condition & Estim. Costs	4		Replace underground water piping.	\$ 9,000.00

Facility Evaluation Form
Part V - Electrical Systems

Section 5	Electrical Systems	Rating	Photo	Description/Condition	Estim. Cost
5.1	Site Services				
5.1.1	Primary service capacity and reliability (i.e., access, location, components, installation, bus sizes - note whether overhead or underground).	4		125A, 120V 1 phase service. Service is overhead. Main panel is 50% full and in acceptable condition.	
5.2	Life Safety Systems				
5.2.1	Fire and smoke alarm systems (i.e., safety concerns, up-to-date technology, regularly tested).			N/A	
5.3	Power Supply and Distribution				
5.3.1	Panels and wireways capacity and condition.	3		Some power service plug receptacle covers are broken and should be replaced.	\$ 500.00
	Overall Elect. Systems Condition & Estim Costs	4		Replace covers on service plug receptacles.	\$ 500.00

Facility Evaluation Form

Part I - Site Conditions

Section 1	Site Conditions	Rating	Photo	Comments/Concerns	Estim. Cost
1.1	General Site Conditions				
1.1.1	Overall site size.			- Overall site size is approximately 100'x115' - Site is located at the NE corner of Alberta Ave. and George St.	
1.1.2	Outdoor areas.			N/A	
1.1.3	Site landscaping.	3		- Sidewalk, grass, trees, flower beds - Tree branches overhang over north building eavestrough should be trimmed to prevent excess debris blocking water flow in eavestrough.	\$ 1,000.00
1.1.4	Site accessories			N/A	
1.1.5	Surface drainage conditions (i.e., drains away from building, signs of ponding).	4		- No issue or concern noted	
1.1.6	Evidence of sub-soil problems.	4		- No issue or concern noted	
1.1.7	Safety and security concerns due to site conditions.	4		- No issue or concern noted	
1.2	Access/Drop-Off Areas/Roadways/Bus Lanes				
1.2.1	Vehicular and pedestrian access points (i.e., size, number, visibility, safety).	4		- Main entrance is located on the south side of the building off Alberta Ave. - Vehicle access onto the site not available. - No issue or concerns noted.	
1.2.2	Surfacing of on-site road network (note whether asphalt or gravel).	4		- Concrete paved pathway from Alberta Ave. to main entrance.	
1.2.3	Bus lanes/drop-off areas (note whether on-site or off-site).	4		- Drop-off off-site only - No issue or concern noted	
1.2.4	Fire vehicle access.	4		Fire vehicle access from Alberta Ave. and George St.	
1.2.5	Signage.	3		- Existing "Halkirk Community Church" sign by main entrance is in fair condition. - Peeling paint noted typically around the wording. Recommend to be replaced.	\$ 5,000.00
1.3	Parking Lots and Sidewalks				
1.3.1	Number of parking spaces for staff, students and visitors (including stalls for disabled persons).			- No parking lot on site	
1.3.2	Layout and safety of parking lots.			N/A	
1.3.3	Surfacing and drainage of parking lots (note whether asphalt or gravel).			N/A	
1.3.4	Layout and safety of sidewalks.	4		- Sidewalk extends from Alberta Ave. to Front Entrance. - No issue or concern noted.	




Facility Evaluation Form
Part I - Site Conditions

Section 1	Site Conditions	Rating	Photo	Comments/Concerns	Estim. Cost
1.3.5	Surfacing and drainage of sidewalks (note type of material).	4		- Concrete sidewalk is in good condition - No issue or concern noted	
1.3.6	Curb cuts and ramps for barrier free access.	4		- Curb cuts and ramps for barrier free access available. - No issue or concern noted.	
	Overall Site Conditions & Estimated Costs				\$ 6,000.00

Facility Evaluation Form
Part II - Overall Structure

Section 2	Building Exterior	Rating	Bldg. Section	Photo	Description/Condition	Estim. Cost
2.1	Overall Structure					
2.1.1	Floor structure and beams (i.e., signs of bending, cracking, heaving, settlement, voids, rust, stains).	4			- Wood framed floor structure - No issue or concern noted	
2.1.2	Wall structure and columns (i.e., signs of bending, cracking, settlement, voids, rust, stains).	4			- Wood framed wall structure - No issue or concern noted.	
2.1.3	Roof structure (i.e., signs of bending, cracking, voids, rust, stains).	4			- Wood framed roof structure - No issue or concern noted	
2.1.4	Control/expansion joints.				N/A	
Other	Foundation	4			- Concrete foundation constructed in 1994 when the original 1918 church moved to site - No issue or concern noted.	
2.2	Roofing and Skylights <i>Identify the availability of an up-to-date inspection report or roofing program. Note if roof sections are of different ages and/or in varying states of repair.</i>					
2.2.1	Based on the inspection report (and to the extent possible, direct observation), assess and rate roof conditions and estimate costs for required improvements (i.e., covering materials, membrane, insulation, other components).	3			- Cedar shingles were last replaced in 1994 and it is close to the end of its theoretical life expectancy. It is recommended to be replaced.	\$ 50,000.00
2.2.2	Roof accessories (gutters and downspouts).	4			- Existing gutters and downspouts are in good condition - No issue or concern noted.	
2.2.3	Control of ice and snow falling from roof.	4			- No issue or concern noted	
2.2.4	Skylights (i.e., signs of distress, leaks, ice build-up, condensation, deteriorated materials/seals).				N/A	
Other						
2.3	Exterior Walls/Building Envelope					




Facility Evaluation Form
Part II - Overall Structure

Section 2	Building Exterior	Rating	Bldg. Section	Photo	Description/Condition	Estim. Cost
2.3.1	Exterior wall finishes (i.e., signs of deterioration, cracks, brick spalling, efflorescence, water stains).	2			- Painted wood siding is in poor condition. Recommended to repaint the exterior - The existing steeple is reportedly in poor condition. Recommended to repair the steeple	\$ 7,000.00
2.3.2	Fascias, soffits, parapets (i.e., signs of looseness, stains, rust, peeling paint).	2			- Missing wood soffit at the top of the steeple. See "Building Envelope" section below for estimated pricing. - Repaint all wood fascia.	\$ 2,000.00
2.3.3	Building envelope (i.e., evidence of air infiltration/ exfiltration through the exterior wall or ice build up on wall, eaves, canopy).	2			- The existing steeple is reportedly in poor condition and allowed pigeons inside. Recommended to repair The steeple.	\$ 20,000.00
2.3.4	Interface of roof drainage and ground drainage systems.	4			- No issue or concern noted	
2.3.5	Inside faces of exterior walls (i.e., signs of cracks, water stains, dust spots).	4			- No issue or concern noted	
Other						
2.4	Exterior Doors and Windows					
2.4.1	Doors (i.e., signs of deterioration, rusting metal, glass cracks, peeling paint, damaged seals, sealed unit failure).	4			- Wood doors - No issue or concern noted	
2.4.2	Door accessories (i.e., latches, hardware, screens, locks, alarms, holders, closers, security devices).				- No issue or concern noted.	
2.4.3	Exit door hardware (i.e., safety and/or code concerns).				N/A	

Part II - Overall Structure

Section 2	Building Exterior	Rating	Bldg. Section	Photo	Description/Condition	Estim. Cost
2.4.4	Windows (i.e., signs of deterioration, rusting metal, glass cracks, peeling paint, damaged seals, sealed unit failure).	4			- Wood frame windows. - No concern or issue noted	
2.4.5	Window accessories (i.e., latches, hardware, screens, locks, alarms, holders, closers, security devices).				N/A	
2.4.6	Building envelope (i.e., signs of heavy condensation on doors or windows).	4			- No issue or concern noted.	
2.4.7	Overhead Doors				N/A	
	Overall Bldg Exterior Condition & Estim Costs					\$ 79,000.00


Facility Evaluation Form
Part III - Building Interior

Section 3	Building Interior - Overall Conditions	Rating	Bldg. Section	Photo	Description/Condition	Estim. Cost
3.1	Interior Structure					
3.1.1	Interior walls and partitions (i.e., signs of cracks, spalling, paint peeling).	4			- wood framed interior walls. - No issue or concern noted	
3.1.2	Floors (i.e., signs of cracks, heaving, settlement).	4			- Wood floor. - No issue or concern noted.	
3.2	Materials and Finishes					
3.2.1	Floor materials and finishes.	3			- Existing wood flooring is in fair condition. - Recommended to be refinished within the next 10 years.	\$ 15,000.00
3.2.2	Wall materials and finishes.	3			- Existing painted wood flooring is in fair condition. - Recommended to be repainted within the next 10 years.	\$ 7,000.00
3.2.3	Ceiling materials and finishes.	3			- Existing painted wood ceiling is in fair condition - Recommended to be repainted within the next 10 years at the same time as the walls.	\$ 3,000.00
3.2.4	Interior doors and hardware.	4			- Interior wood door is in good condition - No issue or concern noted	
3.2.5	Millwork				N/A	
Other						
3.3	Health and Safety Concerns --- Intent is to identify renovations considered necessary to meet applicable codes, primarily due to safety concerns. Basis of evaluation should be an up-to-date inspection report from the authority having jurisdiction together with direct observations as appropriate. Evaluator should note if in his opinion a comprehensive code evaluation is required.					
3.3.1	Building construction type - combustible or non-combustible, sprinklered or non-sprinklered.				- Combustible construction - not sprinklered	


Facility Evaluation Form
Part III - Building Interior

Section 3	Building Interior - Overall Conditions	Rating	Bldg. Section	Photo	Description/Condition	Estim. Cost
3.3.2	Fire separations (i.e., between buildings, wings, zones if non-sprinklered).				N/A	
3.3.3	Fire resistance rating of materials (i.e., corridor walls and doors).				N/A	
3.3.4	Exiting distances and access to exits.	4			- two exits. - No issue or concern noted.	
3.3.5	Barrier-free access.	4			- Barrier free accessible from the main entrance. - No issue or concern noted.	
3.3.6	Availability of hazardous materials audit (i.e., evidence of safety concerns with respect to asbestos, PCB's, chemicals).				- No availability of any hazardous material audit - Lead paint may be a concern for building this age if previous paint layers were not removed prior to the previous re-painting. - Other hazardous materials such as asbestos will be unlikely present in building this age unless renovations were completed in the 1960s-1980s.	
3.3.7	Other health and safety concerns (i.e., evidence of excessive noise conditions, air quality problems)	4			- No concern or issue noted.	
Other						
	Overall Bldg Interior Condition & Estim Costs					\$ 25,000.00


Facility Evaluation Form
Part IV - Mechanical Systems

Section 4	Mechanical Systems	Rating	Photo	Description/Condition	Estim. Cost
4.1	Mechanical Site Services				
4.1.1	Site drainage systems (i.e., surface and underground systems, catch basins).	4		Eavestroughs to downspouts, to overland drainage, in good condition.	
4.2	Fire Suppression Systems				
4.2.1	Hand extinguishers.	1		No hand-held fire extinguishers located in building. Recommended to provide if building is occupied.	\$ 500.00
4.3	Water Supply and Plumbing Systems				
4.3.1	Domestic water supply (i.e., pressure, volume, quality - note whether municipal or well supply).			No domestic water service.	
4.4	Heating Systems				
4.4.1	Heating capacity and reliability (including backup capacity).	3		Gas-fired furnace is in poor condition. Recommended to replace furnace.	\$ 4,000.00
4.4.2	Heating air filtration systems and filters.	4		Furnace is equipped with filter.	
4.4.3	Heating distribution systems (i.e., piping, ductwork) and associated components (i.e., diffusers, radiators).	4		Ductwork for furnace in floor space. No visible damage to supply or return grilles.	
4.4.4	Zone/unit heaters and controls.	4		Furnace is controlled by thermostat, in acceptable condition.	
4.4.5	Natural Gas Service	4		Gas service is on east side of building.	
4.5	Ventilation Systems				
4.5.1	Exhaust systems capacity and condition, washrooms	3		No exhaust for congregation space. Recommended to provide cooling exhaust for summer occupancy.	\$ 3,000.00
Other	Stratification	4		Ceiling fans in congregation space, in acceptable condition.	
	Overall Mech Systems Condition & Estim. Costs	4		Provide hand extinguishers, replace furnace, add exhaust for cooling in congregational space.	\$ 7,500.00

Facility Evaluation Form
Part V - Electrical Systems

Section 5	Electrical Systems	Rating	Photo	Description/Condition	Estim. Cost
5.1	Site Services				
5.1.1	Primary service capacity and reliability (i.e., access, location, components, installation, bus sizes - note whether overhead or underground).	4		Main panel was not accessible during site visit. Assumed to be 100A, 120V. Service was disconnected at time of site visit.	
5.2	Life Safety Systems				
5.2.1	Fire and smoke alarm systems (i.e., safety concerns, up-to-date technology, regularly tested).			N/A	
5.3	Power Supply and Distribution				
5.3.1	Panels and wireways capacity and condition.	4		Cables and wiring appears to be in acceptable condition where visible.	
5.4	Lighting Systems				
5.4.1	Interior lighting systems and components (i.e., illumination levels, conditions, controls).	3		Incandescent fixtures located throughout. Fixtures should be replaced with LED bulbs for higher energy efficiency.	\$ 500.00
	Overall Elect. Systems Condition & Estim Costs	4		Replace interior lighting with LED.	\$ 500.00

Part I - Site Conditions

Section 1	Site Conditions	Rating	Photo	Comments/Concerns	Estim. Cost
1.1	General Site Conditions				
1.1.1	Overall site size.			150'x115'	
1.1.2	Outdoor areas.	4		- Patio area at the back of the building - No issue or concern noted	
1.1.3	Site landscaping.	4		- grass and trees. - No issue or concern noted	
1.1.4	Site accessories (Benches and exterior stairs).	4		- metal benches and stairs and landings are in good condition - No issue or concern noted	
1.1.5	Surface drainage conditions (i.e., drains away from building, signs of ponding).	4		- Site generally graded towards the rear (east) of the building. - no issue or concern noted.	
1.1.6	Evidence of sub-soil problems.	2		- Village indicated the front entry cement pad heaved due to tree roots. - Recommended to remove the existing tree and replace concrete pad.	\$ 4,000.00
1.1.7	Safety and security concerns due to site conditions.	4		- No issue or concern noted.	
1.2	Access/Drop-Off Areas/Roadways/Bus Lanes				
1.2.1	Vehicular and pedestrian access points (i.e., size, number, visibility, safety).	4		- Main entrance is located on the west side of the building off Main St. - Vehicle access onto the site not available. - No issue or concern noted.	
1.2.2	Surfacing of on-site road network (note whether asphalt or gravel).	4		- concrete paved pad at the front entrance. - No issue or concern noted	
1.2.3	Bus lanes/drop-off areas (note whether on-site or off-site).	4		- Drop-off off-site only - No issue or concern noted	
1.2.4	Fire vehicle access.	4		- No issue or concern with fire vehicle access.	
1.2.5	Signage.	3		- "Halkirk Community Hall" signage at front of building - minor peeling of the paint noted. - Recommended to replace sign in the next 10 years.	\$ 5,000.00
1.3	Parking Lots and Sidewalks				
1.3.1	Number of parking spaces for staff, students and visitors (including stalls for disabled persons).			- No parking lot on site	
1.3.2	Layout and safety of parking lots.			N/A	
1.3.3	Surfacing and drainage of parking lots (note whether asphalt or gravel).			N/A	
1.3.4	Layout and safety of sidewalks.	4		- No issue or concern noted	
1.3.5	Surfacing and drainage of sidewalks (note type of material).	4		- Concrete sidewalk is in good condition - No issue or concern noted	


Facility Evaluation Form
Part I - Site Conditions

1.3.6	Curb cuts and ramps for barrier free access.	4		- Curb cuts and ramps for barrier free access available. - No issue or concern noted.	
Overall Site Conditions & Estimated Costs					\$ 9,000.00

Facility Evaluation Form
Part II - Overall Structure

Section 2	Building Exterior	Rating	Bldg. Section	Photo	Description/Condition	Estim. Cost
2.1	Overall Structure					
2.1.1	Floor structure and beams (i.e., signs of bending, cracking, heaving, settlement, voids, rust, stains).	4			- Basement consists of concrete slab on grade - Main floor consists of wood frame structure. - efflorescence noted on the basement concrete slab on grade indicating moisture infiltration. See recommendation in Section 2.3.3 below.	
2.1.2	Wall structure and columns (i.e., signs of bending, cracking, settlement, voids, rust, stains).	4			- Wood frame wall structure. - No issue or concern noted.	
2.1.3	Roof structure (i.e., signs of bending, cracking, voids, rust, stains).	4			- Wood frame roof structure. - No issue or concern noted.	
2.1.4	Control/expansion joints.				N/A	
Other	Foundation	2			- signs of differential movement noted between different expansion indicated by cracks on floor tiles that was installed in 2006. - if the cracks in the floor tiles do not expand and contract with the seasons, there is likely not a concern at this time. However, if the cracks in the floor tiles expand and contract constantly and causes issue with the usage of the building, further review will be needed to determine the exact cause of the issue. - The Village indicated the basement gets some dampness at spring melt and heavy rain - It is likely that the water table around the building is fairly high. - Recommended to install a weeping tile system around the building's foundation completed with sump pump and install foundation waterproofing membrane to minimize the amount of moisture entering the basement	\$ 200,000.00
2.2	Roofing and Skylights <i>Identify the availability of an up-to-date inspection report or roofing program. Note if roof sections are of different ages and/or in varying states of repair.</i>					
2.2.1	Based on the inspection report (and to the extent possible, direct observation), assess and rate roof conditions and estimate costs for required improvements (i.e., covering materials, membrane, insulation, other components).	4			- Metal roof replaced 2005 - No issue or concern noted	
2.2.2	Roof accessories (i.e., ladders, stairs, hatches, masts, exhaust hoods, chimneys, gutters, downspouts, splash pads).	4			- No issue or concern noted	

Part II - Overall Structure

2.2.3	Control of ice and snow falling from roof.	4			- Ice rakes typical at door locations. - No issue or concern noted	
2.2.4	Skylights (i.e., signs of distress, leaks, ice build-up, condensation, deteriorated materials/seals).				N/A	
2.3	Exterior Walls/Building Envelope					
2.3.1	Exterior wall finishes (i.e., signs of deterioration, cracks, brick spalling, efflorescence, water stains).	2			- Stucco exterior shows some cracks and damage throughout the building. - Recommended to repair all cracks and damages.	\$ 10,000.00
2.3.2	Fascias, soffits, parapets (i.e., signs of looseness, stains, rust, peeling paint).	4			- Metal fascia and soffit in good condition. - No issue or concern noted.	
2.3.3	Building envelope (i.e., evidence of air infiltration/ exfiltration through the exterior wall or ice build up on wall, eaves, canopy).	4			- No issue or concern noted	
2.3.4	Interface of roof drainage and ground drainage systems.	4			- No issue or concern noted	
2.3.5	Inside faces of exterior walls (i.e., signs of cracks, water stains, dust spots).	4			- No issue or concern noted	
Other						
2.4	Exterior Doors and Windows					
2.4.1	Doors (i.e., signs of deterioration, rusting metal, glass cracks, peeling paint, damaged seals, sealed unit failure).	4			- Metal doors and frame - No issue or concern noted	
2.4.2	Door accessories (i.e., latches, hardware, screens, locks, alarms, holders, closers, security devices).	4			- No issue or concern noted	
2.4.3	Exit door hardware (i.e., safety and/or code concerns).	4			- No issue or concern noted	
2.4.4	Windows (i.e., signs of deterioration, rusting metal, glass cracks, peeling paint, damaged seals, sealed unit failure).				N/A	
2.4.5	Window accessories (i.e., latches, hardware, screens, locks, alarms, holders, closers, security devices).				N/A	


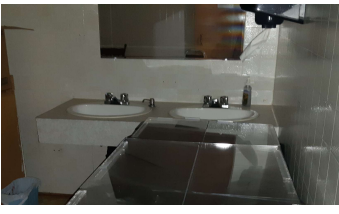
Facility Evaluation Form
Part II - Overall Structure

2.4.6	Building envelope (i.e., signs of heavy condensation on doors or windows).	4			- No issue or concern noted	
2.4.7	Overhead Doors				N/A	
	Overall Bldg Exterior Condition & Estim Costs					\$ 210,000.00

Facility Evaluation Form
Part III - Building Interior

Section 3	Building Interior - Overall Conditions	Rating	Bldg. Section	Description/Condition	Estim. Cost
3.1	Interior Structure				
3.1.1	Interior walls and partitions (i.e., signs of cracks, spalling, paint peeling).	4		- No issue or concern noted	
3.1.2	Floors (i.e., signs of cracks, heaving, settlement).	4		- No issue or concern noted	
3.2	Materials and Finishes				
3.2.1	Floor materials and finishes.	4		- New flooring installed in 2006. - No issue or concern noted	
3.2.2	Wall materials and finishes.	4		- Interior refinished in 2019. - No issue or concern noted	
3.2.3	Ceiling materials and finishes.	4		- Interior finished in 2019. - No issue or concern noted	
3.2.4	Interior doors and hardware.	4		- No issue or concern noted	
3.2.5	Millwork	4		- No issue or concern noted.	
Other					
3.3	Health and Safety Concerns --- Intent is to identify renovations considered necessary to meet applicable codes, primarily due to safety concerns. Basis of evaluation should be an up-to-date inspection report from the authority having jurisdiction together with direct observations as appropriate. Evaluator should note if in his opinion a comprehensive code evaluation is required.				
3.3.1	Building construction type - combustible or non-combustible, sprinklered or non-sprinklered.			- Combustible construction - Non-sprinklered	
3.3.2	Fire separations (i.e., between buildings, wings, zones if non-sprinklered).	4		- No issue or concern noted	
3.3.3	Fire resistance rating of materials (i.e., corridor walls and doors).	4		- No issue or concern noted	
3.3.4	Exiting distances and access to exits.	4		- No issue or concern noted	
3.3.5	Barrier-free access.	4		- Main floor is barrier-free accessible - No issue or concern noted	
3.3.6	Availability of hazardous materials audit (i.e., evidence of safety concerns with respect to asbestos, PCB's, chemicals).			- No hazardous materials audit available.	
3.3.7	Other health and safety concerns (i.e., evidence of excessive noise conditions, air quality problems)	1		- Strong musty smell in the basement due to water infiltration and lack of proper ventilation system. - see mechanical systems for recommendations.	
Other					
	Overall Bldg Interior Condition & Estim Costs				\$ -




Facility Evaluation Form
Part IV - Mechanical Systems

Section 4	Mechanical Systems	Rating	Photo	Description/Condition	Estim. Cost
4.1	Mechanical Site Services				
4.1.1	Site drainage systems (i.e., surface and underground systems, catch basins).	4		Eaves to downspouts, to overland drainage, in good condition.	
4.1.2	Interior drainage (ie. Sumps, floor drains)	4		Drainage sumps (x2) in basement.	
4.2	Fire Suppression Systems				
4.2.1	Hand extinguishers, blankets and showers (i.e., in CTS areas).	5		Hand-held fire extinguishers located throughout building.	
4.2.2	Other special situations (e.g., flammable storage areas, science labs, CTS areas).	1		No fire suppression on gas kitchen range exhaust hood. This is required by building code.	\$ 5,000.00
4.3	Water Supply and Plumbing Systems				
4.3.1	Domestic water supply (i.e., pressure, volume, quality - note whether municipal or well supply).	4		1.5" copper service located in basement.	
4.3.2	Piping and fittings.	4		Domestic piping is a combination of copper and pex. All appears in good condition.	
4.3.3	Plumbing fixtures (i.e., toilets, urinals, sinks)	3		Washrooms (x2 on main, x2 in basement) each with tank toilets, wall mounted urinals and counter mounted lavatories, in acceptable condition. Stainless steel sinks in kitchen, in good condition. Mop sink and utility sinks in janitor rooms, in acceptable condition. Fixtures in abandoned washrooms should be decommissioned completely and removed.	\$ 1,000.00
4.3.4	Domestic hot water system (i.e., heater, storage tanks, failure alarms, pressure, volume, recirculation).	4		Domestic Hot water heaters (x2), gas-fired, located in basement, in good condition.	
4.3.5	Sanitary and storm sewers, including sumps and pits (note whether sewage system is municipal or septic).	4		Not visible, assumed cast iron, assumed aged of the building. No notable leakage. Municipal sewage system.	

Facility Evaluation Form
Part IV - Mechanical Systems



4.4	Heating Systems				
4.4.1	Heating capacity and reliability (including backup capacity).	4		Building is heated by 4 condensing forced air furnaces (one on main floor, 3 in basement). All furnaces are in good condition.	
4.4.2	Heating air filtration systems and filters.	4		Furnaces are equipped with filters.	
4.4.3	Heating distribution systems (i.e., piping, ductwork) and associated components (i.e., diffusers, radiators).	4		Ductwork for furnaces in floor space. No visible damage to supply or return grilles.	
4.4.4	Zone/unit heaters and controls.	4		Furnaces are controlled by thermostats, in acceptable condition.	
4.4.5	Natural Gas Service	4		Gas service is on west side of building.	
4.5	Ventilation Systems				
4.5.1.1	Exhaust systems capacity and condition, washrooms	4		Ceiling exhaust fans for washrooms, in acceptable condition.	
4.5.1.2	Exhaust systems capacity and condition. Basement	1		No exhaust in basement washrooms. Exhaust in washrooms is required by ASHRAE 62.1	\$ 2,000.00
4.5.1.3	Exhaust systems capacity and condition. Main floor	4		Wall mounted exhaust fan in shuffleboard room, manual operation, in good condition.	
4.5.2	Special/dedicated ventilation and/or exhaust systems (i.e., kitchen, labs, CTS areas).	4		Exhaust hood for gas-fired kitchen range, in good condition.	
Other	Stratification	4		Ceiling fans located in the kitchens and main hall, in good condition.	
	Overall Mech Systems Condition & Estim. Costs	4		Add fire suppression for kitchen exhaust hood, remove plumbing fixtures in abandoned washrooms, add exhaust in basement washrooms.	\$ 8,000.00

Facility Evaluation Form
Part V - Electrical Systems

Section 5	Electrical Systems	Rating	Photo	Description/Condition	Estim. Cost
5.1	Site Services				
5.1.1	Primary service capacity and reliability (i.e., access, location, components, installation, bus sizes - note whether overhead or underground).	4		Service is overhead, fed from the rear of the building. Main panel located in basement with manual switch to emergency generator connection.	
5.1.2	Site and building exterior lighting (i.e., safety concerns).	3		Exterior lighting consists of incandescent fixtures. Recommended to replace with LED bulbs or fixtures as they fail.	\$ 500.00
5.2	Life Safety Systems				
5.2.1	Fire and smoke alarm systems (i.e., safety concerns, up-to-date technology, regularly tested).	2		Fire pulls, smoke and heat detectors, and bell annunciators located throughout. Devices are past their expected life cycle and should be replaced. Also unable to locate main panel during inspection (not located at main entrance). Recommended to replace system and devices.	\$ 15,000.00
5.2.2	Emergency lighting systems (i.e., safety concerns, condition).	4		Emergency lighting heads and battery packs located throughout.	
5.2.3	Exit lighting and signage (i.e., safety concerns, condition).	4		Exit lighting located appropriately throughout.	
5.3	Power Supply and Distribution				
5.3.1	Panels and wireways capacity and condition.	4		Distribution panels located in mechanical rooms, kitchen, in good condition with acceptable expansion capacity.	
5.3.2	Power distribution and outlets	4		Wires and outlets are sufficiently distributed throughout, in acceptable condition.	
5.4	Lighting Systems				
5.4.1	Interior lighting systems and components (i.e., illumination levels, conditions, controls).	3		T-8 fluorescent fixtures and incandescent fixtures located throughout. Fixtures should be replaced with LED bulbs for higher energy efficiency.	\$ 15,000.00
	Overall Elect. Systems Condition & Estim Costs	4		Replace fire alarm system and devices, replace exterior and interior lighting for LED.	\$ 30,500.00

Facility Evaluation Form




Part I - Site Conditions

Section 1	Site Conditions	Rating	Photo	Comments/Concerns	Estim. Cost
1.1	General Site Conditions				
1.1.1	Overall site size.			454' x 230'	
1.1.2	Outdoor areas.			N/A	
1.1.3	Site landscaping.	4		- grassed area - No issue or concern noted	
1.1.4	Site accessories (i.e., perimeter and other fencing, guard rails, bike stands, flag poles).			N/A	
1.1.5	Surface drainage conditions (i.e., drains away from building, signs of ponding).	4		- No issue or concern noted	
1.1.6	Evidence of sub-soil problems.	1		- Strong musty smell in the basement of the Curling Rink likely the result of high water level in the area. - See "Foundation" section for recommendation	
1.1.7	Safety and security concerns due to site conditions.	4		- No issue or concern noted	
1.2	Access/Drop-Off Areas/Roadways/Bus Lanes				
1.2.1	Vehicular and pedestrian access points (i.e., size, number, visibility, safety).	4		- Main entrance is located on the south side of the building off Alberta Ave. - Vehicle access onto the site not available - No issue or concern noted	
1.2.2	Surfacing of on-site road network (note whether asphalt or gravel).	2		- Concrete sidewalk - The sidewalk to the main entrance is generally cracked with grass growing through cracks. - It is recommended to replace this portion of the sidewalk	\$ 1,100.00
1.2.3	Bus lanes/drop-off areas (note whether on-site or off-site).	4		- Drop-off off-site only - No issue or concern noted	
1.2.4	Fire vehicle access.	4		- Fire vehicle access from Alberta Ave. and George St. - No issue or concern note	
1.2.5	Signage.	3		- Existing "Halkirk Curling Club" sign by main entrance is in fair condition. - Peeling paint noted typically on the sign. Recommended to be replaced.	\$ 5,000.00
1.3	Parking Lots and Sidewalks				
1.3.1	Number of parking spaces for staff, students and visitors (including stalls for disabled persons).			- No parking lot on site	
1.3.2	Layout and safety of parking lots.			N/A	
1.3.3	Surfacing and drainage of parking lots (note whether asphalt or gravel).			N/A	
1.3.4	Layout and safety of sidewalks.	2		- Concrete sidewalk generally cracked and it is a potential tripping hazard. - See Section 1.2.2 above for replacement cost.	

Facility Evaluation Form
Part I - Site Conditions



Section 1	Site Conditions	Rating	Photo	Comments/Concerns	Estim. Cost
1.3.5	Surfacing and drainage of sidewalks (note type of material).	4		- Concrete paved. - No issue or concern noted	
1.3.6	Curb cuts and ramps for barrier free access.	4		- No issue or concern noted	
	Overall Site Conditions & Estimated Costs				\$ 6,100.00

Facility Evaluation Form
Part II - Overall Structure


Section 2	Building Exterior	Rating	Bldg. Section	Photo	Description/Condition	Estim. Cost
2.1	Overall Structure					
2.1.1.1	Floor structure and beams (i.e., signs of bending, cracking, heaving, settlement, voids, rust, stains).	4	Lobby		- Wood framed floor structure completed with concrete topping. - Concrete slab on grade in the basement - No issue or concern noted	
2.1.1.2	Floor structure and beams (i.e., signs of bending, cracking, heaving, settlement, voids, rust, stains).	3	Mechanical Room		- Concrete slab on grade is in poor condition in the Mechanical Room - Slab is generally cracked. - It is recommended to sand down the floor to smooth at the cracks and patch. If further movement noted after remediation, re-condition and re-compact existing subgrade by removal of the slab will be required.	\$ 10,000.00
2.1.2	Wall structure and columns (i.e., signs of bending, cracking, settlement, voids, rust, stains).	4	Lobby		- Wood framed wall structure - No issue or concern noted	
2.1.3.1	Roof structure (i.e., signs of bending, cracking, voids, rust, stains).	FI	Curling Rink		- Curling Rink consists of wood arch-rib structure - The north end of the roof appears to have sunk in relation to the north end of the building. However no sign of roof structure drop notice on the inside of the curling rink. The roof structure is not visible for a detail review as it is covered by the Curling Rink's ceiling finish. - Further review of the roof structure by removing the inside ceiling finish at the north end of the building is required to determine the condition of the roof structure.	\$ 7,000.00
2.1.3.2	Roof structure (i.e., signs of bending, cracking, voids, rust, stains).	4	Lobby		- The wood framed roof structure. - No issue or concern noted	
2.1.4	Control/expansion joints.				N/A	
Other	Ice Surface	2	Curling Rink		- Existing sand surface is in poor condition - It is recommended to relevel the surface	\$ 10,000.00

Facility Evaluation Form



Part II - Overall Structure

Section 2	Building Exterior	Rating	Bldg. Section	Photo	Description/Condition	Estim. Cost
Other	Foundation	F1	Lobby		<ul style="list-style-type: none"> - Basement's foundation walls are in critical condition. - Horizontal crack at mid-span of the foundation indicated the lateral pressure exerted by the soil outside of the foundation wall had once exceeded what the foundation walls can support. The walls do not contain reinforcement. - It was noted that remediation work had been completed to reinforce the wall on the south side of the basement by installation of 2 concrete corbels on the south wall. - The west and east foundation walls appear to have the same concern at the time of the review - Further investigation to determine suitable remediation work will be required. Prior to remediation work, additional loads that's not typical to the use in the past few years should not be applied to the ground adjacent to the Lobby area outside. Ie. stockpiling soil, gravel, materials or snow around the outside of the Lobby area. - The lack of reinforcement in the concrete foundation wall also created uncontrolled cracks in the Curling Rink. - Once the foundation walls are repaired, it is recommended weeping tiles be installed around the building to prevent further water infiltration into the basement. 	\$ 9,000.00
Other	Foundation	2	Curling Rink		<ul style="list-style-type: none"> - The lack of reinforcement in the concrete foundation wall also created uncontrolled cracks in the Curling Rink foundation. - Only vertical cracks were noted. These vertical cracks should be patched in order to prevent pest or water from entering the building. Patch will also provide indication in the future in the event of more foundation movement. 	\$ 10,000.00
2.2	Roofing and Skylights <i>Identify the availability of an up-to-date inspection report or roofing program. Note if roof sections are of different ages and/or in varying states of repair.</i>			<ul style="list-style-type: none"> - Concrete sidewalk - The sidewalk to the main entrance is generally cracked with grass growing through cracks. - It is recommended to replace this portion of the sidewalk 		

Facility Evaluation Form
Part II - Overall Structure

Section 2	Building Exterior	Rating	Bldg. Section	Photo	Description/Condition	Estim. Cost
2.2.1.1	Based on the inspection report (and to the extent possible, direct observation), assess and rate roof conditions and estimate costs for required improvements (i.e., covering materials, membrane, insulation, other components).	4	Mechanical Room		- Asphalt shingle roof - No issue or concern noted	
2.2.1.2	Based on the inspection report (and to the extent possible, direct observation), assess and rate roof conditions and estimate costs for required improvements (i.e., covering materials, membrane, insulation, other components).	4	Curling Rink & Lobby		- Metal roof - No issue or concern noted	
2.2.2	Roof accessories (i.e., ladders, stairs, hatches, masts, exhaust hoods, chimneys, gutters, downspouts, splash pads).	4	All Areas		- All roof accessories are in good condition - No issue or concern noted	
2.2.3	Control of ice and snow falling from roof.	4	All Areas		- No issue or concern noted	
2.2.4	Skylights (i.e., signs of distress, leaks, ice build-up, condensation, deteriorated materials/seals).				N/A	
Other						
2.3	Exterior Walls/Building Envelope					
2.3.1	Exterior wall finishes (i.e., signs of deterioration, cracks, brick spalling, efflorescence, water stains).	4	Lobby		- Stucco - No issue or concern noted	
2.3.2	Fascias, soffits, parapets (i.e., signs of looseness, stains, rust, peeling paint).	3	Lobby		- Metal fascia - Section of fascia is missing at the front of the building. It is recommended to replace the missing fascia.	\$ 500.00





Facility Evaluation Form
Part II - Overall Structure

Section 2	Building Exterior	Rating	Bldg. Section	Photo	Description/Condition	Estim. Cost
2.3.3	Building envelope (i.e., evidence of air infiltration/ exfiltration through the exterior wall or ice build up on wall, eaves, canopy).	4	All Areas		- No issue or concern noted	
2.3.4	Interface of roof drainage and ground drainage systems.	4	All Areas		- No issue or concern noted	
2.3.5	Inside faces of exterior walls (i.e., signs of cracks, water stains, dust spots).	4	All Areas		- No issue or concern noted	
Other						
2.4 Exterior Doors and Windows						
2.4.1	Doors (i.e., signs of deterioration, rusting metal, glass cracks, peeling paint, damaged seals, sealed unit failure).	3	All Areas		- Peeling paint noted on all wood door and frames. - Repaint doors and frame	\$ 500.00
2.4.2	Door accessories (i.e., latches, hardware, screens, locks, alarms, holders, closers, security devices).	3	All Areas		- The gap below the rear exit door in the Curling rink was covered with a blanket to prevent cold air from entering. A door sweep and threshold should be installed to seal the gap between the bottom of the door and the threshold.	\$ 1,000.00
2.4.3	Exit door hardware (i.e., safety and/or code concerns).				N/A	
2.4.4	Windows (i.e., signs of deterioration, rusting metal, glass cracks, peeling paint, damaged seals, sealed unit failure).				N/A	
2.4.5	Window accessories (i.e., latches, hardware, screens, locks, alarms, holders, closers, security devices).				N/A	

Facility Evaluation Form
Part II - Overall Structure

Section 2	Building Exterior	Rating	Bldg. Section	Photo	Description/Condition	Estim. Cost
2.4.6	Building envelope (i.e., signs of heavy condensation on doors or windows).	4	All Areas		- No issue or concern noted	
2.4.7	Overhead Doors				N/A	
	Overall Bldg Exterior Condition & Estim Costs					\$ 48,000.00



Facility Evaluation Form
Part III - Building Interior

Section 3	Building Interior - Overall Conditions	Rating	Bldg. Section	Photo	Description/Condition	Estim. Cost
3.1	Interior Structure					
3.1.1	Interior walls and partitions (i.e., signs of cracks, spalling, paint peeling).	4	Lobby		- Interior walls are in good condition - No issue or concern noted	
3.1.2	Floors (i.e., signs of cracks, heaving, settlement).	4	Lobby		- Mezzanine floor consists of wood framed floor structure. - No issue or concern noted	
3.2	Materials and Finishes					
3.2.1	Floor materials and finishes.	3	All Areas		- Carpet in the mezzanine and vinyl flooring are in good condition - Peeling paint noted on the painted concrete surface. - Recommended to repaint the main floor in the Lobby.	\$ 5,000.00
3.2.2	Wall materials and finishes.	3	All Areas		- Painted wall finishes. - Minor damage noted in front of the bleachers. Recommended to be repaired. - Repaint all wall surfaces recommended	\$ 5,000.00
3.2.3.1	Ceiling materials and finishes.	1	Mechanical Room		- Mouldy and damaged ceiling finish noted in the Mechanical Room. - Replace ceiling drywall in the Mechanical Room	\$ 3,000.00
3.2.3.2	Ceiling materials and finishes.	4	Lobby		- Painted ceiling finish in Lobby - No issue or concern noted	
3.2.3.3	Ceiling materials and finishes.	4	Curling Rink		- Reflective insulation blanket ceiling in the Curling Rink - No issue or concern noted	
3.2.4	Interior doors and hardware.	1	All Areas		- Excess moisture in the basement of the Curling Rink caused the door to the basement to warp and black mould growth on the basement side of the door. - Replace door between Curling Rink and basement	\$ 1,000.00




Facility Evaluation Form
Part III - Building Interior

Section 3	Building Interior - Overall Conditions	Rating	Bldg. Section	Photo	Description/Condition	Estim. Cost
3.2.5	Millwork	4	All Areas	- Concrete sidewalk - The sidewalk to the main entrance is generally cracked with grass growing through cracks. - It is recommended to replace this portion of the sidewalk	- No issue or concern noted	
3.3	Health and Safety Concerns --- Intent is to identify renovations considered necessary to meet applicable codes, primarily due to safety concerns. Basis of evaluation should be an up-to-date inspection report from the authority having jurisdiction together with direct observations as appropriate. Evaluator should note if in his opinion a comprehensive code evaluation is required.					
3.3.1	Building construction type - combustible or non-combustible, sprinklered or non-sprinklered.				- Combustible construction - Non-sprinklered	
3.3.2	Fire separations (i.e., between buildings, wings, zones if non-sprinklered).	4			- No issue or concern noted	
3.3.3	Fire resistance rating of materials (i.e., corridor walls and doors).	4			- No issue or concern noted	
3.3.4	Exiting distances and access to exits.	4			- No issue or concern noted	
3.3.5	Barrier-free access.	4			- No issue or concern noted	
3.3.6	Availability of hazardous materials audit (i.e., evidence of safety concerns with respect to asbestos, PCB's, chemicals).	3			- No hazardous materials audit available - It is recommended an audit be completed for the building.	\$ 7,000.00
3.3.7	Other health and safety concerns (i.e., evidence of excessive noise conditions, air quality problems)	1			- Musty smell inside the Curling Rink was noted during the review - Mould on basement door and inside Curling Rink wall finishes due to insufficient ventilation and high humidity in the spaces. See Mechanical for recommendations.	
Other						
	Overall Bldg Interior Condition & Estim Costs					\$ 21,000.00


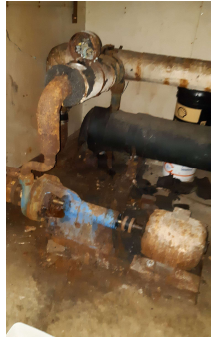
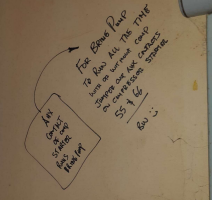
Facility Evaluation Form
Part IV - Mechanical Systems

Section 4	Mechanical Systems	Rating	Photo	Description/Condition	Estim. Cost
4.1	Mechanical Site Services				
4.1.1	Site drainage systems (i.e., surface and underground systems, catch basins).	4		Surface drainage.	
4.2	Fire Suppression Systems				
4.2.1	Hand extinguishers, blankets and showers (i.e., in CTS areas).	5		Hand held extinguishers located appropriately throughout building.	
4.2.2	Other special situations (e.g., flammable storage areas, science labs, CTS areas).	1		No fire suppression on gas kitchen range exhaust hood. This is required by building code.	\$ 5,000.00
4.3	Water Supply and Plumbing Systems				
4.3.1	Domestic water supply (i.e., pressure, volume, quality - note whether municipal or well supply).	4		1-1/2" copper municipal service, metered in ice plant room.	
4.3.3	Piping and fittings.	3		Domestic piping appears to be a combination of copper and pex. Some piping in lobby is exposed and should be reconfigured to avoid potential damage.	\$ 1,000.00
4.3.4	Plumbing fixtures (i.e., toilets, urinals, sinks)	4		Two (2) washrooms (mens and womens) in lounge area, fixtures consisting of urinals, tank toilets and countertop lavatories, in good condition. Stainless steel countertop sinks in kitchen area, in good condition. Ceramic countertop sink for bar on second floor, in good condition.	
4.3.5	Domestic hot water system (i.e., heater, storage tanks, failure alarms, pressure, volume, recirculation).	4		Gas fired tank water heater, located in basement mechanical room, in acceptable condition.	
4.3.6	Sanitary and storm sewers, including sumps and pits (note whether sewage system is municipal or septic).	4		Not visible, assumed cast iron, assumed aged of the building. No notable leakage. Municipal sewage system.	



Facility Evaluation Form
Part IV - Mechanical Systems

Section 4	Mechanical Systems	Rating	Photo	Description/Condition	Estim. Cost
4.4	Heating Systems				
4.4.1	Heating capacity and reliability (including backup capacity).	2		Lounge area is heated by gas-fired forced-air furnace, located in mechanical room in basement, in poor condition. Recommended to replace furnace.	\$ 4,000.00
4.4.1.2	Heating capacity and reliability (including backup capacity).	3		Curling rink is heated by gas-fired ceiling hung unit heater and fan-coil heater fed from ice plant heat recovery system. Recommended to replace these unit heaters as they are past their expected life cycles.	\$ 4,000.00
4.4.3	Heating distribution systems (i.e., piping, ductwork) and associated components (i.e., diffusers, radiators).	4		Ductwork for furnaces in floor space in lounge area. No visible damage to supply or return grilles.	
4.4.9	Heating piping, valve and/or duct insulation.	4		Heat piping for coil unit heater, in acceptable condition.	
4.4.4	Zone/unit heaters and controls.	4		Furnace controlled by thermostat, in acceptable condition.	
4.4.5	Natural Gas Service	4		Gas service is on south side of building.	
4.5	Ventilation Systems				
4.5.2	Exhaust systems capacity and condition, washrooms	3		Ceiling exhaust fans for each of the 2 washrooms, in acceptable condition. Wall exhaust fans in curling arena and ice plant room, in acceptable condition. Exterior exhaust hoods are damaged and should be replaced to mitigate cold air infiltration.	\$ 1,000.00
4.5.3	Special/dedicated ventilation and/or exhaust systems (i.e., kitchen, labs, CTS areas).	4		Stainless steel exhaust hoods over natural gas ranges in kitchen. In acceptable condition.	
4.6	Cooling Systems				


Facility Evaluation Form
Part IV - Mechanical Systems

Section 4	Mechanical Systems	Rating	Photo	Description/Condition	Estim. Cost
4.6.1	Cooling system capacity and condition (i.e., chillers, cooling towers, condensers).	3		Ice plant system consisting of compressor, chiller, and condenser, in operable condition. Equipment is well past its expected life cycle and should be replaced.	\$ 150,000.00
4.6.2	Cooling distribution system and components (i.e., ductwork, diffusers, mixing boxes, dampers, linkages)	3		Freon distribution pumps and condenser water pumps are in operable condition. Equipment is well past its expected life cycle and should be replaced.	\$ 10,000.00
4.6.3	Cooling system controls (including use of current energy management technology).	3		No clear control system, all equipment is manually operated. Should be upgraded with equipment.	\$ 15,000.00
Other	Refrigeration Plant Requirements	1		Ice plant room currently does not meet CSA B52 requirements for maintaining a vestibule between the ice plant and the curling arena. This must be constructed to be in compliance with this standard for refrigeration plants.	\$ 10,000.00
	Overall Mech Systems Condition & Estim. Costs	2		Install fire suppression on kitchen range hood, replace furnace, replace unit heaters, replace exhaust hoods, replace ice plant equipment, ice plant room to meet CSA B52 requirements for separation between curling arena and ice plant.	\$ 200,000.00

Facility Evaluation Form
Part V - Electrical Systems

Section 5	Electrical Systems	Rating	Photo	Description/Condition	Estim. Cost
5.1	Site Services				
5.1.1	Primary service capacity and reliability (i.e., access, location, components, installation, bus sizes - note whether overhead or underground).	4		200A, 240V 3 phase service. Service is overhead, main panel located in ice plant room, in acceptable condition.	
5.1.2	Site and building exterior lighting (i.e., safety concerns).	3		Exterior lighting consists of incandescent fixtures. Fixtures should be replaced for higher efficient LED fixtures.	\$ 500.00
5.2	Life Safety Systems				
5.2.1	Fire and smoke alarm systems (i.e., safety concerns, up-to-date technology, regularly tested).	4		Smoke and heat detection installed in mechanical and kitchen areas.	
5.2.2	Emergency lighting systems (i.e., safety concerns, condition).	5		Emergency lighting packs installed throughout.	
5.2.3	Exit lighting and signage (i.e., safety concerns, condition).	5		Exit signage installed as required.	
5.3	Power Supply and Distribution				
5.3.1	Panels and wireways capacity and condition.	2		Distribution panel in ice plant is 70A, 120/240 single phase, in good condition. Distribution panel in kitchen is 50A, 120/240 single phase, in acceptable condition. Panel in basement has no cover and should be replaced or relocated (humid conditions in basement).	\$ 2,000.00
5.3.2	Power distribution and outlets	4		Outlets and light switches are operable, and appear to be in acceptable condition.	
5.4	Lighting Systems				
5.4.1	Interior lighting systems and components (i.e., illumination levels, conditions, controls).	3		Lighting for curling rink is LED, in acceptable condition. Interior lighting consists of fluorescent fixtures. Recommended to replace with LED for higher energy efficiency.	\$ 5,000.00
	Overall Elect. Systems Condition & Estim Costs	3		Replace exterior and interior lighting in lobby, replace basement electrical panel.	\$ 7,500.00


Part I - Site Conditions

Section 1	Site Conditions	Rating	Photo	Comments/Concerns	Estim. Cost
1.1	General Site Conditions				
1.1.1	Overall site size.			- 100'x 115'	
1.1.2	Outdoor areas.	4		- Concrete drive way - No issue or concern noted	
1.1.4	Site accessories (i.e., perimeter and other fencing, guard rails, bike stands, flag poles).			N/A	
1.1.5	Surface drainage conditions (i.e., drains away from building, signs of ponding).	4		- No issue or concern noted	
1.1.6	Evidence of sub-soil problems.	4		- No issue or concern noted	
1.1.7	Safety and security concerns due to site conditions.	4		- No issue or concern noted	
1.2	Access/Drop-Off Areas/Roadways/Bus Lanes				
1.2.1	Vehicular and pedestrian access points (i.e., size, number, visibility, safety).	4		- Main entrance is located on the south side of the building off Railway Ave. - Vehicle access from Railway Ave. (south of building) - No issue or concern noted	
1.2.2	Surfacing of on-site road network (note whether asphalt or gravel).	4		- Concrete paved driveway. - No issue or concern noted	
1.2.3	Bus lanes/drop-off areas (note whether on-site or off-site).	4		- No specific drop-off area - No issue or concern noted	
1.2.4	Fire vehicle access.	4		- Fire vehicle access from Railway Ave. - No issue or concern noted	
1.2.5	Signage.	3		- "Halkirk Fire Dept." sign at the front of the building - The sign's facing is peeling off its backing and it is recommended to be replaced	\$ 5,000.00
1.3	Parking Lots and Sidewalks				
1.3.1	Number of parking spaces for staff, students and visitors (including stalls for disabled persons).			- No parking lot on site	
1.3.2	Layout and safety of parking lots.			N/A	
1.3.3	Surfacing and drainage of parking lots (note whether asphalt or gravel).			N/A	
1.3.4	Layout and safety of sidewalks.			- No sidewalk on site	
1.3.5	Surfacing and drainage of sidewalks (note type of material).			N/A	
1.3.6	Curb cuts and ramps for barrier free access.	4		- curb cuts at driveway available for use as barrier free access to site. - No issue or concern noted	
	Overall Site Conditions & Estimated Costs				\$ 5,000.00

Facility Evaluation Form
Part II - Overall Structure


Section 2	Building Exterior	Rating	Bldg. Section	Description/Condition	Estim. Cost
2.1	Overall Structure				
2.1.1	Floor structure and beams (i.e., signs of bending, cracking, heaving, settlement, voids, rust, stains).	4		- Concrete slab on grade is in good condition - no issue or concern noted	
2.1.2	Wall structure and columns (i.e., signs of bending, cracking, settlement, voids, rust, stains).	4		- Wood framed wall structure - No issue or concern noted	
2.1.3	Roof structure (i.e., signs of bending, cracking, voids, rust, stains).	4		- Wood framed roof structure - No issue or concern noted	
2.1.4	Control/expansion joints.			N/A	
Other	Foundation	4		- Superstructure does not show signs there is an issue with the existing foundation	
2.2	Roofing and Skylights <i>Identify the availability of an up-to-date inspection report or roofing program. Note if roof sections are of different ages and/or in varying states of repair.</i>				
2.2.1	Based on the inspection report (and to the extent possible, direct observation), assess and rate roof conditions and estimate costs for required improvements (i.e., covering materials, membrane, insulation, other components).	4		- Metal roof installed at 1991 (original building) and 2019 (addition) - No issue or concern noted	
2.2.2	Roof accessories (i.e., ladders, stairs, hatches, masts, exhaust hoods, chimneys, gutters, downspouts, splash pads).	4		- Roof accessories are in good condition - No issue or concern noted	
2.2.3	Control of ice and snow falling from roof.	4		- No issue or concern noted	
2.2.4	Skylights (i.e., signs of distress, leaks, ice build-up, condensation, deteriorated materials/seals).			N/A	
2.3	Exterior Walls/Building Envelope				
2.3.1	Exterior wall finishes (i.e., signs of deterioration, cracks, brick spalling, efflorescence, water stains).	4		- Metal cladding exterior wall - No issue or concern noted	

Part II - Overall Structure


Section 2	Building Exterior	Rating	Bldg. Section	Description/Condition	Estim. Cost
2.3.2	Fascias, soffits, parapets (i.e., signs of looseness, stains, rust, peeling paint).	2		- Metal fascia and metal vented soffit - loose metal fascia noted on the east side of the building. It is recommended to re-attach the loose fascia before it completely come off.	\$ 500.00
2.3.3	Building envelope (i.e., evidence of air infiltration/ exfiltration through the exterior wall or ice build up on wall, eaves, canopy).	4		- No issue or concern noted	
2.3.4	Interface of roof drainage and ground drainage systems.	4		- Gutter and downspout system - No issue or concern noted	
2.3.5	Inside faces of exterior walls (i.e., signs of cracks, water stains, dust spots).	4		- No issue or concern noted	
2.4 Exterior Doors and Windows					
2.4.1	Doors (i.e., signs of deterioration, rusting metal, glass cracks, peeling paint, damaged seals, sealed unit failure).	4		- Doors and frames are in good condition - No issue or concern noted	
2.4.2	Door accessories (i.e., latches, hardware, screens, locks, alarms, holders, closers, security devices).	4		- Door knob, deadbolt, door sweep, weatherstripping and threshold. - No issue or concern noted	
2.4.3	Exit door hardware (i.e., safety and/or code concerns).			N/A	
2.4.4	Windows (i.e., signs of deterioration, rusting metal, glass cracks, peeling paint, damaged seals, sealed unit failure).	4		- 1 fixed window - No issue or concern noted	
2.4.5	Window accessories (i.e., latches, hardware, screens, locks, alarms, holders, closers, security devices).			N/A	
2.4.6	Building envelope (i.e., signs of heavy condensation on doors or windows).	4		- No issue or concern noted	

Facility Evaluation Form

Part II - Overall Structure

Section 2	Building Exterior	Rating	Bldg. Section	Description/Condition	Estim. Cost
2.4.7	Overhead Doors	3		<ul style="list-style-type: none"> - 5 overhead doors. - gaps noted between door seals at the bottom of the original building and the existing floor as well as the weatherstripping around the doors. - Recommended to replace weatherstripping and door seals around the 2 overhead doors located in the original building. 	\$ 3,000.00
	Overall Bldg Exterior Condition & Estim Costs				\$ 3,500.00

Facility Evaluation Form
Part III - Building Interior

Section 3	Building Interior - Overall Conditions	Rating	Bldg. Section	Photo	Description/Condition	Estim. Cost
3.1	Interior Structure					
3.1.1	Interior walls and partitions (i.e., signs of cracks, spalling, paint peeling).	4			- Wood framed interior walls - No issue or concern noted	
3.1.2	Floors (i.e., signs of cracks, heaving, settlement).	4			- No issue or concern noted	
3.2	Materials and Finishes					
3.2.1	Floor materials and finishes.	4			- flooring is in good condition - No issue or concern noted	
3.2.2	Wall materials and finishes.	4			- Metal cladding and drywalls are in good condition - No issue or concern noted	
3.2.3	Ceiling materials and finishes.	4			- Metal cladding ceiling and drywall ceilings are in good condition - No issue or concern noted	
3.2.4	Interior doors and hardware.	1			- Damaged wired glass noted on the rated metal doors between garage bays and storage room. - replace wire glass on door to maintain fire-rating of the door.	\$ 1,000.00
3.2.5	Millwork	4			- Millwork in washroom are in good condition - No issue or concern noted	
3.3	Health and Safety Concerns --- Intent is to identify renovations considered necessary to meet applicable codes, primarily due to safety concerns. Basis of evaluation should be an up-to-date inspection report from the authority having jurisdiction together with direct observations as appropriate. Evaluator should note if in his opinion a comprehensive code evaluation is required.					
3.3.1	Building construction type - combustible or non-combustible, sprinklered or non-sprinklered.				- Combustible construction - Non-sprinklered	
3.3.2	Fire separations (i.e., between buildings, wings, zones if non-sprinklered).	4			- No issue or concern noted	
3.3.3	Fire resistance rating of materials (i.e., corridor walls and doors).	1			- Replace broken wired glass from rated Storage Room door to maintain fire rating of the door. See Section 3.2.4 for more information.	
3.3.4	Exiting distances and access to exits.	4			- No issue or concern noted	
3.3.5	Barrier-free access.	4			- No issue or concern noted	


Facility Evaluation Form
Part III - Building Interior

Section 3	Building Interior - Overall Conditions	Rating	Bldg. Section	Photo	Description/Condition	Estim. Cost
3.3.6	Availability of hazardous materials audit (i.e., evidence of safety concerns with respect to asbestos, PCB's, chemicals).	4			- No hazardous material audit - For building this age, it is unlikely the building consists of construction materials that contain hazardous material.	
3.3.7	Other health and safety concerns (i.e., evidence of excessive noise conditions, air quality problems)	4			- No other health and safety concerns.	
	Overall Bldg Interior Condition & Estim Costs					\$ 1,000.00

Facility Evaluation Form
Part IV - Mechanical Systems

Section 4	Mechanical Systems	Rating	Photo	Description/Condition	Estim. Cost
4.1	Mechanical Site Services				
4.1.1	Site drainage systems (i.e., surface and underground systems, catch basins).	4		Eavestroughs to downspouts, to overland drainage, in good condition.	
4.1.2	Interior drainage (ie. Sumps, floor drains)	4		Double compartment drainage sumps in parking bays.	
4.2	Fire Suppression Systems				
4.2.1	Hand extinguishers, blankets and showers (i.e., in CTS areas).	5		Hand-held fire extinguishers located throughout building.	
4.3	Water Supply and Plumbing Systems				
4.3.1	Domestic water supply (i.e., pressure, volume, quality - note whether municipal or well supply).	4		Municipal water service, copper 2" service line, located in shop. In acceptable condition.	
4.3.2	Piping and fittings.	4		Domestic piping is a combination of copper and pex. All appears in good condition.	
4.3.3	Plumbing fixtures (i.e., toilets, urinals, sinks)	4		Washroom with tank toilet and countertop lavatory, in good condition. Shower converted to janitor sink, in acceptable condition.	
4.3.4	Domestic hot water system (i.e., heater, storage tanks, failure alarms, pressure, volume, recirculation).	4		Gas fired tank water heater, 19 gal. capacity, 1.5 kW, located in janitor room, in acceptable condition.	
4.3.5	Sanitary and storm sewers, including sumps and pits (note whether sewage system is municipal or septic).	4		Not visible, assumed cast iron, assumed aged of the building. No notable leakage. Municipal sewage system.	

Facility Evaluation Form
Part IV - Mechanical Systems

Section 4	Mechanical Systems	Rating	Photo	Description/Condition	Estim. Cost
4.4	Heating Systems				
4.4.1.1	Heating capacity and reliability (including backup capacity).	3		Office and washrooms/kitchen are heated by a gas-fired furnace, in operating condition. Furnace is near its expected life cycle and should be replaced.	\$ 4,000.00
4.4.1.2	Heating capacity and reliability (including backup capacity).	4		New parking bay is heated by gas-fired radiant heaters, in good condition.	
4.4.2	Heating air filtration systems and filters.	4		Furnace is equipped with filter.	
4.4.3	Heating distribution systems (i.e., piping, ductwork) and associated components (i.e., diffusers, radiators).	4		Ductwork for furnace in floor space. No visible damage to supply or return grilles.	
4.4.4	Zone/unit heaters and controls.	4		Furnace is controlled by thermostat, in acceptable condition.	
4.4.5	Natural Gas Service	4		Gas service is on north side of building.	
4.5	Ventilation Systems				
4.5.1.1	Exhaust systems capacity and condition, washrooms	4		Ceiling exhaust fan for washroom, in acceptable condition.	
4.5.1.2	Exhaust systems capacity and condition. Shop	1		No exhaust in parking bays. Exhaust is required by ASHRAE 62.1 for mechanical shops or parking garages. Recommended to install exhaust and intake with controls and gas detection.	\$ 10,000.00
	Overall Mech Systems Condition & Estim. Costs	4		Replace furnace, add exhaust in parking bays.	\$ 14,000.00

Facility Evaluation Form
Part V - Electrical Systems

Section 5	Electrical Systems	Rating	Photo	Description/Condition	Estim. Cost
5.1	Site Services				
5.1.1	Primary service capacity and reliability (i.e., access, location, components, installation, bus sizes - note whether overhead or underground).	4		100A, 120V 1 phase service. Service is overhead, fed from the rear of the building. Main panel located in mechanical room. Main panel is 80% full and in acceptable condition. Manual switch for emergency generator connection.	
5.1.2	Site and building exterior lighting (i.e., safety concerns).	4		LED wall mounted lighting fixtures.	
5.2	Life Safety Systems				
5.2.1	Fire and smoke alarm systems (i.e., safety concerns, up-to-date technology, regularly tested).	4		Local smoke detectors located throughout building.	

Facility Evaluation Form
Part V - Electrical Systems


Section 5	Electrical Systems	Rating	Photo	Description/Condition	Estim. Cost
5.3	Power Supply and Distribution				
5.3.1	Panels and wireways capacity and condition.	4		Cables and wiring appears to be in acceptable condition where visible.	
5.3.2	Power distribution and outlets	4		Distribution panels and outlets are sufficient throughout.	
5.4	Lighting Systems				
5.4.1.1	Interior lighting systems and components (i.e., illumination levels, conditions, controls).	4		LED fixtures throughout, in good condition.	
5.5	Network and Communication Systems				
5.5.1	Telephone system and components (i.e., capacity, reliability, condition).	4		Telephone and communication service in shop storage room, in acceptable condition.	
5.5.2	Other communication systems (i.e., public address, intercom, CCTV, satellite or cable TV).	4		Internet service, sufficient for current usage.	
	Overall Elect. Systems Condition & Estim Costs	4		No cost estimates.	\$ -

Facility Evaluation Form


Part II - Site Conditions

Section 1	Site Conditions	Rating	Photo	Comments/Concerns	Estim. Cost
1.1	General Site Conditions				
1.1.1	Overall site size.			70'x150'	
1.1.2	Outdoor areas.			N/A	
1.1.3	Site landscaping.	4		- Grass and gravel - No issue or concern noted.	
1.1.4	Site accessories (i.e., perimeter and other fencing, guard rails, bike stands, flag poles).			N/A	
1.1.5	Surface drainage conditions (i.e., drains away from building, signs of ponding).	4		- No issue or concern noted.	
1.1.6	Evidence of sub-soil problems.	4		- No issue or concern noted	
1.1.7	Safety and security concerns due to site conditions.	4		- No issue or concern noted	
Other					
1.2	Access/Drop-Off Areas/Roadways/Bus Lanes				
1.2.1	Vehicular and pedestrian access points (i.e., size, number, visibility, safety).	4		- Main entrance is located on the south end of the building - Vehicle access onto the site not available. - No issue or concern noted.	
1.2.2	Surfacing of on-site road network (note whether asphalt or gravel).			N/A	
1.2.3	Bus lanes/drop-off areas (note whether on-site or off-site).	4		- Drop-off off-site only - No issue or concern noted	
1.2.4	Fire vehicle access.	4		Fire vehicle access from Alberta Ave. - No issue or concern noted	
1.2.5	Signage.			N/A	
Other					
1.3	Parking Lots and Sidewalks				
1.3.1	Number of parking spaces for staff, students and visitors (including stalls for disabled persons).			No parking lot on site	
	Overall Site Conditions & Estimated Costs				\$ -

Facility Evaluation Form
Part II - Overall Structure

Section 2	Building Exterior	Rating	Photo	Description/Condition	Estim. Cost
2.1	Overall Structure				
2.1.1	Floor structure and beams (i.e., signs of bending, cracking, heaving, settlement, voids, rust, stains).	4		- Wood floor at the 1950 addition (front area). - No floor in the arena - No issue or concern noted.	
2.1.2	Wall structure and columns (i.e., signs of bending, cracking, settlement, voids, rust, stains).	4		- Wood framed wall structure - No issue or concern noted	
2.1.3	Roof structure (i.e., signs of bending, cracking, voids, rust, stains).	1		- Wood arch-rib structure in the Arena - Wood trusses roof structure at the 1950 addition (front area). - Sagged bottom chord of the trusses in the front area. The bottom chord should be reinforced by either a steel or wood plate.	\$ 1,000.00
2.1.4	Control/expansion joints.			N/A	
Other	Foundation	4		- Superstructure above grade does not show signs of foundation issue.	
2.2	Roofing and Skylights <i>Identify the availability of an up-to-date inspection report or roofing program. Note if roof sections are of different ages and/or in varying states of repair.</i>				
2.2.1	Based on the inspection report (and to the extent possible, direct observation), assess and rate roof conditions and estimate costs for required improvements (i.e., covering materials, membrane, insulation, other components).	4		- Metal roof - No issue or concern noted	
2.2.2	Roof accessories (i.e., ladders, stairs, hatches, masts, exhaust hoods, chimneys, gutters, downspouts, splash pads).	4		- Roof accessories are in good condition - No issue or concern noted	
2.2.3	Control of ice and snow falling from roof.			N/A	
2.2.4	Skylights (i.e., signs of distress, leaks, ice build-up, condensation, deteriorated materials/seals).			N/A	

Facility Evaluation Form
Part II - Overall Structure

Section 2	Building Exterior	Rating	Photo	Description/Condition	Estim. Cost
2.3	Exterior Walls/Building Envelope				
2.3.1	Exterior wall finishes (i.e., signs of deterioration, cracks, brick spalling, efflorescence, water stains).	2		- Metal cladded on top of wood sheathing. - Daylight can be seen through wood sheathing in the Arena. - Reattach all the loose wood sheathing to the structure below.	\$ 2,000.00
2.3.2	Fascias, soffits, parapets (i.e., signs of looseness, stains, rust, peeling paint).	4		- No issue or concern noted	
2.3.3	Building envelope (i.e., evidence of air infiltration/ exfiltration through the exterior wall or ice build up on wall, eaves, canopy).			- Building does not have a building envelope. Building is not insulated nor consists of vapour barrier. - Building serves its intended purpose.	
2.3.4	Interface of roof drainage and ground drainage systems.	4		- No control of roof drainage to the ground. - No issue or concern noted.	
2.3.5	Inside faces of exterior walls (i.e., signs of cracks, water stains, dust spots).			N/A	
2.4	Exterior Doors and Windows				
2.4.1	Doors (i.e., signs of deterioration, rusting metal, glass cracks, peeling paint, damaged seals, sealed unit failure).	4		- Metal doors and frames. - No issue or concern noted.	
2.4.2	Door accessories (i.e., latches, hardware, screens, locks, alarms, holders, closers, security devices).	4		- door accessories are in good condition - No issue or concern noted	
2.4.3	Exit door hardware (i.e., safety and/or code concerns).			N/A	
2.4.4	Windows (i.e., signs of deterioration, rusting metal, glass cracks, peeling paint, damaged seals, sealed unit failure).			N/A	
2.4.5	Window accessories (i.e., latches, hardware, screens, locks, alarms, holders, closers, security devices).			N/A	
2.4.6	Building envelope (i.e., signs of heavy condensation on doors or windows).			No building envelop in this building.	

Facility Evaluation Form
Part II - Overall Structure

Section 2	Building Exterior	Rating	Photo	Description/Condition	Estim. Cost
2.4.7	Overhead Doors	2		- 1 overhead door at the north end of the building - Village indicated the overhead door needs repair	\$ 2,000.00
	Overall Bldg Exterior Condition & Estim Costs				\$ 5,000.00

Facility Evaluation Form


Part III - Building Interior

Section 3	Building Interior - Overall Conditions	Rating	Bldg. Section	Photo	Description/Condition	Estim. Cost
3.1	Interior Structure					
3.1.1	Interior walls and partitions (i.e., signs of cracks, spalling, paint peeling).	4			- interior wall is in good condition - No issue or concern noted	
3.1.2	Floors (i.e., signs of cracks, heaving, settlement).	4			- Wood floor in the 1950 addition. - No floor in the Arena. - No issue or concern noted.	
3.2	Materials and Finishes					
3.2.1	Floor materials and finishes.	3	1950 Addition		- wood floor. Not finished. - It is recommended to paint the floor to protect the wood surface	\$ 500.00
3.2.2	Wall materials and finishes.	3	1950 Addition		- painted wood walls - it is recommended to repair the walls	\$ 500.00
3.2.3	Ceiling materials and finishes.				N/A	
3.2.4	Interior doors and hardware.				N/A	
3.2.5	Millwork				N/A	
3.3	Health and Safety Concerns --- Intent is to identify renovations considered necessary to meet applicable codes, primarily due to safety concerns. Basis of evaluation should be an up-to-date inspection report from the authority having jurisdiction together with direct observations as appropriate. Evaluator should note if in his opinion a comprehensive code evaluation is required.					
3.3.1	Building construction type - combustible or non-combustible, sprinklered or non-sprinklered.				- Combustible construction - Non-sprinklered	
3.3.2	Fire separations (i.e., between buildings, wings, zones if non-sprinklered).				N/A	
3.3.3	Fire resistance rating of materials (i.e., corridor walls and doors).				N/A	
3.3.4	Exiting distances and access to exits.	4			- No issue or concern noted	
3.3.5	Barrier-free access.	4			- Building is not barrier free accessible. - If the building is to allow public to access such as an arena or a museum, the building should be updated to meet barrier free requirement according to the Building Code. - Otherwise, barrier free is not necessary.	
3.3.6	Availability of hazardous materials audit (i.e., evidence of safety concerns with respect to asbestos, PCB's, chemicals).				- No hazardous material audit available	
3.3.7	Other health and safety concerns (i.e., evidence of excessive noise conditions, air quality problems)	4			- No issue or concern noted	

Facility Evaluation Form
Part III - Building Interior

Section 3	Building Interior - Overall Conditions	Rating	Bldg. Section	Photo	Description/Condition	Estim. Cost
	Overall Bldg Interior Condition & Estim Costs					\$ 1,000.00

Facility Evaluation Form
Part IV - Mechanical Systems

Section 4	Mechanical Systems	Rating	Photo	Description/Condition	Estim. Cost
4.1	Mechanical Site Services				
4.1.1	Site drainage systems (i.e., surface and underground systems, catch basins).	4		Overland drainage, in good condition.	
4.2	Fire Suppression Systems				
4.2.1	Hand extinguishers, blankets and showers (i.e., in CTS areas).	5		Hand-held fire extinguishers located throughout building.	
4.3	Water Supply and Plumbing Systems				
4.3.1	Domestic water supply (i.e., pressure, volume, quality - note whether municipal or well supply).			No water service.	
4.4	Heating Systems				
4.4.1	Heating capacity and reliability (including backup capacity).	2		Front entry area is heated by a gas-fired unit heater, in poor condition. Recommended to replace. Arena area is unheated.	\$ 2,000.00
4.4.2	Natural Gas Service	4		Gas service is on west side of building.	
4.5	Ventilation Systems				
4.5.1	Exhaust systems capacity and condition, general	4		Exhaust system is passive, with manually opening vents on walls. Original intent of building was for natural freezing ice surface. This system should be revisited if usage of building is permanently changed.	
	Overall Mech Systems Condition & Estim. Costs	4		Replace unit heater.	\$ 2,000.00

Facility Evaluation Form
Part V - Electrical Systems

Section 5	Electrical Systems	Rating	Photo	Description/Condition	Estim. Cost
5.1	Site Services				
5.1.1	Primary service capacity and reliability (i.e., access, location, components, installation, bus sizes - note whether overhead or underground).	4		100A, 120V 1 phase service. Service is overhead, fed to front of the building. Main panel located in entrance. Main panel is 20% full and in acceptable condition.	
5.2	Life Safety Systems				
5.2.1	Fire and smoke alarm systems (i.e., safety concerns, up-to-date technology, regularly tested).			N/A	
5.3	Power Supply and Distribution				
5.3.1	Panels and wireways capacity and condition.	4		Cables and wiring appears to be in acceptable condition where visible.	
5.4	Lighting Systems				
5.4.1	Interior lighting systems and components (i.e., illumination levels, conditions, controls).	4		Arena Lighting is LED. Lighting levels appear to be low, however, this can be revisited once final usage of building has been established. Lobby lighting is compact fluorescent.	
	Overall Elect. Systems Condition & Estim Costs	4		No cost estimates.	\$ -

Facility Evaluation Form


Part I - Site Conditions

Section 1	Site Conditions	Rating	Photo	Comments/Concerns	Estim. Cost
1.1	General Site Conditions				
1.1.1	Overall site size.			50'x115'	
1.1.2	Outdoor areas.			N/A	
1.1.3	Site landscaping.	4		- Grass - No issue or concern noted	
1.1.4	Site accessories (i.e., perimeter and other fencing, guard rails, bike stands, flag poles).	4		- Ramp railing - Ramp railing is in good condition	
1.1.5	Surface drainage conditions (i.e., drains away from building, signs of ponding).	4		- No issue or concern noted	
1.1.6	Evidence of sub-soil problems.	4		- No issue or concern noted	
1.1.7	Safety and security concerns due to site conditions.	4		- No issue or concern noted	
1.2	Access/Drop-Off Areas/Roadways/Bus Lanes				
1.2.1	Vehicular and pedestrian access points (i.e., size, number, visibility, safety).	4		- Main entrance is located on the east side of the building off Main Street - Vehicle access onto the site not available. - no issue or concern noted	
1.2.2	Surfacing of on-site road network (note whether asphalt or gravel).			N/A	
1.2.3	Bus lanes/drop-off areas (note whether on-site or off-site).	4		- Drop-off off-site only - No issue or concern noted	
1.2.4	Fire vehicle access.	4		- Fire vehicle access from Main Street. - No issue or concern noted	
1.2.5	Signage.	4		- "Village of Halkirk" sign is in good condition - No issue or concern noted.	
1.3	Parking Lots and Sidewalks				
1.3.1	Number of parking spaces for staff, students and visitors (including stalls for disabled persons).			N/A	
1.3.2	Layout and safety of parking lots.			N/A	
1.3.3	Surfacing and drainage of parking lots (note whether asphalt or gravel).			N/A	
1.3.4	Layout and safety of sidewalks.	4		- No issue or concern noted	
1.3.5	Surfacing and drainage of sidewalks (note type of material).	4		- Concrete sidewalks - No issue or concern noted	
1.3.6	Curb cuts and ramps for barrier free access.	4		- Ramp for barrier free access at the front of the building - No issue or concern noted.	
	Overall Site Conditions & Estimated Costs				


Facility Evaluation Form
Part II - Overall Structure

Section 2	Building Exterior	Rating	Bldg. Section	Photo	Description/Condition	Estim. Cost
2.1	Overall Structure					
2.1.1	Floor structure and beams (i.e., signs of bending, cracking, heaving, settlement, voids, rust, stains).	4			- Concrete floor is in good condition - No issue or concern noted	
2.1.2	Wall structure and columns (i.e., signs of bending, cracking, settlement, voids, rust, stains).	4			- Wood framed wall structure. - No issue or concern noted	
2.1.3	Roof structure (i.e., signs of bending, cracking, voids, rust, stains).	4			- Wood framed roof structure - No issue or concern noted.	
2.1.4	Control/expansion joints.				N/A	
Other	Foundation	4			- No signs of concern on the superstructure to indicate there is any problem with the foundation.	
2.2	Roofing and Skylights <i>Identify the availability of an up-to-date inspection report or roofing program. Note if roof sections are of different ages and/or in varying states of repair.</i>					
2.2.1	Based on the inspection report (and to the extent possible, direct observation), assess and rate roof conditions and estimate costs for required improvements (i.e., covering materials, membrane, insulation, other components).	4			- Metal roof - No issue or concern noted	
2.2.2	Roof accessories (i.e., ladders, stairs, hatches, masts, exhaust hoods, chimneys, gutters, downspouts, splash pads).	4			- Roof accessories are in good condition - No issue or concern noted	
2.2.3	Control of ice and snow falling from roof.	4			- No issue or concern noted	
2.2.4	Skylights (i.e., signs of distress, leaks, ice build-up, condensation, deteriorated materials/seals).				N/A	

Facility Evaluation Form
Part II - Overall Structure

Section 2	Building Exterior	Rating	Bldg. Section	Photo	Description/Condition	Estim. Cost
2.3	Exterior Walls/Building Envelope					
2.3.1	Exterior wall finishes (i.e., signs of deterioration, cracks, brick spalling, efflorescence, water stains).	3			- Vinyl siding around the building - Damages to the siding due to grass trimmer typical around the building. - Replace damaged vinyl siding to protect the further damages to the building envelope.	\$ 3,000.00
2.3.2	Fascias, soffits, parapets (i.e., signs of looseness, stains, rust, peeling paint).	4			- Metal fascia, soffit in good condition - No issue or concern noted	
2.3.3	Building envelope (i.e., evidence of air infiltration/ exfiltration through the exterior wall or ice build up on wall, eaves, canopy).	4			- No issue or concern noted	
2.3.4	Interface of roof drainage and ground drainage systems.	4			- Gutter and downspout - No issue or concern noted	
2.3.5	Inside faces of exterior walls (i.e., signs of cracks, water stains, dust spots).	4			- No issue or concern noted	
2.4	Exterior Doors and Windows					
2.4.1	Doors (i.e., signs of deterioration, rusting metal, glass cracks, peeling paint, damaged seals, sealed unit failure).	4			- Aluminum storefront door at the main entrance - 2 metal doors and frames - No issue or concern noted	
2.4.2	Door accessories (i.e., latches, hardware, screens, locks, alarms, holders, closers, security devices).	4			- Door accessories are in good condition - No issue or concern noted	
2.4.3	Exit door hardware (i.e., safety and/or code concerns).				N/A	
2.4.4	Windows (i.e., signs of deterioration, rusting metal, glass cracks, peeling paint, damaged seals, sealed unit failure).	4			- Fixed windows typical. - No issue or concern noted	
2.4.5	Window accessories (i.e., latches, hardware, screens, locks, alarms, holders, closers, security devices).				N/A	
2.4.6	Building envelope (i.e., signs of heavy condensation on doors or windows).	4			- No issue or concern noted	
2.4.7	Overhead Doors				N/A	
	Overall Bldg Exterior Condition & Estim Costs					\$ 3,000.00



Facility Evaluation Form
Part III - Building Interior

Section 3	Building Interior - Overall Conditions	Rating	Bldg. Section	Photo	Description/Condition	Estim. Cost
3.1	Interior Structure					
3.1.1	Interior walls and partitions (i.e., signs of cracks, spalling, paint peeling).	4			- wood framed interior walls - No issue or concern noted	
3.1.2	Floors (i.e., signs of cracks, heaving, settlement).	4			- concrete floor in good conditions - No issue or concern noted	
3.2	Materials and Finishes					
3.2.1	Floor materials and finishes.	3			- painted floor at the front of the post office. Painted floor is recommended to be repainted - vinyl floor in the office. Vinyl flooring is in good condition.	\$ 1,000.00
3.2.2	Wall materials and finishes.	3			- Painted surface is recommended to be repainted	\$ 5,000.00
3.2.3	Ceiling materials and finishes.	4			- Ceiling finish is in good condition - No issue or concern noted	
3.2.4	Interior doors and hardware.	4			- Interior doors are in good condition - No issue or concern noted	
3.2.5	Millwork	4			- Millwork in the wahsroom is in good condition - No issue or concern noted	
3.3	Health and Safety Concerns --- Intent is to identify renovations considered necessary to meet applicable codes, primarily due to safety concerns. Basis of evaluation should be an up-to-date inspection report from the authority having jurisdiction together with direct observations as appropriate. Evaluator should note if in his opinion a comprehensive code evaluation is required.					
3.3.1	Building construction type - combustible or non-combustible, sprinklered or non-sprinklered.				- Combustible construction - Non-sprinklered	
3.3.2	Fire separations (i.e., between buildings, wings, zones if non-sprinklered).				N/A	
3.3.3	Fire resistance rating of materials (i.e., corridor walls and doors).				N/A	
3.3.4	Exiting distances and access to exits.	4			- No issue or concern noted	
3.3.5	Barrier-free access.	4			- Building is barrier-free accessible. - No issue or concern noted	
3.3.6	Availability of hazardous materials audit (i.e., evidence of safety concerns with respect to asbestos, PCB's, chemicals).				- No hazardous material audit available - However, building this age should be contain construction material that contains hazardous material	
3.3.7	Other health and safety concerns (i.e., evidence of excessive noise conditions, air quality problems)				- No issue or concern noted	
	Overall Bldg Interior Condition & Estim Costs					\$ 6,000.00

Facility Evaluation Form
Part IV - Mechanical Systems

Section 4	Mechanical Systems	Rating	Photo	Description/Condition	Estim. Cost
4.1	Mechanical Site Services				
4.1.1	Site drainage systems (i.e., surface and underground systems, catch basins).	4		Eavestroughs to downspouts, to overland drainage, in good condition.	
4.2	Fire Suppression Systems				
4.2.1	Hand extinguishers, blankets and showers (i.e., in CTS areas).	5		Hand-held fire extinguishers located throughout building.	
4.3	Water Supply and Plumbing Systems				
4.3.1	Domestic water supply (i.e., pressure, volume, quality - note whether municipal or well supply).	4		Municipal water service, copper 1" service line, located in shop. In acceptable condition.	
4.3.2	Piping and fittings.	4		Domestic piping is a combination of copper and pex. All appears in good condition.	
4.3.3	Plumbing fixtures (i.e., toilets, urinals, sinks)	4		Washroom with tank toilet and countertop lavatory, in acceptable condition.	
4.3.4	Domestic hot water system (i.e., heater, storage tanks, failure alarms, pressure, volume, recirculation).	4		Gas fired on demand water heater, also source of in-floor heating system. In good condition.	
4.3.5	Sanitary and storm sewers, including sumps and pits (note whether sewage system is municipal or septic).	4		Not visible, assumed PVC, age of the building. No notable leakage. Municipal sewage system.	
4.4	Heating Systems				
4.4.1	Heating capacity and reliability (including backup capacity).	4		Heated through heat exchanger system through the domestic water heater. System is in good condition.	
4.4.2	Heating distribution systems (i.e., piping, ductwork) and associated components (i.e., diffusers, radiators).	4		Pex piping for in-floor heating. Headers and control valves are in good condition.	
4.4.3	Zone/unit heaters and controls.	4		In-floor heating system is controlled by thermostat, in acceptable condition.	
4.4.4	Natural Gas Service	4		Gas service is on west side of building.	
4.5	Ventilation Systems				
4.5.1	Exhaust systems capacity and condition, washrooms	4		Ceiling exhaust fan for washroom, in acceptable condition.	
	Overall Mech Systems Condition & Estim. Costs	4		No cost estimates.	\$ -


Facility Evaluation Form
Part V - Electrical Systems

Section 5	Electrical Systems	Rating	Photo	Description/Condition	Estim. Cost
5.1	Site Services				
5.1.1	Primary service capacity and reliability (i.e., access, location, components, installation, bus sizes - note whether overhead or underground).	4		100A, 120V 1 phase service. Service is overhead, fed from the rear of the building. Main panel located in mechanical room. Main panel is 25% full and in good condition.	
5.1.2	Site and building exterior lighting (i.e., safety concerns).	3		Lighting consists of incandescent bulbs. Bulbs should be replaced with LED bulbs or fixtures as they fail for higher energy efficiency.	\$ 500.00
5.1.3	Vehicle plug-ins (i.e., number, capacity, condition).	4		Exterior plugs and covers in acceptable condition.	
5.2	Life Safety Systems				
5.2.1	Fire and smoke alarm systems (i.e., safety concerns, up-to-date technology, regularly tested).	4		Local smoke detectors located throughout building.	
5.2.2	Emergency lighting systems (i.e., safety concerns, condition).	4		Emergency light heads and battery packs located appropriately in building.	
5.3	Power Supply and Distribution				
5.3.1	Panels and wireways capacity and condition.	4		Cables and wiring appears to be in acceptable condition where visible.	
5.3.2	Power distribution and outlets	4		Acceptable outlets and power distribution throughout.	
5.4	Lighting Systems				
5.4.1	Interior lighting systems and components (i.e., illumination levels, conditions, controls).	3		T-8 fluorescent fixtures and incandescent fixtures located throughout. Fixtures should be replaced with LED bulbs for higher energy efficiency.	\$ 2,000.00
5.5	Network and Communication Systems				
5.5.1	Telephone system and components (i.e., capacity, reliability, condition).	4		Telephone and communication service, in acceptable condition.	
5.5.2	Other communication systems (i.e., public address, intercom, CCTV, satellite or cable TV).	4		Internet service, sufficient for current usage.	
5.6	Miscellaneous Systems				
5.6.1	Site and building surveillance system	4		Security cameras on interior and exterior, maintained by independent company	
5.6.2	Intrusion alarms	4		Door intrusion alarms, maintained by independent company	

Facility Evaluation Form
Part V - Electrical Systems

Section 5	Electrical Systems	Rating	Photo	Description/Condition	Estim. Cost
	Overall Elect. Systems Condition & Estim Costs	4		Replace exterior and interior lighting with LED fixtures.	\$ 2,500.00

Facility Evaluation Form
Part I - Site Conditions

Section 1	Site Conditions	Rating	Photo	Comments/Concerns	Estim. Cost
1.1	General Site Conditions				
1.1.1	Overall site size.			- 287' x 211'	
1.1.2	Outdoor areas.	4		- Rodeo ground - No issue or concern noted	
1.1.3	Site landscaping.	4		- grassed area	
1.1.4	Site accessories (i.e., perimeter and other fencing, guard rails, bike stands, flag poles).	2		- Damages on the bleachers noted at several location - Peeling paint noted on the bleachers as well. - Repair bleachers and repaint bleachers.	\$ 5,000.00
1.1.5	Surface drainage conditions (i.e., drains away from building, signs of ponding).	4		- No issue or concern noted	
1.1.6	Evidence of sub-soil problems.	4		- No issue or concern noted	
1.1.7	Safety and security concerns due to site conditions.	4		- No issue or concern noted	
1.2	Access/Drop-Off Areas/Roadways/Bus Lanes				
1.2.1	Vehicular and pedestrian access points (i.e., size, number, visibility, safety).	4		- Vehicle and pedestrian access from Pioneer Ave. - No issue or concern noted	
1.2.2	Surfacing of on-site road network (note whether asphalt or gravel).	4		- Gravel paved - No issue or concern noted	
1.2.3	Bus lanes/drop-off areas (note whether on-site or off-site).	4		- No specific area designated for drop-off. - No issue or concern noted	
1.2.4	Fire vehicle access.	4		- No issue or concern for fire vehicle access	
1.2.5	Signage.			N/A	
1.3	Parking Lots and Sidewalks				
1.3.1	Number of parking spaces for staff, students and visitors (including stalls for disabled persons).			No parking lot	
	Overall Site Conditions & Estimated Costs				\$ 5,000.00

Facility Evaluation Form

Part II - Overall Structure

Section 2	Building Exterior	Rating	Bldg. Section	Photo	Description/Condition	Estim. Cost
2.1	Overall Structure					
2.1.1	Floor structure and beams (i.e., signs of bending, cracking, heaving, settlement, voids, rust, stains).				N/A	
2.1.2	Wall structure and columns (i.e., signs of bending, cracking, settlement, voids, rust, stains).	4	Pole Shed		- Wood framed wall structure - No issue or concern noted	
2.1.3	Roof structure (i.e., signs of bending, cracking, voids, rust, stains).	FI	Pole Shed		- wood trusses roof structure - East end of the pole shed sags. The building should be further review to determine the exact concern of the building. - No issue or concern noted	\$ 6,000.00
2.1.4	Control/expansion joints.				N/A	
Other	Foundation	4	Pole Shed		;- No signs of concern noted on the superstructure to indicate there is a problem in the Foundation.	
2.2	Roofing and Skylights <i>Identify the availability of an up-to-date inspection report or roofing program. Note if roof sections are of different ages and/or in varying states of repair.</i>					
2.2.1	Based on the inspection report (and to the extent possible, direct observation), assess and rate roof conditions and estimate costs for required improvements (i.e., covering materials, membrane, insulation, other components).	4	Pole Shed		- Metal Roof - No issue or concern noted	
2.2.2	Roof accessories (i.e., ladders, stairs, hatches, masts, exhaust hoods, chimneys, gutters, downspouts, splash pads).	4	Pole Shed		- Roof accessories are in good condition - No issue or concern noted	
2.2.3	Control of ice and snow falling from roof.	4	Pole Shed		- No issue or concern noted	
2.2.4	Skylights (i.e., signs of distress, leaks, ice build-up, condensation, deteriorated materials/seals).				N/A	
Other						
2.3	Exterior Walls/Building Envelope					

Facility Evaluation Form


Part II - Overall Structure

2.3.1	Exterior wall finishes (i.e., signs of deterioration, cracks, brick spalling, efflorescence, water stains).	4	Pole Shed		- Metal clad exterior wall - no issue or concern noted	
2.3.2	Fascias, soffits, parapets (i.e., signs of looseness, stains, rust, peeling paint).	4	Pole Shed		- Metal fascias - No issue or concern noted	
2.3.3	Building envelope (i.e., evidence of air infiltration/ exfiltration through the exterior wall or ice build up on wall, eaves, canopy).				- Building is not insulated nor heated	
2.3.4	Interface of roof drainage and ground drainage systems.	4			- Gutter and downspout - No issue or concern noted	
2.3.5	Inside faces of exterior walls (i.e., signs of cracks, water stains, dust spots).	4			- Inside face not finished. - No issue or concern noted	
Other						
2.4 Exterior Doors and Windows						
2.4.1	Doors (i.e., signs of deterioration, rusting metal, glass cracks, peeling paint, damaged seals, sealed unit failure).	4	Pole Shed		- Metal doors and frames - No issue or concern noted	
2.4.2	Door accessories (i.e., latches, hardware, screens, locks, alarms, holders, closers, security devices).	4	Pole Shed		- Door accessories in good condition - No issue or concern noted	
2.4.3	Exit door hardware (i.e., safety and/or code concerns).	4	Pole Shed		- Exit door hardware in good condition - No issue or concern noted	
2.4.4	Windows (i.e., signs of deterioration, rusting metal, glass cracks, peeling paint, damaged seals, sealed unit failure).				N/A	
2.4.5	Window accessories (i.e., latches, hardware, screens, locks, alarms, holders, closers, security devices).				N/A	
2.4.6	Building envelope (i.e., signs of heavy condensation on doors or windows).	4	Pole Shed		- Building is not insulated - No issue or concern noted	
2.4.7	Overhead Doors	4	Pole Shed		- 4 overhead doors - No issue or concern noted	
	Overall Bldg Exterior Condition & Estim Costs					\$ 6,000.00

Facility Evaluation Form
Part IV - Mechanical Systems


Section 4	Mechanical Systems	Rating	Photo	Description/Condition	Estim. Cost
4.1	Mechanical Site Services				
4.1.1	Site drainage systems (i.e., surface and underground systems, catch basins).	4		Pole Shed: Eavestroughs to downspouts, to overland drainage, in good condition.	
4.2	Fire Suppression Systems				
4.2.1	Hand extinguishers, blankets and showers (i.e., in CTS areas).	5		Pole Shed: Hand-held fire extinguishers located throughout building.	
4.3	Water Supply and Plumbing Systems				
4.3.1	Domestic water supply (i.e., pressure, volume, quality - note whether municipal or well supply).			No water service.	
4.4	Heating Systems				
4.4.1	Heating capacity and reliability (including backup capacity).	4		No heating.	
	Overall Mech Systems Condition & Estim. Costs	4		No cost estimates.	\$ -

Facility Evaluation Form
Part V - Electrical Systems




Section 5	Electrical Systems	Rating	Photo	Description/Condition	Estim. Cost
5.1	Site Services				
5.1.1	Primary service capacity and reliability (i.e., access, location, components, installation, bus sizes - note whether overhead or underground).	4		Pole Shed: 100A, 120V 1 phase service. Service is overhead, fed from west side of building. Main panel is 60% full and in acceptable condition.	
5.1.2	Site and building exterior lighting (i.e., safety concerns).	4		Pole Shed: Wall mounted halogen, in good condition.	
5.2	Life Safety Systems				
5.2.1	Emergency lighting systems (i.e., safety concerns, condition).	4		Pole Shed: Emergency lighting heads with battery packs located appropriately throughout.	
5.2.2	Exit lighting and signage (i.e., safety concerns, condition).	4		Pole Shed: Exit lighting located appropriately throughout.	
5.3	Power Supply and Distribution				
5.3.1	Panels and wireways capacity and condition.	4		Pole Shed: Cables and wiring appears to be in acceptable condition where visible.	
5.4	Lighting Systems				
5.4.1	Interior lighting systems and components (i.e., illumination levels, conditions, controls).	3		Pole Shed: Incandescent fixtures located throughout. Fixtures should be replaced with LED bulbs for higher energy efficiency.	\$ 500.00
	Overall Elect. Systems Condition & Estim Costs	4			\$ 500.00

Facility Evaluation Form

Part I - Site Conditions

Section 1	Site Conditions	Rating	Photo	Comments/Concerns	Estim. Cost
1.1	General Site Conditions				
1.1.1	Overall site size.			- 75' x 115' - 801 sq.m. - Share the lot with Village Office	
1.1.2	Outdoor areas.			N/A	
1.1.3	Site landscaping.	4		- Grass - No issue or concern noted	
1.1.4	Site accessories (i.e., perimeter and other fencing, guard rails, bike stands, flag poles).	2		- Fence installed approximately 1985-1990 - Recommended to be replaced in the next 3-5 years	\$ 7,500.00
1.1.5	Surface drainage conditions (i.e., drains away from building, signs of ponding).	4		- No issue or concern noted	
1.1.6	Evidence of sub-soil problems.	2		- Water pools on top of the basement slab. - Suspect high water level in the area keeps the basement consistently wet. - Existing sump in the basement only removes water that already entered the basement. - See "Foundation" section for recommendation.	
1.1.7	Safety and security concerns due to site conditions.	4		- No issue or concern noted	
1.2	Access/Drop-Off Areas/Roadways/Bus Lanes				
1.2.1	Vehicular and pedestrian access points (i.e., size, number, visibility, safety).	4		- Main entrance is located on the west side of the building off Main Street. - Vehicle access onto the site not available. - No issue or concern noted.	
1.2.2	Surfacing of on-site road network (note whether asphalt or gravel).	4		- Concrete sidewalks - No issue or concern noted	
1.2.3	Bus lanes/drop-off areas (note whether on-site or off-site).	4		- Drop-off off-site only - No issue or concern noted	
1.2.4	Fire vehicle access.	4		- Fire vehicle access from Main St. and Railway Ave. - No issue or concern noted	
1.2.5	Signage.	3		- Existing "Halkirk Senior Centre" sign by main entrance is in fair condition. - Peeling paint noted typically around the wording. Recommend to be replaced.	\$ 5,000.00
1.3	Parking Lots and Sidewalks				
1.3.1	Number of parking spaces for staff, students and visitors (including stalls for disabled persons).			- No parking lot on site	
1.3.2	Layout and safety of parking lots.			N/A	
1.3.3	Surfacing and drainage of parking lots (note whether asphalt or gravel).			N/A	
1.3.4	Layout and safety of sidewalks.	4		- Sidewalk along Main Street and Railway Ave. - No issue or concern noted	
1.3.5	Surfacing and drainage of sidewalks (note type of material).	4		- Concrete sidewalk - No issue or concern noted	
1.3.6	Curb cuts and ramps for barrier free access.	4		- No issue or concern noted	
	Overall Site Conditions & Estimated Costs				\$ 12,500.00

Facility Evaluation Form
Part II - Overall Structure

Section 2	Building Exterior	Rating	Bldg. Section	Photo	Description/Condition	Estim. Cost
2.1	Overall Structure					
2.1.1.1	Floor structure and beams (i.e., signs of bending, cracking, heaving, settlement, voids, rust, stains).	3	Original Building		- Wood framed floor structure on the main floor and second floor - The surface of the concrete floor in the basement is mostly crumbled due to age and moisture in the basement. It is recommended to replace the concrete floor once the moisture issue in the basement is fixed.	\$ 18,000.00
2.1.1.2	Floor structure and beams (i.e., signs of bending, cracking, heaving, settlement, voids, rust, stains).	4	1984 Addition		- Wood framed floor structure. - No issue or concern noted.	
2.1.2.1	Wall structure and columns (i.e., signs of bending, cracking, settlement, voids, rust, stains).	3	Original Building		- The original 1921 building consists of double wythes brick wall construction with header course every 6th course. - Vertical crack noted on the west side of the building under window. Crack extended from top of concrete foundation wall to underside of the window sill. - It is recommended to repoint the cracks in the mortar joint. - Wood columns supporting the main floor in the basement have visible signs of rot at the bottom due to prolong exposure to moisture in the basement. The structural integrity of the columns are still good however, further exposure to moisture will continue degrade the structure and full replacement will be required. See "Foundation" section below for recommended remediation work.	\$ 1,000.00
2.1.2.2	Wall structure and columns (i.e., signs of bending, cracking, settlement, voids, rust, stains).	4	1984 Addition		- The 1984 addition consists of wood framed wall construction. - No issue or concern noted	
2.1.3	Roof structure (i.e., signs of bending, cracking, voids, rust, stains).	4	All Area		- Wood framed roof structure. - No issue or concern noted	
2.1.4	Control/expansion joints.				N/A	
Other	Foundation	2	Original Building		- Water pools on top of the basement slab. - Suspect high water level in the area keeps the basement consistently wet as the result of lack of weeping tile system and water infiltration through foundation walls. - Existing sump in the basement only removes water that has already entered the basement. - Vertical cracks through concrete foundation wall were also noted on top of west facing window openings in the basement. - To minimize the amount of moisture infiltration into the basement, it is recommended to install a weeping tile system around the building at foundation level complete with installation of waterproofing membrane on the outside face of the concrete foundation wall. Weeping tile system is to be tie to existing sump in the basement. - Vertical cracks should be repaired with concrete repair grout.	\$ 140,000.00





Facility Evaluation Form
Part II - Overall Structure

2.2	Roofing and Skylights <i>Identify the availability of an up-to-date inspection report or roofing program. Note if roof sections are of different ages and/or in varying</i>					
2.2.1.1	Based on the inspection report (and to the extent possible, direct observation), assess and rate roof conditions and estimate costs for required improvements (i.e., covering materials, membrane, insulation, other components).	2	Original Building		- Built-up roof system is closed to the end of its life expectancy - Recommended to be replaced with 2-ply SBS roof membrane system completed with slope insulation package.	\$ 26,000.00
2.2.1.2	Based on the inspection report (and to the extent possible, direct observation), assess and rate roof conditions and estimate costs for required improvements (i.e., covering materials, membrane, insulation, other components).	4	1984 Addition		- Asphalt shingle roof - Condition of the existing asphalt shingle appears to be good and should have another 10-15 years of life remaining.	
2.2.2	Roof accessories (i.e., ladders, stairs, hatches, masts, exhaust hoods, chimneys, gutters, downspouts, splash pads).	4	All Area		- Roof accessories are in good condition - No issue or concern noted	
2.2.3	Control of ice and snow falling from roof.	4	All Area		- No issue or concern noted	
2.2.4	Skylights (i.e., signs of distress, leaks, ice build-up, condensation, deteriorated materials/seals).				N/A	
Other						
2.3	Exterior Walls/Building Envelope					
2.3.1.1	Exterior wall finishes (i.e., signs of deterioration, cracks, brick spalling, efflorescence, water stains).	3	Original Building		- See also Section 2.1.2.1 above	
2.3.1.2	Exterior wall finishes (i.e., signs of deterioration, cracks, brick spalling, efflorescence, water stains).	4	1984 Addition		- Vinyl siding - No issue or concern noted	
2.3.2	Fascias, soffits, parapets (i.e., signs of looseness, stains, rust, peeling paint).	4	All Area		- All fascias, soffit and parapet are in good condition - No issue or concern noted	
2.3.3	Building envelope (i.e., evidence of air infiltration/ exfiltration through the exterior wall or ice build up on wall, eaves, canopy).	4	All Area		- No issue or concern noted	
2.3.4	Interface of roof drainage and ground drainage systems.	4	All Area		- No issue or concern noted	
2.3.5	Inside faces of exterior walls (i.e., signs of cracks, water stains, dust spots).	4	All Area		- No issue or concern noted	
Other						


Facility Evaluation Form
Part II - Overall Structure

2.4	Exterior Doors and Windows					
2.4.1	Doors (i.e., signs of deterioration, rusting metal, glass cracks, peeling paint, damaged seals, sealed unit failure).	4	All Area		- Metal doors and frames. - No issue or concern noted	
2.4.2	Door accessories (i.e., latches, hardware, screens, locks, alarms, holders, closers, security devices).	4	All Area		- All exterior door accessories are in good condition - No issue or concern noted	
2.4.3	Exit door hardware (i.e., safety and/or code concerns).	4	All Area		- Exit door hardware is in good condition - No issue or concern noted	
2.4.4	Windows (i.e., signs of deterioration, rusting metal, glass cracks, peeling paint, damaged seals, sealed unit failure).	3	All Area		- Main floor windows in main floor replaced in 1980. These windows are at the end of its expected life expectancy. It is recommended to replaced. - Second floor windows were replace 8-10 years ago. These windows should last another 30 years.	\$ 9,000.00
2.4.5	Window accessories (i.e., latches, hardware, screens, locks, alarms, holders, closers, security devices).	3	All Area		- Window accessories should be replaced with the windows. See Section 2.4.5 above.	
2.4.6	Building envelope (i.e., signs of heavy condensation on doors or windows).	4	All Area		- No issue or concern noted	
2.4.7	Overhead Doors				N/A	
	Overall Bldg Exterior Condition & Estim Costs					\$ 194,000.00


Facility Evaluation Form
Part III - Building Interior

Section 3	Building Interior - Overall Conditions	Rating	Bldg. Section	Photo	Description/Condition	Estim. Cost
3.1	Interior Structure					
3.1.1	Interior walls and partitions (i.e., signs of cracks, spalling, paint peeling).				- Wood framed interior walls - No issue or concern noted	
3.1.2	Floors (i.e., signs of cracks, heaving, settlement).				N/A	
3.2	Materials and Finishes					
3.2.1.1	Floor materials and finishes.	4	Main floor		- Carpet, vinyl flooring, wood flooring installed in 2015 - No issue or concern noted	
3.2.1.2	Floor materials and finishes.	2	Original Building Second floor		- Original vinyl and wood flooring - The vinyl flooring in the second floor is in poor condition and should be replaced. - wood flooring should also be re-finished.	\$ 14,000.00
3.2.2.1	Wall materials and finishes.	4	Main floor		- Painted finishes completed in 2015 - No issue or concern noted	
3.2.2.2	Wall materials and finishes.	2	Original Building Second floor		- Original building wall finishes are in poor condition - Repaint the second floor.	\$ 2,000.00
3.2.3.1	Ceiling materials and finishes.	4	Main floor		- Painted ceiling is in good condition - No issue or concern noted	
3.2.3.2	Ceiling materials and finishes.	2	Original Building Second floor		- Peeling paint ceiling noted in the second floor - Ceiling should be repainted	\$ 2,000.00
3.2.4.1	Interior doors and hardware.	4	Main floor		- Wood doors and hardware are in good condition - No issue or concern noted	
3.2.4.2	Interior doors and hardware.	2	Original Building Second floor		- Majority of the doors are missing in the Second floor. - replace missing doors.	\$ 5,000.00
3.2.5.1	Millwork	4	Main floor		- Millwork on the main floor is in good condition - No issue or concern noted	


Facility Evaluation Form
Part III - Building Interior

3.2.5.2	Millwork	2	Original Building Second floor		- Millwork has exceeded its expected life expectancy and recommended to be replaced.	\$ 5,000.00
3.3	Health and Safety Concerns --- Intent is to identify renovations considered necessary to meet applicable codes, primarily due to safety concerns. Basis of evaluation should be an up-to-date inspection report from the authority having jurisdiction together with direct observations as appropriate. Evaluator should note if in his opinion a comprehensive code evaluation is required.					
3.3.1	Building construction type - combustible or non-combustible, sprinklered or non-sprinklered.				- Combustible and non-combustible construction - Not sprinklered	
3.3.2	Fire separations (i.e., between buildings, wings, zones if non-sprinklered).	4			- No issue or concern noted	
3.3.3	Fire resistance rating of materials (i.e., corridor walls and doors).	4			- No issue or concern noted	
3.3.4	Exiting distances and access to exits.					
3.3.5	Barrier-free access.	FI			- No barrier-free accessible washroom in the building - ramp entry at front door is not to standard grade - Not barrier free access to 2nd floor. - Barrier free accessible washroom should be provided and new ramp that meets the current Building Code. - In the event that the 2nd floor allow access, barrier free access be provided to the second floor as well. - Further review to determine proper location for the installation of new washroom and ramp required.	\$ 5,000.00
3.3.6	Availability of hazardous materials audit (i.e., evidence of safety concerns with respect to asbestos, PCB's, chemicals).	3			- No availability of hazardous material available. - The addition built in 1984 might contain asbestos construction material so it is recommended to perform a hazardous material audit on the building.	\$ 7,000.00
3.3.7	Other health and safety concerns (i.e., evidence of excessive noise conditions, air quality problems)	4			- No issue or concern noted	
	Overall Bldg Interior Condition & Estim Costs					\$ 40,000.00





Facility Evaluation Form
Part IV - Mechanical Systems

Section 4	Mechanical Systems	Rating	Photo	Description/Condition	Estim. Cost
4.1	Mechanical Site Services				
4.1.1	Site drainage systems (i.e., surface and underground systems, catch basins).	4		Scupper overflows to downspouts, to overland drainage, in good condition. Roof drains down to basement sump, in acceptable condition.	
4.1.2	Interior drainage (ie. Sumps, floor drains)	4		Drainage sump in basement, for roof drains and basement water collection (not connected to weeping tile).	
4.2	Fire Suppression Systems				
4.2.1	Hand extinguishers, blankets and showers (i.e., in CTS areas).	5		Hand-held fire extinguishers located throughout building.	
4.3	Water Supply and Plumbing Systems				
4.3.1	Domestic water supply (i.e., pressure, volume, quality - note whether municipal or well supply).	4		Municipal water service for kitchen and washroom is fed from the Village office. There is currently no water service to the second floor washroom/kitchen.	
4.3.2	Piping and fittings.	4		Domestic piping is a combination of copper and pex. All appears in good condition.	
4.3.3	Plumbing fixtures (i.e., toilets, urinals, sinks)	2		Washrooms (x2) each with tank toilet and wall mounted lavatory, in acceptable condition. Stainless steel sink in kitchen, in good condition. Fixtures on second floor suite are in poor condition and should be replaced or refurbished before re-connecting water services (not required to be reconnected).	\$ 3,000.00
4.3.4	Domestic hot water system (i.e., heater, storage tanks, failure alarms, pressure, volume, recirculation).	4		Domestic Hot water provided from Village Office	
4.3.5	Sanitary and storm sewers, including sumps and pits (note whether sewage system is municipal or septic).	4		Not visible, assumed cast iron, assumed aged of the building. No notable leakage. Municipal sewage system.	

Facility Evaluation Form
Part IV - Mechanical Systems

4.4	Heating Systems				
4.4.1.1	Heating capacity and reliability (including backup capacity).	4		Washrooms/kitchen in Senior Centre is heated by Village Office furnace.	
4.4.1.2	Heating capacity and reliability (including backup capacity).	3		Main building is heated by forced air furnace in basement. Furnace looks to have been subject to high humidity and has sustained some corrosion and should be replaced, with the new unit potentially located in a less humid location.	\$ 5,000.00
4.4.2	Heating air filtration systems and filters.	4		Furnace is equipped with filter.	
4.4.3	Heating distribution systems (i.e., piping, ductwork) and associated components (i.e., diffusers, radiators).	4		Ductwork for furnace in floor space. No visible damage to supply or return grilles.	
4.4.4	Zone/unit heaters and controls.	4		Furnace is controlled by thermostat, in acceptable condition.	
4.4.5	Natural Gas Service	4		Gas service is on east side of building.	
4.5	Ventilation Systems				
4.5.1.1	Exhaust systems capacity and condition, washrooms	4		Ceiling exhaust fans for washrooms, in acceptable condition.	
4.5.1.2	Exhaust systems capacity and condition. Basement	1		No exhaust in basement. Recommended to add exhaust to mitigate moisture and corrosion to equipment.	\$ 5,000.00
4.5.1.3	Exhaust systems capacity and condition. Main floor	4		Wall mounted exhaust fan in shuffleboard room, manual operation, in good condition.	
	Overall Mech Systems Condition & Estim. Costs	4		Replace plumbing fixtures on second floor (only if reconnected), replace furnace, add exhaust in basement.	\$ 13,000.00

Facility Evaluation Form
Part V - Electrical Systems

Section 5	Electrical Systems	Rating	Photo	Description/Condition	Estim. Cost
5.1	Site Services				
5.1.1	Primary service capacity and reliability (i.e., access, location, components, installation, bus sizes - note whether overhead or underground).	3		Service is overhead, fed from the rear of the building. Main panel located on main floor. Main panel is past its expected lifespan and should be replaced	\$ 5,000.00
5.2	Life Safety Systems				
5.2.1	Fire and smoke alarm systems (i.e., safety concerns, up-to-date technology, regularly tested).	4		Local smoke detectors located throughout building.	
5.2.2	Emergency lighting systems (i.e., safety concerns, condition).	4		Emergency lighting heads and battery packs located throughout.	
5.2.3	Exit lighting and signage (i.e., safety concerns, condition).	4		Exit lighting located appropriately throughout.	
5.3	Power Supply and Distribution				
5.3.1	Panels and wireways capacity and condition.	3		Cables, wiring and switches are original to building. There are no visible issues, but should be replaced to comply with current electrical codes for safety.	\$ 10,000.00
5.3.2	Power distribution and outlets	3		Power distribution panels are located throughout. Some appear to be past their expected life spans and should be replaced.	\$ 4,000.00
5.4	Lighting Systems				
5.4.1	Interior lighting systems and components (i.e., illumination levels, conditions, controls).	3		T-8 fluorescent fixtures and incandescent fixtures located throughout. Fixtures should be replaced with LED bulbs for higher energy efficiency.	\$ 10,000.00
	Overall Elect. Systems Condition & Estim Costs	4		Replace main service panel and distribution panels, replace wiring and switches, replace lighting for LED.	\$ 29,000.00

Facility Evaluation Form

Part I - Site Conditions

Section 1	Site Conditions	Rating	Photo	Comments/Concerns	Estim. Cost
1.1	General Site Conditions				
1.1.1	Overall site size.			- 75' x 115' - 801 sq.m.	
1.1.2	Outdoor areas.			N/A	
1.1.3	Site landscaping.	4		- Grass - No issue or concern noted	
1.1.4	Site accessories (i.e., perimeter and other fencing, guard rails, bike stands, flag poles).	2		- Fence installed approximately 1985-1990' - Fence is close to the end of the expected life expectancy, should be replaced in the next 3-5 years - Front step completed with railing was replaced in 2014 and it is in good condition	\$ 5,000.00
1.1.5	Surface drainage conditions (i.e., drains away from building, signs of ponding).	4		- No issue or concern noted	
1.1.6	Evidence of sub-soil problems.	1		- Building slab in the shop experience frost heave in the winter time. Shop mandoor sticks in winter while the Village Office door sticks during summer time. - Suspect high water level in the area caused the frost heave. - See "Foundation" section for recommendation	
1.1.7	Safety and security concerns due to site conditions.	4		- No issue or concern noted	
1.2	Access/Drop-Off Areas/Roadways/Bus Lanes				
1.2.1	Vehicular and pedestrian access points (i.e., size, number, visibility, safety).	4		- Main entrance is located on the west side of the building off Main St. - Vehicle access through driveway on the west side of the building. - No issue or concern noted	
1.2.2	Surfacing of on-site road network (note whether asphalt or gravel).	4		- Shop driveway consists of concrete paved surface. - No issue or concern noted	
1.2.3	Bus lanes/drop-off areas (note whether on-site or off-site).	4		- Drop-off off-site only - No issue or concern noted	
1.2.4	Fire vehicle access.	4		- Fire vehicle access from Main St. - No issue or concern noted	
1.2.5	Signage.	4		- "Halkirk Village Office" sign is in good condition - No issue or concern noted	
1.3	Parking Lots and Sidewalks				
1.3.1	Number of parking spaces for staff, students and visitors (including stalls for disabled persons).			- No parking lot	
1.3.2	Layout and safety of parking lots.			N/A	
1.3.3	Surfacing and drainage of parking lots (note whether asphalt or gravel).			N/A	
1.3.4	Layout and safety of sidewalks.	4		- No issue or concern noted	
1.3.5	Surfacing and drainage of sidewalks (note type of material).	4		- Concrete sidewalks - No issue or concern noted	
1.3.6	Curbs cuts and ramps for barrier free access.	4		- Curbscut in front of garage door and driveway. - No issue or concern noted	
	Overall Site Conditions & Estimated Costs				\$ 5,000.00

Facility Evaluation Form
Part II - Overall Structure

Section 2	Building Exterior	Rating	Bldg. Section	Photo	Description/Condition	Estim. Cost
2.1	Overall Structure					
2.1.1.1	Floor structure and beams (i.e., signs of bending, cracking, heaving, settlement, voids, rust, stains).	4	Shop		- Concrete floor in Shop is in good condition - However, floor heaves in winter likely due to high water level in the area. Side door can't open. - Refer to "Foundation" section for recommendation.	
2.1.1.2	Floor structure and beams (i.e., signs of bending, cracking, heaving, settlement, voids, rust, stains).	4	Village Office		- Wood floor is in good condition - No issue or concern noted	
2.1.2	Wall structure and columns (i.e., signs of bending, cracking, settlement, voids, rust, stains).	4	All Areas		- Wood framed walls - No issue or concern noted	
2.1.3	Roof structure (i.e., signs of bending, cracking, voids, rust, stains).	4	All Areas		- Wood framed roof structure - No issue or concern noted	
2.1.4	Control/expansion joints.				N/A	
Other	Foundation	2	All Areas		- Floor heaves and door sticks in winter likely due to high water level in the area. - To minimize the movement, it is recommended to install a weeping tile system around the building at foundation level. This weeping tile can tie to the proposed weeping will around the Senior Center.	\$ 100,000.00
2.2	Roofing and Skylights <i>Identify the availability of an up-to-date inspection report or roofing program. Note if roof sections are of different ages and/or in varying states of repair.</i>					
2.2.1	Based on the inspection report (and to the extent possible, direct observation), assess and rate roof conditions and estimate costs for required improvements (i.e., covering materials, membrane, insulation, other components).	4	All Areas		- Metal roof - No issue or concern noted	
2.2.2	Roof accessories (i.e., ladders, stairs, hatches, masts, exhaust hoods, chimneys, gutters, downspouts, splash pads).	4	All Areas		- Roof accessories are in good condition - No issue or concern noted	
2.2.3	Control of ice and snow falling from roof.	4	All Areas		- No issue or concern noted	
2.2.4	Skylights (i.e., signs of distress, leaks, ice build-up, condensation, deteriorated materials/seals).				N/A	

Facility Evaluation Form
Part II - Overall Structure

Section 2	Building Exterior	Rating	Bldg. Section	Photo	Description/Condition	Estim. Cost
2.3	Exterior Walls/Building Envelope					
2.3.1	Exterior wall finishes (i.e., signs of deterioration, cracks, brick spalling, efflorescence, water stains).	2	All Areas		- Original siding on the building - Siding is close to the end of its life expectancy, recommended to be replaced.	\$ 19,000.00
2.3.2	Fascias, soffits, parapets (i.e., signs of looseness, stains, rust, peeling paint).	4	All Areas		- Metal fascia and vented soffit - No issue or concern noted	
2.3.3	Building envelope (i.e., evidence of air infiltration/ exfiltration through the exterior wall or ice build up on wall, eaves, canopy).	4	All Areas		- No issue or concern noted	
2.3.4	Interface of roof drainage and ground drainage systems.	4	All Areas		- No issue or concern noted	
2.3.5	Inside faces of exterior walls (i.e., signs of cracks, water stains, dust spots).	4	All Areas		- No issue or concern noted	
2.4	Exterior Doors and Windows					
2.4.1	Doors (i.e., signs of deterioration, rusting metal, glass cracks, peeling paint, damaged seals, sealed unit failure).	4	All Areas		- Door and frames are in good condition - No issue or concern noted	
2.4.2	Door accessories (i.e., latches, hardware, screens, locks, alarms, holders, closers, security devices).	4	All Areas		- Door accessories are in good condition - No issue or concern noted	
2.4.3	Exit door hardware (i.e., safety and/or code concerns).				N/A	
2.4.4	Windows (i.e., signs of deterioration, rusting metal, glass cracks, peeling paint, damaged seals, sealed unit failure).	3	All Areas		- Original windows - Windows are at the end of its expected life expectancy and recommended to be replaced.	\$ 5,000.00
2.4.5	Window accessories (i.e., latches, hardware, screens, locks, alarms, holders, closers, security devices).	3	All Areas		- Replace window accessories with window replacement - See Section 2.4.4 above for cost	
2.4.6	Building envelope (i.e., signs of heavy condensation on doors or windows).	4			- No issue or concern noted	
2.4.7	Overhead Doors	4	Shop		- Overhead door in Shop - No issue or concern noted	
	Overall Bldg Exterior Condition & Estim Costs					\$ 124,000.00

Facility Evaluation Form


Part III - Building Interior

Section 3	Building Interior - Overall Conditions	Rating	Bldg. Section	Photo	Description/Condition	Estim. Cost
3.1	Interior Structure					
3.1.1	Interior walls and partitions (i.e., signs of cracks, spalling, paint peeling).	4	All Areas		- Wood framed interior walls - No issue or concern noted	
3.1.2	Floors (i.e., signs of cracks, heaving, settlement).				N/A	
3.2	Materials and Finishes					
3.2.1	Floor materials and finishes.	2	Village		- Original carpet and vinyl finish in poor condition at the end of life expectancy - Recommended to be replaced	\$ 19,000.00
3.2.2	Wall materials and finishes.	2	All Areas		- Original wall finishes is at end of life expectancy - Recommended to be refinished	\$ 2,000.00
3.2.3	Ceiling materials and finishes.	4	All Areas		- Original ceiling finish in good condition - No issue or concern noted	
3.2.4	Interior doors and hardware.	4	All Areas		- Interior doors and hardware are in good condition - No issue or concern noted	
3.2.5	Millwork				N/A	
3.3	Health and Safety Concerns --- Intent is to identify renovations considered necessary to meet applicable codes, primarily due to safety concerns. Basis of evaluation should be an up-to-date inspection report from the authority having jurisdiction together with direct observations as appropriate. Evaluator should note if in his opinion a comprehensive code evaluation is required.					
3.3.1	Building construction type - combustible or non-combustible, sprinklered or non-sprinklered.				- Combustible construction - Non-sprinklered	
3.3.2	Fire separations (i.e., between buildings, wings, zones if non-sprinklered).	4	All Areas		- No issue or concern noted	
3.3.3	Fire resistance rating of materials (i.e., corridor walls and doors).	4	All Areas		- No issue or concern noted	
3.3.4	Exiting distances and access to exits.	4	All Areas		- No issue or concern noted	
3.3.5	Barrier-free access.	FI	Village		- Not barrier-free accessible. - Village Office should be barrier free accessible which will include a ramp that meets the current Building Code and barrier-free path of travel to all public area in the building. - Further review to determine options to upgrade the building to meet Code's requirement of Barrier-Free.	\$ 5,000.00
3.3.6	Availability of hazardous materials audit (i.e., evidence of safety concerns with respect to asbestos, PCB's, chemicals).	3	All Areas		- No availability of hazardous material available. - The addition built in 1980 might contain asbestos construction material so it is recommended to perform a hazardous material audit on the building.	\$ 7,000.00

Facility Evaluation Form
Part III - Building Interior

Section 3	Building Interior - Overall Conditions	Rating	Bldg. Section	Photo	Description/Condition	Estim. Cost
3.3.7	Other health and safety concerns (i.e., evidence of excessive noise conditions, air quality problems)	4	All Areas		- No issue or concern noted	
	Overall Bldg Interior Condition & Estim Costs					\$ 33,000.00

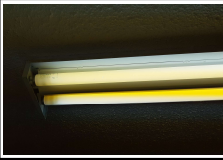
Facility Evaluation Form
Part IV - Mechanical Systems

Section 4	Mechanical Systems	Rating	Photo	Description/Condition	Estim. Cost
4.1	Mechanical Site Services				
4.1.1	Site drainage systems (i.e., surface and underground systems, catch basins).	4		Eavestroughs to downspouts, to overland drainage, in good condition.	
4.1.2	Interior drainage (ie. Sumps, floor drains)	4		Double Compartment drainage sump in Shop parking bay	
4.2	Fire Suppression Systems				
4.2.1	Hand extinguishers, blankets and showers (i.e., in CTS areas).	5		Hand-held fire extinguishers located throughout building.	
4.3	Water Supply and Plumbing Systems				
4.3.1	Domestic water supply (i.e., pressure, volume, quality - note whether municipal or well supply).	4		Municipal water service, copper 2" service line, located in shop. In acceptable condition.	
4.3.2	Piping and fittings.	4		Domestic piping is a combination of copper and pex. All appears in good condition.	
4.3.3	Plumbing fixtures (i.e., toilets, urinals, sinks)	4		Washroom with tank toilet and wall mounted lavatory, in acceptable condition.	
4.3.4	Domestic hot water system (i.e., heater, storage tanks, failure alarms, pressure, volume, recirculation).	4		Gas fired tank water heater, 19 gal. capacity, 1.5 kW, located in janitor room, in acceptable condition.	
4.3.5	Sanitary and storm sewers, including sumps and pits (note whether sewage system is municipal or septic).	4		Not visible, assumed cast iron, assumed aged of the building. No notable leakage. Municipal sewage system.	
4.4	Heating Systems				
4.4.1.1	Heating capacity and reliability (including backup capacity).	4		Village office and washrooms/kitchen in Senior Centre is heated by high-efficient gas-fired furnace, in good condition.	
4.4.1.2	Heating capacity and reliability (including backup capacity).	2		Shop is heated by a ceiling-hung gas-fired unit heater. Unit heater is past its expected life cycle and should be replaced	\$ 2,000.00
4.4.2	Heating air filtration systems and filters.	4		Furnace is equipped with filter.	
4.4.3	Heating distribution systems (i.e., piping, ductwork) and associated components (i.e., diffusers, radiators).	4		Ductwork for furnace in floor space. No visible damage to supply or return grilles.	
4.4.4	Zone/unit heaters and controls.	4		Furnace is controlled by thermostat, in acceptable condition.	
4.4.5	Natural Gas Service	4		Gas service is on east side of building.	
4.5	Ventilation Systems				
4.5.1.1	Exhaust systems capacity and condition, washrooms	4		Ceiling exhaust fan for washrooms, in acceptable condition.	
4.5.1.2	Exhaust systems capacity and condition. Shop	1		No exhaust in Shop. Exhaust is required by ASHRAE 62.1 for mechanical shops or parking garages. Recommended to install exhaust and intake with controls and gas detection.	\$ 10,000.00

Facility Evaluation Form
Part IV - Mechanical Systems


Section 4	Mechanical Systems	Rating	Photo	Description/Condition	Estim. Cost
	Overall Mech Systems Condition & Estim. Costs	4		Replace unit heater in shop, add exhaust in shop.	\$ 12,000.00

Facility Evaluation Form
Part V - Electrical Systems

Section 5	Electrical Systems	Rating	Photo	Description/Condition	Estim. Cost
5.1	Site Services				
5.1.1	Primary service capacity and reliability (i.e., access, location, components, installation, bus sizes - note whether overhead or underground).	4		100A, 600V 3 phase service. Service is overhead, fed from the rear of the building. Main panel located in Shop. Main panel appears to be 55% full and in acceptable condition. Manual switch for emergency generator connection.	
5.2	Life Safety Systems				
5.2.1	Fire and smoke alarm systems (i.e., safety concerns, up-to-date technology, regularly tested).	4		Local smoke detectors located throughout building.	
5.3	Power Supply and Distribution				
5.3.1	Panels and wireways capacity and condition.	4		Vil	
5.3.2	Power distribution and outlets	3		Power is distributed from main panel. Office area requires more outlets than are currently available. Recommended to install more outlets and add circuits to main panel.	\$ 1,000.00
5.4	Lighting Systems				
5.4.1.1	Interior lighting systems and components (i.e., illumination levels, conditions, controls).	3		T-8 fluorescent fixtures and incandescent fixtures located throughout. Fixtures should be replaced with LED bulbs for higher energy efficiency.	\$ 7,000.00
5.5	Network and Communication Systems				
5.5.1	Telephone system and components (i.e., capacity, reliability, condition).	4		Telephone and communication service in shop storage room, in acceptable condition.	
5.5.2	Other communication systems (i.e., public address, intercom, CCTV, satellite or cable TV).	4		Internet service, sufficient for current usage.	
	Overall Elect. Systems Condition & Estim Costs	4		Add power outlets in office area, replace interior lighting with LED.	\$ 8,000.00

Facility Evaluation Form

Part I - Site Conditions

Section 1	Site Conditions	Rating	Photo	Comments/Concerns	Estim. Cost
1.1	General Site Conditions				
1.1.1	Overall site size.			- Water Tower/Playground: 125'x115'	
1.1.2	Outdoor areas.	4		- Playground. Built in 1985 - No issue or concern noted.	
1.1.3	Site landscaping.	4		- Grass, trees, shrubs, playground safety surface. - No issue or concern noted.	
1.1.4	Site accessories (i.e., perimeter and other fencing, guard rails, bike stands, flag poles).	2		- Fence installed approximately 1985-1990 - It is recommended that the fence be replaced in the next 3-5 years	\$ 5,000.00
1.1.4.1	Site accessories (Water Tower)	2		- Water Tower next to the Playground is not in service anymore. - Water Tower is constructed in 1977. - Painted plywood is used to keep insulation in-place. - The door provides access is in poor condition and should be replaced. - It is recommended to replace and repaint the plywood on the Water Tower	\$ 33,000.00
1.1.5	Surface drainage conditions (i.e., drains away from building, signs of ponding).	4		- No issue or concern noted	
1.1.6	Evidence of sub-soil problems.	4		- No issue or concern noted	
1.1.7	Safety and security concerns due to site conditions.	4		- No issue or concern noted	
Other					
1.2	Access/Drop-Off Areas/Roadways/Bus Lanes				
1.2.1	Vehicular and pedestrian access points (i.e., size, number, visibility, safety).	4		- Vehicle access onto the Playground site not available. Pedestrian access from Alberta Ave. and Main Street. - No issue or concern noted	
1.2.2	Surfacing of on-site road network (note whether asphalt or gravel).			N/A	
1.2.3	Bus lanes/drop-off areas (note whether on-site or off-site).	4		- Drop-off off-site only - No issue or concern noted	
1.2.4	Fire vehicle access.	4		- Fire vehicle access available from Main St. - No issue or concern noted	
1.2.5	Signage.			N/A	
1.3	Parking Lots and Sidewalks				
1.3.1	Number of parking spaces for staff, students and visitors (including stalls for disabled persons).			N/A	
	Overall Site Conditions & Estimated Costs				\$ 38,000.00

APPENDIX C

Hydrant Flow Testing Results

Final Report for
MPE Engineering Ltd.

Attn: **Taylor Sunderman, P.Eng.**, Design Engineer

Halkirk, Alberta
Fire Hydrant Flow Testing
July 2021



Prepared and submitted by:

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August 9, 2021

Taylor Sunderman, P.Eng.
Design Engineer

MPE Engineering Ltd.
4702 49 Ave
Red Deer, Alberta
T4N 6L5

FINAL REPORT: 2021 Fire Hydrant Flow Testing, Halkirk, Alberta

Dear Ms. Sunderman,

Please find enclosed SFE's Final Report for the above-mentioned project. If you have any questions, comments, or concerns, please do not hesitate to contact us at your earliest convenience.

Thank you for having SFE conduct this work on your behalf. We are appreciative of the opportunity to work with you and your team on this project. We look forward to working together again soon.

Sincerely,
SFE Global

Kevin McMillan
Vice President
(780) 461-0171
Kevin.McMillan@sfeglobal.com
www.sfeglobal.com

1. Executive Summary

This report provides details of the hydrant fire flow testing conducted in Halkirk, Alberta. SFE Global was retained by MPE, under the direction of Ms. Taylor Sunderman, P.Eng.. Kevin McMillan represented SFE Global as Project Manager during this project.

As requested, SFE conducted seven fire hydrant fire flow tests on July 20th, 2021. The flow hydrants and test hydrants were indicated to SFE by maps supplied by the client. The fire flow tests were conducted according to National Fire Protection Association (NFPA) 291 standards.

2. Summary of Testing

SFE Technicians met representatives of The Hamlet of Halkirk on-site to perform testing. The testing plan was discussed, and location maps reviewed by all participants.

Testing Equipment

Testing was performed on flow hydrants utilizing a Hydro Flow Products Hose Monster system. These are fixed pitot devices to measure flow and diffuse in one process. The benefit of this system is the ability to provide repeatable results and manage discharge water conditions.

The configuration for the Hose Monster System consisted of one 1-3/4 inch Hose Monster on the side port. Pressures were manually read on the residual hydrants.

Testing Procedure

The client suggested flow and residual hydrants for each test. SFE Technicians installed flow testing equipment on each flow hydrant and residual pressure measurement equipment on the residual hydrant.

The tests were performed by recording system static pressure then flowing the appropriate ports on the flow hydrant. Total flow and extrapolated flow to 20 psi residual pressure are calculated from the test with all pumps running.

Flow testing summary sheets are included in Appendix I.

3. Data

The testing reports included in Appendix I contain all test results and photos. All pressure readings are in psi and all flow values are reported in IGPM. All hydrants were returned to as found condition upon completion of testing.

4. Safety

A pre-job safety inspection and meeting was conducted by SFE personnel, and the following potential hazards were identified:

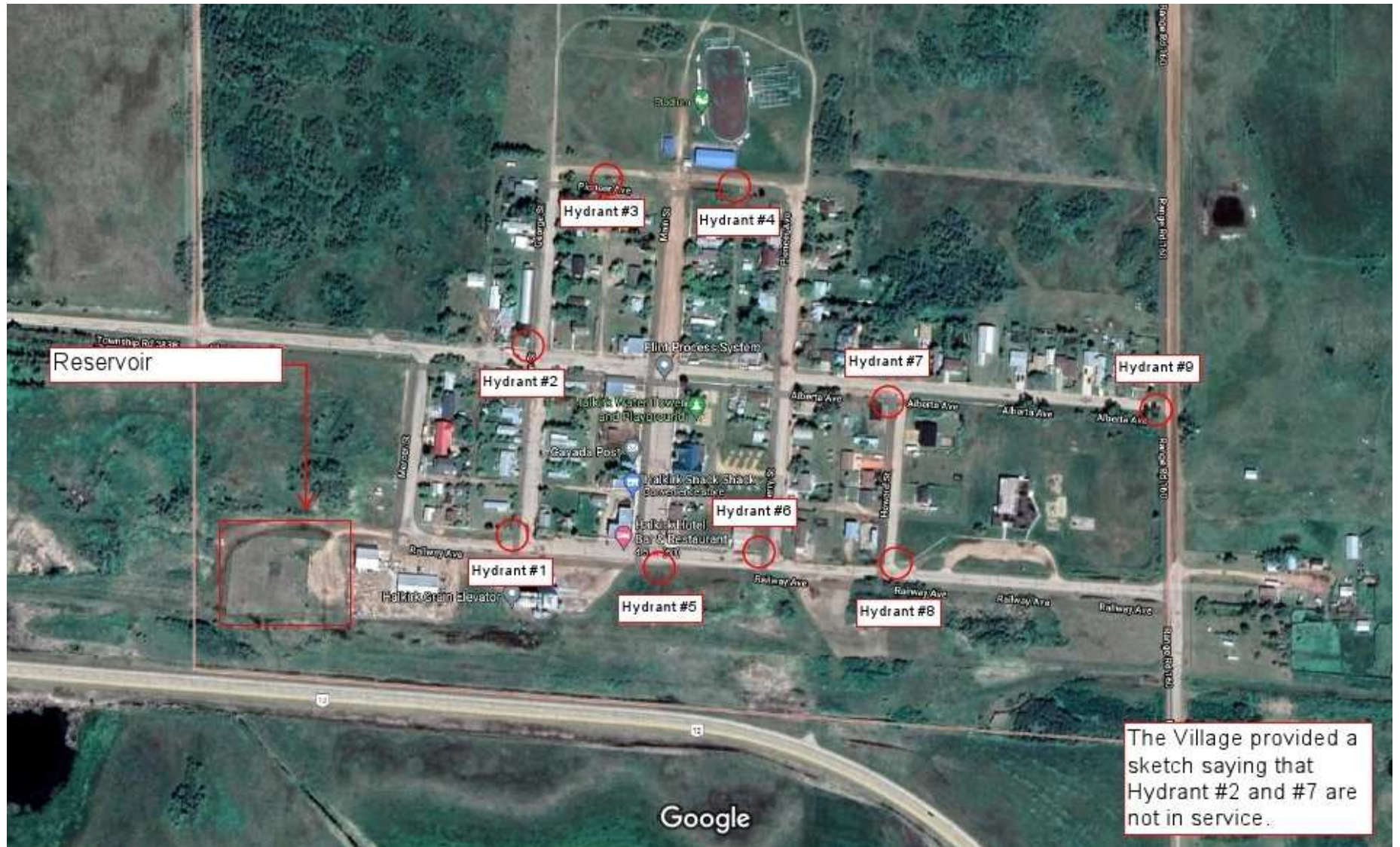
- Need for Personal Protective Equipment
- Working with water under pressure
- Pedestrian and vehicular traffic conditions
- Safe operation and shut down of fire hydrants
- COVID-19 Precautions

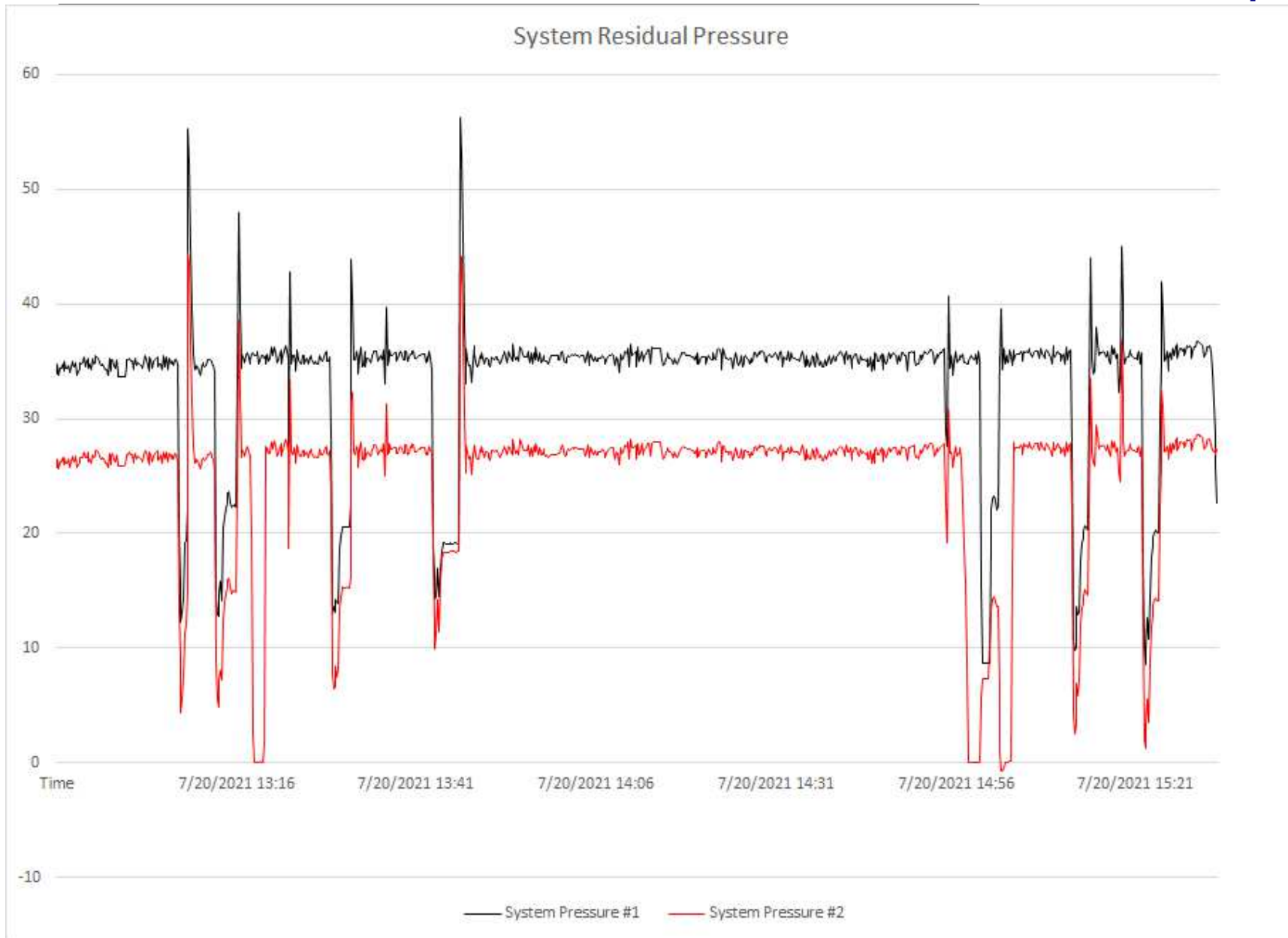
This project was conducted in accordance with the WCB and OSHA safety standards as documented in SFE's Safety Procedures Manual. The SFE crew reviewed the work to be completed and safety requirements at a tail-gate safety meeting held prior to commencing work.

Report End
July 2021

SFE Global
Project A21-114

Appendix I
Test Locations
Test Results







Fire Flow Test Report

Client Name:	MPE Engineering Ltd.	Hyd 1 - #/Port Size		SYS-1 Addr.	HYD #9 - Alberta Ave and RR160
Project Location:	Halkirk, AB	Hyd 2 - #/Port Size		SYS-2 Addr.	HYD #1 - Railway & Mercer
SFE Project #:	A21-114	Hyd 1 - Pito Types		Resid Hyd Addr.	
SFE Technicians:	KM/KN	Hyd 2 - Pito Types		Fire Pump Status	Auto
		Test Procedure	NFPA 291	(circle one)	Force On

Test ID:

Test: of

Date:

Start Time	End Time	Flow Hyd 1		Flow Hyd 2		Residual Hydrant		
		Port 1-1 psi	Port 1-2 psi	Port 2-1 psi	Port 2-2 psi	Static psi	Residual psi	Static psi

Notes: _____

Flow Summary (igpm)	
Flow 1-1	
Flow 1-2	
Flow 2-1	
Flow 2-2	
Total Flow	0
Flow @ 20 psi	#NUM!



SYS-1

GPS 52.28275 -112.14803



Flow Hydrant 2

GPS _____



SYS-2

GPS 52.28159 -112.15452



Fire Flow Test Report

Client Name:	MPE Engineering Ltd.	Hyd 1 - #/Port Size	2-1/2 Inch	Flow Hyd 1 Addr	HYD #5 - Railway and Main
Project Location:	Halkirk, AB	Hyd 2 - #/Port Size		Flow Hyd 2 Addr	
SFE Project #:	A21-114	Hyd 1 - Pito Types	1-3/4" HM (green)	Resid Hyd Addr.	HYD #1 - Railway & Mercer
SFE Technicians:	KM/KN	Hyd 2 - Pito Types		Fire Pump Status (circle one)	Auto
		Test Procedure	NFPA 291		Force On

Test ID: Test: of Date:

Start Time	End Time	Flow Hyd 1		Flow Hyd 2		Residual Hydrant		
		Port 1-1 psi	Port 1-2 psi	Port 2-1 psi	Port 2-2 psi	Static psi	Residual psi	Static psi
11:13	11:16	7.5				28	14	30

Flow Summary (igpm)	
Flow 1-1	240
Flow 1-2	
Flow 2-1	
Flow 2-2	
Total Flow	240
Flow @ 20 psi	177

Notes: _____



Flow Hydrant 1

GPS 52.28198 -112.15719



Flow Hydrant 2

GPS _____



Residual Hydrant

GPS 52.28159 -112.15452



Fire Flow Test Report

Client Name:	MPE Engineering Ltd.	Hyd 1 - #/Port Size	2-1/2 Inch	Flow Hyd 1 Addr	HYD #6 - Railway and Berry
Project Location:	Halkirk, AB	Hyd 2 - #/Port Size		Flow Hyd 2 Addr	
SFE Project #:	A21-114	Hyd 1 - Pito Types	1-3/4" HM (green)	Resid Hyd Addr.	HYD #5 - Railway and Main
SFE Technicians:	KM/KN	Hyd 2 - Pito Types		Fire Pump Status (circle one)	Auto
		Test Procedure	NFPA 291		Force On

Test ID: Test: of Date:

Start Time	End Time	Flow Hyd 1		Flow Hyd 2		Residual Hydrant		
		Port 1-1 psi	Port 1-2 psi	Port 2-1 psi	Port 2-2 psi	Static psi	Residual psi	Static psi
11:29	11:32	6.5				32	18	30

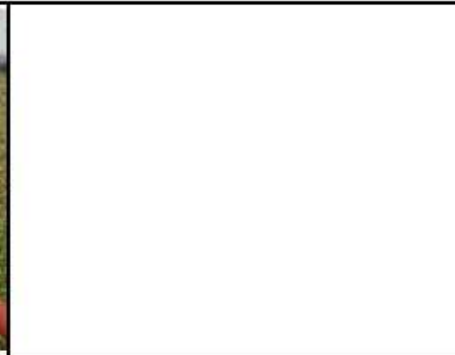
Flow Summary (igpm)	
Flow 1-1	204
Flow 1-2	
Flow 2-1	
Flow 2-2	
Total Flow	204
Flow @ 20 psi	188

Notes: _____



Flow Hydrant 1

GPS 52.28185 -112.15268



Flow Hydrant 2

GPS _____



Residual Hydrant

GPS 52.28198 -112.15719



Fire Flow Test Report

Client Name:	MPE Engineering Ltd.	Hyd 1 - #/Port Size	2-1/2 Inch	Flow Hyd 1 Addr	HYD #8 - Railway and Howard
Project Location:	Halkirk, AB	Hyd 2 - #/Port Size		Flow Hyd 2 Addr	
SFE Project #:	A21-114	Hyd 1 - Pito Types	1-3/4" HM (green)	Resid Hyd Addr.	HYD #6 - Railway and Berry
SFE Technicians:	KM/KN	Hyd 2 - Pito Types		Fire Pump Status (circle one)	Auto
		Test Procedure	NFPA 291		Force On

Test ID: Test: of Date:

Start Time	End Time	Flow Hyd 1		Flow Hyd 2		Residual Hydrant		
		Port 1-1 psi	Port 1-2 psi	Port 2-1 psi	Port 2-2 psi	Static psi	Residual psi	Static psi
11:43	11:46	4.5				31	20	32

Flow Summary (igpm)	
Flow 1-1	184
Flow 1-2	
Flow 2-1	
Flow 2-2	
Total Flow	184
Flow @ 20 psi	184

Notes: _____



Flow Hydrant 1

GPS 52.28181 -112.15111



Flow Hydrant 2

GPS _____



Residual Hydrant

GPS 52.28185 -112.15268



Fire Flow Test Report

Client Name:	MPE Engineering Ltd.	Hyd 1 - #/Port Size	2-1/2 Inch	Flow Hyd 1 Addr	HYD #1 - Railway & Mercer
Project Location:	Halkirk, AB	Hyd 2 - #/Port Size		Flow Hyd 2 Addr	
SFE Project #:	A21-114	Hyd 1 - Pito Types	1-3/4" HM (green)	Resid Hyd Addr.	HYD #3 - Pioneer and Alley
SFE Technicians:	KM/KN	Hyd 2 - Pito Types		Fire Pump Status	Auto
		Test Procedure	NFPA 291	(circle one)	Force On

Test ID: Test: of Date:

Start Time	End Time	Flow Hyd 1		Flow Hyd 2		Residual Hydrant		
		Port 1-1 psi	Port 1-2 psi	Port 2-1 psi	Port 2-2 psi	Static psi	Residual psi	Static psi
12:59	13:02	8				31	19	32

Flow Summary (igpm)	
Flow 1-1	247
Flow 1-2	
Flow 2-1	
Flow 2-2	
Total Flow	247
Flow @ 20 psi	236

Notes: _____



Flow Hydrant 1

GPS 52.28159 -112.15452



Flow Hydrant 2

GPS _____



Residual Hydrant

GPS 52.28457 -112.15462



Fire Flow Test Report

Client Name:	MPE Engineering Ltd.	Hyd 1 - #/Port Size	2-1/2 Inch	Flow Hyd 1 Addr	HYD #4 - Pioneer & Alley E.
Project Location:	Halkirk, AB	Hyd 2 - #/Port Size		Flow Hyd 2 Addr	
SFE Project #:	A21-114	Hyd 1 - Pito Types	1-3/4" HM (green)	Resid Hyd Addr.	HYD #3 - Pioneer and Alley W.
SFE Technicians:	KM/KN	Hyd 2 - Pito Types		Fire Pump Status	Auto
		Test Procedure	NFPA 291	(circle one)	Force On

Test ID: Test: of Date:

Start Time	End Time	Flow Hyd 1		Flow Hyd 2		Residual Hydrant		
		Port 1-1 psi	Port 1-2 psi	Port 2-1 psi	Port 2-2 psi	Static psi	Residual psi	Static psi
13:12	13:15	8				32	17	32

Flow Summary (igpm)	
Flow 1-1	247
Flow 1-2	
Flow 2-1	
Flow 2-2	
Total Flow	247
Flow @ 20 psi	219

Notes: _____



Flow Hydrant 1

GPS 52.28449 -112.15306



Flow Hydrant 2

GPS _____



Residual Hydrant

GPS 52.28457 -112.15462



Fire Flow Test Report

Client Name:	MPE Engineering Ltd.	Hyd 1 - #/Port Size	2-1/2 Inch	Flow Hyd 1 Addr	HYD #3 - Pioneer and Alley W.
Project Location:	Halkirk, AB	Hyd 2 - #/Port Size		Flow Hyd 2 Addr	
SFE Project #:	A21-114	Hyd 1 - Pito Types	1-3/4" HM (green)	Resid Hyd Addr.	HYD #4 - Pioneer & Alley E.
SFE Technicians:	KM/KN	Hyd 2 - Pito Types		Fire Pump Status	Auto
		Test Procedure	NFPA 291	(circle one)	Force On

Test ID: Test: of Date:

		Flow Hyd 1		Flow Hyd 2		Residual Hydrant		
Start Time	End Time	Port 1-1 psi	Port 1-2 psi	Port 2-1 psi	Port 2-2 psi	Static psi	Residual psi	Static psi
13:22	13:25	9				32	16	32

Flow Summary (igpm)	
Flow 1-1	262
Flow 1-2	
Flow 2-1	
Flow 2-2	
Total Flow	262
Flow @ 20 psi	224

Notes: _____



Flow Hydrant 1

GPS 52.28457 -112.15462



Flow Hydrant 2

GPS _____



Residual Hydrant

GPS 52.28449 -112.15306



Fire Flow Test Report

Client Name:	MPE Engineering Ltd.	Hyd 1 - #/Port Size	2-1/2 Inch	Flow Hyd 1 Addr	HYD #9 - Alberta Ave and RR160
Project Location:	Halkirk, AB	Hyd 2 - #/Port Size		Flow Hyd 2 Addr	
SFE Project #:	A21-114	Hyd 1 - Pito Types	1-3/4" HM (green)	Resid Hyd Addr.	HYD #4 - Pioneer & Alley E.
SFE Technicians:	KM/KN	Hyd 2 - Pito Types		Fire Pump Status	Auto
		Test Procedure	NFPA 291	(circle one)	Force On

Test ID: Test: of Date:

Start Time	End Time	Flow Hyd 1		Flow Hyd 2		Residual Hydrant		
		Port 1-1 psi	Port 1-2 psi	Port 2-1 psi	Port 2-2 psi	Static psi	Residual psi	Static psi
13:35	13:38	5				32	20	32

Flow Summary (igpm)	
Flow 1-1	196
Flow 1-2	
Flow 2-1	
Flow 2-2	
Total Flow	196
Flow @ 20 psi	196

Notes: _____



Flow Hydrant 1

GPS 52.28275 -112.14803



Flow Hydrant 2

GPS _____



Residual Hydrant

GPS 52.28449 -112.15306

APPENDIX D

WaterCAD Model Results

2021 - MDD and Fire Flow



Scenario: 2021 MDD and Fire Flow

FlexTable: Junction Table

ID	Label	Elevation (m)	Demand (L/min)	Pressure (psi)	Fire Flow (Available) (L/min)	Satisfies Fire Flow Constraints?
252	J-71	828.00	(N/A)	(N/A)	(N/A)	False
255	J-72	833.60	(N/A)	(N/A)	(N/A)	False
257	J-73	833.00	(N/A)	(N/A)	(N/A)	False
265	J-74	834.00	(N/A)	(N/A)	(N/A)	False
317	J-81	836.19	(N/A)	(N/A)	(N/A)	False
322	J-82	832.08	(N/A)	(N/A)	(N/A)	False
327	J-83	835.45	(N/A)	(N/A)	(N/A)	False
332	J-84	833.16	(N/A)	(N/A)	(N/A)	False
339	J-85	831.80	(N/A)	(N/A)	(N/A)	False
96	J-34	837.50	5	26.8	97	False
112	J-41	836.80	8	27.9	815	False
147	J-53	836.80	0	27.9	789	False
144	J-52	836.75	0	27.9	794	False
87	J-31	836.75	3	27.9	877	False
92	J-33	836.70	14	28.0	764	False
129	J-47	836.57	0	28.2	867	False
172	J-60	836.48	0	28.3	765	False
97	J-35	836.24	1	28.6	184	False
307	J-79	836.19	0	28.7	812	False
269	J-75	835.81	0	29.3	155	False
132	J-48	835.65	0	29.5	845	False
82	J-28	835.30	4	30.0	848	False
121	J-44	835.20	1	30.1	811	False
71	J-23	835.00	0	30.5	1,256	False
73	J-24	835.00	0	30.5	1,281	False
200	J-65	834.80	0	30.7	847	False
77	J-25	834.70	1	30.9	1,256	False
141	J-51	834.65	0	30.9	807	False
101	J-36	834.50	14	31.1	807	False
244	J-69	834.30	0	31.4	102	False
31	J-2	834.20	0	31.6	2,731	False
120	J-43	833.90	9	32.0	727	False
205	J-66	833.90	0	32.0	727	False
182	J-62	833.79	0	32.1	806	False
125	J-45	833.70	8	32.3	697	False
91	J-32	833.50	3	32.5	89	False
104	J-38	833.50	13	32.5	803	False
138	J-50	833.50	0	32.5	804	False
85	J-30	833.50	8	32.5	794	False
177	J-61	833.40	0	32.7	798	False
135	J-49	833.35	0	32.8	793	False
111	J-40	833.20	6	33.0	811	False
187	J-63	833.10	0	33.1	811	False
312	J-80	832.08	0	34.6	811	False
127	J-46	831.90	10	34.8	718	False
194	J-64	830.84	0	36.3	730	False

Scenario: 2021 MDD and Fire Flow

FlexTable: Pipe Table

ID	Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C
75	1	5	J-24	J-23	200.0	PVC	125.0
76	2	82	J-2	J-24	200.0	PVC	125.0
78	3	25	J-23	J-25	150.0	PVC	125.0
89	4	99	J-31	J-28	200.0	PVC	125.0
99	5	45	J-35	J-33	200.0	PVC	125.0
100	6	107	J-34	J-35	50.0	PVC	125.0
131	7	11	J-47	J-31	140.0	PVC	125.0
134	8	15	J-48	J-28	150.0	PVC	125.0
137	9	2	J-49	J-30	150.0	PVC	125.0
140	10	5	J-50	J-38	150.0	PVC	125.0
142	11	5	J-36	J-51	150.0	PVC	125.0
146	12	109	J-52	J-47	150.0	Asbestos Cement	90.0
148	13	59	J-33	J-53	150.0	Asbestos Cement	90.0
149	14	19	J-53	J-52	150.0	PVC	125.0
150	15	139	J-48	J-41	150.0	Asbestos Cement	90.0
151	16	152	J-41	J-50	150.0	Asbestos Cement	90.0
161	17	97	J-23	J-31	200.0	PVC	125.0
173	18	6	J-33	J-60	150.0	Asbestos Cement	90.0
174	19	143	J-60	J-49	150.0	Asbestos Cement	90.0
175	20	12	H-2	J-60	150.0	PVC	125.0
178	21	53	J-38	J-61	150.0	PVC	125.0
179	22	45	J-61	J-30	150.0	PVC	125.0
180	23	7	H-3	J-61	150.0	PVC	125.0
183	24	53	J-36	J-62	150.0	PVC	125.0
184	25	52	J-62	J-38	150.0	PVC	125.0
185	26	10	H-4	J-62	150.0	PVC	125.0
188	27	7	J-40	J-63	125.0	Asbestos Cement	90.0
189	28	125	J-63	J-45	125.0	Asbestos Cement	90.0
190	29	7	H-7	J-63	150.0	PVC	125.0
192	30	12	H-8	J-45	150.0	PVC	125.0
196	31	11	J-64	J-46	120.0	Asbestos Cement	90.0
197	32	5	H-9	J-64	150.0	PVC	125.0
201	33	5	H-5	J-65	150.0	PVC	125.0
202	34	19	J-65	J-28	140.0	PVC	125.0
206	35	6	J-43	J-66	125.0	Asbestos Cement	90.0
207	36	133	J-66	J-44	125.0	Asbestos Cement	90.0
208	37	6	H-6	J-66	150.0	PVC	125.0
215	38	98	J-44	J-40	200.0	PVC	125.0
216	39	152	J-51	J-44	150.0	Asbestos Cement	90.0
217	40	30	R-1	J-2	200.0	PVC	125.0
234	41	5	H-1	J-47	150.0	PVC	125.0
245	42	113	J-32	J-69	50.0	PVC	125.0
254	43	159	J-71	J-46	200.0	PVC	125.0
256	44	18	J-45	J-72	200.0	PVC	125.0
259	45	149	J-73	J-46	200.0	PVC	125.0
266	46	85	J-65	J-74	200.0	PVC	125.0
267	47	14	J-74	J-43	200.0	PVC	125.0
268	48	97	J-74	J-72	200.0	PVC	125.0

FlexTable: Pipe Table

ID	Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C
270	49	178	J-69	J-75	50.0	PVC	125.0
271	50	52	J-75	J-35	200.0	PVC	125.0
281	51	29	R-2	J-2	125.0	PVC	125.0
282	52	81	J-2	J-24	125.0	PVC	125.0
283	53	51	J-75	J-35	50.0	PVC	125.0
284	54	43	J-35	J-33	50.0	PVC	125.0
288	55	4	J-24	J-23	125.0	PVC	125.0
289	56	96	J-23	J-31	125.0	PVC	125.0
290	57	99	J-31	J-28	140.0	PVC	125.0
292	58	155	J-28	J-41	200.0	PVC	125.0
294	59	97	J-44	J-40	150.0	Asbestos Cement	90.0
296	60	133	J-44	J-66	200.0	PVC	125.0
297	61	9	J-40	J-63	200.0	PVC	125.0
298	62	125	J-63	J-45	200.0	PVC	125.0
308	63	39	J-41	J-79	150.0	Asbestos Cement	90.0
309	64	64	J-79	J-44	150.0	Asbestos Cement	90.0
311	65	10	J-79	H-12	150.0	PVC	125.0
313	66	99	J-40	J-80	120.0	Asbestos Cement	90.0
314	67	108	J-80	J-64	120.0	Asbestos Cement	90.0
316	68	9	J-80	H-13	150.0	PVC	125.0
318	69	38	J-41	J-81	200.0	PVC	125.0
319	70	66	J-81	J-44	200.0	PVC	125.0
321	71	10	J-81	H-14	150.0	PVC	125.0
323	72	98	J-40	J-82	200.0	PVC	125.0
324	73	109	J-82	J-64	200.0	PVC	125.0
326	74	11	H-15	J-82	150.0	PVC	125.0
328	75	88	J-24	J-83	200.0	PVC	125.0
329	76	70	J-83	J-75	200.0	PVC	125.0
331	77	16	J-83	H-16	150.0	PVC	125.0
333	78	169	J-72	J-84	200.0	PVC	125.0
334	79	61	J-84	J-73	200.0	PVC	125.0
336	80	11	J-84	H-17	150.0	PVC	125.0
338	81	11	H-18	J-71	150.0	PVC	125.0
340	82	125	J-36	J-85	200.0	PVC	125.0
341	83	175	J-85	J-71	200.0	PVC	125.0
343	84	11	J-85	H-19	150.0	PVC	125.0

2046 - MDD and Fire Flow - Improvement Option 2



Scenario: 2046 MDD and Fire Flow - Improvement Option 2

FlexTable: Junction Table

ID	Label	Elevation (m)	Demand (L/min)	Pressure (psi)	Fire Flow (Available) (L/min)	Satisfies Fire Flow Constraints?
132	J-48	835.65	(N/A)	(N/A)	(N/A)	False
252	J-71	828.00	(N/A)	(N/A)	(N/A)	False
255	J-72	833.60	(N/A)	(N/A)	(N/A)	False
257	J-73	833.00	(N/A)	(N/A)	(N/A)	False
265	J-74	834.00	(N/A)	(N/A)	(N/A)	False
307	J-79	836.19	(N/A)	(N/A)	(N/A)	False
312	J-80	832.08	(N/A)	(N/A)	(N/A)	False
327	J-83	835.45	(N/A)	(N/A)	(N/A)	False
332	J-84	833.16	(N/A)	(N/A)	(N/A)	False
339	J-85	831.80	(N/A)	(N/A)	(N/A)	False
96	J-34	837.50	7	56.7	288	False
112	J-41	836.80	10	57.7	7,071	True
147	J-53	836.80	0	57.7	5,412	True
144	J-52	836.75	0	57.8	5,503	True
87	J-31	836.75	3	57.8	9,788	True
92	J-33	836.70	18	57.9	5,024	True
129	J-47	836.57	0	58.1	8,613	True
172	J-60	836.48	0	58.2	5,065	True
97	J-35	836.24	2	58.5	562	False
317	J-81	836.19	0	58.6	6,799	True
269	J-75	835.81	0	59.1	387	False
82	J-28	835.30	5	59.9	8,329	True
121	J-44	835.20	2	60.0	6,688	True
71	J-23	835.00	0	60.3	14,248	True
73	J-24	835.00	0	60.3	14,660	True
200	J-65	834.80	0	60.6	7,113	True
77	J-25	834.70	2	60.7	10,377	True
141	J-51	834.65	0	60.8	5,621	True
101	J-36	834.50	18	61.0	5,648	True
244	J-69	834.30	0	61.2	226	False
31	J-2	834.20	0	61.4	15,000	True
120	J-43	833.90	12	61.8	5,386	True
205	J-66	833.90	0	61.8	5,817	True
182	J-62	833.79	0	62.0	5,790	True
125	J-45	833.70	10	62.1	5,354	True
91	J-32	833.50	3	62.4	188	False
85	J-30	833.50	10	62.4	5,686	True
104	J-38	833.50	16	62.4	6,246	True
138	J-50	833.50	0	62.4	6,223	True
177	J-61	833.40	0	62.5	5,809	True
135	J-49	833.35	0	62.6	5,690	True
111	J-40	833.20	8	62.8	6,049	True
187	J-63	833.10	0	63.0	5,992	True
322	J-82	832.08	0	64.4	5,727	True
127	J-46	831.90	13	64.7	4,580	True
194	J-64	830.84	0	66.2	5,341	True

Scenario: 2046 MDD and Fire Flow - Improvement Option 2

FlexTable: Pipe Table

ID	Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C
75	1	5	J-24	J-23	200.0	PVC	125.0
76	2	82	J-2	J-24	200.0	PVC	125.0
78	3	25	J-23	J-25	150.0	PVC	125.0
89	4	99	J-31	J-28	200.0	PVC	125.0
99	5	45	J-35	J-33	200.0	PVC	125.0
100	6	107	J-34	J-35	50.0	PVC	125.0
131	7	11	J-47	J-31	140.0	PVC	125.0
134	8	15	J-48	J-28	150.0	PVC	125.0
137	9	2	J-49	J-30	150.0	PVC	125.0
140	10	5	J-50	J-38	150.0	PVC	125.0
142	11	5	J-36	J-51	150.0	PVC	125.0
146	12	109	J-52	J-47	150.0	Asbestos Cement	90.0
148	13	59	J-33	J-53	150.0	Asbestos Cement	90.0
149	14	19	J-53	J-52	150.0	PVC	125.0
150	15	139	J-48	J-41	150.0	Asbestos Cement	90.0
151	16	152	J-41	J-50	150.0	Asbestos Cement	90.0
161	17	97	J-23	J-31	200.0	PVC	125.0
173	18	6	J-33	J-60	150.0	Asbestos Cement	90.0
174	19	143	J-60	J-49	150.0	Asbestos Cement	90.0
175	20	12	H-2	J-60	150.0	PVC	125.0
178	21	53	J-38	J-61	150.0	PVC	125.0
179	22	45	J-61	J-30	150.0	PVC	125.0
180	23	7	H-3	J-61	150.0	PVC	125.0
183	24	53	J-36	J-62	150.0	PVC	125.0
184	25	52	J-62	J-38	150.0	PVC	125.0
185	26	10	H-4	J-62	150.0	PVC	125.0
188	27	7	J-40	J-63	125.0	Asbestos Cement	90.0
189	28	125	J-63	J-45	125.0	Asbestos Cement	90.0
190	29	7	H-7	J-63	150.0	PVC	125.0
192	30	12	H-8	J-45	150.0	PVC	125.0
196	31	11	J-64	J-46	120.0	Asbestos Cement	90.0
197	32	5	H-9	J-64	150.0	PVC	125.0
201	33	5	H-5	J-65	150.0	PVC	125.0
202	34	19	J-65	J-28	140.0	PVC	125.0
206	35	6	J-43	J-66	125.0	Asbestos Cement	90.0
207	36	133	J-66	J-44	125.0	Asbestos Cement	90.0
208	37	6	H-6	J-66	150.0	PVC	125.0
215	38	98	J-44	J-40	200.0	PVC	125.0
216	39	152	J-51	J-44	150.0	Asbestos Cement	90.0
217	40	30	R-1	J-2	200.0	PVC	125.0
234	41	5	H-1	J-47	150.0	PVC	125.0
245	42	113	J-32	J-69	50.0	PVC	125.0
254	43	159	J-71	J-46	200.0	PVC	125.0
256	44	18	J-45	J-72	200.0	PVC	125.0
259	45	149	J-73	J-46	200.0	PVC	125.0
266	46	85	J-65	J-74	200.0	PVC	125.0
267	47	14	J-74	J-43	200.0	PVC	125.0
268	48	97	J-74	J-72	200.0	PVC	125.0

FlexTable: Pipe Table

ID	Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C
270	49	178	J-69	J-75	50.0	PVC	125.0
271	50	52	J-75	J-35	200.0	PVC	125.0
281	51	29	R-2	J-2	125.0	PVC	125.0
282	52	81	J-2	J-24	125.0	PVC	125.0
283	53	51	J-75	J-35	50.0	PVC	125.0
284	54	43	J-35	J-33	50.0	PVC	125.0
288	55	4	J-24	J-23	125.0	PVC	125.0
289	56	96	J-23	J-31	125.0	PVC	125.0
290	57	99	J-31	J-28	140.0	PVC	125.0
292	58	155	J-28	J-41	200.0	PVC	125.0
294	59	97	J-44	J-40	150.0	Asbestos Cement	90.0
296	60	133	J-44	J-66	200.0	PVC	125.0
297	61	9	J-40	J-63	200.0	PVC	125.0
298	62	125	J-63	J-45	200.0	PVC	125.0
308	63	39	J-41	J-79	150.0	Asbestos Cement	90.0
309	64	64	J-79	J-44	150.0	Asbestos Cement	90.0
311	65	10	J-79	H-12	150.0	PVC	125.0
313	66	99	J-40	J-80	120.0	Asbestos Cement	90.0
314	67	108	J-80	J-64	120.0	Asbestos Cement	90.0
316	68	9	J-80	H-13	150.0	PVC	125.0
318	69	38	J-41	J-81	200.0	PVC	125.0
319	70	66	J-81	J-44	200.0	PVC	125.0
321	71	10	J-81	H-14	150.0	PVC	125.0
323	72	98	J-40	J-82	200.0	PVC	125.0
324	73	109	J-82	J-64	200.0	PVC	125.0
326	74	11	H-15	J-82	150.0	PVC	125.0
328	75	88	J-24	J-83	200.0	PVC	125.0
329	76	70	J-83	J-75	200.0	PVC	125.0
331	77	16	J-83	H-16	150.0	PVC	125.0
333	78	169	J-72	J-84	200.0	PVC	125.0
334	79	61	J-84	J-73	200.0	PVC	125.0
336	80	11	J-84	H-17	150.0	PVC	125.0
338	81	11	H-18	J-71	150.0	PVC	125.0
340	82	125	J-36	J-85	200.0	PVC	125.0
341	83	175	J-85	J-71	200.0	PVC	125.0
343	84	11	J-85	H-19	150.0	PVC	125.0

APPENDIX E

CCTV Survey

High Pressure Flushing

Box 219

BlackFalds, AB

Phone: (403) 373-5453

Project	Date
1139	2021-06-14

Location Information

Halkirk
 Alberta Ave
 200mm PVC
 Direction: Away Down

ID	MH Start	MH Stop
1	14	17

Starting Distance	Final Distance
0.5	97

Obs ID	Distance	Category	Details	Clock Pos	Comments
1	0.5	Start	Begin Inspection		
2	2	Service	Domestic Flow	3	
3	24	Service	Domestic Flow	3	
4	34	Service	Domestic Flow	9	
5	40	Pipe	Sag		12 m sag, covering 50% at worst.
6	58	Service	Domestic Flow	9	
7	71	Service	Domestic Flow	3	
8	75	Service	Domestic Flow	9	
9	97	MH	End Inspection		

High Pressure Flushing

Box 219

BlackFalds, AB

Phone: (403) 373-5453

Project	Date
1139	2021-06-14

Location Information

Halkirk
 Alberta Ave
 200mm PVC
 Direction: Away Up

ID	MH Start	MH Stop
2	19	17

Starting Distance	Final Distance
0.5	104

Obs ID	Distance	Category	Details	Clock Pos	Comments
1	0.5	Start	Begin Inspection		
2	4	Pipe	Sag		Stagnant Water level 50% 22 m
3	9	Service	Domestic Flow	3	
4	15	Service	Domestic Flow	9	
5	29	Service	Domestic Flow	3	Moderate Deposit Buildup < 5%
6	44	Pipe	Sag		22 m 70% at worst
7	46	Service	Domestic Flow	3	
8	57	Service	Domestic Flow	3	
9	73	Service	Domestic Flow	12	20% sag around here
10	104	MH	End Inspection		

High Pressure Flushing

Box 219

BlackFalds, AB

Phone: (403) 373-5453

Project	Date
1139	2021-06-14

Location Information

Halkirk
 Alberta Ave
 200mm PVC
 Direction: Away Down

ID	MH Start	MH Stop
3	19	20

Starting Distance	Final Distance
0.5	93

Obs ID	Distance	Category	Details	Clock Pos	Comments
1	0.5	Start	Begin Inspection		
2	10	Service	Domestic Flow	9	
3	12	Pipe	Sag		Continues for 10m 50%
4	34	Service	Domestic Flow	9	20% sag here
5	55	Service	Domestic Flow	9	10% sag at 46 m 40% sag at 55 m
6	70	Pipe	Sag		Continues for 11m 40%
7	77	Service	Domestic Flow	9	
8	93	MH	End Inspection		25% sag at 85 m

High Pressure Flushing

Box 219

BlackFalds, AB

Phone: (403) 373-5453

Project	Date
1139	2021-06-14

Location Information

Halkirk
 Alberta Ave
 200mm PVC
 Direction: Away Down

ID	MH Start	MH Stop
4	20	21

Starting Distance	Final Distance
0.5	46

Obs ID	Distance	Category	Details	Clock Pos	Comments
1	0.5	Start	Begin Inspection		
2	3	Service	Domestic Flow	9	offset joint at 9 m
3	19	Pipe	Sag		Continues for 5m 50%
4	46	MH	End Inspection		Another 5m 50% sag at 35 m
					Broken clay pipe piece at 44m

High Pressure Flushing

Box 219

BlackFalds, AB

Phone: (403) 373-5453

Project	Date
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1139 2021-06-17

Location Information

Halkirk
Lagoon Way
200mm PVC
Direction: Away Up

ID	MH Start	MH Stop
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8 24 23

Starting Distance	Final Distance
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0.5 110

Obs #	Distance	Category	Details	Clock Pos	Comments
1	0.5	Start	Begin Inspection		
2	110	MH	End of Inspection		

High Pressure Flushing

Box 219

BlackFalds, AB

Phone: (403) 373-5453

Project	Date
1139	2021-06-17

Location Information

Halkirk
Lagoon Way
200mm PVC
Direction: Away Down

ID	MH Start	MH Stop
9	24	25

Starting Distance	Final Distance
0.5	124

Obs #	Distance	Category	Details	Clock Pos	Comments
1	0.5	Start	Begin Inspection		40% sag for 15 m starting at 13 m
2	124	MH	End of Inspection		40% sag for 15 m starting at 55 m
					50% sag for 15 m starting at 90 m

High Pressure Flushing

Box 219

BlackFalds, AB

Phone: (403) 373-5453

Project	Date
1139	2021-06-17

Location Information

Halkirk
Lagoon Way
200mm PVC
Direction: Away Down

ID	MH Start	MH Stop
9 (10)	25	Lagoon

Starting Distance	Final Distance
0.5	117

Obs #	Distance	Category	Details	Clock Pos	Comments
1	0.5	Start	Begin Inspection		Vid says ID:9 (is actually 10)
2	49	Pipe	Debris		50% buildup & 50% sag for 10 m at 60 m
3	96	Pipe	Sag		Continues for 8m 60%
4	117	Lagoon	End of Inspection		Camera submerged. Not at end.

High Pressure Flushing

Box 219

BlackFalds, AB

Phone: (403) 373-5453

Project	Date
1139	2021-06-17

Location Information

Halkirk
Main Street
200mm PVC
Direction: Away Up

ID	MH Start	MH Stop
11	10	12

Starting Distance	Final Distance
0.5	1

Obs #	Distance	Category	Details	Clock Pos	Comments
1	0.5	Start	Begin Inspection		
2	1	Joint	Severe Offset		Unable to Pass, Abort Run

High Pressure Flushing

Box 219

BlackFalds, AB

Phone: (403) 373-5453

Project	Date
1139	2021-06-17

Location Information

Halkirk
Main Street
200mm PVC
Direction: Away Down

ID	MH Start	MH Stop
12	10	9

Starting Distance	Final Distance
0.5	77

Obs #	Distance	Category	Details	Clock Pos	Comments
1	0.5	Start	Begin Inspection		
2	6	Service	Domestic Flow	9	
3	12	Service	Domestic Flow	9	Mineral Deposit <5%
4	31	Pipe	Deposit Buildup		<5%
5	40	Pipe	Deposit Buildup		~10%
6	41	Pipe	Sag		Continues for 7m 50%
7	60	Pipe	Sag		Continues for 15m 70%
8	77	MH	End of Inspection		

High Pressure Flushing

Box 219

BlackFalds, AB

Phone: (403) 373-5453

Project	Date
1139	2021-06-17

Location Information

Halkirk
Main Street
200mm PVC
Direction: Away Down

ID	MH Start	MH Stop
13	12	10

Starting Distance	Final Distance
0.5	77

Obs #	Distance	Category	Details	Clock Pos	Comments
1	0.5	Start	Begin Inspection		
2	13	Service	Domestic Flow	9	
3	18	Service	Domestic Flow	3	
4	33	Service	Domestic Flow	3	
5	40	Pipe	Sag		50% Continues for 8m
6	52	Service	Domestic Flow	3	
7	73	Service	Domestic Flow	12	50% sag for 2 m
8	77	MH	End of Inspection		

High Pressure Flushing

Box 219

BlackFalds, AB

Phone: (403) 373-5453

Project	Date
1139	2021-06-17

Location Information

Halkirk
 Railway Ave
 200mm PVC
 Direction: Away Up

ID	MH Start	MH Stop
14	12	2

Starting Distance	Final Distance
0.5	51

Obs #	Distance	Category	Details	Clock Pos	Comments
1	0.5	Start	Begin Inspection		
2	2	Pipe	Sag		50% Continues for 5m
3	50	Service	Domestic Flow	3	5% Deposits
4	51	Abort	End Inspection		Unable to Pass

High Pressure Flushing

Box 219

BlackFalds, AB

Phone: (403) 373-5453

Project	Date
1139	2021-06-17

Location Information

Halkirk
 George Street
 200mm PVC
 Direction: Away Up

ID	MH Start	MH Stop
15	2	3

Starting Distance	Final Distance
0.5	77

Obs #	Distance	Category	Details	Clock Pos	Comments
1	0.5	Start	Begin Inspection		
2	28	Service	Domestic Flow	9	
3	46	Service	Domestic Flow	9	10% Mouth almost blocked
4	53	Service	Domestic Flow	3	
5	58	Service	Domestic Flow	3	
6	73	Service	Domestic Flow	3	
7	75	Service	Domestic Flow	3	
8	77	MH	End of Inspection		

High Pressure Flushing

Box 219

BlackFalds, AB

Phone: (403) 373-5453

Project	Date
1139	2021-06-17

Location Information

Halkirk
 George Street
 200mm PVC
 Direction: Away Up

ID	MH Start	MH Stop
16	3	4

Starting Distance	Final Distance
0.5	77

Obs #	Distance	Category	Details	Clock Pos	Comments
1	0.5	Start	Begin Inspection		
2	9	Service	Domestic Flow	3	
3	19	Service	Domestic Flow	9	
4	22	Service	Domestic Flow	9	
5	44	Service	Domestic Flow	3	
6	46	Service	Domestic Flow	9	
7	55	Service	Domestic Flow	9	
8	56	Service	Domestic Flow	3	
9	77	MH	End of Inspection		

High Pressure Flushing

Box 219

BlackFalds, AB

Phone: (403) 373-5453

Project	Date
1139	2021-06-17

Location Information

Halkirk
 George Street
 200mm PVC
 Direction: Away Up

ID	MH Start	MH Stop
17	6A	4

Starting Distance	Final Distance
0.5	79

Obs #	Distance	Category	Details	Clock Pos	Comments
1	0.5	Start	Begin Inspection		
2	7	Service	Domestic Flow	9	
3	14	Service	Domestic Flow	9	
4	53	Service	Domestic Flow	3	
5	79	MH	End of Inspection		

High Pressure Flushing

Box 219

BlackFalds, AB

Phone: (403) 373-5453

Project	Date
1139	2021-06-17

Location Information

Halkirk
 George Street
 200mm PVC
 Direction: Away Down

ID	MH Start	MH Stop
18	6A	6

Starting Distance	Final Distance
0.5	45

Obs #	Distance	Category	Details	Clock Pos	Comments
1	0.5	Start	Begin Inspection		
2	25	Service	Domestic Flow	3	
3	26	Service	Domestic Flow	9	Grease Buildup in Service
4	44	Pipe	Block/Flap	6	Unable to pass Obstruction
5	45	Abort	End of Inspection		

High Pressure Flushing

Box 219

BlackFalds, AB

Phone: (403) 373-5453

Project	Date
1139	2021-06-22

Location Information

Halkirk
Main Street
200mm PVC
Direction: Away Up

ID	MH Start	MH Stop
20	8	9

Starting Distance	Final Distance
0.5	78

Obs #	Distance	Category	Details	Clock Pos	Comments
1	0.5	Start	Begin Inspection		
2	1	Service	Domestic Flow	3	
3	5	Service	Domestic Flow	12	
4	6	Service	Domestic Flow	12	5% mineral deposit at 9 m
5	21	Service	Domestic Flow	3	
6	34	Service	Domestic Flow	12	5% Deposits
7	42	Service	Domestic Flow	3	
8	56	Service	Domestic Flow	3	
9	63	Service	Domestic Flow	3	
10	78	MH	End of Inspection		

High Pressure Flushing

Box 219

BlackFalds, AB

Phone: (403) 373-5453

Project	Date
1139	2021-06-22

Location Information

Halkirk
 Main Street
 200mm PVC
 Direction: Away Down

ID	MH Start	MH Stop
21	8	7

Starting Distance	Final Distance
0.5	80

Obs #	Distance	Category	Details	Clock Pos	Comments
1	0.5	Start	Begin Inspection		
2	6	Service	Domestic Flow	9	
3	14	Service	Domestic Flow	3	
4	20	Service	Domestic Flow	9	
5	30	Service	Domestic Flow	3	
6	59	Service	Domestic Flow	3	
7	80	MH	End of Inspection		

High Pressure Flushing

Box 219

BlackFalds, AB

Phone: (403) 373-5453

Project	Date
1139	2021-06-22

Location Information

Halkirk
 Pioneer Ave
 200mm PVC
 Direction: Away Down

ID	MH Start	MH Stop
23	7	16

Starting Distance	Final Distance
0.5	97

Obs #	Dist (m)	Category	Details	Clock Pos	Comments
1	0.5	Start	Begin Inspection		
2	23	Pipe	Deposits		10%
3	68	Service	Domestic Flow	3	40% sag for 8 m at 35 m
4	70	Pipe	Deposits		
5	77	Pipe	Sag		50% Continues for 15m
6	97	MH	End of Inspection		

High Pressure Flushing

Box 219

BlackFalds, AB

Phone: (403) 373-5453

Project	Date
1140	2021-06-17

Location Information

Halkirk
Berry Street
200mm PVC
Direction: Away Up

ID	MH Start	MH Stop
1	15	16

Starting Distance	Final Distance
0.5	5

Obs #	Dist (m)	Category	Details	Clock Pos	Comments
1	0.5	Start	Begin Inspection		High Water Level at MH
2	1	Pipe	Sag		Cam Underwater 80%
3	5	Camera	Submerged		Unable to Continue
4	5	Abort	End of Inspection		Unable to Enter From Opposite MH Either

High Pressure Flushing

Box 219

BlackFalds, AB

Phone: (403) 373-5453

Project	Date
1140	2021-06-17

Location Information

Halkirk
Berry Street
200mm PVC
Direction: Away Down

ID	MH Start	MH Stop
2	15	14

Starting Distance	Final Distance
0.5	77

Obs #	Dist (m)	Category	Details	Clock Pos	Comments
1	0.5	Start	Begin Inspection		
2	2	Service	Domestic Flow	9	
3	8	Service	Domestic Flow	12	
4	15	Service	Domestic Flow	12	50% sag for 5 m starting at 20 m
5	42	Service	Domestic Flow	12	10% mineral deposit at 40 m
6	52	Service	Domestic Flow	12	
7	55	Service	Domestic Flow	12	
8	77	MH	End of Inspection		

High Pressure Flushing

Box 219

BlackFalds, AB

Phone: (403) 373-5453

Project	Date
1140	2021-06-17

Location Information

Halkirk
 Berry Street
 200mm PVC
 Direction: Away Down

ID	MH Start	MH Stop
3	13	14

Starting Distance	Final Distance
0.5	N/A

Obs #	Dist (m)	Category	Details	Clock Pos	Comments
1	0.5	Start	Begin Inspection		Unable to Enter Either MH for this Line
2	0	Abort	End of Inspection		Drop-In (Raised) line at Both MH's

APPENDIX F

Sanitary System Inspection Reports



Manhole Inspection Checklist

Town or Village:	Village of Halkirk
MH Location or Number:	MH1

Barrel Diameter:	1.2				Notes:	
Manhole Type:	5A	<input checked="" type="checkbox"/>	1 - S	<input type="checkbox"/>	Drop	<input type="checkbox"/>
Collar Material:	Concrete	<input type="checkbox"/>	Brick	<input checked="" type="checkbox"/>	Other	<input type="checkbox"/>
Barrel Material:	Concrete	<input type="checkbox"/>	Block	<input checked="" type="checkbox"/>	Other	<input type="checkbox"/>
Bench Material:	Precast	<input type="checkbox"/>	Field	<input checked="" type="checkbox"/>	Other	<input type="checkbox"/>
Parson Insert Installed:	No / Yes	No				

Item	Rate:	Notes	
Surface <i>(Rate 1-5 with 1 being low and 5 being high)</i>	5		
Does surface water drain away from the MH	No / Yes	Yes	
Is the lid matched to MH type (San, Storm, Town Logo)	No / Yes	No	N/A
Is the frame flush to match the road grade (15 mm tolerance)	No / Yes	No	
Comments and Photo Numbers			
Top Slab & Collars <i>(Rate 1-5 with 1 being low and 5 being high)</i>	4		
Are there between 1 and 3 collars in use	No / Yes	Yes	
Is the total height of collars between 50 mm – 305 mm	No / Yes	No	500mm
Is the grouting complete and without gaps	No / Yes	Yes	
Free from evidence of leaking or water stains	No / Yes	Yes	
Comments and Photo Numbers			
Steps of Ladder <i>(Rate 1-5 with 1 being low and 5 being high)</i>	3		
Is the top step within 400 mm from lid	No / Yes	No	900mm
Is the bottom step within 400 mm of the base	No / Yes	No	650mm
Do the steps line up (within 40 mm tolerance, 20 mm dia min. Std.)	No / Yes	Yes	
Are the steps twisted	No / Yes	No	
Are the steps corroded or damaged	No / Yes	No	
Steps are below the MH lid and not on the opposite wall of MH	No / Yes	Yes	
Comments and Photo Numbers			
MH Barrels <i>(Rate 1-5 with 1 being low and 5 being high)</i>	3		
Are there cracks or damage to the MH side walls	No / Yes	No	
Do the sides of the barrel have evidence of water stains or weeping	No / Yes	Yes	
Do the joints between barrels have evidence of leakage through joints	No / Yes	No	N/A
Are there unfilled open weeping holes in the sides of the storm MHs	No / Yes	No	
Comments and Photo Numbers			
MH Base and Leads <i>(Rate 1-5 with 1 being low and 5 being high)</i>	3		
Base and Channels are smooth without evidence of corrosion or concrete wear	No / Yes	No	
Leads into the MH stop at the springline, which is flush to inside wall of MH	No / Yes	No	
Sides are benched in MH floor for San, & Storm leads over 600 mm	No / Yes	No	N/A
Are there service leads directly into the MH – i.e. cul de sacs	No / Yes	Yes	
Is the distance less than 760 mm from all inlet inverts to springline of outlet	No / Yes	Yes	
Inverts are properly sealed and grouted	No / Yes	No	
Channels are free from rocks and dirt which might indicate break in line	No / Yes	Yes	
MH base is free of sewage settlement due to slow flow or blockage	No / Yes	Yes	
Comments and Photo Numbers Clay pipes somewhat broken at inverts.			

	SW	S	SE	E	NE	N	NW	W				
Size of Inserts	150	40	100	200		200	100					
Rim to Invert Elev.	2.71	2.11	2.36	2.81		2.77	2.27					



Manhole Inspection Checklist

Town or Village:	Village of Halkirk
MH Location or Number:	MH1A

Barrel Diameter:	1.2					Notes:
Manhole Type:	5A	<input checked="" type="checkbox"/>	1 - S	<input type="checkbox"/>	Drop	<input type="checkbox"/>
Collar Material:	Concrete	<input checked="" type="checkbox"/>	Brick	<input type="checkbox"/>	Other	<input type="checkbox"/>
Barrel Material:	Concrete	<input checked="" type="checkbox"/>	Block	<input type="checkbox"/>	Other	<input type="checkbox"/>
Bench Material:	Precast	<input type="checkbox"/>	Field	<input checked="" type="checkbox"/>	Other	<input type="checkbox"/>
Parson Insert Installed:	No / Yes	No				

Item	Rate:	Notes
Surface <i>(Rate 1-5 with 1 being low and 5 being high)</i>	4	4
Does surface water drain away from the MH	No / Yes	<input checked="" type="checkbox"/> Yes
Is the lid matched to MH type (San, Storm, Town Logo)	No / Yes	<input type="checkbox"/> N/A
Is the frame flush to match the road grade (15 mm tolerance)	No / Yes	<input checked="" type="checkbox"/> Yes MH in grass
Comments and Photo Numbers		
Top Slab & Collars <i>(Rate 1-5 with 1 being low and 5 being high)</i>	4	
Are there between 1 and 3 collars in use	No / Yes	<input checked="" type="checkbox"/> Yes
Is the total height of collars between 50 mm – 305 mm	No / Yes	<input checked="" type="checkbox"/> No 20mm
Is the grouting complete and without gaps	No / Yes	<input checked="" type="checkbox"/> Yes
Free from evidence of leaking or water stains	No / Yes	<input checked="" type="checkbox"/> Yes
Comments and Photo Numbers		
Steps of Ladder <i>(Rate 1-5 with 1 being low and 5 being high)</i>	2	
Is the top step within 400 mm from lid	No / Yes	<input checked="" type="checkbox"/> No 500mm
Is the bottom step within 400 mm of the base	No / Yes	<input checked="" type="checkbox"/> Yes
Do the steps line up (within 40 mm tolerance, 20 mm dia min. Std.)	No / Yes	<input checked="" type="checkbox"/> Yes
Are the steps twisted	No / Yes	<input checked="" type="checkbox"/> Yes 5th from top twisted
Are the steps corroded or damaged	No / Yes	<input checked="" type="checkbox"/> Yes top two rungs very corrode
Steps are below the MH lid and not on the opposite wall of MH	No / Yes	<input checked="" type="checkbox"/> No A bit off centre
Comments and Photo Numbers		
MH Barrels <i>(Rate 1-5 with 1 being low and 5 being high)</i>	3	
Are there cracks or damage to the MH side walls	No / Yes	<input checked="" type="checkbox"/> Yes Small crack
Do the sides of the barrel have evidence of water stains or weeping	No / Yes	<input checked="" type="checkbox"/> Yes
Do the joints between barrels have evidence of leakage through joints	No / Yes	<input checked="" type="checkbox"/> Yes
Are there unfilled open weeping holes in the sides of the storm MHs	No / Yes	<input checked="" type="checkbox"/> Yes Holes between barrels
Comments and Photo Numbers See photo for crack and hole		
MH Base and Leads <i>(Rate 1-5 with 1 being low and 5 being high)</i>	1	
Base and Channels are smooth without evidence of corrosion or concrete wear	No / Yes	<input checked="" type="checkbox"/> No
Leads into the MH stop at the springline, which is flush to inside wall of MH	No / Yes	<input checked="" type="checkbox"/> No Cannot see leads
Sides are benched in MH floor for San, & Storm leads over 600 mm	No / Yes	<input type="checkbox"/> N/A
Are there service leads directly into the MH – i.e. cul de sacs	No / Yes	<input checked="" type="checkbox"/> Yes
Is the distance less than 760 mm from all inlet inverts to springline of outlet	No / Yes	<input checked="" type="checkbox"/> Yes
Inverts are properly sealed and grouted	No / Yes	<input type="checkbox"/> Cannot see
Channels are free from rocks and dirt which might indicate break in line	No / Yes	<input type="checkbox"/> Cannot see
MH base is free of sewage settlement due to slow flow or blockage	No / Yes	<input checked="" type="checkbox"/> No
Comments and Photo Numbers Cannot see base very well due to huge sewage settlement here.		

	SW	S	SE	E	NE	N	NW	W				
Size of Inserts				100		Can't see						
Rim to Invert Elev.				3.48		3.46						



Manhole Inspection Checklist

Town or Village:	Village of Halkirk
MH Location or Number:	MH1B

Barrel Diameter:	1.2					Notes:
Manhole Type:	5A	<input checked="" type="checkbox"/>	1 - S	<input type="checkbox"/>	Drop	<input type="checkbox"/>
Collar Material:	Concrete	<input checked="" type="checkbox"/>	Brick	<input type="checkbox"/>	Other	<input type="checkbox"/>
Barrel Material:	Concrete	<input checked="" type="checkbox"/>	Block	<input type="checkbox"/>	Other	<input type="checkbox"/>
Bench Material:	Precast	<input type="checkbox"/>	Field	<input checked="" type="checkbox"/>	Other	<input type="checkbox"/>
Parson Insert Installed:	No / Yes	No				

Item	Rate:	Notes
Surface <i>(Rate 1-5 with 1 being low and 5 being high)</i>	5	
Does surface water drain away from the MH	No / Yes	Yes
Is the lid matched to MH type (San, Storm, Town Logo)	No / Yes	Yes
Is the frame flush to match the road grade (15 mm tolerance)	No / Yes	Yes
Comments and Photo Numbers		
Top Slab & Collars <i>(Rate 1-5 with 1 being low and 5 being high)</i>	4	
Are there between 1 and 3 collars in use	No / Yes	Yes
Is the total height of collars between 50 mm – 305 mm	No / Yes	Yes
Is the grouting complete and without gaps	No / Yes	No
Free from evidence of leaking or water stains	No / Yes	No
Comments and Photo Numbers		
Steps of Ladder <i>(Rate 1-5 with 1 being low and 5 being high)</i>	2	
Is the top step within 400 mm from lid	No / Yes	No
Is the bottom step within 400 mm of the base	No / Yes	Yes
Do the steps line up (within 40 mm tolerance, 20 mm dia min. Std.)	No / Yes	No
Are the steps twisted	No / Yes	No
Are the steps corroded or damaged	No / Yes	Yes
Steps are below the MH lid and not on the opposite wall of MH	No / Yes	Yes
Comments and Photo Numbers		
MH Barrels <i>(Rate 1-5 with 1 being low and 5 being high)</i>	4	
Are there cracks or damage to the MH side walls	No / Yes	No
Do the sides of the barrel have evidence of water stains or weeping	No / Yes	Yes
Do the joints between barrels have evidence of leakage through joints	No / Yes	No
Are there unfilled open weeping holes in the sides of the storm MHs	No / Yes	No
Comments and Photo Numbers		
MH Base and Leads <i>(Rate 1-5 with 1 being low and 5 being high)</i>	1	
Base and Channels are smooth without evidence of corrosion or concrete wear	No / Yes	Yes
Leads into the MH stop at the springline, which is flush to inside wall of MH	No / Yes	No
Sides are benched in MH floor for San, & Storm leads over 600 mm	No / Yes	N/A
Are there service leads directly into the MH – i.e. cul de sacs	No / Yes	Yes
Is the distance less than 760 mm from all inlet inverts to springline of outlet	No / Yes	Yes
Inverts are properly sealed and grouted	No / Yes	Cannot see
Channels are free from rocks and dirt which might indicate break in line	No / Yes	Cannot see
MH base is free of sewage settlement due to slow flow or blockage	No / Yes	No
Comments and Photo Numbers Massive sewage blockage		

	SW	S	SE	E	NE	N	NW	W				
Size of Inserts		Can't see		Can't see								
Rim to Invert Elev.		2.47		2.50								



Manhole Inspection Checklist

Town or Village:	Village of Halkirk
MH Location or Number:	MH2

Barrel Diameter:	1.2				Notes:	
Manhole Type:	5A	<input checked="" type="checkbox"/>	1 - S	<input type="checkbox"/>	Drop	<input type="checkbox"/>
Collar Material:	Concrete	<input type="checkbox"/>	Brick	<input checked="" type="checkbox"/>	Other	<input type="checkbox"/>
Barrel Material:	Concrete	<input type="checkbox"/>	Block	<input checked="" type="checkbox"/>	Other	<input type="checkbox"/>
Bench Material:	Precast	<input type="checkbox"/>	Field	<input checked="" type="checkbox"/>	Other	<input type="checkbox"/>
Parson Insert Installed:	No / Yes	No				

Item	Rate:	Notes	
Surface <i>(Rate 1-5 with 1 being low and 5 being high)</i>	4		
Does surface water drain away from the MH	No / Yes	Yes	Surface looks flat. but prob
Is the lid matched to MH type (San, Storm, Town Logo)	No / Yes	No	N/A
Is the frame flush to match the road grade (15 mm tolerance)	No / Yes	Yes	
Comments and Photo Numbers			
Top Slab & Collars <i>(Rate 1-5 with 1 being low and 5 being high)</i>	4		
Are there between 1 and 3 collars in use	No / Yes	Yes	
Is the total height of collars between 50 mm – 305 mm	No / Yes	No	30mm
Is the grouting complete and without gaps	No / Yes	Yes	
Free from evidence of leaking or water stains	No / Yes	Yes	
Comments and Photo Numbers			
Steps of Ladder <i>(Rate 1-5 with 1 being low and 5 being high)</i>	3		
Is the top step within 400 mm from lid	No / Yes	No	450mm
Is the bottom step within 400 mm of the base	No / Yes	No	600mm
Do the steps line up (within 40 mm tolerance, 20 mm dia min. Std.)	No / Yes	Yes	
Are the steps twisted	No / Yes	No	
Are the steps corroded or damaged	No / Yes	Yes	
Steps are below the MH lid and not on the opposite wall of MH	No / Yes	Yes	Lid in centre
Comments and Photo Numbers			
MH Barrels <i>(Rate 1-5 with 1 being low and 5 being high)</i>	4		
Are there cracks or damage to the MH side walls	No / Yes	No	
Do the sides of the barrel have evidence of water stains or weeping	No / Yes	Yes	
Do the joints between barrels have evidence of leakage through joints	No / Yes	No	
Are there unfilled open weeping holes in the sides of the storm MHs	No / Yes	No	
Comments and Photo Numbers			
MH Base and Leads <i>(Rate 1-5 with 1 being low and 5 being high)</i>	4		
Base and Channels are smooth without evidence of corrosion or concrete wear	No / Yes	Yes	
Leads into the MH stop at the springline, which is flush to inside wall of MH	No / Yes	No	
Sides are benched in MH floor for San, & Storm leads over 600 mm	No / Yes	No	
Are there service leads directly into the MH – i.e. cul de sacs	No / Yes	No	
Is the distance less than 760 mm from all inlet inverts to springline of outlet	No / Yes	No	N/A
Inverts are properly sealed and grouted	No / Yes	Yes	
Channels are free from rocks and dirt which might indicate break in line	No / Yes	Yes	
MH base is free of sewage settlement due to slow flow or blockage	No / Yes	Yes	
Comments and Photo Numbers Broken pipe tops at leads			

	SW	S	SE	E	NE	N	NW	W				
Size of Inserts				250		250		200				
Rim to Invert Elev.				3.74		3.75		3.40				



Manhole Inspection Checklist

Town or Village:	Village of Halkirk
MH Location or Number:	MH3

Barrel Diameter:	1.2				Notes:	
Manhole Type:	5A	<input checked="" type="checkbox"/>	1 - S	<input type="checkbox"/>	Drop	<input type="checkbox"/>
Collar Material:	Concrete	<input type="checkbox"/>	Brick	<input checked="" type="checkbox"/>	Other	<input type="checkbox"/>
Barrel Material:	Concrete	<input type="checkbox"/>	Block	<input checked="" type="checkbox"/>	Other	<input type="checkbox"/>
Bench Material:	Precast	<input type="checkbox"/>	Field	<input checked="" type="checkbox"/>	Other	<input type="checkbox"/>
Parson Insert Installed:	No / Yes	No				

Item	Rate:	Notes
Surface <i>(Rate 1-5 with 1 being low and 5 being high)</i>	5	5
Does surface water drain away from the MH	No / Yes	<input checked="" type="checkbox"/> Yes
Is the lid matched to MH type (San, Storm, Town Logo)	No / Yes	<input type="checkbox"/>
Is the frame flush to match the road grade (15 mm tolerance)	No / Yes	<input checked="" type="checkbox"/> Yes
Comments and Photo Numbers		
Top Slab & Collars <i>(Rate 1-5 with 1 being low and 5 being high)</i>	2	
Are there between 1 and 3 collars in use	No / Yes	<input checked="" type="checkbox"/> Yes
Is the total height of collars between 50 mm – 305 mm	No / Yes	<input type="checkbox"/> No
Is the grouting complete and without gaps	No / Yes	<input type="checkbox"/> No
Free from evidence of leaking or water stains	No / Yes	<input type="checkbox"/> No
Comments and Photo Numbers		
Steps of Ladder <i>(Rate 1-5 with 1 being low and 5 being high)</i>	5	
Is the top step within 400 mm from lid	No / Yes	<input type="checkbox"/> No
Is the bottom step within 400 mm of the base	No / Yes	<input checked="" type="checkbox"/> Yes
Do the steps line up (within 40 mm tolerance, 20 mm dia min. Std.)	No / Yes	<input checked="" type="checkbox"/> Yes
Are the steps twisted	No / Yes	<input type="checkbox"/> No
Are the steps corroded or damaged	No / Yes	<input type="checkbox"/> No
Steps are below the MH lid and not on the opposite wall of MH	No / Yes	<input checked="" type="checkbox"/> Yes
Comments and Photo Numbers		
MH Barrels <i>(Rate 1-5 with 1 being low and 5 being high)</i>	5	5
Are there cracks or damage to the MH side walls	No / Yes	<input type="checkbox"/> No
Do the sides of the barrel have evidence of water stains or weeping	No / Yes	<input checked="" type="checkbox"/> Yes
Do the joints between barrels have evidence of leakage through joints	No / Yes	<input type="checkbox"/> No
Are there unfilled open weeping holes in the sides of the storm MHs	No / Yes	<input type="checkbox"/> No
Comments and Photo Numbers		
MH Base and Leads <i>(Rate 1-5 with 1 being low and 5 being high)</i>	5	5
Base and Channels are smooth without evidence of corrosion or concrete wear	No / Yes	<input checked="" type="checkbox"/> Yes
Leads into the MH stop at the springline, which is flush to inside wall of MH	No / Yes	<input checked="" type="checkbox"/> Yes
Sides are benched in MH floor for San, & Storm leads over 600 mm	No / Yes	<input type="checkbox"/>
Are there service leads directly into the MH – i.e. cul de sacs	No / Yes	<input type="checkbox"/> No
Is the distance less than 760 mm from all inlet inverts to springline of outlet	No / Yes	<input type="checkbox"/> No
Inverts are properly sealed and grouted	No / Yes	<input checked="" type="checkbox"/> Yes
Channels are free from rocks and dirt which might indicate break in line	No / Yes	<input checked="" type="checkbox"/> Yes
MH base is free of sewage settlement due to slow flow or blockage	No / Yes	<input checked="" type="checkbox"/> Yes
Comments and Photo Numbers		

	SW	S	SE	E	NE	N	NW	W				
Size of Inserts		200				200						
Rim to Invert Elev.		3.65				3.63						



Manhole Inspection Checklist

Town or Village:	Village of Halkirk
MH Location or Number:	MH4

Barrel Diameter:	1.2				Notes:	
Manhole Type:	5A	<input checked="" type="checkbox"/>	1 - S	<input type="checkbox"/>	Drop	<input type="checkbox"/>
Collar Material:	Concrete	<input type="checkbox"/>	Brick	<input checked="" type="checkbox"/>	Other	<input type="checkbox"/>
Barrel Material:	Concrete	<input type="checkbox"/>	Block	<input checked="" type="checkbox"/>	Other	<input type="checkbox"/>
Bench Material:	Precast	<input type="checkbox"/>	Field	<input checked="" type="checkbox"/>	Other	<input type="checkbox"/>
Parson Insert Installed:	No / Yes	No				

Item	Rate:	Notes	
Surface <i>(Rate 1-5 with 1 being low and 5 being high)</i>	5		
Does surface water drain away from the MH	No / Yes	Yes	Road crown
Is the lid matched to MH type (San, Storm, Town Logo)	No / Yes	No	N/A
Is the frame flush to match the road grade (15 mm tolerance)	No / Yes	Yes	
Comments and Photo Numbers			
Top Slab & Collars <i>(Rate 1-5 with 1 being low and 5 being high)</i>	4		
Are there between 1 and 3 collars in use	No / Yes	Yes	
Is the total height of collars between 50 mm – 305 mm	No / Yes	No	400mm
Is the grouting complete and without gaps	No / Yes	Yes	
Free from evidence of leaking or water stains	No / Yes	No	Slight evidence
Comments and Photo Numbers			
Steps of Ladder <i>(Rate 1-5 with 1 being low and 5 being high)</i>	4		
Is the top step within 400 mm from lid	No / Yes	No	600mm
Is the bottom step within 400 mm of the base	No / Yes	No	600mm
Do the steps line up (within 40 mm tolerance, 20 mm dia min. Std.)	No / Yes	Yes	
Are the steps twisted	No / Yes	No	
Are the steps corroded or damaged	No / Yes	No	
Steps are below the MH lid and not on the opposite wall of MH	No / Yes	Yes	Lid in centre
Comments and Photo Numbers			
MH Barrels <i>(Rate 1-5 with 1 being low and 5 being high)</i>	4		
Are there cracks or damage to the MH side walls	No / Yes	No	
Do the sides of the barrel have evidence of water stains or weeping	No / Yes	Yes	Slight evidence
Do the joints between barrels have evidence of leakage through joints	No / Yes	No	
Are there unfilled open weeping holes in the sides of the storm MHs	No / Yes	No	
Comments and Photo Numbers			
MH Base and Leads <i>(Rate 1-5 with 1 being low and 5 being high)</i>	3		
Base and Channels are smooth without evidence of corrosion or concrete wear	No / Yes	No	Corrosion evident
Leads into the MH stop at the springline, which is flush to inside wall of MH	No / Yes	Yes	
Sides are benched in MH floor for San, & Storm leads over 600 mm	No / Yes	No	N/A
Are there service leads directly into the MH – i.e. cul de sacs	No / Yes	No	
Is the distance less than 760 mm from all inlet inverts to springline of outlet	No / Yes	Yes	
Inverts are properly sealed and grouted	No / Yes	Yes	
Channels are free from rocks and dirt which might indicate break in line	No / Yes	Yes	
MH base is free of sewage settlement due to slow flow or blockage	No / Yes	Yes	
Comments and Photo Numbers			

	SW	S	SE	E	NE	N	NW	W				
Size of Inserts		200		250		200						
Rim to Invert Elev.		3.05		2.90		2.94						



Manhole Inspection Checklist

Town or Village:	Village of Halkirk
MH Location or Number:	MH5

Barrel Diameter:	1.2					Notes:
Manhole Type:	5A	<input checked="" type="checkbox"/>	1 - S	<input type="checkbox"/>	Drop	<input type="checkbox"/>
Collar Material:	Concrete	<input checked="" type="checkbox"/>	Brick	<input type="checkbox"/>	Other	<input type="checkbox"/>
Barrel Material:	Concrete	<input checked="" type="checkbox"/>	Block	<input type="checkbox"/>	Other	<input type="checkbox"/>
Bench Material:	Precast	<input type="checkbox"/>	Field	<input checked="" type="checkbox"/>	Other	<input type="checkbox"/>
Parson Insert Installed:	No / Yes	No				

Item	Rate:	Notes
Surface <i>(Rate 1-5 with 1 being low and 5 being high)</i>	5	
Does surface water drain away from the MH	No / Yes	Yes Lid is insulated
Is the lid matched to MH type (San, Storm, Town Logo)	No / Yes	N/A
Is the frame flush to match the road grade (15 mm tolerance)	No / Yes	Yes
Comments and Photo Numbers		
Top Slab & Collars <i>(Rate 1-5 with 1 being low and 5 being high)</i>	4	
Are there between 1 and 3 collars in use	No / Yes	Yes 2 collars
Is the total height of collars between 50 mm – 305 mm	No / Yes	No 500mm
Is the grouting complete and without gaps	No / Yes	Yes
Free from evidence of leaking or water stains	No / Yes	Yes
Comments and Photo Numbers		
Steps of Ladder <i>(Rate 1-5 with 1 being low and 5 being high)</i>	3	
Is the top step within 400 mm from lid	No / Yes	No 650mm
Is the bottom step within 400 mm of the base	No / Yes	Yes
Do the steps line up (within 40 mm tolerance, 20 mm dia min. Std.)	No / Yes	No Last Step Wav off
Are the steps twisted	No / Yes	No
Are the steps corroded or damaged	No / Yes	Yes Mildly corroded
Steps are below the MH lid and not on the opposite wall of MH	No / Yes	Yes
Comments and Photo Numbers		
MH Barrels <i>(Rate 1-5 with 1 being low and 5 being high)</i>	4	
Are there cracks or damage to the MH side walls	No / Yes	No
Do the sides of the barrel have evidence of water stains or weeping	No / Yes	Yes
Do the joints between barrels have evidence of leakage through joints	No / Yes	No
Are there unfilled open weeping holes in the sides of the storm MHs	No / Yes	No
Comments and Photo Numbers		
MH Base and Leads <i>(Rate 1-5 with 1 being low and 5 being high)</i>	2	
Base and Channels are smooth without evidence of corrosion or concrete wear	No / Yes	Yes
Leads into the MH stop at the springline, which is flush to inside wall of MH	No / Yes	No
Sides are benched in MH floor for San, & Storm leads over 600 mm	No / Yes	N/A
Are there service leads directly into the MH – i.e. cul de sacs	No / Yes	Yes
Is the distance less than 760 mm from all inlet inverts to springline of outlet	No / Yes	No No
Inverts are properly sealed and grouted	No / Yes	Cannot see
Channels are free from rocks and dirt which might indicate break in line	No / Yes	No No
MH base is free of sewage settlement due to slow flow or blockage	No / Yes	Yes Yes
Comments and Photo Numbers SW lead blocked with mud and rocks. Lots of mud and rocks at base.		

	SW	S	SE	E	NE	N	NW	W				
Size of Inserts								100				
Rim to Invert Elev.								2.12				



Manhole Inspection Checklist

Town or Village:	Village of Halkirk
MH Location or Number:	MH6

Barrel Diameter:	1.2				Notes:	
Manhole Type:	5A	<input checked="" type="checkbox"/>	1 - S	<input type="checkbox"/>	Drop	<input type="checkbox"/>
Collar Material:	Concrete	<input type="checkbox"/>	Brick	<input checked="" type="checkbox"/>	Other	<input type="checkbox"/>
Barrel Material:	Concrete	<input type="checkbox"/>	Block	<input checked="" type="checkbox"/>	Other	<input type="checkbox"/>
Bench Material:	Precast	<input type="checkbox"/>	Field	<input checked="" type="checkbox"/>	Other	<input type="checkbox"/>
Parson Insert Installed:	No / Yes	No				

Item	Rate:	Notes	
Surface <i>(Rate 1-5 with 1 being low and 5 being high)</i>	2		
Does surface water drain away from the MH	No / Yes	Yes	Yes
Is the lid matched to MH type (San, Storm, Town Logo)	No / Yes	No	N/A
Is the frame flush to match the road grade (15 mm tolerance)	No / Yes	No	Partially buried
Comments and Photo Numbers	Lid Insulated		
Top Slab & Collars <i>(Rate 1-5 with 1 being low and 5 being high)</i>	1		
Are there between 1 and 3 collars in use	No / Yes	No	Goes right to MH barrel
Is the total height of collars between 50 mm – 305 mm	No / Yes	No	N/A
Is the grouting complete and without gaps	No / Yes	No	N/A
Free from evidence of leaking or water stains	No / Yes	No	N/A
Comments and Photo Numbers			
Steps of Ladder <i>(Rate 1-5 with 1 being low and 5 being high)</i>	4		
Is the top step within 400 mm from lid	No / Yes	No	750mm
Is the bottom step within 400 mm of the base	No / Yes	No	1m
Do the steps line up (within 40 mm tolerance, 20 mm dia min. Std.)	No / Yes	No	N/A - only one step
Are the steps twisted	No / Yes	No	
Are the steps corroded or damaged	No / Yes	No	
Steps are below the MH lid and not on the opposite wall of MH	No / Yes	Yes	Lid in centre
Comments and Photo Numbers			
MH Barrels <i>(Rate 1-5 with 1 being low and 5 being high)</i>	2		
Are there cracks or damage to the MH side walls	No / Yes	No	
Do the sides of the barrel have evidence of water stains or weeping	No / Yes	Yes	
Do the joints between barrels have evidence of leakage through joints	No / Yes	Yes	Grout missing in areas
Are there unfilled open weeping holes in the sides of the storm MHs	No / Yes	No	
Comments and Photo Numbers	Some rings out of alignment		
MH Base and Leads <i>(Rate 1-5 with 1 being low and 5 being high)</i>	3		
Base and Channels are smooth without evidence of corrosion or concrete wear	No / Yes	No	Some wear
Leads into the MH stop at the springline, which is flush to inside wall of MH	No / Yes	No	Leads penetrate in a bit
Sides are benched in MH floor for San, & Storm leads over 600 mm	No / Yes	No	N/A
Are there service leads directly into the MH – i.e. cul de sacs	No / Yes	No	
Is the distance less than 760 mm from all inlet inverts to springline of outlet	No / Yes	Yes	
Inverts are properly sealed and grouted	No / Yes	Yes	
Channels are free from rocks and dirt which might indicate break in line	No / Yes	Yes	
MH base is free of sewage settlement due to slow flow or blockage	No / Yes	Yes	
Comments and Photo Numbers			

	SW	S	SE	E	NE	N	NW	W				
Size of Inserts		200		200								
Rim to Invert Elev.		1.88		1.90								



Manhole Inspection Checklist

Town or Village:	Village of Halkirk
MH Location or Number:	MH6A

Barrel Diameter:	1.2				Notes:	
Manhole Type:	5A	<input checked="" type="checkbox"/>	1 - S	<input type="checkbox"/>	Drop	<input type="checkbox"/>
Collar Material:	Concrete	<input type="checkbox"/>	Brick	<input checked="" type="checkbox"/>	Other	<input type="checkbox"/>
Barrel Material:	Concrete	<input type="checkbox"/>	Block	<input checked="" type="checkbox"/>	Other	<input type="checkbox"/>
Bench Material:	Precast	<input type="checkbox"/>	Field	<input checked="" type="checkbox"/>	Other	<input type="checkbox"/>
Parson Insert Installed:	No / Yes	No				

Item	Rate:	Notes
Surface <i>(Rate 1-5 with 1 being low and 5 being high)</i>	5	
Does surface water drain away from the MH	No / Yes	Yes Road crown
Is the lid matched to MH type (San, Storm, Town Logo)	No / Yes	N/A
Is the frame flush to match the road grade (15 mm tolerance)	No / Yes	Yes
Comments and Photo Numbers		
Top Slab & Collars <i>(Rate 1-5 with 1 being low and 5 being high)</i>	3	
Are there between 1 and 3 collars in use	No / Yes	Yes
Is the total height of collars between 50 mm – 305 mm	No / Yes	Yes
Is the grouting complete and without gaps	No / Yes	No Gaps between bricks
Free from evidence of leaking or water stains	No / Yes	Yes
Comments and Photo Numbers		
Steps of Ladder <i>(Rate 1-5 with 1 being low and 5 being high)</i>	4	
Is the top step within 400 mm from lid	No / Yes	No 750mm
Is the bottom step within 400 mm of the base	No / Yes	Yes
Do the steps line up (within 40 mm tolerance, 20 mm dia min. Std.)	No / Yes	Yes
Are the steps twisted	No / Yes	No
Are the steps corroded or damaged	No / Yes	No
Steps are below the MH lid and not on the opposite wall of MH	No / Yes	Yes Lid in centre
Comments and Photo Numbers		
MH Barrels <i>(Rate 1-5 with 1 being low and 5 being high)</i>	4	4
Are there cracks or damage to the MH side walls	No / Yes	No
Do the sides of the barrel have evidence of water stains or weeping	No / Yes	Yes Slight evidence
Do the joints between barrels have evidence of leakage through joints	No / Yes	No
Are there unfilled open weeping holes in the sides of the storm MHs	No / Yes	No
Comments and Photo Numbers		
MH Base and Leads <i>(Rate 1-5 with 1 being low and 5 being high)</i>	3	
Base and Channels are smooth without evidence of corrosion or concrete wear	No / Yes	Yes
Leads into the MH stop at the springline, which is flush to inside wall of MH	No / Yes	No One lead extends in
Sides are benched in MH floor for San, & Storm leads over 600 mm	No / Yes	N/A
Are there service leads directly into the MH – i.e. cul de sacs	No / Yes	Yes
Is the distance less than 760 mm from all inlet inverts to springline of outlet	No / Yes	Yes
Inverts are properly sealed and grouted	No / Yes	No W lead is questionable
Channels are free from rocks and dirt which might indicate break in line	No / Yes	Yes
MH base is free of sewage settlement due to slow flow or blockage	No / Yes	Yes
Comments and Photo Numbers		

	SW	S	SE	E	NE	N	NW	W				
Size of Inserts		200				200		150				
Rim to Invert Elev.		2.89				2.87		2.68				



Manhole Inspection Checklist

Town or Village:	Village of Halkirk
MH Location or Number:	MH7

Barrel Diameter:	1.2				Notes:	
Manhole Type:	5A	<input checked="" type="checkbox"/>	1 - S	<input type="checkbox"/>	Drop	<input type="checkbox"/>
Collar Material:	Concrete	<input type="checkbox"/>	Brick	<input checked="" type="checkbox"/>	Other	<input type="checkbox"/>
Barrel Material:	Concrete	<input type="checkbox"/>	Block	<input checked="" type="checkbox"/>	Other	<input type="checkbox"/>
Bench Material:	Precast	<input type="checkbox"/>	Field	<input checked="" type="checkbox"/>	Other	<input type="checkbox"/>
Parson Insert Installed:	No / Yes	No				

Item	Rate:	Notes
Surface <i>(Rate 1-5 with 1 being low and 5 being high)</i>	1	
Does surface water drain away from the MH	No / Yes	N/A - buried
Is the lid matched to MH type (San, Storm, Town Logo)	No / Yes	N/A
Is the frame flush to match the road grade (15 mm tolerance)	No / Yes	buried 8"
Comments and Photo Numbers		
Top Slab & Collars <i>(Rate 1-5 with 1 being low and 5 being high)</i>	4	
Are there between 1 and 3 collars in use	No / Yes	Yes
Is the total height of collars between 50 mm – 305 mm	No / Yes	Yes
Is the grouting complete and without gaps	No / Yes	Yes
Free from evidence of leaking or water stains	No / Yes	No
slight evidence		
Comments and Photo Numbers		
Steps of Ladder <i>(Rate 1-5 with 1 being low and 5 being high)</i>	4	
Is the top step within 400 mm from lid	No / Yes	No
Is the bottom step within 400 mm of the base	No / Yes	Yes
Do the steps line up (within 40 mm tolerance, 20 mm dia min. Std.)	No / Yes	Yes
Are the steps twisted	No / Yes	No
Are the steps corroded or damaged	No / Yes	No
Steps are below the MH lid and not on the opposite wall of MH	No / Yes	Yes
Comments and Photo Numbers		
MH Barrels <i>(Rate 1-5 with 1 being low and 5 being high)</i>	4	
Are there cracks or damage to the MH side walls	No / Yes	No
Do the sides of the barrel have evidence of water stains or weeping	No / Yes	Yes
slight evidence		
Do the joints between barrels have evidence of leakage through joints	No / Yes	No
Are there unfilled open weeping holes in the sides of the storm MHs	No / Yes	No
Comments and Photo Numbers		
MH Base and Leads <i>(Rate 1-5 with 1 being low and 5 being high)</i>	4	
Base and Channels are smooth without evidence of corrosion or concrete wear	No / Yes	No
some wear		
Leads into the MH stop at the springline, which is flush to inside wall of MH	No / Yes	No
one lead extends in		
Sides are benched in MH floor for San, & Storm leads over 600 mm	No / Yes	N/A
Are there service leads directly into the MH – i.e. cul de sacs	No / Yes	Yes
Is the distance less than 760 mm from all inlet inverts to springline of outlet	No / Yes	Yes
Inverts are properly sealed and grouted	No / Yes	Yes
Channels are free from rocks and dirt which might indicate break in line	No / Yes	Yes
MH base is free of sewage settlement due to slow flow or blockage	No / Yes	Yes
Comments and Photo Numbers		

	SW	S	SE	E	NE	N	NW	W				
Size of Inserts		200		200		150		200				
Rim to Invert Elev.		2.30		2.25		2.15		2.35				



Manhole Inspection Checklist

Town or Village:	Village of Halkirk
MH Location or Number:	MH8

Barrel Diameter:	1.2				Notes:	
Manhole Type:	5A	<input checked="" type="checkbox"/>	1 - S	<input type="checkbox"/>	Drop	<input type="checkbox"/>
Collar Material:	Concrete	<input type="checkbox"/>	Brick	<input checked="" type="checkbox"/>	Other	<input type="checkbox"/>
Barrel Material:	Concrete	<input type="checkbox"/>	Block	<input checked="" type="checkbox"/>	Other	<input type="checkbox"/>
Bench Material:	Precast	<input type="checkbox"/>	Field	<input checked="" type="checkbox"/>	Other	<input type="checkbox"/>
Parson Insert Installed:	No / Yes	No				

Item	Rate:	Notes
Surface <i>(Rate 1-5 with 1 being low and 5 being high)</i>	1	
Does surface water drain away from the MH	No / Yes	[] N/A - buried
Is the lid matched to MH type (San, Storm, Town Logo)	No / Yes	[] N/A
Is the frame flush to match the road grade (15 mm tolerance)	No / Yes	No Buried 8"
Comments and Photo Numbers		
Top Slab & Collars <i>(Rate 1-5 with 1 being low and 5 being high)</i>	4	
Are there between 1 and 3 collars in use	No / Yes	Yes
Is the total height of collars between 50 mm – 305 mm	No / Yes	Yes
Is the grouting complete and without gaps	No / Yes	Yes
Free from evidence of leaking or water stains	No / Yes	Yes
Comments and Photo Numbers		
Steps of Ladder <i>(Rate 1-5 with 1 being low and 5 being high)</i>	5	
Is the top step within 400 mm from lid	No / Yes	No No - 650mm
Is the bottom step within 400 mm of the base	No / Yes	Yes
Do the steps line up (within 40 mm tolerance, 20 mm dia min. Std.)	No / Yes	Yes
Are the steps twisted	No / Yes	No
Are the steps corroded or damaged	No / Yes	No
Steps are below the MH lid and not on the opposite wall of MH	No / Yes	Yes
Comments and Photo Numbers		
MH Barrels <i>(Rate 1-5 with 1 being low and 5 being high)</i>	4	
Are there cracks or damage to the MH side walls	No / Yes	No
Do the sides of the barrel have evidence of water stains or weeping	No / Yes	Yes slight evidence
Do the joints between barrels have evidence of leakage through joints	No / Yes	No
Are there unfilled open weeping holes in the sides of the storm MHs	No / Yes	No
Comments and Photo Numbers		
MH Base and Leads <i>(Rate 1-5 with 1 being low and 5 being high)</i>	3	
Base and Channels are smooth without evidence of corrosion or concrete wear	No / Yes	Yes
Leads into the MH stop at the springline, which is flush to inside wall of MH	No / Yes	Yes
Sides are benched in MH floor for San, & Storm leads over 600 mm	No / Yes	[] N/A
Are there service leads directly into the MH – i.e. cul de sacs	No / Yes	No
Is the distance less than 760 mm from all inlet inverts to springline of outlet	No / Yes	Yes
Inverts are properly sealed and grouted	No / Yes	Yes
Channels are free from rocks and dirt which might indicate break in line	No / Yes	No
MH base is free of sewage settlement due to slow flow or blockage	No / Yes	Yes
Comments and Photo Numbers	Lots of dirt from years of dropping dirt in since manhole is buried.	

	SW	S	SE	E	NE	N	NW	W				
Size of Inserts		200				200		200				
Rim to Invert Elev.		3.48				3.53		3.53				



Manhole Inspection Checklist

Town or Village:	Village of Halkirk
MH Location or Number:	MH9

Barrel Diameter:	1.2				Notes:	
Manhole Type:	5A	<input checked="" type="checkbox"/>	1 - S	<input type="checkbox"/>	Drop	<input type="checkbox"/>
Collar Material:	Concrete	<input type="checkbox"/>	Brick	<input checked="" type="checkbox"/>	Other	<input type="checkbox"/>
Barrel Material:	Concrete	<input type="checkbox"/>	Block	<input checked="" type="checkbox"/>	Other	<input type="checkbox"/>
Bench Material:	Precast	<input type="checkbox"/>	Field	<input checked="" type="checkbox"/>	Other	<input type="checkbox"/>
Parson Insert Installed:	No / Yes	No				

Item	Rate:	Notes	
Surface <i>(Rate 1-5 with 1 being low and 5 being high)</i>	5		
Does surface water drain away from the MH	No / Yes	Yes	road crown
Is the lid matched to MH type (San, Storm, Town Logo)	No / Yes	No	N/A
Is the frame flush to match the road grade (15 mm tolerance)	No / Yes	Yes	
Comments and Photo Numbers			
Top Slab & Collars <i>(Rate 1-5 with 1 being low and 5 being high)</i>	4		
Are there between 1 and 3 collars in use	No / Yes	Yes	
Is the total height of collars between 50 mm – 305 mm	No / Yes	No	450mm
Is the grouting complete and without gaps	No / Yes	Yes	
Free from evidence of leaking or water stains	No / Yes	No	
Comments and Photo Numbers			
Steps of Ladder <i>(Rate 1-5 with 1 being low and 5 being high)</i>	4		
Is the top step within 400 mm from lid	No / Yes	No	800mm
Is the bottom step within 400 mm of the base	No / Yes	Yes	
Do the steps line up (within 40 mm tolerance, 20 mm dia min. Std.)	No / Yes	Yes	
Are the steps twisted	No / Yes	No	
Are the steps corroded or damaged	No / Yes	No	
Steps are below the MH lid and not on the opposite wall of MH	No / Yes	Yes	Lid in centre
Comments and Photo Numbers			
MH Barrels <i>(Rate 1-5 with 1 being low and 5 being high)</i>	4		
Are there cracks or damage to the MH side walls	No / Yes	No	
Do the sides of the barrel have evidence of water stains or weeping	No / Yes	Yes	
Do the joints between barrels have evidence of leakage through joints	No / Yes	No	
Are there unfilled open weeping holes in the sides of the storm MHs	No / Yes	No	
Comments and Photo Numbers			
MH Base and Leads <i>(Rate 1-5 with 1 being low and 5 being high)</i>	5		
Base and Channels are smooth without evidence of corrosion or concrete wear	No / Yes	No	
Leads into the MH stop at the springline, which is flush to inside wall of MH	No / Yes	Yes	
Sides are benched in MH floor for San, & Storm leads over 600 mm	No / Yes	No	
Are there service leads directly into the MH – i.e. cul de sacs	No / Yes	No	
Is the distance less than 760 mm from all inlet inverts to springline of outlet	No / Yes	Yes	
Inverts are properly sealed and grouted	No / Yes	Yes	
Channels are free from rocks and dirt which might indicate break in line	No / Yes	Yes	
MH base is free of sewage settlement due to slow flow or blockage	No / Yes	Yes	
Comments and Photo Numbers			

	SW	S	SE	E	NE	N	NW	W				
Size of Inserts		200				200						
Rim to Invert Elev.		500				4.99						



Manhole Inspection Checklist

Town or Village:	Village of Halkirk
MH Location or Number:	MH10

Barrel Diameter:	1.2					Notes:
Manhole Type:	5A	<input checked="" type="checkbox"/>	1 - S	<input type="checkbox"/>	Drop	<input type="checkbox"/>
Collar Material:	Concrete	<input type="checkbox"/>	Brick	<input checked="" type="checkbox"/>	Other	<input type="checkbox"/>
Barrel Material:	Concrete	<input type="checkbox"/>	Block	<input checked="" type="checkbox"/>	Other	<input type="checkbox"/>
Bench Material:	Precast	<input type="checkbox"/>	Field	<input checked="" type="checkbox"/>	Other	<input type="checkbox"/>
Parson Insert Installed:	No / Yes	No				

Item	Rate:	Notes
Surface <i>(Rate 1-5 with 1 being low and 5 being high)</i>	1	
Does surface water drain away from the MH	No / Yes	No buried
Is the lid matched to MH type (San, Storm, Town Logo)	No / Yes	N/A
Is the frame flush to match the road grade (15 mm tolerance)	No / Yes	No Buried 2'
Comments and Photo Numbers		
Top Slab & Collars <i>(Rate 1-5 with 1 being low and 5 being high)</i>	4	
Are there between 1 and 3 collars in use	No / Yes	Yes
Is the total height of collars between 50 mm – 305 mm	No / Yes	Yes
Is the grouting complete and without gaps	No / Yes	No Some small slight gaps
Free from evidence of leaking or water stains	No / Yes	No
Comments and Photo Numbers		
Steps of Ladder <i>(Rate 1-5 with 1 being low and 5 being high)</i>	4	
Is the top step within 400 mm from lid	No / Yes	Yes
Is the bottom step within 400 mm of the base	No / Yes	No 650 mm
Do the steps line up (within 40 mm tolerance, 20 mm dia min. Std.)	No / Yes	Yes
Are the steps twisted	No / Yes	No
Are the steps corroded or damaged	No / Yes	No
Steps are below the MH lid and not on the opposite wall of MH	No / Yes	Yes
Comments and Photo Numbers		
MH Barrels <i>(Rate 1-5 with 1 being low and 5 being high)</i>	4	
Are there cracks or damage to the MH side walls	No / Yes	No
Do the sides of the barrel have evidence of water stains or weeping	No / Yes	Yes Slight evidence
Do the joints between barrels have evidence of leakage through joints	No / Yes	No
Are there unfilled open weeping holes in the sides of the storm MHs	No / Yes	No
Comments and Photo Numbers		
MH Base and Leads <i>(Rate 1-5 with 1 being low and 5 being high)</i>	4	
Base and Channels are smooth without evidence of corrosion or concrete wear	No / Yes	No Some wear
Leads into the MH stop at the springline, which is flush to inside wall of MH	No / Yes	Yes
Sides are benched in MH floor for San, & Storm leads over 600 mm	No / Yes	N/A
Are there service leads directly into the MH – i.e. cul de sacs	No / Yes	No
Is the distance less than 760 mm from all inlet inverts to springline of outlet	No / Yes	Yes
Inverts are properly sealed and grouted	No / Yes	Yes
Channels are free from rocks and dirt which might indicate break in line	No / Yes	Yes
MH base is free of sewage settlement due to slow flow or blockage	No / Yes	Yes
Comments and Photo Numbers		

	SW	S	SE	E	NE	N	NW	W				
Size of Inserts		200				200						
Rim to Invert Elev.		4.40				4.92						



Manhole Inspection Checklist

Town or Village:	Village of Halkirk
MH Location or Number:	MH12

Barrel Diameter:	1.2				Notes:	
Manhole Type:	5A	<input checked="" type="checkbox"/>	1 - S	<input type="checkbox"/>	Drop	<input type="checkbox"/>
Collar Material:	Concrete	<input type="checkbox"/>	Brick	<input checked="" type="checkbox"/>	Other	<input type="checkbox"/>
Barrel Material:	Concrete	<input type="checkbox"/>	Block	<input checked="" type="checkbox"/>	Other	<input type="checkbox"/>
Bench Material:	Precast	<input type="checkbox"/>	Field	<input checked="" type="checkbox"/>	Other	<input type="checkbox"/>
Parson Insert Installed:	No / Yes	No				

Item	Rate:	Notes	
Surface <i>(Rate 1-5 with 1 being low and 5 being high)</i>	5		
Does surface water drain away from the MH	No / Yes	Yes	road crown
Is the lid matched to MH type (San, Storm, Town Logo)	No / Yes		N/A
Is the frame flush to match the road grade (15 mm tolerance)	No / Yes	Yes	
Comments and Photo Numbers			
Top Slab & Collars <i>(Rate 1-5 with 1 being low and 5 being high)</i>	5		
Are there between 1 and 3 collars in use	No / Yes	Yes	
Is the total height of collars between 50 mm – 305 mm	No / Yes	Yes	
Is the grouting complete and without gaps	No / Yes	Yes	
Free from evidence of leaking or water stains	No / Yes	Yes	
Comments and Photo Numbers			
Steps of Ladder <i>(Rate 1-5 with 1 being low and 5 being high)</i>	4		
Is the top step within 400 mm from lid	No / Yes	No	850mm
Is the bottom step within 400 mm of the base	No / Yes	Yes	
Do the steps line up (within 40 mm tolerance, 20 mm dia min. Std.)	No / Yes	Yes	
Are the steps twisted	No / Yes	No	
Are the steps corroded or damaged	No / Yes	No	
Steps are below the MH lid and not on the opposite wall of MH	No / Yes	Yes	Lid in centre
Comments and Photo Numbers			
MH Barrels <i>(Rate 1-5 with 1 being low and 5 being high)</i>	4		
Are there cracks or damage to the MH side walls	No / Yes	No	
Do the sides of the barrel have evidence of water stains or weeping	No / Yes	Yes	A fair amount of evidence
Do the joints between barrels have evidence of leakage through joints	No / Yes	No	
Are there unfilled open weeping holes in the sides of the storm MHs	No / Yes	No	
Comments and Photo Numbers			
MH Base and Leads <i>(Rate 1-5 with 1 being low and 5 being high)</i>	4		
Base and Channels are smooth without evidence of corrosion or concrete wear	No / Yes	No	Some wear
Leads into the MH stop at the springline, which is flush to inside wall of MH	No / Yes	Yes	
Sides are benched in MH floor for San, & Storm leads over 600 mm	No / Yes		N/A
Are there service leads directly into the MH – i.e. cul de sacs	No / Yes	No	
Is the distance less than 760 mm from all inlet inverts to springline of outlet	No / Yes	Yes	
Inverts are properly sealed and grouted	No / Yes	Yes	
Channels are free from rocks and dirt which might indicate break in line	No / Yes	Yes	Slight amount of rocks
MH base is free of sewage settlement due to slow flow or blockage	No / Yes	Yes	S
Comments and Photo Numbers			

	SW	S	SE	E	NE	N	NW	W				
Size of Inserts						200		200				
Rim to Invert Elev.						2.95		2.77				



Manhole Inspection Checklist

Town or Village:	Village of Halkirk
MH Location or Number:	MH13

Barrel Diameter:	1.2					Notes:
Manhole Type:	5A	<input checked="" type="checkbox"/>	1 - S	<input type="checkbox"/>	Drop	<input type="checkbox"/>
Collar Material:	Concrete	<input checked="" type="checkbox"/>	Brick	<input type="checkbox"/>	Other	<input type="checkbox"/>
Barrel Material:	Concrete	<input checked="" type="checkbox"/>	Block	<input type="checkbox"/>	Other	<input type="checkbox"/>
Bench Material:	Precast	<input type="checkbox"/>	Field	<input type="checkbox"/>	Other	<input checked="" type="checkbox"/>
Parson Insert Installed:	No / Yes	No				

Item	Rate:	Notes
Surface <i>(Rate 1-5 with 1 being low and 5 being high)</i>	5	
Does surface water drain away from the MH	No / Yes	Yes Road crown
Is the lid matched to MH type (San, Storm, Town Logo)	No / Yes	N/A
Is the frame flush to match the road grade (15 mm tolerance)	No / Yes	Yes
Comments and Photo Numbers		
Top Slab & Collars <i>(Rate 1-5 with 1 being low and 5 being high)</i>	3	
Are there between 1 and 3 collars in use	No / Yes	Yes
Is the total height of collars between 50 mm – 305 mm	No / Yes	Yes
Is the grouting complete and without gaps	No / Yes	Yes
Free from evidence of leaking or water stains	No / Yes	No Slight staining
Comments and Photo Numbers		
Steps of Ladder <i>(Rate 1-5 with 1 being low and 5 being high)</i>	3	
Is the top step within 400 mm from lid	No / Yes	No 800 mm
Is the bottom step within 400 mm of the base	No / Yes	No 650 mm
Do the steps line up (within 40 mm tolerance, 20 mm dia min. Std.)	No / Yes	Yes
Are the steps twisted	No / Yes	No
Are the steps corroded or damaged	No / Yes	Yes Slight corrosion throughout
Steps are below the MH lid and not on the opposite wall of MH	No / Yes	Yes
Comments and Photo Numbers		
MH Barrels <i>(Rate 1-5 with 1 being low and 5 being high)</i>	3	
Are there cracks or damage to the MH side walls	No / Yes	No
Do the sides of the barrel have evidence of water stains or weeping	No / Yes	Yes Lots of evidence in lower b
Do the joints between barrels have evidence of leakage through joints	No / Yes	Yes
Are there unfilled open weeping holes in the sides of the storm MHs	No / Yes	No
Comments and Photo Numbers		
MH Base and Leads <i>(Rate 1-5 with 1 being low and 5 being high)</i>	3	
Base and Channels are smooth without evidence of corrosion or concrete wear	No / Yes	Cannot see
Leads into the MH stop at the springline, which is flush to inside wall of MH	No / Yes	No South lead extends in
Sides are benched in MH floor for San, & Storm leads over 600 mm	No / Yes	N/A
Are there service leads directly into the MH – i.e. cul de sacs	No / Yes	Yes
Is the distance less than 760 mm from all inlet inverts to springline of outlet	No / Yes	No
Inverts are properly sealed and grouted	No / Yes	Yes
Channels are free from rocks and dirt which might indicate break in line	No / Yes	Yes
MH base is free of sewage settlement due to slow flow or blockage	No / Yes	No Fair amount of settlement
Comments and Photo Numbers		

	SW	S	SE	E	NE	N	NW	W				
Size of Inserts		150				250						
Rim to Invert Elev.		2.69				2.90						



Manhole Inspection Checklist

Town or Village:	Village of Halkirk
MH Location or Number:	MH14

Barrel Diameter:	1.2				Notes:	
Manhole Type:	5A	<input checked="" type="checkbox"/>	1 - S	<input type="checkbox"/>	Drop	<input type="checkbox"/>
Collar Material:	Concrete	<input type="checkbox"/>	Brick	<input checked="" type="checkbox"/>	Other	<input type="checkbox"/>
Barrel Material:	Concrete	<input type="checkbox"/>	Block	<input checked="" type="checkbox"/>	Other	<input type="checkbox"/>
Bench Material:	Precast	<input type="checkbox"/>	Field	<input checked="" type="checkbox"/>	Other	<input type="checkbox"/>
Parson Insert Installed:	No / Yes	No				

Item	Rate:	Notes	
Surface <i>(Rate 1-5 with 1 being low and 5 being high)</i>	5		
Does surface water drain away from the MH	No / Yes	Yes	Road crown
Is the lid matched to MH type (San, Storm, Town Logo)	No / Yes	No	N/A
Is the frame flush to match the road grade (15 mm tolerance)	No / Yes	Yes	
Comments and Photo Numbers			
Top Slab & Collars <i>(Rate 1-5 with 1 being low and 5 being high)</i>	4		
Are there between 1 and 3 collars in use	No / Yes	Yes	
Is the total height of collars between 50 mm – 305 mm	No / Yes	No	700 mm
Is the grouting complete and without gaps	No / Yes	No	Some gaps
Free from evidence of leaking or water stains	No / Yes	Yes	
Comments and Photo Numbers			
Steps of Ladder <i>(Rate 1-5 with 1 being low and 5 being high)</i>	4		
Is the top step within 400 mm from lid	No / Yes	No	950 mm
Is the bottom step within 400 mm of the base	No / Yes	Yes	
Do the steps line up (within 40 mm tolerance, 20 mm dia min. Std.)	No / Yes	Yes	
Are the steps twisted	No / Yes	No	
Are the steps corroded or damaged	No / Yes	No	
Steps are below the MH lid and not on the opposite wall of MH	No / Yes	Yes	Lid in centre
Comments and Photo Numbers			
MH Barrels <i>(Rate 1-5 with 1 being low and 5 being high)</i>	4		
Are there cracks or damage to the MH side walls	No / Yes	No	
Do the sides of the barrel have evidence of water stains or weeping	No / Yes	Yes	Slight evidence
Do the joints between barrels have evidence of leakage through joints	No / Yes	No	
Are there unfilled open weeping holes in the sides of the storm MHs	No / Yes	No	
Comments and Photo Numbers			
MH Base and Leads <i>(Rate 1-5 with 1 being low and 5 being high)</i>	4		
Base and Channels are smooth without evidence of corrosion or concrete wear	No / Yes	Yes	
Leads into the MH stop at the springline, which is flush to inside wall of MH	No / Yes	Yes	
Sides are benched in MH floor for San, & Storm leads over 600 mm	No / Yes	No	N/A
Are there service leads directly into the MH – i.e. cul de sacs	No / Yes	No	
Is the distance less than 760 mm from all inlet inverts to springline of outlet	No / Yes	Yes	
Inverts are properly sealed and grouted	No / Yes	Yes	
Channels are free from rocks and dirt which might indicate break in line	No / Yes	No	slight rock debris
MH base is free of sewage settlement due to slow flow or blockage	No / Yes	Yes	
Comments and Photo Numbers			

	SW	S	SE	E	NE	N	NW	W				
Size of Inserts		250		200		200						
Rim to Invert Elev.		5.01		5.28		5.24						



Manhole Inspection Checklist

Town or Village:	Village of Halkirk
MH Location or Number:	MH15

Barrel Diameter:	1.2				Notes:	
Manhole Type:	5A	<input checked="" type="checkbox"/>	1 - S	<input type="checkbox"/>	Drop	<input type="checkbox"/>
Collar Material:	Concrete	<input type="checkbox"/>	Brick	<input checked="" type="checkbox"/>	Other	<input type="checkbox"/>
Barrel Material:	Concrete	<input type="checkbox"/>	Block	<input checked="" type="checkbox"/>	Other	<input type="checkbox"/>
Bench Material:	Precast	<input type="checkbox"/>	Field	<input checked="" type="checkbox"/>	Other	<input type="checkbox"/>
Parson Insert Installed:	No / Yes	No				

Item	Rate:	Notes
Surface <i>(Rate 1-5 with 1 being low and 5 being high)</i>	4	
Does surface water drain away from the MH	No / Yes	Yes
Is the lid matched to MH type (San, Storm, Town Logo)	No / Yes	N/A
Is the frame flush to match the road grade (15 mm tolerance)	No / Yes	Yes
Comments and Photo Numbers		
Top Slab & Collars <i>(Rate 1-5 with 1 being low and 5 being high)</i>	4	
Are there between 1 and 3 collars in use	No / Yes	Yes
Is the total height of collars between 50 mm – 305 mm	No / Yes	Yes
Is the grouting complete and without gaps	No / Yes	Yes
Free from evidence of leaking or water stains	No / Yes	No
Comments and Photo Numbers		
Steps of Ladder <i>(Rate 1-5 with 1 being low and 5 being high)</i>	3	
Is the top step within 400 mm from lid	No / Yes	No
Is the bottom step within 400 mm of the base	No / Yes	No
Do the steps line up (within 40 mm tolerance, 20 mm dia min. Std.)	No / Yes	No
Are the steps twisted	No / Yes	No
Are the steps corroded or damaged	No / Yes	No
Steps are below the MH lid and not on the opposite wall of MH	No / Yes	Yes
Comments and Photo Numbers		
MH Barrels <i>(Rate 1-5 with 1 being low and 5 being high)</i>	4	
Are there cracks or damage to the MH side walls	No / Yes	No
Do the sides of the barrel have evidence of water stains or weeping	No / Yes	Yes
Do the joints between barrels have evidence of leakage through joints	No / Yes	No
Are there unfilled open weeping holes in the sides of the storm MHs	No / Yes	No
Comments and Photo Numbers		
MH Base and Leads <i>(Rate 1-5 with 1 being low and 5 being high)</i>	5	
Base and Channels are smooth without evidence of corrosion or concrete wear	No / Yes	Yes
Leads into the MH stop at the springline, which is flush to inside wall of MH	No / Yes	Yes
Sides are benched in MH floor for San, & Storm leads over 600 mm	No / Yes	N/A
Are there service leads directly into the MH – i.e. cul de sacs	No / Yes	No
Is the distance less than 760 mm from all inlet inverts to springline of outlet	No / Yes	Yes
Inverts are properly sealed and grouted	No / Yes	Yes
Channels are free from rocks and dirt which might indicate break in line	No / Yes	No
MH base is free of sewage settlement due to slow flow or blockage	No / Yes	Yes
Comments and Photo Numbers		

	SW	S	SE	E	NE	N	NW	W				
Size of Inserts		200				200						
Rim to Invert Elev.		5.26				5.31						



Manhole Inspection Checklist

Town or Village:	Village of Halkirk
MH Location or Number:	MH16

Barrel Diameter:	1.2					Notes:
Manhole Type:	5A	<input checked="" type="checkbox"/>	1 - S	<input type="checkbox"/>	Drop	<input type="checkbox"/>
Collar Material:	Concrete	<input type="checkbox"/>	Brick	<input checked="" type="checkbox"/>	Other	<input type="checkbox"/>
Barrel Material:	Concrete	<input type="checkbox"/>	Block	<input checked="" type="checkbox"/>	Other	<input type="checkbox"/>
Bench Material:	Precast	<input type="checkbox"/>	Field	<input type="checkbox"/>	Other	<input checked="" type="checkbox"/> None
Parson Insert Installed:	No / Yes	No				

Item	Rate:	Notes
Surface <i>(Rate 1-5 with 1 being low and 5 being high)</i>	4	
Does surface water drain away from the MH	No / Yes	No Road is flat looking
Is the lid matched to MH type (San, Storm, Town Logo)	No / Yes	Yes Marked as sewer
Is the frame flush to match the road grade (15 mm tolerance)	No / Yes	Yes Slightly buried
Comments and Photo Numbers		
Top Slab & Collars <i>(Rate 1-5 with 1 being low and 5 being high)</i>	5	
Are there between 1 and 3 collars in use	No / Yes	Yes
Is the total height of collars between 50 mm – 305 mm	No / Yes	Yes
Is the grouting complete and without gaps	No / Yes	Yes
Free from evidence of leaking or water stains	No / Yes	Yes
Comments and Photo Numbers		
Steps of Ladder <i>(Rate 1-5 with 1 being low and 5 being high)</i>	5	
Is the top step within 400 mm from lid	No / Yes	No 650 mm
Is the bottom step within 400 mm of the base	No / Yes	Yes
Do the steps line up (within 40 mm tolerance, 20 mm dia min. Std.)	No / Yes	Yes
Are the steps twisted	No / Yes	No
Are the steps corroded or damaged	No / Yes	No
Steps are below the MH lid and not on the opposite wall of MH	No / Yes	Yes Lid in centre
Comments and Photo Numbers		
MH Barrels <i>(Rate 1-5 with 1 being low and 5 being high)</i>	5	
Are there cracks or damage to the MH side walls	No / Yes	No
Do the sides of the barrel have evidence of water stains or weeping	No / Yes	Yes Slight evidence
Do the joints between barrels have evidence of leakage through joints	No / Yes	No
Are there unfilled open weeping holes in the sides of the storm MHs	No / Yes	No
Comments and Photo Numbers		
MH Base and Leads <i>(Rate 1-5 with 1 being low and 5 being high)</i>	3	
Base and Channels are smooth without evidence of corrosion or concrete wear	No / Yes	No Some wear
Leads into the MH stop at the springline, which is flush to inside wall of MH	No / Yes	No Leads are below springline
Sides are benched in MH floor for San, & Storm leads over 600 mm	No / Yes	N/A
Are there service leads directly into the MH – i.e. cul de sacs	No / Yes	No
Is the distance less than 760 mm from all inlet inverts to springline of outlet	No / Yes	Yes
Inverts are properly sealed and grouted	No / Yes	Yes
Channels are free from rocks and dirt which might indicate break in line	No / Yes	Yes
MH base is free of sewage settlement due to slow flow or blockage	No / Yes	No Some settlement
Comments and Photo Numbers Old MH lid at base		

	SW	S	SE	E	NE	N	NW	W				
Size of Inserts		200						200				
Rim to Invert Elev.		3.98						3.99				



Manhole Inspection Checklist

Town or Village:	Village of Halkirk
MH Location or Number:	MH17

Barrel Diameter:	1.2				Notes:	
Manhole Type:	5A	<input checked="" type="checkbox"/>	1 - S	<input type="checkbox"/>	Drop	<input type="checkbox"/>
Collar Material:	Concrete	<input type="checkbox"/>	Brick	<input checked="" type="checkbox"/>	Other	<input type="checkbox"/>
Barrel Material:	Concrete	<input type="checkbox"/>	Block	<input checked="" type="checkbox"/>	Other	<input type="checkbox"/>
Bench Material:	Precast	<input type="checkbox"/>	Field	<input checked="" type="checkbox"/>	Other	<input type="checkbox"/>
Parson Insert Installed:	No / Yes	No				

Item	Rate:	Notes	
Surface <i>(Rate 1-5 with 1 being low and 5 being high)</i>	5		
Does surface water drain away from the MH	No / Yes	Yes	Road crown
Is the lid matched to MH type (San, Storm, Town Logo)	No / Yes	No	N/A
Is the frame flush to match the road grade (15 mm tolerance)	No / Yes	Yes	
Comments and Photo Numbers			
Top Slab & Collars <i>(Rate 1-5 with 1 being low and 5 being high)</i>	2		
Are there between 1 and 3 collars in use	No / Yes	Yes	
Is the total height of collars between 50 mm – 305 mm	No / Yes	Yes	
Is the grouting complete and without gaps	No / Yes	No	Numerous gaps
Free from evidence of leaking or water stains	No / Yes	No	
Comments and Photo Numbers			
Steps of Ladder <i>(Rate 1-5 with 1 being low and 5 being high)</i>	4		
Is the top step within 400 mm from lid	No / Yes	No	700 mm
Is the bottom step within 400 mm of the base	No / Yes	Yes	
Do the steps line up (within 40 mm tolerance, 20 mm dia min. Std.)	No / Yes	Yes	
Are the steps twisted	No / Yes	No	
Are the steps corroded or damaged	No / Yes	No	
Steps are below the MH lid and not on the opposite wall of MH	No / Yes	Yes	Lid in centre
Comments and Photo Numbers			
MH Barrels <i>(Rate 1-5 with 1 being low and 5 being high)</i>	3		
Are there cracks or damage to the MH side walls	No / Yes	No	
Do the sides of the barrel have evidence of water stains or weeping	No / Yes	Yes	Plenty of evidence
Do the joints between barrels have evidence of leakage through joints	No / Yes	Yes	At 3rd brick row from top
Are there unfilled open weeping holes in the sides of the storm MHs	No / Yes	No	
Comments and Photo Numbers			
MH Base and Leads <i>(Rate 1-5 with 1 being low and 5 being high)</i>	4		
Base and Channels are smooth without evidence of corrosion or concrete wear	No / Yes	No	
Leads into the MH stop at the springline, which is flush to inside wall of MH	No / Yes	Yes	
Sides are benched in MH floor for San, & Storm leads over 600 mm	No / Yes	No	N/A
Are there service leads directly into the MH – i.e. cul de sacs	No / Yes	No	
Is the distance less than 760 mm from all inlet inverts to springline of outlet	No / Yes	Yes	
Inverts are properly sealed and grouted	No / Yes	Yes	
Channels are free from rocks and dirt which might indicate break in line	No / Yes	Yes	
MH base is free of sewage settlement due to slow flow or blockage	No / Yes	Yes	
Comments and Photo Numbers			

	SW	S	SE	E	NE	N	NW	W				
Size of Inserts		150		200				200				
Rim to Invert Elev.		3.44		3.99				3.58				



Manhole Inspection Checklist

Town or Village:	Village of Halkirk
MH Location or Number:	MH18

Barrel Diameter:	1.2					Notes:
Manhole Type:	5A	<input checked="" type="checkbox"/>	1 - S	<input type="checkbox"/>	Drop	<input type="checkbox"/>
Collar Material:	Concrete	<input checked="" type="checkbox"/>	Brick	<input type="checkbox"/>	Other	<input type="checkbox"/>
Barrel Material:	Concrete	<input checked="" type="checkbox"/>	Block	<input type="checkbox"/>	Other	<input type="checkbox"/>
Bench Material:	Precast	<input type="checkbox"/>	Field	<input type="checkbox"/>	Other	<input checked="" type="checkbox"/> None
Parson Insert Installed:	No / Yes	No				

Item	Rate:	Notes
Surface <i>(Rate 1-5 with 1 being low and 5 being high)</i>	5	
Does surface water drain away from the MH	No / Yes	Yes Road crown
Is the lid matched to MH type (San, Storm, Town Logo)	No / Yes	N/A
Is the frame flush to match the road grade (15 mm tolerance)	No / Yes	Yes
Comments and Photo Numbers		
Top Slab & Collars <i>(Rate 1-5 with 1 being low and 5 being high)</i>	2	
Are there between 1 and 3 collars in use	No / Yes	Yes
Is the total height of collars between 50 mm – 305 mm	No / Yes	No 350 mm
Is the grouting complete and without gaps	No / Yes	Yes
Free from evidence of leaking or water stains	No / Yes	No Fair amount of evidence
Comments and Photo Numbers Small crack in collars and collars are not aligned		
Steps of Ladder <i>(Rate 1-5 with 1 being low and 5 being high)</i>	5	
Is the top step within 400 mm from lid	No / Yes	No 700 mm
Is the bottom step within 400 mm of the base	No / Yes	Yes
Do the steps line up (within 40 mm tolerance, 20 mm dia min. Std.)	No / Yes	Yes
Are the steps twisted	No / Yes	No
Are the steps corroded or damaged	No / Yes	No
Steps are below the MH lid and not on the opposite wall of MH	No / Yes	Yes
Comments and Photo Numbers		
MH Barrels <i>(Rate 1-5 with 1 being low and 5 being high)</i>	2	
Are there cracks or damage to the MH side walls	No / Yes	Yes Chips/holes in sides
Do the sides of the barrel have evidence of water stains or weeping	No / Yes	Yes Plenty of evidence
Do the joints between barrels have evidence of leakage through joints	No / Yes	No
Are there unfilled open weeping holes in the sides of the storm MHs	No / Yes	No
Comments and Photo Numbers		
MH Base and Leads <i>(Rate 1-5 with 1 being low and 5 being high)</i>	4	
Base and Channels are smooth without evidence of corrosion or concrete wear	No / Yes	Cannot see
Leads into the MH stop at the springline, which is flush to inside wall of MH	No / Yes	No Lead are not flush
Sides are benched in MH floor for San, & Storm leads over 600 mm	No / Yes	N/A
Are there service leads directly into the MH – i.e. cul de sacs	No / Yes	No
Is the distance less than 760 mm from all inlet inverts to springline of outlet	No / Yes	No
Inverts are properly sealed and grouted	No / Yes	Yes
Channels are free from rocks and dirt which might indicate break in line	No / Yes	Yes
MH base is free of sewage settlement due to slow flow or blockage	No / Yes	Yes
Comments and Photo Numbers Bottom sump 100mm		

	SW	S	SE	E	NE	N	NW	W				
Size of Inserts						150						
Rim to Invert Elev.						2.95						



Manhole Inspection Checklist

Town or Village:	Village of Halkirk
MH Location or Number:	MH19

Barrel Diameter:	1.2					Notes:
Manhole Type:	5A	<input checked="" type="checkbox"/>	1 - S	<input type="checkbox"/>	Drop	<input type="checkbox"/>
Collar Material:	Concrete	<input checked="" type="checkbox"/>	Brick	<input type="checkbox"/>	Other	<input type="checkbox"/>
Barrel Material:	Concrete	<input type="checkbox"/>	Block	<input checked="" type="checkbox"/>	Other	<input type="checkbox"/>
Bench Material:	Precast	<input type="checkbox"/>	Field	<input checked="" type="checkbox"/>	Other	<input type="checkbox"/>
Parson Insert Installed:	No / Yes	No				

Item	Rate:	Notes
Surface <i>(Rate 1-5 with 1 being low and 5 being high)</i>	5	
Does surface water drain away from the MH	No / Yes	Yes
Is the lid matched to MH type (San, Storm, Town Logo)	No / Yes	N/A
Is the frame flush to match the road grade (15 mm tolerance)	No / Yes	Yes
Comments and Photo Numbers		
Top Slab & Collars <i>(Rate 1-5 with 1 being low and 5 being high)</i>	3	
Are there between 1 and 3 collars in use	No / Yes	Yes
Is the total height of collars between 50 mm – 305 mm	No / Yes	Yes
Is the grouting complete and without gaps	No / Yes	Yes
Free from evidence of leaking or water stains	No / Yes	No
Comments and Photo Numbers	Small cracks	
Steps of Ladder <i>(Rate 1-5 with 1 being low and 5 being high)</i>	3	
Is the top step within 400 mm from lid	No / Yes	No
Is the bottom step within 400 mm of the base	No / Yes	Yes
Do the steps line up (within 40 mm tolerance, 20 mm dia min. Std.)	No / Yes	Yes
Are the steps twisted	No / Yes	No
Are the steps corroded or damaged	No / Yes	Yes
Steps are below the MH lid and not on the opposite wall of MH	No / Yes	Yes
Comments and Photo Numbers	600 mm	
MH Barrels <i>(Rate 1-5 with 1 being low and 5 being high)</i>	3	
Are there cracks or damage to the MH side walls	No / Yes	No
Do the sides of the barrel have evidence of water stains or weeping	No / Yes	Yes
Do the joints between barrels have evidence of leakage through joints	No / Yes	No
Are there unfilled open weeping holes in the sides of the storm MHs	No / Yes	No
Comments and Photo Numbers	Plenty of evidence	
MH Base and Leads <i>(Rate 1-5 with 1 being low and 5 being high)</i>	4	
Base and Channels are smooth without evidence of corrosion or concrete wear	No / Yes	Yes
Leads into the MH stop at the springline, which is flush to inside wall of MH	No / Yes	Yes
Sides are benched in MH floor for San, & Storm leads over 600 mm	No / Yes	N/A
Are there service leads directly into the MH – i.e. cul de sacs	No / Yes	No
Is the distance less than 760 mm from all inlet inverts to springline of outlet	No / Yes	Yes
Inverts are properly sealed and grouted	No / Yes	Yes
Channels are free from rocks and dirt which might indicate break in line	No / Yes	Yes
MH base is free of sewage settlement due to slow flow or blockage	No / Yes	Yes
Comments and Photo Numbers	Slight evidence	

	SW	S	SE	E	NE	N	NW	W				
Size of Inserts				200				200				
Rim to Invert Elev.				3.04				3.04				



Manhole Inspection Checklist

Town or Village:	Village of Halkirk
MH Location or Number:	MH20

Barrel Diameter:	1.2				Notes:	
Manhole Type:	5A	<input checked="" type="checkbox"/>	1 - S	<input type="checkbox"/>	Drop	<input type="checkbox"/>
Collar Material:	Concrete	<input type="checkbox"/>	Brick	<input checked="" type="checkbox"/>	Other	<input type="checkbox"/>
Barrel Material:	Concrete	<input type="checkbox"/>	Block	<input checked="" type="checkbox"/>	Other	<input type="checkbox"/>
Bench Material:	Precast	<input type="checkbox"/>	Field	<input checked="" type="checkbox"/>	Other	<input type="checkbox"/>
Parson Insert Installed:	No / Yes	No				

Item	Rate:	Notes
Surface <i>(Rate 1-5 with 1 being low and 5 being high)</i>	4	
Does surface water drain away from the MH	No / Yes	Yes
Is the lid matched to MH type (San, Storm, Town Logo)	No / Yes	N/A
Is the frame flush to match the road grade (15 mm tolerance)	No / Yes	Yes
Comments and Photo Numbers		
Top Slab & Collars <i>(Rate 1-5 with 1 being low and 5 being high)</i>	3	
Are there between 1 and 3 collars in use	No / Yes	Yes
Is the total height of collars between 50 mm – 305 mm	No / Yes	Yes
Is the grouting complete and without gaps	No / Yes	No
Free from evidence of leaking or water stains	No / Yes	No
Comments and Photo Numbers		
Steps of Ladder <i>(Rate 1-5 with 1 being low and 5 being high)</i>	1	NO STEPS
Is the top step within 400 mm from lid	No / Yes	N/A
Is the bottom step within 400 mm of the base	No / Yes	N/A
Do the steps line up (within 40 mm tolerance, 20 mm dia min. Std.)	No / Yes	N/A
Are the steps twisted	No / Yes	N/A
Are the steps corroded or damaged	No / Yes	N/A
Steps are below the MH lid and not on the opposite wall of MH	No / Yes	N/A
Comments and Photo Numbers		
MH Barrels <i>(Rate 1-5 with 1 being low and 5 being high)</i>	4	
Are there cracks or damage to the MH side walls	No / Yes	No
Do the sides of the barrel have evidence of water stains or weeping	No / Yes	Yes
Do the joints between barrels have evidence of leakage through joints	No / Yes	No
Are there unfilled open weeping holes in the sides of the storm MHs	No / Yes	No
Comments and Photo Numbers		
MH Base and Leads <i>(Rate 1-5 with 1 being low and 5 being high)</i>	4	
Base and Channels are smooth without evidence of corrosion or concrete wear	No / Yes	Yes
Leads into the MH stop at the springline, which is flush to inside wall of MH	No / Yes	No
Sides are benched in MH floor for San, & Storm leads over 600 mm	No / Yes	N/A
Are there service leads directly into the MH – i.e. cul de sacs	No / Yes	Yes
Is the distance less than 760 mm from all inlet inverts to springline of outlet	No / Yes	Yes
Inverts are properly sealed and grouted	No / Yes	Yes
Channels are free from rocks and dirt which might indicate break in line	No / Yes	Yes
MH base is free of sewage settlement due to slow flow or blockage	No / Yes	Yes
Comments and Photo Numbers		

	SW	S	SE	E	NE	N	NW	W				
Size of Inserts	200			200				200				
Rim to Invert Elev.	2.31			2.45				2.41				



Manhole Inspection Checklist

Town or Village:	Village of Halkirk
MH Location or Number:	MH21

Barrel Diameter:	1.2				Notes:	
Manhole Type:	5A	<input checked="" type="checkbox"/>	1 - S	<input type="checkbox"/>	Drop	<input type="checkbox"/>
Collar Material:	Concrete	<input type="checkbox"/>	Brick	<input checked="" type="checkbox"/>	Other	<input type="checkbox"/>
Barrel Material:	Concrete	<input type="checkbox"/>	Block	<input checked="" type="checkbox"/>	Other	<input type="checkbox"/>
Bench Material:	Precast	<input type="checkbox"/>	Field	<input checked="" type="checkbox"/>	Other	<input type="checkbox"/>
Parson Insert Installed:	No / Yes	No				

Item	Rate:	Notes	
Surface <i>(Rate 1-5 with 1 being low and 5 being high)</i>	4		
Does surface water drain away from the MH	No / Yes	Yes	
Is the lid matched to MH type (San, Storm, Town Logo)	No / Yes		N/A
Is the frame flush to match the road grade (15 mm tolerance)	No / Yes	No	In grass
Comments and Photo Numbers			
Top Slab & Collars <i>(Rate 1-5 with 1 being low and 5 being high)</i>	4		
Are there between 1 and 3 collars in use	No / Yes	Yes	
Is the total height of collars between 50 mm – 305 mm	No / Yes	No	400 mm
Is the grouting complete and without gaps	No / Yes	Yes	
Free from evidence of leaking or water stains	No / Yes	No	
Comments and Photo Numbers			
Steps of Ladder <i>(Rate 1-5 with 1 being low and 5 being high)</i>	1	NO STEPS	
Is the top step within 400 mm from lid	No / Yes		
Is the bottom step within 400 mm of the base	No / Yes		
Do the steps line up (within 40 mm tolerance, 20 mm dia min. Std.)	No / Yes		
Are the steps twisted	No / Yes		
Are the steps corroded or damaged	No / Yes		
Steps are below the MH lid and not on the opposite wall of MH	No / Yes		
Comments and Photo Numbers			
MH Barrels <i>(Rate 1-5 with 1 being low and 5 being high)</i>	5		
Are there cracks or damage to the MH side walls	No / Yes	No	
Do the sides of the barrel have evidence of water stains or weeping	No / Yes	No	
Do the joints between barrels have evidence of leakage through joints	No / Yes	No	
Are there unfilled open weeping holes in the sides of the storm MHs	No / Yes	No	
Comments and Photo Numbers			
MH Base and Leads <i>(Rate 1-5 with 1 being low and 5 being high)</i>	4		
Base and Channels are smooth without evidence of corrosion or concrete wear	No / Yes	No	Some wear
Leads into the MH stop at the springline, which is flush to inside wall of MH	No / Yes	No	Leads extend inwards
Sides are benched in MH floor for San, & Storm leads over 600 mm	No / Yes		N/A
Are there service leads directly into the MH – i.e. cul de sacs	No / Yes	No	
Is the distance less than 760 mm from all inlet inverts to springline of outlet	No / Yes	Yes	
Inverts are properly sealed and grouted	No / Yes	Yes	
Channels are free from rocks and dirt which might indicate break in line	No / Yes	Yes	
MH base is free of sewage settlement due to slow flow or blockage	No / Yes	No	Slight settlement
Comments and Photo Numbers			

	SW	S	SE	E	NE	N	NW	W				
Size of Inserts		200						200				
Rim to Invert Elev.		2.79						2.22				



Manhole Inspection Checklist

Town or Village:	Village of Halkirk
MH Location or Number:	MH21A

Barrel Diameter:	1.2					Notes:
Manhole Type:	5A	<input checked="" type="checkbox"/>	1 - S	<input type="checkbox"/>	Drop	<input type="checkbox"/>
Collar Material:	Concrete	<input checked="" type="checkbox"/>	Brick	<input type="checkbox"/>	Other	<input type="checkbox"/>
Barrel Material:	Concrete	<input checked="" type="checkbox"/>	Block	<input type="checkbox"/>	Other	<input type="checkbox"/>
Bench Material:	Precast	<input type="checkbox"/>	Field	<input checked="" type="checkbox"/>	Other	<input type="checkbox"/>
Parson Insert Installed:	No / Yes	No				

Item	Rate:	Notes
Surface <i>(Rate 1-5 with 1 being low and 5 being high)</i>	2	
Does surface water drain away from the MH	No / Yes	No In a low spot
Is the lid matched to MH type (San, Storm, Town Logo)	No / Yes	N/A
Is the frame flush to match the road grade (15 mm tolerance)	No / Yes	No
Comments and Photo Numbers	In grass	
Top Slab & Collars <i>(Rate 1-5 with 1 being low and 5 being high)</i>	5	
Are there between 1 and 3 collars in use	No / Yes	Yes
Is the total height of collars between 50 mm – 305 mm	No / Yes	Yes
Is the grouting complete and without gaps	No / Yes	Yes
Free from evidence of leaking or water stains	No / Yes	Yes
Comments and Photo Numbers	Some rust stains	
Steps of Ladder <i>(Rate 1-5 with 1 being low and 5 being high)</i>	4	
Is the top step within 400 mm from lid	No / Yes	No 500 mm
Is the bottom step within 400 mm of the base	No / Yes	Yes
Do the steps line up (within 40 mm tolerance, 20 mm dia min. Std.)	No / Yes	Yes
Are the steps twisted	No / Yes	No
Are the steps corroded or damaged	No / Yes	No
Steps are below the MH lid and not on the opposite wall of MH	No / Yes	Yes
Comments and Photo Numbers		
MH Barrels <i>(Rate 1-5 with 1 being low and 5 being high)</i>	4	
Are there cracks or damage to the MH side walls	No / Yes	No
Do the sides of the barrel have evidence of water stains or weeping	No / Yes	Yes
Do the joints between barrels have evidence of leakage through joints	No / Yes	Yes Lower barrel very wet
Are there unfilled open weeping holes in the sides of the storm MHs	No / Yes	No
Comments and Photo Numbers		
MH Base and Leads <i>(Rate 1-5 with 1 being low and 5 being high)</i>	4	
Base and Channels are smooth without evidence of corrosion or concrete wear	No / Yes	Yes Some corrosion
Leads into the MH stop at the springline, which is flush to inside wall of MH	No / Yes	No Leads extend inward
Sides are benched in MH floor for San, & Storm leads over 600 mm	No / Yes	N/A
Are there service leads directly into the MH – i.e. cul de sacs	No / Yes	No
Is the distance less than 760 mm from all inlet inverts to springline of outlet	No / Yes	Yes
Inverts are properly sealed and grouted	No / Yes	Yes
Channels are free from rocks and dirt which might indicate break in line	No / Yes	Yes
MH base is free of sewage settlement due to slow flow or blockage	No / Yes	Yes
Comments and Photo Numbers		

	SW	S	SE	E	NE	N	NW	W				
Size of Inserts				200		200						
Rim to Invert Elev.				3.51		3.5						



Manhole Inspection Checklist

Town or Village:	Village of Halkirk
MH Location or Number:	MH22

Barrel Diameter:	1.2					Notes:
Manhole Type:	5A	<input checked="" type="checkbox"/>	1 - S	<input type="checkbox"/>	Drop	<input type="checkbox"/>
Collar Material:	Concrete	<input checked="" type="checkbox"/>	Brick	<input type="checkbox"/>	Other	<input type="checkbox"/>
Barrel Material:	Concrete	<input checked="" type="checkbox"/>	Block	<input type="checkbox"/>	Other	<input type="checkbox"/>
Bench Material:	Precast	<input type="checkbox"/>	Field	<input checked="" type="checkbox"/>	Other	<input type="checkbox"/>
Parson Insert Installed:	No / Yes	No				

Item	Rate:	Notes
Surface <i>(Rate 1-5 with 1 being low and 5 being high)</i>	2	
Does surface water drain away from the MH	No / Yes	No In low spot
Is the lid matched to MH type (San, Storm, Town Logo)	No / Yes	N/A
Is the frame flush to match the road grade (15 mm tolerance)	No / Yes	No In grass
Comments and Photo Numbers		
Top Slab & Collars <i>(Rate 1-5 with 1 being low and 5 being high)</i>	3	
Are there between 1 and 3 collars in use	No / Yes	Yes
Is the total height of collars between 50 mm – 305 mm	No / Yes	No 500 mm
Is the grouting complete and without gaps	No / Yes	No No arouting
Free from evidence of leaking or water stains	No / Yes	No
Comments and Photo Numbers		
Steps of Ladder <i>(Rate 1-5 with 1 being low and 5 being high)</i>	3	
Is the top step within 400 mm from lid	No / Yes	No 900 mm
Is the bottom step within 400 mm of the base	No / Yes	Yes
Do the steps line up (within 40 mm tolerance, 20 mm dia min. Std.)	No / Yes	Yes
Are the steps twisted	No / Yes	No
Are the steps corroded or damaged	No / Yes	Yes Slight corrosion
Steps are below the MH lid and not on the opposite wall of MH	No / Yes	Yes
Comments and Photo Numbers		
MH Barrels <i>(Rate 1-5 with 1 being low and 5 being high)</i>	3	
Are there cracks or damage to the MH side walls	No / Yes	No No
Do the sides of the barrel have evidence of water stains or weeping	No / Yes	Yes
Do the joints between barrels have evidence of leakage through joints	No / Yes	Yes Lower barrel very wet
Are there unfilled open weeping holes in the sides of the storm MHs	No / Yes	No
Comments and Photo Numbers		
MH Base and Leads <i>(Rate 1-5 with 1 being low and 5 being high)</i>	4	
Base and Channels are smooth without evidence of corrosion or concrete wear	No / Yes	No Base is fairly worn
Leads into the MH stop at the springline, which is flush to inside wall of MH	No / Yes	No Leads extend inwards
Sides are benched in MH floor for San, & Storm leads over 600 mm	No / Yes	N/A
Are there service leads directly into the MH – i.e. cul de sacs	No / Yes	Yes
Is the distance less than 760 mm from all inlet inverts to springline of outlet	No / Yes	Yes
Inverts are properly sealed and grouted	No / Yes	Yes
Channels are free from rocks and dirt which might indicate break in line	No / Yes	Yes
MH base is free of sewage settlement due to slow flow or blockage	No / Yes	Yes
Comments and Photo Numbers		

	SW	S	SE	E	NE	N	NW	W				
Size of Inserts	100			200				200				
Rim to Invert Elev.	2.30			2.99				2.99				



Manhole Inspection Checklist

Town or Village:	Village of Halkirk
MH Location or Number:	MH23

Barrel Diameter:	1.2				Notes:	
Manhole Type:	5A	<input checked="" type="checkbox"/>	1 - S	<input type="checkbox"/>	Drop	<input type="checkbox"/>
Collar Material:	Concrete	<input checked="" type="checkbox"/>	Brick	<input type="checkbox"/>	Other	<input type="checkbox"/>
Barrel Material:	Concrete	<input checked="" type="checkbox"/>	Block	<input type="checkbox"/>	Other	<input type="checkbox"/>
Bench Material:	Precast	<input type="checkbox"/>	Field	<input checked="" type="checkbox"/>	Other	<input type="checkbox"/>
Parson Insert Installed:	No / Yes	No				

Item	Rate:	Notes	
Surface <i>(Rate 1-5 with 1 being low and 5 being high)</i>	5		
Does surface water drain away from the MH	No / Yes	Yes	Yes
Is the lid matched to MH type (San, Storm, Town Logo)	No / Yes	No	N/A
Is the frame flush to match the road grade (15 mm tolerance)	No / Yes	Yes	In grass
Comments and Photo Numbers			
Top Slab & Collars <i>(Rate 1-5 with 1 being low and 5 being high)</i>	4		
Are there between 1 and 3 collars in use	No / Yes	Yes	
Is the total height of collars between 50 mm – 305 mm	No / Yes	Yes	
Is the grouting complete and without gaps	No / Yes	No	No grouting
Free from evidence of leaking or water stains	No / Yes	Yes	
Comments and Photo Numbers			
Steps of Ladder <i>(Rate 1-5 with 1 being low and 5 being high)</i>	5		
Is the top step within 400 mm from lid	No / Yes	No	550 mm
Is the bottom step within 400 mm of the base	No / Yes	Yes	
Do the steps line up (within 40 mm tolerance, 20 mm dia min. Std.)	No / Yes	Yes	
Are the steps twisted	No / Yes	No	
Are the steps corroded or damaged	No / Yes	No	
Steps are below the MH lid and not on the opposite wall of MH	No / Yes	Yes	
Comments and Photo Numbers			
MH Barrels <i>(Rate 1-5 with 1 being low and 5 being high)</i>	3		
Are there cracks or damage to the MH side walls	No / Yes	Yes	Hairline cracks throughout
Do the sides of the barrel have evidence of water stains or weeping	No / Yes	Yes	Plenty of evidence
Do the joints between barrels have evidence of leakage through joints	No / Yes	No	
Are there unfilled open weeping holes in the sides of the storm MHs	No / Yes	No	
Comments and Photo Numbers			
MH Base and Leads <i>(Rate 1-5 with 1 being low and 5 being high)</i>	5		
Base and Channels are smooth without evidence of corrosion or concrete wear	No / Yes	Yes	
Leads into the MH stop at the springline, which is flush to inside wall of MH	No / Yes	No	Leads extend in slightly
Sides are benched in MH floor for San, & Storm leads over 600 mm	No / Yes	No	N/A
Are there service leads directly into the MH – i.e. cul de sacs	No / Yes	No	
Is the distance less than 760 mm from all inlet inverts to springline of outlet	No / Yes	Yes	
Inverts are properly sealed and grouted	No / Yes	Yes	
Channels are free from rocks and dirt which might indicate break in line	No / Yes	Yes	
MH base is free of sewage settlement due to slow flow or blockage	No / Yes	Yes	
Comments and Photo Numbers			

	SW	S	SE	E	NE	N	NW	W				
Size of Inserts				200				200				
Rim to Invert Elev.				3.41				3.45				



Manhole Inspection Checklist

Town or Village:	Village of Halkirk
MH Location or Number:	MH24

Barrel Diameter:	1.2				Notes:	
Manhole Type:	5A	<input checked="" type="checkbox"/>	1 - S	<input type="checkbox"/>	Drop	<input type="checkbox"/>
Collar Material:	Concrete	<input checked="" type="checkbox"/>	Brick	<input type="checkbox"/>	Other	<input type="checkbox"/>
Barrel Material:	Concrete	<input checked="" type="checkbox"/>	Block	<input type="checkbox"/>	Other	<input type="checkbox"/>
Bench Material:	Precast	<input type="checkbox"/>	Field	<input checked="" type="checkbox"/>	Other	<input type="checkbox"/>
Parson Insert Installed:	No / Yes	No				

Item	Rate:	Notes	
Surface <i>(Rate 1-5 with 1 being low and 5 being high)</i>	5		
Does surface water drain away from the MH	No / Yes	Yes	
Is the lid matched to MH type (San, Storm, Town Logo)	No / Yes		N/A
Is the frame flush to match the road grade (15 mm tolerance)	No / Yes	No	In grass
Comments and Photo Numbers			
Top Slab & Collars <i>(Rate 1-5 with 1 being low and 5 being high)</i>	5		
Are there between 1 and 3 collars in use	No / Yes	Yes	
Is the total height of collars between 50 mm – 305 mm	No / Yes	Yes	
Is the grouting complete and without gaps	No / Yes	Yes	
Free from evidence of leaking or water stains	No / Yes	Yes	
Comments and Photo Numbers			
Steps of Ladder <i>(Rate 1-5 with 1 being low and 5 being high)</i>	5		
Is the top step within 400 mm from lid	No / Yes	No	500 mm
Is the bottom step within 400 mm of the base	No / Yes	Yes	
Do the steps line up (within 40 mm tolerance, 20 mm dia min. Std.)	No / Yes	Yes	
Are the steps twisted	No / Yes	No	
Are the steps corroded or damaged	No / Yes	No	
Steps are below the MH lid and not on the opposite wall of MH	No / Yes	Yes	
Comments and Photo Numbers			
MH Barrels <i>(Rate 1-5 with 1 being low and 5 being high)</i>	4		
Are there cracks or damage to the MH side walls	No / Yes	No	
Do the sides of the barrel have evidence of water stains or weeping	No / Yes	Yes	
Do the joints between barrels have evidence of leakage through joints	No / Yes	No	
Are there unfilled open weeping holes in the sides of the storm MHs	No / Yes	No	
Comments and Photo Numbers			
MH Base and Leads <i>(Rate 1-5 with 1 being low and 5 being high)</i>	5		
Base and Channels are smooth without evidence of corrosion or concrete wear	No / Yes	No	Slight wear
Leads into the MH stop at the springline, which is flush to inside wall of MH	No / Yes	No	Leads extend in slightly
Sides are benched in MH floor for San, & Storm leads over 600 mm	No / Yes		N/A
Are there service leads directly into the MH – i.e. cul de sacs	No / Yes	No	
Is the distance less than 760 mm from all inlet inverts to springline of outlet	No / Yes	Yes	
Inverts are properly sealed and grouted	No / Yes	Yes	
Channels are free from rocks and dirt which might indicate break in line	No / Yes	Yes	
MH base is free of sewage settlement due to slow flow or blockage	No / Yes	Yes	
Comments and Photo Numbers			

	SW	S	SE	E	NE	N	NW	W				
Size of Inserts				200				200				
Rim to Invert Elev.				1.85				1.82				



Manhole Inspection Checklist

Town or Village:	Village of Halkirk
MH Location or Number:	MH25

Barrel Diameter:	1.2				Notes:	
Manhole Type:	5A	<input checked="" type="checkbox"/>	1 - S	<input type="checkbox"/>	Drop	<input type="checkbox"/>
Collar Material:	Concrete	<input checked="" type="checkbox"/>	Brick	<input type="checkbox"/>	Other	<input type="checkbox"/>
Barrel Material:	Concrete	<input checked="" type="checkbox"/>	Block	<input type="checkbox"/>	Other	<input type="checkbox"/>
Bench Material:	Precast	<input type="checkbox"/>	Field	<input checked="" type="checkbox"/>	Other	<input type="checkbox"/>
Parson Insert Installed:	No / Yes	No				

Item	Rate:	Notes	
Surface <i>(Rate 1-5 with 1 being low and 5 being high)</i>	5		
Does surface water drain away from the MH	No / Yes	Yes	
Is the lid matched to MH type (San, Storm, Town Logo)	No / Yes		N/A
Is the frame flush to match the road grade (15 mm tolerance)	No / Yes	Yes	In grass
Comments and Photo Numbers			
Top Slab & Collars <i>(Rate 1-5 with 1 being low and 5 being high)</i>	5		
Are there between 1 and 3 collars in use	No / Yes	Yes	
Is the total height of collars between 50 mm – 305 mm	No / Yes	No	400 mm
Is the grouting complete and without gaps	No / Yes	No	No arouting
Free from evidence of leaking or water stains	No / Yes	Yes	
Comments and Photo Numbers			
Steps of Ladder <i>(Rate 1-5 with 1 being low and 5 being high)</i>	4		
Is the top step within 400 mm from lid	No / Yes	No	750mm
Is the bottom step within 400 mm of the base	No / Yes	No	500mm
Do the steps line up (within 40 mm tolerance, 20 mm dia min. Std.)	No / Yes	Yes	
Are the steps twisted	No / Yes	No	
Are the steps corroded or damaged	No / Yes	No	
Steps are below the MH lid and not on the opposite wall of MH	No / Yes	Yes	
Comments and Photo Numbers			
MH Barrels <i>(Rate 1-5 with 1 being low and 5 being high)</i>	5		
Are there cracks or damage to the MH side walls	No / Yes	No	
Do the sides of the barrel have evidence of water stains or weeping	No / Yes	No	
Do the joints between barrels have evidence of leakage through joints	No / Yes	No	
Are there unfilled open weeping holes in the sides of the storm MHs	No / Yes	No	
Comments and Photo Numbers			
MH Base and Leads <i>(Rate 1-5 with 1 being low and 5 being high)</i>	5		
Base and Channels are smooth without evidence of corrosion or concrete wear	No / Yes	Yes	
Leads into the MH stop at the springline, which is flush to inside wall of MH	No / Yes	Yes	
Sides are benched in MH floor for San, & Storm leads over 600 mm	No / Yes		N/A
Are there service leads directly into the MH – i.e. cul de sacs	No / Yes	No	
Is the distance less than 760 mm from all inlet inverts to springline of outlet	No / Yes	Yes	
Inverts are properly sealed and grouted	No / Yes	Yes	
Channels are free from rocks and dirt which might indicate break in line	No / Yes	Yes	
MH base is free of sewage settlement due to slow flow or blockage	No / Yes	Yes	
Comments and Photo Numbers			

	SW	S	SE	E	NE	N	NW	W				
Size of Inserts				200				200				
Rim to Invert Elev.				2.01				2.02				

APPENDIX G

2017 Stormwater Management Plan

Village of Halkirk
Box 126
Halkirk, AB
T0C 1M0

October 23, 2017
File: N:\4460\002\00\L01-1.0

Attention: Doris Cordel
Chief Administrative Officer

Dear Ms. Cordel:

Re: Village of Halkirk Storm Water Management Plan

MPE Engineering Ltd. (MPE) is pleased to submit this letter-report, "*Village of Halkirk Storm Water Management Plan*". The report is the result of a discussion with Village of Halkirk (Halkirk) staff, a field inspection, a topographic survey check, and storm water analysis, and contains a summary of findings and recommendations for future improvements and study for Halkirk to consider.

Background

Halkirk is located in central Alberta (see *Figure 1*), in NE 24-38-16-W4, in the County of Paintearth. Halkirk does not have a formal storm water management plan, and has managed storm water runoff on an *ad hoc* basis as flooding issues arose, to various degrees of success.

In recent years, local flooding has occurred in isolated areas of Halkirk (e.g. puddling or trapped water in individual lots), either due to rainfall events, or a combination of snowmelt and ice blockage.

According to rainfall records for Halkirk since 2008, Halkirk has not recently experienced any significant rainfall events. The greatest 24-hour rainfall event experienced by Halkirk was 45.5 mm in 2010, which represents less than a 1:5 year event. Alberta Environment and Parks (AEP) guidelines state that storm water should be managed for runoff up to the 1:100 year event, which is estimated to be the result of a 100 mm rainfall in 24 hours, or more than twice the amount of the 2010 event. Based on these findings, Halkirk may be susceptible to significant local flooding and damage.

To improve on the current storm water management practices, Halkirk has decided to formalize storm water management for the developed area. To that end, Halkirk has retained MPE to provide an overview of site conditions, regulatory requirements, and conceptual solutions related to storm water management.

A storm water management plan provides a sound basis for:

- Ensuring storm water management improvements and related infrastructure improvements (e.g. sidewalk and roadway improvements) do not adversely affect drainage and effectively address existing drainage problems, and
- Providing direction and guidelines for future development.

Scope of Work

MPE's scope of work was limited to an overview of site conditions and identification of restrictions, summary of regulatory requirements, identification of conceptual solutions with ball park costs, and recommendations.

MPE's scope of services included:

Information Compilation and Review

- Met with Halkirk CAO on March 31, 2017, to confirm the scope of work, discussed storm water management issues and locations, and collected other information related to flooding concerns.
- Conducted a field inspection of Halkirk on March 31, 2017, to identify locations with poor drainage, potential outfalls, offsite conditions, and potential restrictions.
- Obtained LiDAR survey data of Halkirk and the adjacent areas.
- Performed topographical spot check surveys in Halkirk and drainage outlets, as well as details of storm water infrastructure (ditch inverts, culverts, sill elevations, etc.). The spot check elevations were used to confirm and update LiDAR survey data of the area.

Storm Water Assessment

- Plotted existing sub-basin boundaries and storm water runoff routes through Halkirk.
- Estimated runoff rates for selected locations using the results of a frequency analysis on available local rainfall and streamflow data.
- Estimated capacities of storm water infrastructure (culverts, curb and gutters) in Halkirk, and compared capacities to expected runoff rates.

Conceptual Solutions

- Provided a summary of AEP storm water management requirements.
- Identified and described potential solutions to relieve flooding issues in each sub-basin in Halkirk.
- Identified and described potential downstream impacts and conceptual solutions to eliminate downstream impacts.
- Provided 'ball park' cost estimates for each concept.
- Provided recommendations for consideration by Halkirk.

Report and Presentation to Halkirk Council

- Produced this letter-report summarizing the collected information, analysis, findings, and recommendations.
- Presented the report to Halkirk Council and staff (to be scheduled), and discussed the findings, recommendations and next steps.

Existing Conditions

The developed portion of Halkirk covers roughly a quarter of the Halkirk quarter-section, as shown in *Figure 2*. Land use within the Halkirk boundary is a mixture of residential, commercial, industrial, and general (municipal buildings, parks, school, and undeveloped area), as shown in *Figure 3*.

The developed portion of Halkirk is centered on a knoll which separates the headwaters of two unnamed tributaries of Paintearth Creek. As shown in *Figure 4*, the top of the knoll is southwest of Alberta Avenue and Main Street. From this point, Halkirk essentially drains in four directions, as shown in *Table 1*.

Existing storm water drainage infrastructure consist of curb and gutter on both sides of Main Street, concrete swales crossing Mercer Street and Howard Street on Alberta Avenue, and several swales and culverts. These are shown in *Figure 5*. Halkirk does not have any underground storm pipes.

Halkirk staff identified low areas and areas with occasional standing water (caused in some instances by the elevations of road surfaces well above the elevations of adjacent sidewalks), are shown on *Figure 5*.

Table 1: Major Drainage Basins in Halkirk

DRAINAGE BASIN	RECEIVING WATER BODY	DEVELOPED AREA OF HALKIRK	UNDEVELOPED AREA OF HALKIRK
North	‘North’ wetland (in Halkirk): natural slough / wetlands	2.55 ha north of Alberta Ave. between George St. and Berry St.	21.05 ha rodeo grounds and ball diamond; undulating pasture and wetlands.
East	‘East’ wetland (off site): wetlands and east tributary	5.80 ha east of Berry St., north of Railroad Ave.	10.62 ha undulating pasture and wetlands.
South	‘South’ wetland (off site): wetlands and drainage ditch	3.22 ha south of Alberta Ave., between George St. and Berry St.	6.52 ha natural area and wetlands.
West	‘West’ wetland (off site): wetlands and west tributary	1.36 ha west of George St.	20.58 ha Halkirk Transfer Station, natural area and wetlands.

Regulatory Requirements

Federal Fisheries Act

The tributaries of Paintearth Creek are not considered to be fish bearing, so approvals under the *Federal Fisheries Act* are not required.

Environmental Protection and Enhancement Act (EPEA)

The construction and operation of a storm drainage collection system and storm drainage treatment facilities (e.g. storm pond) requires a Registration under *EPEA*. A completed application form for a Registration must be accompanied by a map showing surface drainage and engineered drawings of the storm pipe system (if any) and storm water treatment facility with outfall (if any).

Water Act

Storm water systems that are demonstrated to have an ‘adequate outlet’ do not require approval under the *Water Act*. An outlet is considered adequate if:

- The impact of the post-development flow cannot be detected, or
- The discharge performs within its design capacity during the peak 1:100 year storm event and will not create an adverse impact on the environment or others.

Outfall structures on natural water bodies may require either an approval under the *Water Act*, or a Notification under the *Water Act Code of Practice for Outfall Structures on Water Bodies*.

Public Lands Act

Where facilities or easements are required on lands claimed by the Crown, a ‘Licence of Occupation’ is required under the *Public Lands Act*. The application for a Licence of Occupation must include a map describing the extent and boundaries of the occupied Crown land, surveyed and prepared by an Alberta Legal Surveyor.

Design Criteria

Storm water management systems in Alberta are designed in accordance with AEP *Storm Water Management Guidelines for the Province of Alberta*. AEP's "*Water Act: Storm Water Management*" Fact Sheet summarizes the goals of storm water management as follows:

- Minimize flooding and erosion.
- Minimize effects to the aquatic environment.
- Maintain the natural stream and wetlands through the property.
- Develop above the 1:100 year flood level.
- Conform to approved master drainage plans.
- Minimize impact on groundwater, erosion and sediment transport to the receiving water.
- Provide runoff control to ensure:
 - A maximum release rate equal to pre-development flow unless an adequate outlet exists and the increased rate of release will not cause any adverse effect.
 - Storm water ponds capable of storing flood events up to 1:100 years.
 - Capture sediments from runoff.

The requirement to limit runoff release to pre-development flow only applies to new development.

Generally, storm water systems in Alberta are designed according to the 'dual drainage' concept, consisting of a 'minor system' and a 'major system':

- 'minor system':
 - designed to transport flows for relatively minor rainstorms.
 - consists of catch basins and underground storm pipes and is typically designed for 1:5 year runoff event.
 - because of the high cost of constructing an underground storm system, many small communities forgo the minor system altogether.
- 'major system':
 - designed for extreme runoff events that exceed the capacity of the minor system.
 - consists of overland flow paths (curb and gutter, ditches, swales), and is typically designed for 1:100 year runoff event.

A minor system consisting of underground storm pipes is not considered to be a cost effective solution for Halkirk at this time. Therefore all conceptual options for drainage improvements will be limited to elements of a 'major system', and designed for the 1:100 year rainfall event where practical.

Assessment of Existing Conditions

The LiDAR survey data, together with the MPE survey data and field inspection, were used to produce a topographic surface of Halkirk and the surrounding area. Within the Halkirk boundary, there are four major drainage basins (see *Table 1*). Each major drainage basin was further divided into sub-basins, based on flow paths and existing land use. The sub-basins are delineated in *Figure 4*.

Overall, there appears to be sufficient gradient throughout the developed area to allow adequate drainage of Halkirk. There are relatively small isolated shallow areas, as identified by Village staff and confirmed by MPE, which trap water. These areas appear to have been caused by a combination of (a) improperly graded lots, (b) raised road beds, (c) raised sidewalks, and/or (d) subsided ground.

The storm water generated by Halkirk appears to enter an 'adequate outlet' in each of the four major drainage basins. As such, there does not appear to be a need to detain the storm water runoff in a storm water management facility (e.g. storm water pond), regardless of existing development not being subject to this requirement.

Village of Halkirk
Storm Water Management Plan

It should be noted that, for significant storm events, developed areas such as in Halkirk can cause about twice the volume of runoff compared to the same area if it were in an undeveloped, or natural, state.

Road grades on gravel roads can tend to be raised over time, as material is added on occasion to repair the surface. As a result, storm water may shed from these roads over the adjacent sidewalks and into the adjacent properties which may have become relatively lower than the road grade. This appears to be the case at many of the low areas identified by Halkirk staff.

While every reasonable effort should be made to alleviate local flooding, generally it is the individual lot owner's responsibility to ensure proper drainage is maintained on their property.

Runoff Rates and Volumes

Surface runoff volumes and flow rates for each sub-basin were estimated for a variety of storm durations and return periods using the Rational Method. Rainfall intensity-duration-frequency (IDF) curves are not available for Halkirk; however, Coronation data were considered to be representative and were used instead. The resulting estimated peak runoff rates and volumes for each currently developed sub-basin are listed in **Table 2** and for each currently undeveloped (natural) sub-basin are listed in **Table 3**.

Table 2: Design Flows and Volumes of Currently Developed Areas

SUB-BASIN	AREA, IN HECTARES	PEAK DISCHARGE, IN M ³ /S (1:100, 1 hr. Storm)	RUNOFF VOLUME, IN M ³ (1:100, 24 hr. Storm)
N1+N2	2.64	0.17	720
E1	1.64	0.09	370
E2	2.92	0.17	740
E3	1.18	0.09	370
S1	3.27	0.25	1,070
W2	0.99	0.07	290
W4	0.37	0.02	100

Table 3: Design Flows and Volumes of Currently Undeveloped Areas

SUB-BASIN	AREA, IN HECTARES	PEAK DISCHARGE, IN M ³ /S (1:100, 1 hr. Storm)	RUNOFF VOLUME, IN M ³ (1:100, 24 hr. Storm)
N3	2.94	0.09	370
N4	18.11	0.53	2,290
E4	10.62	0.31	1,340
S2	6.52	0.19	830
W1	14.47	0.42	1,830
W3	0.81	0.02	105
W5	5.30	0.16	670

Village of Halkirk
Storm Water Management Plan

Culvert Capacities

The 14 culverts in Halkirk were surveyed and inventoried. The culverts were then evaluated using the Bentley “CulvertMaster” software to determine their flow capacities and compared to the estimated 1:100 year flows (AEP guidelines). **Table 4** presents the results of this analysis, which suggests that four culverts are undersized. It should be noted that these capacities assume the culverts are not damaged and have no blockages (e.g. debris or ice).

Table 4: Culvert Flow Capacities

CULVERT ID #	LOCATION	EXISTING CONDITIONS			REQUIRED INCREASED SIZE FOR 1:100 YEAR CAPACITY	
		DIAMETER, IN MM	FLOW CAPACITY, IN M ³ /S	RETURN PERIOD, IN YEARS	DIAMETER, IN MM	FLOW CAPACITY, IN M ³ /S
1	North side Alberta Ave., west of Mercer St.	500	0.38	>1:100	-	-
2	Across Pioneer Ave. at Main St.	250	0.08	1:10	2 – 250	0.16
3	West side Berry St., south of Alberta Ave.	250	0.10	>1:100	-	-
4	West side Berry St. crossing alley	250	0.08	>1:100	-	-
5	Across Railway Ave. at Berry St.	300	0.10	1:2	460	0.23
6	Across driveway east of Howard St. off Railway Ave.	300	-	1:100	-	-
7	Across driveway east of Howard St. & north of Railway Ave.	300	-	1:100	-	-
8	Across access east of Howard St. & north of Railway Ave.	300	-	1:100	-	-
9	Across access north of Railway Ave.	300	0.09	>1:100	-	-
10	South side of Railway Ave., west of Rge Rd 160	300	-	1:100	-	-
11	South side of Railway Ave., west of Rge Rd 160	-	-	1:100	-	-
12	Across Rge Rd 160 south of Alberta Ave.	400	0.17	1:25	460	0.24
13	Across access on Rge Rd 160	400	0.17	1:10	530	0.32
14	Across Rge Rd 160 north of Halkirk	500	-	-	-	-

Conceptual Options

The following conceptual options are provided for consideration during the planning of infrastructure repair and replacement, as well as prior to future development and expansion.

Allowable Release Rate

To ensure storm water runoff leaving the Halkirk boundary limits do not cause any measurable downstream impacts, a ‘maximum allowable release rate’ (MARR), equivalent to the pre-development flow rate, is established and adopted. Generally, a thorough hydrological analysis is required to estimate the MARR. Such an analysis was conducted by MPE in 2015 for the entire Redwillow Creek watershed, in which a MARR of 2.4 L/s/ha was adopted by both the Town of Stettler and Stettler County. Because the 2015 analysis considered streamflow data from Paintearth Creek, which is the watershed in which Halkirk is located, the Redwillow Creek watershed MARR of **2.4 L/s/ha** is also believed to be a reasonable estimate to adopt in Halkirk.

Storm Water Ponds

Halkirk does not expect to develop new areas in the foreseeable future, so the development of a storm water pond(s) to limit runoff release rates will likely not be required in the next 10 years. Regardless, the Halkirk storm water drainage plan should incorporate potential storm pond locations, to be able to meet provincial standards.

Excess runoff from future development must be managed prior to release outside of Halkirk boundaries, at the adopted MARR. Potential locations for storm water ponds may include the lowest lying areas within the Halkirk boundary, as labeled in **Figure 4**:

- ‘North’ wetland: can capture all runoff generated from:
 - the entire ‘North’ drainage basin
 - possibly from the ‘West’ drainage basin north of Alberta Avenue (sub-basin W1) if redirected.
- ‘East’ wetland: can capture all runoff generated from:
 - the entire ‘East’ drainage basin if sub-basins E1 and E2 are redirected northward across Alberta Avenue.
- ‘South’ wetland: can capture all runoff generated from:
 - the entire ‘South’ drainage basin if the land is graded and directed towards the southeast corner of Halkirk.
- ‘West’ wetland: can capture all runoff generated from:
 - Sub-basins W2, W3, W4, and W5 if the land is graded and directed towards the southwest corner of Halkirk.

Assuming future development will produce twice the runoff volume generated under pre-development conditions, the required storage volume for each storm pond is roughly the runoff volume estimated by a 1:100 year storm event under current conditions, as shown in **Table 3**. Actual required storage volume will depend on factors such as the maximum allowable release rate from each pond, the footprint and configuration of each particular pond, the required time to capture sediment to meet provincial requirements, and whether Halkirk decides to include storm water from the existing developed areas.

A forebay may be required to be constructed upstream of each wetland to capture sediment prior to reaching the natural wetland.

If flooding levels in the wetlands caused by storm water runoff exceed water levels under natural conditions, an easement around the portions of the wetland perimeter located outside of Halkirk boundaries would need to be obtained.

If there is any potential disturbance to wetlands, a wetlands assessment will be required to determine what, if any, mitigation measures will be needed.

Road Grades

All road grades should allow for drainage throughout their alignments.

An opportunity to reduce the number and size of low areas with standing water would be to lower road grades from 0 mm to about 500 mm, where feasible, so as to be able to contain storm water runoff between the road and the sidewalk, and not allow storm water to drain over adjacent properties. Candidates may include, but not necessarily limited to, Main Street north of Alberta Avenue and Berry Street north of Alberta Avenue.

The amount of lowering of a particular road may be limited by the depth of cover of existing or future deep utilities placed under the road. The existing depth of cover should be determined during the planning and design phase of any road or utility replacement works, to ensure that at least minimum cover, or equivalent, is maintained for the deep utilities.

Curb and Gutter

Where ditches are not feasible or preferred, curb and gutter arrangements have potential to manage and direct storm water runoff. As with road grades, all curbs and gutters should allow for positive drainage (no ponding) throughout their alignments.

An opportunity to reduce the number and size of low areas with standing water would be to align the gradients of curb and gutters with the adjacent road grade. The design of these grades should occur with the design of the final road profile.

For continuity, aesthetic control, and potential long term cost savings, consideration should be given to adopting a standardized curb and gutter profile(s) for Halkirk.

Culverts

To meet the AEP Guidelines, each culvert should have sufficient capacity to convey the 1:100 year storm water flow rate estimated for the particular culvert site.

As shown in **Table 3**, there are four locations that should have larger culverts. Replacement of these culverts can occur when an opportunity arises, such as during road maintenance or repair in the area.

New and adequately sized culverts should be installed at all locations where storm water runoff may otherwise be blocked or impeded. The peak discharge rates presented in **Table 2** and **Table 3** can be used as guides to help determine the appropriate culvert size. Other site specific factors include pipe material, channel slope, and available depth of cover.

Cost Estimates

The following cost estimates are provided as budget estimates only and are based on Alberta Transportation published 2017 construction prices and MPE experience, for construction costs only, excluding engineering costs. Refined cost estimates should be determined during planning and design phases, when site specific conditions are determined and quantities are calculated.

Storm pond

Assumed unit prices: excavation \$20/m³; surface finishing \$20/m²; inlet structure \$3000; outlet structure \$5000.

- For a 1,000 m³ capacity storm pond, estimated cost range is \$8,000 (no excavated or finishing required), to \$ 50,000 (full excavation and finishing required).
- For a 5,000 m³ capacity storm pond, estimated cost range is \$8,000 (no excavated or finishing required), to \$ 250,000 (full excavation and finishing required).

Road work

Assumed unit prices: subgrade excavation, subgrade preparation, and final grade installation assuming reuse of existing materials \$30.00/m².

- For a typical 150 m road length by a 20 m road allowance width, estimated cost is \$ 90,000.

Curb and gutter

Assumed unit prices: remove old \$50/m; install new \$125/m.

- For a typical 150 m length to remove existing and replace with new, estimated cost is \$ 26,250.

Culverts

Assumed unit prices: remove and dispose existing \$100/m; supply & install new \$300/m.

- For a typical 20 m length to remove existing and replace with new, estimated cost is \$ 8,000.
- For a typical new installation of a 20 m long culvert, estimated cost is \$ 6,000.

Other Costs

Wetlands assessment: \$10,000

Storm pond easement survey and registration: \$5,000

Deep utilities elevations for all of Halkirk: \$5,000

Conclusions

Surface drainage in Halkirk is divided into four major basins. Halkirk generally has sufficient gradient for positive drainage towards the identified locations for potential storm water ponds in each of the four drainage basins.

Storm ponds are not required in the near future because existing development is not necessarily subject to requiring improved storm water management, and significant development in new areas of Halkirk is not expected. As these identified locations are in wetlands, a wetland assessment should be conducted to determine whether any wetland mitigation measures will be required by AEP. As well, easements for flooding may be required for these locations.

Road grades may be lowered in some instances, so as to be able to contain storm water runoff between the road and the sidewalk, and not allow storm water to drain over adjacent properties. Depth of any deep utilities under the road should be confirmed to ensure adequate depth of cover.

Curbs and gutters may be feasible options to improve storm water runoff management by directing runoff along the roads, and towards the locations of potential storm water ponds.

Four of the fourteen identified culverts in Halkirk are undersized, as shown in *Table 3*. These culverts should be upgraded as the opportunity arises. New culverts which are adequately sized for the 1:100 year runoff rate should be installed at all locations where storm water runoff may otherwise be blocked or impeded.

Village of Halkirk
Storm Water Management Plan

Implementation of these conceptual options is expected to alleviate the flooding concerns identified by Halkirk staff and meet provincial standards; however, detailed design is required to ensure the structures will perform as intended and for the long term. Adopting standard designs for infrastructure associated with storm water management (e.g. road profiles, curb and gutter profiles, sidewalks, etc) may realize long term cost savings for construction and maintenance, as well as improve public safety. Individual structures can be constructed in a prioritized phased approach, as required, and subject to funding availability.

Recommendations

The following recommendations are provided for Halkirk to consider, and to ensure an integrated and feasible storm water drainage plan is implemented.

General

1. Design future infrastructure upgrades in accordance with this drainage plan, to ensure the drainage issues identified by Halkirk and MPE are alleviated.
2. Prioritize and phase any works related to storm water management, to allow for budget constraints.

Near Future

3. Determine elevations and depths of cover of existing deep utilities, to determine the feasibility of lowering road grades where appropriate.
4. Adopt standard(s) for road design, curb and gutter, sidewalk, and any other storm water related structures, to realize cost savings of construction and maintenance, and improve public safety.
5. Upgrade undersized culverts as priorities dictate or opportunities present themselves.

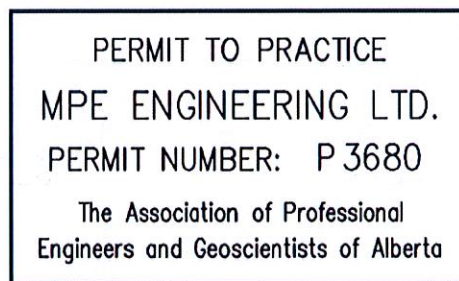
Longer Term

6. Conduct a wetlands assessment as part of the planning and design phases of any storm water pond(s).

If you have any questions or concerns please contact the undersigned at (403) 314-6129

Yours truly,

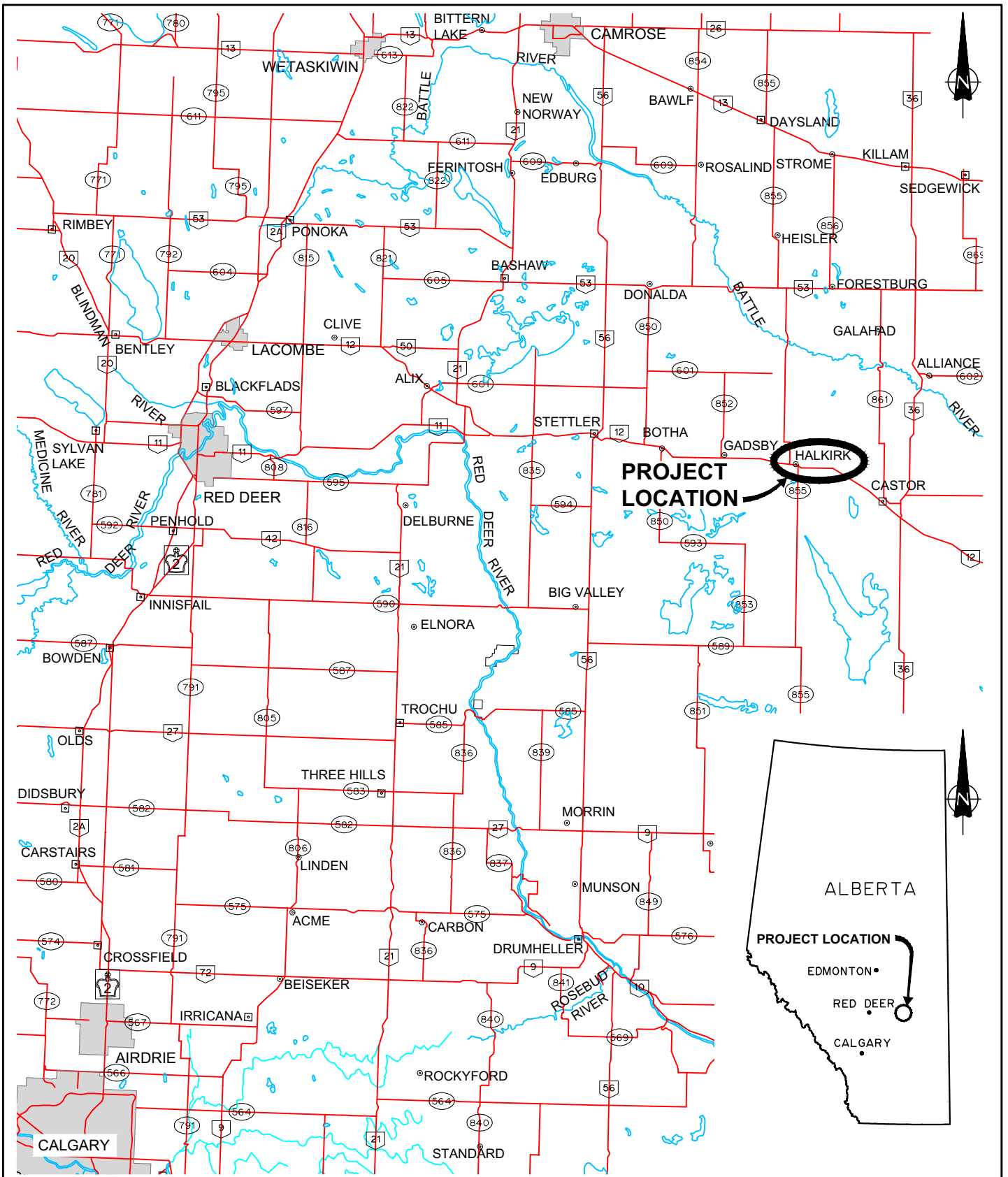
MPE ENGINEERING LTD.



Peter Stevens, P.Eng., FEC, FGC (Hon.)
Senior Project Manager

PS/pp

Attachments – Figures 1 to 5



VILLAGE OF HALKIRK

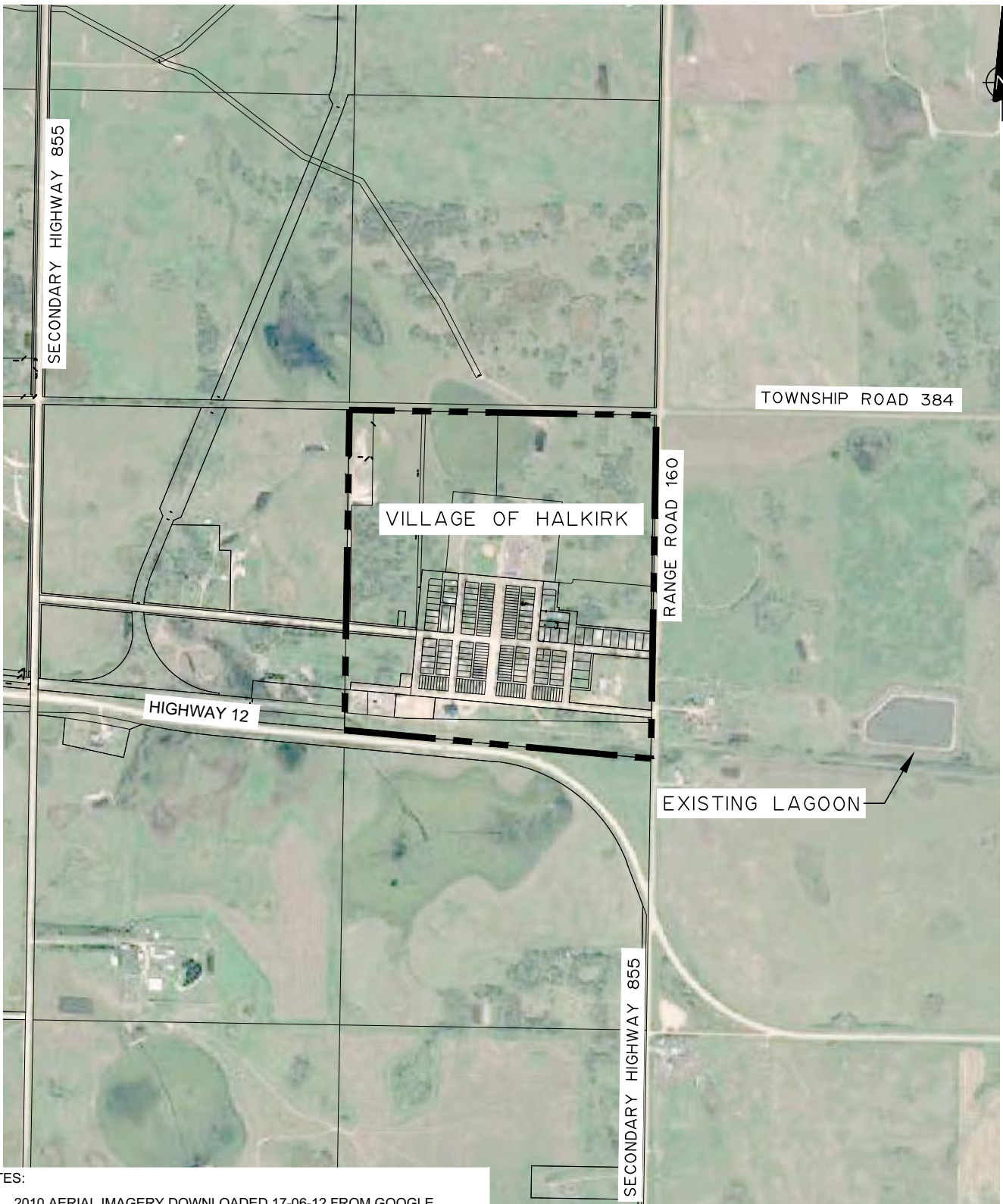
STORMWATER MANAGEMENT PLAN
LOCATION PLAN

SCALE: 1:1 000 000

DATE: MAY 2017

JOB: 4460-002-00

FIGURE: 1



NOTES:

1. 2010 AERIAL IMAGERY DOWNLOADED 17-06-12 FROM GOOGLE EARTH.



VILLAGE OF HALKIRK

STORMWATER MANAGEMENT PLAN
SITE PLAN

SCALE: 1:15 000

DATE: MAY 2017


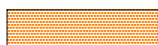
JOB: 4460-002-00

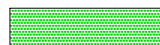

FIGURE: 2



ADOPTED FROM PALLISER REGIONAL MUNICIPAL SERVICES 2010

LEGEND

-  R - RESIDENTIAL
-  C - COMMERCIAL

-  G - GENERAL
-  I - INDUSTRIAL



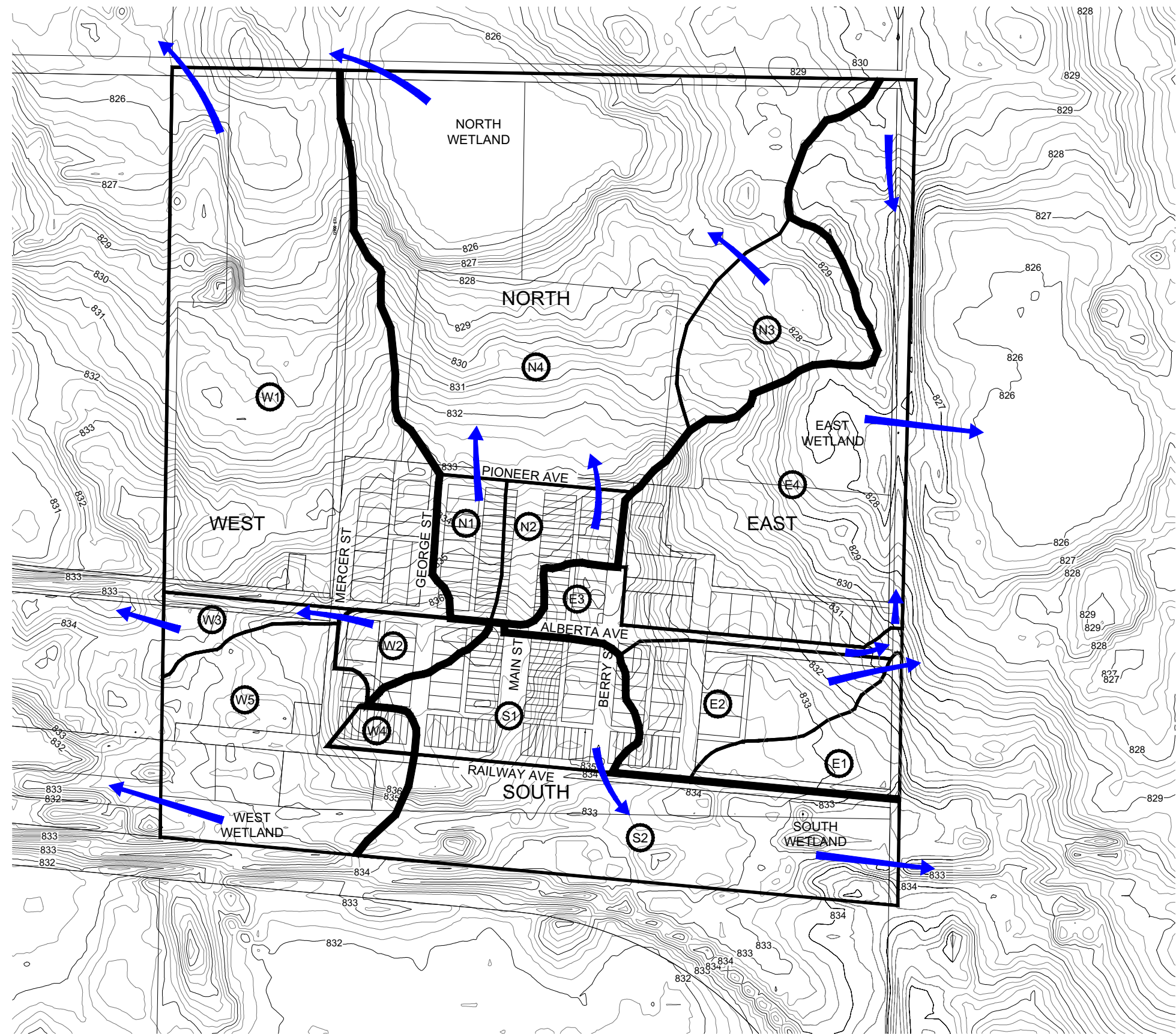
VILLAGE OF HALKIRK
STORMWATER MANAGEMENT PLAN
VILLAGE OF HALKIRK
LAND USE DISTRICT MAP

SCALE: 1:5000

DATE: MAY 2017

JOB: 4460-002-00

FIGURE: 3



NORTH AREA

Ⓝ1	AREA = 1.09ha (2.69ac)
Ⓝ2	AREA = 1.46ha (3.61ac)
Ⓝ3	AREA = 2.94ha (7.26ac)
Ⓝ4	AREA = 18.11ha (44.75ac)
<hr/>	
SUBTOTAL = 23.60ha (58.31ac)	

EAST AREA

ⓔ1	AREA = 1.64ha (4.05ac)
ⓔ2	AREA = 2.95ha (7.39ac)
ⓔ3	AREA = 1.21ha (2.99ac)
ⓔ4	AREA = 10.62ha (26.24ac)
<hr/>	
SUBTOTAL = 16.42ha (40.57ac)	

SOUTH AREA

Ⓢ1	AREA = 3.22ha (7.96ac)
Ⓢ2	AREA = 6.52ha (16.11ac)
<hr/>	
SUBTOTAL = 9.74ha (24.07ac)	

WEST AREA

Ⓦ1	AREA = 14.47ha (35.76ac)
Ⓦ2	AREA = 0.99ha (2.45ac)
Ⓦ3	AREA = 0.81ha (2.00ac)
Ⓦ4	AREA = 0.37ha (0.91ac)
Ⓦ5	AREA = 5.30ha (13.10ac)
<hr/>	
SUBTOTAL = 21.94ha (54.22ac)	

TOTAL TOWNSITE AREA = 71.7ha (177.17ac)



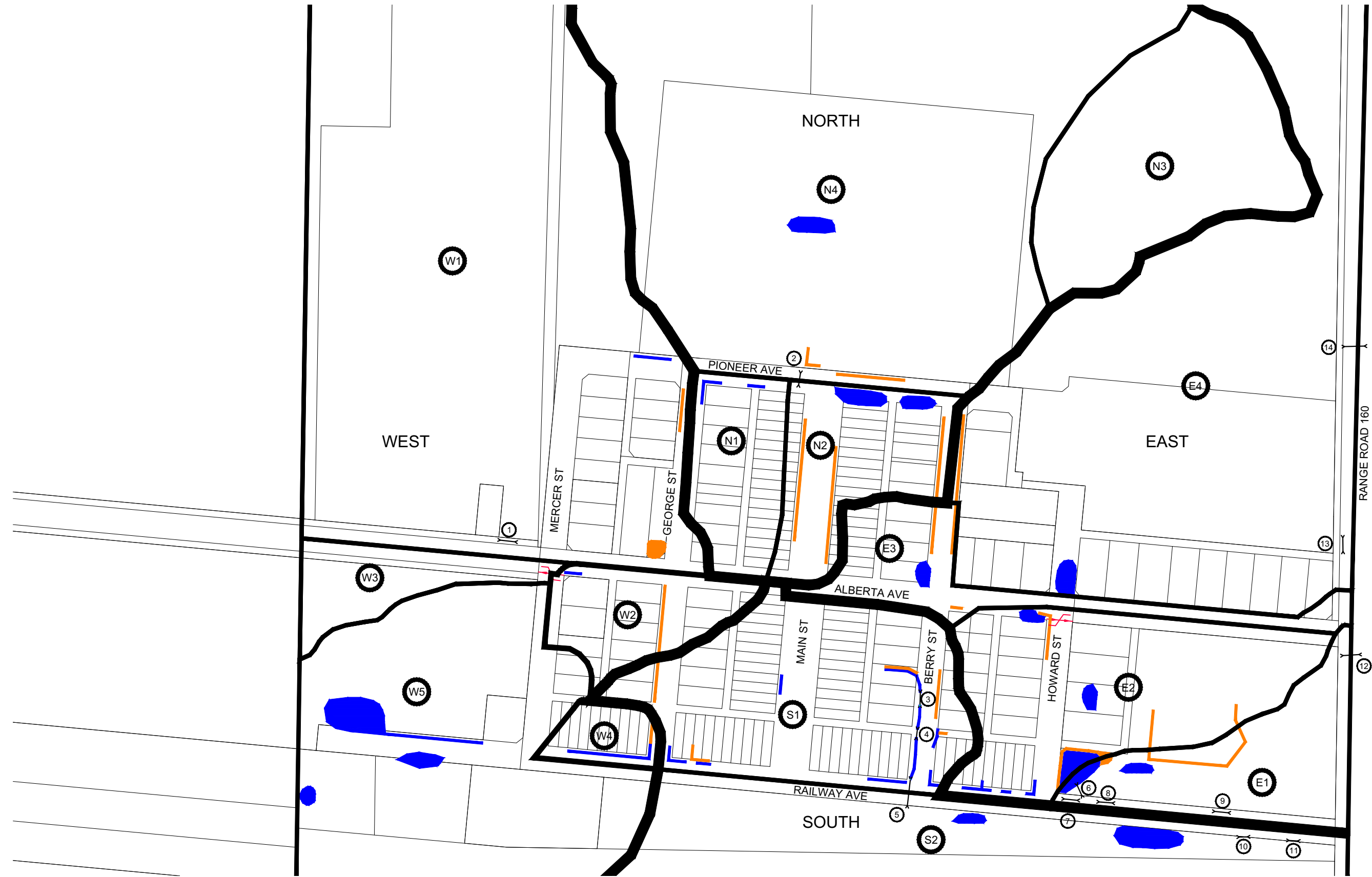
VILLAGE OF HALKIRK
 STORMWATER MANAGEMENT PLAN
 STORMWATER DRAINAGE ROUTES

SCALE: 1:5000







DATE: MAY 2017

JOB: 4460-002-00

FIGURE: 4



LEGEND

	LOW AREAS
	AREAS THAT RETAIN WATER
	DRAINAGE BASIN BOUNDARIES
	CULVERT
	CULVERT IDENTIFICATION NUMBER
	SWALE



VILLAGE OF HALKIRK
STORMWATER MANAGEMENT PLAN
STORMWATER INFRASTRUCTURE AND
PROBLEM AREAS

SCALE: 1:3000	DATE: MAY 2017	JOB: 4460-002-00	FIGURE: 5
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APPENDIX H

Determination of Ride Comfort Index (RCI)

Pavement roughness may be classified into three types:

- The most commonly used roughness measurement relates to the longitudinal profile of the pavement generally along the wheel path and involves a range of wave amplitudes and frequencies related to the smoothness of ride.
- The second type is transverse profile roughness and is generally perpendicular to the direction of travel with hydro-planing (rut depths) and vehicle maneuver considerations being important. Information with respect to transverse profile is very useful at the detailed project level of rehabilitation analysis, but not for the network level pavement management.
- A third type of roughness is micro-roughness, as determined by the surface texture of the pavement; this type is related to skid resistance.

At the network level of pavement management, the longitudinal roughness is of prime importance and thus, for this project, is the only type of roughness that is considered.

To represent a pavement's performance from a user perspective, a Ride Comfort Index (RCI) is determined. Acceptable performance can be gauged from a lack of persistent complaints by the traveling public and/or maintenance personnel. This complaint level is representative of a pavement's ability to carry traffic under normal operating conditions while meeting the expectations of the users.

Ride comfort can be determined by asking drivers of automobiles for their considered opinions. A systematic approach is to form a panel of raters made up of a group of local people who represent the average user of the road system and then have them rate the riding quality of a given pavement. This rating is based on the "feel" of the road that they experience and describes the riding comfort as "good," "fair," "poor," etc. It would not be very practical to have the entire network evaluated in this manner for obvious reasons; therefore, a simpler, more convenient method is employed.

The longitudinal roughness of a road segment is collected using a specially equipped van with two piezo-electric accelerometer and five laser sensors mounted rigidly to the front bumper. An on-board microprocessor transforms the acceleration and sensor readings into an International Roughness Index (IRI). In this way, all roadway distortions affecting ride are measured by vertical actions imposed on the vehicle. It is generally accepted the movement felt by a passenger would be a consequence of the movement of the vehicle; therefore, this provides for a reliable comparison between subjective ride ratings and objective mechanical measurements as collected by a test unit.

Once the network has been surveyed for roughness, segments may be rated by a panel of stakeholders such that the entire range of roughness numbers are covered. The panel's rating of "very good" to "very poor" are then converted onto a scale of zero (0) to 100, where zero represents an unacceptable ride comfort and 100 represents the best possible ride comfort. The next step involves a correlation of these converted ratings to the collected roughness numbers.

The resulting regression equation obtained from the correlation analysis represents the total spectrum of riding comfort versus unit-measured roughness. **Figure G.1** provides a graphical presentation typical of this relationship. Once this is done, all roughness numbers from the collection unit can be converted to a Ride Comfort Index (RCI). This developed procedure allows for an economical, consistent representation of the acceptability of all segments within an agency's road network.

When an agency has established an IRI–RCI correlation, it should remain reasonably stable for several years, although of course, much more frequent recalibration of the roughness device may be needed. It should be noted panel ratings might change with time and/or region. This is primarily due to the range of serviceability levels experienced by the users and to a lesser degree, to the changes in the overall serviceability spectrum of the specific network in a region and changes in vehicle characteristics.

VILLAGE OF HALKIRK RCI MODEL

The current Model to convert measured IRI (mm/m) to an RCI index score in the analysis is as follows:

$$RCI = 10 \times [8.809 - (3.3 \times \ln(IRI))]$$

where **IRI** = International Roughness Index (mm/m or m/km)

RCI values determined at 30-metre intervals were used to calculate segment equivalents. These segment values were then used to generate a summary distribution and mean for the network.

Figure G.1 graphically shows the relationship between IRI and RCI used for the analysis.

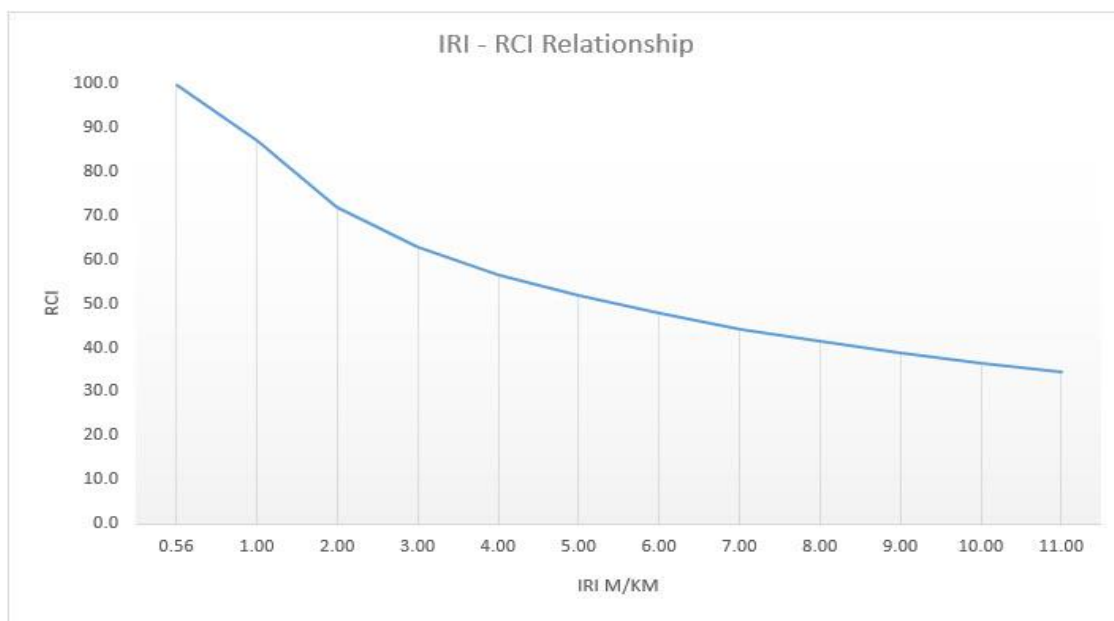


Figure G.1: Village of Halkirk IRI – RCI Model

APPENDIX I

Determination of Pavement Distress Index (PDI)

The Pavement Distress Index (PDI) is a measure of physical pavement cracking, deformations and surface defects collectively referred to as distresses. This provides an excellent indicator of material deficiency, rate of deterioration, structural adequacy, environmental and soil type problems. The PDI is a key indicator of pavement performance, which may be used to monitor the condition of the network, assess future needs, establish ranking and optimize expenditures. It will also provide information to monitor the performance of various design, rehabilitation and maintenance techniques and to provide information for identifying candidate projects for maintenance and improvement programs.

The procedure described herein was developed as a means of converting the flexible pavement surface distress ratings produced by the operators of the survey unit into index values between zero (0) and 100. This includes the production of indicators for individual distress types at each station, the production of one index value for each station (i.e. combining all types of distress into one value) and the production of one index value for an entire pavement segment.

DISTRESS CODES

The pavement distress manifestations evaluated by the raters are recorded in the survey unit in a coded form which ranges from 00 (no distress) to 25 (severe throughout). The first digit is the severity and the second digit is the extent as described in **Table H.1**.

Table H.1: Severity and Extent Codes

NUMERIC CODE	SEVERITY DEFINITION	EXTENT DEFINITION
0	Slight	None
1	Moderate	Few
2	Severe	Intermittent
3		Frequent
4		Extensive
5		Throughout

For example, if alligator cracking on a flexible pavement is found to be moderate in severity and extensive in occurrence, a value of '14' would be recorded, the '1' indicating moderate severity and the '4' indicating extensive occurrence.

There are 12 types of distresses considered in the formulation of PDI as indicated in **Table H.2**. A code is assigned to each distress type for every station sampled along the length of a pavement segment.

Table H.2: Distress Types

CODE	DISTRESS ID	DISTRESS NAME
1	PAT	Patching & Utility Cuts
2	RPL	Rippling & Shoving
3	RAV	Raveling & Weathering
4	FLU	Flushing & Bleeding
5	DST	Deformations & Distortions
6	EDG	Progressive Edge Cracking
7	ALG	Alligator & Fatigue Cracking
8	POT	Potholes
9	MAP	Map & Block Cracking
10	LON	Longitudinal Cracking
11	TRN	Transverse Cracking
12	RUT	Wheel Path Rutting

DISTRESS SCORES

To summarize the data for each segment, the distresses are combined into a single index (PDI), which is calculated using the deduct point system. The amount deducted is a function of the extent, type and severity of the distress. Deduct Value (DV) models are set up for each distress type and are comprised of three curves of Slight, Moderate and Severe. The %Area quantity of the reported distress, at the identified severity level, is run through the DV model to determine the DV score of each distress type. The more critical the distress type (e.g., Alligator Cracking), the more severe the deduct modeling.

The DV type, distress density measurement, and the DV model coefficients 'a' and 'b' for the distresses included in PCI calculation are listed in **Table H.3**.

Table H.3: Pavement Distress Deduct Value Model Coefficients

DISTRESS TYPE	QUANTITY MEASUREMENT	SLIGHT		MODERATE		SEVERE	
		Coef A	Coef B	Coef A	Coef B	Coef A	Coef B
Alligator Cr	% Area	0.039	0.4136	0.284	0.3421	0.455	0.2839
Map Cr	% Area	-1.052	0.8114	-0.619	0.7034	-0.209	0.5878
Long. Cr	% Lineal/Area	-0.531	0.6419	-0.075	0.4808	0.187	0.4997
Trans. Cr	% Lineal/Area	-0.531	0.6419	-0.075	0.4808	0.187	0.4997
Edge Cracking	% Area	-0.536	0.5538	-0.055	0.3960	0.171	0.3855
Bleeding	% Area	-1.134	0.6962	-0.563	0.6067	-0.241	0.5655
Distortion	% Area	-0.666	0.6533	-0.076	0.5511	0.295	0.3930
Rutting	% Area	-0.307	0.5507	0.117	0.4016	0.306	0.3711
Rippling	% Area	-0.490	0.7179	-0.007	0.5152	0.292	0.3844
Raveling	% Area	-0.812	0.5202	-0.065	0.3471	0.214	0.3670
Patching/Utility Cuts	% Area	-0.871	0.4383	-0.719	0.4878	-0.338	0.4737
Potholes	% Area	0.664	0.5162	1.024	0.5780	1.102	0.3879

INDIVIDUAL DISTRESS DEDUCT VALUES

The equation to calculate the individual distress DV is as follows:

$$DV_i = 10^{(a + b * \text{LOG}(\%Area))}$$

where **%Area** = percent area of the distress/severity occurrence

The DV for a distress type is the sum of the combined severity-extend deduction for that distress type.

ADJUSTED DISTRESS SCORES

The Total Deduct Value (TDV) is then calculated as the sum of the individual distress values:

$$TDV = \sum (DV_i)$$

The Adjusted Deduct Value (ADV) is then calculated from the TDV based on the number of equivalent distresses (NED) present. The NED is calculated as the sum of the ratios of each distress value to the maximum distress value (DV_{max}). The DV_{max} is the largest DV observed for the data. This can be expressed as:

$$NED = \sum (DV_i / DV_{max})$$

where **DV_i** = distress value for distress/severity level

DV_{max} = highest distress value observed

The ADV is calculated using the following equation:

$$\text{ADV} = 10 \times (-0.5 \times \text{LOG}(\text{NED}) + \text{LOG}(\text{TDV}))$$

The ADV–TDV correlation is graphically presented in **Figure H.1**.

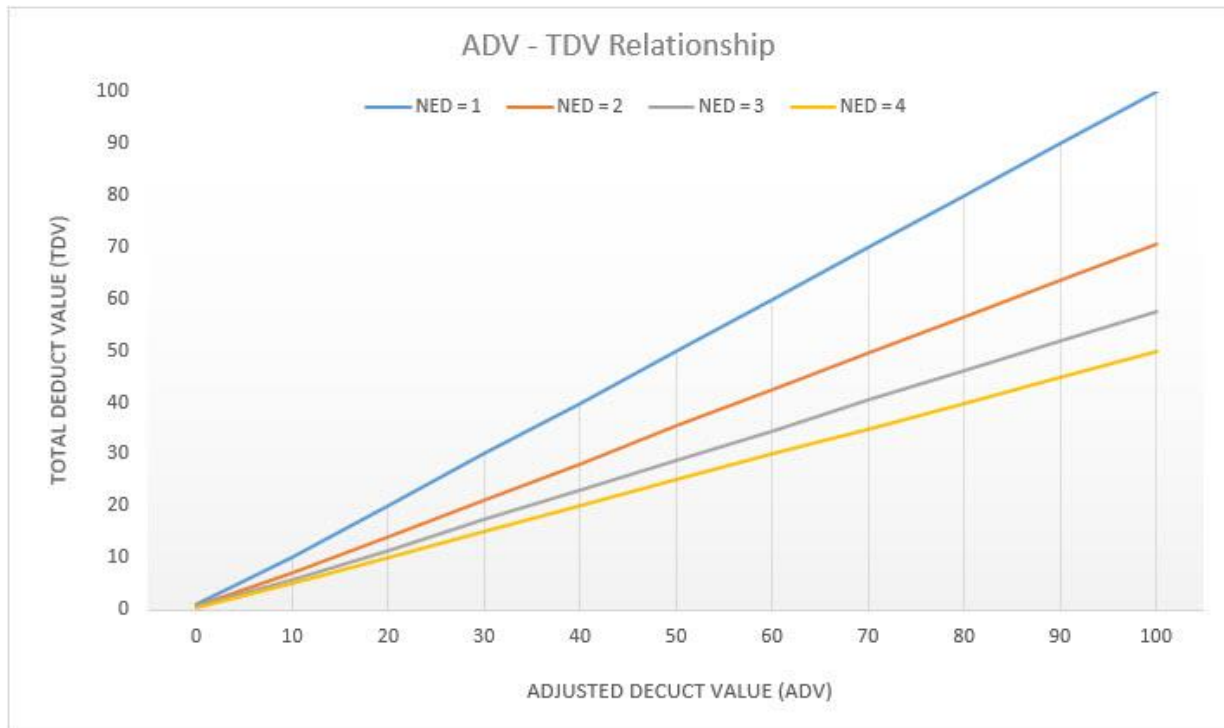


Figure H.1: ADV and TDV Correlation

PAVEMENT DISTRESS INDEX (PDI)

Final PDI scores are calculated as follows:

$$\text{PDI} = \text{PDI}_M - \text{ADV}$$

where PDI_M is the Maximum PDI score of 100

The PDI for each pavement segment is determined after all stations have been processed. This involves evaluating the contribution of each of the 12 individual distress items to the segment PDI.

PDI values determined at 30-metre intervals were used to calculate segment equivalents. These segment values were then used to generate a summary distribution and mean for the network.

APPENDIX J

Determination of Overall Condition Index (OCI)

The Overall Condition Index (OCI) is used to provide a single overall assessment of pavement quality. The OCI is calculated as a function of one or more of the key Performance Indicators: The Pavement Distress Index (PDI), Ride Comfort Index (RCI), and Structural Adequacy Index (SAI).

The OCI models used in the analysis are as follows:

Model 1 $OCI = 0.3456 + 0.7988*RCI + 0.0454*PDI^2$

This model is applied to segments that do not have SAI scores.

Model 2 $OCI = 1.8455 + 0.2052*SAI + 0.0957*RCI*PDI$

This model is applied to segments that have SAI scores.

Model 3 $OCI = PDI$

This model is used when only PCI scores are available for a segment.

APPENDIX K

Cause-Condition Matrices

LOAD

Cause Matrices													
LoadClassification_AC	EnvClassification_AC	MatClassification_AC	ConsClassification_AC	GOOD			FAIR			POOR			
				MAP			ALG						
				GOOD	FAIR	POOR	GOOD	FAIR	POOR	GOOD	FAIR	POOR	
SAL_RCI	GOOD	RUT	GOOD	1	2	2	2	2	2	3	3	3	
			FAIR	2	2	2	2	2	3	3	3	3	
			POOR	2	2	3	3	3	3	3	3	3	
	FAIR		GOOD	2	2	2	2	2	3	3	3	3	3
			FAIR	2	2	2	2	3	3	3	3	3	3
			POOR	2	2	3	3	3	3	3	3	3	3
	POOR		GOOD	3	3	3	3	3	3	3	3	3	3
			FAIR	3	3	3	3	3	3	3	3	3	3
			POOR	3	3	3	3	3	3	3	3	3	3

ENVIRONMENT

Cause Matrices													
LoadClassification_AC	EnvClassification_AC	MatClassification_AC	ConsClassification_AC	GOOD			FAIR			POOR			
				MAP			LT						
				GOOD	FAIR	POOR	GOOD	FAIR	POOR	GOOD	FAIR	POOR	
POT	GOOD	RAV	GOOD	1	2	2	2	2	2	3	3	3	
			FAIR	1	2	2	2	2	3	3	3	3	
			POOR	2	2	3	3	3	3	3	3	3	
	FAIR		GOOD	2	2	2	2	2	3	3	3	3	3
			FAIR	2	2	2	2	3	3	3	3	3	3
			POOR	2	2	3	3	3	3	3	3	3	3
	POOR		GOOD	3	3	3	3	3	3	3	3	3	3
			FAIR	3	3	3	3	3	3	3	3	3	3
			POOR	3	3	3	3	3	3	3	3	3	3

CONSTRUCTION

Cause Matrices													
LoadClassification_AC	EnvClassification_AC	MatClassification_AC	ConsClassification_AC	GOOD			FAIR			POOR			
				POT			RAV						
				GOOD	FAIR	POOR	GOOD	FAIR	POOR	GOOD	FAIR	POOR	
DST	GOOD	RUT	GOOD	1	1	2	2	2	2	3	3	3	
			FAIR	1	2	2	2	2	3	3	3	3	
			POOR	2	2	2	2	2	3	3	3	3	
	FAIR		GOOD	2	2	2	2	3	3	3	3	3	3
			FAIR	2	2	2	3	3	3	3	3	3	3
			POOR	2	2	3	3	3	3	3	3	3	3
	POOR		GOOD	3	3	3	3	3	3	3	3	3	3
			FAIR	3	3	3	3	3	3	3	3	3	3
			POOR	3	3	3	3	3	3	3	3	3	3

MATERIAL

Cause Matrices													
LoadClassification_AC	EnvClassification_AC	MatClassification_AC	ConsClassification_AC	GOOD			FAIR			POOR			
				POT			RAV						
				GOOD	FAIR	POOR	GOOD	FAIR	POOR	GOOD	FAIR	POOR	
LT	GOOD	EDG	GOOD	1	2	2	2	2	3	3	3	3	
			FAIR	1	2	3	2	2	3	3	3	3	
			POOR	2	2	3	2	2	3	3	3	3	
	FAIR		GOOD	1	2	3	2	2	3	3	3	3	3
			FAIR	2	2	3	2	3	3	3	3	3	3
			POOR	2	2	3	3	3	3	3	3	3	3
	POOR		GOOD	3	3	3	3	3	3	3	3	3	3
			FAIR	3	3	3	3	3	3	3	3	3	3
			POOR	3	3	3	3	3	3	3	3	3	3

APPENDIX L

Decision Matrices

PAVED ROAD NETWORK

rehab_decision				LOAD									
				GOOD			FAIR			POOR			
				CONS									
				GOOD	FAIR	POOR	GOOD	FAIR	POOR	GOOD	FAIR	POOR	
ENV	GOOD	MAT	GOOD	4	4	4	4	4	5	5	7	7	
			FAIR	4	4	4	4	4	5	5	7	7	
			POOR	4	4	4	4	5	5	7	7	7	
	FAIR		GOOD	4	5	5	5	5	5	5	5	7	7
			FAIR	5	5	5	5	5	5	7	7	7	7
			POOR	5	5	5	5	5	7	7	8	8	8
	POOR		GOOD	5	5	5	5	5	5	8	8	8	8
			FAIR	5	5	5	5	5	7	8	8	8	8
			POOR	5	5	5	5	7	8	8	8	8	8

Rehab Alternatives						
ID	Workclass	Name	Description	Cost	Unit	Gain
1	rehab	MSrf	Micro Surface	\$83,250.00	\$/in-km	25
2	rehab	OL50	Overlay 50mm	\$128,250.00	\$/in-km	50
3	rehab	OL75	Overlay 75mm	\$157,500.00	\$/in-km	60
4	rehab	EM50	Edge Mill/Repair and Overlay 50mm	\$146,250.00	\$/in-km	55
5	rehab	FM50	Full Mill and Overlay 50mm	\$171,000.00	\$/in-km	60
6	rehab	FM75	Full Mill and Overlay 75mm	\$207,000.00	\$/in-km	70
7	rehab	FM-LBR	Full Mill and Overlay + LBR	\$261,000.00	\$/in-km	80
8	rehab	RC-LOC	Local Reconstruction	\$742,500.00	\$/in-km	100

APPENDIX M

2021 Road Condition and 10-Year Rehabilitation Needs Segment Listing

VILLAGE OF HALKIRK
ROAD CONDITION AND 10-YEAR REHABILITATION LISTING
 SORT: Segment ID

ASTM OCI	CONDITION	SEGMENT ID2	STREET	FROM	TO	SURFACE	LANES	LANE-KM	NEED YEAR	OCI	PDI	RCI	IRI (M/KM)	LOAD COND.	CONST COND.	MATERIAL COND.	ENVIRON COND.	DATA YEAR	TRAF LEVEL	EGT LEVEL	SUBGRD LEVEL	REHAB TREATMENT LEVEL	COST
Very Poor		20	Railway Avenue	Mercer Street	George Street	AC	2	0.197	2021	31.7	28.0	30.9	5.66	POOR	GOOD	GOOD	GOOD	2021	Low	Med	Weak	Full Mill and Overlay 50mm	\$33,767
Poor		30	Railway Avenue	George Street	Main Street	AC	2	0.203	2024	54.1	75.4	31.0	6.38	POOR	GOOD	GOOD	GOOD	2021	Low	Med	Weak	Full Mill and Overlay 50mm	\$34,763
Poor		40	Railway Avenue	Main Street	Berry Street	AC	2	0.206	2024	52.7	34.2	55.1	2.75	FAIR	FAIR	FAIR	POOR	2021	Low	Med	Weak	Full Mill and Overlay 50mm	\$35,253
Poor		50	Railway Avenue	Berry Street	Howard Street	AC	2	0.190	2022	48.9	0.1	56.9	2.69	FAIR	FAIR	FAIR	POOR	2021	Low	Med	Weak	Full Mill and Overlay 50mm	\$32,491
Satisfactory		60	Railway Avenue	Howard Street	Range Road 160	AC	2	0.472	2033	81.7	76.8	64.3	2.08	GOOD	GOOD	GOOD	GOOD	2021	Low	Med	Weak	Edge Mill/Repair and Overlay 50mm	\$69,102
Fair		70	Alberta Avenue	Village Limits	Mercer Street	AC	2	0.386	2025	56.0	58.7	46.2	3.63	FAIR	GOOD	GOOD	FAIR	2021	Low	Med	Weak	Full Mill and Overlay 50mm	\$66,011
Satisfactory		80	Alberta Avenue	Mercer Street	George Street	AC	2	0.194	2031	73.8	80.7	51.1	3.11	FAIR	GOOD	GOOD	GOOD	2021	Low	Med	Weak	Edge Mill/Repair and Overlay 50mm	\$28,397
Poor		90	Alberta Avenue	George Street	Main Street	AC	2	0.203	2021	43.5	48.4	36.8	5.00	POOR	GOOD	GOOD	GOOD	2021	Low	Med	Weak	Full Mill and Overlay 50mm	\$34,752
Fair		100	Alberta Avenue	Main Street	Berry Street	AC	2	0.204	2027	61.9	70.3	45.1	3.88	FAIR	GOOD	GOOD	GOOD	2021	Low	Med	Weak	Edge Mill/Repair and Overlay 50mm	\$29,765
Good		110	Alberta Avenue	Berry Street	Howard Street	AC	2	0.192	2034	86.8	85.7	62.5	2.24	GOOD	GOOD	GOOD	GOOD	2021	Low	Med	Weak	Edge Mill/Repair and Overlay 50mm	\$28,060
Fair		120	Alberta Avenue	Howard Street	Range Road 160	AC	2	0.449	2025	55.7	47.4	52.7	3.08	FAIR	FAIR	FAIR	POOR	2021	Low	Med	Weak	Full Mill and Overlay 50mm	\$76,818
Poor		130	Mercer Street	Railway Avenue	Alberta Avenue	AC	2	0.305	2022	47.7	27.6	51.1	3.07	POOR	GOOD	GOOD	GOOD	2021	Low	Med	Weak	Full Mill and Overlay 50mm	\$52,114
Poor		140	George Street	Railway Avenue	Alberta Avenue	AC	2	0.309	2021	40.1	49.6	31.9	6.59	POOR	FAIR	FAIR	POOR	2021	Low	Med	Weak	Local Reconstruction	\$229,616
Satisfactory		150	George Street*	Alberta Avenue	Pioneer Avenue	AC	2	0.312	2030	70.2	83.8	43.6	4.01	FAIR	GOOD	GOOD	GOOD	2021	Low	Med	Weak	Edge Mill/Repair and Overlay 50mm	\$44,352
Serious		180	Main Street	Railway Avenue	Alberta Avenue	AC	2	0.307	2021	20.7	36.1	14.1	9.82	POOR	FAIR	FAIR	POOR	2021	Low	Med	Weak	Local Reconstruction	\$227,904
Poor		200	Berry Street	Railway Avenue	Alberta Avenue	AC	2	0.309	2021	41.1	52.3	31.6	5.87	POOR	FAIR	GOOD	GOOD	2021	Low	Med	Weak	Full Mill and Overlay + LBR	\$80,698
Good		210	Berry Street*	Alberta Avenue	Pioneer Avenue	AC	2	0.303	2037	100.0	100.0	67.8	1.85	GOOD	GOOD	GOOD	GOOD	2021	Low	Med	Weak	Edge Mill/Repair and Overlay 50mm	\$45,629
Fair		220	Howard Street	Railway Avenue	Alberta Avenue	AC	2	0.307	2030	69.7	86.6	40.3	4.73	FAIR	GOOD	GOOD	GOOD	2021	Low	Med	Weak	Edge Mill/Repair and Overlay 50mm	\$44,943

PASER	CONDITION	SEGMENT ID2	STREET	FROM	TO	SURFACE	LANES	LANE-KM	PSR ₅
Fair		160	Pioneer Avenue	George Street	Main Street	Gravel	2	0.208	3.4
Fair		170	Pioneer Avenue	Main Street	Berry Street	Gravel	2	0.202	3.4
Fair		190	Main Street	Alberta Avenue	Pioneer Avenue	Gravel	2	0.314	3.1

APPENDIX N

2021 Sidewalk Condition and Maintenance Levels Segment Listing

VILLAGE OF HALKIRK
 2021 SIDEWALK NETWORK CONDITION SUMMARY
 Sort: Priority Ranking

ASTM Condition	Segid	Block Face	Street	From Street	To Street	Length	Material Type	SW Data Date	Slab Length	SW Width	Total slabs	SCI	Priority Ranking	Failed- Missing Ramps	Hazard	Pedestrian Exposure Importance	Usage	Total Slabs Affected	Patching	Crack Sealing	PCC Grinding	Mud- Jacking	MG-KRETE Surf Repair	Recon- Slab	Recon- Section	Total Cost
Poor	60N	North	Railway Avenue	Howard Street	Range Road 160	121.0	PCC	MNLITH 2021-06-03	3.00	1.50	40	48	1	0	High	Low	Low	16	\$0	\$0	\$0	\$0	\$0	\$39,600	\$0	\$39,600
Poor	120S	South	Alberta Avenue	Howard Street	Range Road 160	69.2	PCC	MNLITH 2021-06-03	3.00	1.50	23	51	2	0	High	Low	Low	3	\$0	\$135	\$0	\$0	\$0	\$0	\$0	\$135
Fair	140E	North	George Street	Railway Avenue	Alberta Avenue	134.8	PCC	MNLITH 2021-06-03	3.00	1.50	45	58	3	0	High	Low	Low	9	\$0	\$90	\$198	\$540	\$2,700	\$0	\$0	\$3,528
Fair	180E	North	Main Street	Railway Avenue	Alberta Avenue	138.5	PCC	MNLITH 2021-06-03	3.00	1.50	46	71	4	0	High	Low	Low	2	\$0	\$90	\$0	\$0	\$0	\$0	\$0	\$90
Good	220W	North	Howard Street	Railway Avenue	Alberta Avenue	57.7	PCC	MNLITH 2021-06-03	3.00	1.50	19	86	5	0	Moderate	Low	Low	1	\$0	\$45	\$0	\$0	\$0	\$0	\$0	\$45
Poor	50N	East	Railway Avenue	Berry Street	Howard Street	67.2	PCC	MNLITH 2021-06-03	3.00	1.50	22	49	6	0	Moderate	Low	Low	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Satisfactory	150WA	North	George Street	Alberta Avenue	Pioneer Avenue	66.5	PCC	MNLITH 2021-06-03	3.00	1.50	22	83	7	0	Moderate	Low	Low	1	\$90	\$0	\$0	\$0	\$0	\$0	\$0	\$90
Very Poor	180W	South	Main Street	Railway Avenue	Alberta Avenue	134.1	PCC	MNLITH 2021-06-03	3.00	1.50	45	35	8	0	Low	Low	Low	8	\$90	\$180	\$99	\$0	\$1,350	\$0	\$0	\$1,719
Poor	150E	East	George Street	Alberta Avenue	Pioneer Avenue	144.4	PCC	MNLITH 2021-06-03	3.00	1.50	48	48	9	0	Low	Low	Low	6	\$90	\$90	\$0	\$540	\$1,350	\$0	\$0	\$2,070
Fair	20N	West	Railway Avenue	Mercer Street	George Street	78.5	PCC	MNLITH 2021-06-03	3.00	1.50	26	57	10	0	Low	Low	Low	8	\$0	\$270	\$0	\$0	\$1,350	\$0	\$0	\$1,620
Fair	90S	West	Alberta Avenue	Main Street	Main Street	79.2	PCC	MNLITH 2021-06-03	3.00	1.50	26	59	11	0	Low	Low	Low	9	\$90	\$225	\$0	\$0	\$2,025	\$0	\$0	\$2,340
Fair	150WB	South	George Street	Alberta Avenue	Pioneer Avenue	22.0	PCC	MNLITH 2021-06-03	3.00	1.50	7	62	12	0	Low	Low	Low	1	\$0	\$0	\$0	\$0	\$675	\$0	\$0	\$675
Fair	140W	N	George Street	Railway Avenue	Alberta Avenue	134.4	PCC	MNLITH 2021-06-03	3.00	1.50	45	66	13	0	Low	Low	Low	5	\$0	\$135	\$0	\$0	\$1,350	\$0	\$0	\$1,485
Fair	190E	E	Main Street	Alberta Avenue	Pioneer Avenue	137.6	PCC	MNLITH 2021-06-03	3.00	1.50	46	68	14	0	Low	Low	Low	2	\$90	\$0	\$0	\$0	\$675	\$0	\$0	\$765
Fair	120N	E	Alberta Avenue	Howard Street	Range Road 160	191.1	PCC	MNLITH 2021-06-03	3.00	1.50	64	69	15	0	Low	Low	Low	7	\$0	\$180	\$0	\$0	\$2,025	\$0	\$0	\$2,205
Satisfactory	110N	W	Alberta Avenue	Berry Street	Howard Street	77.4	PCC	MNLITH 2021-06-03	3.00	1.50	26	78	16	0	Low	Low	Low	2	\$90	\$45	\$0	\$0	\$0	\$0	\$0	\$135
Satisfactory	210W	E	Berry Street	Alberta Avenue	Pioneer Avenue	138.8	PCC	MNLITH 2021-06-03	3.00	1.50	46	82	17	0	Low	Low	Low	1	\$0	\$45	\$0	\$0	\$0	\$0	\$0	\$45
Satisfactory	200E	E	Berry Street	Railway Avenue	Alberta Avenue	82.1	PCC	MNLITH 2021-06-03	3.00	1.50	27	83	18	0	Low	Low	Low	4	\$0	\$180	\$0	\$0	\$0	\$0	\$0	\$180
Satisfactory	80N	S	Alberta Avenue	Mercer Street	George Street	29.3	PCC	MNLITH 2021-06-03	3.00	1.50	10	83	19	0	Low	Low	Low	1	\$0	\$45	\$0	\$0	\$0	\$0	\$0	\$45
Satisfactory	100S	S	Alberta Avenue	Main Street	Berry Street	78.1	PCC	MNLITH 2021-06-03	3.00	1.50	26	85	20	0	Low	Low	Low	2	\$90	\$0	\$0	\$0	\$675	\$0	\$0	\$765
Good	100N	N	Alberta Avenue	Main Street	Berry Street	79.1	PCC	MNLITH 2021-06-03	3.00	1.50	26	93	21	0	Low	Low	Low	1	\$0	\$45	\$0	\$0	\$0	\$0	\$0	\$45
Good	90N	N	Alberta Avenue	George Street	Main Street	79.3	PCC	MNLITH 2021-06-03	3.00	1.50	26	96	22	0	Low	Low	Low	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Good	30N	S	Railway Avenue	George Street	Main Street	79.8	PCC	MNLITH 2021-06-03	3.00	1.50	27	96	23	0	Low	Low	Low	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Good	210E	S	Berry Street	Alberta Avenue	Pioneer Avenue	139.4	PCC	MNLITH 2021-06-03	3.00	1.50	46	97	24	0	Low	Low	Low	1	\$90	\$0	\$0	\$0	\$0	\$0	\$0	\$90
Good	40N	N	Railway Avenue	Main Street	Berry Street	78.0	PCC	MNLITH 2021-06-03	3.00	1.50	26	99	25	0	Low	Low	Low	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Good	110S	E	Alberta Avenue	Berry Street	Howard Street	38.3	PCC	MNLITH 2021-06-03	3.00	1.50	13	100	26	0	Low	Low	Low	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Good	130E	W	Mercer Street	Railway Avenue	Alberta Avenue	134.6	PCC	MNLITH 2021-06-03	3.00	1.50	45	100	27	0	Low	Low	Low	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Good	190W	N	Main Street	Alberta Avenue	Pioneer Avenue	106.9	PCC	MNLITH 2021-06-03	3.00	1.50	36	100	28	0	Low	Low	Low	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Good	200W	E	Berry Street	Railway Avenue	Alberta Avenue	44.2	PCC	MNLITH 2021-06-03	3.00	1.50	15	100	29	0	Low	Low	Low	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Good	80S	N	Alberta Avenue	Mercer Street	George Street	79.5	PCC	MNLITH 2021-06-03	3.00	1.50	27	100	30	0	Low	Low	Low	0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

APPENDIX O

Hames Engineering Report

Capacity Study for the Village of Halkirk

Revision 0

PERMIT NUMBER P13504



2021-09-22

Prepared for:
MPE Engineering Ltd.
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Prepared by:
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September 22, 2021

Hames Engineering has examined the existing supply of fuel gas to the Village of Halkirk located at 12-19-038-16W4. All customers require a delivery pressure above 138 kPag (20 psig).

Assumptions:

- The high-pressure system can fully supply the Village of Halkirk;
- Regulator(s) on the Village of Halkirk can maintain a discharge pressure of 206 kPag (30 psig);
- Unknown residential loads are set at 6.0 Sm³/h (212,000 BTU/h);

The purpose of the villages distribution system is to supply adequate volumes of gas to all customers within the village through appropriately sized mains and service lines. Based on the existing configuration of the distribution system, future development, expansion and upgrades should be relatively easy and cost effective. The village's existing system is made up of approximately 2,675m DN20 (NPS¾) polyethylene, 250m DN25 (NPS1) polyethylene, and 2,025m DN50 (NPS2) polyethylene low pressure gas lines. The village is supplied through a regulating station that is located just on the North side of Pioneer Ave between Main and George Street with set pressure of 206 kPag (30 psig) which is supplied by Paintearth Gas Co-op's Tap 0070.

The design parameters established for this study include gas sources, system capacity requirements, and operating pressures. The design of distribution system facilities is governed by:

- CAN/CSA-Z662-19 Oil and Gas Pipeline Systems as published by CSA Group.
- Technical Standards and Specification Manual for Gas Distribution Systems as published by the Government of Alberta.
- Province of Alberta, Gas Distribution Act, RSA 2000, c G-3, Published by Alberta Queen's Printer
- Province of Alberta, Pipeline Act, RSA 2000, c P-15, Published by Alberta Queen's Printer

Based on an interview with Allen Dietz, the NPS2 mains are likely constructed with CIL-219 resin and pipe installed after 1978 is likely not CIL-219. Bulletin RUB-2004-01 dated February 27, 2004 from the Alberta Government's Rural Utilities Section states that the resins MOP shall be limited to 60 psig. Beyond that pressure, an accelerated failure rate has been observed. Halkirk's historical operating pressure has either been 20 psig or 30 psig which is far below the recommended maximum of 60 psig, this reduces the operating stress and increases the useful life of the pipeline. However, no records indicating resin and pipe information have been found.

The population according to Statistics Canada's Census are as follows:

Year	Population	Percent Change
2016	112	-7.4%
2011	121	7.1%
2006	113	-

The table above indicates the population of Halkirk is stable over time and the need for upgrades to the gas distribution system has low urgency in the near term (10 years). If there is a large load added to the network, calculations can be performed to determine the required upgrades.

The existing system showed that all customers are above the set minimum delivery pressure of 138 kPag (20 psig) with the delivery pressure to Koenraad's grain dryer of 205 kPag (30 psig) during

the winter and 202 kPag (29 psig) during grain drying season being the lowest pressure observed in the model. It is important to note that the grain dryer was not simulated to run during the winter.

Only one leak record could be found for the Village of Halkirk, and it was due to a line strike. No data on the pipe specifications could be found.

In the event of future upgrades, CSA B137.4 high density polyethylene pipe (PE4710/PE 100) SDR11 is recommended for the high-pressure distribution line for lines operating below 990 kPag (144 psig) or above, respectively, since both will meet all the supply criteria. CSA B137.4 medium density polyethylene pipe (PE2708) SDR11 can be used for all future low-pressure distribution mains and services. This product meets the requirements for systems operating at pressure less than 690 kPag (100 psig). Polyethylene material has been used extensively throughout the Alberta Rural Gas Program due to its cost effectiveness in terms of initial capital investment, general reliability, and reduced expenses for repair and maintenance during utility operation.

For transmission lines operating above 990 kPag (144 psig) a combination of steel or Flexpipe is recommended for use.

Proposed gas mains within residential areas should be DN50 (NPS2) PE lines with DN25 (NPS1) service lines. DN75 (NPS3) or DN100 (NPS4) lines may be required for large agricultural or industrial loads.

The assessment of the village's existing network was done through the analysis of a B3PE GASWorks system model based on current and historical gas consumption data provided by the village which were then used to estimate peak demands. The model required the following physical data from the system:

- Length of Pipes
- Material of Pipes
- Diameter of Pipes
- Customer Loads

This study will outline upgrading requirements to satisfy existing and future growth and provide a cost estimate for the recommended upgrades. The scope of this study are as follows:

- Review the existing gas systems.
- Determine the system demands.
- Analyze the capability of the existing system to handle the current and projected demands.
- Determine the upgrading requirements to satisfy existing and future growth (as applicable).
- Assess future growth based on the growth of town.
- Provide a cost estimate for the recommended upgrades.

A degree day calculation was performed based on the historical gas consumption data from the village and was used to determine the total connected loads on the existing system. Coincidence factors are then applied to the total connected load to represent a portion of the total connected load which is used for the peak design loads. For future peak design loads it was estimated at a 20% increase from the current peak design loads to account for new homes and larger natural gas appliances being installed such as furnaces, dryers, fireplaces, barbeques, stoves, and on demand

hot water tanks. A drawback of the Degree Day method is that it will miss large loads that are only occasionally used such as make up air heaters. The total connected load information was not available for the Village of Halkirk.

Coincidence Factor, sometimes called diversity factor, means the ratio of the total connected load and the probability of the connected equipment running simultaneously. The coincidence factor recognizes that the total connected load will not be on at the same time. The coincidence factor is dimensionless and expressed as a decimal that is always less than or equal to one. This factor is established based on experience and judgement. Experience has shown that the values in the below table are reasonable but slightly conservative for the load type and scenarios described.

With the coincidence factor applied, the hydraulic model shows that the existing system has more than half of its capacity still available for future developments within the village. Based on the analysis of the existing system, it is suggested that no upgrades are required to supply the current customer demands.

In my analysis the following coincidence factors may be used:

	Winter Power Outage	Winter	Grain Dryer	Irrigation
Distributed Residential Light commercial	0.8	0.5	0.3	0.2
Subdivision	0.8	0.5	0.3	0.2
Grain Dryer	-	-	0.6	-
Irrigation	-	-	-	1
Industrial	1	1	1	1

Design Basis Memorandum

Client: MPE Engineering

Project Name: 001 Village of Halkirk infrastructure assessment and 10 year capital plan
Brief Description: Capacity Study for the Village of Halkirk

Design constraints: With a delivery pressure above 138 kPag (20 psig).

Scenario Information

1. Base Village of Halkirk
2. Scenario 1 + peak load increased by 20% to represent future peak design loads

Pipeline information

Calculated pressures at Koenraadts Farms grain dryer with Taps set at 206 kPag

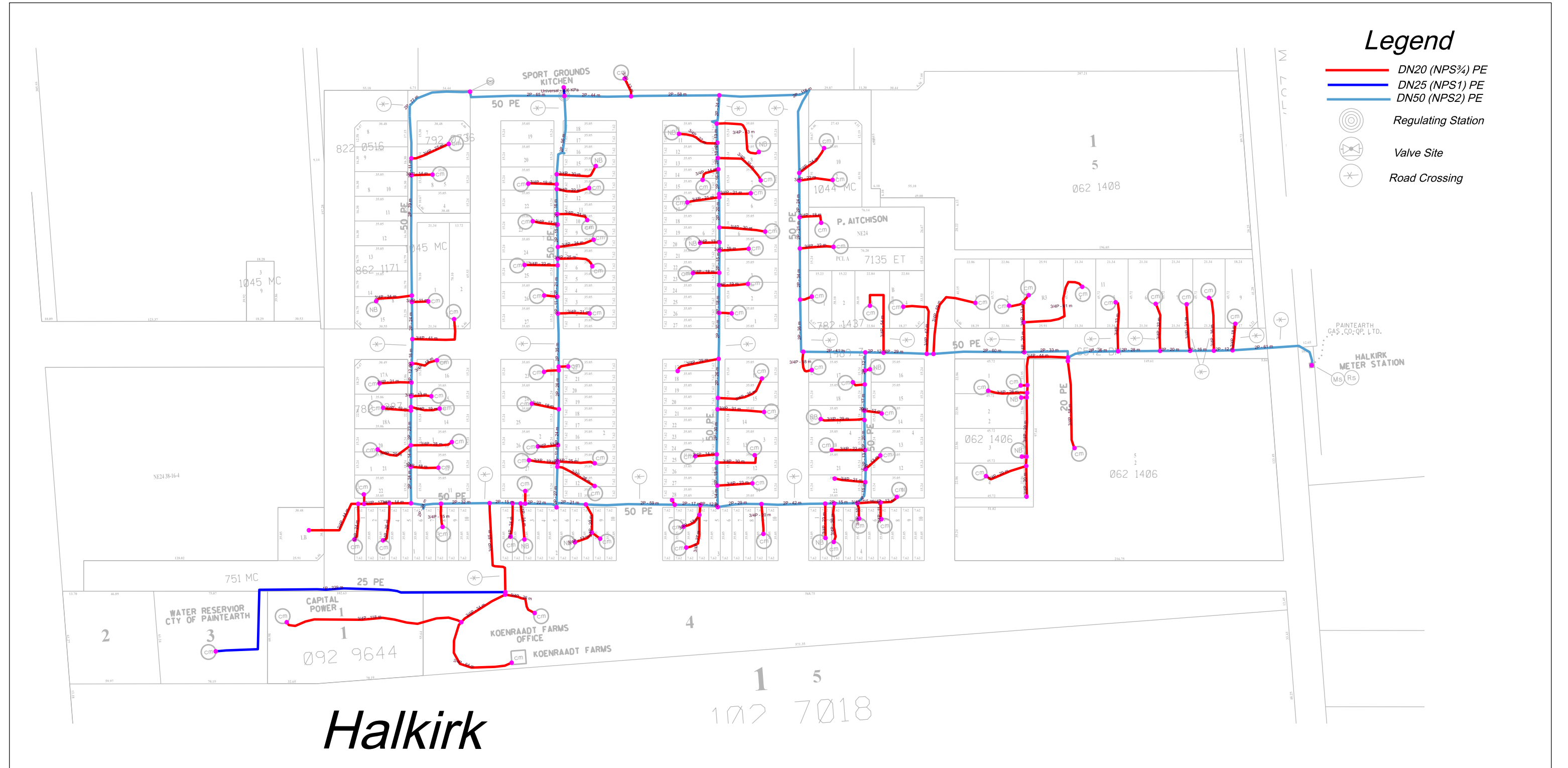
10-24-038-16W4	Pressure (kPag)		Pressure (psig)	
	Winter	Grain Dryer	Winter	Grain Dryer
Scenario 1	205	202	30	29
Scenario 2	204	201	30	29

Calculated pressures at P. Kroetsch Residence with Taps set at 206 kPag




10-24-038-16W4	Pressure (kPag)		Pressure (psig)	
	Winter	Grain Dryer	Winter	Grain Dryer
Scenario 1	205	205	30	30
Scenario 2	204	205	30	30

Set Pressure of RS to Village of Halkirk

10-24-038-16W4	Pressure (kPag)		Pressure (psig)	
	Winter	Grain Dryer	Winter	Grain Dryer
Scenario 1	206	206	30	30
Scenario 2	206	206	30	30




Legend

- DN20 (NPS $\frac{3}{4}$) PE
- DN25 (NPS1) PE
- DN50 (NPS2) PE
-  Regulating Station
-  Valve Site
-  Road Crossing

NOTES

Engineers Stamp



HAMES
ENGINEERING
LTD.

Village of Halkirk

Village of Halkirk Winter Pressures

DRAWN BY D. Hames	DATE 2021-AUG-17	DRAWING NO. HLK-GAS-1000
REV A	SCALE 1:2500	

Legend

- < 0 psi (0 KPa)
- 0 - 7.25 psi (0 - 50 KPa)
- 7.25 - 11.6 psi (50 - 80 KPa)
- 11.6 - 16.0 psi (80 - 110 KPa)
- 16.0 - 20.3 psi (110 - 140 KPa)
- 20.3 - 24.7 psi (140 - 170 KPa)
- 24.7 - 29 psi (170 - 200 KPa)
- > 29 psi (200 KPa)



Halkirk Winter Pressures

NOTES

Engineers Stamp



Village of Halkirk

Village of Halkirk Winter Pressures

DRAWN BY D. Hames	DATE 2021-AUG-17
REV A	SCALE 1:2500

DRAWING NO.
HLK-GAS-1000

Legend

- < 0 psi (0 KPa)
- 0 - 7.25 psi (0 - 50 KPa)
- 7.25 - 11.6 psi (50 - 80 KPa)
- 11.6 - 16.0 psi (80 - 110 KPa)
- 16.0 - 20.3 psi (110 - 140 KPa)
- 20.3 - 24.7 psi (140 - 170 KPa)
- 24.7 - 29 psi (170 - 200 KPa)
- > 29 psi (200 KPa)



Halkirk Grain Dryer Pressures

NOTES

Engineers Stamp



Village of Halkirk

Village of Halkirk Winter Pressures

DRAWN BY D. Hames	DATE 2021-AUG-17
REV A	SCALE 1:2500

DRAWING NO.
HLK-GAS-1000

APPENDIX P

Phase 1 Environmental Assessment Report

Geotechnical, Environmental and Materials Engineering

Red Deer · Sherwood Park · Grande Prairie · Calgary · Fort McMurray
Peace River · Medicine Hat · Lethbridge · Fort St. John · Estevan · Regina

PHASE I ENVIRONMENTAL SITE ASSESSMENT

VARIOUS SITES, HALKIRK, ALBERTA

PREPARED FOR

THE VILLAGE OF HALKIRK
C/O MPE ENGINEERING LTD.
HALKIRK, ALBERTA

PREPARED BY

PARKLAND GEOTECHNICAL CONSULTING LTD.
RED DEER, ALBERTA

Parkland **GEO**

The logo for Parkland GEO features the word "Parkland" in a dark blue sans-serif font, followed by "GEO" in a bold green sans-serif font. The "GEO" is partially enclosed by a green circular swoosh that starts from the right and loops back to the left, crossing over the "G".

PROJECT NO. RD7434

AUGUST 13, 2021

EXECUTIVE SUMMARY

Parkland Geotechnical Consulting Ltd (ParklandGEO) was commissioned by the Village of Halkirk in care of MPE Engineering Ltd. (MPE) to complete a Phase I ESA on the below Properties within the Village of Halkirk as a part of an infrastructure audit being completed by MPE.

LOCATION	CURRENT USE	STUDY AREA
Lot 4, Block 1, Plan 062 1408	Campground (CG)	Study Area 1
Lots 26, 27, Block 7, Plan 1989Z	Church	Study Area 2
Lot 2, Block 8, Plan 1045MC	Curling Rink (CR)	
Lots 11,12,13, Block 3, Plan 1989Z	Berry Street Campground (BSC)	Study Area 3
Lots 1, 2, 3 Block 3, Plan 1989Z	Seniors Centre (SC), Village Office (VO) and Public Works Yard (PW)	
Lots 22, 23, 24,25,26,27, Block 3, Plan 1989Z	Community Hall (CH)	
Lots 17,18,19,20,21, Block 3, Plan 1989Z	Water Tower and Playground (WTP)	
Lots 7,8,9,10, Block 3, Plan 1989Z	Fire Hall (FH)	
Lots 13, 14, Block 2, Plan 1989Z	Canada Post and Bank (CPB)	
Lot 3, Block 11, Plan 7822147	Mini Arena (MA)	Study Area 4

Based on the available information gathered during the Phase I ESA, the following conclusions and risk level have been presented relative to the Study Areas outlined above:

Study Area 1

- **The Campground** was located in the north portion of the Village of Halkirk and was historically used as recreation grounds since before 1963. The Campground currently had a drink shack, storage shed, concession, baseball diamond, rodeo grounds and camp sites. A recreational vehicle (RV) septic drain was located near the south side of the Campground near the main entrance and was reported to drain to the Village lagoons located east of the Village. The Campground is expected to have a low environmental risk.
- A historical landfill was located north of the current Waste Transfer Station approximately 180 m to the northwest of the Campground. Information was provided to ParklandGEO for review by Mr. Kevin McDougall, Transfer Station Supervisor for Paintearth Regional Waste Management Ltd. It was reported that the Waste Transfer Station accepted cardboard, recyclables, household waste, tires, electronics, metal, white metal (fridges, stoves, etc.) furniture, construction materials, batteries, propane tanks and had a burn pile for yard waste (grass, brush, trees). Records on file indicated that in October, 2009, Alberta Environment completed an investigation (File No. 8574) of the Halkirk Transfer Station due to the improper storage of hazardous waste. Paintearth Regional Waste Management Ltd. contracted EnviroSort and Filipenko Bros. Construction Ltd. to clean up and dispose of hazardous wastes or chemicals, and 201.5 m³ of impacted soil at CCS Midstream Services from the Waste Transfer Station in the August, 2010. No records of environmental assessments were provided. Mr. McDougall reported that there was little to no records of the former landfill. Mr. McDougall was unable to gather information via correspondence regarding its historical footprint, operational periods, and records of historical ESA's or closure process. As there were no records regarding the operations, closure or capping of the former landfill the risk to the Campground is expected to be low to moderate based on the distance. A 300 m development setback would extend from the landfill to the southeast encroaching on the campground which may restrict further development in the absence of environmental assessments, landfill gas or leachate monitoring, and adequate risk assessment.

Study Area 2

- **The Church** appeared to occupy its current Lot since at least 1910. The current building was constructed in 1918 and relocated to a new foundation in 1994. The Church was mostly open-concept with a single mechanical room in the northwest corner of the building. The church was serviced with electricity and gas only and no water or waste water services were present. The initial development likely predates Hazardous Building Materials (HBMs), however; undocumented renovations completed since original construction may have used HBMs.

The adjacent east site from the Church was reported to be the current Wild Rose building (former Halkirk Corner Service) and had documentation of an Underground Storage Tank (UST) removal with identified Petroleum Hydrocarbon (PHC) contamination in 1998. There was no further documentation available for review and the location of the USTs were unknown. Correspondence from a former Village CAO reported that test holes were completed east of the site, within Main Street, and gas odours were encountered in the soil. The Current Dura Bull site located southeast of the Church south of Alberta Avenue was also reported to have historical USTs located south of the original building prior to the 1960's. There was no formal documentation regarding the USTs, only correspondence provided by a former Village CAO.

The Church in Study Area 2 is expected to have a low potential environmental risk due to onsite activities and history. The surrounding area is expected to pose a low potential risk with exception of the former Halkirk Corner Service and current Dura Bull which are expected to pose a moderate to high potential environmental risk based on the undelineated impacts and historical site uses.

- **The Curling Rink** was constructed in 1956 and has operated since that time. The Curling Rink used an artificial ice system containing freon and calcium chloride to maintain ice sheets. Linear piping within the ice sheets contained calcium chloride as a part of the cooling system and was bedded on fine grained material, gravel and potentially coal slag. During ice melt, water was reported to drain into the basement prior to the sewer line. Significant cracking was observed in the foundation of the basement and a void space was observed on the west wall. Water was observed in the basement and appeared to be wicking up wood posts and on the foundation walls. White stains were observed within the wicking water and is likely salt deposits. The salt deposit crust may be indicative of a leak in the artificial ice system or natural salts in the area. Potential HBMs may have been used in construction and renovations completed since development. Mould was noted in the shed on the north portion of building in which the artificial ice system was located.

The use of freon and calcium chloride in the artificial ice machine and the age of development and potential presence of HBM's. If a leak occurred in the artificial ice system, calcium chloride chemicals may be present in the soil and/or groundwater. The Curling Rink is expected to have a high potential environmental risk. It is recommended the identified mould in the artificial ice system shed be assessed and abated and a building condition assessment (BCA), including a structural assessment be completed including the buildings foundation.

Study Area 3

- **The Berry Street Campground** was developed as its current orientation between 2003 and 2010. The Berry Street Campground contained 8 camping stalls, each serviced with water, power and sewer. Based on land titles and the historical aerial review, the Berry Street Campground was likely a historical lumber yard operated by “the Crown Lumber Company Limited” and “Revelstoke Building Materials Limited” during their ownership from 1914 to 1965 and 1967 to 1978, respectively.

Due to the historical nature of the lumber yard on the Berry Street Campground, historical creosote or other wood treatment chemicals may be present in the soil and/or groundwater and is expected to pose a moderate environmental potential risk.

- **The Village Office and Public Works** shop were built as additions surrounding the **Seniors Center** which was originally constructed in 1921. The Seniors Center included a basement and second floor previously developed as an apartment. The basement of the Seniors Center appeared to be in poor condition with standing water and cracks observed in the foundation. Water was observed in the basement and appeared to be wicking up wood posts and on the foundation walls. White stains were observed within the wicking water and is likely salt deposits. The salt deposit crust is likely indicative of natural conditions in the area as this was a significant distance away from the reported salt sources in the Village. The second floor of the Seniors Center was no longer used and interior finishes appeared to be dated. Water damage was located on the ceiling. A formerly exterior door led to the attic space of the Village Office where layered paint was observed on the formerly exterior brick wall.

HBM's may be present within the Seniors Center and should be assessed. It is recommended that a BCA including a structural assessment be completed on the Seniors Center building and foundation.

- The Village Office was constructed in 1980 and located north of the Seniors Center and was comprised of two offices. The Village Office appeared to be in good condition and reported minor structural issues, including a crack in the drywall above one of the doors. The Village Office is expected to have a low potential environmental risk.
- The Public Works shop was constructed in 1980 and located north of the Village Office. The Public Works shop was used for the storage and maintenance of Village owner equipment. Contents stored included: barricades, signage, small quantities of chemicals and tools. A single sump was located in the shop floor but was not inspected due to the liquid contents present. The Public Works building is expected to have a low potential environmental risk.

- **The Community Hall** was originally constructed in the late 1940's and burned down in 1947. Redevelopment occurred in 1952 and included a kitchen with other additions added in 1985, 1986 and 2001. Limited documentation was present regarding the fire and rebuilding details. The Community Hall featured a kitchen, dance floor and basement. The basement was reported to be a Permanent Wood Foundation (PWF). The basement dampness was reported to be attributed to times of heavy precipitation and snow melt.

Due to the age of construction, HBMs may be present within earlier developed portions of the building and should be assessed. It is recommended that a BCA including a structural assessment be completed on the Community Hall building and foundation. The Community Hall is considered to have a low to moderate potential environmental risk.

- **The Water Tower** was originally constructed in 1977 and the **Playground** was built in 1985. The Water Tower has been decommissioned and preserved as a historical structure. The Playground was comprised of a swing set, play structure and gazebo.

The Water Tower and Playground is expected to have a low potential risk due to the onsite use and history. However, as these facilities are located on the southeast corner of the intersection near the Former Halkirk Corner Service and Dura Bull sites, potential impacts from historical fuel USTs could be present and are yet to be defined, and as such, these adjacent sites pose a moderate to high potential environmental risk to the Water Tower and Playground.

- **The Fire Hall** was constructed in 1991 with an addition on the west side in 2019. Two sumps were located in the shops, were reported to be in good condition and were reported to see minimal use. A former chlorination shed was located on the north side of the fire hall and had minimal storage of chlorine in pails. There were no reported releases of chlorine and the residual unused chemical was disposed of offsite during a "waste round up event" in 2010 during its decommissioning.

The Fire Hall use and operations are expected to pose a low potential environmental risk. However, there may be impacts that are undefined related to the adjacent east site which historically had a fuel UST and pump island, in which their exact locations were unknown. Minimal soil and groundwater samples were collected and analysed within the historical investigation on this adjacent site and groundwater flow was not calculated. The adjacent east site is expected to pose a moderate potential environmental risk to the Fire Hall.

- **The Canada Post and Bank** building was constructed in 2006 and replaced a previous development. The building was constructed in a similar location and was completed with two units and a shared washroom.

The Canada Post and Bank building and associated operations were expected to pose a low potential environmental risk. However, the Dura Bull was located immediately north of the Canada Post and Bank building. Historical records reported that "Gee Lee Chinese Laundry" was located "*behind*" the Halkirk Hotel, south of the Canada Post and Bank building. Gee Lee Laundry had no definitive location, address or duration of operations identified. Dry cleaning activities are known to date back to 1821. There was inconclusive evidence to support the presence or absence of dry cleaning activities or associated chemical use, if it was operational at that location, and potential impacts could be present due to poor historical disposal practices for associated chemicals. Due to the historical offsite fuel USTs at Dura Bull and potential drycleaner, the adjacent sites are expected to pose a moderate potential risk to the Canada Post and Bank building/lot.

Study Area 4

- **The Mini Arena** was constructed in 1976. There was an original structure constructed offsite in the 1950's which was relocated to the Mini Arena as an addition at an unknown date. The Mini Arena contained a model train display at the time of the inspection from a previous tenant who had defaulted on rent. The Mini Arena used winter conditions to create ice historically and no artificial systems were reported to be historically present. Records available on ESAR identified an oil storage tank was removed from the Halkirk School located south of the Mini Arena. Stains were noted and no further information was available for review.

The Mini Arena and operations were expected to pose a low potential environmental risk. Based on the location and distance of Halkirk School and waste oil tank location, the buffer zone provided by Alberta Avenue and school site itself and the properties of waste oil in soil, offsite impacts were not expected. Therefore, the former oil storage tank was expected to pose a low potential risk to the Mini Arena.

Area	Current Use	Potential Environmental Concern(s)	Risk Level	Recommendation
Study Area 1	Campground Rodeo Grounds	Landfill & Waste Transfer Station	Low to moderate	- Obtain further correspondence with Alberta Environment - Development considerations based on the 300 m landfill setback
Study Area 2	Church	Offsite Fuel USTs	Moderate to High	- Phase II ESA to assess adjacent west historical fuel USTs - HBMA prior to renovations or demolition
	Curling Rink (CR)	Freon Calcium chloride Foundation HBMs	High	- Phase II ESA to assess potential calcium chloride impacts USTs, - Building Condition Assessment (BCA) completed on basement foundation - HBMA prior to renovations or demolition - Considerations of HBMs and mould prior to renovations and/or demolition and during occupancy of the basement or second floor
Study Area 3	Berry Street Campground (BSC)	Former Lumber Yard	Moderate	- Phase II ESA to assess for potential contaminates due to historical lumber yard activity and storage
	Seniors Centre (SC), Village Office (VO) and Public Works (PW)	HBMs Foundation	Low	- Building Condition Assessment (BCA) completed on basement foundation - Considerations of HBMs and mould prior to renovations and/or demolition
	Community Hall (CH)	HBMs Offsite Fuel USTs	Low to moderate	- HBMA prior to renovations or demolition - Phase II ESA to assess adjacent west and northwest historical fuel

				USTs
	Water Tower and Playground (WTP)	Adjacent northwest site Offsite Fuel USTs	Moderate to high	- Phase II ESA to assess adjacent west and northwest historical fuel USTs
	Fire Hall (FH)	Offsite Fuel USTs	Moderate	- Phase II ESA to assess adjacent east historical fuel USTs and lumber yard activities to the north
	Canada Post and Bank (CPB)	Offsite Fuel USTs Potential Dry Cleaner (Gee Lee Laundry)	Moderate	- Phase II ESA to assess adjacent north historical fuel USTs and potential dry cleaning chemicals
Study Area 4	Mini Arena (MA)	None	Low	- No further work recommended at this time

ParklandGEO notes gaps in information regarding the environmental conditions at several of the Properties in the Village of Halkirk. The Village of Halkirk began settlement in 1910 with the completion of the Canadian Pacific Railway. Documentation and records for the Village appear to date back to the late 1950's and early 1960's. Available aerial photographs date back to 1949. With the lack of available records, there is a significant data gap from 1910 to the 1950's regarding historical operations and tenants of the Properties.

HBM's could be present in the majority of the buildings as historical undocumented renovations may have occurred. Hazardous building materials may include: mould, asbestos, urea formaldehyde foam insulation (UFFI), lead paint, lead pipe or polychlorinated biphenyls (PCBs). Air quality may be affected in the Seniors Center and the Curling Rink due to the visually identified mould.

As there were no records regarding the operations, closure or capping of the former landfill the risk to the Campground is expected to be low to moderate based on the distance. A 300 m development setback would extend from the landfill to the southeast, encroaching on the campground which may restrict further development in the absence of environmental assessments, landfill gas or leachate monitoring to determine the appropriate risk assessment.

Phase II ESAs are recommended on the Church, Curling Rink, Berry Street Campground, Community Hall, Water Tower, Playground, Fire Hall and Canada Post and Bank building due to the proximity of offsite fuel USTs. Soil and Groundwater samples be collected and analysed for respective parameters of potential concern based on the adjacent site operations.

Further environmental assessments are recommended, as outlined above, and proposals can be prepared upon request.

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1.0 INTRODUCTION

1.1 PROJECT BACKGROUND

Parkland Geotechnical Consulting Ltd. (ParklandGEO) was commissioned by MPE Engineering Ltd. (MPE) on behalf of the Village of Halkirk to conduct a Phase I Environmental Site Assessment (ESA) at the following sites in Halkirk, Alberta as a part of an infrastructure audit being completed by MPE.

LOCATION	CURRENT USE	STUDY AREA
Lot 4, Block 1, Plan 062 1408	Campground (CG)	Study Area 1
Lots 26, 27, Block 7, Plan 1989Z	Church	Study Area 2
Lot 2, Block 8, Plan 1045MC	Curling Rink (CR)	
Lots 11,12,13, Block 3, Plan 1989Z	Berry Street Campground (BSC)	Study Area 3
Lots 1, 2, 3 Block 3, Plan 1989Z	Seniors Centre (SC), Village Office (VO) and Public Works Yard (PW)	
Lots 22, 23, 24,25,26,27, Block 3, Plan 1989Z	Community Hall (CH)	
Lots 17,18,19,20,21, Block 3, Plan 1989Z	Water Tower and Playground (WTP)	
Lots 7,8,9,10, Block 3, Plan 1989Z	Fire Hall (FH)	
Lots 13, 14, Block 2, Plan 1989Z	Canada Post and Bank (CPB)	
Lot 3, Block 11, Plan 7822147	Mini Arena (MA)	Study Area 4

The properties are referred to in this report as “Property”, “Properties”, “Lots” or “Study Area(s)”, as shown of Figure 1. The Properties are groups within the Study Areas as summarized above and on Figure 2. The Phase I ESA was requested as a part of an infrastructure audit being completed by MPE for the Village owned Properties, within Halkirk, Alberta.

1.2 QUALIFICATIONS

The historical searches, site inspection and report preparation were completed by Mr. Spencer Podgurski, ATT, of ParklandGEO. Mr. Podgurski holds a Diploma in Land and Water Resources from Olds College, majoring in Environmental Reclamation and Remediation. Mr. Podgurski has over 5 years of consulting experience, during which time he has completed over 110 Phase I ESA investigations.

Ms. Suzanne Musolino, P.Ag., EP., BIT., provided a technical and senior review of the final report. Ms. Musolino has a B.Sc., in Environmental and Natural Sciences from St. Mary's University in Halifax, Nova Scotia, holds a Professional Agrologist (P.Ag) designation from the Alberta Institute of Agrology, an Environmental Professional (EP) certification from the

Canadian Environmental Certification Approvals Board (CECAB), is a Biologist in Training (BIT) with the Alberta Society of Professional Biologists (ASPB) and has over 23 years of environmental consulting experience. Ms. Musolino has completed over 2000 Phase I ESA reports, managed over 800 Phase I ESAs and conducted over 500 senior and third party reviews.

Ms. Monica Gaudet Smith, P. Eng., provided senior review of the final report. Ms. Gaudet Smith has a B.Sc. in Civil Engineering from the University of New Brunswick and over 9 years of environmental consulting experience.

2.0 SITE ASSESSMENT PROCESS

2.1 OBJECTIVES AND SCOPE OF WORK

The primary objectives of this Phase I ESA were to identify environmental issues associated with the Study Areas and to determine whether any issues identified during the assessment require an intrusive site investigation and, if so, the nature of such work. The scope of work for this assessment included:

- conducting a historical review of the Study Areas and surrounding sites;
- interviewing and/or contacting local, municipal agencies and other parties familiar with the Study Areas;
- conducting a site inspection of the Study Areas to identify potential environmental concerns; and
- preparing a report summarizing the methodology and findings of this study.

Authorization to proceed with this assessment was provided by Mr. Chris George of MPE Engineering Ltd., on May 28th, 2021.

2.2 METHODOLOGY

The scope of work was conducted in accordance with ParklandGEO's standard environmental site assessment procedures which reflect CSA requirements¹ and Alberta Environment and Parks (AEP) guidelines². Available historical information regarding the Property was reviewed to determine present and past land use and incidents or operations which could be associated with environmental concerns within the Study Areas. Individual tasks included:

¹ Phase I Environmental Site Assessment (CSA Z768-01). Canadian Standards Association (CSA). 2016. Ottawa, Canada.

² Alberta Environmental Site Assessment Standard. Alberta Environment and Parks. March 2016. Edmonton, Alberta.

- reviewing time lapse aerial photography of the Study Areas and surrounding region to record land use, development and historical site occupancy;
- obtaining current and historical land titles from Alberta Registries to determine past owners and review registered rights-of-way attached to the Study Areas;
- searching the Alberta Environment & Parks (AEP) Environmental Site Assessment Repository (ESAR), an online database of environmental assessment reports and reclamation certificates;
- contacting Service Alberta for Freedom of Information and Protection of Privacy Act (FOIP) Records and Corporate Support Branch (FRCS) for potential environmental concerns, and scientific/technical information that are available through the FRCS;
- searching for approvals, licences, registrations and permits issued for the Study Areas or surrounding sites under AEP's Water Act and Environmental Protection and Enhancement Act (EPEA);
- contacting Alberta Health Services to obtain any department records for the Study Areas relative to investigations, tickets, prosecutions, landfills, waste sites, nuisance grounds, waste discharges, environmental nuisance or other environmental related events;
- contacting The Village of Halkirk and Paintearth County to obtain information on historical land-use (landfills, waste sites, nuisance grounds, waste discharges), bylaw investigations, tickets, prosecutions, reports of any other environmental issues and current zoning information;
- contacting the Environmental Law Centre (ELC) for information within the Study Areas about enforcement actions against owners, current and past occupants, along with neighboring occupants;
- contacting the Alberta Safety Codes Authority (ASCA) a division of the Safety Codes Council (SCC) to determine if any historical or current underground storage tanks are located on or in the vicinity of the Study Areas;
- obtaining information from the Alberta Energy Regulator (AER) through the Abacus Datagraphics Ltd., website for the Study Areas and surrounding areas;
- conducting a search of the Alberta Water Well Information Database for groundwater wells in the vicinity of the Study Areas;
- contacting the current owner(s) within each Study Area and adjacent site owners for historical and current information;
- conducting an inspection of the Study Areas and adjacent sites noting any environmental concerns; and

- preparing a report summarizing the findings and making recommendations regarding the Study Areas.

3.0 PROPERTY DESCRIPTION

3.1 STUDY AREA 1

3.1.1 LOCATION, SITE OCCUPANCY AND DEVELOPMENT DETAILS

Legal Description	Address	Age of Construction	Current Occupant	Property Size (acres)	Building Size (m ²)
Lot 4, Block 1, Plan 062 1408	302 Main Street	Drink shack 2006 Concession prior to 2003	Campground (CG) Halkirk Elks Bullarama	Approximately 14.93	Approximately 400 m ² approximately 100 m ²

3.1.2 PHYSICAL DESCRIPTION

The Campground was located in the north portion of the Village of Halkirk. Gates to the campground were located at the intersections of Pioneer Avenue and George Street, Main Street and Berry Street. A drink shack, storage shed and washroom/concession building were located on the south central portion of the Campground. A baseball diamond was located in the southwest partition of the Lot and rodeo grounds were located in the southeast portion of the Lot. Gravel roads were located across the north portion of the Lot and connected to individual camp sites (Figure 3A).

The Campground was surrounded to the north, east and west by agricultural pasture. Pioneer Avenue, residential development and the remainder of the Village of Halkirk was located to the south. The Current Halkirk Waste transfer station was located approximately 180 m northwest of the Campground. Study Area 1 in relation to surrounding sites is shown on Figure 2.

3.1.3 TOPOGRAPHY AND DRAINAGE

The Campground appeared to be relative level and primarily covered with trees and vegetation with the exception of the baseball diamond, rodeo grounds and roads. There were no issues reported with drainage at the campground.

A large surface waterbody was located north of the campground within the pasture and a review of historical aerial photographs showed seasonal variations in size. The Campground was located approximately 290 m west of the historical aerobic lagoon cell and approximately 850 m northwest of the current lagoons.

3.2 STUDY AREA 2

3.2.1 LOCATION, SITE OCCUPANCY AND DEVELOPMENT DETAILS

Legal Description	Address	Age of Construction	Current Occupant	Property Size	Building Size (m ²)
Lots 26, 27, Block 7, Plan 1989Z	406 Alberta Avenue	1918, relocated to new foundation in 1994	Church (Church)	1068.3 m ² 0.26 acre	106.5
Lot 2, Block 8, Plan 1045MC	502 Alberta Avenue	1956 New kitchen, washroom and viewing area in 1985	Curling Rink (CR)	980 m ² 0.24 acres	673.5

3.2.2 PHYSICAL DESCRIPTION

The Church and Curling Rink were located north of Alberta Avenue on the east and west sides of George Street, respectively. The Church was a single building located in the northeast portion of the lot while the remainder was grassed and treed. The Curling Rink occupied the majority of the lot and the remainder was grassed or concrete sidewalk (Figure 3B).

Residential development surrounded the Church and Curling Rink to the north, south and west. Commercial development was located east and southeast of the Church, both of which were reportedly former fuel stations (Halkirk Corner Service and Dura Bull). The site immediately east of the Church, (Former Halkirk Corner Service) had records publicly available for review, as summarized in Section 5.2.2.1. The site southeast of the Church, Dura Bull, was reportedly a gas station prior to the 1960's and was reported to be beneath the area of the most recent building addition approximately 30 m south of the Church. Study Area 2 in relation to surrounding sites is shown on Figure 2.

3.2.3 TOPOGRAPHY AND DRAINAGE

The Church was relatively level and mostly vegetated with the exception of the sidewalk. The majority if the Curling Rink was developed however, small patches of grass were located on the north and south ends of the lot. It's expected that water accumulation would drain overland to the adjacent roadways or via infiltration. Ice melt in the Curling Rink was reported to drain into the basement and eventually the sewer lines.

The closest surface water body was located north of the campground, approximately 330 m north of the Curling Rink. Additional surface waterbodies were located approximately 430 m southeast of the Curling Rink. The Church was located approximately 520 m southwest of the historical aerobic lagoon cell and approximately 1.0 km northwest of the current Village sewage lagoons.

3.3 STUDY AREA 3

3.3.1 LOCATION, SITE OCCUPANCY AND DEVELOPMENT DETAILS

Legal Description	Address	Age of Construction	Current Occupant	Property Size	Building Size (m ²)
Lots 11,12,13, Block 3, Plan 1989Z	110 Berry Street	2006	Berry Street Campground (BSC)	1602.5 m ² 0.39 acre	N/A
Lots 1, 2, 3, Block 3, Plan 1989Z	101 and 103 Main Street	SC – 1921, addition in 1985 VO / PW - 1980	Seniors Centre, Village Office and Public Works Yard	801.2 m ² 0.19 acre	150.8
Lots 22, 23, 24,25,26,27, Block 3, Plan 1989Z	111 Main Street	1950, additions in 1985 to 1986 and 2001	Community Hall (CH)	1602.5 m ² 0.39 acre	Main Floor 532.5 Basement 300.2
Lots 17,18,19,20,21, Block 3, Plan 1989Z	119 Main Street	WT 1977 P 1985	Water Tower and Playground (WTP)	1335.4 m ² 0.33 m ²	Unknown
Lots 7,8,9,10, Block 3, Plan 1989Z	302 Railway Avenue	1991, addition in 2019	Fire Hall (FH)	1068.3 m ² 0.26 acre	318.6
Lots 13, 14, Block 2, Plan 1989Z	114 Main Street	2006	Canada Post and Bank (CPB)	534 m ² 0.13 acre	96.4

3.3.2 PHYSICAL DESCRIPTION

The SC, VO, PW, CH, WTP occupied the west half of Block 3, Plan 1989Z. These lots were surrounded by Alberta Avenue to the north, Main Street to the west and Railway Avenue to the south. The BSC and FH occupied the east corner of Block 3, Plan 1989Z. These lots were surrounded by residential development to the north, Berry Street to the east and Railway Avenue to the south (Figure 3C).

A north to south oriented gravel alley divided Block 3. An east to west oriented gravel alley separated the SC, VO, PW and FH from the north portion of the Block. The remaining lots in the northeast corner of Block 3, Plan 1989Z were residentially developed.

The surrounding areas north and east of Block 3 were residential development. The site immediately east of the Fire Hall had records publicly available for review, as summarized in Section 5.2.2.1. The area to the south was currently undeveloped and formerly a part of the Canadian Pacific Railway. The area to the west of Block 3 was commercially developed with the Hotel, the Snack Shack and Dura Bull.

The Canada Post and Bank building was located Block 2 on the west side of Main Street. The building was located on the east portion of the lot and the remainder was grassed. The CPB lot was surrounded by Dura Bull to the north, the Snack Shack and the Hotel to the south.

As mentioned above in Section 3.2.2, Dura Bull was reportedly a gas station until the 1960s and was reported to be beneath the area of the most recent building addition, approximately 40 m north of the CPB and 50 m west of the WTP.

Study Area 3 in relation to surrounding sites is shown on Figure 2.

3.3.3 TOPOGRAPHY AND DRAINAGE

The CH and WTP in the northwest portion of Block 3 appeared to be elevated comparison to the adjacent sites and sloped overall to the southeast towards the BSC. Sand and gravel was located within the playground in the northwest portion of Block 3, in the alleys on Block 3 and within the 8 stalls of the BSC. The remaining, undeveloped areas were landscaped with grass.

The closest surface water body was located to the south, approximately 260 m from the SC, VO and FH. The BSC was located approximately 410 m southwest of the historical aerobic lagoon cell and approximately 850 km northwest of the current sewage lagoons.

3.4 STUDY AREA 4

3.4.1 LOCATION, SITE OCCUPANCY AND DEVELOPMENT DETAILS

Legal Description	Address	Age of Construction	Current Occupant	Property Size	Building Size (m ²)
Lot 4, Block 1, Plan 062 1408	126 Alberta Avenue	1976, addition relocated and was built in approximately 1950.	Mini Arena (MA)	975.4 m ² 0.24 acres	389.6

3.4.2 PHYSICAL DESCRIPTION

The Mini Arena was located on the east side of the Village, north of Alberta Avenue. Development included a metal clad arch rib building constructed in 1976. The addition on the south side was constructed offsite in approximately 1950 and was relocated to the Property after 1976 (Figure 3).

Natural and agricultural land was located north of the Mini Arena and residential development was located to the east and west. The former school was located to the south. The Property in relation to surrounding sites is shown on Figure 2.

3.4.3 TOPOGRAPHY AND DRAINAGE

The Mini Arena was relatively level and mostly vegetated with grass with the exception of the sidewalk on the south boundary. Trees were located near the north, east and west boundaries. Drainage on the Property was expected to occur via infiltration.

The closest surface water body was the historical aerobic lagoon cell, which was located 270 m northeast of the Mini Arena. The current sewage lagoons were located approximately 650 m southeast of the Mini Arena.

3.5 REGIONAL GEOLOGY AND GROUNDWATER

A search of groundwater wells was conducted in the AEP Alberta Water Well Information Database. All Study Areas were located within the NE 24-038-16 W4M which had 13 registered water wells, as summarized below:

**TABLE 1
 WATER WELL DRILLING REPORTS**

Well ID	Well Owner	Date Completed	Depth (m)	Perforated Section (m)	Use
157782	Town of Halkirk	1981/01/22	60.96	-	Municipal
183135	Town of Halkirk #1	1959/08/19	115.82	36.58 – 115.82	
183136	Town of Halkirk #2	Unknown	76.2	-	
183137	Town of Halkirk #3	Unknown	57.91	-	
183138	Town of Halkirk#4	1958/04/18	82.91	-	
183139	Halkirk School #2	1959/09/03	Unknown	-	
183141	Halkirk School	1958/06/23	50.29	-	
183144		1958/03/25	97.54	-	
183145	Village of Halkirk	1980/09/03	30.48	-	
183147		1979/12/17	48.77	-	
183152		1979/12/07	48.77	-	
183158		1979/12/07	48.77	-	
183160		1959/06/01	112.78	-	
			-	-	

All water wells were reported to be municipal and were registered to the center of the NE quarter section and their exact locations were unknown. The formation details and depths to static water levels were largely unrecorded.

Based on the recorded logs, the average depth to the static water level was 20.8 meters below grade (mbg), and alternating layers of shale and sandstone were encountered as shallow as 3.35 mbg, but generally encountered at a depth of 7.7 mbg.

4.0 HISTORICAL REVIEW

4.1 HISTORICAL OWNERSHIP AND TENANCY

A review of the current and historical ownership records for the Property is summarized below.

**TABLE 2
 HISTORICAL OWNERSHIP AND TENANCY**

Location	From dd/mm/yyyy	To dd/mm/yyyy	Title #	Owner
Study Area 1				
Campground				
Lot 4, Block 1, Plan 0621408	24/03/2006	Current	062 129 585 +3	The Village of Halkirk
Lot C, Block 2192MC	08/06/1961	24/03/2006	21 V 186	The Village of Halkirk
NE 24-038-16 W4M	10/12/1993	24/03/2006	932 386 065	The Village of Halkirk
NE 24-038-16 W4M	19/02/1976	10/12/1993	762 028 981	Harold G. Chick and Velma Chick
	22/05/1952	19/02/1976	173 N 140	George Ezra Emmett
NE 24-038-16 W4M	07/11/1945	22/05/1952	134 L 109	George Ezra Emmett
NE 24-038-16 W4M	22/05/1952	22/05/1952	171 N 140	The Director, Veterans Land Act
	23/05/1950	22/05/1952	42 E 132	Harry W. Heffer
Study Area 2				
Church				
Lot 26, Block 7, Plan 1989Z	17/02/2016	Current	162 050 797	The Village of Halkirk
	05/04/1977	17/02/2016	772 064 573	
	31/05/1948	05/04/1977	27 U 122	Harvey Albert Anderson, William Herbert Taylor, Alvah Llewellyn Wescott, Trustees of the Congregation of the Halkirk Methodist Church
Lot 27, Block 7, Plan 1989Z	17/02/2016	Current	162 050 798	The Village of Halkirk
	05/04/1977	17/02/2016	772 064 573 A	
	01/10/1910	05/04/1977	116 O 13	The Halkirk Methodist Church

Curling Rink				
Lot 2, Block 8, Plan 1045MC	22/12/1970	Current	9 P 246	The Village of Halkirk
	27/04/1961	22/12/1970	61 B186	Halkirk Community Curling Association
Lots 1–3, Block 8 & Lot 3, Block 9, Plan 1045 MC	24/08/1960	27/04/1961	110 X 182	George Ezra Emmett
NE 24-038-16 W4M	22/05/1952	24/08/1960	173 N 140	
	07/11/1945	22/05/1952	134 L 109	
Study Area 3				
Canada Post and Bank (CPB)				
Lots 13 and 14, Block 2, Plan 1989Z	27/02/2007	Current	172 113 485	The Village of Halkirk
	23/07/1984	27/02/2007	842 164 122	Virginia Duke
Lot 13, Block 2, Plan 1989Z	09/03/1960	14/05/1978	149 R 179	Margaret Mary Rendall
	13/12/1958	09/03/1960	24 V 172	Dorothy Alberta Knight
	02/05/1945	13/12/1958	101 V 106	George William Knight
Lot 14, Block 2, Plan 1989Z	08/06/1977	23/07/1984	772 105 283 *	Robert G. Rendall
	14/05/1969	08/06/1977	246 O 236	Village of Halkirk
	07/10/1949	14/05/1969	101 K 129	Wilfred Creasy
Water Tower and Playground (WTP)				
Lots 17 and 18, Block 3 , Plan 1989Z	17/02/2016	Current	162 050 799	The Village of Halkirk
Lots 10, 19, Block 3 , Plan 1989Z	05/12/1962	Current	182 O 195	The Village of Halkirk
Lots 20, 26, Block 3 , Plan 1989Z	07/02/1955	Current	58 Y 152	The Village of Halkirk
Lots 3-9, 21-23, Block 3, Plan 1989Z	18/03/1959	Current	197 Q 173 A1	The Village of Halkirk
Fire Hall (FH)				
Lots 3-9, 21-23, Block 3, Plan 1989Z	18/03/1959	Current	197 Q 173 A1	The Village of Halkirk

Community Hall (CH)				
Lots 3-9, 21-23, Block 3, Plan 1989Z	18/03/1959	Current	197 Q 173 A1	The Village of Halkirk
Lots 24 and 25, Block 3, Plan 1989Z	19/10/1960	Current	186 F 183	The Village of Halkirk
Lots 20, 26, Block 3 , Plan 1989Z	07/02/1955	Current	58 Y 152	The Village of Halkirk
Lot 27, Block 3, Plan 1989Z	15/07/1981	Current	812 168 428	The Village of Halkirk
	13/09/1978	15/07/1981	782 207 736	Earl Roger Spady & William Evan Campion
	02/11/1976	13/09/1978	762 193 425	Arthur Oswald Campion
	22/08/1946	02/11/1976	156 W 113	Arthur Oswald Campion & Elizabeth Ann Campion
Seniors Centre, Village Office and Public Works Yard (SC, VO and PW)				
Lots 1 and 2, Block 3, Plan 1989Z	07/07/1977	Current	772 127 574	The Village of Halkirk
	25/04/1922	07/07/1977	101 T 54	Globe Realty Corporation Limited
Lots 3-9, 21-23, Block 3, Plan 1989Z	18/03/1959	Current	197 Q 173 A1	The Village of Halkirk
Berry Street Campground (BSC)				
Lot 11, Block 3, Plan 1989Z	14/09/2005	Current	052 390 896	The Village of Halkirk
	06/04/1990	14/09/2005	902 096 962	All In One Contracting Ltd.
	06/05/1988	06/04/1990	882 096 735	Ruth M. Farnalls
	01/05/1981	06/05/1988	812 098 996	John Farnalls & Ruth M. Farnalls
	24/09/1979	01/05/1981	792 232 145	Toni Marie Hazen
	05/01/1977	24/09/1979	772 221 874	Randy James Duncan & Jocelyn Marie Duncan
	25/05/1976	05/01/1977	762 088 662	Harold G. Chick
	29/08/1956	25/05/1976	104 M 160	John Patrick Emmett
	10/09/1945	29/08/1956	38 E 124	Frank Arthur Tydeman
Lot 12, Block 3, Plan 1989Z	17/02/2016	Current	162 050 800	The Village of Halkirk
	06/11/1989	17/02/2016	892 288 975	
	28/10/1986	06/11/1989	862 233 906	Canadian Imperial Bank of Commerce
	23/10/1980	28/10/1986	802 250 933	George Allen James & Karin Renatta James
	01/12/1978	23/10/1980	782 277 259	Bryan Wesley Hurren & Sandra Kim Hurren

	06/11/1978	01/12/1978	782 254 694	James Oscar Krautt & Karl Edward Krautt, executors of the estate of Hans Karl Krautt
	21/07/1978	06/11/1978	782 163 953	Hans Kraut
	02/09/1977	21/07/1978	772 170 636	Ronald Lattery & Jennifer Lattery
Lot 12, Block 3, Plan 1989Z	15/03/1976	02/09/1977	762 043 166	David E. Stevens & Shirley P. Stevens
	12/11/1974	15/03/1976	145 L 280	Donald Engler & Teresa M. Engler
	08/03/1965	12/11/1974	64 O 211	Village of Halkirk
Lots 12 and 13, Block 3, Plan 1989Z	02/04/1914	08/03/1965	44 B 32	The Crown Lumber Company Limited
Lot 13, Block 3, Plan 1989Z	17/02/2016	Current	162 050 801	The Village of Halkirk
	06/11/1989	17/02/2016	892 288 975 +1	
	28/10/1986	06/11/1989	862 233 906 A	Canadian Imperial Bank of Commerce
	23/10/1980	28/10/1986	802 250 993 A	George Allen James & Karin Reatta
	01/12/1978	23/10/1980	782 277 259 A	Bryan Wesly Hurren & Sandra Kim Hurren
	06/11/1978	01/12/1978	782 254 694 A	James Oscar Krautt & Karl Edward Krautt, executors of the estate of Hans Karl Krautt
	21/07/1978	06/11/1978	782 163 953 A	Hans Kraut
	02/09/1977	21/07/1978	772 170 635 A	Ronald Lattery & Jennifer Lattery
	15/03/1976	02/09/1977	762 043 167	David E. Stevens & Shirley P. Stevens
	12/11/1974	15/03/1976	146 L 280	Donald Engler & Teresa M. Engler
	05/12/1978	12/11/1974	34 W 269	Village of Halkirk
	08/09/1967	05/12/1978	182 R 226	Revelstoke Building Materials Limited
Lots 13 – 16, Block 3, Plan 1989Z	07/08/1947	08/09/1967	192 Y 118	Russel Alberta Creasy
Study Area 4				
Mini Arena (MA)				
Lot R-3, Block 11, Plan 782 2147	01/08/1978	Current	782 172 540 I	The Village of Halkirk

NE 24-038-16 W4M	07/08/1973	01/08/1978	9 Q 266	
	06/12/1965	07/08/1973	27 W 215	County of Paintearth No. 18
	27/10/1955	06/12/1965	141 M 156	Castor School Division No. 27
	27/10/1955	27/10/1955	140 M 156	Ronald Walters
	22/05/1952	27/10/1955	172 N 140	The Director, The Veterans Land Act
	22/05/1952	22/05/1952	170 N 140	
	07/11/1945	22/05/1952	134 L 109	George Ezra Emmett

4.2 HISTORICAL AIR PHOTO REVIEW

Aerial photographs were obtained from AEP and Google Earth and were reviewed for the years 1949, 1963, 1967, 1970, 1977, 1982, 1987, 1994, 1998, 2003, 2010 and 2019. The aerial photographs are included as Figures 4 to 15.

**TABLE 3
 HISTORICAL AIR PHOTO REVIEW**

Year	1949	Study Area 1: <ul style="list-style-type: none"> A trail was visible in the south central portion of the CG. Study Area 2: <ul style="list-style-type: none"> The CR was undeveloped natural land. The Church was developed with a single building in the northwest portion of the Property. Study Area 3: <ul style="list-style-type: none"> The north portion of the BSC appeared to have development on the north side. The SC, VO and PW lots appeared to be developed on the west portion (The Bank). The CH had a single building present on the south portion of the lot. The WTP was undeveloped, vacant land. The FH appeared to be undeveloped The CPB appeared to be developed on the east portion of the lot. Study Area 4: <ul style="list-style-type: none"> The MA was undeveloped, vacant land. Surrounding Area <ul style="list-style-type: none"> The majority of lots within the Village appeared to be developed residentially or commercially. The Canadian Pacific Rail Line and grain elevators were located approximately located approximately 30 m and 80 m south/southwest of the SC, VO, PW and FH, respectively. A surface waterbody was located approximately 40 m north of the CG.
Job	49-83A	
Roll	AS0153	
Line	5205	
Photo #	154	

Year	1963	<p>Study Area 1:</p> <ul style="list-style-type: none"> • An area in the south central portion of the Property appeared to be cleared. <p>Study Area 2:</p> <ul style="list-style-type: none"> • The CR was developed with a building occupying the majority of the Property. • The Church remained relatively unchanged. <p>Study Area 3:</p> <ul style="list-style-type: none"> • The BSC appeared to be used for storage. • The SC, VO and PW lots remained relatively unchanged. • The CH had additional buildings developed north and south of the existing building. • A portion of CH and WTP was stripped. • The south portion of the FH appeared to be stripped. • The CPB remained relatively unchanged. <p>Study Area 4:</p> <ul style="list-style-type: none"> • The south portion of the MA was developed with a single building. <p>Surrounding Area</p> <ul style="list-style-type: none"> • Infrastructure likely associated with the tanks at a former garage (Section 5.2.2.1) appeared to be visible approximately 15 m east of the FH. • The School was developed approximately 40 m south of the MA. • The Lagoon was developed approximately 280 m northwest of the MA. • Not shown: a surficial disturbance (landfill) was located approximately 205 m northwest of the Campground. The landfill expansion south is visible in aerials after 1977.
Job	63-83A	
Roll	AS0868	
Line	5207	
Photo #	125	
Year	1967	<p>Study Area 1:</p> <ul style="list-style-type: none"> • The CG remained relatively unchanged. <p>Study Area 2:</p> <ul style="list-style-type: none"> • The CR remained relatively unchanged. • The Church remained relatively unchanged. <p>Study Area 3:</p> <ul style="list-style-type: none"> • Contents on the BSC appeared to reduce and a turnaround path was visible on the north portion of the BSC. • Development was present on the southwest portion of the SC, VO and PW lots. • The CH was no longer stripped, the remainder was relatively unchanged. • The north portion of the WTP remained stripped. • A path was visible on the northwest portion of the FH, the remainder was relatively unchanged. • The CPB remained relatively unchanged
Job	67-83A	
Roll	AS0983	
Line	5207	
Photo #	119	

		<p>Study Area 4:</p> <ul style="list-style-type: none"> The MA remained relatively unchanged <p>Surrounding Area</p> <ul style="list-style-type: none"> No significant changes were identified in the surrounding area within the Village.
Year	1970	<p>Study Area 1:</p> <ul style="list-style-type: none"> The CG appeared to remain relative unchanged. <p>Study Area 2, 3,4 and Surrounding Area:</p> <ul style="list-style-type: none"> The details for the remainder of the Study Areas were blurry and could not be reviewed.
Job	70-322-83A	
Roll	AS1108	
Line	26	
Photo #	315	
Year	1977	<p>Study Area 1:</p> <ul style="list-style-type: none"> The southwest portion of the CG was stripped, the remainder was relatively unchanged. <p>Study Area 2:</p> <ul style="list-style-type: none"> The CR remained relatively unchanged. The Church remained relatively unchanged. <p>Study Area 3:</p> <ul style="list-style-type: none"> The BSC remained relatively unchanged. The SC, VO and PW remained relatively unchanged. The CH remained relatively unchanged. The WTP no longer appeared to be stripped. The FH remained relatively unchanged. The CPB remained relatively unchanged. <p>Study Area 4:</p> <ul style="list-style-type: none"> The MA was redeveloped. <p>Surrounding Area</p> <ul style="list-style-type: none"> The amount of grain elevators south of Study Area 3 reduced.
Job	S77-144	
Roll	AS2959	
Line	5	
Photo #	68	
Year	1982	<p>Study Area 1:</p> <ul style="list-style-type: none"> Two baseball diamonds were present on the south half of the CG. The remainder appeared to be relatively unchanged. <p>Study Area 2:</p> <ul style="list-style-type: none"> The CR remained relatively unchanged. The Church remained relatively unchanged. <p>Study Area 3:</p> <ul style="list-style-type: none"> The BSC remained relatively unchanged. The SC, VO and PW remained relatively unchanged. The CH had additional development on the north portion of the Property. The WTP had a small development in the southwest portion of the Lot. The water tower appeared to be constructed in the northwest corner of the Lot. The FH remained relatively unchanged. The CPB remained relatively unchanged. <p>Study Area 4:</p> <ul style="list-style-type: none"> A lane way was present on the southeast portion of the MA
Job	82-086-83A	
Roll	AS2562	
Line	8	
Photo #	135	

		<p>Surrounding Area</p> <ul style="list-style-type: none"> Sites surrounding the MA appeared to be developed. A landfill appeared to be located approximately 250 m west of the CG and Study Area 3.
Year	1987	<p>Study Area 1:</p> <ul style="list-style-type: none"> The CG remained relatively unchanged. <p>Study Area 2:</p> <ul style="list-style-type: none"> The CR remained relatively unchanged. The Church remained relatively unchanged. <p>Study Area 3:</p> <ul style="list-style-type: none"> The BSC remained relatively unchanged. The SC, VO and PW remained relatively unchanged. The CH appeared to have additional development. The WTP remained relatively unchanged. The FH remained relatively unchanged. The CPB remained relatively unchanged. <p>Study Area 4:</p> <ul style="list-style-type: none"> The MA remained relatively unchanged. <p>Surrounding Area</p> <ul style="list-style-type: none"> No significant changes were identified in the surrounding area within the Village.
Job	87-089-83A	
Roll	AS3588	
Line	20	
Photo #	63	
Year	1994	<p>Study Area 1:</p> <ul style="list-style-type: none"> The development to the north of the baseball diamond appeared to expand north within the CG. <p>Study Area 2:</p> <ul style="list-style-type: none"> The CR remained relatively unchanged. Development on the Church appeared to be relocated to the east side of the Lot. <p>Study Area 3:</p> <ul style="list-style-type: none"> The development on the south portion of the BSC was no longer visible. The SC, VO and PW remained relatively unchanged. The CH remained relatively unchanged. The WTP remained relatively unchanged. The FH was developed on the south portion of the Property. The CPB remained relatively unchanged. <p>Study Area 4:</p> <ul style="list-style-type: none"> The MA remained relatively unchanged. <p>Surrounding Area</p> <ul style="list-style-type: none"> No significant changes were identified in the surrounding area within the Village.
Job	94-082	
Roll	AS4494	
Line	8	
Photo #	164	

Year	1998	<p>Study Area 1:</p> <ul style="list-style-type: none"> The CG remained relatively unchanged. The rodeo grounds were constructed where the east baseball diamond was located. <p>Study Area 2:</p> <ul style="list-style-type: none"> The CR remained relatively unchanged. The Church remained relatively unchanged. <p>Study Area 3:</p> <ul style="list-style-type: none"> The BSC remained relatively unchanged. The SC, VO and PW were developed with three distinct structures. The northeast portion was used for storage The CH was largely developed. The northeast portion was vacant. The WTP remained relatively unchanged. The FH remained relatively unchanged. The CPB <p>Study Area 4:</p> <ul style="list-style-type: none"> An addition was present on the southwest portion of the building within the MA. <p>Surrounding Area</p> <ul style="list-style-type: none"> The Dura Bull expanded south over the reported former area of USTs. No other significant changes were identified in the surrounding area within the Village.
Job	98-097-83A	
Roll	AS4968	
Line	19	
Photo #	170	
Year	2003	<p>Study Area 1:</p> <ul style="list-style-type: none"> The CG remained relatively unchanged. <p>Study Area 2:</p> <ul style="list-style-type: none"> The CR remained relatively unchanged. The Church remained relatively unchanged. <p>Study Area 3:</p> <ul style="list-style-type: none"> The BSC remained relatively unchanged. The SC, VO and PW remained relatively unchanged. The CH remained relatively unchanged. The WTP remained relatively unchanged. The FH remained relatively unchanged. The CPB remained relatively unchanged. <p>Study Area 4:</p> <ul style="list-style-type: none"> The MA remained relatively unchanged. <p>Surrounding Area</p> <ul style="list-style-type: none"> No significant changes were identified in the surrounding area within the Village.
Job	03-106TR	
Roll	TRSG-0321	
Line	6	
Photo #	87	

Year	2010	<p>Study Area 1:</p> <ul style="list-style-type: none"> The rodeo grounds within the CG expanded and trails were visible near the perimeter of the Property. <p>Study Area 2:</p> <ul style="list-style-type: none"> The CR remained relatively unchanged. The Church remained relatively unchanged. <p>Study Area 3:</p> <ul style="list-style-type: none"> The BSC was developed with 8 camp sites. The SC, VO and PW remained relatively unchanged. The CH remained relatively unchanged. The WTP remained relatively unchanged. The FH remained relatively unchanged. The CPB remained relatively unchanged. <p>Study Area 4:</p> <ul style="list-style-type: none"> The MA remained relatively unchanged. <p>Surrounding Area</p> <ul style="list-style-type: none"> No significant changes were identified in the surrounding area within the Village.
Aerial Photograph obtained from Google Earth, Dated September 5, 2010.		
Year	2019	<p>Study Area 1:</p> <ul style="list-style-type: none"> The rodeo grounds within the CG expanded and trails were visible near the perimeter of the Property. <p>Study Area 2:</p> <ul style="list-style-type: none"> The CR remained relatively unchanged. The Church remained relatively unchanged. <p>Study Area 3:</p> <ul style="list-style-type: none"> The BSC was developed with 8 camp sites. The SC, VO and PW remained relatively unchanged. The CH remained relatively unchanged. The WTP remained relatively unchanged. The FH remained relatively unchanged. The CPB remained relatively unchanged. <p>Study Area 4:</p> <ul style="list-style-type: none"> The MA remained relatively unchanged. <p>Surrounding Area</p> <ul style="list-style-type: none"> No significant changes were identified in the surrounding area within the Village.
Aerial Photograph obtained from Google Earth, Dated June 17, 2019.		

5.0 CORRESPONDENCE AND INTERVIEWS

5.1 SUMMARY OF INTERVIEWS

Mrs. Marcy Renschler, CAO of the Village of Halkirk, was present for the site inspection and provided historical information regarding the Study Areas. Mrs. Renschler has been employed by the Village since January 2021, filling a 1 year term as CAO.

A copy of the book "*Halkirk Home Fires and Area*" published in 1985 by the Halkirk Historical Society was provided to ParklandGEO for review.

Mrs. Doris Cordel was Mrs. Renschler's predecessor as Village CAO and was contacted for additional information. Mrs. Renschler and Mrs. Cordel contributed to the following correspondence.

5.1.1 Study Area 1

The Campground was owned by the Village but the rodeo grounds portion was operated and maintained by the Halkirk Elks. There was an elevated sea can located in the rodeo grounds and was used for an announcing platform and was not inspected.

5.1.2 Study Area 2

Keep Rite was contacted regarding additional information regarding the artificial ice system however, was unresponsive at the time of reporting.

It was reported that there was an existing agreement with the adjacent west lot to the Curling Rink that the fence of that residence was allowed to encroach on to the west side Curling Rink lot.

Mr. JD Johnson, President of the Curling Club, provided the below information regarding the Curling Rink. The surface of the ice sheets at the time of the inspection appeared to be a fine grained material. It was reported that soil and possible gravel were located beneath. It was reported that coal was also present and coal slag may have been used as a base.

The process of ice making including turning on the artificial ice machine, applying thin coats of water and allowing time to freeze between applications and repeated until the pipes are covered. Ice melt was collected in weeping tile and drained to the basement and eventually the sewer. When no longer needed, the artificial ice machine was shut down and ice was allowed time to melt naturally. The system was reported to use freon and calcium chloride which was circulated within the pipes. Over the years, minor leaks were reported. Leaks were detected as soon as the system was turned on and found and fixed. The 1m³ tote north of the curling rink was reported to be calcium chloride and was owned by Mr. Johnson. It was reported that the tote was forgotten and would be removed.

5.1.3 Study Area 3

The Community Hall was originally constructed in 1950 with the addition of a new basement and dining area in 1985. The basement addition was an engineered wood foundation with two sumps that occasional got damp in time of snow melt and heavy precipitation. In 2002, new washrooms were added. Documented updates and renovations were completed in 1990 through 2019, as provided by the Village.

The Seniors Center Organization was responsible for the maintenance and building repairs, as needed. A tank located in the basement of the Seniors Center was expected to be a water tank. Heating oil was not commonly used in the area due to the abundance of coal. The Village was serviced with natural gas in 1974. New services were installed in 1997. Residual coal was still reported to remain within a room in the basement, however was not observed.

The chlorination building was reported to be located on the north side of the original Fire Hall and decommissioned in 2010. The chlorination building stored chlorine in 5 gallon pails and only carried a maximum of three at a time. The container that fed the water system was approximately 25 gallons and was topped up as quantities got low. There were no reported chlorine spills. When the chlorination system was discontinued, residual chlorine was taken to a hazardous waste round up held in Halkirk.

Quantities of chemicals currently or previously stored in the Fire Hall were not reported to contain Perfluorooctanesulfonic acid (PFOS). Fire suppression chemicals included two pails of approximately 3 gallons of *"SILVEX CLASS A, Fire Control Concentrate Manufactured by ANSUL"*. The pails were reported to see minimal use as Mrs. Cordel recalled. The two pails lasted 17 years. The pails were stored in the former chlorination building. *"AQUA ECO Solid Wetting Agent"* was also used as a fire suppressant. The product was distributed as tubes and was stored in the fire trucks. The tubes were inserted into the fire hose at the time of use and chemicals were distributed while water was discharged. The chemicals within the suppressants were not reported on the labels and remained unknown. As there were no training grounds on the Property, it is not expected the chemicals would be used or discharged at the Fire Hall.

5.1.4 Study Area 4

The Mini Arena was most recently rented out to an individual who defaulted on rent. The contents of the Mini Arena were requisitioned by the Village as a part of the legal process. The contents were primarily related to model trains and included a display that occupied the majority of the building.

It was reported that there was never an artificial ice system in the Mini Arena and that ice was made naturally in the winter months. Flooding was completed by volunteers and a Village fire truck. The asphalt floor of the Mini Arena was flooded during the cold, until enough layers of ice were formed.

5.1.5 Adjacent Sites

The Halkirk Hotel has never relocated and had occupied the corner of Main Street and Railway Avenue since 1910. There was no documentation providing an exact location of the mentioned “Gee Lee Chinese Laundry” which was reported to have been ‘behind’ the hotel. Mrs. Cordel provided insight as *“being in the early pioneer years, there was likely no dry cleaning activity completed, just regular laundry”*. Mrs. Cordel reported there have been no dry cleaner operations in the Village. A review identified that dry cleaning operations are known to date back to 1821. There was inconclusive evidence to support the presence or absence of dry cleaning activities at this location. Photographs 1 and 2 of the Hotel are included in Appendix A5.

Ms. Cordel reported that contaminated soil was encountered along the west side of Main Street, north of Alberta Avenue. The Former Halkirk Corner Service, current Wildrose Building, was located in the northwest corner of the Main Street and Alberta Avenue intersection and likely had a leak in the USTs, which was confirmed in Section 5.2.2.1. *“Approximately 15 – 20 years ago, while looking for a water leak, several test holes were drilled on Main Street north block and the test holes smelled of gasoline”*. There was no additional or formal documentation of this investigation available for review. Photographs 3 and 4 of the Former Halkirk Corner Service are included in Appendix A5.

Dura Bull was reported to be ran by Mr. Dan Bedard at the time of the inspection but Ms. Leona Chadwick and Mr. Tom Chadwick were reported to be owners when the original brick building was expanded on to the service station which had ceased to exist by the early 1960’s. Mrs. Cordel had no personal recollection of gas pump but had heard history stories of their presence. Photographs 4 and 5 of the Dura Bull are included in Appendix A5.

Leona Chadwick was reported to own the former fuel storage tank site located east of the Fire Hall and owned it during the time in which the old garage was taken down. The gas pumps on the site were operating in the early 1960’s but were removed in the 1970’s. A soil assessment completed in 2002 is summarized in Section 5.2.2.1. Photograph 6 of the former fuel storage tanks site is included in Appendix A5. Correspondence with Mr. Tom Chadwick or Ms. Leona Chadwick was not collected within the investigation.

A review of the Halkirk Home Fires and Area book identified that in February, 1912, 10 acres were purchased in the NE 26 from the Hudson Bay Co. for a nuisance ground. The NE 26 was located approximately 1.6 km northwest of Study Area 1 and is not expected to affect any of the Study Areas.

Mr. Cordel provided insight to the reported CPR Freight Station which was identified in the Historical Society book. The Freight Station was similar to other train stations with a ticket office and rooms to conduct business. There was an attached shed to store freight that was shipped in on the rail line. The freight station was located south of Block 4, Plan 1989Z along the former rail line, south of Study Area 3.

5.2 REGULATORY SEARCHES

Correspondence with federal, provincial and municipal regulatory agencies is presented in Appendix B, and is summarized below.

5.2.1 Federal

The National Pollutant Release Inventory (NPRI), compiled and maintained by Environment Canada and updated up to 2017, was searched for significant releases for the Study Areas. There were no records for the NE 24-038-16 W4M or the surrounding 300 m.

5.2.2 Provincial

An inquiry was made to the Service Alberta FRCS Branch for routinely available scientific/technical information for current or historical tenants of the Study Areas. The search results indicated no records for the Study Areas.

5.2.2.1 ESAR

The online ESAR, compiled and maintained by AEP, was searched for routinely available scientific/technical information for the Study Areas and adjacent sites. The search indicated there were three records found within the Village (locations shown on Figure 2), as summarized below:

Lot 1, Block 7, Plan 1989Z - Halkirk Corner Service

A Petroleum Storage Tank Closure Report was available for the Halkirk Corner Store located at Lot 1, Block 7, Plan 1989Z. The report indicated that two gasoline tanks and one diesel tank were removed from the site and not replaced. Comments from the removal identified that the business operated for 1.5 years and a mix of water and fuel was removed from the tanks by vacuum for disposal at CIS Big Valley landfill. Additionally, a small amount of contamination was found onsite during the removal. No additional documentation was available for review.

Lot 1 was located east of the Church within Study Area 1. As the area of the tanks was not reported, it was not known if the tanks were on the Lot, or in the roadway of Main Street or Alberta Avenue. The former fuel storage is expected to pose a moderate to high environmental risk to the Church within Study Area 2 based on the reported contamination and unknown location.

Lots 1&2, Block 4, Plan 1989Z – Former Retail Fuel Storage Site

“Halkirk Subsurface Environmental Investigation, Lots 1&2, Block 4, Plan 1989Z.”
Prepared for Thomas Chadwick. Prepared by Sabatini Earth Technologies Inc. July 2002.

A subsurface soil and groundwater investigation was completed under the Alberta Municipal Affairs program as the site was a garage with former retail fuel storage. The site consisted of a 300 gallon underground storage tank (UST) that supplied gasoline to a single pump on the south side of the site. The garage was operational from at least 1969 through to the 1980's. Eight boreholes were drilled across the site and three were completed as groundwater monitoring wells.

Four soil samples were collected and analysed during the investigation and reported non-detectable concentrations of benzene, toluene, ethylbenzene, xylenes (BTEX) and petroleum hydrocarbon (PHC) Fractions F1 to F2. Trace concentrations of PHC Fractions F3 and F4 were identified. A single groundwater sample was collected which reported trace non-detectable concentrations of PHC parameters.

While concentrations in samples analysed were below the guidelines, the area of the UST remains unknown. Groundwater flow direction was not calculated within this investigation and limited groundwater samples were collected and analysed. The former garage poses a moderate potential risk to the Fire Hall in Study Area 3 based on the areas investigation, limited analyses and unknown area of the UST.

Halkirk School – Alberta Environment Protection Call # 067303

A call information log was dated August 29, 1996, registered to the Halkirk School at Lot 5, Block 2, Plan 062 1406, east of Study Area 3 and south of Study Area 4. The call documented the removal of a waste oil UST from Brownfield Schools with identified contamination around the fill pipe. No soil samples were taken and the area was backfilled. No additional information was available for review and the exact location was unknown.

Concentrations could not be assessed as samples were not collected. The exact area within the school was unknown. The former UST poses a low potential risk to the Mini Arena in Study Area 4 based on distance to the developed areas at the school site.

5.2.2.2 ESAR Reclamation Certificates

The ESAR database was searched for records of wellsite reclamation certificates applied for or issued to the Study Areas or nearby sites. The search indicated there were no reclamation certificates for the Study Areas. One reclamation certificate application was found south of Study Area 3 and Railway Avenue.

A reclamation certificate application was submitted on January 19, 2007 for a number of Railway Right-of-Ways to be purchased by Paintearth Regional Waste Management Ltd. The relevant area near the Village of Halkirk was found to be south of Railway Avenue within Lots 1 - 3, Block 4, Plan 102 7018 and Lot 1, Block 1, Plan 092 9644. A response from Alberta Environment and Parks dated March 3, 2020 found the application to be deficient under Section 12(1) and was rejected.

5.2.2.3 ASCA

An inquiry was made to the ASCA to determine if any petroleum storage tanks are presently or have historically been located within the Study Areas. No records were present for the included in this assessment. The ASCA is not a complete database and is limited by information reported or found in a survey of abandoned site completed in 1992. The majority of the sites predated the registry and as such, were not searched.

5.2.2.4 AER

Information from the AER was obtained through the Abacus Datagraphics website to determine if there has been any upstream gas or oil wells, pipelines or licensed facilities, spills or releases within the Study Areas or adjacent sites. The search results indicated that there were no records associated with the Study Areas. Records for the surrounding area within 300 m are summarised below:

- A low pressure Paintearth Gas Co-op Ltd. line was within Study Area 1 and within the north portion of the NE 24-038-16 W4M.
- An operational natural gas pipeline (License No. AB00021518-44) was registered to Paintearth Gas Co-op Ltd. and located approximately 150 m east of Study Area 4. The pipeline was licensed on March 19, 1985 and ran from 09-24-038-16 W4M (PL) to 05-19-038-15 W4M (PL).

The Abacus Datagraphics website was also searched to determine if any spills or complaints were registered within the Study Areas or nearby are. The search indicated that there were no incidents, complaints or spills registered to the Study Areas and one for the surrounding area within 300 m.

- On June 22, 1994, Incident No. 19942416 was reported approximately 65 m southwest of the Curling Rink within Study Area 2. The licensee, operator, source and cause were unknown. Concerns identified included: operational impact, nuisance, physical impact and public hazard. No additional information was available for review and the incident was completed June 23, 1994.

5.2.2.5 ELC

The ELC was contacted regarding: The Village of Halkirk, The Halkirk Methodist Church, Globe Realty Corporation Ltd. All In One Contacting Ltd., The Crown Lumber Company Limited, Canadian Imperial Bank of Commerce, Revelstoke Building Materials Limited and the County of Paintearth No. 18. There were records on file for Revelstoke Company Ltd., and no records for the remaining names searched. In the 1970's, two Emission Control Orders were issued to Revelstoke Company Ltd. for the operation of an industrial plant in Sentinel, Alberta, located approximately 500 km southwest of Halkirk.

5.2.2.6 EPEA

A search was conducted of AEP approvals, licenses, registrations and permits issued under the Water Act and EPEA for the Study Areas. There were two registered listings with the quarter section, as summarized below:

- Approval 001-49694 was issued March 24, 1998 to Waste Connections of Canada Inc. under provisions of the Environmental Protection & Enhancement Act (EPEA) and does not expire. The approval was for the establishment of a waste transfer station located within the NE 24-038-16 W4M which formerly operated as a waste management facility (Figure 2).
- Approval 73626 was issued June 10, 2002 to Harold Chick under provisions of the Water Act and does not expire. The location or further details were unknown.

5.2.2.7 Groundwater Wells

A search of groundwater wells was conducted in the AEP Water Well Information Database. The search indicated that there were thirteen wells registered to the quarter section, as summarized in Section 3.4.

5.2.2.8 Alberta Health Services

The Alberta Health Services office of Environmental Public Health was contacted regarding landfills, waste sites, nuisance grounds or environmental incidents on file regarding the Study Areas. The search results reported no records for the Study Areas.

An additional search was submitted for the former Landfill and current Waste Transfer Station located at 16018 Township Road 383A, northwest of Study Area 1, the results reported no records on file.

5.2.3 Municipal and Local

No formal municipal searches were completed however, relevant records for the Study Areas and other areas of potential concern in the surrounding areas were provided from Mrs. Renschler.

Mrs. Cordel reported no recollection of structure fires on Village owned infrastructure within the Study Areas. She reported a grass fire in 2016 that burned across some grass land, however; nothing was damaged.

Information was provided to ParklandGEO for review by Mr. Kevin McDougall, Transfer Station Supervisor for Paintearth Regional Waste Management Ltd., regarding the former landfill and current waste transfer station location 180 m northwest from Study Area 1.

Information on file and correspondence reported that the Waste Transfer Station accepted cardboard and recyclables, household waste, tires, electronics, metal, white metal (fridges, stoves, etc.) furniture, construction materials, batteries and propane tanks.

A burn pile was located within the waste transfer station and collected grass, brush and yard waste. The burn pile was burned off with a permit in the winter. It was reported that all material collected at the Waste Transfer Station was removed from the site within a year.

Records on file indicated that in October 2009, Alberta Environment completed an investigation (File No. 8574) of the Halkirk Transfer Station due to the improper storage of hazardous waste. EnviroSort was hired to clean up hazardous materials or chemicals at the site. A Class II Landfill analysis was completed on the impacted material and was found to be suitable for disposal at CCS Midstream Services in Coronation, Alberta. Filipenko Bros. Construction Ltd. was hired to clean up and dispose of 201.5 m³ of impacted soil from the Waste Transfer Station in August 2010. Filipenko Bros. also piled up the burning materials. No records or reports of environmental assessments were provided, such as soil, groundwater or landfill gas investigations.

Mr. McDougall reported that there was little to no records of the former landfill. Mr. McDougall was unable to gather information via correspondence regarding its historical footprint, operational periods, and records of historical ESA's or closure process. As there were no records regarding the operations, closure or capping of the former landfill the risk to the Campground is expected to be low to moderate based on the distance. A 300 m development setback would extend from the landfill to the southeast, encroaching on the campground which may restrict further development in the absence of environmental investigations, on-going monitoring and adequate risk assessment.

Emails, pictures and supporting documents regarding the Halkirk Waste Transfer Station are included in Appendix B.

6.0 SITE INSPECTION RESULTS

An inspection was conducted on June 23rd, 2021, by Mr. Spencer Podgurski, ATT, of ParklandGEO to assess for environmental concerns within the Study Areas. Photographs collected are presented in Appendix A and Study Area details are shown on Figures 3A to 3D.

During the inspection there were no operational fuel stations or fuel storage facilities observed in the Village of Halkirk. The closest retail fuel station was likely in Castor, and 19 km east of Halkirk. Quantities of fuel used for agricultural operations may be located closer, however, were not observed.

Historically, three retail fuel stations were reported within Halkirk. Two were located at Lot 19-22, Block 2, Plan 1989Z and Lots 1-2, Block 7, Plan 1989Z, west of the intersection at Main Street and Alberta Avenue. The sites were located east of the Church and north of the Canada Post and Bank Property. The third site was located at Lots 1-3, Block 4, Plan 1989Z, near the intersection of Berry Street and Railway Avenue, east of the Fire Hall.

Information collected concerning adjacent and nearby sites is summarized in Section 5.0.

6.1 STUDY AREA 1

6.1.1 Campground

The Campground was located on the north side of the Village and accessed from the main entrance on the south side at the intersection of Main Street and Pioneer Avenue. The Campground was developed with a concession/washroom, pole shed (drink shack), storage shed, baseball diamond, rodeo corral and sorting pens, and campground.

Construction of the washrooms and concession building began in 2020 and the interior was unfinished. It was constructed on a concrete slab with a tin roof as well as tin interior and exterior walls. The remaining interior furnishings including the hot water tanks, toilets and other pieces were stored in the pole shed. The building was serviced with water, sewer, natural gas and power.

The pole shed was constructed in 2006 and was finished with a tin roof, tin siding, overhead door to the north and a gravel floor. The pole shed was uninsulated and only serviced with power. A bar was located in the southeast corner of the drink shack, picnic tables were located in the central portion of the building and a stage and dance floor were located on the west portion of the pole shed. A storage shed was located on the west side of the pole shed which was not inspected but reportedly used for storage.

The baseball diamond was constructed in 1982 and was located in the southwest corner of the Property.

The rodeo and corral was located on the southeast portion of the Property and contained bleachers, the rodeo corral, an announcer's booth and sorting pens. The corral was visible in the aerial photograph review since 1998 however expanded until its current configuration in the early 2000's. The rodeo corral was formerly a baseball diamond, first visible in the 1982 aerial photograph.

The campground occupied the north half of the Property and was accessed by gravel roads within the Property. The area was largely vegetated with grass and trees. Campsites were not serviced and only provided a fire pit and picnic table.

Other infrastructure at the campground included a Paintearth Gas Co-op Ltd. Regulator/gas measurement facility on the Property near the George Street and Pioneer Avenue intersection. A septic dump station was located near the Property in the northeast corner of the Main Street and Pioneer Avenue intersection. The station was installed in approximately 1988, directly connected to the Village sanitary system and did not employ an underground tank.

Photographs 1 to 7 of the Campground are included in Appendix A1.

6.1.2 ADJACENT LAND USE

The Property was surrounded by the following sites at the time of the assessment:

TABLE 4
STUDY AREA 1 ADJACENT LAND USE

Direction from Property	Current Property Tenant/Owner
North	Agricultural Land (Pasture), Single Residential Development
East	Agricultural Land (Pasture), Range Road 160, Former Aerobic Lagoon (Reclaimed 1979)
South	Pioneer Street, Berry Street, Main Street, George Street, Residential Development
West	Agricultural Land (Pasture), Waste Transfer Station (Former Landfill)

The Campground was surrounded by agricultural land to the north, east and west. The remainder of the Village was located to the south, including Study Areas 2, 3 and 4. The current Waste Transfer Station property boundary was located approximately 210 m west of the Campground. Information regarding the Waste Transfer Station and former landfill is summarized in Section 5.2.3.

6.2 STUDY AREA 2

6.2.1 Church

The Church was located in the northwest portion of the Village in the northeast corner of the George Street and Alberta Avenue intersection. The Church was a single room with a storage closet and bell tower which was originally constructed in 1918. The Church was moved to its current foundation in 1994. The Church Property was not serviced by water or sewer and the power was shut off. The Church contained several rows of pews and an altar. The storage closet contained minor quantities of cleaning supplies, file storage, furniture storage and a furnace. There were no below ground spaces with the new foundation and minor water stains were located on the interior of the south wall. The exterior of the Church was repainted in 2007.

The remainder of the Church Property was mostly grassed with some trees and shrubs throughout. Sidewalks were located near the south and west boundaries and an alley was to the east.

Photographs 1 to 3 of the Church are included in Appendix A2.

6.2.2 Curling Rink (CR)

The Curling Rink was located in the northwest portion of the Village at the northwest corner of the George Street and Alberta Avenue intersection. The Curling Rink was constructed in 1950 as an arch rib building where the ice sheets were located. The artificial ice system was installed in 1956.

The south portion of the building had a stucco exterior finish with a tin roof. The ice sheets were within the metal arch ribbed building. To the north portion of the building was a wooden shed in which the artificial ice system was located.

The south portion of the building had a basement, main floor and second floor. The basement had a concrete foundation and walls in poor condition. Significant cracking was visible and a void space was located on the west wall. A sump pump was located under the stairs and pooling water was visible in other areas due to poor grading. Wooden posts were used and visible water wicking and salt stains were present. The basement had the furnace and two hot water tanks, the base of on the hot water tank appeared to be significantly rusted.

The main floor had a closet for coat storage, a viewing room and kitchen which were reportedly added in 1985. The kitchen had a sink, fridge, natural gas stove and service counter.

The second floor was used for a viewing area and bar. The majority of the floor was occupied with tables and chairs while a bar was located in the corner with a sink and fridge. Glass windows were located on the north side, towards the ice sheets.

The ice sheets were dry at the time of the inspection and the artificial ice system piping appeared to be PVC or similar material laid and partially covered in a bed of fine grained material. There piping had no protection from above and would be vulnerable from external force (i.e. Walking on the pipes, parking machinery on the piping or storage on the piping). The piping was oriented north to south and appeared to be single circuit. It is estimated that the artificial ice system had over 4000 linear meters of piping over an area of 400 m² based on the spacing between pipe and length of the ice sheets. Joints within the piping were not visible. A white substance was visible across the majority of the ice sheets and it was expected to be residual paint from the last time ice was made. Fluorescent lights spanned the length of the ice sheets and an overhead natural gas heater was present. Foil lined insulation was observed in the upper portion of the ice sheets but was not further inspected.

The shed on the north side of the Curling Rink was in poor condition and contained artificial ice system components. The shed was wooden with drywall finishes inside and a concrete floor. Exterior finishes on the shed included vinyl siding and asphalt shingles. The interior had visible water damage on the ceiling, mould growth and a cracked concrete floor. Visible artificial ice system components included electrical panels, compressors, piping, distribution manifolds and small tanks. It was reported the artificial ice system used calcium chloride and freon.

The majority of the Curling Rink with was developed however, some vegetation was located on the north and south ends of the Property. Sidewalks were located near the east and south Property boundaries. A partially filled 1 m³ tote of calcium chloride was stored on a pallet north of the Curling Rink.

Photographs 4 to 15 of the Curling Rink are included in Appendix A2.

6.2.3 ADJACENT LAND USE

The Property was surrounded by the following sites at the time of the assessment:

**TABLE 5
 STUDY AREA 2 ADJACENT LAND USE**

Direction from Property	Current Property Tenant/Owner
North	Residential Development, Pioneer Avenue, Campground (SA1)
East	Wildrose building (former Halkirk Corner Service, Section 5.2.2.1), Main Street, Residential Development
South	Alberta Avenue, George Street, Residential Development, Railway Avenue, Dura Bull
West	Residential Development, Natural Land

The Property was predominantly surrounded by residential sites to the north, east and south. George Street was located between the Properties and Alberta Avenue was located immediately south of the Properties.

The former Halkirk Corner Service was located immediately east of the Church. Environmental information available for review is summarized in Section 5.2.2.1. Dura Bull was located approximately 25 m southeast of the Church and was reported to have had historical retail fuel USTs, as reported in Sections 5.1.5 and 5.2.2.1. Environmental concerns were not observed on any other adjacent sites for which environmental information was obtained and reviewed during the assessment.

6.3 STUDY AREA 3

6.3.1 Berry Street Campground (BSC)

The Berry Street Campground was developed in 2006 and located in the central portion of the Village and was comprised of an 8 stall campground. The Property was accessed from the east and had a gravel laneway with symmetrical stalls on either side of the road. A typical stall had gravel parking pad, picnic table and grassed area. Each stall was serviced with water, electrical and a septic connection. Overhead power lines were located on the south and west boundaries of the Property.

Photographs 1 to 3 of the Berry Street Campground are included in Appendix A3.

6.3.2 Seniors Centre, Village Office and Public Works

The Seniors Center, Village Office and Public Works buildings were connected. The Property was located in the northeast corner of the intersection of Main Street and Railway Avenue. The original Seniors Center building was constructed in 1921 with an addition of Village Office and the Public Works building in 1984.

The Seniors Center was the original building located in the southwest corner of the Property and had a basement, main floor and second floor. The basement was a concrete foundation in poor condition with cracking observed, standing water and deteriorating columns. Salt wicking was visible in the wooden components of the basement as well as on the walls of the foundation. The basement contained the furnace (replaced 2014), sump and an old metal riveted tank. The metal riveted tank was likely used for water and not heating oil as coal was reported to be the main historical heating fuel source in the area.

The main floor included a portion of the original building as well as a portion of the addition. The original had carpet floor with drywall and brick walls, dry walled ceilings and fluorescent lights. The Seniors Center had an open space, floor curling and kitchen. The kitchen had a sink, oven, microwave and fridge. The open space was located on the west side of the building and used for various events and was located near the two former bank vaults which were currently used for file storage. The shuffle board floor was located on the east side.

The second floor was original and formerly used as a residence during operations as the bank and was currently unused. The layout included a living room, kitchen, washroom and bedrooms. Finishes included original hardwood floors, a fireplace, a mix of plaster and wall paper walls and ceilings. Visible water damage on the ceiling was observed in several spots across the second floor. Layered flooring was observed in the washroom. A former exterior door was located on the northeast side of the second floor and when opened, provided access to the attic of the space above the Village Office. The space had minimal fibreglass insulation and the partially painted brick exterior was visible with flaking paint.

Photographs 4 to 14 of the Seniors Centre are included in Appendix A3.

The Village Office was an addition to the Seniors Center and was built in 1980. The Village Office was comprised of two offices and a washroom. The office was used for administration and records storage. A single crack in the drywall was observed in the Village Office on the door dividing the two offices.

Photographs 15 and 16 of the Village Office are included in Appendix A3.

The Public Works shop was also added to the Seniors Center in 1980 and was located north of the Village Office. The Public Works shop had a single overhead door and was used for the storage of public works equipment including barricades, tools, equipment and machinery. The shop was finished with a concrete floor, drywall wall and ceilings. Fluorescent lights were located on the ceiling. A single sump was located in the shop floor and liquid contents obstructed a full inspection. The concrete surface surrounding the sump appeared to be in good condition, free of cracks or stains. Insulation in the public works shop was inspected and found to be fibreglass batting. A hot water tank and forced air furnace were located in the east side of the Public Works shop and serviced the Village Office.

The remaining, undeveloped portion on the east side of the Lot was landscaped. Two storage sheds and three inactive satellite dishes were located near the north boundary. A concrete sidewalk was located near the south and west boundaries of the Lot.

Photographs 17 to 20 of the Public Works shop are included in Appendix A3.

6.3.3 Community Hall (CH)

The Community Hall was located on the east side of Main Street, north of the SC, VO, PW and south of the WTP.

The current Community Hall was constructed in 1950 with additions in 1985 and 2002. The Community Hall had a basement, main floor and second floor storage in the original portion of the building.

The main floor had a kitchen, main hall, washrooms, concession and storage rooms. The kitchen was in the north portion of the building and was refinished in 1985. The kitchen had industrial appliances including stoves, ovens, a washer and a refrigerator. The kitchen was finished with linoleum floor, drywall, drop tile ceiling and fluorescent lights. The concession was located on the east side of the kitchen and had a serving window towards the hall.

The hall was open and had a hardwood and linoleum floor with drywall and drywall/tiled ceiling. The stage was located on the east side and storage and washrooms were on the west side. The staircase to the second floor was located near the storage area. The hall was set up with tables at the time of the inspection from a prior event. A janitorial closet was located in the former washrooms that were used prior to the addition. The closet contained minor quantities of cleaning chemicals and equipment.

The basement was constructed in 1950 and had an engineered addition in 1985. The basement was predominantly open with a concrete floor and pillars located throughout and reported to be used minimally. The basement was finished with drywall walls and ceilings and fluorescent lights. The basement was formerly used for classes, Halkirk Elks meetings and community events. The basement had a main area, a games room, mechanical room and washrooms. The mechanical room had three furnaces, two hot water tanks and a sump with two pumps.

The second floor was used for storage and contained miscellaneous hall equipment, signage, light fixtures and chairs. A portion of the drywall appeared to be damaged by water damage, peeling and discolored.

Photographs 21 to 31 of the Community Hall are included in Appendix A3.

6.3.4 Water Tower and Playground (WTP)

The Water Tower and Playground were located in the southeast corner of the intersection of Main Street and Alberta Avenue.

The Water Tower was constructed in 1977 and the attached building was constructed in 1983. The Water Tower was operational from 1977 until its decommissioning in 2009. The exterior was painted in 1990. The building near the Water Tower had a piping system leading to the tower, a heater and a disconnected natural gas line. The building attached to the Water Tower was not inspected.

The Playground was constructed in 1984 with additional equipment added in 1998, 2012, 2017 and 2018. In 2020 pea gravel was added and the edging was redone. Playground infrastructure included a playground, swing set and gazebo.

Photographs 32 to 35 of the Water Tower and Playground are included in Appendix A3.

6.3.5 Fire Hall (FH)

The Fire Hall was located in the northwest corner of the intersection of Berry Street and Railway Avenue. The Fire Hall was constructed in 1991 with an addition constructed on the west side in 2019. The original building had two overhead doors, an office, washroom, storage room and a mezzanine. The addition included three parking bays with overhead doors and a new furnace. The interior was updated with tin walls, new lights and new windows. During construction, emergency wiring and concrete aprons were also installed.

The Fire Hall was finished with a concrete slab and had one drain in the original slab and one in the addition, both were in good condition. It was reported that the sumps saw minimal to no use as there were no liquids used or stored in the shop. The building was heated with overhead radiant heat, had a hot water tank and furnace in the mechanical room and an air compressor on the mezzanine. The septic cleanout was located in the lunchroom floor.

The mezzanine was used for the storage of additional gear, oxygen tanks and other equipment.

Photographs 36 to 43 of the Fire Hall are included in Appendix A3.

6.3.6 Canada Post and Bank (CPB)

The Canada Post and Bank building was constructed in 2006 on a concrete slab with in-floor heating. The Bank was located on the north half of the building and the Canada Post office was located on the south portion of the building. Immediately upon entering the building was a common space with mail boxes.

The Bank had a single waiting room and single office. The vault and remainder of the area was not inspected or photographed at the request of the tenant.

The Canada Post office had a large sorting room with a table and a clerical window. The rear of the building was used for stationary storage. A common washroom and mechanical room was located at the rear of the building and housed the furnace, hot water tank and electrical panels. No photographs were taken within the Canada Post unit at the request of the tenant.

The remainder of the lot was undeveloped and landscaped with grass.

Photographs 44 to 46 of the Canada Post office and Bank are included in Appendix A3. Limited photographs were taken to respect the privacy of the bank and Canada Post office at the request of the tenants.

6.3.7 ADJACENT LAND USE

The Property was surrounded by the following sites at the time of the assessment:

**TABLE 6
 STUDY AREA 3 ADJACENT LAND USE**

Direction from Property	Current Property Tenant/Owner
North	Dura Bull, Alberta Avenue, Residential Development, Campground (SA1)
East	Berry Street, Residential Development, Howard Street, Former Retail Fuel Site, Former Mother Theresa Halkirk School
South	Halkirk Hotel, Railway Avenue, Grain Elevators, Former Railway Alignment(s), Highway 12
West	Residential Development, George Street, Residential Development, Mercer Street, Agricultural Land

The Study Area was predominantly surrounded by residential sites to the north, east and west. Main Street was located between the Study Areas and Railway Avenue was located immediately to the south.

Dura Bull was located adjacent north to the Canada Post and Bank and approximately 25 m west of the Water Tower and Playground and was reported to have USTs. The Halkirk Hotel has never relocated and had occupied the corner of Main Street and Railway Avenue since 1910. “Gee Lee Chinese Laundry” which was reported to have been ‘behind’ the Halkirk Hotel and may have been a historical dry cleaner. A former retail fuel station with USTs was located at the northwest corner of the intersection of Berry Street and Railway Avenue, east of the Fire Hall, as reported in Sections 5.1.5 and 5.2.2.1.

6.4 STUDY AREA 4

6.4.1 Mini Arena (MA)

The Mini Arena was located on the eastern side of the Village, north of Alberta Avenue. The building was centrally located within the lot and the arena was constructed in 1976. The addition on the south was constructed in approximately 1950 and relocated to the Mini Arena in 1976.

The relocated structure was constructed of wood, painted and was uninsulated. The south portion had a wooden floor and it was unknown if a foundation was present. A natural gas heater was installed in 1985.

The Mini Arena was open and reportedly paved in 1993. In 2012 an overhead door was installed on the north portion of the building. During the inspection, the Mini Arena had a model train display set up of the Village of Halkirk and surrounding areas. Sand was imported and spread across the floor. The displays were set up on tables and finished with lumber and other synthetic figurines and replicas. The overhead door was reportedly installed in 2012.

Photographs 1 to 7 of the Mini Arena are included in Appendix A4.

6.4.2 ADJACENT LAND USE

The Property was surrounded by the following sites at the time of the assessment:

**TABLE 7
 STUDY AREA 4 ADJACENT LAND USE**

Direction from Property	Current Property Tenant/Owner
North	Natural Land, Agricultural Land (Pasture)
East	Residential Development, Range Road 160, Former Aerobic Lagoon (Reclaimed 1979)
South	Alberta Avenue, Former Mother Theresa Halkirk School (Closed 2016)
West	Residential Development, Berry Street

The Property was surrounded by residential development to the east and west and to the north by natural and agricultural land.

As summarized in Section 5.2.2.1, correspondence documented the removal of a UST from the former Halkirk School, located on an adjacent site, south of the Mini Arena. The report identified contamination and staining around the fill pipe. No soil samples were taken and the area was backfilled. The UST was likely associated with additional aboveground infrastructure on the Property and was likely greater than 70 m south of the Mini Arena based on the aerial photograph review of that time frame. Environmental concerns were not observed on any other adjacent sites for which environmental information was obtained and reviewed during the assessment.

7.0 ENVIRONMENTAL ISSUES

Information regarding environmental issues is summarized below.

7.1 AIR EMISSIONS OR AIR QUALITY

Freon, an ozone depleting substance was located within the artificial ice system at the Curling Rink. Mould was observed in the ceiling of the addition on the north portion of the Curling Rink which contained the artificial ice system. Mould was also observed in the ceiling and some walls of the second floor at the Seniors Center.

No other air emission or air quality activities were observed on the remaining Properties.

7.2 ASBESTOS CONTAINING MATERIALS (ACMS)

Many buildings constructed before 1975 incorporated ACMs. Asbestos was favoured due to its strength, non-combustible nature, flexibility and its ability to decrease noise. However, asbestos was found to cause numerous health problems depending on the type used. Chrysotile is a common type, and in its pure form is less harmful to humans, but it is commonly found in conjunction with Amphibole asbestos. Amphibole asbestos can be carcinogenic, cause asbestosis and scarring of the lungs. Undisturbed, ACMs pose little risk to human health. ACMs become a potential health hazard when the fibres are disturbed and introduced to the air, where they can be inhaled.

Common asbestos containing materials include, but aren't limited to: insulations, brick mortar, stucco, floor, industrial furnaces. Based on the age of construction and limited records of building maintenance prior to 1975, ACMS may be present in the SC, CH, MA, Church and CR.

If ACMs are suspected, it is recommended that hazardous building material assessment (HBMA) be conducted before renovating or demolition activities. If ASM's are found to be present in the building, an accredited asbestos abatement firm must be commissioned and consulted prior to any renovations or demolition of the building, in order to properly remove potentially harmful materials and mitigate risks.

7.3 CHEMICAL USING ACTIVITY AND CHEMICAL STORAGE

Calcium chloride and freon was used in the artificial ice system in the pipes at the Curling Rink. Remaining calcium chloride was stored in a plastic tote on the north side of the Curling Rink lot.

Small quantities of paint, lubricant, cleaners and fuel were stored inside the Public Works shop.

Two pails of approximately 3 gallons of "SILVEX CLASS A, Fire Control Concentrate Manufactured by ANSUL" were located in the Fire Hall. An unknown quantity of "AQUA ECO Solid Wetting Agent" was located in the Fire Hall and stored within the trucks. Both quantities of chemicals were only stored on the Property and used at offsite locations for emergency response.

Chlorine was historically stored in the chlorination building, located on the north side of the original Fire Hall building and decommissioned in 2010. The chlorination building stored chlorine in 5 gallon pails, to a maximum of three at a time. The 25 gallon container fed the water system and was topped up as quantities got low. There were no reported chlorine spills.

No other chemicals were stored or used on the Properties at the time of the inspection. Any chemicals stored or used would've been contained within the building or off the Property.

7.4 DRAINS AND SUMPS

Groundwater sumps were located within the basements of the SC, CR, CH. Sumps were located within the PW and FH. The Fire Hall sump saw minimal use and the Public Works sump had minimal liquid contents and could not be fully inspected. Septic drains were located within the stalls of the BSC and near the main entrance to the Campground. The drains were connected to the municipal system and lagoon.

7.5 FILL AND STOCKPILES

A gravel stockpile was located on the east side of the Community Hall lot and was reported to be left over from recent work completed at the Playground to the north. Fill was present within the stalls of the BSC. It is expected that fill was used with development and gravel roads across the Property.

7.6 FREONS AND HALONS

Halons are most commonly known for its effectiveness of extinguishing fires. They have never been produced in Canada but quantities have been imported to fulfill a domestic need. Halon importation into Canada has been banned since January 1, 1994 but stockpiles are still used in airplane and military applications. No halon fire extinguishers were observed during the inspection, however; may still be present if older fire extinguishers were present.

Freon is also known as R22 and was introduced to the industrial refrigeration market in the 1950's. It was commonly used as the standard refrigerant in the heating and cooling industry. R22 machinery has been banned from manufacturing since 2010 and was discontinued for use in Canada in 2020. The artificial ice machine in the Curling Rink was installed in 1956 and appeared to be original. Correspondence confirmed that the artificial ice system used freon and calcium chloride.

7.7 HAZARDOUS MATERIALS STORAGE AND USE

No storage of hazardous materials was observed on the Property.

7.8 HAZARDOUS WASTES

No hazardous wastes were observed or reported to be generated from on-site activities.

7.9 HEATING AND COOLING SYSTEMS

Heating units were located in the majority of the occupied structures and typically included a forced air furnace and hot water tanks. Natural gas heaters were also identified in the MA and CR. In-floor heating was reported in the CPB building. A wood burning fire place was located in the second floor of the SC.

The Curling Rink had an artificial ice system as described in Section 7.6.

7.10 LANDFILLS AND DUMPS

The Halkirk Waste Transfer Station and former landfill were located approximately 180 m northwest of the Campground. Additional correspondence is summarized in Section 5.2.3.

A review of the Halkirk Home Fires and Area book identified that in February, 1912, 10 acres were purchased in the NE 26 from the Hudson Bay Co. for a nuisance ground. The NE 26 was located approximately 1.6 km northwest of Study Area 1 and is not expected to affect any of the Study Areas.

7.11 LEAD

Lead-based paints were commonly used in buildings painted prior to 1960. By 1980, interior paints were generally lead-free. All consumer paint products produced in Canada and the United States were virtually lead-free by 1992.

Inhalation or ingestion of chipping/flaking lead-based paint can pose a human health risk. If removal of surfaces painted with lead-based paint is not desired, it is possible to cover these areas with non-lead-based paint, wallpaper, wallboard or paneling to provide added safety measures.

Lead was commonly found in plumbing systems until it was banned under the National Plumbing Code of Canada in 1975. Lead was commonly found in piping, old domestic wells, associated fittings and solder. Factors affecting lead in water include: water chemistry, age of the plumbing system and length of stagnant time in pipes.

Buildings included in this Assessment that were constructed or partially constructed before 1975 include: the Seniors Centre, Community Hall, The Church and the Curling Rink. Buildings included in this Assessment that were constructed after 1975 include: The Water Tower, The Mini Arena, Village Office, Public Works Shop, Fire Hall, the Campground, Canada Post and Bank.

The Mini Arena and Church weren't serviced with water during the inspection. The Water Tower was erected in 1977, its manufacture date was unknown and it was taken out of service in 2009. A review of the municipal records shows that municipal water lines were initially installed in 1963 and have been replaced in segments since. The water reservoir located southwest of Study Areas 2 and 3 was constructed in 2011 and is operated by the County of Paintearth. It is

recommended that all buildings constructed prior to 1975 and are serviced with municipal water be tested for lead in water. Any infrastructure containing lead materials should also be replaced.

7.12 LIQUID EFFLUENTS AND SITE RUNOFF

There were no sources of liquid discharge observed originating from the Properties at the time of the inspection. Site runoff varied at each Property, as described in Sections 3.1.3, 3.2.3, 3.3.3 and 3.4.3.

7.13 MECHANICAL EQUIPMENT

No permanent mechanical equipment was located on any of the Properties. Village owned vehicles included a 1 ton public works truck, an ambulance and a 1 ton fire truck. A tractor and lawn mowers were being used to mow grass at the time of the inspection at the Campground.

7.14 MERCURY

Fluorescent lights were located throughout the offices and mezzanine and have the potential to contain small quantities of mercury. Mercury containing thermostats were observed within the CR, MA, PW, WT and SC.

7.15 METHANE

Study Areas 1 and 4 were not developed in the first aerial photograph available for review in 1949 and a portion of the Properties in Study Areas 2 and 3 were developed.

Historical aerial images identified corrals associated with the rodeo grounds within Study Area 1 in the 1998, 2003, 2010 and 2019. It is possible that animal manure may have accumulated in that area. However, the immediate area has not been developed and any decomposing manure is not considered a significant concern.

A wetland located immediately north of Study Area 1 has been visible since the 1949 aerial and did not historically appear to extend south onto the Property. Organic wetlands have the potential for methane generation during decomposition of soils and plant material.

The Halkirk Waste Transfer Station and former landfill were located approximately 180 m northwest of the Campground. Additional correspondence is summarized in Section 5.2.3.

The former Halkirk lagoon was located approximately 280 m northeast of the Mini Arena and was reclaimed around 1977. The current lagoons were located 650 m southeast of the Mini Arena.

The closest known cemetery was reported to be west of Highway 855, over 1.0 km west of the Study Areas.

7.16 OIL AND GAS FACILITIES

A Paintearth Gas Co-op Ltd. regulator / metering facility was located on the southwest portion of the Campground near the George Street entrance. Natural gas lines were located throughout the Village.

No other upstream oil and gas facilities were located on the Properties or in the immediate surrounding area.

7.17 PESTICIDES AND HERBICIDES

A 1 m³ plastic tote labelled as Traxion herbicide was located on the north side of the Curling Rink. The tote was reported to be filled with calcium chloride used within the Curling Rinks artificial ice system. It was reported that the tote would be removed. Spraying equipment was located in the Public Works shop and was labelled "Round Up". It is likely that the Village sprayed the public areas on occasion and in moderation for weed control

There were no other pesticides or herbicides stored or observed on the Properties. Minor amounts may have historically been used throughout the Village. The Campground was located near agricultural land on which herbicides and pesticides may have been used.

7.18 PITS AND LAGOONS

There were no pits or lagoons currently or historically located on the Properties. The historical village lagoon and current lagoons distanced from the Properties are referenced in Sections 3.1.3, 3.2.3, 3.3.3 and 3.4.3 and below in Section 7.22.

7.19 POLYCHLORINATED BIPHENYLS (PCBS)

PCBs were not manufactured in Canada however were used in a variety of industrial activities and do not easily degrade. PCBs were first manufactured in 1929 and were widely used for several decades including use as dielectrics in electrical transformers and capacitors, heat exchange fluids, paint additives, sealing and caulking compounds, cutting oils and ink. By 1977, the importation and manufacturing of PCBs was banned in North America. The ban did not cover PCBs in use, but it was the beginning of phasing out the chemicals. PCB's are classified as toxic under the Canadian Environmental Protection Act (CEPA) 1999.

Electrical transformers on overhead power lines were observed throughout the Village. If original transformers are present, PCBs may be present and would be the responsibility of the transformer owner.

7.20 RADIOACTIVE MATERIALS AND EQUIPMENT

Radioactive materials or equipment were not observed or reported on the Property.

7.21 RADON

The **Playground and the BSC** were undeveloped, and as such the potential exposure of future building occupants to radon cannot be assessed. However, for any future building it is assumed that the design and construction will follow the requirements of the National Building Code which would limit the potential radon exposure. Upon construction a long-term test to measure the interior radon concentration is recommended as part of a standard health and safety program, as per Health Canada's recommendation.

For the **CG, Church, CPB, WT, FH, MA, VO, PW** the general interior ventilation was considered good, with no below grade spaces and limited potential migration pathways for radon gas to enter the structure. The potential incremental risk from radon exposure to the building occupants is considered low. As per Health Canada's recommendation, a long-term test to measure the interior radon concentration is recommended as part of a standard health and safety program, but this is not essential for the assessment of the environmental risk associated with this Property.

For the **CH** the general interior ventilation was considered good; however; there were several below-grade areas (basement, crawl space) that would have a greater potential to act as radon gas migration pathways. The potential incremental risk from radon exposure to the building occupants is considered low to moderate. As per Health Canada's recommendation, a long-term test to measure the interior radon concentration is recommended as part of a standard health and safety program, but this is not essential for the assessment of the environmental risk associated with this Property.

For the **CR and SC** the general interior ventilation was considered fair to poor, with several below-grade areas (basement, crawl space) that would have a greater potential to act as radon gas migration pathways. The potential incremental risk from radon exposure to the building occupants is considered moderate. As per Health Canada's recommendation, a long-term test to measure the interior radon concentration is recommended as part of a standard health and safety program, and should be considered when assessing the environmental risk associated with this Property.

7.22 SOLID WASTES AND SEWAGE DISPOSAL

No significant quantities of solid wastes were observed on the Properties during the inspection.

The Halkirk Waste Transfer Station and former landfill was located approximately 180 m west of the Campground. Correspondence is summarized in Section 5.2.3.

Nine blocks within the Village were serviced in 1962 and records indicate clay pipe was used. Village correspondence identified that upgrades have been completed since.

A lagoon was located east of the Village and was reclaimed in 1979. The replacement lagoon was located southeast of the original lagoon and was constructed in 1979. Village records indicate that lagoon rehabilitation was completed in 2015 and included the cleaning of pipes, manholes and the smaller lagoon cells.

Septic drains were located at the CG and BSC and drained to the lagoons, east of the Village.

7.23 STAINS AND SPILLS

There were no significant stains or spills reported during the inspections or correspondence. A single stain was located in the Public Works shop and was contained within the concrete floor. Salt and water staining was observed in the ceiling of the Seniors Center and Curling Rink. Water accumulation was observed in the basements of the Seniors Center and Curling Rink.

7.24 UNDERGROUND & ABOVEGROUND STORAGE TANKS

An empty storage tank was located in the basement of the Seniors Center. Its use was unknown and was broken and no longer in use. There were no reported or observed underground storage tanks on the Properties.

Correspondence with the Village reported that a former service station was located at the southwest corner of Main Street and Alberta Avenue (Dura Bull). The area of the tanks was reported to be beneath the addition on the northwest portion of the Property.

USTs were historically located at the northwest corner of Main Street and Alberta Avenue at the current Wild Rose building (Former Halkirk Corner Service). The area of the tanks was not reported but correspondence indicated contamination was present in the soil.

USTs were historically located in the northeast corner of Berry Street and Railway Avenue. a Phase II ESA was completed in 2001, and is summarized in Section 5.2.2.1.

Documents for known underground storage tanks on adjacent sites are summarized in Sections 5.1.5 and 5.2.2.1.

7.25 UNIDENTIFIED SUBSTANCES

There were no unidentified substances observed during the site inspection.

7.26 UREA FORMALDEHYDE FOAM INSULATION (UFFI)

UFFI was widely used in the 1970's for insulating and retrofitting industrial, commercial and older residential buildings. The use of formaldehyde-based resin during the manufacturing of UFFI can lead to the release of formaldehyde gas during curing and afterwards with emissions decreasing over time. UFFI can deteriorate when wet and can release increased amounts of gas if not properly installed. Moist insulation can support the growth of mould posing additional health risks. UFFI has been prohibited from advertising, sale or importation into Canada since December 1980 under Item 34, Part I or Schedule I to the Hazardous Products Act.

No UFFI was identified during the inspection however there is potential in the areas not inspected.

7.27 UTILITIES, ROADS, PARKING FACILITIES AND RIGHTS-OF-WAY

Natural gas, water and sewer lines were located within the roadways of the Village and services the majority of the Properties. Overhead powerlines were located across the Village and serviced buildings overhead.

The Properties were located within the Village and accessed from roadways including: Pioneer Avenue, Alberta Avenue, Railway Avenue, Berry Street, Main Street and George Street.

Parking facilities were typically designated in the roadways with the exception of the Campground, Fire Hall and Berry Street Campground. The Berry Street Campground and Campground had designated parking areas on the Property as well as designation camp stalls. The Fire Hall had concrete aprons on the south side and vehicle parking on the grass and gravel to the west.

There were no registered Right-of-Ways on any of the Properties.

7.28 VEGETATION

The majority of the Properties had vegetation including grass, flowers, shrubs and trees.

7.29 WATERCOURSES, DITCHES AND STANDING WATER

No watercourses or standing water were observed on any of the Properties. The closest waterbodies in relation to the Properties are outlined by Study Area in Sections 3.1.3, 3.2.3, 3.3.3 and 3.4.3.

No ditches were located on any of the Properties. A slight ditch was located on the south side of Alberta Avenue, east of Berry Street, south of the Mini Arena.

7.30 WELLS

There was no water wells located on the Properties, as noted in Section 3.4. The buildings serviced with water were provided by the Village.

8.0 ASSESSMENT AND RECOMMENDATIONS

Based on the available information gathered during the Phase I ESA, the following conclusions and risk level have been presented relative to the Study Areas outlined above:

Study Area 1

- **The Campground** was located in the north portion of the Village of Halkirk and was historically used as recreation grounds since before 1963. The Campground currently had a drink shack, storage shed, concession, baseball diamond, rodeo grounds and camp sites. A recreational vehicle (RV) septic drain was located near the south side of the Campground near the main entrance and was reported to drain to the Village lagoons located east of the Village. The Campground is expected to have a low environmental risk.
- A historical landfill was located north of the current Waste Transfer Station approximately 180 m to the northwest of the Campground. Information was provided to ParklandGEO for review by Mr. Kevin McDougall, Transfer Station Supervisor for Paintearth Regional Waste Management Ltd. It was reported that the Waste Transfer Station accepted cardboard, recyclables, household waste, tires, electronics, metal, white metal (fridges, stoves, etc.) furniture, construction materials, batteries, propane tanks and had a burn pile for yard waste (grass, brush, trees). Records on file indicated that in October, 2009, Alberta Environment completed an investigation (File No. 8574) of the Halkirk Transfer Station due to the improper storage of hazardous waste. Paintearth Regional Waste Management Ltd. contracted EnviroSort and Filipenko Bros. Construction Ltd. to clean up and dispose of hazardous wastes or chemicals, and 201.5 m³ of impacted soil at CCS Midstream Services from the Waste Transfer Station in the August, 2010. No records of environmental assessments were provided. Mr. McDougall reported that there was little to no records of the former landfill. Mr. McDougall was unable to gather information via correspondence regarding its historical footprint, operational periods, and records of historical ESA's or closure process. As there were no records regarding the operations, closure or capping of the former landfill the risk to the Campground is expected to be low to moderate based on the distance. A 300 m development setback would extend from the landfill to the southeast encroaching on the campground which may restrict further development in the absence of environmental assessments, landfill gas or leachate monitoring, and adequate risk assessment.

Study Area 2

- **The Church** appeared to occupy its current Lot since at least 1910. The current building was constructed in 1918 and relocated to a new foundation in 1994. The Church was mostly open-concept with a single mechanical room in the northwest corner of the building. The church was serviced with electricity and gas only and no water or waste water services were present. The initial development likely

predates Hazardous Building Materials (HBMs), however; undocumented renovations completed since original construction may have used HBMs.

The adjacent east site from the Church was reported to be the current Wild Rose building (former Halkirk Corner Service) and had documentation of an Underground Storage Tank (UST) removal with identified Petroleum Hydrocarbon (PHC) contamination in 1998. There was no further documentation available for review and the location of the USTs were unknown. Correspondence from a former Village CAO reported that test holes were completed east of the site, within Main Street, and gas odours were encountered in the soil. The Current Dura Bull site located southeast of the Church south of Alberta Avenue was also reported to have historical USTs located south of the original building prior to the 1960's. There was no formal documentation regarding the USTs, only correspondence provided by a former Village CAO.

The Church in Study Area 2 is expected to have a low potential environmental risk due to onsite activities and history. The surrounding area is expected to pose a low potential risk with exception of the former Halkirk Corner Service and current Dura Bull which are expected to pose a moderate to high potential environmental risk based on the undelineated impacts and historical site uses.

- **The Curling Rink** was constructed in 1956 and has operated since that time. The Curling Rink used an artificial ice system containing freon and calcium chloride to maintain ice sheets. Linear piping within the ice sheets contained calcium chloride as a part of the cooling system and was bedded on fine grained material, gravel and potentially coal slag. During ice melt, water was reported to drain into the basement prior to the sewer line. Significant cracking was observed in the foundation of the basement and a void space was observed on the west wall. Water was observed in the basement and appeared to be wicking up wood posts and on the foundation walls. White stains were observed within the wicking water and is likely salt deposits. The salt deposit crust may be indicative of a leak in the artificial ice system or natural salts in the area. Potential HBMs may have been used in construction and renovations completed since development. Mould was noted in the shed on the north portion of building in which the artificial ice system was located.

The use of freon and calcium chloride in the artificial ice machine and the age of development and potential presence of HBM's. If a leak occurred in the artificial ice system, calcium chloride chemicals may be present in the soil and/or groundwater. The Curling Rink is expected to have a high potential environmental risk. It is recommended the identified mould in the artificial ice system shed be assessed and abated and a building condition assessment (BCA), including a structural assessment be completed including the buildings foundation.

Study Area 3

- **The Berry Street Campground** was developed as its current orientation between 2003 and 2010. The Berry Street Campground contained 8 camping stalls, each serviced with water, power and sewer. Based on land titles and the historical aerial review, the Berry Street Campground was likely a historical lumber yard operated by “the Crown Lumber Company Limited” and “Revelstoke Building Materials Limited” during their ownership from 1914 to 1965 and 1967 to 1978, respectively.

Due to the historical nature of the lumber yard on the Berry Street Campground, historical creosote or other wood treatment chemicals may be present in the soil and/or groundwater and is expected to pose a moderate environmental potential risk.

- **The Village Office and Public Works** shop were built as additions surrounding the **Seniors Center** which was originally constructed in 1921. The Seniors Center included a basement and second floor previously developed as an apartment. The basement of the Seniors Center appeared to be in poor condition with standing water and cracks observed in the foundation. Water was observed in the basement and appeared to be wicking up wood posts and on the foundation walls. White stains were observed within the wicking water and is likely salt deposits. The salt deposit crust is likely indicative of natural conditions in the area as this was a significant distance away from the reported salt sources in the Village. The second floor of the Seniors Center was no longer used and interior finishes appeared to be dated. Water damage was located on the ceiling. A formerly exterior door led to the attic space of the Village Office where layered paint was observed on the formerly exterior brick wall.

HBM's may be present within the Seniors Center and should be assessed. It is recommended that a BCA including a structural assessment be completed on the Seniors Center building and foundation.

- The Village Office was constructed in 1980 and located north of the Seniors Center and was comprised of two offices. The Village Office appeared to be in good condition and reported minor structural issues, including a crack in the drywall above one of the doors. The Village Office is expected to have a low potential environmental risk.
- The Public Works shop was constructed in 1980 and located north of the Village Office. The Public Works shop was used for the storage and maintenance of Village owner equipment. Contents stored included: barricades, signage, small quantities of chemicals and tools. A single sump was located in the shop floor but was not inspected due to the liquid contents present. The Public Works building is expected to have a low potential environmental risk.

- **The Community Hall** was originally constructed in the late 1940's and burned down in 1947. Redevelopment occurred in 1952 and included a kitchen with other additions added in 1985, 1986 and 2001. Limited documentation was present regarding the fire and rebuilding details. The Community Hall featured a kitchen, dance floor and basement. The basement was reported to be a Permanent Wood Foundation (PWF). The basement dampness was reported to be attributed to times of heavy precipitation and snow melt.

Due to the age of construction, HBMs may be present within earlier developed portions of the building and should be assessed. It is recommended that a BCA including a structural assessment be completed on the Community Hall building and foundation. The Community Hall is considered to have a low to moderate potential environmental risk.

- **The Water Tower** was originally constructed in 1977 and the **Playground** was built in 1985. The Water Tower has been decommissioned and preserved as a historical structure. The Playground was comprised of a swing set, play structure and gazebo.

The Water Tower and Playground is expected to have a low potential risk due to the onsite use and history. However, as these facilities are located on the southeast corner of the intersection near the Former Halkirk Corner Service and Dura Bull sites, potential impacts from historical fuel USTs could be present and are yet to be defined, and as such, these adjacent sites pose a moderate to high potential environmental risk to the Water Tower and Playground.

- **The Fire Hall** was constructed in 1991 with an addition on the west side in 2019. Two sumps were located in the shops, were reported to be in good condition and were reported to see minimal use. A former chlorination shed was located on the north side of the fire hall and had minimal storage of chlorine in pails. There were no reported releases of chlorine and the residual unused chemical was disposed of offsite during a "waste round up event" in 2010 during its decommissioning.

The Fire Hall use and operations are expected to pose a low potential environmental risk. However, there may be impacts that are undefined related to the adjacent east site which historically had a fuel UST and pump island, in which their exact locations were unknown. Minimal soil and groundwater samples were collected and analysed within the historical investigation on this adjacent site and groundwater flow was not calculated. The adjacent east site is expected to pose a moderate potential environmental risk to the Fire Hall.

- **The Canada Post and Bank** building was constructed in 2006 and replaced a previous development. The building was constructed in a similar location and was completed with two units and a shared washroom.

The Canada Post and Bank building and associated operations were expected to pose a low potential environmental risk. However, the Dura Bull was located immediately north of the Canada Post and Bank building. Historical records reported that "Gee Lee Chinese Laundry" was located "*behind*" the Halkirk Hotel, south of the Canada Post and Bank building. Gee Lee Laundry had no definitive location, address or duration of operations identified. Dry cleaning activities are known to date back to 1821. There was inconclusive evidence to support the presence or absence of dry cleaning activities or associated chemical use, if it was operational at that location, and potential impacts could be present due to poor historical disposal practices for associated chemicals. Due to the historical offsite fuel USTs at Dura Bull and potential drycleaner, the adjacent sites are expected to pose a moderate potential risk to the Canada Post and Bank building/lot.

Study Area 4

- **The Mini Arena** was constructed in 1976. There was an original structure constructed offsite in the 1950's which was relocated to the Mini Arena as an addition at an unknown date. The Mini Arena contained a model train display at the time of the inspection from a previous tenant who had defaulted on rent. The Mini Arena used winter conditions to create ice historically and no artificial systems were reported to be historically present. Records available on ESAR identified an oil storage tank was removed from the Halkirk School located south of the Mini Arena. Stains were noted and no further information was available for review.

The Mini Arena and operations were expected to pose a low potential environmental risk. Based on the location and distance of Halkirk School and waste oil tank location, the buffer zone provided by Alberta Avenue and school site itself and the properties of waste oil in soil, offsite impacts were not expected. Therefore, the former oil storage tank was expected to pose a low potential risk to the Mini Arena.

Area	Current Use	Potential Environmental Concern(s)	Risk Level	Recommendation
Study Area 1	Campground Rodeo Grounds	Landfill & Waste Transfer Station	Low to moderate	- Obtain further correspondence with Alberta Environment - Development considerations based on the 300 m landfill setback
Study Area 2	Church	Offsite Fuel USTs	Moderate to High	- Phase II ESA to assess adjacent west historical fuel USTs - HBMA prior to renovations or demolition
	Curling Rink (CR)	Freon Calcium chloride Foundation HBMs	High	- Phase II ESA to assess potential calcium chloride impacts USTs, - Building Condition Assessment (BCA) completed on basement foundation - HBMA prior to renovations or demolition - Considerations of HBMs and mould prior to renovations and/or demolition and during occupancy of the basement or second floor
Study Area 3	Berry Street Campground (BSC)	Former Lumber Yard	Moderate	- Phase II ESA to assess for potential contaminates due to historical lumber yard activity and storage
	Seniors Centre (SC), Village Office (VO) and Public Works (PW)	HBMs Foundation	Low	- Building Condition Assessment (BCA) completed on basement foundation - Considerations of HBMs and mould prior to renovations and/or demolition
	Community Hall (CH)	HBMs Offsite Fuel USTs	Low to moderate	- HBMA prior to renovations or demolition - Phase II ESA to assess adjacent west and northwest historical fuel

				USTs
	Water Tower and Playground (WTP)	Adjacent northwest site Offsite Fuel USTs	Moderate to high	- Phase II ESA to assess adjacent west and northwest historical fuel USTs
	Fire Hall (FH)	Offsite Fuel USTs	Moderate	- Phase II ESA to assess adjacent east historical fuel USTs and lumber yard activities to the north
	Canada Post and Bank (CPB)	Offsite Fuel USTs Potential Dry Cleaner (Gee Lee Laundry)	Moderate	- Phase II ESA to assess adjacent north historical fuel USTs and potential dry cleaning chemicals
Study Area 4	Mini Arena (MA)	None	Low	- No further work recommended at this time

ParklandGEO notes gaps in information regarding the environmental conditions at several of the Properties in the Village of Halkirk. The Village of Halkirk began settlement in 1910 with the completion of the Canadian Pacific Railway. Documentation and records for the Village appear to date back to the late 1950's and early 1960's. Available aerial photographs date back to 1949. With the lack of available records, there is a significant data gap from 1910 to the 1950's regarding historical operations and tenants of the Properties.

HBM's could be present in the majority of the buildings as historical undocumented renovations may have occurred. Hazardous building materials may include: mould, asbestos, urea formaldehyde foam insulation (UFFI), lead paint, lead pipe or polychlorinated biphenyls (PCBs). Air quality may be affected in the Seniors Center and the Curling Rink due to the visually identified mould.

As there were no records regarding the operations, closure or capping of the former landfill the risk to the Campground is expected to be low to moderate based on the distance. A 300 m development setback would extend from the landfill to the southeast, encroaching on the campground which may restrict further development in the absence of environmental assessments, landfill gas or leachate monitoring to determine the appropriate risk assessment.

Phase II ESAs are recommended on the Church, Curling Rink, Berry Street Campground, Community Hall, Water Tower, Playground, Fire Hall and Canada Post and Bank building due to the proximity of offsite fuel USTs. Soil and Groundwater samples be collected and analysed for respective parameters of potential concern based on the adjacent site operations.

Further environmental assessments are recommended, as outlined above, and proposals can be prepared upon request.

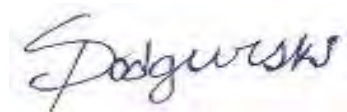
9.0 LIMITATIONS AND CLOSURE

The American Society for Testing and Materials Standard of Practice notes that no environmental site assessment can wholly eliminate uncertainty regarding the potential for recognized environmental conditions in connection with a property. Performance of a standardized environmental site assessment protocol is intended to reduce, but not eliminate, uncertainty regarding the potential for recognized environmental conditions in connection with the Subject Property, given reasonable limits of time and cost.

This report has been prepared for the exclusive use of **The Village of Halkirk c/o MPE Engineering Ltd.** and their approved agents. 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. PARKLAND GEOTECHNICAL CONSULTING LTD., and The ParklandGEO Consulting Group accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report. No other warranty, expressed or implied, is made.

We trust that this report meets with your current requirements. If there are any questions, please contact the undersigned at 403-343-2428.

Respectfully Submitted,
PARKLAND GEOTECHNICAL CONSULTING LTD.



Spencer Podgurski, ATT
Environmental Technologist

Reviewed by:

APEGA Permit to Practice #07312



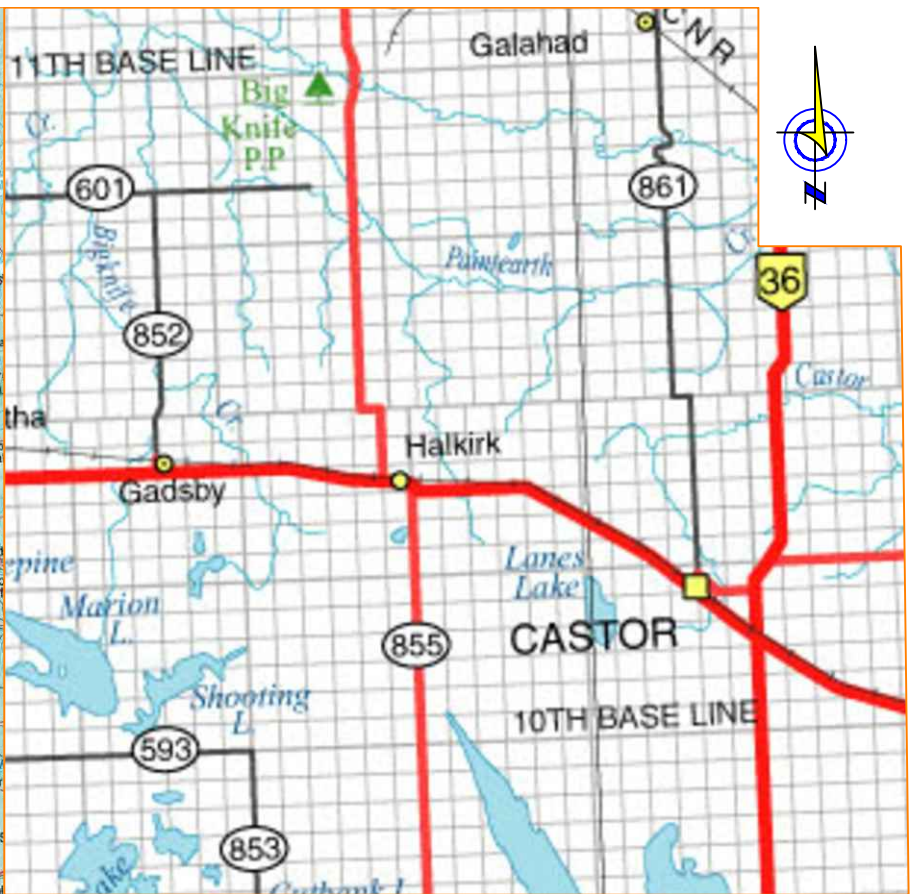
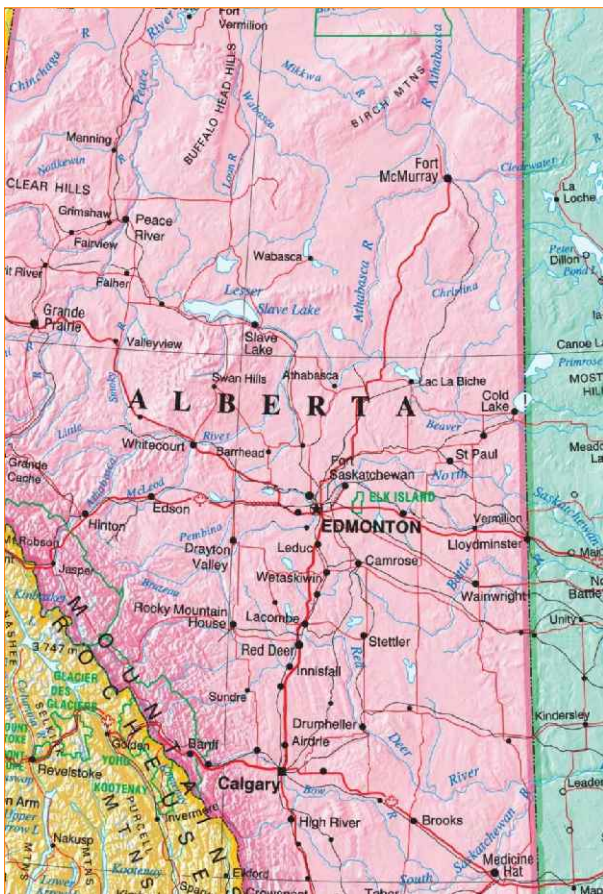
Suzanne Musolino, P.Ag, BIT, EP.
Senior Environmental Scientist

Monica Gaudet Smith, P.Eng.
Geo-Environmental Engineer
Responsible Member



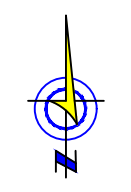
FIGURES

- Figure 1 – Key Plan
- Figure 2 – Area Plan
- Figure 3A – Study Area 1
- Figure 3B - Study Area 2
- Figure 3C - Study Area 3
- Figure 3D - Study Area 4
- Figures 4 – 15 Aerial Photographs

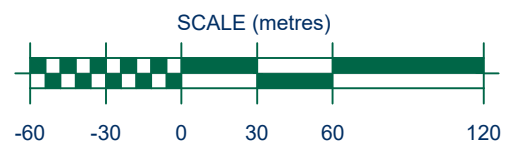


CLIENT:
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KEY PLAN			
HALKIRK INFRASTRUCTURE AUDIT PHASE I ESA HALKIRK, ALBERTA			
DRAWN: SP	CHK'D.: MGS	REV #: 0	DATE: AUGUST 2021
SCALE: NTS	JOB NO. RD7434	DRAWING NO. FIGURE 1	



- LEGEND**
- SITE OF POTENTIAL ENVIRONMENTAL CONCERN
 - 300 m BUFFER OF FORMER LANDFILL
 - A FORMER RETAIL FUEL STORAGE SITE
 - B DURA BULL
 - C FORMER HALKIRK CORNER SERVICE
 - D FORMER HALKIRK SCHOOL
 - E HALKIRK WASTE TRANSFER STATION & FORMER LANDFILL
 - F HALKIRK HOTEL
 - G HALKIRK SNACK SHACK
 - H WATER RESERVOIR
 - I CAPITAL POWER & HALKIRK WIND
 - J GRAIN ELEVATOR
 - K FORMER HALKIRK LAGOON
 - L FORMER CP RAIL LINE - RECLAMATION CERTIFICATE REJECTED



AERIAL PHOTOGRAPH OBTAINED FROM GOOGLE EARTH, DATED JUNE 27, 2019.

REV #	DATE	DETAILS

DRAWN: SP	CHK'D: MGS	REV #: 0	DATE: AUGUST 2021
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CLIENT:
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AREA PLAN		
HALKIRK INFRASTRUCTURE AUDIT PHASE I ESA HALKIRK, ALBERTA		
SCALE: 1:3000	JOB NO. RD7434	DRAWING NO. FIGURE 2



PAINTEARTH
GAS CO-OP
METERING
STATION

BASEBALL
DIAMOND

CAMP SITES

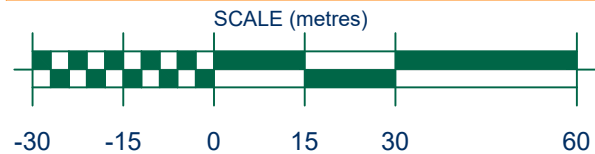
CONCESSION

RODEO
GROUNDS

SORTING
PENS

DRINK SHACK

PIONEER AVENUE



AERIAL PHOTOGRAPH OBTAINED FROM GOOGLE EARTH, DATED JUNE 27, 2019.

REV #	DATE	DETAILS

DRAWN:	CHK'D.:	REV #:	DATE:
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STUDY AREA 1		
HALKIRK INFRASTRUCTURE AUDIT PHASE I ESA HALKIRK, ALBERTA		
SCALE: 1:1250	JOB NO. RD7434	DRAWING NO. FIGURE 3A



ARTIFICIAL
ICE SYSTEM
& CALCIUM
CHLORIDE
TOTE

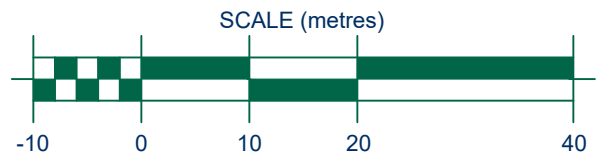
GEORGE STREET

ALBERTA AVENUE



LEGEND

- THE PROPERTIES
- SITE OF POTENTIAL ENVIRONMENTAL CONCERN



AERIAL PHOTOGRAPH OBTAINED FROM GOOGLE EARTH, DATED JUNE 27, 2019.

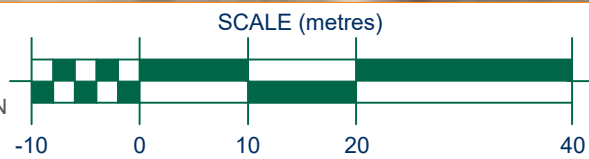
	CLIENT:	STUDY AREA 2				
	THE VILLAGE OF HALKIRK C/O MPE ENGINEERING LTD.		HALKIRK INFRASTRUCTURE AUDIT PHASE I ESA HALKIRK, ALBERTA			
	DRAWN: SP	CHK'D.: MGS	REV #: 0	DATE: AUGUST 2021		
	SCALE: 1:700	JOB NO. RD7434	DRAWING NO. FIGURE 3B			



LEGEND

- THE PROPERTIES
- SITE OF POTENTIAL ENVIRONMENTAL CONCERN
- PW PUBLIC WORKS
- VO VILLAGE OFFICE
- SC SENIORS CENTRE

AERIAL PHOTOGRAPH OBTAINED FROM GOOGLE EARTH, DATED JUNE 27, 2019.



REV #	DATE	DETAILS

DRAWN:	CHK'D.:	REV #:	DATE:
SP	MGS	0	AUGUST 2021



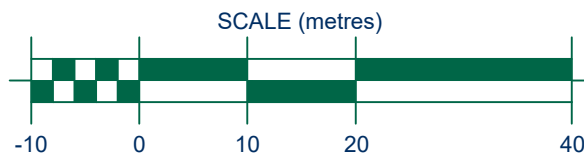
CLIENT:
THE VILLAGE OF HALKIRK
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MPE ENGINEERING LTD.

STUDY AREA 3		
HALKIRK INFRASTRUCTURE AUDIT PHASE I ESA HALKIRK, ALBERTA		
SCALE: 1:700	JOB NO. RD7434	DRAWING NO. FIGURE 3C



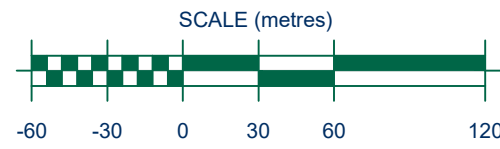
LEGEND

- THE MINI ARENA
- SITE OF POTENTIAL ENVIRONMENTAL CONCERN



AERIAL PHOTOGRAPH OBTAINED FROM GOOGLE EARTH, DATED JUNE 27, 2019.

	CLIENT: THE VILLAGE OF HALKIRK C/O MPE ENGINEERING LTD.	KEY PLAN			
	PROJECT TITLE LOCATION/ADDRESS				
	DRAWN:	CHK'D.:	REV #:	DATE:	
SP	MGS	0	AUGUST 2021		
SCALE:	JOB NO.	DRAWING NO.		FIGURE	
1:700	RD7434	RD7434		3D	



LEGEND
□ THE PROPERTIES

AERIAL PHOTOGRAPH OBTAINED FROM ALBERTA SUSTAINABLE RESOURCES, DATED SEPTEMBER 29, 1949.

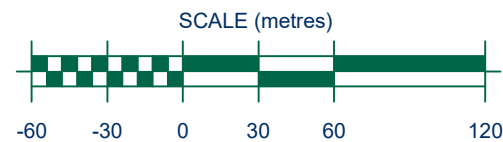
REV #	DATE	DETAILS

DRAWN: SP	CHK'D.: MGS	REV #: 0	DATE: AUGUST 2021
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CLIENT:
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1949 AERIAL PHOTOGRAPH		
HALKIRK INFRASTRUCTURE AUDIT PHASE I ESA HALKIRK, ALBERTA		
SCALE: 1:3000	JOB NO. RD7434	DRAWING NO. FIGURE 4



LEGEND
 THE PROPERTIES

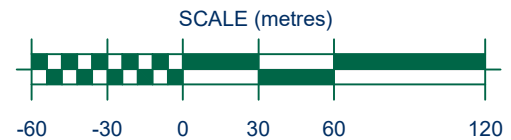
AERIAL PHOTOGRAPH OBTAINED FROM ALBERTA SUSTAINABLE RESOURCES, DATED MAY 29, 1963.

REV #	DATE	DETAILS
DRAWN: SP	CHK'D.: MGS	REV #: 0
		DATE: AUGUST 2021



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1963 AERIAL PHOTOGRAPH		
HALKIRK INFRASTRUCTURE AUDIT PHASE I ESA HALKIRK, ALBERTA		
SCALE: 1:3000	JOB NO. RD7434	DRAWING NO. FIGURE 5



LEGEND

THE PROPERTIES

AERIAL PHOTOGRAPH OBTAINED FROM ALBERTA SUSTAINABLE RESOURCES, DATED JULY 11, 1967.

REV #	DATE	DETAILS

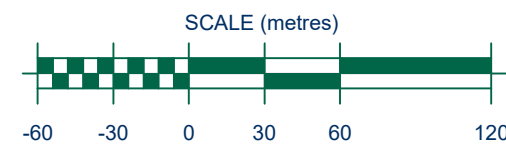
DRAWN:	CHK'D.:	REV #:	DATE:
SP	MGS	0	AUGUST 2021



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1967 AERIAL PHOTOGRAPH		
HALKIRK INFRASTRUCTURE AUDIT PHASE I ESA HALKIRK, ALBERTA		
SCALE:	JOB NO.:	DRAWING NO.:
1:3000	RD7434	FIGURE 6



LEGEND
THE PROPERTIES

AERIAL PHOTOGRAPH OBTAINED FROM ALBERTA SUSTAINABLE RESOURCES, DATED JULY 31, 1970.

REV #	DATE	DETAILS

DRAWN: SP	CHK'D.: MGS	REV #: 0	DATE: AUGUST 2021
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CLIENT:
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1970 AERIAL PHOTOGRAPH		
HALKIRK INFRASTRUCTURE AUDIT PHASE I ESA HALKIRK, ALBERTA		
SCALE: 1:3000	JOB NO. RD7434	DRAWING NO. FIGURE 7



LANDFILL

STUDY AREA 1

LAGOON

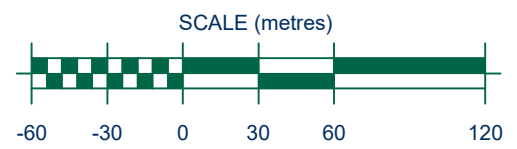
STUDY AREA 2

STUDY AREA 4

HALKIRK SCHOOL

STUDY AREA 3

CANADIAN PACIFIC RAIL LINE



LEGEND
 THE PROPERTIES

AERIAL PHOTOGRAPH OBTAINED FROM ALBERTA SUSTAINABLE RESOURCES, DATED APRIL 25, 1977.

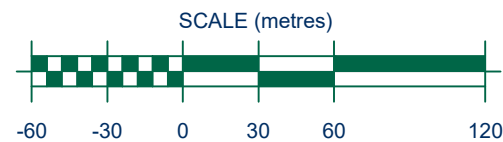
REV #	DATE	DETAILS

DRAWN: SP	CHK'D.: MGS	REV #: 0	DATE: AUGUST 2021
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CLIENT:
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1977 AERIAL PHOTOGRAPH		
HALKIRK INFRASTRUCTURE AUDIT PHASE I ESA HALKIRK, ALBERTA		
SCALE: 1:3000	JOB NO. RD7434	DRAWING NO. FIGURE 8



LEGEND
 THE PROPERTIES

AERIAL PHOTOGRAPH OBTAINED FROM ALBERTA SUSTAINABLE RESOURCES, DATED AUGUST 9, 1982.

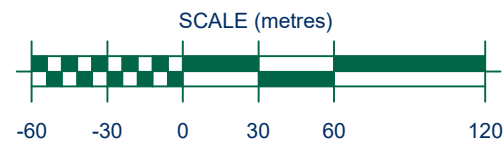
REV #	DATE	DETAILS

DRAWN:	CHK'D.:	REV #:	DATE:
SP	MGS	0	AUGUST 2021



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1982 AERIAL PHOTOGRAPH		
HALKIRK INFRASTRUCTURE AUDIT PHASE I ESA HALKIRK, ALBERTA		
SCALE: 1:3000	JOB NO. RD7434	DRAWING NO. FIGURE 9



LEGEND
 THE PROPERTIES

AERIAL PHOTOGRAPH OBTAINED FROM ALBERTA SUSTAINABLE RESOURCES, DATED JUNE 4, 1987.

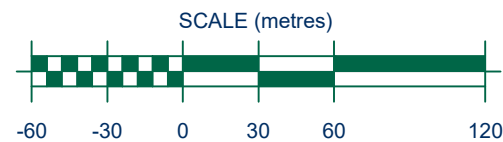
REV #	DATE	DETAILS

DRAWN: SP	CHK'D.: MGS	REV #: 0	DATE: AUGUST 2021
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CLIENT:
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1987 AERIAL PHOTOGRAPH		
HALKIRK INFRASTRUCTURE AUDIT PHASE I ESA HALKIRK, ALBERTA		
SCALE: 1:3000	JOB NO. RD7434	DRAWING NO. FIGURE 10



AERIAL PHOTOGRAPH OBTAINED FROM ALBERTA SUSTAINABLE RESOURCES, DATED JUNE 23, 1994.

LEGEND
 THE PROPERTIES

REV #	DATE	DETAILS	
DRAWN:	CHK'D.:	REV #:	DATE:
SP	MGS	0	AUGUST 2021



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1994 AERIAL PHOTOGRAPH		
HALKIRK INFRASTRUCTURE AUDIT PHASE I ESA HALKIRK, ALBERTA		
SCALE: 1:3000	JOB NO. RD7434	DRAWING NO. FIGURE 11

FORMER LANDFILL /
WASTE TRANSFER
STATION



STUDY AREA 1

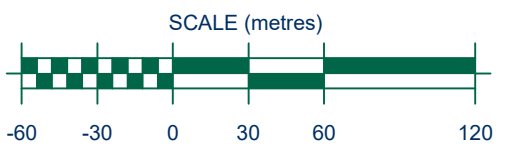
STUDY AREA 2

STUDY AREA 4

HALKIRK SCHOOL

STUDY AREA 3

CANADIAN PACIFIC RAIL LINE



LEGEND
 THE PROPERTIES

AERIAL PHOTOGRAPH OBTAINED FROM ALBERTA SUSTAINABLE RESOURCES, DATED MAY 12, 1998.

REV #	DATE	DETAILS

DRAWN: SP	CHK'D.: MGS	REV #: 0	DATE: AUGUST 2021
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CLIENT:
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1998 AERIAL PHOTOGRAPH		
HALKIRK INFRASTRUCTURE AUDIT PHASE I ESA HALKIRK, ALBERTA		
SCALE: 1:3000	JOB NO. RD7434	DRAWING NO. FIGURE 12



FORMER LANDFILL /
WASTE TRANSFER
STATION

STUDY AREA 1

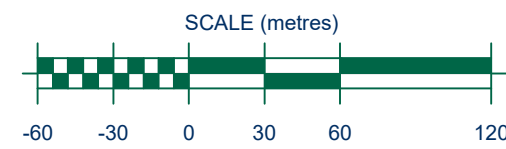
STUDY AREA 2

STUDY AREA 4

HALKIRK SCHOOL

STUDY AREA 3

CANADIAN PACIFIC RAIL LINE



LEGEND
 THE PROPERTIES

AERIAL PHOTOGRAPH OBTAINED FROM ALBERTA SUSTAINABLE RESOURCES, DATED JUNE 28, 2003.

REV #	DATE	DETAILS

DRAWN: SP	CHK'D.: MGS	REV #: 0	DATE: AUGUST 2021
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2003 AERIAL PHOTOGRAPH		
HALKIRK INFRASTRUCTURE AUDIT PHASE I ESA HALKIRK, ALBERTA		
SCALE: 1:3000	JOB NO. RD7434	DRAWING NO. FIGURE 13



FORMER LANDFILL /
WASTE TRANSFER
STATION

STUDY AREA 1

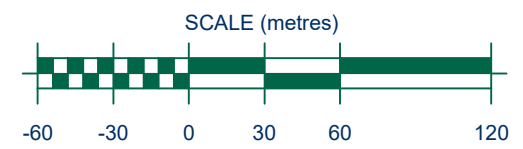
STUDY AREA 2

STUDY AREA 4

HALKIRK SCHOOL

STUDY AREA 3

CANADIAN PACIFIC RAIL LINE



LEGEND
 THE PROPERTIES

AERIAL PHOTOGRAPH OBTAINED FROM GOOGLE EARTH, DATED SEPTEMBER 5, 2010.

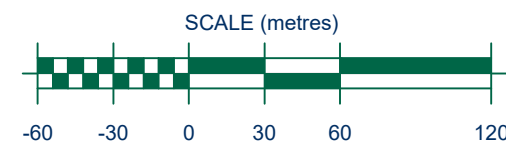
REV #	DATE	DETAILS

DRAWN: SP	CHK'D.: MGS	REV #: 0	DATE: AUGUST 2021
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2010 AERIAL PHOTOGRAPH		
HALKIRK INFRASTRUCTURE AUDIT PHASE I ESA HALKIRK, ALBERTA		
SCALE: 1:3000	JOB NO. RD7434	DRAWING NO. FIGURE 14



LEGEND

THE PROPERTIES

AERIAL PHOTOGRAPH OBTAINED FROM GOOGLE EARTH, DATED JUNE 27, 2019.

REV #	DATE	DETAILS

DRAWN: SP	CHK'D.: MGS	REV #: 0	DATE: AUGUST 2021
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CLIENT:

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2019 AERIAL PHOTOGRAPH		
HALKIRK INFRASTRUCTURE AUDIT PHASE I ESA HALKIRK, ALBERTA		
SCALE: 1:3000	JOB NO. RD7434	DRAWING NO. FIGURE 15



APPENDIX A1

Study Area 1 Photographs



Photograph 1: Looking west across the baseball diamond on the southwest portion of the Campground (June 23, 2021).



Photograph 2: Looking east over the rodeo grounds on the southeast portion of the Campground (June 23, 2021).



Photograph 3: Looking south over the drink shack in the southeast portion of the Campground (June 23, 2021).



Photograph 4: Looking south at the new washroom and concession near the Main Street entrance of the Campground (June 23, 2021).



Photograph 5: A typical camp stall on the north portion of the Campground (June 23, 2021).



Photograph 6: The Paintearth Gas Co-op Ltd. metering station near the southwest portion of the Campground (June 23, 2021).



Photograph 7: Looking west across the interior of the drink shack on the Campground (June 23, 2021).



APPENDIX A2

Study Area 2 Photographs



Photograph 1: Looking northeast over the Church from the George Street and Alberta Avenue intersection (June 23, 2021).



Photograph 2: Looking west from the alter over the interior finishing's of the Church (June 23, 2021).



Photograph 3: The furnace in the mechanical room in the northwest portion of the Church (June 23, 2021).



Photograph 4: Looking north at the Curling Rink from Alberta Avenue (June 23, 2021).



Photograph 5: The main floor viewing area and kitchen in the Curling Rink (June 23, 2021).



Photograph 6: The main floor kitchen in the Curling Rink (June 23, 2021).



Photograph 7: The Curling Rink basement, noting the wet conditions (June 23, 2021).



Photograph 8: The Curling Rink basement, noting the water wicking in the wooden pillar and poor condition of the infrastructure (June 23, 2021).



Photograph 9: Looking west over the ice sheets (June 23, 2021).



Photograph 10: A close up of the artificial ice system piping within the ice sheets (June 23, 2021).



Photograph 11: The addition on the north side of the Curling Rink where the artificial ice system was located along with a plastic tote containing calcium chloride (June 23, 2021).



Photograph 12: Components of the artificial ice system, containing freon, west of the addition (June 23, 2021).



Photograph 13: Components of the artificial ice system (June 23, 2021).



Photograph 14: Mould in the addition on the north side of the Curling Rink (June 23, 2021).



Photograph 15: Exterior finishes on the south portion of the Curling Rink (June 23, 2021).



APPENDIX A3

Study Area 3 Photographs



Photograph 1: Looking northwest over the Berry Street Campground towards the Community Hall and Water Tower (June 23, 2021).



Photograph 2: Looking east across the central portion of the Berry Street Campground (June 23, 2021).



Photograph 3: Typical services including power, water and sewer at a stall within the Berry Street Campground (June 23, 2021).



Photograph 4: Looking northeast from Main Street and the Alberta Avenue intersection and the Seniors Center, Village Office and Public Works shop (June 23, 2021).



Photograph 5: The Seniors Center basement, noting poor conditions (June 23, 2021).



Photograph 6: A storage tank and sump in the Seniors Center basement, noting wet conditions, salt staining and deteriorating infrastructure (June 23, 2021).



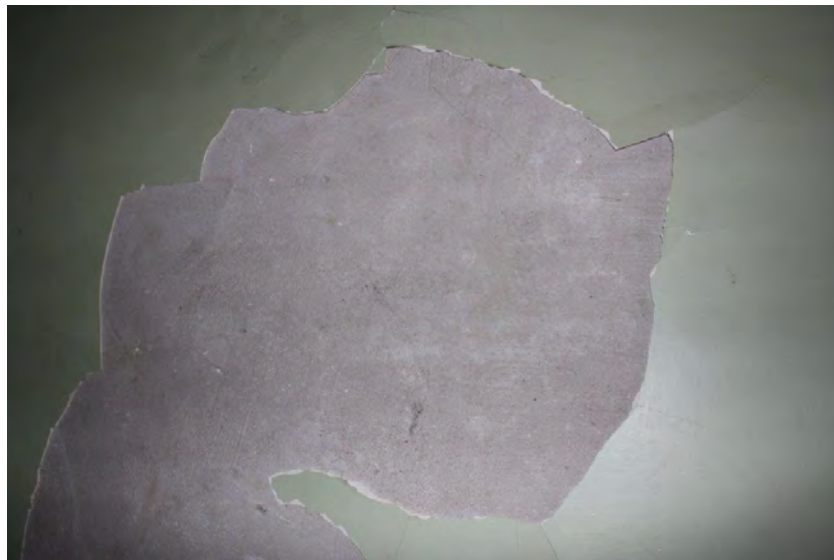
Photograph 7: The east side of the Seniors Center used for storage and floor curling (June 23, 2021).



Photograph 8: The west portion of the Seniors Center containing shuffleboard, a piano and the south entrance (June 23, 2021).



Photograph 9: The kitchen in the north portion of the Seniors Center, south of Village Office (June 23, 2021).



Photograph 10: Painted concrete walls on the stairwell to the second floor of the Seniors Center (June 23, 2021).



Photograph 11: The living room on the second floor of the Seniors Center (June 23, 2021).



Photograph 12: Water damage on the second floor of the Seniors Center (June 23, 2021).



Photograph 13: The former washroom on the second floor of the Seniors Center (June 23, 2021).



Photograph 14: Layered paint on a former external wall which has since been added on to with the addition of the Village Office (June 23, 2021).



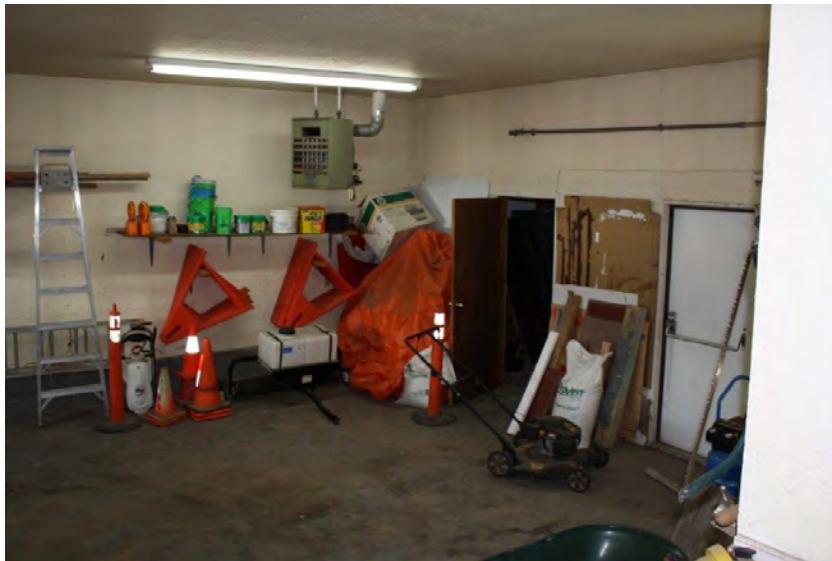
Photograph 15: The front portion of the Village Office (June 23, 2021).



Photograph 16: The back portion of the Village Office (June 23, 2021).



Photograph 17: The west portion of the Public Works shop (June 23, 2021).



Photograph 18: The east portion of the Public Works shop (June 23, 2021).



Photograph 19: The mechanical room in the Public Works shop which also services the Village Office (June 23, 2021).



Photograph 20: The south portion of the Public Works shop (June 23, 2021).



Photograph 21: Looking east across Main Street towards Community Hall (June 23, 2021).



Photograph 22: Looking across the kitchen in the north portion of the Community Hall (June 23, 2021).



Photograph 23: Additional cabinets and finishing within the kitchen (June 23, 2021).



Photograph 24: Looking east over the concession and east side of the hall (June 23, 2021).



Photograph 25: The stage in the southeast portion of the Community Hall (June 23, 2021).



Photograph 26: Inside the concession in the hall (June 23, 2021).



Photograph 27: Looking across the basement in the Community Hall (June 23, 2021).



Photograph 28: The games room in the basement of the Community Hall (June 23, 2021).



Photograph 29: The mechanical room in the basement of the Community Hall (June 23, 2021).



Photograph 30: Insulation in the attic of the Community Hall (June 23, 2021).



Photograph 31: Water damage in the ceiling of the Community Hall on the second floor (June 23, 2021).



Photograph 32: Looking east across main street towards the Playground (June 23, 2021).



Photograph 33: Looking west across the north side of the Playground toward the Water tower (June 23, 2021).



Photograph 34: Looking south over the Playground (June 23, 2021).



Photograph 35: Piping within the Water Tower (June 23, 2021).



Photograph 36: Looking northwest from Railway Avenue across the front of the Fire Hall (June 23, 2021).



Photograph 37: Looking west over the north side of the Fire Hall (June 23, 2021).



Photograph 38: Looking south in the addition to the Fire Hall on the east side over the drain (June 23, 2021).



Photograph 39: Looking east across the south side of the original Fire Hall showing parked response vehicles and the mezzanine (June 23, 2021).



Photograph 40: The drain and sump in the original building at the Fire Hall (June 23, 2021).



Photograph 41: The showers, mechanical room and lunch room under the mezzanine in the Fire Hall (June 23, 2021).



Photograph 42: The septic cleanout in the lunchroom in the Fire Hall (June 23, 2021).



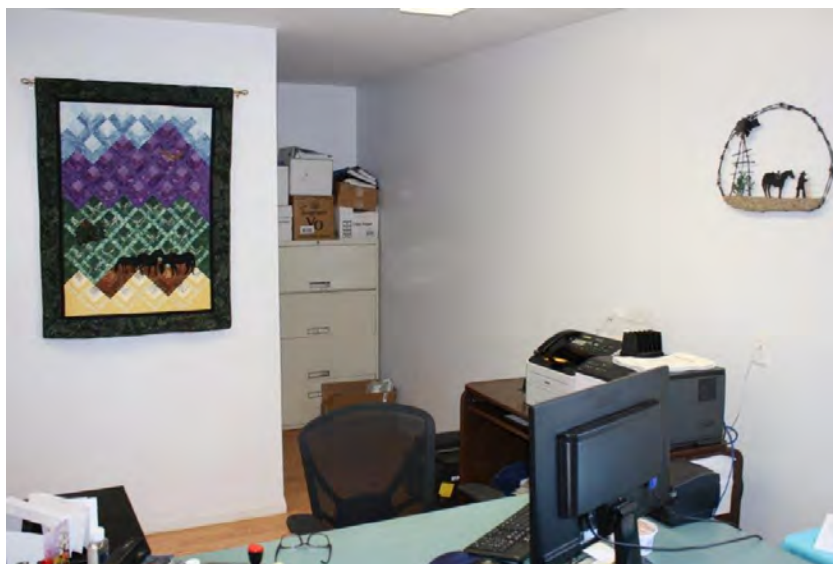
Photograph 43: The mezzanine in the Fire Hall used for storage (June 23, 2021).



Photograph 44: Looking west across Main Street towards the Canada Post and Bank building (June 23, 2021).



Photograph 45: The mailboxes in the common space on the east side of the Canada Post office (June 23, 2021).



Photograph 46: The office in the bank (June 23, 2021).



APPENDIX A4

Study Area 4 Photographs



Photograph 1: Looking north at the Mini arena from Alberta Avenue (June 23, 2021).



Photograph 2: Storage in the south addition of the Mini Arena (June 23, 2021).



Photograph 3: Looking north along the west side of the Mini Arena (June 23, 2021).



Photograph 4: A miniature display of the Village of Halkirk within the Mini Arena (June 23, 2021).



Photograph 5: looking north along the east side of the Mini Arena showing the model train display (June 23, 2021).



Photograph 6: The uninsulated ceiling and overhead door on the north portion of the Mini Arena (June 23, 2021).



Photograph 7: The north portion of the Mini Arena Property (June 23, 2021).



APPENDIX A5

Adjacent Site Photographs



Photograph 1: Looking east at the Halkirk Hotel from Main Street (June 23, 2021).



Photograph 2: Looking north at the Halkirk Hotel from the south side of Railway Avenue (June 23, 2021).



Photograph 3: Former Halkirk Corner Service site with reported Underground Storage Tanks (USTs) at the intersection of Main Street and Alberta Avenue (June 23, 2021).



Photograph 4: Looking across the Main Street and Alberta Avenue intersection showing the Former Halkirk Corner Service and Dura Bull (June 23, 2021).



Photograph 5: Looking west across Main Street, south of Alberta Avenue at Dura Bull, a site with reported USTs in the 1960's (June 23, 2021).



Photograph 6: Looking east over Berry Street, North of Railway Avenue at the residential development east of the Fire Hall which was formerly had USTs (June 23, 2021).



APPENDIX B

Searches and Regulatory Correspondence



LAND TITLE CERTIFICATE

S
LINC SHORT LEGAL TITLE NUMBER
0031 626 550 0621408;1;4 062 129 585 +3

LEGAL DESCRIPTION
PLAN 0621408
BLOCK 1
LOT 4
EXCEPTING THEREOUT ALL MINES AND MINERALS
AREA: 6.04 HECTARES (14.93 ACRES) MORE OR LESS

ESTATE: FEE SIMPLE
ATS REFERENCE: 4;16;38;24;NE

MUNICIPALITY: VILLAGE OF HALKIRK

REFERENCE NUMBER: 932 386 065
21V186

REGISTERED OWNER(S)				
REGISTRATION	DATE (DMY)	DOCUMENT TYPE	VALUE	CONSIDERATION
062 129 585	24/03/2006	SUBDIVISION PLAN		

OWNERS

THE VILLAGE OF HALKIRK.
OF HALKIRK
ALBERTA

ENCUMBRANCES, LIENS & INTERESTS

REGISTRATION		
NUMBER	DATE (D/M/Y)	PARTICULARS
752 173 932	28/11/1975	UTILITY RIGHT OF WAY GRANTEE - PAINT EARTH GAS CO-OP LTD. " AFFECTS PART OF THIS TITLE "
792 058 843	19/03/1979	CAVEAT RE : DEFERRED RESERVE CAVEATOR - RED DEER REGIONAL PLANNING COMMISSION. " AFFECTS PART OF THIS TITLE "

ENCUMBRANCES, LIENS & INTERESTS

PAGE 2

062 129 585 +3

REGISTRATION

NUMBER DATE (D/M/Y) PARTICULARS

812 104 441 07/05/1981 CAVEAT
CAVEATOR - ALBERTA POWER LIMITED.
" AFFECTS PART OF THIS TITLE "

932 278 583 13/09/1993 CAVEAT
RE : UTILITY RIGHT OF WAY
CAVEATOR - ALBERTA POWER LIMITED.
10035 105 STREET, EDMONTON
ALBERTA
AGENT - TRISHA LOOSEMORE
" AFFECTS PART OF THIS TITLE "

032 039 351 30/01/2003 UTILITY RIGHT OF WAY
GRANTEE - PAINT EARTH GAS CO-OP LTD.
" AFFECTS PART OF THIS TITLE "

TOTAL INSTRUMENTS: 005

THE REGISTRAR OF TITLES CERTIFIES THIS TO BE AN
ACCURATE REPRODUCTION OF THE CERTIFICATE OF
TITLE REPRESENTED HEREIN THIS 15 DAY OF JUNE,
2021 AT 10:15 A.M.

ORDER NUMBER: 41927437

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).



HISTORICAL LAND TITLE CERTIFICATE

TITLE CANCELLED ON MARCH 24, 2006

S			
LINC	SHORT LEGAL	TITLE NUMBER	
0019 993 352	2192MC;C	21V186	

LEGAL DESCRIPTION
 PLAN 2192MC
 BLOCK C
 EXCEPTING THEREOUT ALL MINES AND MINERALS
 AREA: 2.01 HECTARES (4.97 ACRES) MORE OR LESS

ESTATE: FEE SIMPLE
 ATS REFERENCE: 4;16;38;24;NE

MUNICIPALITY: VILLAGE OF HALKIRK

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

21V186	08/06/1961		\$248	REF. 6251MD

OWNERS
 THE VILLAGE OF HALKIRK.
 OF HALKIRK
 ALBERTA

ENCUMBRANCES, LIENS & INTERESTS				
REGISTRATION	DATE (D/M/Y)	PARTICULARS		
NUMBER				

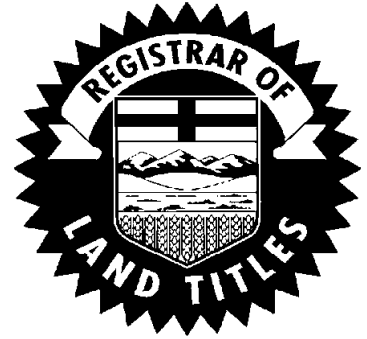
032 039 351	30/01/2003	UTILITY RIGHT OF WAY GRANTEE - PAINT EARTH GAS CO-OP LTD.		
062 129 585	24/03/2006	SUBDIVISION PLAN 0621408 TITLE CANCELLED IN FULL		

TOTAL INSTRUMENTS: 002

THE REGISTRAR OF TITLES CERTIFIES THIS TO BE AN
ACCURATE REPRODUCTION OF THE CERTIFICATE OF
TITLE REPRESENTED HEREIN THIS 15 DAY OF JUNE,
2021 AT 10:15 A.M.

ORDER NUMBER: 41927437

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).



HISTORICAL LAND TITLE CERTIFICATE

TITLE CANCELLED ON MARCH 24, 2006

S
LINC SHORT LEGAL TITLE NUMBER
0020 148 201 4;16;38;24;NE 932 386 065

LEGAL DESCRIPTION

ALL THAT PORTION OF THE NORTH EAST QUARTER OF SECTION FOUR (24)
TOWNSHIP THIRTY EIGHT (38)
RANGE SIXTEEN (16)
WEST OF THE FOURTH MERIDIAN, WHICH LIES WEST OF THE WEST LIMIT OF ROAD
PLAN 2538TR AND NORTH OF THE NORTH LIMITS OF SUBDIVISION PLANS 7822147
1044MC, 1045MC AND ROAD PLAN 6542BM AND ALBERTA AVENUE, AS SHOWN ON
PLAN 1989Z
EXCEPTING THEREOUT: A) 0.809 HECTARES (2.00 ACRES) MORE OR LESS,
DESCRIBED AS FOLLOWS; COMMENCING AT THE NORTH WEST CORNER OF SAID
QUARTER SECTION; THENCE SOUTHERLY ALONG THE WEST BOUNDARY THEREOF;
FOUR HUNDRED AND SEVENTEEN AND FORTY TWO HUNDREDTHS (417.42)
FEET; THENCE EASTERLY AND PARALLEL TO THE NORTH BOUNDARY OF SAID
QUARTER SECTION, TWO HUNDRED AND EIGHT AND SEVENTY ONE HUNDREDTHS
(208.71) FEET; THENCE NORTHERLY AND PARALLEL TO SAID WEST BOUNDARY
TO A POINT ON SAID NORTH BOUNDARY; THENCE WESTERLY ALONG SAID NORTH
BOUNDARY TO THE POINT OF COMMENCEMENT.
B) 0.336 HECTARES (0.83 ACRES) MORE OR LESS, SUBDIVIDED UNDER PLAN 7920736.
C) 0.676 HECTARES (1.67 ACRES) MORE OR LESS, SUBDIVIDED UNDER PLAN 8220516
EXCEPTING THEREOUT ALL MINES AND MINERALS

ESTATE: FEE SIMPLE

MUNICIPALITY: VILLAGE OF HALKIRK

REFERENCE NUMBER: 762 028 981

REGISTERED OWNER(S)				
REGISTRATION	DATE (DMY)	DOCUMENT TYPE	VALUE	CONSIDERATION
932 386 065	10/12/1993	TRANSFER OF LAND	\$1,650	\$1,650

OWNERS

THE VILLAGE OF HALKIRK.
OF BOX 126, HALKIRK
ALBERTA T0C 1M0

 ENCUMBRANCES, LIENS & INTERESTS

PAGE 2
 # 932 386 065

REGISTRATION

NUMBER	DATE (D/M/Y)	PARTICULARS
4097FB	26/08/1938	UTILITY RIGHT OF WAY GRANTEE - ALBERTA POWER LIMITED. AS TO PORTION OR PLAN:1900ET "DATA UPDATED BY: TRANSFER OF UTILITY #6699SQ"
752 173 932	28/11/1975	UTILITY RIGHT OF WAY GRANTEE - PAINT EARTH GAS CO-OP LTD.
792 058 843	19/03/1979	CAVEAT RE : DEFERRED RESERVE CAVEATOR - RED DEER REGIONAL PLANNING COMMISSION.
812 104 441	07/05/1981	CAVEAT CAVEATOR - ALBERTA POWER LIMITED.
932 278 583	13/09/1993	CAVEAT RE : UTILITY RIGHT OF WAY CAVEATOR - ALBERTA POWER LIMITED. 10035 105 STREET, EDMONTON ALBERTA AGENT - TRISHA LOOSEMORE
932 386 066	10/12/1993	REQUEST FOR RELEASE OF D.C.T. DCT ISSUED SURRENDERED BY 062129585
062 129 585	24/03/2006	SUBDIVISION PLAN 0621408 TITLE CANCELLED IN FULL

TOTAL INSTRUMENTS: 007

THE REGISTRAR OF TITLES CERTIFIES THIS TO BE AN
 ACCURATE REPRODUCTION OF THE CERTIFICATE OF
 TITLE REPRESENTED HEREIN THIS 15 DAY OF JUNE,
 2021 AT 10:15 A.M.

ORDER NUMBER: 41927437

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).



HISTORICAL LAND TITLE CERTIFICATE
TITLE CANCELLED ON DECEMBER 10,1993

S
LINC SHORT LEGAL TITLE NUMBER
0020 148 201 4;16;38;24;NE 762 028 981

LEGAL DESCRIPTION

ALL THAT PORTION OF THE NORTH EAST QUARTER OF SECTION FOUR (24)
TOWNSHIP THIRTY EIGHT (38)
RANGE SIXTEEN (16)
WEST OF THE FOURTH MERIDIAN, WHICH LIES WEST OF THE WEST LIMIT OF ROAD
PLAN 2538TR AND NORTH OF THE NORTH LIMITS OF SUBDIVISION PLANS 7822147
1044MC, 1045MC AND ROAD PLAN 6542BM AND ALBERTA AVENUE, AS SHOWN ON
PLAN 1989Z
EXCEPTING THEREOUT: A) 0.809 HECTARES (2.00 ACRES) MORE OR LESS,
DESCRIBED AS FOLLOWS; COMMENCING AT THE NORTH WEST CORNER OF SAID
QUARTER SECTION; THENCE SOUTHERLY ALONG THE WEST BOUNDARY THEREOF;
FOUR HUNDRED AND SEVENTEEN AND FORTY TWO HUNDREDTHS (417.42)
FEET; THENCE EASTERLY AND PARALLEL TO THE NORTH BOUNDARY OF SAID
QUARTER SECTION, TWO HUNDRED AND EIGHT AND SEVENTY ONE HUNDREDTHS
(208.71) FEET; THENCE NORTHERLY AND PARALLEL TO SAID WEST BOUNDARY
TO A POINT ON SAID NORTH BOUNDARY; THENCE WESTERLY ALONG SAID NORTH
BOUNDARY TO THE POINT OF COMMENCEMENT.
B) 0.336 HECTARES (0.83 ACRES) MORE OR LESS, SUBDIVIDED UNDER PLAN 7920736.
C) 0.676 HECTARES (1.67 ACRES) MORE OR LESS, SUBDIVIDED UNDER PLAN 8220516
EXCEPTING THEREOUT ALL MINES AND MINERALS

ESTATE: FEE SIMPLE

MUNICIPALITY: VILLAGE OF HALKIRK

REGISTERED OWNER(S)					
REGISTRATION	DATE (DMY)	DOCUMENT	TYPE	VALUE	CONSIDERATION
762 028 981	19/02/1976			\$6,000	

OWNERS

HAROLD G CHICK

AND

VELMA CHICK

BOTH OF:

HALKIRK

ALBERTA

AS JOINT TENANTS

ENCUMBRANCES, LIENS & INTERESTS

PAGE 2

762 028 981

REGISTRATION

NUMBER	DATE (D/M/Y)	PARTICULARS
4097FB	26/08/1938	UTILITY RIGHT OF WAY GRANTEE - ALBERTA POWER LIMITED. AS TO PORTION OR PLAN:1900ET "DATA UPDATED BY: TRANSFER OF UTILITY #6699SQ"
752 173 932	28/11/1975	UTILITY RIGHT OF WAY GRANTEE - PAINT EARTH GAS CO-OP LTD.
792 058 843	19/03/1979	CAVEAT RE : DEFERRED RESERVE CAVEATOR - RED DEER REGIONAL PLANNING COMMISSION.
812 104 441	07/05/1981	CAVEAT CAVEATOR - ALBERTA POWER LIMITED.
932 278 583	13/09/1993	CAVEAT RE : UTILITY RIGHT OF WAY CAVEATOR - ALBERTA POWER LIMITED. 10035 105 STREET, EDMONTON ALBERTA AGENT - TRISHA LOOSEMORE
932 386 065	10/12/1993	TRANSFER OF LAND OWNERS - THE VILLAGE OF HALKIRK. BOX 126, HALKIRK ALBERTA T0C1M0 NEW TITLE ISSUED

TOTAL INSTRUMENTS: 006

THE REGISTRAR OF TITLES CERTIFIES THIS TO BE AN
ACCURATE REPRODUCTION OF THE CERTIFICATE OF
TITLE REPRESENTED HEREIN THIS 24 DAY OF JUNE,
2021 AT 02:25 P.M.

ORDER NUMBER: 42011256

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
0020 092 532 1989Z;7;26 162 050 797

LEGAL DESCRIPTION
PLAN 1989Z
BLOCK 7
LOT 26
EXCEPTING THEREOUT ALL MINES AND MINERALS

ESTATE: FEE SIMPLE
ATS REFERENCE: 4;16;38;24;NE

MUNICIPALITY: VILLAGE OF HALKIRK

REFERENCE NUMBER: 772 064 573

REGISTERED OWNER(S)					
REGISTRATION	DATE (DMY)	DOCUMENT	TYPE	VALUE	CONSIDERATION
162 050 797	17/02/2016	TRANSFER OF LAND			SEE INSTRUMENT

OWNERS

THE VILLAGE OF HALKIRK.
OF BOX 126, HALKIRK
ALBERTA T0C 1M0

ENCUMBRANCES, LIENS & INTERESTS

REGISTRATION	DATE (D/M/Y)	PARTICULARS
NUMBER		

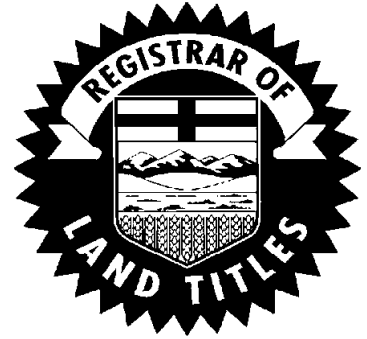
NO REGISTRATIONS

TOTAL INSTRUMENTS: 000

THE REGISTRAR OF TITLES CERTIFIES THIS TO BE AN
ACCURATE REPRODUCTION OF THE CERTIFICATE OF
TITLE REPRESENTED HEREIN THIS 15 DAY OF JUNE,
2021 AT 10:30 A.M.

ORDER NUMBER: 41927802

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).



HISTORICAL LAND TITLE CERTIFICATE
TITLE CANCELLED ON FEBRUARY 17,2016

S
LINC SHORT LEGAL TITLE NUMBER
0020 092 532 1989Z;7;26 772 064 573

LEGAL DESCRIPTION
PLAN 1989Z
BLOCK 7
LOT 26
EXCEPTING THEREOUT ALL MINES AND MINERALS

ESTATE: FEE SIMPLE
ATS REFERENCE: 4;16;38;24;NE

MUNICIPALITY: VILLAGE OF HALKIRK

REGISTERED OWNER(S)				
REGISTRATION	DATE (DMY)	DOCUMENT TYPE	VALUE	CONSIDERATION
772 064 573	15/04/1977			TAX FORFEITURE

OWNERS

THE VILLAGE OF HALKIRK.
OF HALKIRK
ALBERTA

ENCUMBRANCES, LIENS & INTERESTS

REGISTRATION NUMBER	DATE (D/M/Y)	PARTICULARS
162 050 797	17/02/2016	TRANSFER OF LAND OWNERS - THE VILLAGE OF HALKIRK. BOX 126, HALKIRK ALBERTA T0C1M0 NEW TITLE ISSUED

TOTAL INSTRUMENTS: 001

THE REGISTRAR OF TITLES CERTIFIES THIS TO BE AN
ACCURATE REPRODUCTION OF THE CERTIFICATE OF
TITLE REPRESENTED HEREIN THIS 15 DAY OF JUNE,
2021 AT 10:30 A.M.

ORDER NUMBER: 41927802

CUSTOMER FILE NUMBER:



END OF CERTIFICATE

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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
0020 092 540 1989Z;7;27 162 050 798

LEGAL DESCRIPTION
PLAN 1989Z
BLOCK 7
LOT 27
EXCEPTING THEREOUT ALL MINES AND MINERALS

ESTATE: FEE SIMPLE
ATS REFERENCE: 4;16;38;24;NE

MUNICIPALITY: VILLAGE OF HALKIRK

REFERENCE NUMBER: 772 064 573 A

REGISTERED OWNER(S)					
REGISTRATION	DATE (DMY)	DOCUMENT	TYPE	VALUE	CONSIDERATION
162 050 798	17/02/2016	TRANSFER OF LAND			SEE INSTRUMENT

OWNERS

THE VILLAGE OF HALKIRK.
OF BOX 126, HALKIRK
ALBERTA T0C 1M0

ENCUMBRANCES, LIENS & INTERESTS

REGISTRATION	DATE (D/M/Y)	PARTICULARS
NUMBER		

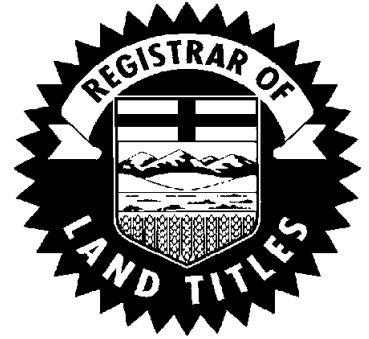
NO REGISTRATIONS

TOTAL INSTRUMENTS: 000

THE REGISTRAR OF TITLES CERTIFIES THIS TO BE AN
ACCURATE REPRODUCTION OF THE CERTIFICATE OF
TITLE REPRESENTED HEREIN THIS 15 DAY OF JUNE,
2021 AT 10:30 A.M.

ORDER NUMBER: 41927802

CUSTOMER FILE NUMBER:



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



HISTORICAL LAND TITLE CERTIFICATE
TITLE CANCELLED ON FEBRUARY 17,2016

S
LINC SHORT LEGAL TITLE NUMBER
0020 092 540 1989Z;7;27 772 064 573 A

LEGAL DESCRIPTION
PLAN 1989Z
BLOCK 7
LOT 27
EXCEPTING THEREOUT ALL MINES AND MINERALS

ESTATE: FEE SIMPLE
ATS REFERENCE: 4;16;38;24;NE

MUNICIPALITY: VILLAGE OF HALKIRK

REGISTERED OWNER(S)				
REGISTRATION	DATE (DMY)	DOCUMENT TYPE	VALUE	CONSIDERATION
772 064 573	15/04/1977			TAX FORFEITURE

OWNERS
THE VILLAGE OF HALKIRK.
OF HALKIRK
ALBERTA

ENCUMBRANCES, LIENS & INTERESTS		
REGISTRATION NUMBER	DATE (D/M/Y)	PARTICULARS
162 050 798	17/02/2016	TRANSFER OF LAND OWNERS - THE VILLAGE OF HALKIRK. BOX 126, HALKIRK ALBERTA T0C1M0 NEW TITLE ISSUED

TOTAL INSTRUMENTS: 001

THE REGISTRAR OF TITLES CERTIFIES THIS TO BE AN
ACCURATE REPRODUCTION OF THE CERTIFICATE OF
TITLE REPRESENTED HEREIN THIS 15 DAY OF JUNE,
2021 AT 10:30 A.M.

ORDER NUMBER: 41927802

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).



LAND TITLE CERTIFICATE

S
LINC SHORT LEGAL TITLE NUMBER
0020 760 518 1045MC;8;2 9P246

LEGAL DESCRIPTION
PLAN 1045MC
BLOCK 8
LOT 2
EXCEPTING THEREOUT ALL MINES AND MINERALS

ESTATE: FEE SIMPLE
ATS REFERENCE: 4;26;38;24;NE

MUNICIPALITY: VILLAGE OF HALKIRK

REGISTERED OWNER(S)				
REGISTRATION	DATE (DMY)	DOCUMENT TYPE	VALUE	CONSIDERATION
9P246	22/12/1970		\$4,900	REF. 538SJ

OWNERS
THE VILLAGE OF HALKIRK.
OF HALKIRK
ALBERTA

ENCUMBRANCES, LIENS & INTERESTS		
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 15 DAY OF JUNE,
2021 AT 10:30 A.M.

ORDER NUMBER: 41927802

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
0013 294 962 1989Z;3;11 052 390 896

LEGAL DESCRIPTION
PLAN 1989Z
BLOCK 3
LOT 11
EXCEPTING THEREOUT ALL MINES AND MINERALS

ESTATE: FEE SIMPLE
ATS REFERENCE: 4;16;38;24;NE

MUNICIPALITY: VILLAGE OF HALKIRK

REFERENCE NUMBER: 902 096 962

REGISTERED OWNER(S)				
REGISTRATION	DATE (DMY)	DOCUMENT TYPE	VALUE	CONSIDERATION
052 390 896	14/09/2005	NOTIFICATION OF MUNICIPAL ACQUISITION	\$2,000	TAX FORFEITURE

OWNERS

THE VILLAGE OF HALKIRK.
OF BOX 126, HALKIRK
ALBERTA T0C 1M0

ENCUMBRANCES, LIENS & INTERESTS

REGISTRATION
NUMBER DATE (D/M/Y) PARTICULARS

NO REGISTRATIONS

TOTAL INSTRUMENTS: 000

PENDING REGISTRATION QUEUE

PAGE 2

052 390 896

DRR NUMBER	RECEIVED DATE (D/M/Y)	CORPORATE LLP TRADENAME	LAND ID
C001PRH	26/05/2021	TAXERVICE 877-734-3113 CUSTOMER FILE NUMBER: 19 6993 1016	
001		TRANSFER OF LAND	0013 294 962

TOTAL PENDING REGISTRATIONS: 001

THE REGISTRAR OF TITLES CERTIFIES THIS TO BE AN ACCURATE REPRODUCTION OF THE CERTIFICATE OF TITLE REPRESENTED HEREIN THIS 15 DAY OF JUNE, 2021 AT 11:52 A.M.

ORDER NUMBER: 41929528

CUSTOMER FILE NUMBER:



END OF CERTIFICATE

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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.



HISTORICAL LAND TITLE CERTIFICATE
TITLE CANCELLED ON SEPTEMBER 14,2005

S
LINC SHORT LEGAL TITLE NUMBER
0013 294 962 1989Z;3;11 902 096 962

LEGAL DESCRIPTION
PLAN 1989Z
BLOCK 3
LOT 11
EXCEPTING THEREOUT ALL MINES AND MINERALS

ESTATE: FEE SIMPLE
ATS REFERENCE: 4;16;38;24;NE

MUNICIPALITY: VILLAGE OF HALKIRK

REFERENCE NUMBER: 882 096 735

REGISTERED OWNER(S)				
REGISTRATION	DATE (DMY)	DOCUMENT TYPE	VALUE	CONSIDERATION
902 096 962	06/04/1990	TRANSFER OF LAND	\$1,136	\$1,136

OWNERS

ALL IN ONE CONTRACTING LTD.
OF 1, 4940-54 AVENUE, RED DEER
ALBERTA T4N 5K8

ENCUMBRANCES, LIENS & INTERESTS

REGISTRATION NUMBER	DATE (D/M/Y)	PARTICULARS
902 096 963	06/04/1990	REQUEST FOR RELEASE OF D.C.T.
922 124 630	06/05/1992	TAX NOTIFICATION BY - THE VILLAGE OF HALKIRK. BOX 126 HALKIRK, ALBERTA T0C1M0
042 139 108	08/04/2004	DISCHARGE OF TAX NOTIFICATION 922124630
042 139 115	08/04/2004	TAX NOTIFICATION

REGISTRATION

NUMBER DATE (D/M/Y) PARTICULARS

BY - THE VILLAGE OF HALKIRK.
BOX 126
HALKIRK, ALBERTA
T0C1M0

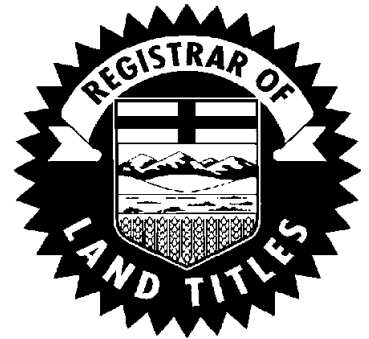
052 390 896 14/09/2005 NOTIFICATION OF MUNICIPAL ACQUISITION
OWNERS - THE VILLAGE OF HALKIRK.
BOX 126, HALKIRK
ALBERTA T0C1M0
NEW TITLE ISSUED
AFFECTS INSTRUMENT: 042139115

TOTAL INSTRUMENTS: 005

THE REGISTRAR OF TITLES CERTIFIES THIS TO BE AN
ACCURATE REPRODUCTION OF THE CERTIFICATE OF
TITLE REPRESENTED HEREIN THIS 15 DAY OF JUNE,
2021 AT 11:52 A.M.

ORDER NUMBER: 41929528

CUSTOMER FILE NUMBER:



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



HISTORICAL LAND TITLE CERTIFICATE
TITLE CANCELLED ON APRIL 06, 1990

S
LINC SHORT LEGAL TITLE NUMBER
0013 294 962 1989Z;3;11 882 096 735

LEGAL DESCRIPTION
PLAN 1989Z
BLOCK 3
LOT 11
EXCEPTING THEREOUT ALL MINES AND MINERALS

ESTATE: FEE SIMPLE
ATS REFERENCE: 4;16;38;24;NE

MUNICIPALITY: VILLAGE OF HALKIRK

REGISTERED OWNER(S)				
REGISTRATION	DATE (DMY)	DOCUMENT TYPE	VALUE	CONSIDERATION
882 096 735	06/05/1988			TRANSMISSION

OWNERS

RUTH M FARNALLS
OF C/O PUBLIC TRUSTEE, 4TH FLR. 10365 - 97 STREET,
EDMONTON
ALBERTA T5J 3Z8

ENCUMBRANCES, LIENS & INTERESTS

REGISTRATION NUMBER	DATE (D/M/Y)	PARTICULARS
902 096 962	06/04/1990	TRANSFER OF LAND OWNERS - ALL IN ONE CONTRACTING LTD. 1, 4940-54 AVENUE, RED DEER ALBERTA T4N5K8 NEW TITLE ISSUED

TOTAL INSTRUMENTS: 001

THE REGISTRAR OF TITLES CERTIFIES THIS TO BE AN
ACCURATE REPRODUCTION OF THE CERTIFICATE OF
TITLE REPRESENTED HEREIN THIS 15 DAY OF JUNE,
2021 AT 11:52 A.M.

ORDER NUMBER: 41929528

CUSTOMER FILE NUMBER:



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LAND TITLE CERTIFICATE

S
LINC SHORT LEGAL TITLE NUMBER
0011 078 987 1989Z;3;12 162 050 800

LEGAL DESCRIPTION
PLAN 1989Z
BLOCK 3
LOT 12
EXCEPTING THEREOUT ALL MINES AND MINERALS

ESTATE: FEE SIMPLE
ATS REFERENCE: 4;16;38;24;NE

MUNICIPALITY: VILLAGE OF HALKIRK

REFERENCE NUMBER: 892 288 975

REGISTERED OWNER(S)					
REGISTRATION	DATE (DMY)	DOCUMENT	TYPE	VALUE	CONSIDERATION
162 050 800	17/02/2016	TRANSFER OF LAND			SEE INSTRUMENT

OWNERS

THE VILLAGE OF HALKIRK.
OF BOX 126, HALKIRK
ALBERTA T0C 1M0

ENCUMBRANCES, LIENS & INTERESTS

REGISTRATION	DATE (D/M/Y)	PARTICULARS
NUMBER		

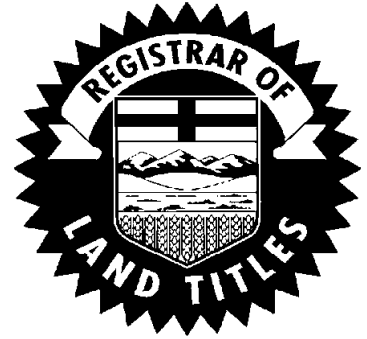
NO REGISTRATIONS

TOTAL INSTRUMENTS: 000

THE REGISTRAR OF TITLES CERTIFIES THIS TO BE AN
ACCURATE REPRODUCTION OF THE CERTIFICATE OF
TITLE REPRESENTED HEREIN THIS 15 DAY OF JUNE,
2021 AT 11:52 A.M.

ORDER NUMBER: 41929528

CUSTOMER FILE NUMBER:



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



HISTORICAL LAND TITLE CERTIFICATE
TITLE CANCELLED ON FEBRUARY 17,2016

S
LINC SHORT LEGAL TITLE NUMBER
0011 078 987 1989Z;3;12 892 288 975

LEGAL DESCRIPTION
PLAN 1989Z
BLOCK 3
LOT 12
EXCEPTING THEREOUT ALL MINES AND MINERALS

ESTATE: FEE SIMPLE
ATS REFERENCE: 4;16;38;24;NE

MUNICIPALITY: VILLAGE OF HALKIRK

REFERENCE NUMBER: 862 233 906

REGISTERED OWNER(S)				
REGISTRATION	DATE (DMY)	DOCUMENT TYPE	VALUE	CONSIDERATION
892 288 975	06/11/1989	FINAL ACQUISITION	\$7,000	TAX FORFEITURE

OWNERS

THE VILLAGE OF HALKIRK.
OF BOX 126, HALKIRK
ALBERTA T0C 1M0

ENCUMBRANCES, LIENS & INTERESTS

REGISTRATION		
NUMBER	DATE (D/M/Y)	PARTICULARS
162 050 800	17/02/2016	TRANSFER OF LAND OWNERS - THE VILLAGE OF HALKIRK. BOX 126, HALKIRK ALBERTA T0C1M0 NEW TITLE ISSUED

TOTAL INSTRUMENTS: 001

THE REGISTRAR OF TITLES CERTIFIES THIS TO BE AN
ACCURATE REPRODUCTION OF THE CERTIFICATE OF
TITLE REPRESENTED HEREIN THIS 15 DAY OF JUNE,
2021 AT 11:52 A.M.

ORDER NUMBER: 41929528

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
0011 078 995 1989Z;3;13 162 050 801

LEGAL DESCRIPTION
PLAN 1989Z
BLOCK 3
LOT 13
EXCEPTING THEREOUT ALL MINES AND MINERALS

ESTATE: FEE SIMPLE
ATS REFERENCE: 4;16;38;24;NE

MUNICIPALITY: VILLAGE OF HALKIRK

REFERENCE NUMBER: 892 288 975 +1

REGISTERED OWNER(S)					
REGISTRATION	DATE (DMY)	DOCUMENT	TYPE	VALUE	CONSIDERATION
162 050 801	17/02/2016	TRANSFER OF LAND			SEE INSTRUMENT

OWNERS

THE VILLAGE OF HALKIRK.
OF BOX 126, HALKIRK
ALBERTA T0C 1M0

ENCUMBRANCES, LIENS & INTERESTS

REGISTRATION	DATE (D/M/Y)	PARTICULARS
NUMBER		

NO REGISTRATIONS

TOTAL INSTRUMENTS: 000

THE REGISTRAR OF TITLES CERTIFIES THIS TO BE AN
ACCURATE REPRODUCTION OF THE CERTIFICATE OF
TITLE REPRESENTED HEREIN THIS 15 DAY OF JUNE,
2021 AT 11:52 A.M.

ORDER NUMBER: 41929528

CUSTOMER FILE NUMBER:



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HISTORICAL LAND TITLE CERTIFICATE
TITLE CANCELLED ON FEBRUARY 17,2016

S
LINC SHORT LEGAL TITLE NUMBER
0011 078 995 1989Z;3;13 892 288 975 +1

LEGAL DESCRIPTION
PLAN 1989Z
BLOCK 3
LOT 13
EXCEPTING THEREOUT ALL MINES AND MINERALS

ESTATE: FEE SIMPLE
ATS REFERENCE: 4;16;38;24;NE

MUNICIPALITY: VILLAGE OF HALKIRK

REFERENCE NUMBER: 862 233 906 A

REGISTERED OWNER(S)				
REGISTRATION	DATE (DMY)	DOCUMENT TYPE	VALUE	CONSIDERATION
892 288 975	06/11/1989	FINAL ACQUISITION	\$7,000	TAX FORFEITURE

OWNERS

THE VILLAGE OF HALKIRK.
OF BOX 126, HALKIRK
ALBERTA T0C 1M0

ENCUMBRANCES, LIENS & INTERESTS

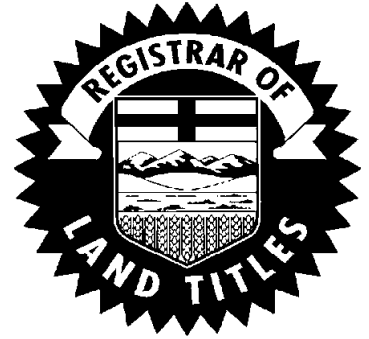
REGISTRATION		
NUMBER	DATE (D/M/Y)	PARTICULARS
162 050 801	17/02/2016	TRANSFER OF LAND OWNERS - THE VILLAGE OF HALKIRK. BOX 126, HALKIRK ALBERTA T0C1M0 NEW TITLE ISSUED

TOTAL INSTRUMENTS: 001

THE REGISTRAR OF TITLES CERTIFIES THIS TO BE AN
ACCURATE REPRODUCTION OF THE CERTIFICATE OF
TITLE REPRESENTED HEREIN THIS 15 DAY OF JUNE,
2021 AT 11:52 A.M.

ORDER NUMBER: 41929528

CUSTOMER FILE NUMBER:



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HISTORICAL LAND TITLE CERTIFICATE
TITLE CANCELLED ON NOVEMBER 06,1989

S
LINC SHORT LEGAL TITLE NUMBER
0011 078 995 1989Z;3;13 862 233 906 A

LEGAL DESCRIPTION
PLAN 1989Z
BLOCK 3
LOT 13
EXCEPTING THEREOUT ALL MINES AND MINERALS

ESTATE: FEE SIMPLE
ATS REFERENCE: 4;16;38;24;NE

MUNICIPALITY: VILLAGE OF HALKIRK

REGISTERED OWNER(S)				
REGISTRATION	DATE (DMY)	DOCUMENT TYPE	VALUE	CONSIDERATION
862 233 906	28/10/1986			SEE INSTRUMENT

OWNERS

CANADIAN IMPERIAL BANK OF COMMERCE.
OF P.O. BOX 2585, CALGARY
ALBERTA T2P 2P2

ENCUMBRANCES, LIENS & INTERESTS

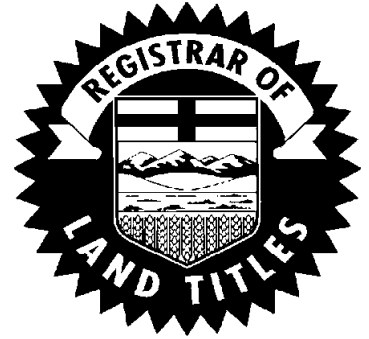
REGISTRATION NUMBER	DATE (D/M/Y)	PARTICULARS
862 093 741	07/05/1986	TAX NOTIFICATION BY - THE VILLAGE OF HALKIRK.
892 288 975	06/11/1989	FINAL ACQUISITION OWNERS - THE VILLAGE OF HALKIRK. BOX 126, HALKIRK ALBERTA T0C1M0 NEW TITLE ISSUED AFFECTS INSTRUMENT: 862093741

TOTAL INSTRUMENTS: 002

THE REGISTRAR OF TITLES CERTIFIES THIS TO BE AN
ACCURATE REPRODUCTION OF THE CERTIFICATE OF
TITLE REPRESENTED HEREIN THIS 15 DAY OF JUNE,
2021 AT 11:52 A.M.

ORDER NUMBER: 41929528

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
0020 085 256 1989Z;2;13,14 072 113 485

LEGAL DESCRIPTION
PLAN 1989Z
BLOCK 2
LOTS 13 AND 14
EXCEPTING THEREOUT ALL MINES AND MINERALS

ESTATE: FEE SIMPLE
ATS REFERENCE: 4;16;38;24;NE

MUNICIPALITY: VILLAGE OF HALKIRK

REFERENCE NUMBER: 842 164 122

REGISTERED OWNER(S)				
REGISTRATION	DATE (DMY)	DOCUMENT TYPE	VALUE	CONSIDERATION
072 113 485	27/02/2007	TRANSFER OF LAND	\$2,000	\$1

OWNERS
THE VILLAGE OF HALKIRK.
OF BOX 126, HALKIRK
ALBERTA T0C 1M0

ENCUMBRANCES, LIENS & INTERESTS		
REGISTRATION NUMBER	DATE (D/M/Y)	PARTICULARS
319AB	08/02/1910	CAVEAT RE : RESTRICTIVE COVENANT CAVEATOR - GEORGE ANDERSON

TOTAL INSTRUMENTS: 001

THE REGISTRAR OF TITLES CERTIFIES THIS TO BE AN
ACCURATE REPRODUCTION OF THE CERTIFICATE OF
TITLE REPRESENTED HEREIN THIS 15 DAY OF JUNE,
2021 AT 11:00 A.M.

ORDER NUMBER: 41928429

CUSTOMER FILE NUMBER:



END OF CERTIFICATE

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



HISTORICAL LAND TITLE CERTIFICATE
TITLE CANCELLED ON FEBRUARY 27,2007

S
LINC SHORT LEGAL TITLE NUMBER
0020 085 256 1989Z;2;13,14 842 164 122

LEGAL DESCRIPTION
PLAN 1989Z
BLOCK 2
LOTS 13 AND 14
EXCEPTING THEREOUT ALL MINES AND MINERALS

ESTATE: FEE SIMPLE
ATS REFERENCE: 4;16;38;24;NE

MUNICIPALITY: VILLAGE OF HALKIRK

REGISTERED OWNER(S)					
REGISTRATION	DATE (DMY)	DOCUMENT	TYPE	VALUE	CONSIDERATION
842 164 122	23/07/1984				NIL

OWNERS
VIRGINA DUKE (POSTMISTRESS AND HOUSEWIFE)
OF HALKIRK
ALBERTA

ENCUMBRANCES, LIENS & INTERESTS		
REGISTRATION NUMBER	DATE (D/M/Y)	PARTICULARS
319AB	08/02/1910	CAVEAT RE : RESTRICTIVE COVENANT CAVEATOR - GEORGE ANDERSON (DATA UPDATED BY: 922125750)
922 125 750	07/05/1992	CORRECTION OF INSTRUMENT AFFECTS INSTRUMENT: 319AB NATURE OF INTEREST CHANGED FROM: SEEC TO: RESC
072 113 485	27/02/2007	TRANSFER OF LAND OWNERS - THE VILLAGE OF HALKIRK. BOX 126, HALKIRK

REGISTRATION

NUMBER DATE (D/M/Y) PARTICULARS

ALBERTA T0C1M0
NEW TITLE ISSUED

TOTAL INSTRUMENTS: 003

THE REGISTRAR OF TITLES CERTIFIES THIS TO BE AN
ACCURATE REPRODUCTION OF THE CERTIFICATE OF
TITLE REPRESENTED HEREIN THIS 15 DAY OF JUNE,
2021 AT 11:00 A.M.

ORDER NUMBER: 41928429

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
0020 080 289 1989Z;3;20,26 58Y152

LEGAL DESCRIPTION
PLAN 1989Z
BLOCK 3
LOTS 20 AND 26
EXCEPTING THEREOUT ALL MINES AND MINERALS

ESTATE: FEE SIMPLE
ATS REFERENCE: 4;16;38;24;NE

MUNICIPALITY: VILLAGE OF HALKIRK

REGISTERED OWNER(S)				
REGISTRATION	DATE (DMY)	DOCUMENT TYPE	VALUE	CONSIDERATION
58Y152	07/02/1955			REF. 5670JV

OWNERS
THE VILLAGE OF HALKIRK.
OF HALKIRK
ALBERTA

ENCUMBRANCES, LIENS & INTERESTS		
REGISTRATION NUMBER	DATE (D/M/Y)	PARTICULARS
319AB	08/02/1910	CAVEAT RE : RESTRICTIVE COVENANT CAVEATOR - GEORGE ANDERSON (DATA UPDATED BY: 922125750)

TOTAL INSTRUMENTS: 001

THE REGISTRAR OF TITLES CERTIFIES THIS TO BE AN
ACCURATE REPRODUCTION OF THE CERTIFICATE OF
TITLE REPRESENTED HEREIN THIS 15 DAY OF JUNE,
2021 AT 11:36 A.M.

ORDER NUMBER: 41929194

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).



LAND TITLE CERTIFICATE

S
LINC SHORT LEGAL TITLE NUMBER
0020 080 297 1989Z;3;24,25 186F183

LEGAL DESCRIPTION
PLAN 1989Z
BLOCK 3
LOTS 24 AND 25
EXCEPTING THEREOUT ALL MINES AND MINERALS

ESTATE: FEE SIMPLE
ATS REFERENCE: 4;16;38;24;NE

MUNICIPALITY: VILLAGE OF HALKIRK

REGISTERED OWNER(S)				
REGISTRATION	DATE (DMY)	DOCUMENT TYPE	VALUE	CONSIDERATION
186F183	19/10/1960		\$5,820	REF. 5974LW

OWNERS

THE VILLAGE OF HALKIRK.
OF HALKIRK
ALBERTA

ENCUMBRANCES, LIENS & INTERESTS

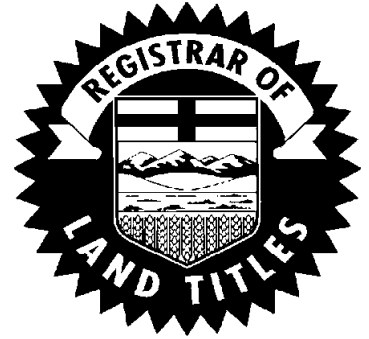
REGISTRATION	DATE (D/M/Y)	PARTICULARS
NUMBER		
319AB	08/02/1910	CAVEAT RE : RESTRICTIVE COVENANT CAVEATOR - GEORGE ANDERSON (DATA UPDATED BY: 922125750)

TOTAL INSTRUMENTS: 001

THE REGISTRAR OF TITLES CERTIFIES THIS TO BE AN
ACCURATE REPRODUCTION OF THE CERTIFICATE OF
TITLE REPRESENTED HEREIN THIS 15 DAY OF JUNE,
2021 AT 11:36 A.M.

ORDER NUMBER: 41929194

CUSTOMER FILE NUMBER:



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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
0020 080 362 1989Z;3;27 812 168 428

LEGAL DESCRIPTION
PLAN 1989Z
BLOCK 3
LOT 27
EXCEPTING THEREOUT ALL MINES AND MINERALS

ESTATE: FEE SIMPLE
ATS REFERENCE: 4;16;38;24;NE

MUNICIPALITY: VILLAGE OF HALKIRK

REGISTERED OWNER(S)				
REGISTRATION	DATE (DMY)	DOCUMENT TYPE	VALUE	CONSIDERATION
812 168 428	15/07/1981		\$1,250	

OWNERS

THE VILLAGE OF HALKIRK.
OF BOX 126
HALKIRK
ALBERTA

ENCUMBRANCES, LIENS & INTERESTS		
REGISTRATION NUMBER	DATE (D/M/Y)	PARTICULARS
319AB	08/02/1910	CAVEAT RE : RESTRICTIVE COVENANT CAVEATOR - GEORGE ANDERSON (DATA UPDATED BY: 922125750)

TOTAL INSTRUMENTS: 001

THE REGISTRAR OF TITLES CERTIFIES THIS TO BE AN
ACCURATE REPRODUCTION OF THE CERTIFICATE OF
TITLE REPRESENTED HEREIN THIS 15 DAY OF JUNE,
2021 AT 11:36 A.M.

ORDER NUMBER: 41929194

CUSTOMER FILE NUMBER:



END OF CERTIFICATE

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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
0020 066 320 1989Z;3;10,19 1820195

LEGAL DESCRIPTION
PLAN 1989Z
BLOCK 3
LOTS 10 AND 19
EXCEPTING THEREOUT ALL MINES AND MINERALS

ESTATE: FEE SIMPLE
ATS REFERENCE: 4;16;38;24;NE

MUNICIPALITY: VILLAGE OF HALKIRK

REGISTERED OWNER(S)				
REGISTRATION	DATE (DMY)	DOCUMENT TYPE	VALUE	CONSIDERATION
1820195	05/12/1962			NOT EST-7069NO

OWNERS

THE VILLAGE OF HALKIRK.
OF HALKIRK
ALBERTA

ENCUMBRANCES, LIENS & INTERESTS		
REGISTRATION NUMBER	DATE (D/M/Y)	PARTICULARS
319AB	08/02/1910	CAVEAT RE : RESTRICTIVE COVENANT CAVEATOR - GEORGE ANDERSON (DATA UPDATED BY: 922125750)

TOTAL INSTRUMENTS: 001

THE REGISTRAR OF TITLES CERTIFIES THIS TO BE AN
ACCURATE REPRODUCTION OF THE CERTIFICATE OF
TITLE REPRESENTED HEREIN THIS 15 DAY OF JUNE,
2021 AT 11:15 A.M.

ORDER NUMBER: 41928750

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).



LAND TITLE CERTIFICATE

S
LINC SHORT LEGAL TITLE NUMBER
0020 066 338 1989Z;3;17,18 162 050 799

LEGAL DESCRIPTION
PLAN 1989Z
BLOCK 3
LOTS 17 AND 18
EXCEPTING THEREOUT ALL MINES AND MINERALS

ESTATE: FEE SIMPLE
ATS REFERENCE: 4;16;38;24;NE

MUNICIPALITY: VILLAGE OF HALKIRK

REFERENCE NUMBER: 882 066 473 A

REGISTERED OWNER(S)				
REGISTRATION	DATE (DMY)	DOCUMENT TYPE	VALUE	CONSIDERATION
162 050 799	17/02/2016	TRANSFER OF LAND		SEE INSTRUMENT

OWNERS

THE VILLAGE OF HALKIRK.
OF BOX 126, HALKIRK
ALBERTA T0C 1M0

ENCUMBRANCES, LIENS & INTERESTS

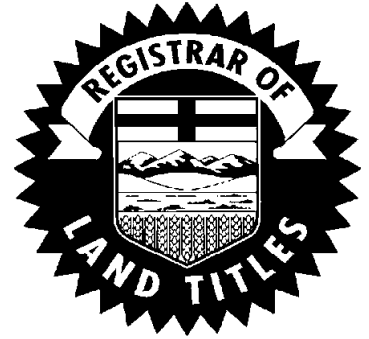
REGISTRATION		
NUMBER	DATE (D/M/Y)	PARTICULARS
7406Z	21/01/1910	CAVEAT CAVEATOR - CANADIAN PACIFIC RAILWAY COMPANY. "AS TO LOT 18"
7405Z	21/01/1910	CAVEAT CAVEATOR - CANADIAN PACIFIC RAILWAY COMPANY. "RE: BUILDING RESTRICTIONS AS TO LOT 17"

TOTAL INSTRUMENTS: 002

THE REGISTRAR OF TITLES CERTIFIES THIS TO BE AN
ACCURATE REPRODUCTION OF THE CERTIFICATE OF
TITLE REPRESENTED HEREIN THIS 15 DAY OF JUNE,
2021 AT 11:15 A.M.

ORDER NUMBER: 41928750

CUSTOMER FILE NUMBER:



END OF CERTIFICATE

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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
0020 080 289 1989Z;3;20,26 58Y152

LEGAL DESCRIPTION
PLAN 1989Z
BLOCK 3
LOTS 20 AND 26
EXCEPTING THEREOUT ALL MINES AND MINERALS

ESTATE: FEE SIMPLE
ATS REFERENCE: 4;16;38;24;NE

MUNICIPALITY: VILLAGE OF HALKIRK

REGISTERED OWNER(S)				
REGISTRATION	DATE (DMY)	DOCUMENT TYPE	VALUE	CONSIDERATION
58Y152	07/02/1955			REF. 5670JV

OWNERS
THE VILLAGE OF HALKIRK.
OF HALKIRK
ALBERTA

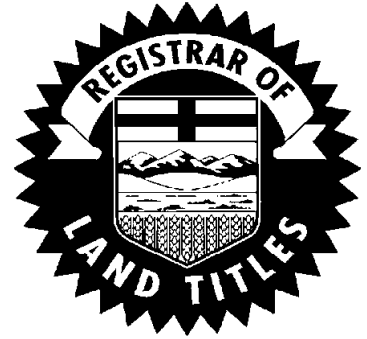
ENCUMBRANCES, LIENS & INTERESTS		
REGISTRATION NUMBER	DATE (D/M/Y)	PARTICULARS
319AB	08/02/1910	CAVEAT RE : RESTRICTIVE COVENANT CAVEATOR - GEORGE ANDERSON (DATA UPDATED BY: 922125750)

TOTAL INSTRUMENTS: 001

THE REGISTRAR OF TITLES CERTIFIES THIS TO BE AN
ACCURATE REPRODUCTION OF THE CERTIFICATE OF
TITLE REPRESENTED HEREIN THIS 15 DAY OF JUNE,
2021 AT 11:15 A.M.

ORDER NUMBER: 41928750

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
0013 597 720 7822147;11;R3 782 172 540 I

LEGAL DESCRIPTION

PLAN 7822147
BLOCK ELEVEN (11)
LOT R-THREE (R-3) (RESERVE)
EXCEPTING THEREOUT ALL MINES AND MINERALS

ATS REFERENCE: 4;16;38;24;NE
ESTATE: FEE SIMPLE

MUNICIPALITY: VILLAGE OF HALKIRK

REGISTERED OWNER(S)					
REGISTRATION	DATE (DMY)	DOCUMENT	TYPE	VALUE	CONSIDERATION
782 172 540	01/08/1978				NOT ESTABLISHED

OWNERS

THE VILLAGE OF HALKIRK.
OF HALKIRK
ALBERTA

ENCUMBRANCES, LIENS & INTERESTS

REGISTRATION	DATE (D/M/Y)	PARTICULARS
NUMBER		
752 132 844	25/09/1975	UTILITY RIGHT OF WAY GRANTEE - PAINT EARTH GAS CO-OP LTD.
072 143 756	13/03/2007	CAVEAT RE : RIGHT OF WAY AGREEMENT CAVEATOR - ATCO ELECTRIC LTD. ATTN LAND & RECORDS MANAGEMENT 10035 105 ST EDMONTON ALBERTA T5J2V6 AGENT - LORI LOVER-FORSYTH

REGISTRATION

NUMBER DATE (D/M/Y) PARTICULARS

TOTAL INSTRUMENTS: 002

THE REGISTRAR OF TITLES CERTIFIES THIS TO BE AN
ACCURATE REPRODUCTION OF THE CERTIFICATE OF
TITLE REPRESENTED HEREIN THIS 15 DAY OF JUNE,
2021 AT 10:48 A.M.

ORDER NUMBER: 41928180

CUSTOMER FILE NUMBER:



END OF CERTIFICATE

THIS ELECTRONICALLY TRANSMITTED LAND TITLES PRODUCT IS INTENDED
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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).

CANCELLED

LAND TITLES ACT, Sec. 61.—The land mentioned in any certificate of title granted under this Act shall by implication and without any special mention therein, unless the contrary is expressly declared, be subject to—

- (a) Any existing mortgages or encumbrances contained in the original grant of the land from the Crown;
- (b) All unpaid taxes, including litigation and drainage district rates;
- (c) Any public highway or right-of-way or other public easement, however created upon, over or in respect of the land;
- (d) Any existing lease or agreement for a lease for a period not exceeding three years, where there is actual occupation of the land under the lease;
- (e) Any decree, order or execution against or affecting the interest of the owner of the land which have been registered and maintained in force against the owner;
- (f) Any right of superficies which may be claimed by any person, body corporate or the Ministry;
- (g) Any right-of-way or other easement granted or acquired under the provisions of any Act or law in force in the Province.



Filed on instrument registered at 1247
 P. on the 7 day of NOV
 A.D. 19 45
 Number 2897, 13th F.W. Sec. 90
 A. T. KINHAIRD
 Registrar, A.L.T.D.

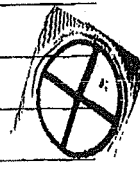
Certificate of Title

Assoc. Fund Value \$837.00 Unearned Inc. Value \$752.00 Refer Cert. No. 216-Y-10

North Alberta Land Registration District.

This is to Certify that GEORGE EZRA ENNETT

OF HALKIRK IN THE PROVINCE OF ALBERTA DOMINION OF CANADA. (FARMER)



is now the owner of an estate in fee simple

of and in ALL THAT PORTION OF THE NORTH EAST QUARTER OF SECTION TWENTY FOUR (24)

TOWNSHIP THIRTY EIGHT (38) RANGE SIXTEEN (16) WEST OF THE FOURTH MERIDIAN /
 IN THE SAID PROVINCE
 / WHICH LIES NORTH OF THE NORTHERN LIMIT OF PUBLIC ROADWAY AND ALBERTA AVENUE

AS SHOWN ON A PLAN OF RECORD IN THE LAND TITLES OFFICE FOR THIS LAND
 RESPECTIVELY
 REGISTRATION DISTRICT AS PLAN 6542 B.M. AND 1989 Z. / EXCEPTING THEREOUT, --

(A) ALL THAT
 PORTION OF SUB-DIVISION OF HALKIRK TOWNSITE AS SHOWN ON PLAN OF RECORD IN
 SAID LAND TITLES OFFICE AS PLAN 1989 Z.

(B) ALL THAT
 PORTION SHOWN AS PRCEL (A) ON PLAN OF RECORD IN SAID LAND TITLES OFFICE
 AS PLAN 7135 E.T.

CANCELLED

THE LAND HEREBY DESCRIBED CONTAINING ONE HUNDRED AND SEVEN AND FORTY
 FOUR (107.44) ACRES MORE OR LESS.

This Certificate of Title is cancelled
 and a NEW CERTIFICATE OF TITLE No. 1221116
 Issued this 23 May 1945
 to
 D. B. No. 2533
 A.D. Registrar

subject to the encumbrances, liens and interests notified by memorandum underwritten
 or endorsed hereon, or which may hereafter be made in the register. NOV 30 1945

In Witness Whereof I have hereunto subscribed my name and affixed my
 official seal this SEVENTH day of NOVEMBER A.D. 19 45

BB

M. J. Kinhardt Registrar

North Alberta Land Registration District

P.O. Address HALKIRK ALTA.

4097 F.B. EASEMENT DATED 4-AUG-38 REG 10.08 AM 26-AUG-38 ABOVE AND OTHER
 LAND TO CANADIAN UTILITIES LTD. *M. J. Kinhardt* A.D. REG.

OVER

This Certificate of Title is cancelled 22-6
Part described - 2.5 acres
and a NEW CERTIFICATE OF TITLE No. 82-K-112
issued this 9 day of Jan 1946
to Dakota Rock Colliery Ltd.
D. B. No. 666 G.C.
AD Registrar

This Certificate of Title is cancelled at 22
2 acres at desc.
and a NEW CERTIFICATE OF TITLE No. 123-J-112
issued this 11 day of Jan 1946
to Village of Neekick
D. B. No. 477-3 F.W.
AD Registrar

The within EASEMENT No. 14097 F.B.
is subject to a CAVEAT filed by Montreal Trust Company,
c/o 210 McLeod Building, Edmonton, Alberta, dated the
18th day of October 1946, Registered at 10.04 a.m.
the 22nd day of October 1946, as D. B. No. 645 G.G.
AD Registrar

The above mentioned Caveat No. 645 GG is
discharged by instrument dated the 17th day of
May 1947, Registered at 2.33 p.m., the 22nd day
of May 1947, as D. B. No. 848 G.J.
AD Registrar

This Certificate of Title is cancelled at desc. conty 434
and a NEW CERTIFICATE OF TITLE No. 20-A-140
issued this 22 day of Mar 1946
to The Director of P.A.
D. B. No. 3532
AD Registrar

LAND TITLE ACT No. 11. The land mentioned in any certificate of title granted under this Act shall be impugned and without any special notice thereon be subject to:

- (a) Any subsisting mortgages or encumbrances including royalties mentioned in the original grant of the land from the Crown.
- (b) All unpaid taxes, including municipal and drainage district rates.
- (c) Any public highways or easements or other public easements lawfully created upon or in respect of the land.
- (d) Any subsisting lease or agreement for a lease for a period not exceeding three years, where there is actual occupation of the land under the same.
- (e) Any distress notice or execution against or affecting the interest of the owner of the land which has been registered and maintained in force against the owner.
- (f) Any right of pre-emption which may be exercisable by any person wholly or partly of His Majesty.
- (g) Any right of way or other easement granted or required under the provisions of any Act in law in force in the Province.



Based on instrument registered at No. 39
 on the 22 day of MAY
 19 52
 Number 3535 Book J.L.C. Folio 109
 J.N. THOM
 Registrar, S.A.P.A. 20

Certificate of Title

Asses. Fund Value \$790.00 Unearned Inc. Value \$705.00 Refer Cert. No. 134-L-109

North Alberta Land Registration District.

This is to Certify that GEORGE EZRA EMMETT

OF HALKIRK IN THE PROVINCE OF ALBERTA DOMINION OF CANADA (FARMER)

is now the owner of an estate in fee simple
 of and in

ALL THAT PORTION OF THE NORTH EAST QUARTER OF SECTION TWENTY FOUR (24) TOWNSHIP THIRTY EIGHT (38) RANGE SIXTEEN (16) WEST OF THE FOURTH MERIDIAN IN THE SAID PROVINCE, WHICH LIES NORTH OF THE NORTH LIMIT OF THE ROAD AS SHOWN ON ROAD PLAN 6542 B.M. AND THE NORTH LIMIT OF ALBERTA AVENUE AS SHOWN ON SUBDIVISION PLAN 1989 Z.

EXCEPTING THEREOUT -- (A) ALL THAT PORTION SUBDIVIDED UNDER PLAN 1989 Z. WHICH LIES NORTH OF THE SAID NORTH LIMIT OF THE SAID ALBERTA AVENUE.

(B) ALL THAT PORTION BOUNDED AS FOLLOWS -- ON THE SOUTH BY THE NORTH LIMIT OF ALBERTA AVENUE, AS SHOWN ON SUBDIVISION PLAN 1989 Z. AND THE NORTH LIMIT OF THE ROAD, AS SHOWN ON ROAD PLAN 6542 B.M., ON THE NORTH BY A LINE DRAWN PARALLEL TO THE SAID NORTH LIMITS AND TWO HUNDRED AND SIXTY TWO AND FIVE TENTHS (262.5) FEET PERPENDICULARLY DISTANT NORTHERLY THEREFROM, ON THE EAST BY THE EAST BOUNDARY OF THE SAID QUARTER SECTION, AND ON THE WEST BY THE EAST LIMIT OF BERRY STREET, AS SHOWN ON SUBDIVISION PLAN 1989 Z. CONTAINING FIVE AND EIGHTY FOUR HUNDREDTHS

(5.84) ACRES MORE OR LESS.
 (C) ALL THAT PORTION DESCRIBED AS FOLLOWS -- COMMENCING AT THE NORTH WEST CORNER OF THE SAID QUARTER SECTION, THENCE SOUTHERLY ALONG THE WEST BOUNDARY THEREOF FOUR HUNDRED AND SEVENTEEN AND FORTY TWO HUNDREDTHS (417.42) FEET, THENCE EASTERLY AND PARALLEL TO THE NORTH BOUNDARY OF THE SAID QUARTER SECTION, TWO HUNDRED AND EIGHT AND SEVENTY ONE HUNDREDTHS (208.71) FEET, THENCE NORTHERLY AND PARALLEL TO THE SAID WEST BOUNDARY TO A POINT ON THE SAID NORTH BOUNDARY, THENCE WESTERLY ALONG THE SAID NORTH BOUNDARY TO THE POINT OF COMMENCEMENT, CONTAINING TWO (2) ACRES MORE OR LESS. THE LAND HEREBY DESCRIBED CONTAINING ONE HUNDRED AND SIXTY HUNDREDTHS (1.60) ACRES MORE OR LESS.

RESERVING UNTO HER MAJESTY ALL MINES AND MINERALS,

subject to the encumbrances, liens and interests notified by memorandum underwritten or endorsed hereon, or which may hereafter be made in the register.

In Witness Whereof I have hereto subscribed my name and affixed my official seal this TWENTY SECOND, day of MAY A.D. 19 52

TITLE CANCELLED 762028981
 TRIFULL
 on this 19 day of FEB. 19 55
 V.W. A.D. Registrar

Registrar
 P.O. Address HALKIRK, ALTA., North Alberta Land Registration District

4097 F.B. EASEMENT DATED 4-AUG-38 REG. 10,08 AM 26-AUG-38 RT. ABOVE OVER LAND TO CANADIAN UTILITIES LTD. A.D. REG.

NOTIFICATION (The Public Act 1988)
 Village of Madison
 DATED 2/13/60
1/4/60 6627 MC

THIS CERTIFICATE OF TITLE IS CANCELLED
As to 0.67 of an acre
under Plan
 IN ACCORDANCE WITH THE TERMS SUBJECT TO ANY EXCEPTIONS AND RESERVATIONS THEREIN AND A NEW CERTIFICATE OF TITLE NO. 115-X-182
 ISSUED THIS 24 DAY OF Aug. 1960
 TO Self
 DE 1044 MC Richard Hays
 A.D. REGISTRAR

THIS CERTIFICATE OF TITLE IS CANCELLED
 AS TO 0.67 ACRES
PT N.E. 24 FOR ROAD
 IN ACCORDANCE WITH THE TERMS SUBJECT TO ANY EXCEPTIONS AND RESERVATIONS THEREIN AND A NEW CERTIFICATE OF TITLE NO. 115-X-182
 ISSUED THIS 24 DAY OF APRIL 1973
 TO DR. BROWN
 DE 2538 T.R Lawrence
 A.D. REGISTRAR

UTILITY RIGHT OF WAY 7521/3932
 28-NOV-75 TO PAINTEARTH GAS CO-OP LIMITED.
ADR ADR/-LAS

THIS CERTIFICATE OF TITLE IS CANCELLED
As to 1.48 acres under
Plan
 IN ACCORDANCE WITH THE TERMS SUBJECT TO ANY EXCEPTIONS AND RESERVATIONS THEREIN AND A NEW CERTIFICATE OF TITLE NO. 110-X-182
 ISSUED THIS 25 DAY OF Aug. 1960
 TO Self
 DE 1044 MC Richard Hays
 A.D. REGISTRAR

DISCHARGE REG. NO. 762028980 19-2-76
 TAX NOTIC. 5627 M.O.
M ADR/VW

THIS CERTIFICATE OF TITLE IS CANCELLED
As to 0.22 acres for
Road
 IN ACCORDANCE WITH THE TERMS SUBJECT TO ANY EXCEPTIONS AND RESERVATIONS THEREIN AND A NEW CERTIFICATE OF TITLE NO. 110-X-182
 ISSUED THIS 22 DAY OF Feb. 1961
 TO DR. BROWN
 DE 1416 MC J. Hays
 A.D. REGISTRAR

THIS CERTIFICATE OF TITLE IS CANCELLED
As to 4.97 acres under
Plan
 IN ACCORDANCE WITH THE TERMS SUBJECT TO ANY EXCEPTIONS AND RESERVATIONS THEREIN AND A NEW CERTIFICATE OF TITLE NO. 160-C-186
 ISSUED THIS 1 DAY OF May 1961
 TO Self
 DE 2192 MC J. Hays
 A.D. REGISTRAR

The above mentioned instrument No. 40771 B
 was filed for record on 11/11/75
 by Lawrence
 A.D. REGISTRAR

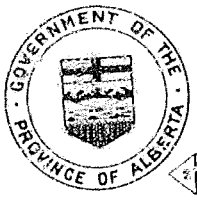
TITLE CANCELLED No. 782172540-as to
 0.07 ac under Plan 782 2147 (FOR LAND)
 on this 1ST day of AUGUST 1978
 Canada A.D. Registrar MBP

CANCELLED
 Certificate of Title

NO.	7	6	2	0	2	8	9	2	1
REF.	1	7	3				1	4	0
VALUES					9	2	5	0	0

M.	1	R.G.	6	TWP.	3	S.	2	SEC.	4	O.	NE	PT.	-
----	---	------	---	------	---	----	---	------	---	----	----	-----	---

PLAN	DLK.	LOT	PT.



TITLE CANCELLED No. UNDER RENEWAL
 AS TO REMAINDER AND IN FULL
 on this 1ST day of AUGUST 1978
 A.D. Registrar

North Alberta Land Registration District

THIS IS TO CERTIFY that HAROLD G. CHICK AND VELMA CHICK (HOUSEWIFE)
 BOTH OF HALKIRK, IN THE PROVINCE OF ALBERTA
 now the owner of an estate in fee simple AS JOINT TENANTS
 of and in ALL THAT PORTION OF THE NORTH EAST QUARTER OF SECTION TWENTY FOUR (24)

TOWNSHIP THIRTY EIGHT (38)
 RANGE SIXTEEN (16)
 WEST OF THE FOURTH MERIDIAN
 WHICH LIES NORTH OF THE NORTH LIMIT OF THE ROAD AS SHOWN ON ROAD PLAN 6542 BM
 AND THE NORTH LIMIT OF ALBERTA AVENUE AS SHOWN ON SUBDIVISION PLAN 1989 Z.
 EXCEPTING THEREOUT: (A) ALL THAT PORTION SUBDIVIDED UNDER PLAN 1989 Z.
 WHICH LIES NGRTH OF THE SAID NORTH LIMIT OF THE SAID ALBERTA AVENUE.
 (B) ALL THAT PORTION BOUNDED AS FOLLOWS: ON THE SOUTH BY THE NORTH LIMIT OF
 ALBERTA AVENUE, AS SHOWN ON SUBDIVISION PLAN 1989 Z. AND THE NORTH LIMIT
 OF THE ROAD, AS SHOWN ON ROAD PLAN 6542 B.M., ON THE NORTH BY A LINE DRAWN
 PARALLEL TO THE SAID NORTH LIMITS AND TWO HUNDRED AND SIXTY TWO AND FIVE
 TENTHS (262.5) FEET PERPENDICULARLY DISTANT NORTHERLY THEREFROM, ON THE EAST
 BY THE EAST BOUNDARY OF THE SAID QUARTER SECTION, AND ON THE WEST BY THE EAST
 LIMIT OF BERRY STREET, AS SHOWN ON SUBDIVISION PLAN 1989 Z. CONTAINING FIVE
 AND EIGHTY FOUR HUNDREDTHS (5.84) ACRES, MORE OR LESS. (C) ALL THAT PORTION
 DESCRIBED AS FOLLOWS: COMMENCING AT THE NORTH WEST CORNER OF THE SAID
 QUARTER SECTION, THENCE SOUTHERLY ALONG THE WEST BOUNDARY THEREOF FOUR HUNDRED
 AND SEVENTEEN AND FORTY TWO HUNDREDTHS (417.42) FEET, THENCE EASTERLY AND
 PARALLEL TO THE NORTH BOUNDARY OF THE SAID QUARTER SECTION, TWO HUNDRED AND
 EIGHT AND SEVENTY ONE HUNDREDTHS (208.71) FEET, THENCE NORTHERLY AND PARALLEL
 TO THE SAID WEST BOUNDARY TO A POINT ON THE SAID NORTH BOUNDARY, THENCE
 WESTERLY ALONG THE SAID NORTH BOUNDARY TO THE POINT OF COMMENCEMENT, CONTAINING
 TWO (2) ACRES, MORE OR LESS. (D) SEVENTY NINE HUNDREDTHS (0.79) ACRES, MORE
 OR LESS, SUBDIVIDED UNDER PLAN 1044 M.C. (E) ONE AND FORTY THREE HUNDREDTHS
 (1.43) ACRES, MORE OR LESS, SUBDIVIDED UNDER PLAN 1045 M.C. (F) TWENTY TWO
 HUNDREDTHS (0.22) OF AN ACRE, MORE OR LESS, SUBDIVIDED UNDER PLAN AS SHOWN
 ON ROAD PLAN 1916 M.C. (G) FOUR AND NINETY SEVEN (4.97) ACRES, MORE OR LESS,
 SUBDIVIDED UNDER PLAN 2192 M.C. (H) SIXTY SEVEN HUNDREDTHS (0.67) ACRES,
 MORE OR LESS, OUT OF THE NORTH EAST QUARTER AS SHOWN ON ROAD PLAN 2538 T.R.

RESERVING UNTO HER MAJESTY ALL MINES AND MINERALS,

SUBJECT TO THE ENCUMBRANCES, LIENS, ESTATES OR INTERESTS NOTIFIED BY MEMORANDUM
 ENDORSED HEREON, OR WHICH MAY HEREAFTER BE MADE IN THE REGISTER.

IN WITNESS WHEREOF I have hereunto subscribed my name and affixed my official seal
 this 19 day of FEBRUARY, A.D. 1976

Post Office Address HALKIRK, ALTA



[Signature]
 A.D. Registrar
 North Alberta Land Registration District

CANCELED

 of Title

Show Other Abbreviations Here




ABBREVIATIONS:

- E - Easement
- C - Caveat
- Tr - Transmission
- Mtge - Mortgage
- URW - Utility Right of Way
- BL - Builders Lien
- TN - Tax Notification
- WE - Will of Executor
- CC - Co-Owners and Conditions
- ENCUM - Encumbrances

NAME HAROLD G. CHICK ET AL
 LAND 4 16 30 24 N.E. (PTN.)

CHARGES, LIENS AND INTERESTS.

TITLE NO. 7 16 12 3 9 1 1

Nature of Instrument	Registration Number	Date of Registration DY MO YR	Amount \$	PARTICULARS	Signature of Registrar	Discharges and Withdrawals	
						Registration Number	Date of Registration DY MO YR
E.	4097 F.B.	26 01 58		PT. TO CANADIAN UTILITIES LTD.			
TRP. OF E.	5699 S.Q.	3 1 72		E. 4097 F.B. TO ALBERTA POWER LIMITED			
U.R.W.	75217352	29 11 75		TO PAINTEARTH GAS CO-OP LIMITED			
				CANCELLED			

AM

TITLE CANCELLED No 792058842
 0.336 ha(0.83 ac) under Plan 792 0736
 on this 19 day of MARCH 19 79
 Canada *slight*
 A.D. Registrar MEP

RENEWAL
782172540



CANCELLED
Certificate of Title

7	6	2	0	2	8	9	8	1
1	7	3	-	N	-	1	4	0
				9	2	5	0	0

M	RG.	TWP.	SEC.	O.	PT.
1	4	1	6	3	8
				2	4
				N	E

PLAN	BLK.	LOT	PT.
2			

North Alberta Land Registration District

THIS IS TO CERTIFY that HAROLD G. CHICK AND VELMA CHICK (HOUSEWIFE),
 BOTH OF HALKIRK, IN THE PROVINCE OF ALBERTA
 ARE now the owners of an estate in fee simple AS JOINT TENANTS
 of and in

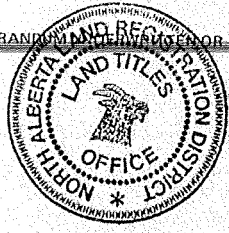
ALL THAT PORTION OF THE NORTH EAST QUARTER OF
 SECTION TWENTY FOUR (24)
 TOWNSHIP THIRTY EIGHT (38)
 RANGE SIXTEEN (16)
 WEST OF THE FOURTH MERIDIAN, WHICH LIES WEST OF THE WEST LIMIT
 OF ROAD PLAN 2538 T.R. AND NORTH OF THE NORTH LIMITS OF
 SUBDIVISION PLANS 782 2147, 1044 M.C., 2192 M.C., 1045 M.C. AND
 ROAD PLAN 6542 B.M. AND ALBERTA AVENUE, AS SHOWN ON PLAN 1989 Z.

EXCEPTING THEREOUT:
 TWO (2.0) ACRES, MORE OR LESS, DESCRIBED AS FOLLOWS:-COMMENCING
 AT THE NORTH WEST CORNER OF SAID QUARTER SECTION; THENCE SOUTHERLY
 ALONG THE WEST BOUNDARY THEREOF, FOUR HUNDRED AND SEVENTEEN AND
 FORTY TWO HUNDREDTHS (417.42) FEET; THENCE EASTERLY AND PARALLEL
 TO THE NORTH BOUNDARY OF SAID QUARTER SECTION, TWO HUNDRED AND
 EIGHT AND SEVENTY ONE HUNDREDTHS (208.71) FEET; THENCE NORTHERLY
 AND PARALLEL TO SAID WEST BOUNDARY TO A POINT ON SAID NORTH
 BOUNDARY; THENCE WESTERLY ALONG SAID NORTH BOUNDARY TO THE POINT
 OF COMMENCEMENT.

EXCEPTING THEREOUT ALL MINES AND MINERALS.

SUBJECT TO THE ENCUMBRANCES, LIENS, ESTATES OR INTERESTS NOTIFIED BY MEMORANDUMS OR
 ENDORSED HEREON, OR WHICH MAY HEREAFTER BE MADE IN THE REGISTER.

IN WITNESS WHEREOF I have hereunto subscribed my name and affixed my official seal
 this 19 day of FEBRUARY A.D. 19 76
 Post Office Address HALKIRK, ALBERTA



TITLE CANCELLED No UNDER RENEWAL
 AS TO REMAINDER AND IN FULL
 MEP on this 19 day of MARCH 19 79
slight
 A.D. Registrar

A.G. 699
Rev. 7/77

AD Registrar
North Alberta Land Registration District

Certificate of Title
~~**CANCELLED**~~

Show Other Abbreviations Here

NAME **HAROLD G. CHICK ET AL**
 LAND **W4TH 16 - 38 - 24 N.E. (-)**
CHARGES, LIENS AND INTERESTS.

ABBREVIATIONS
 URW - Utility Right of Way
 BL - Builders Lien
 TN - Tax Notification
 WE - Writ of Execution
 C.C. - Covenants and Conditions
 ENCUM - Encumbrance

TITLE NO. 7 | 6 | 2 | 0 | 2 | 8 | 9 | 8 | 1

Nature of Instrument	Registration Number	Date of Registration DY MO YR	Amount \$	PARTICULARS	Signature of Registrar	Discharges and Withdrawals	
						Registration Number	Date of Registration DY MO YR
E	4097 F.B.	26 8 38		PLAN 1900 E.T. (PT) TO CANADIAN UTILITIES LTD.	<i>[Signature]</i>		
TFR OF E	6699 S.Q.	3 1 72		EASEMENT 4097 F.B. TO ALBERTA POWER LIMITED	<i>[Signature]</i>		
URW	752173932	28 11 75		TO PAINTEARTH GAS CO-OP LIMITED			
				CANCELLED			

11

TITLE CANCELLED 822032749 ASLTO 0.676 HA.
 (1.67 ACS.) UNDER PLAN 822 0516
 on this 15TH day of FEB. 1982
 JO Canada A. D. Registrar

RENEWAL
 792058842



Certificate of Title

CANCELLED

NO.	7	6	2	0	2	8	9	8	1
REF.	1	7	3	-	N	-	1	4	0
VALUES					9	1	6	6	0



M	RG.	TWP.	SEC.	Q.	PT.
1	4	16	38	24	NE

PLAN	BLK.	LOT	PT.
2			

North Alberta Land Registration District

THIS IS TO CERTIFY that HAROLD G. CHICK AND VELMA CHICK (HOUSEWIFE),
 BOTH OF HALKIRK, IN THE PROVINCE OF ALBERTA

ARE now the owner S of an estate in fee simple AS JOINT TENANTS

of and in

ALL THAT PORTION OF THE NORTH EAST QUARTER OF
 SECTION TWENTY FOUR (24)
 TOWNSHIP THIRTY EIGHT (38)
 RANGE SIXTEEN (16)

WEST OF THE FOURTH MERIDIAN, WHICH LIES WEST OF THE WEST LIMIT
 OF ROAD PLAN 2538 T.R. AND NORTH OF THE NORTH LIMITS OF
 SUBDIVISION PLANS 782 2147, 1044 M.C., 2192 M.C., 1045 M.C. AND
 ROAD PLAN 6542 B.M. AND ALBERTA AVENUE, AS SHOWN ON PLAN 1989 Z.

EXCEPTING THEREOUT:

- A) 0.809 HECTARES (2.0 ACRES) MORE OR LESS, DESCRIBED AS FOLLOWS:-
 COMMENCING AT THE NORTH WEST CORNER OF SAID QUARTER SECTION;
 THENCE SOUTHERLY ALONG THE WEST BOUNDARY THEREOF, FOUR HUNDRED
 AND SEVENTEEN AND FORTY TWO HUNDREDTHS (417.42) FEET; THENCE
 EASTERLY AND PARALLEL TO THE NORTH BOUNDARY OF SAID QUARTER
 SECTION, TWO HUNDRED AND EIGHT AND SEVENTY ONE HUNDREDTHS (208.71)
 FEET; THENCE NORTHERLY AND PARALLEL TO SAID WEST BOUNDARY TO A
 POINT ON SAID NORTH BOUNDARY; THENCE WESTERLY ALONG SAID NORTH
 BOUNDARY TO THE POINT OF COMMENCEMENT.
- B) 0.336 HECTARES (0.83 ACRES) MORE OR LESS, SUBDIVIDED UNDER
 PLAN 792 0736.

EXCEPTING THEREOUT ALL MINES AND MINERALS.

SUBJECT TO THE ENCUMBRANCES, LIENS, ESTATES OR INTERESTS NOTIFIED BY MEMORANDUM UNDERWRITEN OR
 ENDORSED HEREON, OR WHICH MAY HEREAFTER BE MADE IN THE REGISTER.

IN WITNESS WHEREOF I have hereunto subscribed my name and affixed my official seal

this 19 day of FEBRUARY, A.D. 1976

Post Office Address HALKIRK, ALBERTA



MEP

TITLE CANCELLED UNDER RENEWAL
 AS TO REMAINDER & IN FULL
 on this 15TH day of FEB. 1982
 JO A. D. Registrar

slip AD Registrar

North Alberta Land Registration District

CANCELLED
Certificate of Title

Show Other Abbreviations Here
DRC - DEFERRED RESERVE CAVEAT

ABBREVIATIONS
URW - Utility Right of Way
BL - Builders Lien
TN - Tax Notification
WE - Writ of Execution
C/L - Covenants and Conditions
ENCUM - Encumbrance
E - Easement
C - Caveat
Tr - Transmission
Tr - Transfer
Mtg - Mortgage

NAME HAROLD G. CHICK ET AL
LAND W4TH 16 - 38 - 24 N.E. (-)

CHARGES, LIENS AND INTERESTS.

TITLE NO. 7 6 2 0 2 8 9 8 1

Nature of Instrument	Registration Number	Date of Registration DY MO YR	Amount \$	PARTICULARS	Signature of Registrar	Discharges and Withdrawals	
						Registration Number	Date of Registration DY MO YR
E	4097 F.B.	26 8 38		PLAN 1900 E.T. (PT) TO CANADIAN UTILITIES LTD.	<i>[Signature]</i>		
TFR OF E	6699 S.Q.	3 1 72		EASEMENT 4097 F.B. TO ALBERTA POWER LIMITED (DIS. PLAN 822 0516 REG. #822032748 15-FEB-82) TO PAINTEARTH GAS CO-OP LIMITED	<i>[Signature]</i>		
URW	752173932	28 11 75		(DIS. PLAN 822 0516 REG. #822032747 15-FEB-82) BY RED DEER REGIONAL PLANNING COMMISSION	<i>[Signature]</i>		
DRC	792058843	19 3 79		BY ALBERTA POWER LIMITED	<i>[Signature]</i>		
C.	812104441	7 5 81					

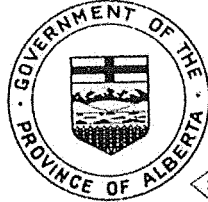
CANCELLED

[Circular Stamp]

Certificate of Title

Canada

RENEWAL
822032749



NO.	7	6	2	0	2	8	9	8	1
REF.	1	7	3	-	N	-	1	4	0
VALUES				6	0	0	0	0	0

M	RG.	TWP.	SEC.	O.	PT.
1	4	16	38	24	N.E.

PLAN	BLK.	LOT	PT.
2			

North Alberta Land Registration District

THIS IS TO CERTIFY that HAROLD G. CHICK AND VELMA CHICK (HOUSEWIFE),

BOTH OF HALKIRK, IN THE PROVINCE OF ALBERTA

ARE now the owner s of an estate in fee simple AS JOINT TENANTS

of and in ALL THAT PORTION OF THE NORTH EAST QUARTER OF SECTION TWENTY FOUR (24)

TOWNSHIP THIRTY EIGHT (38)

RANGE SIXTEEN (16)

WEST OF THE FOURTH MERIDIAN, WHICH LIES WEST OF THE WEST LIMIT OF ROAD PLAN 2538 T.R. AND NORTH OF THE NORTH LIMITS OF SUBDIVISION PLANS 782 2147, 1044 M.C. 1045 M.C. AND ROAD PLAN 6542 B.M. AND ALBERTA AVENUE, AS SHOWN ON PLAN 1989 Z.

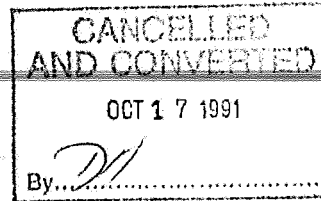
EXCEPTING THEREOUT: A) 0.809 HECTARES (2.00 ACRES) MORE OR LESS, DESCRIBED AS FOLLOWS:

COMMENCING AT THE NORTH WEST CORNER OF SAID QUARTER SECTION; THENCE SOUTHERLY ALONG THE WEST BOUNDARY THEREOF, FOUR HUNDRED AND SEVENTEEN AND FORTY TWO HUNDREDTHS (417.42) FEET; THENCE EASTERLY AND PARALLEL TO THE NORTH BOUNDARY OF SAID QUARTER SECTION, TWO HUNDRED AND EIGHT AND SEVENTY ONE HUNDREDTHS (208.71) FEET; THENCE NORTHERLY AND PARALLEL TO SAID WEST BOUNDARY TO A POINT ON SAID NORTH BOUNDARY; THENCE WESTERLY ALONG SAID NORTH BOUNDARY TO THE POINT OF COMMENCEMENT.

B) 0.336 HECTARES (0.83 ACRES) MORE OR LESS, SUBDIVIDED UNDER PLAN 792 0736.

C) 0.676 HECTARES (1.67 ACRES) MORE OR LESS, SUBDIVIDED UNDER PLAN 822 0516.

EXCEPTING THEREOUT ALL MINES AND MINERALS.



SUBJECT TO THE ENCUMBRANCES, LIENS, ESTATES OR INTERESTS NOTIFIED BY MEMORANDUM UNDERWRITTEN OR ENDORSED HEREON, OR WHICH MAY HEREAFTER BE MADE IN THE REGISTER.

IN WITNESS WHEREOF I have hereunto subscribed my name and affixed my official seal

this 19TH day of FEBRUARY 76, A.D. 19

Post Office Address HALKIRK, ALBERTA

JO.

A.G. 699
Rev. 7/77

Tolson &
Phone 427-3142

[Signature]



North Alberta Land Registration District

Certificate of Title

Show Other Abbreviations Here

ABBREVIATIONS
 URW - Utility Right of Way
 BL - Builders Lien
 TN - Tax Notification
 WE - Writ of Execution
 C.C. - Covenants and Conditions
 ENCUM - Encumbrance

NAME HAROLD G. CHICK ET AL.
 LAND 4 - 16 - 38 - 24 - N.E. -

AND UNREGISTERED
 OCT 17 1991

CHARGES, LIENS AND INTERESTS.

TITLE NO.	7 6 2 0 2 8 9 8 1				Nature of Instrument	Registration Number	Date of Registration DY MO YR	Amount \$	PARTICULARS	Signature of Registrar	Discharges and Withdrawals			Signature of Registrar
	7	6	2	0							2	8	9	
E	4097	F.B.	26	8	38				PLAN 1900 E.T. IN FAVOR OF CANADIAN UTILITIES LTD.	<i>[Signature]</i>				
TFR OF E	6699	S.O.	3	1	72				E. 4097 F.B. TO ALBERTA POWER LTD.	<i>[Signature]</i>				
URW	752173932	28	11	75					TO PAINTEARTH GAS CO-OP LTD.	<i>[Signature]</i>				
DRC	792058843	19	3	79					BY RED DEER REGIONAL PLANNING COMMISSION	<i>[Signature]</i>				
C	812104441	7	5	81					BY ALBERTA POWER LTD.	<i>[Signature]</i>				

M

LAND TITLES ACT, Sec. 81.—The land mentioned in any certificate of title granted under this Act shall by implication and without any special mention therein, unless the contrary is expressly declared, be subject to—

- Any subsisting reservations or exceptions contained in the original grant of the land from the Crown;
- All unpaid taxes, including irrigation and drainage district rates;
- Any public highway or right-of-way or other public easement, however created upon, over or in respect of the land;
- Any subsisting lease or agreement for a lease for a period not exceeding three years, where there is actual occupation of the land under the same; or any decrees, orders or executions against or affecting the interest of the owner of the land which have been registered and maintained in force against the owner;
- Any right of expropriation which may by statute be vested in any person, body corporate, or His Majesty;
- Any right-of-way or other easement granted or acquired under the provisions of any Act or law in force in the Province.

27-U-122



27

Sum of instrument registered at 132 a block
 P. on the 31st of MAY
 S.D. 18 48
 Number 3066 H.C. 95
 J.M. THOM
 Registrar, N.S.A.

Certificate of Title.

Assoe. Fund Value \$75.00 Unearned Inc. Value \$75.00 Refer Cert. No. 138-A-67

North Alberta Land Registration District.

This is to Certify that HARVEY ALBERT ANDERSON (BUTCHER)

WILLIAM HERBERT TAYLOR (LIVERYMAN) AND ALVAH LLEWELLYN WESTCOTT (GROCER) ALL OF

HALKIRK IN THE PROVINCE OF ALBERTA, DOMINION OF CANADA, TRUSTEES OF THE CONGREGATION OF THE HALKIRK METHODIST CHURCH,

is now the owner of an estate in fee simple

of and in LOT TWENTY SIX (26) IN BLOCK SEVEN (7) IN THE TOWNSITE OF HALKIRK

IN THE SAID PROVINCE OF RECORD IN THE LAND TITLES OFFICE FOR THIS LAND REGISTRATION DISTRICT AS PLAN 1989 Z.

RESERVING THEREOUT ALL MINES AND MINERALS.

TITLE CANCELLED 772064573
 IN FULL UNDER TAX FORFEITURE
 on this 15TH day of APRIL 1977
 A. D. Registrar

subject to the encumbrances, liens and interests notified by memorandum underwritten or endorsed hereon, or which may hereafter be made in the register.

In Witness Whereof I have hereunto subscribed my name and affixed my official seal this THIRTY FIRST day of MAY A. D. 19 48

DYK

P.O. Address HALKIRK, ALTA.

A. D. Registrar
 North Alberta Land Registration District

LA 86 81027

NOTIFICATION (Tax Recovery Act 1938)	
by	<i>W. S. G. of Park</i>
Dated	<i>2-4-72</i>
ss. No.	<i>4-4-72</i>
Reg'd	<i>1-13</i>
	<i>498070</i>

Certificate of Title

Canada



NO.	7	7	2	0	6	4	5	7	3
REF.	2	7			U		1	2	2
VALUES	TAX		FORFEITURE						

M	RG.	TWP.	SEC.	O.	PT.
1					

PLAN	BLK.	LOT	PT.
21989Z		7	26

North Alberta Land Registration District

THIS IS TO CERTIFY that THE VILLAGE OF HALKIRK
IN THE PROVINCE OF ALBERTA

IS now the owner of an estate in fee simple
of and in

LOT TWENTY SIX (26)
IN BLOCK SEVEN (7)
ON PLAN 1989 Z.
HALKIRK

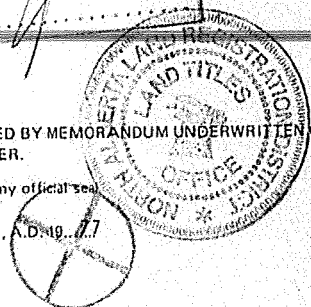
RESERVING THEREOUT ALL MINES AND MINERALS

CANCELLED
AND CONVERTED
OCT 1, 1991

SUBJECT TO THE ENCUMBRANCES, LIENS, ESTATES OR INTERESTS NOTIFIED BY MEMORANDUM UNDERWRITTEN OR ENDORSED HEREON, OR WHICH MAY HEREAFTER BE MADE IN THE REGISTER.

IN WITNESS WHEREOF I have hereunto subscribed my name and affixed my official seal

this 15TH day of APRIL A.D. 1977
Post Office Address HALKIRK, ALTA.



Wright AD Registrar
North Alberta Land Registration District



1160³ Certificate of Title.

I certify that the within
duly Entered and Registered in the Land
Titles Office for the North Alberta Land
Registration District at Edmonton, in the
Province of Alberta, at 11:28 o'clock,
A.M. on the 15th day of Oct
A. D. 1910, Number 886
Book AC, Folio 27
Finney Registrar
N. A. L. M. D.

LAND TITLES ACT, Sec. 41. The land mentioned in any certificate of title granted under this Act shall by implication and without any further words be taken to be subject to the provisions of the original grant of the land from the Crown:
(a) All unpaid taxes;
(b) Any public highways or right-of-way or other public easement, however created upon, over or in respect of the land;
(c) Any public highway, easement or agreement for a lease for a period not exceeding three years, where there is actual occupation of the land under the same;
(d) Any claim, action or proceeding pending or affecting the interest of the owner of the land which have been registered;
(e) Any claims, action or proceeding pending or affecting the interest of the owner of the land which have been registered;
(f) Any right of expropriation which may hereafter be vested in any person, body corporate or His Majesty;
(g) Any right-of-way or other easement granted or to be granted under the provisions of any Act or law in force in the Province.

Refer Cert. No. 2204¹⁰
Last Value \$100.00

NORTH ALBERTA Land Registration District.

This is to Certify that *The Methodist Church*
(a body Corporate)

is now the owner of an estate in fee simple
of and in Lot numbered Twenty seven (27) in Block numbered Seven
(D) in the Township of Halkirk, in the Province of Alberta, in the
Dominion of Canada - as shown on a plan thereof of record
in the Land Titles Office for this Land Registration District
as plan 1989Z. Reserving unto His Majesty, His Successors
and Assigns, all mines and minerals

TITLE CANCELLED 772064573
IN FULL UNDER TAX FORFEITURE
on this 15TH day of APRIL 1917
WITHOUT DCT *Finney*
A. D. Registrar

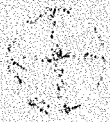
Subject to the encumbrances, liens and interests notified by memorandum underwritten or endorsed
thereon, or which may hereafter be made in the register.

In Witness Whereof I have hereunto subscribed my name and affixed
my official seal this *first*
day of *October* A.D. 1910

P.O. Address _____ *Finney* Registrar,
NORTH ALBERTA Land Registration District. ✓

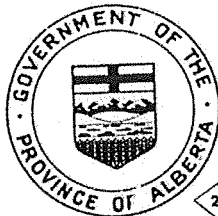
Post # 27 Block 7

NOTIFICATION (Tax Recovery Act 1938)	
by WILLIAM of Madison	
Dated 2-4-72	Reg'd. 1-12-72
4-4-72	as No. 498070



Certificate of Title

Canada



NO.	7	7	2	0	6	4	5	7	3	A
REF.	1	1	6		0		1	3		
VALUES	TAX		FORFEITURE							

M

SI	REG.	TWP.	SEC.	Q.	PT.
1					

PLAN	BLK.	LOT	PT.
1989Z		7	27

North Alberta Land Registration District

THIS IS TO CERTIFY that THE VILLAGE OF HALKIRK
IN THE PROVINCE OF ALBERTA

IS now the owner of an estate in fee simple
of and in

LOT TWENTY SEVEN (27)
IN BLOCK SEVEN (7)
ON PLAN 1989 Z.

HALKIRK

RESERVING UNTO HER MAJESTY ALL MINES AND MINERALS

CANCELLED
AND CONVERTED
OCT 11 1991
By



SUBJECT TO THE ENCUMBRANCES, LIENS, ESTATES OR INTERESTS NOTIFIED BY MEMORANDUM UNDERWRITTEN OR ENDORSED HEREON, OR WHICH MAY HEREAFTER BE MADE IN THE REGISTER.

IN WITNESS WHEREOF I have hereunto subscribed my name and affixed my official seal

this 15TH day of APRIL A.D. 1977

Post Office Address HALKIRK, ALTA.

[Signature]
AD. Registrar
TS
North Alberta Land Registration District

CANCELLED

LAND TITLES ACT, Sec. 41.—The land mentioned in any certificate of title granted under this Act shall by implication and unless any special mention therein, when the contrary is expressly declared, be subject to—

- (1) Any existing mortgages or encumbrances mentioned in the original grant of the land from the Crown;
- (2) All unpaid taxes, including municipal and drainage district rates;
- (3) Any public highway or right-of-way or other public easement, however created, now or in respect of the land;
- (4) Any liability known or agreed to for a term for a period not exceeding three years, when there is actual occupation of the land under the owner;
- (5) Any decree, order or execution against an affixing the interest of the owner of the land which have been registered and mentioned in force against the owner;
- (6) Any right of appropriation which may be stated to exist in any person, body corporate, or His Majesty;
- (7) Any right-of-way or other easement granted or required under the provisions of any Act in force in the Province.



Bound on instrument registered at 12.47 o'clock
 P. on the 7 day of NOV
 A.D. 19 45
 Number 2897 of F.W. No. 90
 A. T. KINHAIRD
 Registrar, N. of A.

Certificate of Title

Assoc. Fund Value \$837.00 Unearned Inc. Value \$752.00 Refer Cert. No. 216-Y-10

North Alberta Land Registration District.

This is to Certify that GEORGE EZRA EMMETT

OF HALKIRK IN THE PROVINCE OF ALBERTA DOMINION OF CANADA. (FARMER)

is now the owner of an estate in fee simple

of and in ALL THAT PORTION OF THE NORTH EAST QUARTER OF SECTION TWENTY FOUR (24)

TOWNSHIP THIRTY EIGHT (38) RANGE SIXTEEN (16) WEST OF THE FOURTH MERIDIAN / IN THE SAID PROVINCE / WHICH LIES NORTH OF THE NORTHERN LIMIT OF PUBLIC ROADWAY AND ALBERTA AVENUE

AS SHOWN ON A PLAN OF RECORD IN THE LAND TITLES OFFICE FOR THIS LAND RESPECTIVELY REGISTRATION DISTRICT AS PLAN 6542 B.M. AND 1989 Z. EXCEPTING THEREOUT,--

(A) ALL THAT PORTION OF SUB-DIVISION OF HALKIRK TOWNSITE AS SHOWN ON PLAN OF RECORD IN SAID LAND TITLES OFFICE AS PLAN 1989 Z.

(B) ALL THAT PORTION SHOWN AS PRCEL (A) ON PLAN OF RECORD IN SAID LAND TITLES OFFICE AS PLAN 7135 E.T.

CANCELLED

THE LAND HEREBY DESCRIBED CONTAINING ONE HUNDRED AND SEVEN AND FORTY FOUR (107.44) ACRES MORE OR LESS.

Title Certificate of Title cancelled
 and a NEW CERTIFICATE OF TITLE No. 134-110
 Issued this 23 day of May 1945
 to George Ezra Emmett
 D. B. No. 25337
 A.D. Registrar

RESERVING UNTO HIS MAJESTY ALL MINES AND MINERALS

subject to the encumbrances, liens and interests notified by memorandum underwritten or endorsed hereon, or which may hereafter be made in the register.

In Witness Whereof I have hereunto subscribed my name and affixed my official seal this SEVENTH day of NOVEMBER A.D. 19 45

BB

P.O. Address HALKIRK ALTA

W. M. Kinhardt Registrar
 North Alberta Land Registration District

4097 F.B. EASEMENT DATED 4-AUG-38 REG 10.08 AM 25-AUG-38 ABOVE AND OTHER LAND TO CANADIAN UTILITIES LTD. W. M. Kinhardt A-D-REG.

OVER

This Certificate of Title is cancelled as to
Part described - 0.5 acres
and a NEW CERTIFICATE OF TITLE No. 83-K-110
issued on the 9 day of Jan 1946
to Dahali Bada Chharia et al
D. B. No. 666 G.C.
AD Registrar

This Certificate of Title is cancelled as to
2 acres as desc.
and a NEW CERTIFICATE OF TITLE No. 123-J-110
issued on the 11 day of Jan 1946
to Village of Nalpur
D. B. No. 477.3 F.W.
AD Registrar

123-J-110
11/2

The within EASEMENT No. 14097 F.B
is subject to a CAVEAT filed by Montreal Trust Company,
c/o 210 McLeod Building, Edmonton, Alberta, dated the
18th day of October 1946, Registered at 10.04 a.m.
the 22nd day of October 1946, as D. B. No. 645 G.G.
AD Registrar

The above mentioned Caveat No. 645 GG is
discharged by instrument dated the 17th day of
May 1947, Registered at 2.33 p.m., the 22nd day
of May 1947, as D. B. No. 848 G.J.
AD Registrar

This Certificate of Title is cancelled as to
at desc. conty. 434
and a NEW CERTIFICATE OF TITLE No. 70-N-140
issued on the 22 day of May 1946
to The Director V.P.A.
D. B. No. 3532
AD Registrar

LAND TITLES ACT, Sec. 81.—The land mentioned in any certificate of title granted under this Act shall be impugned and within any special case herein be subject to—

- (1) Any subsisting reservations or exceptions including easements contained in the original grant of the land from the Crown;
- (2) All unpaid taxes, including irrigation and drainage district rates;
- (3) Any public highway or right-of-way or other public easement, however created, open, used or in respect of the land;
- (4) Any subsisting lease or agreement for a lease for a period not exceeding three years, where there is actual occupation of the land under the lease;
- (5) Any decrees, orders or operations against or affecting the interest of the owner of the land which have been registered and maintained in force against the owner;
- (6) Any right of representation which may by statute be vested in any person, body corporate, or His Majesty;
- (7) Any right-of-way or other easement granted or acquired under the provisions of any Act or law in force in the Province.



Filed on instrument registered at 2230
 P. on the 22 day of MAY
 R.D. 19 52
 Number 3535 Book 1166 Folio 109
 J.H. THOM
 Registrar N.A.L.R.D.

Certificate of Title

Assoc. Fund Value \$790.00 Unearned Inc. Value \$705.00 Refer Cert. No. 134-1-109

North Alberta Land Registration District.

This is to Certify that GEORGE EZRA EMMETT

OF HALKIRK IN THE PROVINCE OF ALBERTA DOMINION OF CANADA (FARMER)

is now the owner of an estate in fee simple

of and in ALL THAT PORTION OF THE NORTH EAST QUARTER OF SECTION TWENTY FOUR (24)

TOWNSHIP THIRTY EIGHT (38) RANGE SIXTEEN (16) WEST OF THE FOURTH MERIDIAN IN THE SAID PROVINCE, WHICH LIES NORTH OF THE ROAD AS SHOWN ON ROAD PLAN 6542 B.M., AND THE NORTH LIMIT OF ALBERTA AVENUE AS SHOWN ON SUBDIVISION PLAN 1989 Z.

EXCEPTING THEREOUT --- (A) ALL THAT PORTION SUBDIVIDED UNDER PLAN 1989 Z, WHICH LIES NORTH OF THE SAID NORTH LIMIT OF THE SAID ALBERTA AVENUE.
 (B) ALL THAT PORTION BOUNDED AS FOLLOWS -- ON THE SOUTH BY THE NORTH LIMIT OF ALBERTA AVENUE, AS SHOWN ON SUBDIVISION PLAN 1989 Z, AND THE NORTH LIMIT OF THE ROAD, AS SHOWN ON ROAD PLAN 6542 B.M., ON THE NORTH BY A LINE DRAWN PARALLEL TO THE SAID NORTH LIMITS AND TWO HUNDRED AND SIXTY TWO AND FIVE TENTHS (262.5) FEET PERPENDICULARLY DISTANT NORTHERLY THEREFROM, ON THE EAST BY THE EAST BOUNDARY OF THE SAID QUARTER SECTION, AND ON THE WEST BY THE EAST LIMIT OF BERRY STREET, AS SHOWN ON SUBDIVISION PLAN 1989 Z. CONTAINING FIVE AND EIGHTY FOUR HUNDREDTHS (5.84) ACRES MORE OR LESS.

(C) ALL THAT PORTION DESCRIBED AS FOLLOWS COMMENCING AT THE WEST EAST CORNER OF THE SAID QUARTER SECTION, THENCE SOUTHERLY ALONG THE WEST BOUNDARY THEREOF FOUR HUNDRED AND SEVENTEEN AND FORTY TWO HUNDREDTHS (417.42) FEET, THENCE EASTERLY AND PARALLEL TO THE NORTH BOUNDARY OF THE SAID QUARTER SECTION, TWO HUNDRED AND EIGHT AND SEVENTY ONE HUNDREDTHS (208.71) FEET THENCE NORTHERLY AND PARALLEL TO THE SAID NORTH BOUNDARY TO THE POINT OF COMMENCEMENT, CONTAINING TWO AND SEVENTY ONE HUNDREDTHS (2.71) ACRES MORE OR LESS.

RESERVING UNTO HER MAJESTY ALL MINES AND MINERALS. 73.19

subject to the encumbrances, liens and interests notified by memorandum, underwritten or endorsed hereon, or which may hereafter be made in the register.

In witness whereof I have hereunto subscribed my name and affixed my official seal this TWENTY SECOND day of MAY A.D. 19 52

TITLE CANCELLED 762028981
 INFULL
 on this 19 day of MAY 19 75
 J.H. THOM Registrar

P.O. Address HALKIRK, ALTA,

North Alberta Land Registration District

4097 F.B. EASEMENT DATED 4-AUG-38 REG. 10.08 AM 26-AUG-38 PT. ABOVE
 LAND TO CANADIAN UTILITIES LTD.

OVER

A.D. REG.

NOTIFICATION (The Property Act 1938)
 by Village of Hadfield
 Date 21/3/60 & 1/4/60
6627 M.O.

THIS CERTIFICATE OF TITLE IS CANCELLED
 AS TO 0.67 ACRES
 PT. N.E. 24 FOR ROAD
 IN ACCORDANCE WITH THE TITHE SUB-
 VARIATIONS (MORTGAGE AND AGENCIES) ACT
 OF 1928
 ISSUED THIS 27 DAY OF APRIL 1973
 TO THE CROWN
 DB 2538 T.R. L.A. Knowles
 A.D. REGISTRAR

THIS CERTIFICATE OF TITLE IS CANCELLED
 As to 0.79 acres
under Plan
 IN ACCORDANCE WITH THE TITHE SUB-
 VARIATIONS (MORTGAGE AND AGENCIES) ACT
 OF 1928
 OF TITLE NO. 115-X-182
 ISSUED THIS 24 DAY OF AUG. 1962
 TO Self
 DB 104419.C. - Alfred Stephens
 A.D. REGISTRAR

UTILITY RIGHT OF WAY 752173932
 28-NOV-75 TO PAINTEARTH GAS CO-OP
 LIMITED.

ADR ADR/LAS

THIS CERTIFICATE OF TITLE IS CANCELLED
 As to 1.43 acres under
Plan
 IN ACCORDANCE WITH THE TITHE SUB-
 VARIATIONS (MORTGAGE AND AGENCIES) ACT
 OF 1928
 OF TITLE NO. 110-X-182
 ISSUED THIS 25 DAY OF AUG. 1960
 TO Self
 DB 1045 M.C. - Alfred Stephens
 A.D. REGISTRAR

DISCHARGE REF. NO. 752028000 10-2-75
 TAX NOTIF. 6627 M.O.

ADR ADR/VH

THIS CERTIFICATE OF TITLE IS CANCELLED
 As to 0.22 acres for
Road
 IN ACCORDANCE WITH THE TITHE SUB-
 VARIATIONS (MORTGAGE AND AGENCIES) ACT
 OF 1928
 OF TITLE NO. 1416 M.C.
 ISSUED THIS 22 DAY OF JULY 1961
 TO The Crown
 DB 1416 M.C. - Alfred Stephens
 A.D. REGISTRAR

THIS CERTIFICATE OF TITLE IS CANCELLED
 As to 4.97 acres under
Plan
 IN ACCORDANCE WITH THE TITHE SUB-
 VARIATIONS (MORTGAGE AND AGENCIES) ACT
 OF 1928
 OF TITLE NO. 160-C-186
 ISSUED THIS 1 DAY OF MAY 1961
 TO Self
 DB 2152 M.C. - Alfred Stephens
 A.D. REGISTRAR

Produced by
 Date
 at D. E. R. C. O. S.
L.A. Knowles

1961

LAND TITLES ACT, Sec. 64 - The land mentioned in any certificate of title granted under this Act shall by implication and without any special declaration therein, be subject to-

- (1) Any subsiding reservations or exceptions (including royalties) contained in the original grant of the land from the Crown;
- (2) All unpaid taxes, including irrigation and drainage district rates;
- (3) Any public highway or right-of-way or other public easement, however created upon, over or in respect of the land;
- (4) Any subsiding lease or agreement for a lease for a period not exceeding three years, where there is actual occupation of the land under the lease;
- (5) Any decrees, orders or judgments against or affecting the interest of the owner of the land which have been registered and maintained in force against the owner;
- (6) Any right of reversion which may by statute be vested in any person, body corporate, or His Majesty;
- (7) Any right-of-way or other easement granted or acquired under the provisions of any Act or law in force in the Province.



Issued on instrument registered at 11.30 o'clock 140
 A. m. on the 24 day of AUG.
 A.D. 19 60
 Number 1045 Book MC Folio 36
J. M. THOM
 Registrar, N.A.L.R.D.

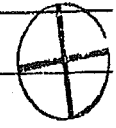
Certificate of Title

Assoc. Fund Value _____ Refer Cert. No. 173-N-140

North Alberta Land Registration District.

This is to Certify that GEORGE EZRA DUMETT

OF HALKIRK, IN THE PROVINCE OF ALBERTA, CANADA (FARMER)



is now the owner of an estate in fee simple

of and in LOTS ONE (1) TO THREE (3) INCLUSIVE, IN BLOCK EIGHT (8) AND LOT THREE (3) IN BLOCK NINE (9) IN THE TOWNSITE OF HALKIRK, AFORESAID, AS SHOWN ON SUBDIVISION PLAN 1045 M.C. (N. E. 24 - 38 - 16 - 4)

CANCELLED

RESERVING UNTO HER MAJESTY ALL MINES AND MINERALS

THIS CERTIFICATE OF TITLE IS CANCELLED
*As to Lot 3 Blk 8 and
 in full*
 IN ACCORDANCE WITH THE PROVISIONS OF
 VARIOUS THEREIN AND A NEW CERTIFICATE
 OF TITLE NO. 150-H-223
 ISSUED THIS 15 DAY OF Mar - 67
 TO Hubert J. Tompkins
 DB 6863 PA. J. C. Knowles
 A. A. REG. CLERK

subject to the encumbrances, liens and interests notified by memorandums underwritten or endorsed hereon, or which may hereafter be made in the register.

In Witness Whereof I have hereunto subscribed my name and affixed my official seal this TWENTY FOURTH day of AUGUST A.D. 19 60

LH

Registrar

P.O. Address HALKIRK, ALTA.

North Alberta Land Registration District

6621 MW NOTIF. DATED 21-MAR-60 REG. 1.02 PM 1-APR-60 AS TO EACH ABOVE LOTS AND OTHER LAND IN VILLAGE OF HALKIRK (T.R.A.)

OVER

The above mentioned Deed No. 662770
 is discharged by instrument dated the 21 day
 of March, 1967 Registered at 1:31 P.M.,
 the 26 day of April, 1967, as D.B.
 No. 261 N.A.
[Signature]
 Register

The above mentioned Deed No. 662770
 is discharged by instrument dated the 21 day
 of March, 1967 Registered at 1:31 P.M.,
 the 14 day of March, 1967, as D.B.
 No. 34 P.O.
[Signature]
 Register

THIS CERTIFICATE OF TITLE IS CANCELLED
Deed Lot 2 Sub 8
 IN ACCORDANCE WITH THE T. AND P. SUB-
 JECT TO ANY EXCEPTIONS LISTED IN THE U-
 TENSIFIED RECORDS FILED IN THIS OFFICE
 OF TITLE NO. 61 B 156
 ISSUED THIS 27 DAY OF April, 1961
 TO Halshirk Community Building Association
 DB 117746
[Signature]
 Register

Deed Lot 1, Sub 2 only
 The above mentioned Deed No. 662770
 is discharged by instrument dated the 22 day
 of Aug., 1961 Registered at 4:16 P.M.,
 the 25 day of Aug., 1961, as D. B.
 No. 677 N.A.
[Signature]
 Register

THIS CERTIFICATE OF TITLE IS CANCELLED
Deed Lot 1, Sub 8
 IN ACCORDANCE WITH THE T. AND P. SUB-
 JECT TO ANY EXCEPTIONS LISTED IN THE U-
 TENSIFIED RECORDS FILED IN THIS OFFICE
 OF TITLE NO. 31-B-188
 ISSUED THIS 28 DAY OF Aug., 1961
 TO Robert Shuler
 DB 561876
[Signature]
 Register

Deed 3 Sub 9
 The above mentioned Deed No. 662770
 is discharged by instrument dated the 27 day
 of Aug., 1963 Registered at 1:32 P.M.,
 the 2 day of April, 1963, as D. B.
 No. 751 P.O.
[Signature]
 Register

The Title of Deed 3, Sub 9
 NOTIFICATION (Tax Recovery Act)
 by Village of Halshirk
 on 20-3-63 Reg'd. 11:43 AM
1-4-63 as No 686 P.O.

THIS CERTIFICATE OF TITLE IS CANCELLED
Deed Lot 3 Sub 9
 under Jan. Transfer
 IN ACCORDANCE WITH THE T. AND P. SUB-
 JECT TO ANY EXCEPTIONS LISTED IN THE U-
 TENSIFIED RECORDS FILED IN THIS OFFICE
 OF TITLE NO. 36 O 214
 ISSUED THIS 4 DAY OF August, 1965
 TO Village of Halshirk
 DB 70578 016
[Signature]
 Register

CANCELLED
61-8-186

LAND TITLES ACT, Sec. 64 - The land mentioned in any certificate of title granted under this Act shall by implication and without any special mention therein be subject to -
(1) Any relative reservations or exceptions including royalties mentioned in the original grant of the land from the Crown;
(2) All unpaid taxes, including taxation and drainage district rates;
(3) Any public highway or right-of-way or other public easement, servitude created upon, over or in respect of the land;
(4) Any subsiding lease or agreement for a lease for a period not exceeding three years, where there is actual occupation of the land under the lease;
(5) Any decrees, orders or executions against or affecting the interest of the owner of the land which have been registered and maintained in force against the owner;
(6) Any right of expropriation which may by statute be vested in any person, body corporate, or Her Majesty;
(7) Any right-of-way or other easement granted or acquired under the provisions of any Act or law in force in the Province.



Issued on instrument registered at 10.47 o'clock
A. M. on the 27 day of APRIL
A.D. 19 61
Number 1177 Book M.G. Folio 37
J. M. THOM
Registrar, N.A.L.R.D.

Certificate of Title

Assoc. Fund Value \$8500.00

Refer Cert. No. 110-X-182

North Alberta Land Registration District.

This is to Certify that HALKIRK COMMUNITY CURLING ASSOCIATION,



is now the owner of an estate in fee simple

of and in LOT TWO (2) IN BLOCK EIGHT (8) IN THE TOWNSITE OF HALKIRK, IN THE PROVINCE OF

ALBERTA, CANADA, AS SHOWN ON SUBDIVISION PLAN 1045 M.C.

(N.E. - 24 - 38 - 16 - W. - 1/4TH.)

RESERVING UNTO HER MAJESTY ALL MINES AND MINERALS.

CANCELLED

THIS CERTIFICATE OF TITLE IS CANCELLED
IN FULL
IN ACCORDANCE WITH THE TRANSFER SUBJECT TO ANY EASEMENTS AND/OR RESERVATIONS THEREIN AND A NEW CERTIFICATE OF TITLE IS BEING ISSUED.
ISSUED THIS 27 DAY OF December 1970
TO Village of Halkirk
DB 5389-5
A.D. REGISTRAR

subject to the encumbrances, liens and interests notified by memorandum underwritten or endorsed hereon, or which may hereafter be made in the register.

In Witness Whereof, I have hereunto subscribed my name and official seal, this TWENTY SEVENTH day of APRIL A.D. 19 61

RBR

J. M. Thom Registrar

P.O. Address HALKIRK, ALBERTA.

North Alberta Land Registration District

OVER

LAND TITLES ACT, Sec. 64 — The land mentioned in any certificate of title granted under this Act shall by implication and without any special mention therein, be subject to—

- Any subsisting reservations or exceptions including royalties contained in the original grant of the land from the Crown;
- All unpaid taxes, including irrigation and drainage district rates;
- Any public highway or right-of-way or other public easement, however created upon, over or in respect of the land;
- Any subsisting lease or agreement for a lease for a period not exceeding three years, where there is actual occupation of the land under the same;
- Any decrees, orders or executions against or affecting the interest in force against the owner;
- Any right of appropriation which may by statute be vested in any person, body corporate, or Her Majesty;
- Any right-of-way or other easement granted or acquired under the provisions of any Act or law in force in the Province.



CANCELLED

Instrument registered at 10.28'clock
 on the 22 day of DEC.
 A.D. 19 70
 Number 538 Book S.J. Folio 17
 E.F. GAMACHE
 Registrar, N.A.L.R.D.

Certificate of Title

Asse. Fund Value \$4,900.00

Refer Cert. No. 61-B-186

North Alberta Land Registration District.

This is to Certify that VILLAGE OF HALKIRK,

IN THE PROVINCE OF ALBERTA, CANADA,

IMPORTANT NOTICE
 It will be to the interest of every Owner and Mortgagee to furnish the Land Titles Office, Edmonton, with his full address (Post Office and street number) or any change in address where notices of dealings with this Title may be sent.

is now the owner of an estate in fee simple

of and in LOT TWO (2) IN BLOCK EIGHT (8) IN THE TOWNSITE OF HALKIRK, AFORESAID, AS

SHOWN ON SUBDIVISION PLAN 1045 M.C.

C.N.E. 24 - 38 - 16 - V 4).

RESERVING UNTO HER MAJESTY ALL MINES AND MINERALS.

TITLE CANCELLED
In full under renewal
 on this 27 day of Dec 19 70
M. Campbell
 A. D. Registrar

subject to the encumbrances, liens and interests notified by memorandum underwritten or endorsed hereon, or which may hereafter be made in the registers

In Witness Whereof *I have hereunto subscribed my name and affixed my official seal this* THENTY SECOND *day of* DECEMBER *A. D.* 19 70

GG

Ed Stephens A.D. Registrar

North Alberta Land Registration District

P.O. Address HALKIRK, ALTA.

OVER

Certificate of Title

Canada
RENEWAL
538 S.J.



NO.	9	-	P	-	2	4	6			
REF.	6	1	-	B	-	1	8	6		
VALUES					4	9	0	0	0	0

M	RG.	TWP.	SEC.	Q.	PT.
1					

PLAN	BLK.	LOT	PT.
1045	M C	8	2

North Alberta Land Registration District

THIS IS TO CERTIFY that VILLAGE OF HALKIRK, IN THE PROVINCE OF ALBERTA

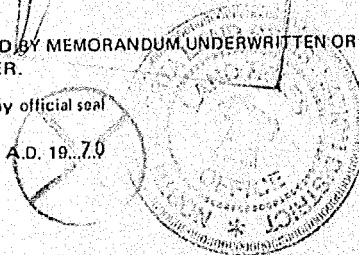
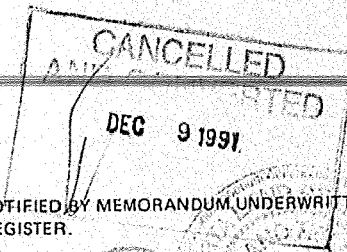
IS now the owner of an estate in fee simple
of and in
LOT TWO (2)
IN BLOCK EIGHT (8)
ON PLAN 1045 M.C.
HALKIRK
(N.E. 24 - 38 - 16 - W.4)

RESERVING UNTO HER MAJESTY ALL MINES AND MINERALS.

SUBJECT TO THE ENCUMBRANCES, LIENS, ESTATES OR INTERESTS NOTIFIED BY MEMORANDUM UNDERWRITTEN OR ENDORSED HEREON, OR WHICH MAY HEREAFTER BE MADE IN THE REGISTER.

IN WITNESS WHEREOF I have hereunto subscribed my name and affixed my official seal
this TWENTY SECOND day of DECEMBER A.D. 1970

Post Office Address HALKIRK, ALTA.



M. Campbell A.D. Registrar

North Alberta Land Registration District

LAND TITLES ACT, Sec. 81.—The land mentioned in any certificate of title granted under this Act shall by implication and without any special mention therein, unless the contrary is expressly declared, be subject to—

- (1) Any subsisting mortgages or encumbrances mentioned in the original grant of the land from the Crown;
- (2) All unpaid taxes, including litigation and drainage district rates;
- (3) Any public highways or rights-of-way or other public easements, however created, open, free or in respect of the land;
- (4) Any subsisting lease or agreement for a lease for a period not exceeding three years, where there is actual occupation of the land under the lease;
- (5) Any decrees, orders or executions applied or affixed to the interest of the owner of the land which have been registered and maintained in force against the grant;
- (6) Any right of superficies which may by statute be vested in any person, body corporate, or the Majesty;
- (7) Any right-of-way or other easement granted or acquired under the provisions of any Act in force in force in the Province.



Issued on instrument registered at 11. 15 '45
 A on the 2 day of MAY
 A.D. 19 45
 Number 1917 Sub. F.U. Fee 60
 A. J. KINNAIRD
 Registrar of A.S. & H.S.

Certificate of Title

Assoc. Fund Value \$325.00 Unearned Inc. Value \$50.00 Refer Cert. No. 201-B-104

North Alberta Land Registration District.

This is to Certify that GEORGE WILLIAM KNIGHT

OF HALKIRK IN THE PROVINCE OF ALBERTA DOMINION OF CANADA. (PARTIAL)



is now the owner of an estate in fee simple

of and in LOT THIRTEEN (13) IN BLOCK TWO (2) IN THE TOWNSITE OF HALKIRK AFORESAID,

OF RECORD IN THE LAND TITLES OFFICE FOR THIS LAND REGISTRATION DISTRICT

AS PLAN 1989 Z.

RESERVING THEREBY ALL MINES AND MINERALS.

CANCELLED
 THIS CERTIFICATE OF TITLE IS CANCELLED
 In full consideration
 IN ACCORDANCE WITH THE TRANSFER SUBJECT TO ANY PROVISIONS OF THE ACT VARIATIONS THEREOF AND A NEW CERTIFICATE OF TITLE NO. 23-24-V-172
 TO L. Arthur Alberta Reg. DE REG. 12
 A.D. REGISTRAR

subject to the encumbrances, liens and interests notified by memorandum underwritten or endorsed hereon, or which may hereafter be made in the register.

In Witness Whereof I have hereunto subscribed my name and affixed my official seal this SECOND day of MAY A.D. 19 45

George A. Anderson Registrar

R.O. Address HALKIRK ALTA.

North Alberta Land Registration District

319 A.B. CAVEAT DATED 31-JAN-10 REG. 1.10 PM. 8-FEB-10 ABOVE AND OTHER LAND

BY GEORGE A. ANDERSON AS TO BLDG. RESTRICTIONS.

A.D. REG.

OVER

The title of within land
 is subject to a MORTGAGE made by
George W. Knight
Travis (son of)
Halbirt, Alberta
 For \$ 5500.00 and
 interest thereon at 6% annum
 Dated the 4 day of Feb 1954
 Registered at 10:14 A.M. the 13 day of
Feb 1954, D. B. No. 392 J.C.
W. D. Stephens
 A. D. Registrar

The above mentioned mortgage No. 392 J.C.
 TRANSFERRED to G. Ernest Michael
son of of Alta
 dated the 8 day of July
 1953 Registered at 10:17 A.M. the 11 day
 of July 1953 as I. R. No. 172 J.K.
W. D. Stephens
 A. D. Registrar

The above mentioned Mortgage No. 373 J.C.
 is discharged by instrument dated the 1 day
 of October 1953 at 10:31 A.M.
 the 31 day of December 1953, as D.B.
 No. 1418 J.K.
W. D. Stephens
 A. D. Registrar

NOTIFICATION (Tax Recovery Act 1938)
 by College of Halbirt
 Dated 10-3-54 Reg'd. 11:36 A.M.
1-4-54 as No. 555 J.P.

The above mentioned Notice No. 555 J.P.
 is discharged by instrument dated the 5 day
 of March 1955 at 11:13 A.M.
 the 31 day of March 1955, as D.B.
 No. 1537 K.A.
W. D. Stephens
 A. D. Registrar

NOTIFICATION (Tax Recovery Act 1938)
 by College of Halbirt
 Dated 1-4-57 as No. 1135 K.O.

LAND TITLES ACT, Sec. 64 - The land mentioned in any certificate of title granted under this Act shall by implication and without any special mention therein, be subject to -

- (1) Any subsiding reservations or exceptions including royalties contained in the original grant of the land from the Crown;
- (2) All unpaid taxes, including bridge and drainage district rates;
- (3) Any public highway or right-of-way or other public easement, however created, upon, over or in respect of the land;
- (4) Any subsiding lease or agreement for a lease for a period not exceeding three years, where there is actual occupation of the land under the lease;
- (5) Any decree, order or execution against or affecting the interest of the owner of the land which have been registered and unaltered in force against the owner;
- (6) Any right of appropriation which may by statute be vested in any person, body corporate, or Her Majesty;
- (7) Any right-of-way or other easement granted or acquired under the provisions of any Act or law in force in the Province.



Found on instrument registered at 11.31.58
 A on the 30 day of DEC.
 A.D. 19 58
 Number 3596 of L.G. File 108
 J.M. THOM
 Registrar, A.L.S.R.S.

Certificate of Title

Assoc. Fund Value \$325.00

Refer Cert. No. 101-V-106

TRANSMISSION

North Alberta Land Registration District.
 This is to Certify that DOROTHY ALBERTA KNIGHT



OF HALKIRK, IN THE PROVINCE OF ALBERTA, DOMINION OF CANADA, (WIDOW)

EXECUTRIX OF THE ESTATE OF GEORGE WILLIAM KNIGHT (DECEASED)

is now the owner of an estate in fee simple

of and in LOT THIRTEEN (13) IN BLOCK TWO (2) IN THE TOWNSITE OF HALKIRK, AFORESAID, AS SHOWN ON SUBDIVISION PLAN 1989 Z.

RESERVING THEREOUT ALL MINES AND MINERALS.

CANCELLED
 THIS CERTIFICATE OF TITLE IS CANCELLED
 in full
 IN ACCORDANCE WITH THE TERMS OF THE
 SUBJECT TO ANY RESERVATIONS OR OTHER
 VARIATIONS THEREIN AS SHOWN ON THE
 OF THE ORIGINAL CERTIFICATE
 ISSUED THIS 9th day of December 1958
 TO Margaret M. Russell
 DB70011-0
 A.L. REGISTRAR

subject to the encumbrances, liens and interests notified by memorandum underwritten or endorsed hereon, or which may hereafter be made in the register.

In Witness Whereof, I have hereunto subscribed my name and affixed my official seal this THIRTIETH day of DECEMBER A.D. 1958

George A. Anderson Registrar

P.O. Address HALKIRK, ALTA.

North Alberta Land Registration District

319 A.B. CAVEAT DATED 31-JAN-10 REG. 1.10 PM 8-FEB-10 ABOVE AND OTHER LAND BY GEORGE A. ANDERSON AS TO B.L.G. RESTRICTIONS. *George A. Anderson*
 4935 K.O. NOTIF. DATED 25-MAR-57 REG. 11.54 AM 1-APR-57 ET VILLAGE OF HALKIRK A.D. REG. (T.R.A.) *George A. Anderson*

OVER

The above mentioned J. K. Stuf No. 4875 K.O.
is discharged by instrument dated the 1 day
of March 1960. Registered at 1:33 P.M.,
the 3 day of March 1960, as D. R.
No. 5939 M.O.
[Signature]
A. J. Registrar

CANCELLED

149-R-179

149

LAND TITLES ACT, Sec. 64 - The land mentioned in any certificate of this kind issued under this Act shall by implication and without any special mention therein, be subject to:-

- (a) Any subsiding restrictions or encumbrances including royalties contained in the original grant of the land from the Crown;
- (b) All unpaid taxes, including irrigation and drainage district rates;
- (c) Any public highway or right-of-way or other public easement, however created upon, over or in respect of the land;
- (d) Any subsiding lease or agreement for a lease for a period not exceeding three years, where there is actual occupation of the land under the lease; Any leases, mortgages or encumbrances against or affecting the interest of the owner of the land which have been registered and subsisted in force against the owner;
- (e) Any right of appropriation which may by statute be vested in any person, body corporate, or the Majesty;
- (f) Any right-of-way or other easement granted or acquired under the provisions of any Act in force in the Province.



Issued on instrument registered at 11.32 o'clock
 A.M. on the 9 day of MARCH
 A.D. 19 60
 Number 7001 Book L.9. folio 217
 J. M. THOM
 Registrar, N.A.L.R.D.

Certificate of Title

Assoc. Fund Value \$900.00

Refer Cert. No. 21-V-172

North Alberta Land Registration District

This is to Certify that MARGARET MARY RENDALL

OF HALKIRK, IN THE PROVINCE OF ALBERTA, DOMINION OF CANADA, (MARRIED WOMAN)

is now the owner of an estate in fee simple

of and in LOT THIRTEEN (13) IN BLOCK TWO (2) IN THE TOWNSITE OF HALKIRK, IN THE SAID

PROVINCE, AS SHOWN ON SUBDIVISION PLAN 1989 Z.

RESERVING THEREOUT ALL MINES AND MINERALS.

TITLE CANCELLED No. _____
 in full Under Renewal
 on this 24th day of May 1978
 R. S. Registrar

subject to the encumbrances, liens and interests notified by memorandum underwritten or endorsed hereon, or which may hereafter be made in the register.

In Witness Whereof I have hereunto subscribed my name and affixed my official seal this NINTH *day of* MARCH *A.D. 19* 60

RSR

Registrar

RD Address HALKIRK, ALBERTA.

North Alberta Land Registration District

319 A.B. CAVEAT DATED 31-JAN-10 REG. 1.10 PM, 8-FEB-10 ABOVE AND OTHER LAND BY GEORGE A. ANDERSON AS TO BLDG. RESTRICTIONS.

OVER

Lot 13, Blk 2

NOTIFICATION (Tax Recovery Act 1939)
 by Village of Halkirk
 Dated 2-3-67 Reg'd 12:48 A.M.
3-4-67 as No. 940RA

The above mentioned J. Natip No. 240RB
 is discharged by instrument dated the 11 day
 of Mar. 1968 Registered at 1:31 P.M.,
 the 14 day of Mar. 1968, as D.B.
 No. 6203R.A.

 Registrar EAR

The title of Lot 13, Blk 2
NOTIFICATION (Tax Recovery Act)
 by Village of Halkirk
 Dated 2-3-74 R. 10:11 A.M.
2-4-74 as No. 1569UR

The above mentioned J. Natip No. 1267UR
 is discharged by instrument dated the 24 day
 of May 1974 R. 11:27 A.M.,
 the 3 day of June 1974, as D. B.
 No. 3338UR
J. A. Knaulis
 A.D. Reg. EAR

MI

LAND TITLES ACT, Sec. 81.—The land mentioned in any certificate of title granted under this Act shall by implication and without any special note be deemed to be the same as is expressly declared, be subject to—

- (a) Any existing mortgages or encumbrances contained in the original grant of the land from the Crown;
- (b) All unpaid taxes, including highway and drainage district rates;
- (c) Any public highway or right-of-way or other public easement, however created, used or in respect of the land;
- (d) Any existing lease or agreement for a lease for a period not exceeding three years, where there is actual occupation of the land under the lease;
- (e) Any existing easement or agreement against or affecting the interest of the owner of the land which have been registered and maintained in force against the owner;
- (f) Any right of pre-emption which may by statute be vested in any person, body corporate, or His Majesty;
- (g) Any right-of-way or other easement created or accepted under the provisions of any Act or law in force in the Province.



Based on instrument registered at 1:58
 P. on the 17 day of OCT.
 A.D. 19 69
 Number 2199 Book H.K. No. 78
 J.M. THOM
 Registrar N.A.L.R.D.

Certificate of Title

Assoc. Fund Value \$25.00 Unearned Inc. Value \$25.00 Refer Cert. No. 113-P-121

North Alberta Land Registration District

This is to Certify that WILFRED GREASEY

OF HALKIRK IN THE PROVINCE OF ALBERTA DOMINION OF CANADA (LUMBER MERCHANT)



is now the owner of an estate in fee simple

of and in LOT FOURTEEN (14) IN BLOCK TWO (2) IN A SUBDIVISION OF THE TOWNSITE

OF HALKIRK AFORESAID, AS SHOWN ON SUBDIVISION PLAN 1989-Z.

RESERVING UNTO HIS MAJESTY ALL MINES AND MINERALS.

CANCELLED

THIS CERTIFICATE OF TITLE IS CANCELLED
 By Bill
 Under trans. transfer
 IN ACCORDANCE WITH THE PROVISIONS SUBJECT TO THE ENCUMBRANCES AND OR RESERVATIONS THEREON IN THE ORIGINAL GRANT OF TITLE NO. 976-0-236
 ISSUED THIS 14 DAY OF May 19 69
 TO Village of Halkirk
 DB. 5107-111-107 AD. REGISTRAR
 Without D.C.T.

subject to the encumbrances, liens and interests notified by memorandum underwritten or endorsed hereon, or which may hereafter be made in the register. 20 OCT 1969

In Witness Whereof I have hereunto subscribed my name and affixed my official seal this SEVENTEENTH day of OCTOBER A.D. 1969

AK

[Signature] Registrar

P.O. Address HALKIRK, ALTA.

North Alberta Land Registration District

319 A.B. CAVEAT DATED 31-JAN-10 REG. 1 10 P.M. 8-FEB-10 ABOVE AND OTHER LAND BY REG. ANDERSON RE. BLDG. RESTRICTIONS.



Within land

NOTIFICATION (Tax Recovery Act 1938)

by *Village of Halkirk*

Dated *15-3-66* Reg'd *12:05* AM-
P.M.

1-4-66 as No. *2936* P.N.

LAND TITLES ACT, Sec. 44 - This land mentioned in any certificate of title granted under this Act shall by implication and unless any special mention therein, be subject to -
 (1) Any existing servitudes or exceptions including registered mortgages;
 (2) Any unpaid taxes, including property and drainage district taxes;
 (3) Any public highway or right-of-way or other public easement, heretofore created upon, over or in respect of the land;
 (4) Any existing lease or agreement for a lease for a period not exceeding three years, where there is actual occupation of the land under the lease;
 (5) Any covenants, orders or easements against or affecting the interests of the owner of the land which have been registered and established in force against the owner;
 (6) Any right of appropriation which may by statute be vested in any person, body corporate, or Her Majesty;
 (7) Any right-of-way or other easement granted or required under the provisions of any Act in force in the Province.

246-0-236



Issued on instrument registered at 3.07 o'clock
 P. m. on the 14 day of MAY
 A.D. 19 69
 Number 5109 Book R.N. folio 159
 L. A. DUHAMEL
 Registrar, N.A.L.D.

Certificate of Title

Assoc. Fund Value TAX FORFEITURE

Refer Court No. 188-N-195
 207-T-143
 101-K-129

North Alberta Land Registration District

This is to Certify that VILLAGE OF HALKIRK

IMPORTANT NOTICE
 It will be to the interest of every Owner and Mortgagee to furnish the Land Titles Office, Edmonton, with his full address (Post Office and Street number) or any change in address where notices of findings with this Title may be sent.

IN THE PROVINCE OF ALBERTA, CANADA.

is now the owner of an estate in fee simple

of and in: FIRSTLY: LOTS FOURTEEN (14) AND FIFTEEN (15) IN BLOCK TWO (2) IN THE

TOWNSITE OF HALKIRK, IN THE SAID PROVINCE, AS SHOWN ON SUBDIVISION PLAN 1989-Z,
 RESERVING UNTO HER MAJESTY ALL MINES AND MINERALS.

SECONDLY: LOTS TEN (10) AND ELEVEN (11) IN BLOCK SEVEN (7) IN THE
 TOWNSITE OF HALKIRK, IN THE SAID PROVINCE, AS SHOWN ON SUBDIVISION PLAN 1989-Z.

RESERVING THEREOUT ALL MINES AND MINERALS.

CANCELLED No. 71215283
 Lot 14 under date transfer
 on this 8 day of June 1977
 A.D. Registrar

TITLE CANCELLED No.
 Lot 15 under name
 on this 8 day of June 1977
 A.D. Registrar

THIS CERTIFICATE OF TITLE IS CANCELLED
 on 10 dates 10 & 11
 Blk 7 under Tax
 Transfer
 IN ACCORDANCE WITH THE TRANSFER SUBJECT TO ANY EXCEPTIONS AND/OR RESERVATIONS THEREIN AND A NEW CERTIFICATE OF TITLE NO. 14 A 267
 ISSUED THIS 24 DAY OF Aug 1973
 TO Lewis Glatney
 DB 5822.T.T.
 A.D. REGISTRAR

subject to the encumbrances, liens and interests notified by memorandums underwritten or endorsed hereon, or which may hereafter be made in the register.

In Witness Whereof I have hereunto subscribed my name and affixed my official seal this FOURTEENTH day of MAY A.D. 19 69 MB

L. A. Duhamel Registrar

P.O. Address HALKIRK, ALTA.

North Alberta Land Registration District

319 A.B. CAVEAT DATED 31-JAN-10 REG. 1.10 PM 8-FEB-10 ABOVE & OTHER LAND BY GEO. ANDERSON RE: BLDG. RESTRICTIONS. (W.R. DAVE A.D. REG.)

OVER

CANCELLED

Certificate of Title

Canada



NO.	7	7	2	1	0	5	2	8	3
REF.	2	4	6	0	2	3	6		
VALUES	N	O	T	E	S	T	A	B	

M.	RG.	TWP.	SEC.	O.	PT.
1					

PLAN	BLK.	LOT	PT.
21989Z	2	14	

North Alberta Land Registration District

THIS IS TO CERTIFY that **ROBERT G. RENDALL**
 OF HALKIRK, IN THE PROVINCE OF ALBERTA

IS now the owner of an estate in fee simple

of and in **PLAN 1989 Z**
IN BLOCK TWO (2)
LOT FOURTEEN (14)
(HALKIRK)

RESERVING UNTO HER MAJESTY ALL MINES AND MINERALS

TITLE CANCELLED No. 842164121
In full to Virginia Duke
 on this 23 day of July 1984
[Signature]
 A. D. Registrar

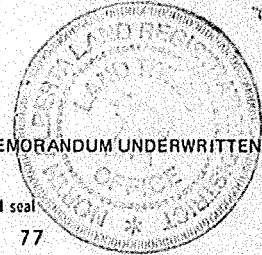
TITLE CANCELLED No. 842164122
In full under consolidation
 on this 23 day of July 1984
[Signature]
 A. D. Registrar

SUBJECT TO THE ENCUMBRANCES, LIENS, ESTATES OR INTERESTS NOTIFIED BY MEMORANDUM UNDERWRITTEN OR ENDORSED HEREON, OR WHICH MAY HEREAFTER BE MADE IN THE REGISTER.

IN WITNESS WHEREOF I have hereunto subscribed my name and affixed my official seal

this 8TH day of JUNE, A.D. 1977

Post Office Address HALKIRK, ALTA.



[Signature] AD Registrar

Canada



Certificate of Title

NUMBER 8 4 2 1 6 4 1 2 2

REFERENCE 8 4 2 1 6 4 1 2 1

CONSIDERATION \$ N I L

EX REF.
#842164120
#772105283
#149-R-179

North Alberta Land Registration District

THIS IS TO CERTIFY that VIRGINIA DUKE OF HALKIRK, ALBERTA
(POSTMISTRESS AND HOUSEWIFE)

is/are now the owner(s) of an estate in fee simple

of and in

PLAN 1989 Z
BLOCK TWO (2)
LOT THIRTEEN (13) AND FOURTEEN (14)
(HALKIRK)

EXCEPTING THEREOUT ALL MINES AND MINERALS

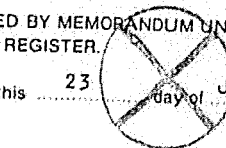
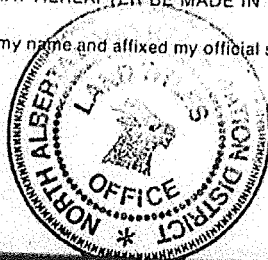
CANCELLED
AND CONVERTED
OCT 10 1997
By.....

SUBJECT TO THE ENCUMBRANCES, LIENS AND INTERESTS NOTIFIED BY MEMORANDUM UNDERWRITTEN OR ENDORSED HEREON, OR WHICH MAY HEREAFTER BE MADE IN THE REGISTER.

In witness whereof I have subscribed my name and affixed my official seal this 23 Day of JULY, 19 84

LJP

A.G. 1825 (Rev. July/83)

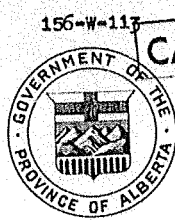


A.D. Registrar

North Alberta Land Registration District

LAND TITLES ACT, Sec. 61—The land mentioned in any certificate of title granted under this Act shall be impugned and without any special mention therein, unless the contrary is expressly declared, be subject to—

- (a) Any subsiding reservations or exceptions contained in the original grant of the land from the Crown;
- (b) All unpaid taxes, including irrigation and drainage district rates;
- (c) Any public highway or right-of-way or other public easement, however created upon, over or in respect of the land;
- (d) Any subsisting lease or agreement for a lease for a period not exceeding three years, where there is actual occupation of the land under the same;
- (e) Any decrees, orders or executions against or affecting the interest of the owner of the land which have been registered and maintained in force against the owner;
- (f) Any right of representation which may by statute be vested in any person, body corporate, or His Majesty;
- (g) Any right-of-way or other easement granted or acquired under the provisions of any Act or law in force in the Province.



156-W-117

CANCELLED

156

Instrument registered at 1.55 a'clock
 P. m. on the 22 day of AUG
 A.D. 19 46
 Number 361 Book G.F. Folio 12
 A.R. KINNAIRD
 Registrar, A.S.L.R.D.

Certificate of Title

Assoc. Fund Value \$1000.00 Unearned Inc. Value \$100.00 Refer Cert. No. 109-G-113

North Alberta Land Registration District.

This is to Certify that ARTHUR OSWALD CAMPION (MERCHANT) AND ELIZABETH ANN CAMPION (HOUSEWIFE) BOTH OF HALKIRK IN THE PROVINCE OF ALBERTA DOMINION OF CANADA.

is now the owner of an estate in fee simple
 of and in LOT TWENTY SEVEN (27) IN BLOCK THREE (3) IN THE TOWNSITE OF HALKIRK AFORESAID, OF RECORD IN THE LAND TITLES OFFICE FOR THIS LAND REGISTRATION DISTRICT AS PLAN 1989-Z.

RESERVING THEREOUT ALL MINES AND MINERALS.

11 CANCELLED No. 762193424
In Full
 on the 2 day of Nov. 19 46
 A.D. Registrar

subject to the encumbrances, liens and interests notified by memorandum underwritten or endorsed hereon, or which may hereafter be made in the register.

In Witness Whereof I have hereunto subscribed my name and affixed my official seal this TWENTY SECOND day of AUGUST A.D. 19 46

AUG 30 1946

P.O. Address HALKIRK, ALTA.

[Signature] Registrar
 North Alberta Land Registration District

319-AB, CAVEAT DATED 31-JAN-10 REG. 1.10 PM 8-FEB-10 ABOVE AND OTHER LAND BY GEO. ANDERSON UNDER BLOG. RESTRICTIONS.

A.D. REG.

OVER

NOTIFICATION (Tax Recovery Act 1938)
by Village of Halkirk
Dated 10-3-54 Rec'd 11 36 A.M.
1-4-54 as No. 5580 J.P.

The above mentioned T. Noty No. 5580 J.P.
is discharged by instrument dated the 25 day
of March 1957. Registered at 11 P.M.,
the 1 day of April 1957, as D. U.
No. 1106 M.O.
[Signature]
Registrar

60727-20K 3
NOTIFICATION (Tax Recovery Act 1938)
by Village of Halkirk
Dated 31-3-57 Rec'd 1:10 P.M.
1-4-57 as No. 1055 M.O.

The above mentioned Noty No. 1055 M.O.
is discharged by instrument dated the 8 day
of June 1960. Registered at 3:32 P.M.,
the 10 day of June 1960, as D.B.
No. 713740
[Signature]
Registrar

Certificate of Title

Canada

EX. REF.

156-W-113



NO.	7	6	2	1	9	3	4	2	5
REF.	7	6	2	1	9	3	4	2	4
M. VALUES					4	0	0	0	0
M.									
RG.									
TWP.									
SEC.									
Q.									
PT.									
PLAN									
BLK.									
LOT									
PT.									

North Alberta Land Registration District

THIS IS TO CERTIFY that ARTHUR OSWALD CAMPION OF HALKIRK, IN THE PROVINCE OF ALBERTA

IS now the owner of an estate in fee simple of and in

LOT TWENTY SEVEN (27)
 IN BLOCK THREE (3)
 ON PLAN 1989 Z.
 HALKIRK

RESERVING THEREOUT ALL MINES AND MINERALS.

TITLE CANCELLED	No. 782207736
IN FULL	
on this	13 day of SEPT 1978
<i>[Signature]</i> A. D. Registrar	



SUBJECT TO THE ENCUMBRANCES, LIENS, ESTATES OR INTERESTS NOTIFIED BY MEMORANDUM UNDERWRITTEN OR ENDORSED HEREON, OR WHICH MAY HEREAFTER BE MADE IN THE REGISTER.

IN WITNESS WHEREOF I have hereunto subscribed my name and affixed my official seal

this 2ND day of NOVEMBER, A.D. 1976

Post Office Address HALKIRK, ALTA.

[Signature] Registrar

VD North Alberta Land Registration District

CANCELLED

Canada

Certificate of Title



NO.	7	8	2	2	0	7	7	3	6
REF.	7	6	2	1	9	3	4	2	5
VALUES					4	0	0	0	0

M	FIG.	TWP.	SEC.	Q.	PT.
1					

PLAN	BLK.	LOT	PT.
21989Z		3	27

North Alberta Land Registration District

THIS IS TO CERTIFY that EARL ROGER SPADY (BARRISTER AND SOLICITOR) AND WILLIAM EVAN CAMPION (ASSISTANT DEPUTY REGISTRAR) BOTH OF EDMONTON, IN THE PROVINCE OF ALBERTA, EXECUTORS OF THE ESTATE OF ARTHUR OSWALD CAMPION (DECEASED)

ARE now the owner S of an estate in fee simple

of and in

PLAN 1989 Z.
 BLOCK THREE (3)
 LOT TWENTY SEVEN (27)
 HALKIRK

EXCEPTING THEREOUT ALL MINES AND MINERALS.

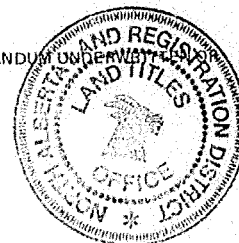
TITLE CANCELLED No. 812168428
in full
 on this 15 day of July 1981
M. Johnson
 A. D. Registrar

SUBJECT TO THE ENCUMBRANCES, LIENS, ESTATES OR INTERESTS NOTIFIED BY MEMORANDUM ENDORSED HEREON, OR WHICH MAY HEREAFTER BE MADE IN THE REGISTER.

IN WITNESS WHEREOF I have hereunto subscribed my name and affixed my official seal

this 13TH day of SEPTEMBER, A.D. 1978

Post Office Address C/O 9TH FLOOR 10040 - 104 STREET
 EDMONTON, ALTA.



Slip A. D. Registrar

ABBREVIATIONS

E - Easement
 C - Caveat
 Tr - Transmission
 Tr - Transfer
 Mtge - Mortgage

URW - Utility Right of Way
 BL - Builders Lien
 TN - Tax Notification
 WE - Writ of Execution
 C.C. - Covenants and Conditions
 ENCUM - Encumbrance

TITLE NO. **7 8 2 2 0 7 7 3 6**

Certificate of Title

CANCELLED

Show Other Abbreviations Here

NAME EARL R. SPADY ET AL (EXECUTOR)

LAND PLAN 1989 Z. BLK. 3 LOT 27

CHARGES, LIENS AND INTERESTS.

Nature of Instrument	Registration Number	Date of Registration DY MO YR	Amount \$	PARTICULARS	Signature of Registrar	Discharges and Withdrawals		
						Registration Number	Date of Registration DY MO YR	Signature of Registrar
C	319 AB	8 2 10		BY GEO. ANDERSON UNDER BLDG. RESTRICTIONS	<i>[Signature]</i>			

CANCELLED

101-754



Amount on instrument registered at _____
 on the _____ day of _____
 1922.
 Number _____
 Registrar, N.S.A.

Certificate of Title

Asses. Fund Value. \$ 20,000

Reyer Cert. No. 113-48

Unclassified Inc. Value \$ 800

North Alberta Land Registration District

This is to Certify that Globe Realty Corporation
Limited

A Body Corporate

is now the owner of an estate in fee simple

of and in Lot One (1) and Two (2) Block Three (3) in the Township of

Halkirk in the Province of Alberta Dominion of Canada of record

in the Land Titles Office for this Land Registration District as Plan 1489 Z.

Reserving unto His Majesty all Mines and Minerals

LAND TITLES ACT, 1906, s. 41.—The land mentioned in any certificate of title granted hereunder shall be impounded and without any
 (1) Any mortgage or other instrument registered in the office of the Registrar shall be subject to—
 (2) Any mortgage or other instrument registered in the office of the Registrar shall be subject to—
 (3) Any mortgage or other instrument registered in the office of the Registrar shall be subject to—
 (4) Any mortgage or other instrument registered in the office of the Registrar shall be subject to—
 (5) Any mortgage or other instrument registered in the office of the Registrar shall be subject to—
 (6) Any mortgage or other instrument registered in the office of the Registrar shall be subject to—
 (7) Any mortgage or other instrument registered in the office of the Registrar shall be subject to—
 (8) Any mortgage or other instrument registered in the office of the Registrar shall be subject to—
 (9) Any mortgage or other instrument registered in the office of the Registrar shall be subject to—
 (10) Any mortgage or other instrument registered in the office of the Registrar shall be subject to—

TITLE CANCELLED 77212754
M. Field
 on the 7 day of July 1922
A. D. Ferguson

subject to the encumbrances, liens and interests notified by memorandum underwritten or endorsed hereon, or which may hereafter be made in the register.

In Witness Whereof I have hereunto subscribed my name and affixed my official seal this Twenty fifth day of April A.D. 1922

W. Keane Registrar,

OVER

P.O. Address: Montreal, Quebec

North Alberta Land Registration District

The title of Albert Land
 is subject to a CAVEAT filed by Geo. Anderson
Registrar, under Reg. 104, section 10
 dated the 21 day of Jan 1922
 Registered at 1:20 P.M., the 3 day of Feb 1922
W. Keane
 Registrar.

The title of Albert Land
 is subject to a MORTGAGE made by Globe Realty
Corp Ltd to Montreal Trust
 of 100 for \$ 17,500 and
 interest thereon at 6 per annum. Dated the
1 day of June 1922
 registered at 1:24 P.M., the 8 day of June 1922 as D. & No. 153466
W. Keane
 Registrar.

The title of Albert Land
 is subject to a MORTGAGE made by Globe Realty
Corp Ltd to Montreal Trust
 of 100 for \$ 5,500 and
 interest thereon at 6 per annum. Dated the
27 day of June 1922
 Registered at 1:24 P.M., the 8 day of June 1922
W. Keane
 Registrar.

The title of William J. The Land
 is subject to a MORTGAGE made by Clodie
Castle to Montreal Trust Co
 of for \$ 100,000 and
 interest thereon at 5 1/2 per cent. Dated the
5 day of April 1926.
 Registered at 24 M. on the 19 day of
April 1926 as U. S. No. 585981
R. M. Lee
 Registrar.

DISCHARGE Reg. No. 752173815
 on this 28 day of May 1926
 of Consent # 528 J.F.
R. M. Lee
 A. D. Registrar

The title of Richard J. The Land
 is subject to a CAVEAT filed by Richard J.
Richard J. dated the 27 day of April 1926.
 Registered at 11 A. M. on the 19 day of
April 1926 as U. S. No. 585981
W. (Lee)
 Registrar.

DISCHARGE Reg. No. 752173816
 on this 28 day of May 1926
 of Consent # 843 F.G.
R. M. Lee
 A. D. Registrar

The above mentioned Richard J. The Land
 is subject to a MORTGAGE made by Richard J.
Richard J. dated the 27 day of April 1926.
 Registered at 11 A. M. on the 19 day of
April 1926 as U. S. No. 585981
W. (Lee)
 Registrar.

DISCHARGE Reg. No. 752173817
 on this 28 day of May 1926
 of Consent # 804 V.
R. M. Lee
 A. D. Registrar

The above mentioned Richard J. The Land
 is subject to a MORTGAGE made by Richard J.
Richard J. dated the 27 day of April 1926.
 Registered at 11 A. M. on the 19 day of
April 1926 as U. S. No. 585981
W. (Lee)
 Registrar.

The above mentioned Richard J. The Land
 is subject to a MORTGAGE made by Richard J.
Richard J. dated the 27 day of April 1926.
 Registered at 11 A. M. on the 19 day of
April 1926 as U. S. No. 585981
W. (Lee)
 Registrar.

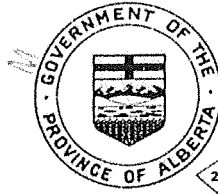
The title of William J. The Land
 is subject to a CAVEAT filed by Richard J.
Richard J. dated the 28 day of April 1926.
 Registered at 11 A. M. on the 19 day of
April 1926 as U. S. No. 585981
W. (Lee)
 Registrar.

The title of William J. The Land
 is subject to a CAVEAT filed by Richard J.
Richard J. dated the 10 day of April 1926.
 Registered at 10 A. M. on the 26 day of
April 1926 as U. S. No. 52877 F
W. (Lee)
 A. D. Registrar.

3

Certificate of Title

Canada



NO.	7	7	2	1	2	7	5	7	4
REF.	1	0	1	-	7	-	5	4	
VALUES	1	2	9	7	8	0	0		

M.	RG.	TWP.	SEC.	Q.	PT.
1					

PLAN	BLK.	LOT	PT.
1989	Z	3	1+

North Alberta Land Registration District

THIS IS TO CERTIFY that VILLAGE OF HALKIRK, A MUNICIPAL CORPORATION IN THE PROVINCE OF ALBERTA

IS now the owner of an estate in fee simple of and in

PLAN 1989 Z.
 BLOCK THREE (3)
 LOTS ONE (1) AND TWO (2)
 HALKIRK

RESERVING UNTO HER MAJESTY ALL MINES AND MINERALS.

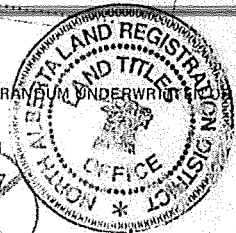
CANCELLED
 AND CONVERTED
 OCT 10 1991

SUBJECT TO THE ENCUMBRANCES, LIENS, ESTATES OR INTERESTS NOTIFIED BY MEMORANDUM UNDERWRITING ENDORSED HEREON, OR WHICH MAY HEREAFTER BE MADE IN THE REGISTER.

IN WITNESS WHEREOF I have hereunto subscribed my name and affixed my official seal

this 7TH day of JULY A.D. 1977

Post Office Address HALKIRK, ALBERTA



[Signature] AD Registrar

A.G. 699 V. 1233
 REV. 7/76

North Alberta Land Registration District

L G

Certificate of Title

NAME .. VILLAGE OF HALKIRK
 LAND .. PLAN 1989 Z. BLK 3 LOT 1 +
CHARGES, LIENS AND INTERESTS.

Show Other Abbreviations Here
REGISTERED AND UNREGISTERED
 OCT 11 1989

ABBREVIATIONS
 E - Easement URW - Utility Right of Way
 C - Caveat BL - Builder Lien
 Tr - Transmission TN - Tax Notification
 Tf - Transfer WE - Writ of Execution
 Mge - Mortgage GC - Covenants and Conditions
 ENCUM - Encumbrance

TITLE NO. 7 7 2 1 2 7 5 7 4

Nature of Instrument	Registration Number	Date of Registration		Amount \$	PARTICULARS	Signature of Registrar	Discharges and Withdrawals		Signature of Registrar
		DAY	MO. YR				DAY	MO. YR	
C.	319 A.B.	3	2-10		(RE: BUILDING RESTRICTIONS) BY GEO ANDERSON	/			
C.	772127575	7	7-77		(RE: RESTRICTIVE COVENANT) BY GLOBE REALTY CORPORATION LIMITED.	A/S			

CANCELLED
38-E-124

38

LAND TITLES ACT, Sec. 61.—The land mentioned in any certificate of title granted under this Act shall by implication and without any special mention therein, unless the contrary is expressly declared by the subject to—

- (a) Any existing reservations or exceptions contained in the original grant of the land from the Crown;
- (b) All unpaid taxes, including inheritance and probate duties, rates, and other public charges, or any or all of them;
- (c) Any public highway or right-of-way or other public easement, however created upon, over or in respect of the land;
- (d) Any existing lease or agreement for a lease for a period not exceeding three years, where there is actual occupation of the land under the same;
- (e) Any decree, order or condition against or affecting the interest of the owner of the land which have been registered and maintained in force against the owner;
- (f) Any field of appropriation which may by statute be vested in any person, body corporate, or His Majesty;
- (g) Any right-of-way or other easement granted or acquired under the provisions of any Act or law in force in the Province.



Issued in instrument registered at 2.58 a'clock
P on the 10 day of SEPT
A.D. 1945
Number 2371 Dist. H.E. File 74
J.M. THOM
Registrar, S. A. L. R. D.

Certificate of Title.

Assee. Fund Value \$475.00 Unearned Inc. Value \$25.00 Refer Cert. No. 107-D-98

North Alberta Land Registration District

This is to Certify that FRANK ARTHUR TYDEMAN



OF HALKIRK IN THE PROVINCE OF ALBERTA, DOMINION OF CANADA. (BLACKSMITH)

is now the owner of an estate in fee simple

of and in LOT ELEVEN (11) IN BLOCK THREE (3) IN THE TOWNSITE OF HALKIRK

AFORESAID OF RECORD IN THE LAND TITLES OFFICE FOR THIS LAND REGISTRATION DISTRICT

AS PLAN 1989 Z:

RESERVING THEREOUT ALL MINES AND MINERALS,

CANCELLED

THIS CERTIFICATE OF TITLE IS CANCELLED
In Trust
IN ACCORDANCE WITH THE TRANSFER SUBJECT TO ANY EXCEPTIONS AND/OR RESERVATIONS THEREIN AND A NEW CERTIFICATE OF TITLE NO. 104 M-168 ISSUED THIS 29 DAY OF Aug 1945
TO J. Adams, R. G. G. Smith
BY H. B. D. K. L. Z. G. M. L. S.
AD PROPR. 89

subject to the encumbrances, liens and interests notified by memorandum, written or endorsed hereon, or which may hereafter be made in the register.

In Witness Whereof I have hereunto subscribed my name and affixed my official seal this TENTH day of SEPTEMBER A.D. 19 45

SEP 10 1945

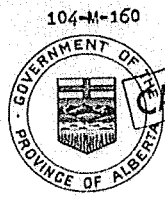
DVK

P.O. Address HALKIRK, ALTA.

J. M. Thom Registrar
North Alberta Land Registration District

LAND TITLES ACT, Sec. 61.—The land mentioned in any certificate of title granted under this Act shall by implication and without any special mention therein, be subject to—

- (a) Any subsisting reservations or exceptions including royalties contained in the original grant of the land from the Crown;
- (b) All unpaid taxes, including irrigation and drainage district rates;
- (c) Any public highway or right-of-way or other public easement, however created upon, over or in respect of the land;
- (d) Any subsisting lease or agreement for a lease for a period not exceeding three years, where there is actual occupation of the land under the same;
- (e) Any decree, order or execution against or affecting the interest of the owner of the land which has been registered and maintained in force against the owner;
- (f) Any right of expropriation which may by statute be vested in any person, body corporate, or Her Majesty;
- (g) Any right-of-way or other easement granted or acquired under the provisions of any Act or law in force in the Province.



Found an instrument registered at 11.32 a'clock
 on the 29 day of AUG.
 A.D. 19 56
 Number 1430 Book KL Folio 44
 J.M. THOM
 Registrar N.A.L.R.D.

Certificate of Title

Assce. Fund Value \$300.00

Refer Cert. No. 38-E-124

North Alberta Land Registration District.

This is to Certify that JOHN PATRICK EMMETT
 OF HALKIRK IN THE PROVINCE OF ALBERTA, DOMINION OF CANADA, (FARMER).

is now the owner of an estate in fee simple
 of and in LOT ELEVEN (11) IN BLOCK THREE (3) IN THE TOWNSITE OF HALKIRK
 AFORESAID AS SHOWN ON SUBDIVISION PLAN 1989-Z.

RESERVING THEREOUT ALL MINES AND MINERALS.

DEED No. 762088661
 IN FULL
 on this 25 day of MAY 19 76
 A.D. Registrar GB

subject to the encumbrances, liens and interests notified by memorandum underwritten or endorsed hereon, or which may hereafter be made in the register.

In Witness Whereof I have hereunto subscribed my name and affixed my official seal this TWENTY NINTH day of AUGUST A.D. 19 56

GGC

J. M. Thom Registrar
 North Alberta Land Registration District

P.O. Address HALKIRK, ALTA.

OVER

CANCELLED

Certificate of Title

Canada

EX. REF: 104-M-160



NO.	7	6	2	0	8	8	6	6	2
REF.	7	6	2	0	8	8	6	6	1
VALUES					2	0	0	0	0

M	RG.	TWP.	SEC.	Q.	PT.
1					

PLAN	BLK.	LOT	PT.
1989Z		3	11


North Alberta Land Registration District

THIS IS TO CERTIFY that HAROLD G. CHICK,
OF HALKIRK, IN THE PROVINCE OF ALBERTA.

now the owner of an estate in fee simple

of and in
LOT ELEVEN (11)
IN BLOCK THREE (3)
ON PLAN 1989 Z.
(HALKIRK)

EXCEPTING THEREOUT ALL MINES AND MINERALS.

TITLE CANCELLED No 772001874
 in full
 on this 5 day of January 1977

 A.D. Registrar


SUBJECT TO THE ENCUMBRANCES, LIENS, ESTATES OR INTERESTS NOTIFIED BY MEMORANDUM WRITTEN OR ENDORSED HEREON, OR WHICH MAY HEREAFTER BE MADE IN THE REGISTER.

IN WITNESS WHEREOF I have hereunto subscribed my name and affixed my official seal

this 25 day of MAY, A.D. 1977

Post Office Address HALKIRK, ALTA.

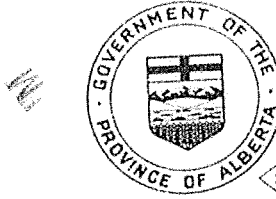



A.D. Registrar
North Alberta Land Registration District

CANCELLED

Certificate of Title

Canada



NO.	7	7	2	0	0	1	8	7	4
REF.	7	6	2	0	8	6	6	2	
VALUES			1	8	0	0	0	0	0

M	RG.	TWP.	SEC.	O.	PT.
1					

PLAN	BLK.	LOT	PT.
1989Z	3	11	

North Alberta Land Registration District

THIS IS TO CERTIFY that RANDY JAMES DUNCAN AND JOCELYNE MARIE DUNCAN (HIS WIFE)
 BOTH OF GADSBY, IN THE PROVINCE OF ALBERTA
 ARE now the owner^S of an estate in fee simple AS JOINT TENANTS
 of and in

LOT ELEVEN (11)
 IN BLOCK THREE (3)
 ON PLAN 1989 Z.
 (HALKIRK)

EXCEPTING THEREOUT ALL MINES AND MINERALS

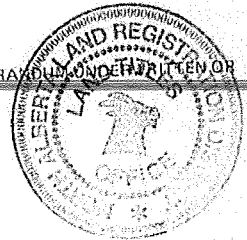
TITLE CANCELLED 792232145
 In \$100
 on this 24 day of Sept 1979
 L.D. A. D. Registrar

SUBJECT TO THE ENCUMBRANCES, LIENS, ESTATES OR INTERESTS NOTIFIED BY MEMORANDUMS ON FILE WRITTEN OR ENDORSED HEREON, OR WHICH MAY HEREAFTER BE MADE IN THE REGISTER.

IN WITNESS WHEREOF I have hereunto subscribed my name and affixed my official seal

this 5 day of JANUARY, A.D. 1977

Post Office Address GADSBY, ALTA.



[Signature] AD Registrar

North Alberta Land Registration District

NT

CANCELLED
Certificate of Title

Canada



NO.	7	9	2	2	3	2	1	4	5
REF.	7	7	2	0	0	1	8	7	4
VALUE \$			1	4	0	0	0	0	0

M.	RG.	TWP.	SEC.	O.	PT.
1					

PLAN	BLK.	LOT	PT.
1989Z		3	11

North Alberta Land Registration District

THIS IS TO CERTIFY that TONI MARIE HAZEN OF EDMONTON, IN THE PROVINCE OF ALBERTA,
(HEAD TELLER)

IS now the owner of an estate in fee simple

of and in

PLAN 1989 Z.

BLOCK THREE (3)

LOT ELEVEN (11)

(CHALKIRK)

EXCEPTING THEREOUT ALL MINES AND MINERALS.

DATE CANCELLED No. 812098996
in full
 on this 1 day of May 19 81
Umachillap
 A.D. Registrar

SUBJECT TO THE ENCUMBRANCES, LIENS, ESTATES OR INTERESTS NOTIFIED BY MEMORANDUM UNDERWRITEN OR ENDORSED HEREON, OR WHICH MAY HEREAFTER BE MADE IN THE REGISTER.

IN WITNESS WHEREOF I have hereunto subscribed my name and affixed my official seal

this 24 day of SEPTEMBER, A.D. 1979.

Post Office Address BOX 307 ALBERTA HOSPITAL

EDMONTON, ALBERTA



[Signature]
A.D. Registrar

North Alberta Land Registration District

CANCELLED

Certificate of Title

Canada



NO.	8	1	2	0	9	8	9	9	6
REF.	7	9	2	2	3	2	1	4	5
VALUES	1	8	0	0	0	0	0	0	0

M.	RG.	TWP.	SEC.	Q.	PT.
1					

PLAN	BLK	LOT	PT.
2	1989Z	3	11

North Alberta Land Registration District

THIS IS TO CERTIFY that JOHN FARNALLS (RETIRED) AND RUTH M. FARNALLS (HIS WIFE)
BOTH OF HALKIRK, IN THE PROVINCE OF ALBERTA.

ARE now the owner^S of an estate in fee simple AS JOINT TENANTS.

of and in

PLAN 1989 Z,
BLOCK THREE (3)
LOT ELEVEN (11)
(HALKIRK)

EXCEPTING THEREOUT ALL MINES AND MINERALS,

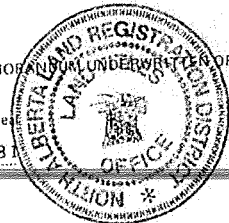
TITLE CANCELLED	No. 850096735
<i>Ruth Farnalls</i>	
on this	6 day of May 1988
<i>J.S.</i> A.D. Registrar	

SUBJECT TO THE ENCUMBRANCES, LIENS, ESTATES OR INTERESTS NOTIFIED BY MEMORANDUM UNDERWRITTEN OR ENDORSED HEREON, OR WHICH MAY HEREAFTER BE MADE IN THE REGISTER.

IN WITNESS WHEREOF I have hereunto subscribed my name and affixed my official seal

this 1 day of MAY, A.D. 1988

Post Office Address BOX 116,
HALKIRK, ALTA



Umanica Registrar
North Alberta Land Registration District



Certificate of Title

NUMBER 8 8 2 0 9 6 7 3 5
REFERENCE 8 1 2 0 9 8 9 9 6
CONSIDERATION TRANSMISSION

North Alberta Land Registration District

THIS IS TO CERTIFY that RUTH M. FARNALLS C/O PUBLIC TRUSTEE, 4TH FLR. 10365 -
97 STREET, EDMONTON, ALBERTA T5J 3Z8.

is/are now the owner(s) of an estate in fee simple

of and in

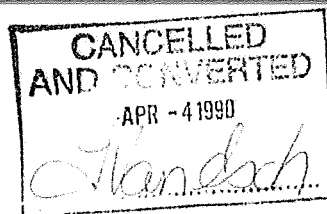
PLAN 1989 Z.

BLOCK THREE (3)

LOT ELEVEN (11)

(HALKIRK)

EXCEPTING THEREOUT ALL MINES AND MINERALS.



SUBJECT TO THE ENCUMBRANCES, LIENS AND INTERESTS NOTIFIED BY MEMORANDUM UNDER-
WRITTEN OR ENDORSED HEREON, OR WHICH MAY HEREAFTER BE MADE IN THE REGISTER.

In witness whereof I have subscribed my name and affixed my official seal this

6 day of MAY 19 88

MS

A.D. Registrar

North Alberta Land Registration District



44 B32



Certificate of Title.

I Certify that the within Instrument is duly Entered and Registered in the Land Titles Office for the North Alberta Land-Registration District at _____ with the Province of Alberta, at _____ on the _____ day of _____ A. D. 1947
 Number 33814 Book _____ Folio 108
 W. L. Boone Registrar A.L.R.D.

LAND TITLES ACT, Sec. 45.—The land mentioned in any certificate of title, granted under this Act, shall be implied and without any special mention therein, unless the contrary is expressly declared, be subject to:
 (1) All unpaid taxes;
 (2) Any public highway or right-of-way or other public easement, however created upon, over or in respect of the land;
 (3) Any subsisting lease or agreement for a lease for a period not exceeding three years, where there is actual possession of the land by the tenant;
 (4) Any decree, order or execution against or affecting the interest of the owner of the land which have been registered and maintained in force against the owner;
 (5) Any right-of-way or other easement which may by statute or ordinance be vested in any person, body corporate, or other person;
 (6) Any right-of-way or other easement granted or acquired under the provisions of any Act or law in force in the Province.

Refer Book No. 200 E. 22

Last Value North Alberta Land Registration District
Assurance Value \$675.00
Unearned Debit \$325.00



This is to Certify that the Crown Lumber Company Limited of Calgary in the Province of Alberta Dominion of Canada is now the owner of an estate in fee simple of and in Lots numbered Twelve (12) and Thirteen (13) in Block numbered Three (3) in the "Townsite of Halkirk" in the said Province of record in the Land Titles Office for this Land Registration District as Plan 1989 Z. Excepting thereout all mines and minerals.

CANCELLED

THIS CERTIFICATE OF TITLE IS CANCELLED
 Lots 12 & 13 Block 3
 under the Transfer of Fee
 IN ACCORDANCE WITH THE PROVISIONS OF THE
 SUBJECT TO THE PROVISIONS OF THE REGISTRATION ACT
 VARIOUS INSTRUMENTS AND A NEW CERTIFICATE
 OF TITLE D. 4224
 ISSUED THIS 9 DAY OF March 19 47
 TO William J. Halkirk
 DB. 4224 of _____
 A.D. REGISTRAR

This Certificate of Title is cancelled
 and a NEW CERTIFICATE OF TITLE No. _____
 Issued this _____ day of _____ 19 _____
 to _____
 D.O. No. _____
 Registrar

subject to the encumbrances, liens and interests notified by memorandum underwritten or endorsed hereon, or which may hereafter be made in the register.

In Witness Whereof I have hereunto subscribed my name and affixed my official seal this Second day of April A.D. 1947
 W. L. Boone Registrar
 P.O. Address Calgary Alta. NORTH ALBERTA Land Registration District

APR 2 1947

NOTIFICATION (Tax Recovery Act 1929)
 by William J. Halkirk
 Dated 28/3/47 Reg'd 12/4/47
1/4/47 3345 E

This Certificate of Title is cancelled as to
Lot 13 Block 3
 and a NEW CERTIFICATE OF TITLE No. 185-6-116
 Issued this 4 day of Feb 1947
 to Wilfred Cressy
 D.O. No. 5-161-6F
Tom Barclay
 Registrar

OVER

The above mentioned *Notice* No. *3345ES*
is directed by law to be served on the *17* day
of *April* 1961 at *1:30* P.M.,
the *18* day of *April* 1961, as D.B.
No. *4734NA*
[Signature]
A.B. Registrar *87*

within land

NOTIFICATION (Tax Recovery Act 1938)
by *Village of Halkirk*
Dated *29-3-61* at *1:33* P.M.
18-4-61 as No. *4735NA*

LAND TITLES ACT, Sec. 64—The land mentioned in any certificate of title granted under this Act shall by legislation and without any special mention therein be subject to—

- (1) Any subsiding mortgages or encumbrances including royalties mentioned in the original grant of the land from the Crown;
- (2) All unpaid taxes, including bridge and driving (local rates);
- (3) Any public highway or right-of-way or other public easement, however created upon, over or in respect of the land;
- (4) Any subsiding lease or agreement for a lease for a period not exceeding three years, where there is actual occupation of the land under the lease;
- (5) Any decrees, orders or judgments relating to affecting the interest of the owner of the land which have been registered and maintained in force against the owner;
- (6) Any right of expropriation which may by statute be vested in any person, body corporate, or Her Majesty;
- (7) Any right-of-way or other easement granted or acquired under the provisions of any Act or law in force in the Province.



Issued on instrument registered at 2.05 o'clock 64

P. m. on the 6 day of MAR.

A.D. 19 65

Number 4332 Book O.A. Folio 133

L.A. DUHAMEL
Registrar, N.A.L.R.D.

Certificate of Title

CANCELLED

Assee Fund Value _____

Refer Cert. No. ²¹⁷⁻¹⁻³⁹ 44-6-32

North Alberta Land Registration District.

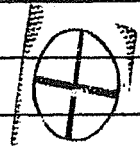
10 MAR 1965

This is to Certify that _____

VILLAGE OF HALKIRK

IN THE PROVINCE OF ALBERTA, CANADA.

is now the owner of an estate in fee simple



of and in FIRSTLY, - LOT TWELVE (12) IN BLOCK THREE (3) IN THE TOWNSITE OF HALKIRK, IN THE

SAID PROVINCE, AS SHOWN ON SUBDIVISION PLAN 1909 Z.

(PT. N.E. -24-38-16-W.4TH)

RESERVING THEREOUT ALL MINES AND MINERALS.

SECONDLY, - LOT TWENTY TWO (22) IN BLOCK FOUR (4) IN THE TOWNSITE OF HALKIRK, IN THE

SAID PROVINCE, AS SHOWN ON SUBDIVISION PLAN 1909 Z.

(PT. N.E. -24-38-16-W.4TH)

RESERVING UNTO HER MAJESTY ALL MINES AND MINERALS.

THIS CERTIFICATE OF TITLE IS CANCELLED
As to lot 12, 2143 under
Tax Transfer and in full!

IN ACCORDANCE WITH THE TRANSFER OF
PROPERTY ACT IN PROVISIONS 40(1) &
40(2) OF THE ALBERTA STATUTES
DATE OF CANCELLATION 196-1-290

ISSUED THIS 12 DAY OF MAR 1965
TO Donald Engler et al.
DOB 3214 VB
AD REGISTRAR

subject to the encumbrances, liens and interests notified by memorandum underwritten or endorsed hereon, or which may hereafter be made in the register

In Witness Whereof I have hereunto subscribed my name and affixed my

official seal this EIGHTH *day of* MARCH *A.D. 19* 65

Donald Engler Registrar

P.O. Address HALKIRK, ALTA.

North Alberta Land Registration District

OVER

THIS CERTIFICATE OF TITLE IS CANCELLED

No to Reg 22, Bch 4
Under New Transfer

IN ACCORDANCE WITH THE TRANSFER SUBJECT TO ANY EXCEPTIONS AND/OR RESERVATIONS THEREIN AND A NEW CERTIFICATE

OF TITLE NO. *225 D 280*

ISSUED THIS *31* DAY OF *Oct.*, 19 *74*

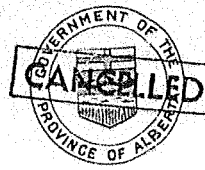
TO *Donald Robinson, et al*

DB *2839 V.A.*

[Signature]
A.D. REGISTRAR

LAND TITLES ACT, Sec. 64 — The land mentioned in any certificate of title granted under this Act shall by implication and without any special mention therein, be subject to —

- Any subsisting reservations or exceptions including royalties contained in the original grant of the land from the Crown;
- All unpaid taxes including irrigation and drainage district rates;
- Any public highway or right-of-way or other public easement, however created, upon, over or in respect of the land;
- Any subsisting lease or agreement for a lease for a period not exceeding three years, where there is actual occupation of the land under the same;
- Any decrees, orders or executions against or affecting the interest of the grantee of the land which have been registered and maintained in force against the owner;
- Any right of espropriation which may by statute be vested in any person, body corporate, or Her Majesty;
- Any right-of-way or other easement granted or acquired under the provisions of any Act or law in force in the Province.



Issued on instrument registered at 1,50 o'clock
 P. on the 12 day of NOV.
 A.D. 19 74
 Number 3210 Book V.8. Folio 101
 E.F. GAMACHE
 Registrar, N.A.L.R.D.

Certificate of Title

Refer Cert. No. 64-0-211

Asso. Fund Value _____

North Alberta Land Registration District.

NOV 21 1974

This is to Certify that DONALD ENGLER,

AND TERESA M. ENGLER, BOTH OF CASTOR, IN THE PROVINCE OF ALBERTA, CANADA.

IMPORTANT NOTICE
 It will be to the interest of every Owner and Mortgagee to furnish the Land Titles Office, Edmonton, with his full address (Post Office and Street numbers) or any change in address where Notices of dealings with this Title may be sent.

is now the owner of an estate in fee simple AS JOINT TENANTS.

of and in LOT TWELVE (12) IN BLOCK THREE (3) ON PLAN 1089 Z. (CHALKIRK) (N.E. 24-38-16-W4).

EXCEPTING THEREOUT ALL MINES AND MINERALS.

TITLE CANCELLED No. 762043166
 IN FULL
 on this 15TH day of MARCH 19 76
R. H. Schuchman
 A.D. Registrar

subject to the encumbrances, liens and interests notified by memorandum underwritten or endorsed hereon, or which may hereafter be made in the register.

In Witness Whereof I have hereunto subscribed my name and affixed my official seal this TWELFTH day of NOVEMBER A.D. 19 74

W. H. Sandford AD Registrar GB

P.O. Address CASTOR, ALTA.

North Alberta Land Registration District

OVER

CANCELLED

Certificate of Title

Canada



NO.	7	6	2	0	4	3	1	6	6
REF.	1	4	5	L	2	8	0		
VALUE \$					3	2	5	0	0

M	REG.	TWP.	SEC.	Q.	PT.
1					

PLAN	BLK.	LOT	PT.
1989Z	3	12	

North Alberta Land Registration District

THIS IS TO CERTIFY that DAVID E. STEVENS (CAB DRIVER) AND SHIRLEY P. STEVENS (HOUSEWIFE) BOTH OF CALGARY, IN THE PROVINCE OF ALBERTA

the owner of an estate in fee simple AS JOINT TENANTS of and LOT TWELVE (12) IN BLOCK THREE (3) ON PLAN 1989 Z. (HALKIRK) (N.E. 24-38-16-W.4TH)

EXCEPTING THEREOUT ALL MINES AND MINERALS.

TITLE CANCELLED No 772170635 IN FULL on this 2 day of SEPT 1977 [Signature] A.D. Registrar

SUBJECT TO THE ENCUMBRANCES, LIENS, ESTATES OR INTERESTS NOTIFIED BY MEMORANDUM... OR ENDORSED HEREON, OR WHICH MAY HEREAFTER BE MADE IN THE REGISTER.

IN WITNESS WHEREOF I have hereunto subscribed my name and affixed my official seal

this 15TH day of MARCH A.D. 19 76

Post Office Address #24-12108 MAC LEOD TRAIL

CALGARY, ALBERTA



[Signature] A.D. Registrar

North Alberta Land Registration District

CANCELLED

Certificate of Title

Canada



NO.	7	7	2	1	7	0	6	3	5
REF.	7	6	2	0	4	3	1	6	6
VALUES					4	0	0	0	0

M	RG.	TWP.	SEC.	O.	PT.
1					

PLAN	BLK.	LOT	PT.
1989Z	3	12	

North Alberta Land Registration District

THIS IS TO CERTIFY that RONALD LATTERY (CARPENTER) AND JENIFER LATTERY (HIS WIFE)
BOTH OF CASTOR, IN THE PROVINCE OF ALBERTA

ARE now the owner S of an estate in fee simple AS JOINT TENANTS

of and in PLAN 1989 Z.,
BLOCK THREE (3),
LOT TWELVE (12)
(CHALKIRK - N.E. 24-38-16-W.4)

EXCEPTING THEREOUT ALL MINES AND MINERALS.

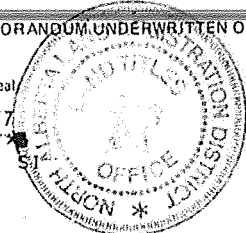
TITLE CANCELLED No. 788163933
on this 2 day of July 1977
A.D. Registrar

SUBJECT TO THE ENCUMBRANCES, LIENS, ESTATES OR INTERESTS NOTIFIED BY MEMORANDUM UNDERWRITTEN OR ENDORSED HEREON, OR WHICH MAY HEREAFTER BE MADE IN THE REGISTER.

IN WITNESS WHEREOF I have hereunto subscribed my name and affixed my official seal

this 2 day of SEPTEMBER A.D. 1977

Post Office Address CASTOR, ALTA.



Registrar

North Alberta Land Registration District

CANCELLED
Certificate of Title

Canada

M



NO.	7	8	2	1	6	3	9	5	3
REF.	7	7	2	1	7	0	6	3	5
VALUES						8	5	0	0

M	REG.	TWP.	SEC.	Q.	PT.
1					

PLAN	BLK.	LOT	PT.
21989Z		3	12

North Alberta Land Registration District

THIS IS TO CERTIFY that HANS KRAUTT (RETIRED FARMER)
OF HALKIRK, IN THE PROVINCE OF ALBERTA
IS now the owner of an estate in fee simple
of and in

PLAN 1989 Z
BLOCK THREE (3)
LOT TWELVE (12)
(HALKIRK)
(N.E. 24-38-16-W4TH)

EXCEPTING THEREOUT ALL MINES AND MINERALS.

TITLE CANCELLED 782254694
In Full
on this 6th day of NOV 1978
A.S. Registrar

SUBJECT TO THE ENCUMBRANCES, LIENS, ESTATES OR INTERESTS NOTIFIED BY MEMORANDUM
ENDORSED HEREON, OR WHICH MAY HEREAFTER BE MADE IN THE REGISTER.

IN WITNESS WHEREOF I have hereunto subscribed my name and affixed my official seal

this 21 day of JULY A.D. 1978

Post Office Address HALKIRK, ALTA.



KM

[Signature]

AD Registrar

Certificate of Title

Canada



NO.	7	8	2	2	5	4	6	9	4
REF.	7	8	2	1	6	3	9	5	3
VALUES						8	5	0	0

M	RG.	TWP.	SEC.	O.	PT.
1					

PLAN	BLK	LOT	PT.
2	1989Z	3	12

North Alberta Land Registration District

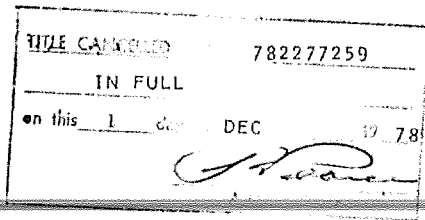
THIS IS TO CERTIFY that JAMES OSCAR KRAUTT AND KARL EDWARD KRAUTT BOTH OF HALKIRK, IN THE PROVINCE OF ALBERTA EXECUTORS OF THE ESTATE OF HANS KARL KRAUTT (DECEASED)

ARE now the owner ₅ of an estate in fee simple

of and in

PLAN 1989 Z.
BLOCK THREE (3)
LOT TWELVE (12)
(HALKIRK)
(N.E. 24-38-16-W4TH)

EXCEPTING THEREOUT ALL MINES AND MINERALS

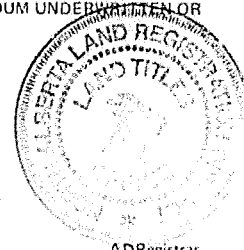


SUBJECT TO THE ENCUMBRANCES, LIENS, ESTATES OR INTERESTS NOTIFIED BY MEMORANDUM UNDERBUNDLES OR ENDORSED HEREON, OR WHICH MAY HEREAFTER BE MADE IN THE REGISTER.

IN WITNESS WHEREOF I have hereunto subscribed my name and affixed my official seal

this 6 day of NOVEMBER, A.D. 19 78

Post Office Address HALKIRK, ALTA.



[Handwritten Signature]

ADRegistrar

North Alberta Land Registration District

Certificate of Title

Show Other Abbreviations Here:

NAME JAMES OSCAR KRAUTT ET AL (EXECUTORS)

LAND PLAN 1989 Z. BLK. 3 LOT 12

CHARGES, LIENS AND INTERESTS.

ABBREVIATIONS

- URW - Utility Right of Way
- BL - Builders Lien
- TM - Tax Notification
- WE - List of Executors
- WES - Wills, Consents and Grants
- EM - Encumbrance

TITLE NO 78223469

Registration Number _____ **Date of Registration** _____

PARTICULARS	Amount	Discharges and Modifications	
		Registration Number	Date of Registration

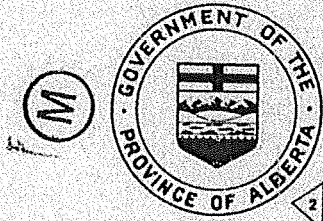
Signature of Registrar

Registration Number

Date of Registration

CANCELLED
Certificate of Title

Canada



NO.	7	8	2	2	7	7	2	5	9
REF.	7	8	2	2	5	4	6	9	4
VALUE \$				1	5	0	0	0	0

M	RG.	TWP.	SEC.	O.	PT.
1					

PLAN	BLK.	LOT	PT.
21989Z		3	12

North Alberta Land Registration District

THIS IS TO CERTIFY that **BRYAN WESLEY HURREN (ELECTRICIAN) AND SANDRA KIM HURREN (HIS WIFE)** BOTH OF HALKIRK, IN THE PROVINCE OF ALBERTA

ARE now the owner **S** of an estate in fee simple AS JOINT TENANTS

of and in

PLAN 1989 Z.
BLOCK THREE (3)
LOT TWELVE (12)
(HALKIRK)
(N.E. 24-38-16-W. 4TH)

EXCEPTING THEREOUT ALL MINES AND MINERALS.

TITLE CANCELLED	No. 802250933
<i>On full</i>	
on this <u>23</u> day of <u>Oct.</u> 19 <u>80</u>	
<i>[Signature]</i>	
A.D. Registrar <i>[Signature]</i>	

SUBJECT TO THE ENCUMBRANCES, LIENS, ESTATES OR INTERESTS NOTIFIED BY MEMORANDUM UNDERWRITTEN OR ENDORSED HEREON, OR WHICH MAY HEREAFTER BE MADE IN THE REGISTER.

IN WITNESS WHEREOF I have hereunto subscribed my name and affixed my official seal

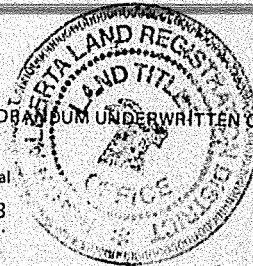
this 1 day of DECEMBER, A.D. 1978

Post Office Address HALKIRK, ALTA.

EO

A.G. 699
Rev. 7/77

[Signature] A.D. Registrar

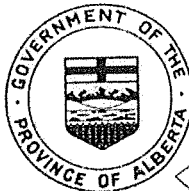


North Alberta Land Registration District

CANCELLED

Certificate of Title

Canada



NO.	8	0	2	2	5	0	9	3	3
REF.	7	8	2	2	7	7	2	5	9
VALUE \$				2	0	0	0	0	0

M	RG.	TWP.	SEC.	O.	PT.
1					

PLAN	BLK.	LOT	PT.
1989Z		3	12

North Alberta Land Registration District

THIS IS TO CERTIFY that **GEORGE ALLEN JAMES AND KARIN RENATTA JAMES (HIS WIFE)**
 BOTH OF HALKIRK, IN THE PROVINCE OF ALBERTA
 ARE now the owner S of an estate in fee simple AS JOINT TENANTS
 of and in

PLAN 1989 Z.
 BLOCK THREE (3)
 LOT TWELVE (12)
 (HALKIRK)
 (N.E. 24 - 38 - 16 - W.4TH)

EXCEPTING THEREOUT ALL MINES AND MINERALS.

TITLE CANCELLED *862233906*
in full
 on this *28* day of *Oct* 19 *86*
PP
 A.D. Registrar

SUBJECT TO THE ENCUMBRANCES, LIENS, ESTATES OR INTERESTS NOTIFIED BY MEMORANDUM UNDERWRITTEN AND ENDORSED HEREON, OR WHICH MAY HEREAFTER BE MADE IN THE REGISTER.

IN WITNESS WHEREOF I have hereunto subscribed my name and affixed my official seal

this 23 day of OCTOBER, A.D. 19 80

Post Office Address HALKIRK, ALBERTA



[Signature] A.D. Registrar

Certificate of Title

Show Other Abbreviations Here

ABBREVIATIONS
 URW - Utility Right of Way
 BL - Builders Lien
 TN - Tax Notification
 WE - Writ of Execution
 CC - Covenants and Conditions
 ENCUM - Encumbrance
 E - Easement
 C - Caveat
 Tr - Transmission
 Tr - Transfer
 Mge - Mortgage

NAME GEORGE A. JAMES ET AL
 LAND PLAN 1989 Z. BLK. 3 LOT 12

CHARGES, LIENS AND INTERESTS.

CANCELLED

TITLE NO. 8 0 2 2 5 0 9 3 3

Nature of Instrument	Registration Number	Date of Registration DY MO YR	Amount \$	PARTICULARS	Signature of Registrar	Discharges and Withdrawals	
						Registration Number	Date of Registration DY MO YR
C	812092228	27 4 86		RE: MTGE. BY CANADIAN IMPERIAL BANK OF COMMERCE CANMORE, ALTA. C NO. 812092228 IS SUBJECT TO A LIS PENDENS	<i>J. James</i>		
LP	842148809	03 7 86			<i>J. James</i>		
TN	862093741	7 5 86		BY VILLAGE OF HALKIRK	<i>J. James</i>		

CANCELLED

M M M



CANCELLED
Certificate of Title

NUMBER 8 6 2 2 3 9 0 6

REFERENCE 8 0 2 2 5 0 9 3 3

CONSIDERATION \$ SEE INSTR.

North Alberta Land Registration District

THIS IS TO CERTIFY that CANADIAN IMPERIAL BANK OF COMMERCE
BOX 2585, CALGARY, ALBERTA T2P 2P2

is/are now the owner(s) of an estate in fee simple
of and in

PLAN 1989 Z.
BLOCK THREE (3)
LOT TWELVE (12)
(HALKIRK)
(N.E. 24 38 16 4TH)

CONVERTED
AUG 15 1989
By: *cmilw*

EXCEPTING THEREOUT ALL MINES AND MINERALS.

SUBJECT TO THE ENCUMBRANCES, LIENS AND INTERESTS NOTIFIED BY MEMORANDUM UNDERWRITTEN OR ENDORSED HEREON, OR WHICH MAY HEREAFTER BE MADE IN THE REGISTER.

In witness whereof I have subscribed my name and affixed my official seal this
28 day of OCT., 19 86

R.P. _____ A.D. Registrar

A.G. 1825 (REV. MAR./84)

North Alberta Land Registration District

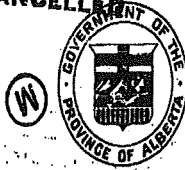


LAND TITLES ACT, Sec. 81.—The land mentioned in any certificate of title granted under this Act shall by implication and without any special mention therein, unless the contrary is expressly declared, be subject to—

- (1) Any subsiding encumbrances or exceptions contained in the original grant of the land from the Crown;
- (2) All unpaid taxes, including property and exchange district rates;
- (3) Any public highway or right-of-way or other public easement, however created upon, over or in respect of the land;
- (4) Any subsiding lease or agreement for a lease for a period not exceeding three years, where there is actual occupation of the land under the name of the owner of the land which have been registered and subsisting in force (subject to the terms);
- (5) Any right of appropriation which may by statute be vested in any person, body corporate, or His Majesty;
- (6) Any right-of-way or other easement created or acquired under the provisions of any Act or law in force in the Province.

CANCELLED

192-Y-118



Search an instrument registered at 12:44 o'clock
 P on the 7 day of AUG.
 A.D. 19 57
 Number 304 Sub. Ord. No. 94
 A.T. KIHNAIRD
 Registrar, N.A.L.R.D.

Certificate of Title.

North Alberta Land Registration District.

Assess Fund Value \$2850.00 Unearned Inc Value \$4.00 Refer Cert. No. 185-6-116

This is to Certify that RUSSELL ALBERT CREABEY
 OF HALKIRK IN THE PROVINCE OF ALBERTA DOMINION OF CANADA (CARPENTER),

is now the owner of an estate in fee simple
of and in LOTS THIRTEEN (13) FOURTEEN (14) FIFTEEN (15) AND SIXTEEN (16) IN BLOCK

THREE (3) IN THE TOWNSITE OF HALKIRK AFORESAID, OF RECORD IN THE LAND TITLES
OFFICE FOR THIS LAND REGISTRATION DISTRICT AS PLAN 1989-Z.

RESERVING THEREOUT ALL MINES AND MINERALS OUT OF SAID LOT THIRTEEN (13) ONLY
AND RESERVING UNTO HIS MAJESTY ALL MINES AND MINERALS AS TO THE REMAINDER

CANCELLED



subject to the encumbrances, liens and interests notified by memorandum underwritten or endorsed hereon, or which may hereafter be made in the register.

In Witness Whereof I have hereunto subscribed my name and affixed my official seal this SEVENTH day of AUGUST A.D. 19 57

P.O. Address HALKIRK ALTA.

[Signature]
 Registrar
 North Alberta Land Registration District

(W)
OVER

This Certificate of Title is cancelled as to
Lot 15 and 16, blk 3
and a NEW CERTIFICATE OF TITLE No. *1200137*
issued this *18th* day of *Sept*, 1957
by *Arthur L. Blount Limited*
D. B. No. *2821HY*
Johnson
REGISTRAR

Lot 14, blk 3
NOTIFICATION (Tax Recovery Act 1938)
by *Village of Hallock*
Dated *10-3-54* Reg'd *11:30 AM*
1-4-54 as to *5380 J.P.*

The above mentioned *T. H. G.* No. *5330 J.P.*
is discharged by instrument dated the *25* day
of *Jan*, 1957, Registered at *2:37 PM*,
the *29* day of *Jan*, 1957, as D.B.
No. *354 K.A.*
Johnson
REGISTRAR

THIS CERTIFICATE OF TITLE IS CANCELLED
as to Lot 14, Blk 3
IN ACCORDANCE WITH THE TRANSFER SUBJECT TO ANY EXEMPTIONS AND/OR RESERVATIONS THEREIN AND A NEW CERTIFICATE OF TITLE NO. *204-F-152*
ISSUED THIS *13* DAY OF *Nov*, 1957
TO *Revis P. Lattin*
D.B. No. *750 J.V.*
Johnson
REGISTRAR

The Title of *Lot 13, Blk 3*
NOTIFICATION (Tax Recovery Act)
by *Village of Hallock*
Dated *20-3-63* Reg'd *11:45 AM*
1-4-63 as to *686 P.O.*

The above mentioned *Lot 13* No. *686 P.O.*
is discharged by instrument dated the *26* day
of *Aug*, 1963, Registered at *1:26 PM*,
the *21* day of *Aug*, 1963, as D.B.
No. *3043 P.O.*
Johnson
REGISTRAR

THIS CERTIFICATE OF TITLE IS CANCELLED
as to Lot 13, blk 3
IN ACCORDANCE WITH THE TRANSFER SUBJECT TO ANY EXEMPTIONS AND/OR RESERVATIONS THEREIN AND A NEW CERTIFICATE OF TITLE NO. *132-R-226*
ISSUED THIS *8* DAY OF *Sept*, 1967
TO *Rawlston Building Materials Limited*
D.B. No. *1923-PL*
Johnson
REGISTRAR

(11)

LAND TITLES ACT, Sec. 64 - The land mentioned in any certificate of title granted under this Act shall by implication and without any special mention therein be subject to -

- (1) Any subsisting encumbrances or exceptions including royalties contained in the original grant of the land from the Crown;
- (2) All special rates, including irrigation and drainage district rates;
- (3) Any public highway or right-of-way or other public easement, however created upon, over or in respect of the land;
- (4) Any subsisting lease or agreement for a lease for a period not exceeding three years, where there is actual occupation of the land under the lease;
- (5) Any leases, options or reservations against or affecting the interest of the owner of the land which have been registered and maintained in force against the owner;
- (6) Any right of appropriation which may by statute be vested in any person, body corporate, or Her Majesty;
- (7) Any right-of-way or other easement granted or acquired under the provisions of any Act or law in force in the Province.



Issued on instrument registered at 1.28 o'clock
 P. m on the 8 day of SEPT,
 A.D. 19 67
 Number 1923 Book P.L. folio 60
 L.A. DUHAMEL
 Registrar, N.A.L.R.D.

Certificate of Title

Assoc. Fund Value \$100.00

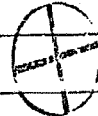
Refer Cert. No. 192-Y-118

North Alberta Land Registration District

SEP 11 1967

This is to Certify that REVELSTOKE BUILDING MATERIALS LIMITED

IMPORTANT NOTICE
 It will be in the interest of every Grantor and Mortgagee to furnish the Land Titles Office, Edmonton, with his full address (Post Office and Street number) or any change in address where this may be sent.



is now the owner of an estate in fee simple

of and in LOT THIRTEEN (13) IN BLOCK THREE (3) IN THE TOWNSITE OF HALKIRK, IN THE PROVINCE OF ALBERTA, CANADA, AS SHOWN ON SUBDIVISION PLAN 1985-2.

RESERVING THEREOUT ALL MINES AND MINERALS.

THIS CERTIFICATE OF TITLE IS CANCELLED
 issue full under Tax
 Transfer.
 IN ACCORDANCE WITH THE TRANSFER SUBJECT TO ANY EXCEPTIONS AND/OR RESERVATIONS THEREIN AND A NEW CERTIFICATE
 NO 74-11-269
 ISSUED THE 5 DAY OF Dec. 1973
 TO The Village of Halkirk
 DB 7553 T.T.
 AUTH'D DLT REGISTRAR

subject to the encumbrances, liens and interests notified by memorandum underwritten or endorsed hereon, or which may hereafter be made in the register.

In Witness Whereof I have hereunto subscribed my name and affixed my official seal this EIGHTH day of SEPTEMBER A.D. 19 67

P.O. Address 508 - 24 AVE. S.W., CALGARY, ALTA.

L.A. Duhamel Registrar
 North Alberta Land Registration District

OVER

Lot 13 Block 3

NOTIFICATION (Tax Recovery Act 1938)

by village of Watnik

Dated 1-9-71 Rec'd 12:38 P.M.

1-9-71 as No. 6289 SO

LAND TITLES ACT, Sec. 64 - The land mentioned in any certificate of title granted under this Act shall by implication and without any special mention therein, be subject to-

- (1) Any subsisting reservations or exceptions including royalties contained in the original grant of the land from the Crown;
- (2) All unpaid taxes, including log-skip and drainage district rates;
- (3) Any public highway or right-of-way or other public easement, however created upon, over or in respect of the land;
- (4) Any subsisting lease or agreement for a lease for a period not exceeding three years, where there is actual occupation of the land under the name;
- (5) Any decrees, orders or judgments against or affecting the interest of the owner of the land which have been registered and maintained in force against the name;
- (6) Any right of easement which may by statute be vested in any person, body corporate, or Her Majesty;
- (7) Any right-of-way or other easement granted or acquired under the provisions of any Act of law in force in the Province.



Issued on instrument registered at 11.11. o'clock
 A.m. on the 5 day of DEC. 1973
 A.D. 19 73
 Number 7553 Book T.J. Folio 241
 E.F. GAMACHE
 Registrar, N.A.L.R.D.

034

Certificate of Title

Assoc. Fund Value TAX FORFEITURE

Refer Cert. No. 182-R-226

North Alberta Land Registration District.

This is to Certify that VILLAGE OF HALKIRK, DEC 10 1973

IMPORTANT NOTICE
 It will be to the interest of every Owner and Mortgagee to furnish the Land Titles Office, Edmonton, with the full address (Post Office and Street number) or any change in address above Notices of dealings with title. This may be sent.

IN THE PROVINCE OF ALBERTA, CANADA.

is now the owner of an estate in fee simple

of and in LOT THIRTEEN (13) IN BLOCK THREE (3) ON PLAN 1989 Z.

(HALKIRK)

EXCEPTING THEREOUT ALL MINES AND MINERALS.

THIS CERTIFICATE OF TITLE IS CANCELLED

Don Stull
Hendon Van Brumbly

IN ACCORDANCE WITH THE TRANSFER SUBJECT TO ANY EXCEPTIONS AND/OR RESERVATIONS THEREIN AND A NEW CERTIFICATE OF TITLE NO. 146-L-230

ISSUED THIS 12 DAY OF Nov 1974
 TO Donald Engler et al
 DB-3211 Y.A. *[Signature]*
 REGISTRAR

subject to the encumbrances, liens and interests notified by memorandum, underwritten or endorsed hereon, or which may hereafter be made in the register.

In Witness Whereof I have hereunto subscribed my name and affixed my official seal this FIFTH *day of* DECEMBER *A.D.*

F. Clifton A.D.



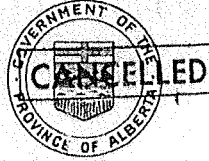
North Alberta Land Registration District

PO Address HALKIRK, ALBERTA

OVER

LAND TITLES ACT, Sec. 34 — The land mentioned in any certificate of title granted under this Act shall by implication and without any special mention therein, be subject to—

- Any subsisting reservations or encumbrances including royalties contained in the original grant of the land from the Crown;
- All unpaid taxes, including litigation and drainage district rates;
- Any public highway or right-of-way or other public easement, however created upon, over or in respect of the land;
- Any subsisting lease or agreement for a lease for a period not exceeding three years, where there is actual occupation of the land under the same;
- Any decrees, orders or executions against or affecting the interest of the owner of the land which have been registered and maintained in force against the owner;
- Any right of expropriation which may by statute be vested in any person, body corporate, or Her Majesty;
- Any right-of-way or other easement granted or acquired under the provisions of any Act or law in force in the Province.



Issued on instrument registered at 1.50. 1/2 clock
 P. m. on the 12 day of NOVEMBER
 A.D. 19 74
 Number 3211 Book V.B. Folio 101
 E. F. GAMACHE
 Registrar, N.A.L.R.D.

146

Certificate of Title

Assoc. Fund Value _____

Refer Cert. No. 34-W-269

North Alberta Land Registration District.

NOV 30 1974

This is to Certify that RONALD ENGLER

IMPORTANT NOTICE
 It will be to the interest of every Owner and Mortgagee to furnish the Land Titles Office, Edmonton, with his full address (Post Office and Street number) or any change in address where noticed at dealings with this Title may be sent

AND TERESA M. ENGLER, BOTH OF CASTOR IN THE PROVINCE OF ALBERTA, CANADA

is now the owner of an estate in fee simple AS JOINT TENANTS
 of and in LOT THIRTEEN (13) IN BLOCK THREE (3) PLAN 1989 Z.

(HALKIRK)

EXCEPTING THEREOUT ALL MINES AND MINERALS.

TITLE CANCELLED No. 762043167
 IN FULL
 on this 15TH day of MARCH 1974
E. F. Gamache
 A.D. Registrar

subject to the encumbrances, liens and interests notified by memorandum underwritten or endorsed hereon, or which may hereafter be made in the register.



In Witness Whereof I have hereunto subscribed my name and affixed my official seal this TWELFTH day of NOVEMBER A.D. 19 74

15

R. Pomeroy AD Registrar

P.O. Address CASTOR, ALBERTA

North Alberta Land Registration District

OVER

CANCELLED
Certificate of Title

Canada



NO.	7	6	2	0	4	3	1	6	7
REF.	1	4	6	L		2	8	0	
VALUES					1	0	0	0	0

M.	R.G.	TWP.	SEC.	Q.	PT.
1					

PLAN	BLK.	LOT	PT.
1989Z	3	13	

North Alberta Land Registration District

THIS IS TO CERTIFY that DAVID E. STEVENS (CAB DRIVER) AND SHIRLEY P. STEVENS (HOUSEWIFE) BOTH OF CALGARY, IN THE PROVINCE OF ALBERTA

now the owner of an estate in fee simple AS JOINT TENANTS
of and in LOT THIRTEEN (13)

IN BLOCK THREE (3)
ON PLAN 1989 Z.
(HALKIRK)

EXCEPTING THEREOUT ALL MINES AND MINERALS.

TITLE CANCELLED No. 772170635
IN FULL
on this 2 day of SEPT 19 77
A.D. Registrar

SUBJECT TO THE ENCUMBRANCES, LIENS, ESTATES OR INTERESTS NOTIFIED BY MEMORANDUM ENDORSED HEREON, OR WHICH MAY HEREAFTER BE MADE IN THE REGISTER.

IN WITNESS WHEREOF I have hereunto subscribed my name and affixed my official seal
this 15TH day of MARCH A.D. 19 76
Post Office Address #24-12108 MAC LEOD TRAIL, CALGARY
ALBERTA



LW
A.D. Registrar
North Alberta Land Registration District

CANCELLED
Certificate of Title

NO.	7	7	2	1	7	0	6	3	5	A
REF.	7	6	2	0	4	3	1	6	7	
VALUES					4	0	0	0	0	

Canada



M	RG	TWP.	SEC.	Q.	PT.
1					

PLAN	BLK.	LOT	PT.
1989Z	3	13	

North Alberta Land Registration District

THIS IS TO CERTIFY that RONALD LATTERY (CARPENTER) AND JENIFER LATTERY (HIS WIFE)
 BOTH OF CASTOR, IN THE PROVINCE OF ALBERTA
 ARE now the owner S of an estate in fee simple AS JOINT TENANTS
 of and in PLAN 1989 Z.,
 BLOCK THREE (3),
 LOT THIRTEEN (13)
 (HALKIRK)

EXCEPTING THEREOUT ALL MINES AND MINERALS.

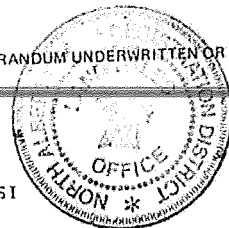
TITLE CANCELLED No. 782163953
 on this 21 day of July 1978
 A.D. Registrar

SUBJECT TO THE ENCUMBRANCES, LIENS, ESTATES OR INTERESTS NOTIFIED BY MEMORANDUM UNDERWRITTEN OR ENDORSED HEREON, OR WHICH MAY HEREAFTER BE MADE IN THE REGISTER.

IN WITNESS WHEREOF I have hereunto subscribed my name and affixed my official seal

this 2 day of SEPTEMBER, A.D. 1977

Post Office Address CASTOR, ALTA.



SI
M. J. K. A.D. Registrar

North Alberta Land Registration District

CANCELLED
Certificate of Title

NO.	7	8	2	1	6	3	9	5	3	A
REF.	7	7	2	1	7	0	6	3	5	A
VALUES						8	5	0	0	0

Canada

M



M	RG.	TWP.	SEC.	O.	PT.
1					

PLAN	BLK.	LOT	PT.
1989	Z	3	13

North Alberta Land Registration District

THIS IS TO CERTIFY that HANS KRAUTT (RETIRED FARMER)
OF HALKIRK, IN THE PROVINCE OF ALBERTA

IS now the owner of an estate in fee simple
of and in

PLAN 1989 Z
BLOCK THREE (3)
LOT THIRTEEN (13)
(HALKIRK)

EXCEPTING THEREOUT ALL MINES AND MINERALS.

782254694
in Full
on this 6 Nov 1978
[Signature]

SUBJECT TO THE ENCUMBRANCES, LIENS, ESTATES OR INTERESTS NOTIFIED BY MEMORANDUM REGISTERED IN THE REGISTER OR ENDORSED HEREON, OR WHICH MAY HEREAFTER BE MADE IN THE REGISTER.

IN WITNESS WHEREOF I have hereunto subscribed my name and affixed my official seal

this 21 day of JULY, A.D. 1978

Post Office Address HALKIRK, ALTA.



[Signature]
AD Registrar

North Alberta Land Registration District

Show Other Abbreviations Here

Certificate of Title

ABBREVIATIONS

- E - Easement
- C - Caveat
- Tr - Transmission
- Mtge - Mortgage
- URW - Utility Right of Way
- BL - Builders Lien
- TN - Tax Notification
- WE - Writ of Execution
- C.C. - Covenants and Conditions
- ENCUM - Encumbrance

NAME HANS. KRAUTH.....

LAND 1989 7 Blk. 3 L.O.T. 13

CHARGES, LIENS AND INTERESTS.

CANCELLED.

TITLE NO. 7 8 2 1 6 3 9 5 3 A

Nature of Instrument	Registration Number	Date of Registration DY. MO. YR.	Amount \$	PARTICULARS	Signature of Registrar	Discharges and Withdrawals	
						Registration Number	Date of Registration DY. MO. YR.
				CANCELLED			

M

Canada
Certificate of Title

Canada



NO.	7	8	2	2	5	4	6	9	4	A
REF.	7	8	2	1	6	3	9	5	3	A
VALUES						8	5	0	0	0

M	RG.	TWP.	SEC.	O.	PT.
1					

PLAN	BLK.	LOT	PT.
1989Z		3	13

North Alberta Land Registration District

THIS IS TO CERTIFY that **JAMES OSCAR KRAUTT AND KARL EDWARD KRAUTT BOTH OF HALKIRK,**
 IN THE PROVINCE OF ALBERTA EXECUTORS OF THE ESTATE OF HANS
KARL KRAUTT (DECEASED)
 ARE now the owner S of an estate in fee simple

of and in **PLAN 1989 Z.**
BLOCK THREE (3)
LOT THIRTEEN (13)
(HALKIRK)

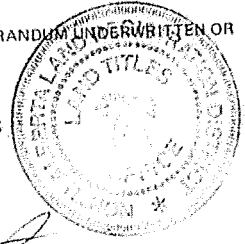
EXCEPTING THEREOUT ALL MINES AND MINERALS

TITLE CANCELED	782277259
IN FULL	
on this	1 DEC 1978
<i>[Signature]</i>	
A.D. Registrar	

SUBJECT TO THE ENCUMBRANCES, LIENS, ESTATES OR INTERESTS NOTIFIED BY MEMORANDUM UNDERWRITTEN OR ENDORSED HEREON, OR WHICH MAY HEREAFTER BE MADE IN THE REGISTER.

IN WITNESS WHEREOF I have hereunto subscribed my name and affixed my official seal

this 6 day of NOVEMBER A.D. 1978
 Post Office Address HALKIRK, ALTA.



[Signature]
 AD Registrar
 North Alberta Land Registration District

Certificate of Title

Show Other Abbreviations Here

ABBREVIATIONS

- E - Easement
- C - Caveat
- T - Transfer
- IF - Transfer
- Mtge - Mortgage
- URW - Utility Right of Way
- BL - Builders Lien
- TN - Tax Notification
- WE - Writ of Execution
- C.C. - County Code
- ENCUM - Encumbrance

NAME JAMES OSCAR KRAUTH ET AL (EXECUTORS)

LAND PLAN 1989 Z. BLK. 3 LOT 13

CHARGES, LIENS AND INTERESTS.

TITLE NO. 7 8 2 2 5 4 6 9 4 A

TITLE NO.	Nature of Instrument	Registration Number	Date of Registration DAY MONTH YEAR	Amount \$	PARTICULARS	Signature of Registrar	Discharges and Withdrawals	
							Registration Number	Date of Registration DAY MONTH YEAR



CANCELLED
Certificate of Title

NO.	7	8	2	2	7	7	2	5	9	A
REF	7	8	2	2	5	4	6	9	4	A
VALUE \$				1	5	0	0	0	0	

Canada



M	RG.	TWP.	SEC.	O.	PT.
1					

PLAN	BLK.	LOT	PT.
21989Z		3	13

North Alberta Land Registration District

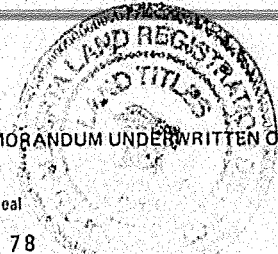
THIS IS TO CERTIFY that **BRYAN WESLEY HURREN (ELECTRICIAN) AND SANDRA KIM HURREN (HIS WIFE)** BOTH OF HALKIRK, IN THE PROVINCE OF ALBERTA

ARE now the owner s of an estate in fee simple **AS JOINT TENANTS**
of and in

PLAN 1989 Z.
BLOCK THREE (3)
LOT THIRTEEN (13)
(HALKIRK)

EXCEPTING THEREOUT ALL MINES AND MINERALS.

TITLE CANCELLED	No <u>802250933</u>
<i>In full</i>	
on this <u>23</u> day of <u>Oct.</u> 19 <u>80</u>	
<i>[Signature]</i>	
A.D. Registrar <i>[Signature]</i>	



SUBJECT TO THE ENCUMBRANCES, LIENS, ESTATES OR INTERESTS NOTIFIED BY MEMORANDUM UNDERWRITTEN OR ENDORSED HEREON, OR WHICH MAY HEREAFTER BE MADE IN THE REGISTER.

IN WITNESS WHEREOF I have hereunto subscribed my name and affixed my official seal

this 1 day of **DECEMBER** , A.D. 19..... **78**

Post Office Address **HALKIRK, ALTA.**

EO

[Signature] A.D. Registrar

ABBREVIATIONS

- E - Easement
- C - Caveat
- Tr - Transmission
- Mtge - Mortgage
- URW - Utility Right of Way
- BL - Builders Lien
- TN - Tax Notification
- WE - Writ of Execution
- C.C. - Covenants and Conditions
- ENCUM - Encumbrance

Certificate of Title

Show Other Abbreviations Here

NAME BRYAN WESLEY HURREN ET AL
 LAND 1989.7 BLK 3 LOT 13

CHARGES, LIENS AND INTERESTS.

TITLE NO. 7 8 2 2 7 7 2 5 9 A

CANCELLED

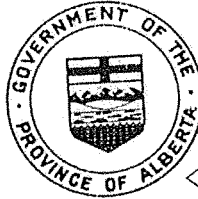
Nature of Instrument	Registration Number	Date of Registration DY. MO. YR.	Amount \$	PARTICULARS	Signature of Registrar	Discharges and Withdrawals		
						Registration Number	Date of Registration DY. MO. YR.	Signature of Registrar
M C	792031170	9 2 79		BY PROVINCIAL TREASURER OF ALBERTA	[Signature]	802250932	23 10 80	[Signature]

CANCELLED

CANCELLED

Certificate of Title

Canada



NO.	8	0	2	2	5	0	9	3	3	A
REF.	7	8	2	2	7	7	2	5	9	A
VALUE \$			2	0	0	0	0	0		

M	RG.	TWP.	SEC.	O.	PT.
1					

PLAN	BLK.	LOT	PT.
1989Z		3	13

North Alberta Land Registration District

THIS IS TO CERTIFY that **GEORGE ALLEN JAMES AND KARIN RENATTA JAMES (HIS WIFE)**
 BOTH OF HALKIRK, IN THE PROVINCE OF ALBERTA
 ARE now the owners of an estate in fee simple AS JOINT TENANTS
 of and in

PLAN 1989 Z.
 BLOCK THREE (3)
 LOT THIRTEEN (13)
 (HALKIRK)

EXCEPTING THEREOUT ALL MINES AND MINERALS.

TITLE CANCELLED 862233906 A

on this 28 day of Oct 1986

[Signature]
 A.D. Registrar

SUBJECT TO THE ENCUMBRANCES, LIENS, ESTATES OR INTERESTS NOTIFIED BY MEMORANDUM UNDERWRITTEN AND ENDORSED HEREON, OR WHICH MAY HEREAFTER BE MADE IN THE REGISTER.

IN WITNESS WHEREOF I have hereunto subscribed my name and affixed my official seal

this 23 day of OCTOBER, A.D. 1986.

Post Office Address HALKIRK, ALBERTA



[Signature] AD Registrar

North Alberta Land Registration District

Certificate of Title

Show Other Abbreviations Here

ABBREVIATIONS
 URW - Utility Right of Way
 BL - Builders Lien
 TN - Tax Notification
 WE - Writ of Execution
 C.C. - Covenants and Conditions
 ENCUM - Encumbrance
 E - Easement
 C - Caveat
 Tr - Transmission
 Trf - Transfer
 Mtge - Mortgage

NAME GEORGE A. JAMES ET AL
 LAND PLAN 1989 Z. BLK. 3 LOT 13.

CHARGES, LIENS AND INTERESTS.

CANCELLED

TITLE No.	Nature of instrument	Registration Number	Date of Registration DY, MO, YR	Amount \$	PARTICULARS	Signature of Registrar	Discharges and Withdrawals	
							Registration Number	Date of Registration DY, MO, YR
C		812092228	27 4 81		RE: MTGE. BY CANADIAN IMPERIAL BANK OF COMMERCE. CANMORE, ALTA. C NO. 812092228. IS SUBJECT TO A LIS PENDENS	<i>[Signature]</i>		
LP		84214880903	7 84			<i>[Signature]</i>		
TN		862093741	7 5 86		BY VILLAGE OF HALKIRK	<i>[Signature]</i>		

CANCELLED

M



CANCELLED
Certificate of Title

NUMBER 8 6 2 2 3 3 9 0 6A
REFERENCE 8 0 2 2 5 0 9 3 3A
CONSIDERATION \$ SEE INSTR.

North Alberta Land Registration District

THIS IS TO CERTIFY that CANADIAN IMPERIAL BANK OF COMMERCE
BOX 2585, CALGARY, ALBERTA T2P 2P2

is/are now the owner(s) of an estate in fee simple
of and in

PLAN 1989 Z.
BLOCK THREE (3)
LOT THIRTEEN (13)
(HALKIRK)

CONVERTED
AUG 15 1989
By... *cmiller*

EXCEPTING THEREOUT ALL MINES AND MINERALS.

SUBJECT TO THE ENCUMBRANCES, LIENS AND INTERESTS NOTIFIED BY MEMORANDUM UNDERWRITTEN OR ENDORSED HEREON, OR WHICH MAY HEREAFTER BE MADE IN THE REGISTER.

In witness whereof I have subscribed my name and affixed my official seal this
28 day of OCT., 19 86

R. P.

A.G. 1825 (REV. MAR./04)

..... A.D. Registrar

North Alberta Land Registration District



CANCELLED

Certificate of Title

LAND 1989 Z. BLK. 3 LOT 13
NAME CANADIAN IMPERIAL BANK OF COMMERCE
NUMBER 862233906A

ENCUMBRANCES, LIENS & INTERESTS		DISCHARGES & WITHDRAWALS		
Registration Number	Particulars	Registration Number	Date of Registration DY MO YR	Signature of A.C. Registrar
862093741	TAX NOTIFICATION BY VILLAGE OF HALKIRK			

CANCELLED

LAND TITLES ACT, Sec. 81—The land mentioned in any certificate of title granted under this Act shall by implication and without any special mention therein, be subject to—

- Any subsisting reservations or exceptions including royalties contained in the original grant of the land from the Crown;
- All unpaid taxes, including irrigation and drainage district rates;
- Any public highway or right-of-way or other public easement lawfully created, over or in respect of the land;
- Any subsisting lease or agreement for a lease for a period not exceeding three years, where there is actual occupation of the land under the lease;
- Any decree, order or execution against or affecting the interest of the owner of the land which have been registered and maintained in force against the owner;
- Any right of redemption which may by statute be vested in any person, body corporate, or His Majesty;
- Any right-of-way or other easement granted or acquired under the provisions of any Act or law in force in the Province.



CANCELLED
 Issued on instrument registered of 2.51
 P on the 23 day of MAY
 A.D. 19 50
 Number 5769 Book H.M.S.C. 177
 J.M. THOM
 Registrar, A.L.R.D.

Certificate of Title

Assec. Fund Value \$4500.00 Unearned Inc. Value \$50.00 Refer Cert. No. 114-P-121

North Alberta Land Registration District



This is to Certify that HARRY W. HEFFER

OF HALKIRK, IN THE PROVINCE OF ALBERTA, DOMINION OF CANADA (CIRCUIT OPERATOR)

is now the owner of an estate in fee simple

of and in ALL THAT PORTION OF THE NORTH EAST QUARTER OF SECTION TWENTY-FOUR (24)

TOWNSHIP THIRTY-EIGHT(38) RANGE SIXTEEN (16) WEST OF THE FOURTH MERIDIAN IN THE SAID PROVINCE, DESCRIBED AS FOLLOWS:--

COMMENCING AT THE NORTH WEST CORNER OF PARCEL (A) AS SHOWN ON A PLAN FILED IN THE LAND TITLES OFFICE FOR THIS LAND REGISTRATION DISTRICT AS 7135 E.T., THENCE NORTHERLY ALONG THE PRODUCTION NORTHERLY OF THE WEST BOUNDARY OF SAID PARCEL EIGHTY-SEVEN AND FIFTY HUNDREDTHS (87.50) FEET, THENCE EASTERLY AND PARALLEL TO THE NORTH BOUNDARY OF THE SAID PARCEL TWO HUNDRED AND FIFTY (250) FEET MORE OR LESS TO INTERSECTION WITH THE PRODUCTION NORTHERLY OF THE EAST BOUNDARY OF THE SAID PARCEL THENCE SOUTHERLY ALONG THE SAID PRODUCTION TO THE NORTH EAST CORNER OF THE SAID PARCEL THENCE WESTERLY ALONG THE NORTH BOUNDARY THEREOF TO THE POINT OF COMMENCEMENT, THE LAND HEREBY DESCRIBED CONTAINING FIVE TENTHS (0.5) OF AN ACRE MORE OR LESS.

RESERVING UNTO HIS MAJESTY ALL MINES AND MINERALS.

CANCELLED
 This Certificate of Title is cancelled
 and a NEW CERTIFICATE OF TITLE No. 212440
 Issued this 22 day of May 1950
 J.M. THOM
 D. B. No. 3533 J.E.
 A.D. Registrar

subject to the encumbrances, liens and interests notified by memorandum underwritten or endorsed hereon, or which may hereafter be made in the register.

In Witness Whereof I have hereunto subscribed my name and affixed my official seal this TWENTY-THIRD day of MAY A.D. 1950

P.O. Address HALKIRK, ALTA.

J.M. Thom
 Registrar
 North Alberta Land Registration District

LAND TITLES ACT, Sec. 81—The fees mentioned in any certificate of title granted under this Act shall be levied and without any special notice therein be subject to—

- (1) Any subsiding encumbrances or exceptions including royalties mentioned in the original grant of the land from the Crown;
- (2) All special taxes, including irrigation and drainage district rates;
- (3) Any public highway or right-of-way or other public easement, however created upon, over or in respect of the land;
- (4) Any subsiding lease or agreement for a lease for a period not exceeding three years, where there is actual occupation of the land under the same;
- (5) Any shares, orders or fractional parts or affecting the interest of the owner of the land which have been registered and subsisted in force against the owner;
- (6) Any right of pre-emption which may be made to be made in any person, body corporate, or Her Majesty;
- (7) Any right-of-way or other easement granted or acquired under the provisions of any Act or law in force in the Province.



Based on instrument registered at 2226
 P on the 22 day of MAY
 of 19 52
 Number 3531 Book No. Co. 109
 J.M. THOM
 Registrar N.A.L.R.D.

Certificate of Title

Assee. Fund Value \$5500.00 Unearned Inc. Value \$50.00 Refer Cert. No. 42-E-132

North Alberta Land Registration District

This is to Certify that THE DIRECTOR, THE VETERANS LAND ACT



CANCELLED

is now the owner of an estate in fee simple

of and in ALL THAT PORTION OF THE NORTH EAST QUARTER OF SECTION TWENTY FOUR (24) TOWNSHIP THIRTY EIGHT (38) RANGE SIXTEEN (16) WEST OF THE FOURTH MERIDIAN IN THE PROVINCE OF ALBERTA DOMINION OF CANADA.

DESCRIBED AS FOLLOWS -- COMMENCING AT THE NORTH WEST CORNER OF PARCEL (A) AS SHOWN ON FILED PLAN 7135 E.T., THENCE NORTHERLY ALONG THE PRODUCTION NORTHERLY OF THE WEST BOUNDARY OF SAID PARCEL EIGHTY SEVEN AND FIFTY HUNDREDTHS (87.50) FEET, THENCE EASTERLY AND PARALLEL TO THE NORTH BOUNDARY OF THE SAID PARCEL TWO HUNDRED AND FIFTY (250) FEET MORE OR LESS TO INTERSECTION WITH THE PRODUCTION NORTHERLY OF THE SAID EAST BOUNDARY OF THE SAID PARCEL, THENCE SOUTHERLY ALONG THE SAID PRODUCTION TO THE NORTH EAST CORNER OF THE SAID PARCEL THENCE WESTERLY ALONG THE NORTH BOUNDARY THEREOF TO THE POINT OF COMMENCEMENT. THE LAND HEREBY DESCRIBED CONTAINING FIVE TENTHS (0.5) OF AN ACRE MORE OR LESS.

RESERVING UNTO HER MAJESTY ALL MINES AND MINERALS.

This Certificate of Title is cancelled
 in full under Regs.
 and a NEW CERTIFICATE OF TITLE No. 172-N-140
 was on 22 day of MAY 19 52
 in FILE
 B.L. No. 3531-1-10
 J.M. THOM
 Registrar

CANCELLED

subject to the encumbrances, liens and interests notified by memorandum underwritten or endorsed hereon, or which may hereafter be made in the register

In Witness Whereof I have hereunto subscribed my name and affixed my official seal this TWENTY SECOND day of MAY A.D. 1952

MAY 28 1952

JK

J.M. Thom
 Registrar
 North Alberta Land Registration District

P.O. Address _____

OVER

CANCELLED

LAND TITLES ACT, Sec. 81.—The land mentioned in any certificate of title granted under this Act shall by implication and unless any special mention therein, when the contrary is expressly declared, be subject to—

- Any subsisting mortgages or encumbrances contained in the original grant of the land from the Crown;
- All unpaid taxes, including litigation and drainage district rates;
- Any public highways or rights-of-way or other public easements, however created, upon, over or in respect of the land;
- Any subsisting lease or agreement for a lease for a period not exceeding three years, when there is actual occupation of the land under the same;
- Any leases, mortgages or encumbrances existing or affecting the interest of the owner of the land which have been registered and maintained in force against the owner;
- Any right of appropriation which may by statute be vested in any persons, bodies corporate, or His Majesty;
- Any right-of-way or other easement granted or required under the provisions of any Act in force in the Province.



Based on instrument registered on 22.67 in book
 P. on the 7 day of NOV
 A.D. 19 45
 Number 2697 Book F.W. 90
 A. T. KINHAIRD
 Registrar, S. of A.

Certificate of Title

Assoc. Fund Value \$837.00 Unearned Inc. Value \$752.00 Refer Cert. No. 216-Y-10

North Alberta Land Registration District.

This is to Certify that GEORGE EZRA EMMETT

OF HALKIRK IN THE PROVINCE OF ALBERTA DOMINION OF CANADA. (FARMER)

is now the owner of an estate in fee simple

of and in ALL THAT PORTION OF THE NORTH EAST QUARTER OF SECTION TWENTY FOUR (24)

TOWNSHIP THIRTY EIGHT (38) RANGE SIXTEEN (16) WEST OF THE FOURTH MERIDIAN / IN THE SAID PROVINCE

WHICH LIES NORTH OF THE NORTHERN LIMIT OF PUBLIC ROADWAY AND ALBERTA AVENUE AS SHOWN ON A PLAN OF RECORD IN THE LAND TITLES OFFICE FOR THIS LAND REGISTRATION DISTRICT AS PLAN 6542 B.M. AND 1989 Z, EXCEPTING THEREOUT,--

(A) ALL THAT PORTION OF SUB-DIVISION OF HALKIRK TOWNSITE AS SHOWN ON PLAN OF RECORD IN SAID LAND TITLES OFFICE AS PLAN 1989 Z.

(B) ALL THAT PORTION SHOWN AS PRACEL (A) ON PLAN OF RECORD IN SAID LAND TITLES OFFICE AS PLAN 7135 E.T.

CANCELLED

THE LAND HEREBY DESCRIBED CONTAINING ONE HUNDRED AND SEVEN AND FORTY FOUR (107.44) ACRES MORE OR LESS.

This Certificate of Title is cancelled and a NEW CERTIFICATE OF TITLE No. 134/45 Issued this 23 day of May 1945 to George Ezra Emmett D. B. No. 2533 A.D. Registrar

RESERVING UNTO HIS MAJESTY ALL MINES AND MINERALS

subject to the encumbrances, liens and interests notified by memorandum underwritten or endorsed hereon, or which may hereafter be made in the register. NOV 19 1945

In Witness Whereof I have hereunto subscribed my name and affixed my official seal this SEVENTH day of NOVEMBER A.D. 19 45

M. W. [Signature] Registrar
 North Alberta Land Registration District

P.O. Address HALKIRK ALTA

4097 F.B. EASEMENT DATED 4-AUG-38 REG 10.08 AM 25-AUG-38 ABOVE AND OTHER LAND TO CANADIAN UTILITIES LTD. A.D. REG.

OVER

This Certificate of Title is cancelled as to
Part described - 0.5 acres
and a NEW CERTIFICATE OF TITLE No. 83-K-110
issued this 9 day of Jan 1946
to Dahelin, Becha, Collins et al
D. B. No. 666 G.C.
[Signature]
A.D. Registrar

This Certificate of Title is cancelled as to
2 acres as desc.
and a NEW CERTIFICATE OF TITLE No. 123-J-110
issued this 11 day of Jan 1946
to Village of Halkirk
D. B. No. 4773 F.W.
[Signature]
A.D. Registrar

123-J-110
112

The within EASEMENT No. H-097 F13
is subject to a CAVEAT filed by Montreal Trust Company,
c/o 210 McLeod Building, Edmonton, Alberta, dated the
18th day of October 1946, Registered at 10.04 a.m.
the 22nd day of October 1946, as D. B. No. 645 G.G.
[Signature]
A.D. Registrar

The above mentioned Caveat No. 645 GG is
discharged by instrument dated the 17th day of
May 1947, Registered at 2.33 p.m., the 22nd day
of May 1947, as D. B. No. 848 G.J.
[Signature]
A.D. Registrar

This Certificate of Title is cancelled as to
pt. desc. conty. 434
and a NEW CERTIFICATE OF TITLE No. 70-N-140
issued this 22 day of May 1946
to The Director V.P.A.
D. B. No. 3532
[Signature]
A.D. Registrar

LAND TITLES ACT, Sec. 81—The land mentioned in any certificate of title granted under this Act shall by operation and without any special mention therein, be subject to—

- (1) Any subsisting reservations or exceptions including royalties contained in the original grant of the land from the Crown;
- (2) All unpaid taxes, including irrigation and drainage district taxes;
- (3) Any public highway or right-of-way or other public easement, however created upon, over or in respect of the land;
- (4) Any subsisting lease or agreement for a lease for a period not exceeding three years, where there is actual occupation of the land under the lease;
- (5) Any decrees, orders or certificates against or affecting the interest of the owner of the land which have been registered and maintained in force against the owner;
- (6) Any right of redemption which may by statute be treated in any person, body corporate, or firm;
- (7) Any right-of-way or other easement granted or acquired under the provisions of any Act or law in force in the Province.



Inscribed on instrument registered at 2026 s' clock
 P on the 22 day of MAY
 A.D. 1952
 Number 3532 Book 109
 J.H. THOM
 Registrar N.A.L.R.D.

Certificate of Title

Assoc. Fund Value \$100.00 Unearned Inc. Value \$30.00 Refer Cert. No. 134-1-109

North Alberta Land Registration District.

This is to Certify that THE DIRECTOR, THE VETERANS LAND ACT

is now the owner of an estate in fee simple

of and in ALL THAT PORTION OF THE NORTH EAST QUARTER OF SECTION TWENTY FOUR (24) TOWNSHIP THIRTY EIGHT (38) RANGE SIXTEEN (16) WEST OF THE FOURTH MERIDIAN IN THE PROVINCE OF ALBERTA DOMINION OF CANADA, BOUNDED AS FOLLOWS -- ON THE SOUTH BY THE NORTH LIMIT OF ALBERTA AVENUE, AS SHOWN ON SUBDIVISION PLAN 1989 Z, AND THE NORTH LIMIT OF THE ROAD AS SHOWN ON ROAD PLAN 6542 B.M., ON THE NORTH BY A LINE DRAWN PARALLEL TO THE SAID NORTH LIMITS AND TWO HUNDRED AND SIXTY TWO AND FIVE TENTHS (262.5) FEET PERPENDICULARLY DISTANT NORTHERLY THEREFROM, ON THE EAST BY THE EAST BOUNDARY OF THE SAID QUARTER SECTION, ON THE WEST BY THE EAST BOUNDARY OF PARCEL (A) AND ITS PRODUCTION NORTHERLY, AS SHOWN ON FILED PLAN 7135 E.T. THE LAND HEREBY DESCRIBED CONTAINING FOUR AND THIRTY FOUR HUNDREDTHS (4.34) ACRES MORE OR LESS,

RESERVING UNTO HER MAJESTY ALL MINES AND MINERALS.

This Certificate of Title is certified
 IN FULL UNDER CORN
 and a NEW CERTIFICATE OF TITLE No. 172-N-140
 issued this 22 day of MAY 1952
 to SELF
 O.R. No. 3536 J.H.C.
 J.H. Thom
 Registrar

subject to the encumbrances, liens and interests notified by memorandum, underwritten or endorsed hereon, or which may hereafter be made in the register

In witness whereof I have hereunto subscribed my name and affixed my official seal this TWENTY SECOND day of MAY A.D. 1952

P.O. Address _____

JK
 Registrar
 North Alberta Land Registration District

OVER

LAND TITLES ACT, Sec. 81.—The land mentioned in any certificate of title granted under this Act shall by implication and without any special mention therein be subject to—

- (a) Any subsisting reservations or exceptions including royalties mentioned in the original grant of the land from the Crown;
- (b) All unpaid taxes, including registration and district rates;
- (c) Any public highway or right-of-way or other public easement, whenever created upon, over or in respect of the land;
- (d) Any subsisting lease or agreement for a lease for a period not exceeding three years, where there is actual occupation of the land under the same;
- (e) Any decree, order or arrangement against or affecting the interest of the owner of the land which have been registered and maintained in force against the owner;
- (f) Any right of suspension which may by a statute be vested in any person, body corporate, or His Majesty;
- (g) Any right-of-way or other easement granted or acquired under the provisions of any Act or law in force in the Province.



Issued on instrument registered at 2828

P on the 22 day of MAY

A.D. 19 52


Number 3435 Sub. No. 109

J.M. THOM

Registrar, N.S.A.R.D.

Certificate of Title

Asse. Fund Value \$5600.00 Unearned Inc. Value \$80.00 Refer Cert. No. 170-N-140

North Alberta Land Registration District. 

This is to Certify that THE DIRECTOR, THE VETERANS' LAND

is now the owner of an estate in fee simple

of and in ALL THAT PORTION OF THE NORTH EAST QUARTER OF SECTION TWENTY FOUR (24) TOWNSHIP THIRTY EIGHT (38) RANGE SIXTEEN (16) WEST OF THE FOURTH MERIDIAN IN THE PROVINCE OF ALBERTA DOMINION OF CANADA.

BOUNDED AS FOLLOWS -- ON THE SOUTH BY THE NORTH LIMIT OF ALBERTA AVENUE, AS SHOWN ON SUBDIVISION PLAN 1989 Z. AND THE NORTH LIMIT OF THE ROAD AS SHOWN ON ROAD PLAN 6542 B.M., ON THE NORTH BY A LINE DRAWN PARALLEL TO THE SAID NORTH LIMITS AND TWO HUNDRED AND SIXTY TWO AND FIVE TENTHS (262.5) FEET PERPENDICULARLY DISTANT NORTHERLY THEREFROM, ON THE EAST BY THE EAST BOUNDARY OF THE SAID QUARTER SECTION, AND ON THE WEST BY THE EAST LIMIT OF BERRY STREET, AS SHOWN ON SUBDIVISION PLAN 1989 Z. CONTAINING FIVE AND EIGHTY FOUR HUNDREDTHS (5.84) ACRES MORE OR LESS.

EXCEPTING THEREOUT -- (A) PARCEL (A), AS SHOWN ON FILED PLAN 7135 E.T. CONTAINING ONE (1) ACRE MORE OR LESS.

THE LAND HEREBY DESCRIBED CONTAINING FOUR AND EIGHTY FOUR HUNDREDTHS (4.84) ACRES MORE OR LESS.

RESERVING UNTO HER MAJESTY ALL MINES AND MINERALS.

subject to the encumbrances, liens and interests notified by memorandum underwritten or endorsed hereon, or which may hereafter be made in the register.

In witness whereof I have hereunto subscribed my name and affixed my

official seal this TWENTY SECOND day of MAY A.D. 1952

THIS CERTIFICATE OF TITLE IS CANCELLED

In full

IN ACCORDANCE WITH THE TRANSFER ACT SUBJECT TO ANY ENCUMBRANCES AND RESERVATIONS THEREIN AND A NEW CERTIFICATE OF TITLE NO. 140 M/56

TO: Ronald W. Peterson

1646 K.E. Street

ALBANY

J.K. Registrar

North Alberta Land Registration District

P.O. Address

OVER

LAND TITLES ACT, Sec. 41—The land mentioned in any certificate of title granted under this Act shall by implication and without any special mention therein, be subject to—

- (1) Any subsisting reservations or encumbrances including royalties contained in the original grant of the land from the Crown;
- (2) All capital taxes, including irrigation and forestry, and rates;
- (3) Any public highway or right-of-way or other public easement, however created upon, over or in respect of the land;
- (4) Any subsisting lease or agreement for a lease for a period not exceeding three years, where there is actual occupation of the land under the lease;
- (5) Any decrees, orders or executions against or affecting the interests of the owner of the land which have been registered and maintained in force against the owner;
- (6) Any right of reversion which may by statute be vested in any person, body corporate, or Her Majesty;
- (7) Any right-of-way or other easement granted or acquired under the provisions of any Act or law in force in the Province.



Issued on instrument registered at 11.13
 A. on the 27 day of OCTOBER
 A.D. 19 55
 No. 1646 Dist. K.E. File 51
 J.M. THOM
 Registrar

Certificate of Title

Assoc. Fund Value \$6,388.00 Unearned Inc. Value \$30.00 Refers Cert. No. 172-N-140

North Alberta Land Registration District

This is to Certify that RONALD WALTERS



OF HALKIRK, IN THE PROVINCE OF ALBERTA, DOMINION OF CANADA,

is now the owner of an estate in fee simple

CANCELLED

of and in ALL THAT PORTION OF THE NORTH EAST QUARTER OF SECTION TWENTY FOUR (24) TOWNSHIP THIRTY EIGHT (38) RANGE SIXTEEN (16) WEST OF THE FOURTH MERIDIAN, IN THE SAID PROVINCE, BOUNDED AS FOLLOWS,— ON THE SOUTH BY THE NORTH LIMIT OF ALBERTA AVENUE, AS SHOWN ON SUBDIVISION PLAN 1989 Z. AND THE NORTH LIMIT OF THE ROAD AS SHOWN ON ROAD PLAN 6542 B.M., ON THE NORTH BY A LINE DRAWN PARALLEL TO THE SAID NORTH LIMIT AND TWO HUNDRED AND SIXTY TWO AND FIVE TENTHS (262.5) FEET PERPENDICULARLY DISTANT NORTHERLY THEREFROM, ON THE EAST BY THE EAST BOUNDARY OF THE SAID QUARTER SECTION, AND ON THE WEST BY THE EAST LIMIT OF BERRY STREET, AS SHOWN ON SUBDIVISION PLAN 1989 Z., CONTAINING FIVE AND EIGHTY FOUR HUNDREDTHS (5.84) ACRES MORE OR LESS, EXCEPTING THEREOUT PARCEL (A) AS SHOWN ON FILED PLAN 7135 E.T., CONTAINING ONE (1) ACRE MORE OR LESS.

THE LAND HEREBY DESCRIBED CONTAINING FOUR AND EIGHTY FOUR HUNDREDTHS (4.84) ACRES MORE OR LESS.

RESERVING UNTO HER MAJESTY ALL MINES AND MINERALS.

CANCELLED

THIS CERTIFICATE OF TITLE IS CANCELLED
 IN FULL
 IN ACCORDANCE WITH THE TRANSFER SUBJECT TO ANY EXCEPTIONS AND RESERVATIONS THEREIN AND A NEW CERTIFICATE OF TITLE NO. 141-N-156
 ISSUED THIS 27 DAY OF OCT. 1955
 TO GASTOR SCHOOL DIVISION NO. 27
 TWP. 1647 K.E.

subject to the encumbrances, liens and interests notified by memorandum underwritten or endorsed hereon, or which may hereafter be made in the register.

In Witness Whereof I have hereunto subscribed my name and affixed my official seal this TWENTY SEVENTH day of OCTOBER A.D. 19 55

A. Fraser Registrar

P.O. Address HALKIRK, ALTA.

North Alberta Land Registration District

OVER

LAND TITLES ACT, Sec. 81.—The land mentioned in any certificate of title granted under this Act shall by implication and without any special mention therein, be subject to—

- (1) Any subsisting reservations or exceptions (including royalties) contained in the original grant of the land from the Crown;
- (2) All unpaid taxes, including litigation and drainage district rates;
- (3) Any public highway or right-of-way or other public easement, however created upon, over or in respect of the land;
- (4) Any existing lease or agreement for a lease for a period not exceeding three years, where there is actual occupation of the land under the same;
- (5) Any leases, rights or reservations granted or affecting the interest of the owner of the land which have been registered and mentioned in force against the owner;
- (6) Any right of representation which may by statute be vested in any person, body corporate, or Her Majesty;
- (7) Any right-of-way or other easement granted or acquired under the provisions of any Act or law in force in the Province.



Issued on instrument registered at 11.15 o'clock
 At _____ on the 27 day of OCTOBER
 1955
 Number 1647 Sub. R.E. File 51
 J. M. THOM
 Registrar, N.A.L.R.D.

Certificate of Title

Assoc. Fund Value \$6,500.00 Unearned Inc. Value \$118.00 Refer Cert. No. 140-M-156

North Alberta Land Registration District

This is to Certify that CASTOR SCHOOL DIVISION NO. 27,



IN THE PROVINCE OF ALBERTA, DOMINION OF CANADA,

is now the owner of an estate in fee simple **CANCELLED**

of and in ALL THAT PORTION OF THE NORTH EAST QUARTER OF SECTION TWENTY FOUR (24) TOWNSHIP THIRTY EIGHT (38) RANGE SIXTEEN (16) WEST OF THE FOURTH MERIDIAN, IN THE SAID PROVINCE, BOUNDED AS FOLLOWS,— ON THE SOUTH BY THE NORTH LIMIT OF ALBERTA AVENUE, AS SHOWN ON SUBDIVISION PLAN 1989 Z. AND THE NORTH LIMIT OF THE ROAD AS SHOWN ON ROAD PLAN 6542 B.M., ON THE NORTH BY A LINE DRAWN PARALLEL TO THE SAID NORTH LIMIT AND TWO HUNDRED AND SIXTY TWO AND FIVE TENTHS (262.5) FEET PERPENDICULARLY DISTANT NORTHERLY THEREFROM, ON THE EAST BY THE EAST BOUNDARY OF THE SAID QUARTER SECTION, AND ON THE WEST BY THE EAST LIMIT OF BERRY STREET, AS SHOWN ON SUBDIVISION PLAN 1989 Z., CONTAINING FIVE AND EIGHTY FOUR HUNDREDTHS (5.84) ACRES MORE OR LESS, EXCEPTING THEREOUT PARCEL (A) AS SHOWN ON FILED PLAN 7135 E.T., CONTAINING ONE (1) ACRE MORE OR LESS.

THE LAND HEREBY DESCRIBED CONTAINING FOUR AND EIGHTY FOUR HUNDREDTHS (4.84) ACRES MORE OR LESS.

RESERVING UNTO HER MAJESTY ALL MINES AND MINERALS.

THIS CERTIFICATE OF TITLE CANCELLED
 In full by
 Registrar
 IN ACCORDANCE WITH THE TRANSFER SUBJECT TO ANY EXCEPTIONS AND OBSERVATIONS THEREIN AND A NEW CERTIFICATE OF TITLE NO. 12636-N-215
 ISSUED THIS 6 DAY OF Dec 1955
 TO L. M. THOM, Registrar, N.A.L.R.D.
 DR. 226 + 128

subject to the encumbrances, liens and interests notified by memorandum, unwritten or endorsed hereon, or which may hereafter be made in the register.

In Witness Whereof I have hereunto subscribed my name and affixed my official seal this TWENTY SEVENTH day of OCTOBER A.D. 19 55

J. M. Thom Registrar
 North Alberta Land Registration District

R.O. Address CASTOR, ALTA.

OVER

LAND TITLES ACT, Sec. 89 - The land mentioned in any certificate of title granted under this Act shall by implication and without any special mention therein, be subject to -

- (1) Any existing restrictions or easements (including easements mentioned in the original grant of the land from the Crown)
- (2) All unpaid taxes, including taxation and drainage district rates
- (3) Any public highway or right-of-way or other public easement, however created, upon, over or in respect of the land.
- (4) Any existing lease or agreement for a lease for a period not exceeding three years, where there is actual occupation of the land under the lease.
- (5) Any decree, order or restriction against or affecting the interest of the owner of the land which have been registered and established in favor of the Crown.
- (6) Any right of reservation which may by statute be vested in any person, body corporate, or Her Majesty.
- (7) Any right-of-way or other easement granted or reserved under the provisions of any Act or law in force in the Province.



Issued on instrument registered of _____

A. m. on the 6 day of DEC.

A.D. 19 65

Number 5264 book D.K. Folio 161

L. A. DUHAMEL
Registrar, N.A.L.R.D.

Certificate of Title

Assoc. Fund Value \$6500.00

Refer Cert. No. 141-M-156

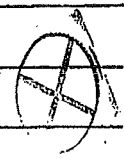
North Alberta Land Registration District

-7 DEC. 1965

This is to Certify that

COUNTY OF PAINTEARTH NO. 18

IN THE PROVINCE OF ALBERTA, CANADA



is now the owner of an estate in fee simple

of and in ALL THAT PORTION OF THE NORTH EAST QUARTER OF SECTION TWENTY FOUR (24) TOWNSHIP

THIRTY EIGHT (38) RANGE SIXTEEN (16) WEST OF THE FOURTH MERIDIAN IN THE SAID PROVINCE, BOUNDED AS FOLLOWS:-----

ON THE SOUTH BY THE NORTH LIMIT OF ALBERTA AVENUE, AS SHOWN ON SUBDIVISION PLAN 1989 Z., AND THE NORTH LIMIT OF THE ROAD AS SHOWN ON ROAD PLAN 6542 B.M., ON THE NORTH BY A LINE DRAWN PARALLEL TO THE SAID NORTH LIMIT AND TWO HUNDRED AND SIXTY TWO AND FIVE TENTHS (262.5) FEET PERPENDICULARLY DISTANT NORTHERLY THEREFROM, ON THE EAST BY THE EAST BOUNDARY OF THE SAID QUARTER SECTION, AND ON THE WEST BY THE EAST LIMIT OF BERRY STREET, AS SHOWN ON SUBDIVISION PLAN 1989 Z., CONTAINING FIVE AND EIGHTY FOUR HUNDREDTHS (5.84) ACRES MORE OR LESS.

CANCELLED

EXCEPTING THEREOUT:-- PARCEL (A) AS SHOWN ON FILED PLAN 7135 E.T., CONTAINING ONE (1) ACRE MORE OR LESS.

THE LAND HEREBY DESCRIBED CONTAINING FOUR AND EIGHTY FOUR HUNDREDTHS (4.84) ACRES MORE OR LESS.

RESERVING UNTO HER MAJESTY ALL MINES AND MINERALS.

THIS CERTIFICATE OF TITLE IS CANCELLED

as to sum

& in full

IN ACCORDANCE WITH THE TRANSFER SUBJECT TO ANY EXCEPTIONS AND/OR RESERVATIONS THEREIN AND A NEW CERTIFICATE OF TITLE NO. 10 0266

ISSUED THIS 7 DAY OF Aug. 1965

TO County of Paintearth

DR 77411 D

L.A. Duhamel
REGISTRAR

subject to the encumbrances, liens and interests notified by memorandum underwritten or endorsed hereon, or which may hereafter be made in the register.

In Witness Whereof I have hereunto subscribed my name and affixed my

official seal this SIXTH day of DECEMBER A.D. 19 65

FC

L.A. Duhamel
Registrar

P.O. Address CASTOR, ALTA.

North Alberta Land Registration District

OVER

THIS CERTIFICATE OF TITLE IS CANCELLED

AS TO 0.10 ACRES

PT NE-24 FOR ROAD

IN ACCORDANCE WITH THE TRANSFER SUBJECT TO ANY EXCEPTIONS AND/OR RESERVATIONS THEREIN AND A NEW CERTIFICATE

OF TITLE NO. _____

ISSUED THIS 29 DAY OF APRIL 1973

TO THE CROWN

DR 2538 T.R. *[Signature]*

A.D. REGISTRAR

THIS CERTIFICATE OF TITLE IS CANCELLED

as to pt. within land

as desc. contg. 4.24

Acres

IN ACCORDANCE WITH THE TRANSFER SUBJECT TO ANY EXCEPTIONS AND/OR RESERVATIONS THEREIN AND A NEW CERTIFICATE

OF TITLE NO. 9 of 266.

ISSUED THIS 7 DAY OF Aug. 1973

TO Village of Halkirk

DR 7234.2 *[Signature]*

A.D. REGISTRAR

LAND TITLES ACT, Sec. 84 — The land mentioned in any certificate of title granted under this Act shall by implication and without any special mention therein, be subject to—

- (1) Any subsisting reservations or exceptions including royalties contained in the original grant of the land from the Crown;
- (2) All unpaid taxes, including litigation and distress charges;
- (3) Any public highway or right-of-way or other public easement, however created upon, over or in respect of the land;
- (4) Any subsisting lease or agreement for a lease for a period not exceeding three years, where there is actual occupation of the land under the same;
- (5) Any decrees, orders or restrictions against or affecting the interest of the owner of the land which have been registered and established in force against the owner;
- (6) Any right of occupation which may by statute be vested in any person, body corporate, or Her Majesty;
- (7) Any right-of-way or other easement granted or acquired under the provisions of any Act or law in force in the Province.



Issued on instrument registered at 12.17. b28ck

P. s. n. on the 7 day of AUG.

A.D. 19 73

Number 773 Book U.D. Folio 24

E. F. GAMACHE
Registrar, N.A.L.R.D.

Certificate of Title

Asse. Fund Value \$125.00

Refer Cert. No. 27-V-215

North Alberta Land Registration District

AUG 21 1973

This is to Certify that _____ VILLAGE OF HALKIRK,

IMPORTANT NOTICE
It will be to the interest of every Owner and Mortgagee to furnish the Land Titles Office, Edmonton, with his full address (Post Office and Street number) or any change in address where Notices of dealings with this Title may be sent.

_____ IN THE PROVINCE OF ALBERTA, CANADA,

is now the owner of an estate in fee simple _____

of and in ALL THAT PORTION OF THE NORTH EAST QUARTER OF SECTION TWENTY FOUR (24) TOWNSHIP THIRTY EIGHT (38) RANGE SIXTEEN (16) WEST OF THE FOURTH MERIDIAN, IN THE SAID PROVINCE, BOUNDED AS FOLLOWS:
ON THE SOUTH BY THE NORTH LIMIT OF ALBERTA AVE. AS SHOWN ON SUBDIVISION PLAN 1989 Z, AND THE NORTH LIMIT OF THE ROAD AS SHOWN ON ROAD PLAN 6542 B.M., ON THE NORTH BY A LINE DRAWN PARALLEL TO AND PERPENDICULARLY DISTANT TWO HUNDRED AND SIXTY TWO AND FIVE TENTHS (262.5) FEET NORTHERLY FROM THE SAID NORTH LIMIT, ON THE EAST BY THE WEST LIMIT OF THE ROAD AS SHOWN ON PLAN 2538 T.R., AND ON THE WEST BY THE EAST BOUNDARY OF PARCEL (A) AS SHOWN ON FILED PLAN 7135 E.T. AND ITS PRODUCTION NORTHERLY THROUGHOUT, CONTAINING FOUR AND TWENTY FOUR HUNDREDTHS (4.24) ACRES MORE OR LESS.

RESERVING UNTO HER MAJESTY ALL MINES AND MINERALS.

TITLE CANCELLED No. 782172540
IN FULL UNDER PLAN 782 2147
on this 1ST day of AUGUST 19 73
A.D. Registrar MEP

subject to the encumbrances, liens and interests notified by memorandum underwritten or endorsed hereon, or which may hereafter be made in the register.

In Witness Whereof I have hereunto subscribed my name and affixed my official seal this SEVENTH day of AUGUST A.D. 19 73

E. F. Gamache Registrar

P.O. Address: HALKIRK, ALTA.

North Alberta Land Registration District

775 U.D. CAVEAT DATED 13-JULY-73 REG. 12.20 1/2 PM 7-AUG-73 WITHIN LAND BY RED DEER REGIONAL PLANNING COMMISSION C/O THE SECRETARY, 4910-59 ST., RED DEER, ALTA., T4N 2N1, (RE.: DEFERRED RESERVE CAVEAT).

OVER


UTILITY RIGHT OF WAY - REG. NO.

752132844, 25-SEPTEMBER-75 TO

PAINTEARTH GAS CO-OP LIMITED



ADR/AMS


DISCHARGE - REG. NO. 780172539
1ST AUGUST 1978 - OF C. 775 U.D.



ADR?mep



Certificate of Title

Canada

M



NO	7	8	2	1	7	2	5	4	0	I
REF		9	-	Q	-	2	6	6		
VALUES	N	O	T	E	S	T	A	B		

M	RG.	TWP.	SEC.	D.	PT.
1					

PLAN	BLK.	LOT	PT.
7822147	11	R3	

North Alberta Land Registration District

THIS IS TO CERTIFY that VILLAGE OF HALKIRK,

IN THE PROVINCE OF ALBERTA

IS now the owner of an estate in fee simple

of and in PLAN HALKIRK 782 2147
 BLOCK ELEVEN (11)
 LOT R-THREE (R-3) (RESERVE)
 (N.E. 24 - 38 - 16 - W.4TH)

EXCEPTING THEREOUT ALL MINES AND MINERALS.

CANCELLED
 AND CONVERTED
 MAY 11 1998
 By: *Breda*



SUBJECT TO THE ENCUMBRANCES, LIENS, ESTATES OR INTERESTS NOTIFIED BY MEMORANDUM OR ENDORSED HEREON, OR WHICH MAY HEREAFTER BE MADE IN THE REGISTER.

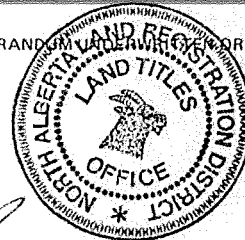
IN WITNESS WHEREOF I have hereunto subscribed my name and affixed my official seal

this 1ST day of AUGUST, A.D. 1978

Post Office Address HALKIRK, ALBERTA

JO

A.G. 699
 Rev. 7/77



[Signature]

AD Registrar

North Alberta Land Registration District

ABBREVIATIONS

- E - Easement
- C - Caveat
- Tr - Transmission
- Mfge - Mortgage
- URW - Utility Right of Way
- BL - Builders Lien
- TN - Tax Notification
- WE - Writ of Execution
- C.C. - Covenants and Conditions
- ENCUM - Encumbrance

Certificate of Title

NAME **VILLAGE OF HALKIRK**
 LAND **782 2147 BLK. 11 LOT R-3 (RESERVE)**

Show Other Abbreviations Here

TITLE NO. **7 8 2 1 7 2 5 4 0 1**

CHARGES, LIENS AND INTERESTS.

Nature of Instrument	Registration Number	Date of Registration DY MO YR	Amount \$	PARTICULARS	Signature of Registrar	Registration Number	Date of Registration DY MO YR	Signature of Registrar
URW	752132844	25 9 75		TO PAINTEARTH GAS CO-OP LIMITED	<i>[Signature]</i>			

REGISTERED
 MAY 11 1980



Parkland Geotechnical Consulting Ltd.
#102, 4756 Riverside Drive
Red Deer, AB, T4N 2N7
www.parklandgeo.com
T: 403 343 2428
F: 403 343 7699

June 9, 2021
Project No. PRO8919

Via Email: Tsunderman@mpe.ca
Original will remain on file

MPE Engineering
4702-49 Avenue
Red Deer, Alberta
T4N 6L5

RE: Phase I Environmental Site Assessment
Approval to Release Information
The Village of Halkirk – Infrastructure Audit Sites Including:

- Lot 4, Block 1, Plan 062 1408 (Campground)
- Lots 11,12,13, Block 3, Plan 1989Z (Berry Street Campground)
- Lots 1, 2, 3 Block 3, Plan 1989Z (Seniors Centre, Office and Public Works Yard)
- Lots 22, 23, 24,25,26,27, Block 3, Plan 1989Z (Community Hall)
- Lots 17,18,19,20,21, Block 3, Plan 1989Z (Water Tower and Playground)
- Lots 7,8,9,10, Block 3, Plan 1989Z (Fire Hall)
- Lot 3, Block 11, Plan 7822147 (Mini Arena)
- Lots 13, 14, Block 2, Plan 1989Z (Canada Post and Bank)
- Lot 26, 27, Block 7, Plan 1989Z (Church)
- Lot 2, Bock 8, Plan 1045MC (Curling Rink)

Dear Ms. Sunderman,

ParklandGEO has been retained by your company to conduct a Phase I Environmental Site Assessment on the above property and buildings.

This letter grants permission to release all requested information to ParklandGEO for the purposes of this Phase I Environmental Site Assessment. The **current property owner** must give authorization.

Company Name: Village of Halkirk

Name: Marcy Renschler

Signature: Marcy Renschler

Please print and sign for authorization



Parkland Geotechnical Consulting Ltd.
#102, 4756 Riverside Drive
Red Deer, AB, T4N 2N7
www.parklandgeo.com
T: 403 343 2428
F: 403 343 7699

July 13, 2021
Project No. RD7434

Via Email: Halkirk@syban.net
Original will remain on file

The Village of Halkirk
103 Main Street
Halkirk, Alberta
T0C 1M0

RE: Phase I Environmental Site Assessment
Approval to Release Information
The Village of Halkirk – Infrastructure Audit Sites Including:

16018 Township Road 383A - Lot 1, Block 1, Plan 062 1408

Dear Ms. Renschler

ParklandGEO has been retained by your company to conduct a Phase I Environmental Site Assessment on the above property and buildings.

This letter grants permission to release all requested information to ParklandGEO for the purposes of this Phase I Environmental Site Assessment. The **current property owner** must give authorization.

Company Name: Village of Halkirk

Name: Marcy Renschler CAO

Signature: Marcy Renschler

Please print and sign for authorization

Spencer Podgurski

From: Dennis & Doris Cordel <dcordel@syban.net>
Sent: Friday, July 09, 2021 3:05 PM
To: halkirk@syban.net; Spencer Podgurski
Subject: RE: Phase I ESA - Follow Up Questions

Follow Up Flag: Follow up
Flag Status: Flagged

Hi Marcy and Spencer,
See below, I have answers in red.

I doubt The fire chief could give you any more information on the chemicals, than I have below. .
JD answered the curling rink questions for me.
Anything else, let me know.

Thanks
Doris

From: halkirk@syban.net [mailto:halkirk@syban.net]
Sent: July-07-21 3:48 PM
To: D Cordel <dcordel@syban.net>
Subject: FW: Phase I ESA - Follow Up Questions

Hi Doris – I thought I would send this to you for some replies as I really don't know the answers to many of them. Would you have time to reply???

Thanks
Marcy

From: Spencer Podgurski <Spencer.Podgurski@Parklandgeo.com>
Sent: July 7, 2021 3:36 PM
To: halkirk@syban.net
Subject: Phase I ESA - Follow Up Questions

Hi Marcy,

Below are some questions regarding the inspection now that I've finally digested it all.

There's quite a few and id expect you will need some time to get to them. I'll give you a call next week to follow up.

May I have a contact number for Doris? **403-884-2253**

The name of who runs Dura Bull. **Dan Bedard runs it. Doug Potter may have more info. But - Best chance for info is Leona Chadwick And her ex-spouse Tom Chadwick. They were the owners when it first expanded from the original brick building. The "gas station" part had ceased to exist by the early 1960's when I first remember. I have no recollection of there being gas pumps there. Only history stories that said they had gas pumps. I'll be looking for someone who may have information regarding the reported gas station or any additional environmental work completed.**
A contact for the owner of the Leonie House? **Same as above. Leona Chadwick owns the property. She and/or Tom Chadwick owned it when the old garage was taken down and it was reported to have had environmental testing done**

on the lot. The gas pumps on that site were operating in the early 1960's, but were gone by the 1970's. I'll be looking for someone who may have information regarding the reported gas station or any additional environmental work completed.

A contact for the Curling Rink, specifically someone familiar with the operation/maintenance of the artificial ice system (additional questions below) See below..

The Halkirk and Area Home Fire book mentions a Village historian. Who would this be and would you have a contact for them? Not sure, that may have been on the website. I was going to write a brief history to put on the website, but never got it done.

Questions by Property as below:

Fire Hall

Would I be able to get a contact for the Fire Chief or someone involved with operations and equipment. Specifically we're looking to see if the fire suppression chemicals have contained PFOS (Perfluorooctanesulfonic acid) and if they're stored on the Property. Fire suppression chemicals in the fire hall are: SILVEX CLASS A, Fire Control Concentrate Manufactured by ANSUL. See www.ansul.com for MSDS. There are 2 pails on hand, approx 3 gallons each. I only remember ordering more supply of the chemical once while I was there (17 years), so they did not use very much of it. The two pails are stored in the little storage room on the north side of building. There is also AQUA ECO Solid wetting agent This product is solid in tubes. It is in the fire truck, approx. 12 tubes in the case, which appears to be full. The tubes fit inside the firehose so it takes the chemical out as they spray. The website for this product is www.pyrocom.us. There is no information on the containers as to chemical makeup of either of these products.

Chlorination Building

Is the chlorination building the small storage area located on the north side of the original fire hall? Yes

What quantities of chlorine were stored in the building? The chlorine was in 5 gallon pails. They only ordered 3 pails at a time. The chlorine container that fed into the water lines was approx.. a 20 to 25 gallon drum. They added to it as it got low. I do not remember of any spills in that room. When the chlorine system was shut down the remaining product was taken to a Hazardous Waste Roundup that was held in Halkirk.

Seniors Center

Is there Anyone / A Company involved with building maintenance? No The Senior's organization manages the building and does repairs/maintenance as they can.

Anyone who may know if the metal tank in the basement was used for heating oil? With an educated guess and a few other people's opinions, I say no. It was probably a water tank of some kind. There was abundant coal in the Halkirk area so everything was heated by coal, until natural gas came to the village in 1974. There is still a bit of coal in the one room in the basement. No one I asked remembers any use of heating oil in this area, because there was so much coal available.

Mini Arena

Was there ever an ice system in the Mini Arena? No.

- if so, what was the ice maintenance process?
- if not, what was the process? Flooding was done by volunteers, They used one of the fire trucks to haul water to the arena, and would put on in layers until they had enough ice. Winter provided the freezing.

Can you confirm if the floor is asphalt or concrete? Asphalt

Curling rink

Can you confirm the lot dimensions? There's a discrepancy on what I'm measuring vs the provided Village Capital List. Marcy, there is an agreement with the Perry's that they were allowed to extend their fence over to the side of the curling rink and use the back yard. That agreement would be in the files, top drawer. Spencer, if you used the neighbour's front yard fence, does that make the size correct? I believe the lot line is only about 6 to 8 feet east of their

house. Marcy, if you can view Palliser's web map, it should show you the lot lines in relation to the building, (I can't open it on my computer) And also check the lot title on SPIN, it might show you the size, or verify with the Assessor.

Following information came from JD Johnson, president of the Curling club.

What surface is under the bedding sand / cooling lines (soil, gravel, concrete, asphalt) Soil and possibly some gravel. JD says there appears to be coal; He thinks they may have used coal slag as a base.

What does the ice making process look like ? They turn on the cooling unit. Multiple light coatings of water are put on, allowed to freeze in between each coat, and repeat until they have enough ice to cover the pipes.

How is drainage of ice melt directed / managed ? There is weeping tile that drains ice melt into the basement and into the sewer. The plant is turned off after curling and the ice is allowed to melt naturally.

What refrigerant is used in the system ? Freon is in the plant, Calcium chloride is in the pipes.

Any known issues with leaks? No, Over the years they have had minor leak, but if there were a leak it would be detected as soon as they have the plant turned on, so it would be found and fixed.

There was a 1m³ tote of herbicide on the Curling Rink. Is this owned by the Village? Is it used on sites across the village ? It is not herbicide. It was used for calcium chloride for the pipes. It belongs to JD and he will pick it up and take it home. He forgot it was still there.

Community Hall

The Halkirk Home Fires Book mentions the Community Hall burning down in 1947. Are there any documents on the redevelopment? Nothing that I know of. In the notes I made for the review, I believe I explained the history of the Hall building and additions as best as I could. Marcy said she shared those notes with you.

Misc.

The Village Capital List mentions on-going roadwork and water systems upgrades. To the Villages knowledge, was there ever any gas / contaminated soil encountered during this work ? Yes, along Main street, north of Alberta Avenue, on the west side of the street. The gas station on the corner (now the Wildrose Building) probably had a leak in their underground fuel tanks at some point. Last remembered dig in that area was approx 15 to 20 years ago. They were trying to find a water leak, so they drilled several test holes on Main street north block, along the west side of the street. The test holes smelled of gas.

The Halkirk Home Fires Book mentions "Gee Lee Chines Laundry" behind the hotel. Would anyone know where this location was? have there ever been any other dry cleaners in the Village ? The Hotel is the same place it always was, since 1910, but I have no idea where the laundry was. As this mention, was in the early pioneer years, Myself, I doubt it was a dry cleaners; probably just a laundry.

The book also mentions a "Freight Station". I'm not entirely sure what this would have been used for, what it stored or its location. Would you have any idea? It could be referring to the CPR freight station. The CPR building was similar to most other train stations; It had an office to purchase tickets and do business, and an attached shed for freight that came in on the train. It was located along the old rail line, and south of Block 4. Marcy, it might be in that old picture that shows the 4 grain elevators.

I missed this when I was there but was there and Emergency Services Records for any of our Properties (fires, accidents, etc.) I can't remember anything on the Village properties. There was a grass fire in 2016 that burned across some of our grass land but there was no damage to anything else.

#102, 4756 Riverside Drive
Red Deer, AB, T4N 2N7
Tel: (403) 341 - 8715
Cell: (403) 598 - 7962
Fax: (403) 343 - 7699



Spencer Podgurski

From: PRWM <prwm@countypaintearth.ca>
Sent: Thursday, August 12, 2021 5:56 PM
To: Spencer Podgurski
Subject: RE: Halkirk Waste Transfer Station
Attachments: 4487_001.pdf; 4488_001.pdf; 4489_001.pdf; 4490_001.pdf

Hi Spencer,

Been a crazy week, sorry

I asked around and nobody seems to know if there was any ground water testing etc. the following attachments is what I found in the file, so I hope it gives you something to go with. The site is a lot cleaner now then the pictures provided.

The site now has

- Cardboard & recyclables bins – hauled away (red deer)
- Regular household garbage bins – hauled to coronation landfill
- Tire bunker – Alberta government program and hauled away
- Electronic (t.v's computers) – Alberta government program – Hauled away
- Expanded pilot electronic program – Alberta gov. program – hauled away
- Metal pile – metal recyclers haul away
- White metal (fridges, stove, etc.) freon removed properly and hauled away with metal
- Furniture pile – hauled away to coronation Landfill
- Construction Pile – hauled away to coronation landfill
- Batteries – taken to local retailer under there recycling program
- Propane bottles – hauled away
- Burn Pile (brush, grass etc.) – burned off with permit in winter
- Once a year we do a Household roundup for and hazardous material – Alberta Gov. funded program

Nothing stays for more then a year on site before being cleaned up.

If you have anymore questions, please don't hesitate to call

Thank you,

Kevin McDougall, Transfer Station Supervisor
Paintearth Regional Waste Management Ltd.
#1 Crowfoot Crossing, Hwy. 12 and Twp. Rd. 374
P.O. Box 509
Castor, Alberta
T0C 0X0
Phone: 403 – 882 – 3211
Fax: 403 – 882 – 3560
Cell: 403 – 741 -7999
Email: prwm@countypaintearth.ca

From: Spencer Podgurski <Spencer.Podgurski@Parklandgeo.com>
Sent: August 12, 2021 11:20 AM
To: PRWM <prwm@countypaintearth.ca>
Subject: FW: Halkirk Waste Transfer Station

Hey Kevin,

Just wanted to follow up.

Thanks,

Spencer Podgurski, ATT
Environmental Technologist
Parkland Geotechnical Consulting Ltd.

Cell: (403) 598 – 7962

From: Spencer Podgurski
Sent: Monday, August 09, 2021 1:50 PM
To: 'prwm@countypaintearth.ca'
Subject: FW: Halkirk Waste Transfer Station

Hey Kevin,

Hope your vacation went well.

I hate to be a bother but when do you think you could have these answers back to me? Our client is looking for the report by the end of this week.

Regards,

Spencer Podgurski, ATT
Environmental Technologist
Parkland Geotechnical Consulting Ltd.

Cell: (403) 598 – 7962

From: Spencer Podgurski
Sent: Thursday, July 29, 2021 10:26 AM
To: 'prwm@countypaintearth.ca'
Cc: Udoka Nwaesei
Subject: Halkirk Waste Transfer Station

Hi Kevin,

Thanks for taking my call. The questions I have regarding the current Halkirk Waste Transfer Station and former Landfill are below:

Landfill

- Is the opening date of the landfill known ?
- Was the landfill footprint delineated/defined before capping?
- Confirming you mentioned a thick plastic liner below the landfill and a clay cap of about 5' on top.
 - Are there documents or an engineering report on the capping?
- Confirming the landfill was transitioned to a Transfer Station in or around 1998 (as per the attached approval)
- Does the Transfer Station overlap any of the landfill ?
- Any historical environmental reports on the landfill?
- What is the monitoring process for the landfills ?
 - Confirming the landfill/Transfer Station is monitored by the County.
 - Is landfill gas monitored and/or analyzed
 - Is leachate monitored and/or analyzed?
 - Is the groundwater monitored and/or analyzed?
- Are there any records of accepted materials ?
- To your knowledge, were there ever burn pits ?

Waste Transfer Station

- What kind of materials are accepted at the Transfer station
 - Paint, Tires, Batteries, PCBs, Tires, Refrigerators ?
- Where is waste transferred to ?

Thank you,

Spencer Podgurski, ATT
Environmental Technologist
Parkland Geotechnical Consulting Ltd.

#102, 4756 Riverside Drive
Red Deer, AB, T4N 2N7
Tel: (403) 341 - 8715
Cell: (403) 598 - 7962
Fax: (403) 343 - 7699



Alberta

Environment

EVGGE01

Regional Services
3rd floor, 304, 4920 - 51st Street
Red Deer, Alberta, Canada T4N 6K8



PB031 173673
008799 Ha8K
1009 13104



Registered **Recommandé**

RW 125 947 389 CA

RW 125 947 389 CA



RW 125 947 389 CA

Signature Required
Signature requise

Be under warranty that this equipment does not contain hazardous waste.
L'expéditeur garantit que cet envoi ne contient pas de déchets dangereux.

ATTENTION: DIRECTORS

PAINT&ARTH REGIONAL WASTE
MANAGEMENT LTD.
2200, 10155 - 102 STREET
EDMONTON AB T5J 4G8

DELIVERY

-10-19 2009

RECEIVED

File No. 8574

October 9, 2009

Paintearth Regional Waste Management Ltd.
Attention: Directors
2200, 10155 102 Street
Edmonton, Alberta T5J 4G8

NOTICE OF INVESTIGATION

This letter is to advise you of an investigation Alberta Environment is undertaking at the Castor Transfer Station, SW-3-38-14-W4, and the Halkirk Transfer Station, NE-24-38-16-W4. This investigation relates to the improper storage of hazardous waste.

These incidents may be a contravention of Section 11 of the *Waste Control Regulation* which states the following:

"(1) A person who stores hazardous waste shall store it in an amount and in a manner so that

- (a) it will not cause an adverse effect,*
- (b) any leakage is contained and prevented from entering into the remainder of the hazardous waste management facility and places beyond, including sewers and the ground underneath the site,*
- (c) at least secondary containment is provided for liquid hazardous waste, and there are no openings in the secondary containment system that provide a direct connection to the area surrounding the system,*
- (d) the hazardous waste is adequately labelled, stating the identity of the hazardous waste that is being stored,*
- (e) incompatible hazardous wastes are stored in such a manner that there will be no contact between them, even in the event of a release, and*

(f) routine inspections of the site can be performed.

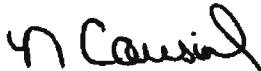
(2) A person who stores hazardous waste shall ensure that the hazardous waste is stored in a place that

- (a) is secure from entry by unauthorized persons,*
- (b) is prominently identified as a hazardous waste management facility where hazardous waste is being stored,*
- (c) is equipped with suitable equipment to handle emergency situations,*
- (d) is provided with operators trained to respond to emergency situations specific to the hazardous waste stored, and*
- (e) is designed and maintained so that surface run-off water cannot enter the secondary containment system."*

A written response outlining the actions taken to remedy the non-compliances must be submitted to the undersigned no later than November 13th, 2009.

Enforcement action may be taken without further notice. You must take all necessary steps to come into compliance with all Acts and Regulations.

Yours truly,



**Natalie Cousins
Environmental Protection Officer
Investigator
Central Region**

cc: Martin Paetz, District Compliance Manager

Halkirk/Castor Transfer Sites

Further to the matter of the Environmental Investigation.

Halkirk Site: EnviroSort was hired to clean any chemical, hazardous materials at the site.
Filipenko Bros. cleaned up old piles and transferred them to Coronation
Filipenko Bros. Piled up the burning materias.

Castor Site: EnviroSort was hired to clean any chemical or hazardous materials at the site.
Filipenko Bros. cleaned up old piles and hauled it away to Coronation and pushed up the burning pile.

Work to be Done:

Need to contact metal recycler to pick up all the white goods and metals.
General clean up of the sites, paper, miscellaneous materials etc.

Submitted to the Board January 26th, 2010.

Michael Yakielashek

From: Todd Urquhart [Todd.Urquhart@gov.ab.ca]
Sent: Thursday, July 08, 2010 3:41 PM
To: Michael Yakielashek
Subject: RE: Castor and Halkirk Transfer Stations

Michael, thank you for keeping me updated as to the progress of the cleanup.

Please contact me when the cleanup is complete. I will then schedule a site visit to review the cleanup and at that time you can provide me with all of the paper work such as invoicing, manifests and analytical data from sampling confirming cleanup.

Best Regards,

TODD URQUHART
ENVIRONMENTAL PROTECTION OFFICER
INVESTIGATOR
MINISTRY OF ENVIRONMENT
CENTRAL REGION - RED DEER
PH: (403) 340-5314
FX: (403) 341-8608



From: Michael Yakielashek [mailto:castor@townofcastor.ca]
Sent: Thursday, July 08, 2010 1:49 PM
To: Todd Urquhart
Subject: FW: Castor and Halkirk Transfer Stations

From: Michael Yakielashek
Sent: Thursday, July 08, 2010 1:25 PM
To: 'todd.urguhart@gov.ab.ca'
Subject: Castor and Halkirk Transfer Stations

Todd

I have to apologize. Some of the work for the two transfer stations has not been completed. I was at the two sites yesterday. CCS still hasn't got to the clean up at Halkirk. I took samples and sent them away for analysis so that CCS can complete the work. Enviro Sort has not completed work at the Castor site. I contacted them today and they will be here on July 14th.

I am requesting an extension to the end of the month to get all the work completed.

I am hoping this will be acceptable to you.

Michael Yakielashek

7/9/2010

Town of Castor

Box 479
Castor, AB
T0C 0X0



Phone: (403)882-3215
Fax: (403)882-2700
e-mail: castor@telusplanet.net

Fax Cover Sheet

Dated: July 19, 2010 Fax: 403-575-3927

Number of Pages including this page: 3

To: LORNA MCKENZIE

From: MIKE

Message: RE: HALLKIRK TRANSFER STATION
FOR PRINCEARTH REGIONAL WASTE MANAGEMENT

The contents of this transmission are intended for the use of the addressee only. If you have received this fax in error, or if you have trouble receiving this fax, please notify us immediately.

Town of Castor

Box 479
Castor, AB
T0C 0X0



Phone: (403)882-3215
Fax: (403)882-2700
e-mail: castor@telusplanet.net

Fax Cover Sheet

Dated: JUN 2, 2010 Fax: 403-341-8608

Number of Pages including this page: 4

To: ATTENTION TODD

From: MIKE

Message:

The contents of this transmission are intended for the use of the addressee only. If you have received this fax in error, or if you have trouble receiving this fax, please notify us immediately.

Town of Castor

Box 479
Castor, AB
T0C 0X0



Phone: (403)882-3215
Fax: (403)882-2700
e-mail: castor@telusplanet.net

Fax Cover Sheet

Dated: October 23, 2009 Fax: (403) 340-5022

Number of Pages including this page: 2

To: NATALIE COUSINS

From: MICHAEL YAKOVLENCHUK

Message: ORIGINAL MAILED

The contents of this transmission are intended for the use of the addressee only. If you have received this fax in error, or if you have trouble receiving this fax, please notify us immediately.

Redbank 1 Wheel Rebuild to Conversion









Bacteria show to do removal from site :





Empire Best - to come and clean up.

Swiss Post - to clean ahead up.





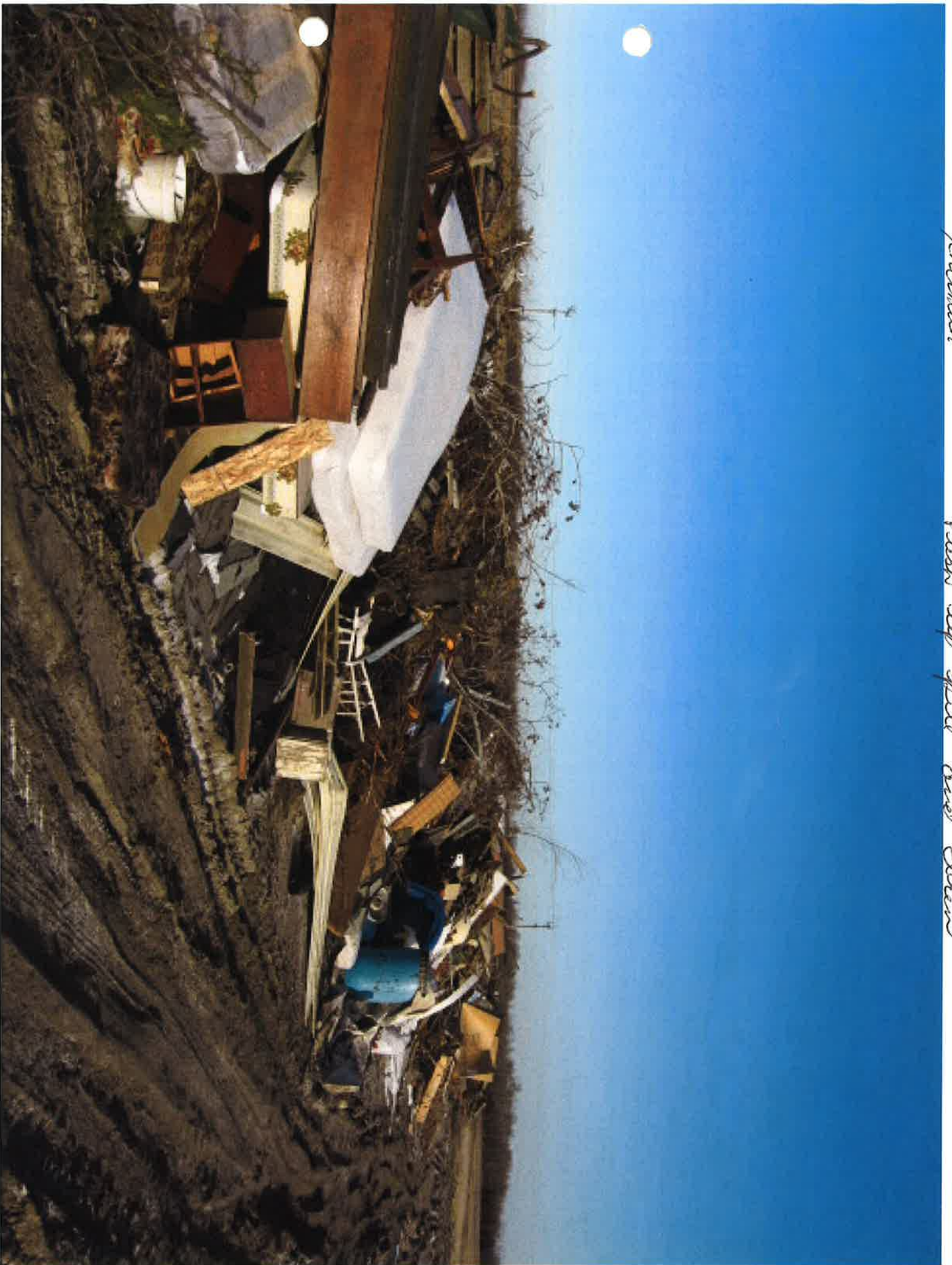
Environ. Dept. to clean up.



Reelback - South ~~side~~ of River Basin south to Newburg.

Alaska

Peak up pile and seen



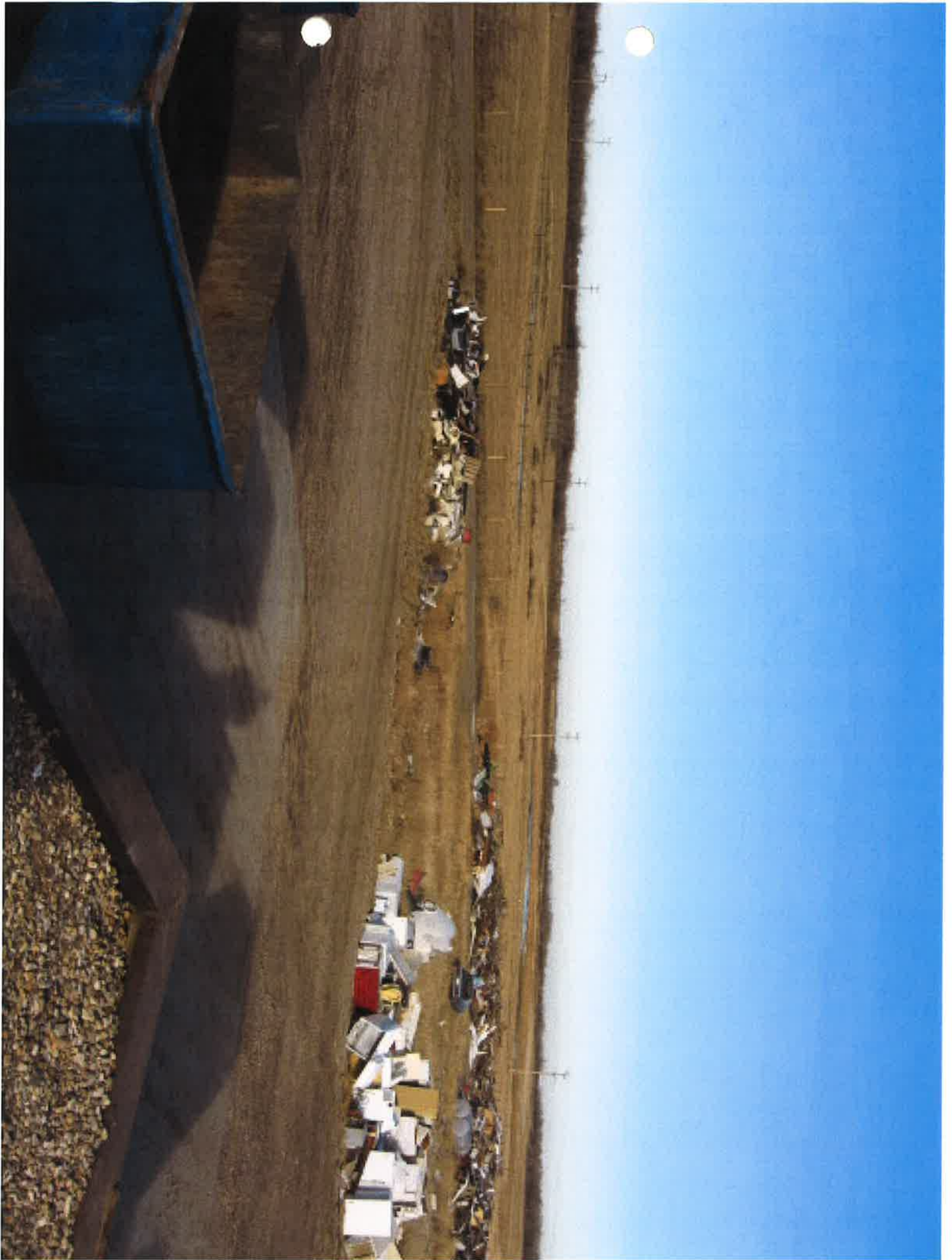




Photo of the destroyed building. Making the weather.

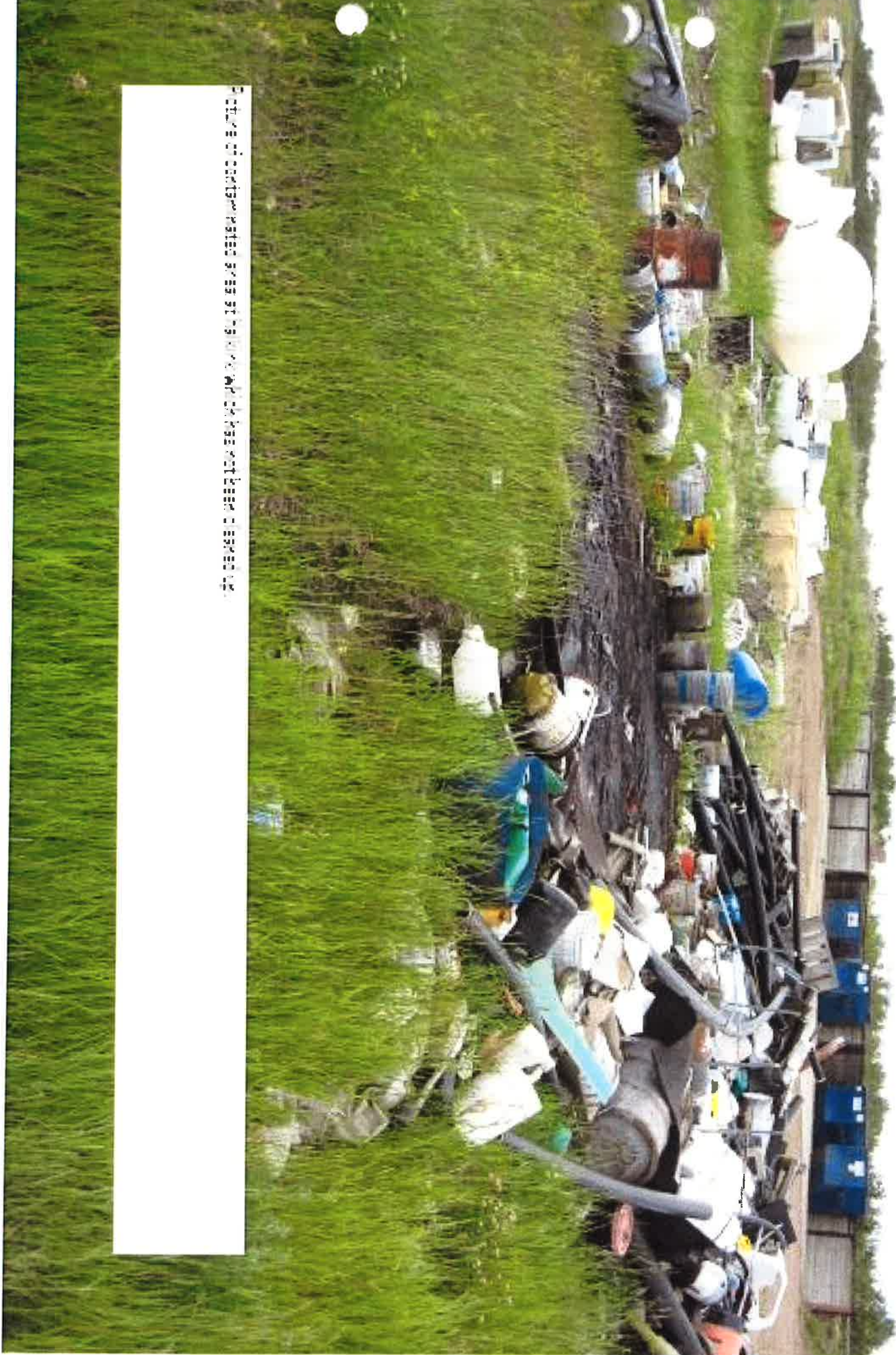


Figure 1: A large pile of industrial waste and debris in a grassy field. The debris includes various containers, pipes, and materials. In the background, there are several large white spherical tanks and a building with blue storage bins.

[Redacted text block]

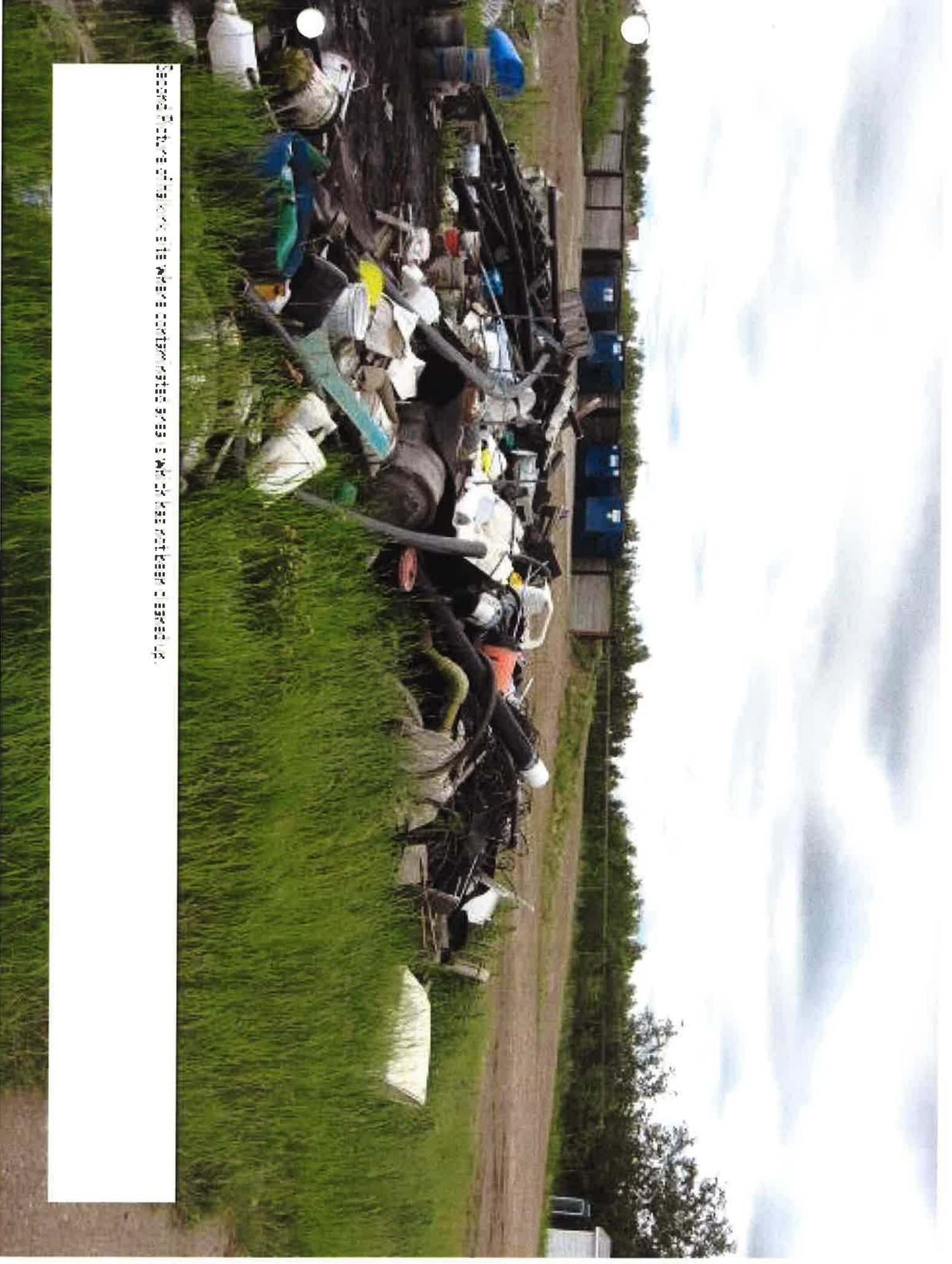
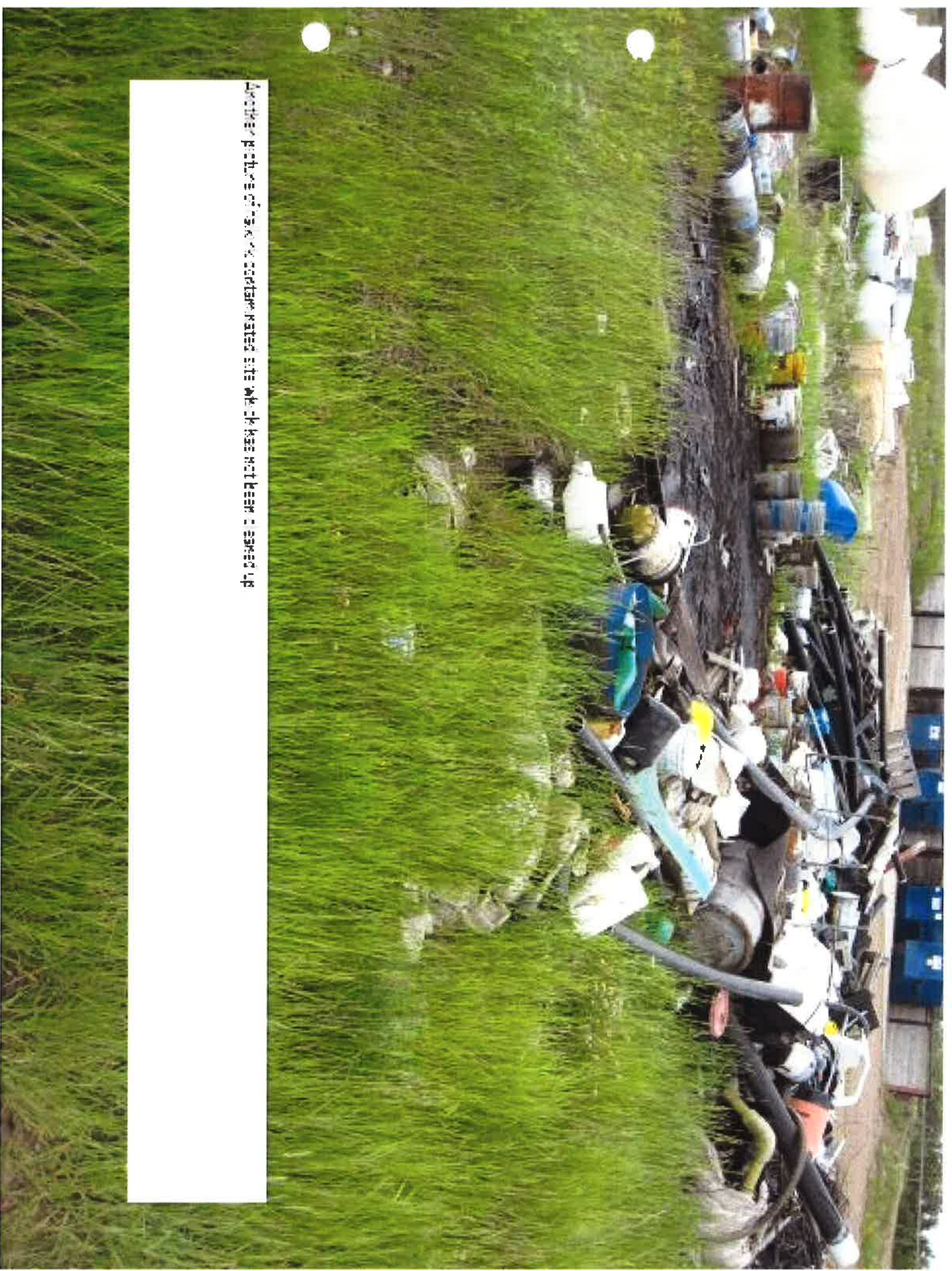


Photo of the debris pile at the site of the 2010 earthquake. The debris is a mix of household and commercial waste.



Figure 1. A makeshift settlement in a grassy field, featuring several large, white, dome-shaped tents and various structures. The foreground is cluttered with debris, including plastic bottles, bags, and other waste. The background shows a line of trees under a cloudy sky.



Another picture of "back of container" area site which has not been cleaned up

Michael Yakielashek

From: Beblow, Les [lbeblow@ccsmidstreamservices.com]
Sent: Monday, July 05, 2010 4:03 PM
To: Michael Yakielashek
Subject: analytical requirements

Mike,

Here is a list of the requirements for analytical you will need to get done. Required analytical would be pH, flashpoint, leachable BTEX and leachable metals. Once you get the analytical back, send it down to us and we need to fill out a non-oilfield waste generator form and determine whether or not the material meets our acceptance criteria. Should you have any questions, feel free to contact me at any time. Thanks!

Les Beblow
CCS Midstream Services
Coronation, Ab
403-575-3911

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CCS-06-01-2009

ATTENTION, SUSAN

~~BT~~

ALS LABORATORY GROUP ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L905958-1 HALKIRK TRANSFER STATION							
Sampled By: MIKE YAKIELASHISK on 07-JUL-10 @ 13:10							
Matrix: SOIL							
Class II Basic Landfill w/o Paint Filter							
Flash Point (Closed Cup)							
Flash Point	>75		10	Deg. C		09-JUL-10	R1339507
Leachable Mercury (Hg), TCLP							
Mercury (Hg)-Leachable	<0.010		0.010	mg/L		09-JUL-10	R1344686
TCLP Leachable BTEX							
Benzene	<0.0050		0.0050	mg/L		12-JUL-10	R1339943
Toluene	<0.0050		0.0050	mg/L		12-JUL-10	R1339943
Ethylbenzene	<0.0050		0.0050	mg/L		12-JUL-10	R1339943
o-Xylene	<0.0050		0.0050	mg/L		12-JUL-10	R1339943
m+p-Xylene	<0.0050		0.0050	mg/L		12-JUL-10	R1339943
Xylenes	<0.010		0.010	mg/L		12-JUL-10	R1339943
TCLP Leachable Metals							
Silver (Ag)	<0.50		0.50	mg/L		11-JUL-10	R1347665
Arsenic (As)	<0.20		0.20	mg/L		11-JUL-10	R1347665
Boron (B)	<5.0		5.0	mg/L		11-JUL-10	R1347665
Barium (Ba)	<5.0		5.0	mg/L		11-JUL-10	R1347665
Beryllium (Be)	<0.50		0.50	mg/L		11-JUL-10	R1347665
Cadmium (Cd)	<0.050		0.050	mg/L		11-JUL-10	R1347665
Cobalt (Co)	<5.0		5.0	mg/L		11-JUL-10	R1347665
Chromium (Cr)	<0.50		0.50	mg/L		11-JUL-10	R1347665
Copper (Cu)	<5.0		5.0	mg/L		11-JUL-10	R1347665
Iron (Fe)	<5.0		5.0	mg/L		11-JUL-10	R1347665
Nickel (Ni)	<0.50		0.50	mg/L		11-JUL-10	R1347665
Lead (Pb)	<0.50		0.50	mg/L		11-JUL-10	R1347665
Antimony (Sb)	<5.0		5.0	mg/L		11-JUL-10	R1347665
Selenium (Se)	<0.20		0.20	mg/L		11-JUL-10	R1347665
Thallium (Tl)	<0.50		0.50	mg/L		11-JUL-10	R1347665
Uranium (U)	<0.20		0.20	mg/L		11-JUL-10	R1347665
Vanadium (V)	<5.0		5.0	mg/L		11-JUL-10	R1347665
Zinc (Zn)	11.5		5.0	mg/L		11-JUL-10	R1347665
Zirconium (Zr)	<5.0		5.0	mg/L		11-JUL-10	R1347665
pH							
pH	6.87		0.10	pH		12-JUL-10	R1345843

* Refer to Referenced Information for Qualifiers (if any) and Methodology.



Environmental

Quality Control Report

Workorder: L905958

Report Date: 15-JUL-10

Page 1 of 3

Client: COUNTY OF PAINTEARTH NO.18
 BOX 479
 CASTOR AB T0C 0X0
 Contact: MICHAEL YAKIELASHISK

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
BTX-TCLP-ED		Waste						
Batch	R1339943							
WG1131930-2	LCS							
Benzene			82		%		70-130	12-JUL-10
Toluene			87		%		70-130	12-JUL-10
Ethylbenzene			81		%		70-130	12-JUL-10
o-Xylene			80		%		50-150	12-JUL-10
m+p-Xylene			81		%		50-150	12-JUL-10
WG1131930-1	MB							
Benzene			<0.0050		mg/L		0.005	12-JUL-10
Toluene			<0.0050		mg/L		0.005	12-JUL-10
Ethylbenzene			<0.0050		mg/L		0.005	12-JUL-10
o-Xylene			<0.0050		mg/L		0.005	12-JUL-10
m+p-Xylene			<0.0050		mg/L		0.005	12-JUL-10
ETL-METAL-TCLP-ED		Waste						
Batch	R1347665							
WG1131284-1	MB							
Silver (Ag)			<0.50		mg/L		0.5	11-JUL-10
Arsenic (As)			<0.20		mg/L		0.2	11-JUL-10
Boron (B)			<5.0		mg/L		5	11-JUL-10
Barium (Ba)			<5.0		mg/L		5	11-JUL-10
Beryllium (Be)			<0.50		mg/L		0.5	11-JUL-10
Cadmium (Cd)			<0.050		mg/L		0.05	11-JUL-10
Cobalt (Co)			<5.0		mg/L		5	11-JUL-10
Chromium (Cr)			<0.50		mg/L		0.5	11-JUL-10
Copper (Cu)			<5.0		mg/L		5	11-JUL-10
Iron (Fe)			<5.0		mg/L		5	11-JUL-10
Nickel (Ni)			<0.50		mg/L		0.5	11-JUL-10
Lead (Pb)			<0.50		mg/L		0.5	11-JUL-10
Antimony (Sb)			<5.0		mg/L		5	11-JUL-10
Selenium (Se)			<0.20		mg/L		0.2	11-JUL-10
Thallium (Tl)			<0.50		mg/L		0.5	11-JUL-10
Uranium (U)			<0.20		mg/L		0.2	11-JUL-10
Vanadium (V)			<5.0		mg/L		5	11-JUL-10
Zinc (Zn)			<5.0		mg/L		5	11-JUL-10
Zirconium (Zr)			<5.0		mg/L		5	11-JUL-10
HG-TCLP-CVAA-ED		Waste						

WASTE AUTHORIZATION (Non-Oilfield Wastes)



BAS CODE
(CCS use only)

CCS Facility Name:

A. GENERATOR INFORMATION

Generating Company:

PAINTEARTH REGIONAL WASTE MANAGEMENT LTD.

Generator Contact:

MICHAEL YAKIENASHEK

Phone:

403-882-3215

Fax:

403-882-2700

Generating Site Address:

*HALLIKIAK TRANSFER STATION
NE 24-39-16-04*

E-mail:

Costa@telephonet.net

LSD:

B. NON-OILFIELD WASTE TYPE

		Requirements for Acceptance:
<input type="checkbox"/>	Refinery Waste <input type="checkbox"/> Hazardous Recyclable <input type="checkbox"/> Non-Hazardous Recyclable	<ul style="list-style-type: none"> ▪ There must be a recoverable component of hydrocarbon (crude oil) in the waste stream, and ▪ Organic halides must not be present in the waste stream. (This will need to be confirmed by a laboratory analysis if it is likely that organic halides are present in the waste stream. If analysis is required, laboratory results must be attached to the Waste Authorization).
<input type="checkbox"/>	Car/Truck Wash Sump Material <input type="checkbox"/> Non-Hazardous	<ul style="list-style-type: none"> ▪ A representative sample of the waste stream must be sent to a laboratory and the laboratory results must indicate the waste is non-hazardous. (Required analysis: pH, flashpoint, leachable BTEX and leachable metals) ▪ Laboratory results must be attached to the Waste Authorization
<input type="checkbox"/>	Interceptor Material <input type="checkbox"/> Non-Hazardous	<ul style="list-style-type: none"> ▪ A representative sample of the waste stream must be sent to a laboratory and the laboratory results must indicate the waste is non-hazardous. (Required analysis: pH, flashpoint, leachable BTEX and leachable metals) ▪ Laboratory results must be attached to the Waste Authorization
<input checked="" type="checkbox"/>	Contaminated Soil <input type="checkbox"/> Non-Hazardous <input checked="" type="checkbox"/> Non-Hazardous and contaminated only with fuels such as gasoline, kerosene, diesel, aviation fuel, fuel oil or crude petroleum hydrocarbons	<ul style="list-style-type: none"> ▪ A representative sample of the waste stream must be sent to a laboratory and the laboratory results must indicate the waste is non-hazardous. (Required analysis: pH, flashpoint, leachable BTEX and leachable metals. Note: Additional analysis may be required depending on the contaminants present in the waste. Please contact a CCS Facility Manager or CCS Marketer for additional information.) ▪ Laboratory results must be attached to the Waste Authorization <p>OR, if the soil is only contaminated with fuels such as gasoline, kerosene, diesel, aviation fuel, fuel oil or crude petroleum hydrocarbons as per the Alberta User Guide for Waste Managers</p> <ul style="list-style-type: none"> ▪ A representative sample of the contaminated soil must be analyzed for flashpoint, and the flashpoint result must be greater than 61°C. ▪ Flashpoint results must be attached to the Waste Authorization
<input type="checkbox"/>	Fluids appropriate for 1b Disposal as per D-51 <input type="checkbox"/> Non-Hazardous <input type="checkbox"/> Meets 1b Disposal Criteria	<ul style="list-style-type: none"> ▪ A representative sample of the waste stream must be sent to a laboratory and the laboratory results must indicate the waste is non-hazardous and meets Class 1b disposal criteria as outlined in ERCB Directive 51. (Required analysis: pH, flashpoint, leachable BTEX, total metals, leachable metals (total halogenated organic compounds and PCBs are also required if they are possibly present in the waste stream).) ▪ Laboratory results must be attached to the Waste Authorization

Any non-oilfield material that does not appear above may not be accepted at the facility without prior written approval from the ERCB. Please contact a CCS Facility Manager or CCS Marketer to determine disposal options.

Town of Castor

Box 479
Castor, AB
T0C 0X0



Phone: (403)882-3215
Fax: (403)882-2700
e-mail: castor@telusplanet.net

Fax Cover Sheet

Dated: AUG 30, 2010 Fax: 403-341-8608

Number of Pages including this page: 16

To: TODD URQUHART

From: MICHAEL YAKIELASHEN

Message: YOUR FINE # 8574

The contents of this transmission are intended for the use of the addressee only. If you have received this fax in error, or if you have trouble receiving this fax, please notify us immediately.

Paintearth Regional Waste Management Ltd.
Box 479
Castor, Alberta
T0C 0X0
Tarolyn Peach, Treasurer (403) 882 – 3211
Michael Yakielashek, Secretary (403) 882 – 3215

August 30, 2010

Todd Urquhart
Environmental Protection Officer
Investigator
Minister of Environment
Central Region
304, 4920 – 51st Street
Red Deer, Alberta
T4N 6K8

Dear Sir;

Re: Castor and Halkirk Transfer Stations
Your File# 8574

We have finally been able to get the contaminated materials cleaned up at the Castor and Halkirk Transfer Stations. Attached please find copies of the reports concerning the clean up from Enviro Sort and CCF for the contaminated soils.

Please contact me if there is any further information required on this matter. The Board of Directors at the last meeting has instructed that administration come up with a better way of handling the transfer stations. We will be meeting soon to discuss how this can be done, so this type of problem does not come about again in the future.

Yours truly,


Michael Yakielashek, Secretary

MY/my

Encls.

Filipenko Bros. Construction Ltd.
 Box 398
 Castor, Alberta T0C 0X0
 GST #10179 5391

INVOICE

NO 18633

DATE 08/13/2010

PAGE 1 of 1

SOLD TO

SHIP TO

Paintearth Waste Management Services

Paintearth Waste Management Services

Box 509
 Castor, AB
 T0C 0X0

Box 509
 Castor, AB
 T0C 0X0

Halkirk landfill

ITEM NO.	QUANTITY	UNIT	DESCRIPTION	GST	PST	UNIT PRICE	AMOUNT
Trackhoe	24.5	hours	Trackhoe	G		120.00	2,940.00
Truck	16.0	hour	Truck & Pup	G		120.00	1,920.00
Truck	18.0	hour	Truck & Trailer	G		120.00	2,160.00
Tandem	8.0	hour	Tandem Truck	G		95.00	760.00
Top Soil	66.0	yard	Fill dirt	G		4.00	264.00
			Trucks to haul to CCS plant				
			G - Gst 5%				
			GST				402.20
RECEIVED 10 [Signature]							
APPROVED [Signature]							
G/L # 4100-1							
11k - Transfer Station R+M							
REMARKS							
Thank you for your business!! We now accept Mastercard and Visa						TOTAL	8,446.20

Paintearth Regional Waste Management LTD
 PO Box 479
 Castor, Alberta T0C 0X0
 Canada
Attention: Mike Yakielashek

Invoice Number: **1004102204**
 Invoice Date: **10-Aug-10**
 Terms: Payable upon receipt

Regarding: CCS Coronation Plant
 Producer: Paintearth Regional Waste Management LTD
 Contract: **Paintearth Regional Waste Management LTD @ Coronation. (Created: 8/10/2010 1:50:08 PM)**
 PO #: n/a
 AFE #: n/a

Location	Service(s) Provided	Code	Volume	Rate	Amount
ABWI100NE-24-038-16W400					
	Dispose Solid Component of Waste		201.50 m ³	\$175.00 \$ /m ³	\$35,262.50
					\$35,262.50
				Invoice Subtotal:	\$35,262.50
				5.00% GST (865985469RT0002):	\$1,763.13
				Total Amount Due:	\$37,025.63

Solids component includes sediments, interphase , & non-processable substances. Waste oil credits may not apply for non-recoverabl oil such as bitumen. For queries contact Lorna 403-575-3911or lmckenzie@ccsmidstreamservices.com. After hrs 403-741-6185.

CCS Thanks you for your business.

RECEIVED 53
 APPROVED [Signature]
 BIL # 4100-1

*HLK Trnsfr. St.
 Cleanup*

RECEIVED
 AUG 16 2010

Please make payment to: CCS Midstream Services
 24th Floor, 530 8 Avenue SW, Calgary, Alberta, T2P 3S8
 Email: See Above



INVOICE #: E686620

SOLD TO:
 COUNTY OF PAINT EARTH NO.18
 BOX 509
 4901 50 AVE
 CASTOR AB
 T0C 0X0
 ATTN: ACCOUNTS PAYABLE

REPORTED TO: 20095
 COUNTY OF PAINT EARTH NO.18
 BOX 479
 CASTOR, AB
 T0C 0X0
 ATTN: MICHAEL YAKIELASHISK
 JOB #:

Date	Account #	Terms	Due Date	Reference
15-JUL-10	20095	Net 30 Days	14-AUG-10	Not Submitted

Matrix	Analysis	Description	Surcharge	Qty	Unit Price	Total Price
Misc.	SAMPLE-DISPOSAL	Handling/Disposal Fee		1	\$2.00	\$2.00
Waste	LANDFILL-CCS-ED	Class II Basic Landfill w/o Paint Filter		1	\$480.00	\$480.00

ALS Work Order Numbers and Receive date:
 L905958 08-JUL-10

Sub-total: \$482.00
 GST (5%): \$24.10

Additional Information: GST/HST BN100938885

Total (CAD): \$506.10

Contact Info:
 NICOLE THIBAUT
 Phone #: (780) 413-5227
 Fax #: (780) 437-2311
 EDMONTON

*Games copy to
 Linda at County office
 on August 11/10
 J.*

Please remit payment to ALS Canada Ltd at the address below. We accept Visa and Mastercard.

ADDRESS 2103 Dollarton Hwy, North Vancouver BC V7H 0A7 Canada
 ALS CANADA LTD Part of the ALS Group A Campbell Brothers Limited Company



RIGHT SOLUTIONS RIGHT PARTNER



Environmental Division

Certificate of Analysis

COUNTY OF PAINT EARTH NO.18
ATTN: MICHAEL YAKIELASHISK
BOX 479
CASTOR AB T0C 0X0

Report Date: 12-JUL-10 16:59 (MT)
Version: FINAL

Lab Work Order #: **L905958**

Date Received: **08-JUL-10**

Project P.O. #: NOT SUBMITTED
Job Reference:
Legal Site Desc:
CofC Numbers: 10-054534

Other Information:

Comments:

Nicole Thibault
Account Manager

THIS REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE WRITTEN AUTHORITY OF THE LABORATORY.
ALL SAMPLES WILL BE DISPOSED OF AFTER 30 DAYS FOLLOWING ANALYSIS. PLEASE CONTACT THE LAB IF YOU
REQUIRE ADDITIONAL SAMPLE STORAGE TIME.

ALS LABORATORY GROUP ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L905958-1 HALKIRK TRANSFER STATION							
Sampled By: MIKE YAKIELASHISK on 07-JUL-10 @ 13:10							
Matrix: SOIL							
Class II Basic Landfill w/o Paint Filter							
Flash Point (Closed Cup)							
Flash Point	>75		10	Deg. C		09-JUL-10	R1339507
Leachable Mercury (Hg), TCLP							
Mercury (Hg)-Leachable	<0.010		0.010	mg/L		09-JUL-10	R1344686
TCLP Leachable BTEX							
Benzene	<0.0050		0.0050	mg/L		12-JUL-10	R1339943
Toluene	<0.0050		0.0050	mg/L		12-JUL-10	R1339943
Ethylbenzene	<0.0050		0.0050	mg/L		12-JUL-10	R1339943
o-Xylene	<0.0050		0.0050	mg/L		12-JUL-10	R1339943
m+p-Xylene	<0.0050		0.0050	mg/L		12-JUL-10	R1339943
Xylenes	<0.010		0.010	mg/L		12-JUL-10	R1339943
TCLP Leachable Metals							
Silver (Ag)	<0.50		0.50	mg/L		11-JUL-10	R1347665
Arsenic (As)	<0.20		0.20	mg/L		11-JUL-10	R1347665
Boron (B)	<5.0		5.0	mg/L		11-JUL-10	R1347665
Barium (Ba)	<5.0		5.0	mg/L		11-JUL-10	R1347665
Beryllium (Be)	<0.50		0.50	mg/L		11-JUL-10	R1347665
Cadmium (Cd)	<0.050		0.050	mg/L		11-JUL-10	R1347665
Cobalt (Co)	<5.0		5.0	mg/L		11-JUL-10	R1347665
Chromium (Cr)	<0.50		0.50	mg/L		11-JUL-10	R1347665
Copper (Cu)	<5.0		5.0	mg/L		11-JUL-10	R1347665
Iron (Fe)	<5.0		5.0	mg/L		11-JUL-10	R1347665
Nickel (Ni)	<0.50		0.50	mg/L		11-JUL-10	R1347665
Lead (Pb)	<0.50		0.50	mg/L		11-JUL-10	R1347665
Antimony (Sb)	<5.0		5.0	mg/L		11-JUL-10	R1347665
Selenium (Se)	<0.20		0.20	mg/L		11-JUL-10	R1347665
Thallium (Tl)	<0.50		0.50	mg/L		11-JUL-10	R1347665
Uranium (U)	<0.20		0.20	mg/L		11-JUL-10	R1347665
Vanadium (V)	<5.0		5.0	mg/L		11-JUL-10	R1347665
Zinc (Zn)	11.5		5.0	mg/L		11-JUL-10	R1347665
Zirconium (Zr)	<5.0		5.0	mg/L		11-JUL-10	R1347665
pH							
pH	6.87		0.10	pH		12-JUL-10	R1345843

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
BTX-TCLP-ED	Waste	TCLP Leachable BTEX	EPA 5030/8015& 8260-P&T GC-MS/FID
ETL-METAL-TCLP-ED	Waste	TCLP Leachable Metals	EPA SW846 Methods 1311 and 6020
FLASH-ED	Waste	Flash Point (Closed Cup)	ASTM D-93-Flash point tester
HG-TCLP-CVAA-ED	Waste	Leachable Mercury (Hg), TCLP	SW 846 -1311/245.1 CVAA ON TCLP LEACHATE
PH-1:2-ED	Waste	pH	CSSS 16.2 - PH OF 1:2 WATER EXTRACT

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
ED	ALS LABORATORY GROUP - EDMONTON, ALBERTA, CANADA

Chain of Custody Numbers:

10-054534

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.

mg/kg - milligrams per kilogram based on dry weight of sample

mg/kg wwt - milligrams per kilogram based on wet weight of sample

mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight

mg/L - unit of concentration based on volume, parts per million.

< - Less than.

D.L. - The reporting limit.

N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.



Quality Control Report

Workorder: L905958

Report Date: 15-JUL-10

Page 1 of 3

Client: COUNTY OF PAINTEARTH NO.18

BOX 479

CASTOR AB TOC 0X0

Contact: MICHAEL YAKIELASHISK

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<u>BTX-TCLP-ED</u>		<u>Waste</u>						
Batch	R1339943							
WG1131930-2	LCS							
Benzene			82		%		70-130	12-JUL-10
Toluene			87		%		70-130	12-JUL-10
Ethylbenzene			81		%		70-130	12-JUL-10
o-Xylene			80		%		50-150	12-JUL-10
m+p-Xylene			81		%		50-150	12-JUL-10
WG1131930-1	MB							
Benzene			<0.0050		mg/L		0.005	12-JUL-10
Toluene			<0.0050		mg/L		0.005	12-JUL-10
Ethylbenzene			<0.0050		mg/L		0.005	12-JUL-10
o-Xylene			<0.0050		mg/L		0.005	12-JUL-10
m+p-Xylene			<0.0050		mg/L		0.005	12-JUL-10
<u>ETL-METAL-TCLP-ED</u>		<u>Waste</u>						
Batch	R1347665							
WG1131284-1	MB							
Silver (Ag)			<0.50		mg/L		0.5	11-JUL-10
Arsenic (As)			<0.20		mg/L		0.2	11-JUL-10
Boron (B)			<5.0		mg/L		5	11-JUL-10
Barium (Ba)			<5.0		mg/L		5	11-JUL-10
Beryllium (Be)			<0.50		mg/L		0.5	11-JUL-10
Cadmium (Cd)			<0.050		mg/L		0.05	11-JUL-10
Cobalt (Co)			<5.0		mg/L		5	11-JUL-10
Chromium (Cr)			<0.50		mg/L		0.5	11-JUL-10
Copper (Cu)			<5.0		mg/L		5	11-JUL-10
Iron (Fe)			<5.0		mg/L		5	11-JUL-10
Nickel (Ni)			<0.50		mg/L		0.5	11-JUL-10
Lead (Pb)			<0.50		mg/L		0.5	11-JUL-10
Antimony (Sb)			<5.0		mg/L		5	11-JUL-10
Selenium (Se)			<0.20		mg/L		0.2	11-JUL-10
Thallium (Tl)			<0.50		mg/L		0.5	11-JUL-10
Uranium (U)			<0.20		mg/L		0.2	11-JUL-10
Vanadium (V)			<5.0		mg/L		5	11-JUL-10
Zinc (Zn)			<5.0		mg/L		5	11-JUL-10
Zirconium (Zr)			<5.0		mg/L		5	11-JUL-10
<u>HG-TCLP-CVAA-ED</u>		<u>Waste</u>						



Quality Control Report

Workorder: L905958

Report Date: 15-JUL-10

Page 2 of 3

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
<u>HG-TCLP-CVAA-ED</u>								
	<u>Waste</u>							
Batch	R1344686							
WG1131284-1	MB							
Mercury (Hg)-Leachable			<0.010		mg/L		0.01	09-JUL-10
<u>PH-1:2-ED</u>								
	<u>Waste</u>							
Batch	R1345843							
WG1132603-1	IRM	ED-SAL NAT1						
pH			6.72		pH		6.57-7.17	12-JUL-10
WG1132603-3	LCS							
pH			3.95		pH		3.9-4.1	12-JUL-10
WG1132603-4	LCS							
pH			6.92		pH		6.9-7.1	12-JUL-10
WG1132603-5	LCS							
pH			10.04		pH		9.9-10.1	12-JUL-10

Spencer Podgurski

From: diana.frechette@gov.ab.ca
Sent: Wednesday, July 07, 2021 8:05 AM
To: Spencer Podgurski
Subject: [E21-S-0823] Closure Letter No Records



Environment & Parks and Agriculture & Forestry
FOIP Office
10th Floor, 9Triple8 Jasper,
9888 Jasper Avenue NW
Edmonton, Alberta, T5J 5C6
Telephone: 780-427-4429
www.alberta.ca

July 7, 2021

Mr. spencer podgurski
ParklandGEO
102, 4756 Riverside drive
Red Deer, Alberta T4N 2N7

Your File #: RD7434 - Campground
FOIP Request #: E21-S-0823
Order Number: FOIPRD-2021-9105

Dear Mr. podgurski:

Re: Freedom of Information and Protection of Privacy Act Request for records pertaining to the property located at 302 Main Street, Halkirk

The following is in response to your request of June 30, 2021 for access under the Freedom of Information and Protection of Privacy Act to the following subject records:

Location: Plan 0621408 Lot 4 Block 1 Halkirk; 302 Main Street, Halkirk

Name(s): The Village of Halkirk, Harold G. Chick, Velma Chick, George Ezra Emmett, The Director, Veterans Land Act, Harry W. Heffer The Village of Halkirk, Harold G. Chick, Velma Chick, George Ezra Emmett, The Director, Veterans Land Act, Harry W. Heffer

Time Frame: Historical to Jun 30, 2021

Records: any environmental records pertaining to air, water, groundwater, surface water and soil concerns as well as any documentation on fires, approval warnings, remediation certificates etc. Also, any spills, releases, infractions, fines warnings for: property, people, roadways and railways concerning the property identified below

A search of Alberta Environment & Parks record holdings has not identified any records relating to the subject of your request, based on the search parameters you provided to this office.

If you have any questions or concerns about the processing of your FOIP request, please write to the above address or call me at (780) 415-0835, so that we can look at ways to address these issues. If, however, we are unable to resolve your concerns, under section 65(1) of the Freedom of Information and Protection of Privacy Act, you may ask the Information and Privacy Commissioner to review this decision. To request a review, you must complete and deliver a Request for Review form within 60 days from the date of this notice to the Commissioner at 410, 9925 – 109 Street, Edmonton, Alberta, T5K 2J8. The form is available under the Resources tab on the Commissioner's website www.oipc.ab.ca or you can call 1-888-878-4044 to request a copy of the form.

If you request a review, please provide the Commissioner with a copy of your original request, any letters of clarification, a copy of this letter and the reason why you are requesting a review.

If you have any questions or concerns, please write or call me at (780) 415-0835.

Yours truly,

Keely White
Access and Privacy Advisor

Spencer Podgurski

From: diana.frechette@gov.ab.ca
Sent: Wednesday, July 07, 2021 8:04 AM
To: Spencer Podgurski
Subject: [E21-S-0823] RD No Records



Environment & Parks and Agriculture & Forestry
FOIP Office
10th Floor, 9Triple8 Jasper,
9888 Jasper Avenue NW
Edmonton, Alberta, T5J 5C6
Telephone: 780-427-4429
www.alberta.ca

July 7, 2021

Mr. spencer podgurski
ParklandGEO
102, 4756 Riverside drive
Red Deer, Alberta

Your File #: RD7434 - Campground
Order Number: FOIPRD-2021-9105

Dear Mr. podgurski:

Re: Routine Disclosure Request FOIPRD-2021-9105 for Information Routinely Available Under the Environmental Protection and Enhancement (EPEA) Legislation.

Our office received your request on June 30, 2021 for the following subject records:

Location: Plan 0621408 Lot 4 Block 1 Halkirk; 302 Main Street, Halkirk

Name(s): The Village of Halkirk, Harold G. Chick, Velma Chick, George Ezra Emmett, The Director, Veterans Land Act, Harry W. Heffer The Village of Halkirk, Harold G. Chick, Velma Chick, George Ezra Emmett, The Director, Veterans Land Act, Harry W. Heffer

Time Frame: Historical to Jun 30, 2021

Records: any environmental records pertaining to air, water, groundwater, surface water and soil concerns as well as any documentation on fires, approval warnings, remediation certificates etc. Also, any spills, releases, infractions, fines warnings for: property, people, roadways and railways concerning the property identified below

Alberta Environment and Parks has conducted a search of department records based on the search parameters you provided to this office and has not identified any routinely available records relating to the subject of your request. As a result of our findings, your Routine Disclosure request has been closed.

If you have any further questions or concerns, please write or call me at (780) 415-0835.

Yours truly,

Keely White
Access and Privacy Advisor

Spencer Podgurski

From: diana.frechette@gov.ab.ca
Sent: Friday, July 09, 2021 3:06 PM
To: Spencer Podgurski
Subject: [E21-S-0824] Closure Letter No Records



Environment & Parks and Agriculture & Forestry
FOIP Office
10th Floor, 9Triple8 Jasper,
9888 Jasper Avenue NW
Edmonton, Alberta, T5J 5C6
Telephone: 780-427-4429
www.alberta.ca

July 9, 2021

Mr. spencer podgurski
ParklandGEO
102, 4756 Riverside drive
Red Deer, Alberta T4N 2N7

Your File #: RD7434 - Church
FOIP Request #: E21-S-0824
Order Number: FOIPRD-2021-9106

Dear Mr. podgurski:

Re: Freedom of Information and Protection of Privacy Act Request for records pertaining to the property located at 406 Alberta Avenue, Halkirk

The following is in response to your request of June 30, 2021 for access under the Freedom of Information and Protection of Privacy Act to the following subject records:

Location: Plan 1989Z Lot 26,27 Block 7 Halkirk; 406 Alberta Avenue, Halkirk

The Village of Halkirk, Harvey Albert Anderson, William Herbert Taylor, Alvah Llewellyn

Name(s): Wescott, The Halkirk Methodist Church The Village of Halkirk, Harvey Albert Anderson, William Herbert Taylor, Alvah Llewellyn Wescott, The Halkirk Methodist Church

Time Frame: Historical to Jun 30, 2021

Records: any environmental records pertaining to air, water, groundwater, surface water and soil concerns as well as any documentation on fires, approval warnings, remediation certificates etc. Also, any spills, releases, infractions, fines warnings for: property, people, roadways and railways concerning the property identified below

A search of Alberta Environment & Parks record holdings has not identified any records relating to the subject of your request, based on the search parameters you provided to this office.

If you have any questions or concerns about the processing of your FOIP request, please write to the above address or call me at (780) 415-0835, so that we can look at ways to address these issues. If, however, we are unable to resolve your concerns, under section 65(1) of the Freedom of Information and Protection of Privacy Act, you may ask the Information and Privacy Commissioner to review this decision. To request a review, you must complete and deliver a Request for Review form within 60 days from the date of this notice to the Commissioner at 410, 9925 – 109 Street, Edmonton, Alberta, T5K 2J8. The form is available under the Resources tab on the Commissioner's website www.oipc.ab.ca or you can call 1-888-878-4044 to request a copy of the form.

If you request a review, please provide the Commissioner with a copy of your original request, any letters of clarification, a copy of this letter and the reason why you are requesting a review.

If you have any questions or concerns, please write or call me at (780) 415-0835.

Yours truly,

Keely White
Access and Privacy Advisor

Spencer Podgurski

From: diana.frechette@gov.ab.ca
Sent: Friday, July 09, 2021 3:05 PM
To: Spencer Podgurski
Subject: [E21-S-0824] RD No Records



Environment & Parks and Agriculture & Forestry
FOIP Office
10th Floor, 9Triple8 Jasper,
9888 Jasper Avenue NW
Edmonton, Alberta, T5J 5C6
Telephone: 780-427-4429
www.alberta.ca

July 9, 2021

Mr. spencer podgurski
ParklandGEO
102, 4756 Riverside drive
Red Deer, Alberta

Your File #: RD7434 - Church
Order Number: FOIPRD-2021-9106

Dear Mr. podgurski:

Re: Routine Disclosure Request FOIPRD-2021-9106 for Information Routinely Available Under the Environmental Protection and Enhancement (EPEA) Legislation.

Our office received your request on June 30, 2021 for the following subject records:

- Location:** Plan 1989Z Lot 26,27 Block 7 Halkirk; 406 Alberta Avenue, Halkirk
The Village of Halkirk, Harvey Albert Anderson, William Herbert Taylor, Alvah Llewellyn
- Name(s):** Wescott, The Halkirk Methodist Church The Village of Halkirk, Harvey Albert Anderson, William Herbert Taylor, Alvah Llewellyn Wescott, The Halkirk Methodist Church
- Time Frame:** Historical to Jun 30, 2021
- Records:** any environmental records pertaining to air, water, groundwater, surface water and soil concerns as well as any documentation on fires, approval warnings, remediation certificates etc. Also, any spills, releases, infractions, fines warnings for: property, people, roadways and railways concerning the property identified below

Alberta Environment and Parks has conducted a search of department records based on the search parameters you provided to this office and has not identified any routinely available records relating to the subject of your request. As a result of our findings, your Routine Disclosure request has been closed.

If you have any further questions or concerns, please write or call me at (780) 415-0835.

Yours truly,

Keely White
Access and Privacy Advisor

Spencer Podgurski

From: diana.frechette@gov.ab.ca
Sent: Friday, July 09, 2021 7:57 AM
To: Spencer Podgurski
Subject: [E21-S-0825] Closure Letter No Records



Environment & Parks and Agriculture & Forestry
FOIP Office
10th Floor, 9Triple8 Jasper,
9888 Jasper Avenue NW
Edmonton, Alberta, T5J 5C6
Telephone: 780-427-4429
www.alberta.ca

July 9, 2021

Mr. spencer podgurski
ParklandGEO
102, 4756 Riverside drive
Red Deer, Alberta T4N 2N7

Your File #: RD7434 - Curlink Rink
FOIP Request #: E21-S-0825
Order Number: FOIPRD-2021-9107

Dear Mr. podgurski:

Re: Freedom of Information and Protection of Privacy Act Request for records pertaining to the property located at 502 Alberta Avenue, Halkirk

The following is in response to your request of June 30, 2021 for access under the Freedom of Information and Protection of Privacy Act to the following subject records:

Location: Plan 1045MC Lot 2 Block 8 Halkirk; 502 Alberta Avenue, Halkirk

Name(s): The Village of Halkirk, Halkirk Community Curling Association, George Ezra Emmett The Village of Halkirk, Halkirk Community Curling Association, George Ezra Emmett

Time Frame: Historical to Jun 30, 2021

Records: any environmental records pertaining to air, water, groundwater, surface water and soil concerns as well as any documentation on fires, approval warnings, remediation certificates etc. Also, any spills, releases, infractions, fines warnings for: property, people, roadways and railways concerning the property identified below

A search of Alberta Environment & Parks record holdings has not identified any records relating to the subject of your request, based on the search parameters you provided to this office.

If you have any questions or concerns about the processing of your FOIP request, please write to the above address or call me at (780) 415-0835, so that we can look at ways to address these issues. If, however, we are unable to resolve your concerns, under section 65(1) of the Freedom of Information and Protection of Privacy Act, you may ask the Information and Privacy Commissioner to review this decision. To request a review, you must complete and deliver a Request for Review form within 60 days from the date of this notice to the Commissioner at 410, 9925 – 109 Street, Edmonton, Alberta, T5K 2J8. The form is available under the Resources tab on the Commissioner's website www.oipc.ab.ca or you can call 1-888-878-4044 to request a copy of the form.

If you request a review, please provide the Commissioner with a copy of your original request, any letters of clarification, a copy of this letter and the reason why you are requesting a review.

If you have any questions or concerns, please write or call me at (780) 415-0835.

Yours truly,

Keely White
Access and Privacy Advisor

Spencer Podgurski

From: diana.frechette@gov.ab.ca
Sent: Friday, July 09, 2021 7:55 AM
To: Spencer Podgurski
Subject: [E21-S-0825] RD No Records



Environment & Parks and Agriculture & Forestry
FOIP Office
10th Floor, 9Triple8 Jasper,
9888 Jasper Avenue NW
Edmonton, Alberta, T5J 5C6
Telephone: 780-427-4429
www.alberta.ca

July 9, 2021

Mr. spencer podgurski
ParklandGEO
102, 4756 Riverside drive
Red Deer, Alberta

Your File #: RD7434 - Curlink Rink
Order Number: FOIPRD-2021-9107

Dear Mr. podgurski:

Re: Routine Disclosure Request FOIPRD-2021-9107 for Information Routinely Available Under the Environmental Protection and Enhancement (EPEA) Legislation.

Our office received your request on June 30, 2021 for the following subject records:

- Location:** Plan 1045MC Lot 2 Block 8 Halkirk; 502 Alberta Avenue, Halkirk
- Name(s):** The Village of Halkirk, Halkirk Community Curling Association, George Ezra Emmett The Village of Halkirk, Halkirk Community Curling Association, George Ezra Emmett
- Time Frame:** Historical to Jun 30, 2021
- Records:** any environmental records pertaining to air, water, groundwater, surface water and soil concerns as well as any documentation on fires, approval warnings, remediation certificates etc. Also, any spills, releases, infractions, fines warnings for: property, people, roadways and railways concerning the property identified below

Alberta Environment and Parks has conducted a search of department records based on the search parameters you provided to this office and has not identified any routinely available records relating to the subject of your request. As a result of our findings, your Routine Disclosure request has been closed.

If you have any further questions or concerns, please write or call me at (780) 415-0835.

Yours truly,

Keely White
Access and Privacy Advisor

Spencer Podgurski

From: Lara.Highet@gov.ab.ca
Sent: Thursday, July 08, 2021 10:35 AM
To: Spencer Podgurski
Subject: [E21-S-0830] Closure Letter No Records Available



Environment & Parks and Agriculture & Forestry
FOIP Office
10th Floor, 9Triple8 Jasper,
9888 Jasper Avenue NW
Edmonton, Alberta, T5J 5C6
Telephone: 780-427-4429
www.alberta.ca

July 8, 2021

Mr. spencer podgurski
ParklandGEO
102, 4756 Riverside drive
Red Deer, Alberta T4N 2N7

Your File #: RD7434 - BSG
FOIP Request #: E21-S-0830
Order Number: FOIPRD-2021-9112

Dear Mr. podgurski:

Re: Freedom of Information and Protection of Privacy Act Request for records pertaining to the property located at 110 Berry Street, Halkirk

The following is in response to your request of June 30, 2021 for access under the Freedom of Information and Protection of Privacy Act to the following subject records:

Location: Plan 1989Z Block 3 Lot 11, Plan 1989Z Block 3 Lot 12, Plan 1989Z Block 3 Lot 13; 110 Berry Street, Halkirk

Name(s): The Village of Halkirk, All In One Contracting Ltd., Ruth M. Farnalls, John Farnalls, Toni Marie Hazen, Randy James Duncan, Jocelyn Marie Duncan, Harold G. Chick, John Patrick Emmett, Frank Arthur Tydeman, Canadian Imperial Bank of Commerce, George Allen James, Karin Renatta James, Bryan Wesley Hurren, Sandra Kim Hurren, James Oscar Krautt, Karl Edward Krautt, executors of the estate of Hans Karl Krautt, Hans Kraut, Ronald Lattery, Jennifer Lattery, David E. Stevens, Shirley P. Stevens, Donald Engler, Teresa M. Engler, The Crown Lumber Company Limited, Revelstoke Building Materials Limited, Russel Alberta Creasy The Village of Halkirk, All In One Contracting Ltd., Ruth M. Farnalls, John Farnalls, Toni Marie Hazen, Randy James Duncan, Jocelyn Marie Duncan, Harold G. Chick, John Patrick Emmett, Frank Arthur Tydeman, Canadian Imperial Bank of Commerce, George Allen James, Karin Renatta James, Bryan Wesley Hurren, Sandra Kim Hurren, James Oscar Krautt, Karl Edward Krautt, executors of the estate of Hans Karl Krautt, Hans Kraut, Ronald Lattery, Jennifer Lattery, David E. Stevens, Shirley P. Stevens, Donald

Engler, Teresa M. Engler, The Crown Lumber Company Limited, Revelstoke Building Materials Limited, Russel Alberta Creasy

Time

Historical to Jun 30, 2021

Frame:

Records:

any environmental records pertaining to air, water, groundwater, surface water and soil concerns as well as any documentation on fires, approval warnings, remediation certificates etc. Also, any spills, releases, infractions, fines warnings for: property, people, roadways and railways concerning the property identified below

A search of Alberta Environment & Parks record holdings has not identified any records relating to the subject of your request, based on the search parameters you provided to this office.

If you have any questions or concerns about the processing of your FOIP request, please write to the above address or call me at 780-641-8666, so that we can look at ways to address these issues. If, however, we are unable to resolve your concerns, under section 65(1) of the Freedom of Information and Protection of Privacy Act, you may ask the Information and Privacy Commissioner to review this decision. To request a review, you must complete and deliver a Request for Review form within 60 days from the date of this notice to the Commissioner at 410, 9925 – 109 Street, Edmonton, Alberta, T5K 2J8. The form is available under the Resources tab on the Commissioner's website www.oipc.ab.ca or you can call 1-888-878-4044 to request a copy of the form.

If you request a review, please provide the Commissioner with a copy of your original request, any letters of clarification, a copy of this letter and the reason why you are requesting a review.

If you have any questions or concerns, please write or call me at 780-641-8666.

Yours truly,

Hilda-Klara Banda
Access & Privacy Advisor

Spencer Podgurski

From: Lara.Highet@gov.ab.ca
Sent: Thursday, July 08, 2021 10:33 AM
To: Spencer Podgurski
Subject: [E21-S-0830] RD No Records

Environment & Parks and Agriculture & Forestry
FOIP Office
10th Floor, 9Triple8 Jasper,
9888 Jasper Avenue NW
Edmonton, Alberta, T5J 5C6
Telephone: 780-427-4429
www.alberta.ca



July 8, 2021

Mr. spencer podgurski
ParklandGEO
102, 4756 Riverside drive
Red Deer, Alberta

Your File #: RD7434 - BSG
Order Number: FOIPRD-2021-9112

Dear Mr. podgurski:

Re: Routine Disclosure Request FOIPRD-2021-9112 for Information Routinely Available Under the Environmental Protection and Enhancement (EPEA) Legislation.

Our office received your request on June 30, 2021 for the following subject records:

Location: Plan 1989Z Block 3 Lot 11, Plan 1989Z Block 3 Lot 12, Plan 1989Z Block 3 Lot 13; 110 Berry Street, Halkirk

Name(s): The Village of Halkirk, All In One Contracting Ltd., Ruth M. Farnalls, John Farnalls, Toni Marie Hazen, Randy James Duncan, Jocelyn Marie Duncan, Harold G. Chick, John Patrick Emmett, Frank Arthur Tydeman, Canadian Imperial Bank of Commerce, George Allen James, Karin Renatta James, Bryan Wesley Hurren, Sandra Kim Hurren, James Oscar Krautt, Karl Edward Krautt, executors of the estate of Hans Karl Krautt, Hans Kraut, Ronald Lattery, Jennifer Lattery, David E. Stevens, Shirley P. Stevens, Donald Engler, Teresa M. Engler, The Crown Lumber Company Limited, Revelstoke Building Materials Limited, Russel Alberta Creasy The Village of Halkirk, All In One Contracting Ltd., Ruth M. Farnalls, John Farnalls, Toni Marie Hazen, Randy James Duncan, Jocelyn Marie Duncan, Harold G. Chick, John Patrick Emmett, Frank Arthur Tydeman, Canadian

Imperial Bank of Commerce, George Allen James, Karin Renatta James, Bryan Wesley Hurren, Sandra Kim Hurren, James Oscar Krautt, Karl Edward Krautt, executors of the estate of Hans Karl Krautt, Hans Kraut, Ronald Lattery, Jennifer Lattery, David E. Stevens, Shirley P. Stevens, Donald Engler, Teresa M. Engler, The Crown Lumber Company Limited, Revelstoke Building Materials Limited, Russel Alberta Creasy

Time

Historical to Jun 30, 2021

Frame:

Records: any environmental records pertaining to air, water, groundwater, surface water and soil concerns as well as any documentation on fires, approval warnings, remediation certificates etc. Also, any spills, releases, infractions, fines warnings for: property, people, roadways and railways concerning the property identified below

Alberta Environment and Parks has conducted a search of department records based on the search parameters you provided to this office and has not identified any routinely available records relating to the subject of your request. As a result of our findings, your Routine Disclosure request has been closed.

If you have any further questions or concerns, please write or call me at 780-641-8666.

Yours truly,

Hilda-Klara Banda
Access & Privacy Advisor

Spencer Podgurski

From: Lara.Highet@gov.ab.ca
Sent: Friday, July 09, 2021 9:22 AM
To: Spencer Podgurski
Subject: [E21-S-0826] Closure Letter No Records Available



Environment & Parks and Agriculture & Forestry
FOIP Office
10th Floor, 9Triple8 Jasper,
9888 Jasper Avenue NW
Edmonton, Alberta, T5J 5C6
Telephone: 780-427-4429
www.alberta.ca

July 9, 2021

Mr. spencer podgurski
ParklandGEO
102, 4756 Riverside drive
Red Deer, Alberta T4N 2N7

Your File #: RD7434 - Canada Post, Bank
FOIP Request #: E21-S-0826
Order Number: FOIPRD-2021-9108

Dear Mr. podgurski:

Re: Freedom of Information and Protection of Privacy Act Request for records pertaining to the property located at 114 Main Street, Halkirk

The following is in response to your request of June 30, 2021 for access under the Freedom of Information and Protection of Privacy Act to the following subject records:

Location: Plan 1989Z Block 2 Lot 13, Plan 1989Z Block 2 Lot 14; 114 Main Street, Halkirk
Canada Post, The Village of Halkirk, Virginia Duke, Margaret Mary Rendall, Dorothy Alberta Knight, George William Knight, Robert G. Rendall, Wilfred Creasy
Name(s): Canada Post, The Village of Halkirk, Virginia Duke, Margaret Mary Rendall, Dorothy Alberta Knight, George William Knight, Robert G. Rendall, Wilfred Creasy
Time Frame: Historical to Jun 30, 2021
Records: any environmental records pertaining to air, water, groundwater, surface water and soil concerns as well as any documentation on fires, approval warnings, remediation certificates etc. Also, any spills, releases, infractions, fines warnings for: property, people, roadways and railways concerning the property identified below

A search of Alberta Environment & Parks record holdings has not identified any records relating to the subject of your request, based on the search parameters you provided to this office.

If you have any questions or concerns about the processing of your FOIP request, please write to the above address or call me at 780-415-0835, so that we can look at ways to address these issues. If, however, we are unable to resolve your concerns, under section 65(1) of the Freedom of Information and Protection of Privacy Act, you may ask the Information and Privacy Commissioner to review this decision. To request a review, you must complete and deliver a Request for Review form within 60 days from the date of this notice to the Commissioner at 410, 9925 – 109 Street, Edmonton, Alberta, T5K 2J8. The form is available under the Resources tab on the Commissioner's website www.oipc.ab.ca or you can call 1-888-878-4044 to request a copy of the form.

If you request a review, please provide the Commissioner with a copy of your original request, any letters of clarification, a copy of this letter and the reason why you are requesting a review.

If you have any questions or concerns, please write or call me at 780-415-0835.

Yours truly,

Keely White
Access & Privacy Advisor

Spencer Podgurski

From: Lara.Highet@gov.ab.ca
Sent: Friday, July 09, 2021 9:21 AM
To: Spencer Podgurski
Subject: [E21-S-0826] RD No Records

Environment & Parks and Agriculture & Forestry
FOIP Office
10th Floor, 9Triple8 Jasper,
9888 Jasper Avenue NW
Edmonton, Alberta, T5J 5C6
Telephone: 780-427-4429
www.alberta.ca



July 9, 2021

Mr. spencer podgurski
ParklandGEO
102, 4756 Riverside drive
Red Deer, Alberta

Your File #: RD7434 - Canada Post, Bank
Order Number: FOIPRD-2021-9108

Dear Mr. podgurski:

Re: Routine Disclosure Request FOIPRD-2021-9108 for Information Routinely Available Under the Environmental Protection and Enhancement (EPEA) Legislation.

Our office received your request on June 30, 2021 for the following subject records:

- Location:** Plan 1989Z Block 2 Lot 13, Plan 1989Z Block 2 Lot 14; 114 Main Street, Halkirk
Canada Post, The Village of Halkirk, Virginia Duke, Margaret Mary Rendall, Dorothy Alberta Knight, George William Knight, Robert G. Rendall, Wilfred Creasy Canada Post, The Village of Halkirk, Virginia Duke, Margaret Mary Rendall, Dorothy Alberta Knight, George William Knight, Robert G. Rendall, Wilfred Creasy
- Name(s):**
- Time Frame:** Historical to Jun 30, 2021
- Records:** any environmental records pertaining to air, water, groundwater, surface water and soil concerns as well as any documentation on fires, approval warnings, remediation certificates etc. Also, any spills, releases, infractions, fines warnings for: property, people, roadways and railways concerning the property identified below

Alberta Environment and Parks has conducted a search of department records based on the search parameters you provided to this office and has not identified any routinely available records relating to the subject of your request. As a result of our findings, your Routine Disclosure request has been closed.

If you have any further questions or concerns, please write or call me at 780-415-0835 .

Yours truly,

Keely White
Access & Privacy Advisor

Spencer Podgurski

From: diana.frechette@gov.ab.ca
Sent: Friday, July 09, 2021 9:09 AM
To: Spencer Podgurski
Subject: [E21-S-0832] Closure Letter No Records



Environment & Parks and Agriculture & Forestry
FOIP Office
10th Floor, 9Triple8 Jasper,
9888 Jasper Avenue NW
Edmonton, Alberta, T5J 5C6
Telephone: 780-427-4429
www.alberta.ca

July 9, 2021

Mr. spencer podgurski
ParklandGEO
102, 4756 Riverside drive
Red Deer, Alberta T4N 2N7

Your File #: RD7434 - CH
FOIP Request #: E21-S-0832
Order Number: FOIPRD-2021-9114

Dear Mr. podgurski:

Re: Freedom of Information and Protection of Privacy Act Request for records pertaining to the property located at 111 Main Strret, Halkirk

The following is in response to your request of June 30, 2021 for access under the Freedom of Information and Protection of Privacy Act to the following subject records:

- Location:** Plan 1989Z Lot 22,23,24,25,26,27 Block 3 Halkirk; 111 Main Strret, Halkirk
The Village of Halkirk, Earl Roger Spady, William Evan Campion, Arthur Oswald Campion,
- Name(s):** Elizabeth Ann Campion The Village of Halkirk, Earl Roger Spady, William Evan Campion, Arthur Oswald Campion, Elizabeth Ann Campion
- Time Frame:** Historical to Jun 30, 2021
- Records:** any environmental records pertaining to air, water, groundwater, surface water and soil concerns as well as any documentation on fires, approval warnings, remediation certificates etc. Also, any spills, releases, infractions, fines warnings for: property, people, roadways and railways concerning the property identified below

A search of Alberta Environment & Parks record holdings has not identified any records relating to the subject of your request, based on the search parameters you provided to this office.

If you have any questions or concerns about the processing of your FOIP request, please write to the above address or call me at (780) 644-8515, so that we can look at ways to address these issues. If, however, we are unable to resolve your concerns, under section 65(1) of the Freedom of Information and Protection of Privacy Act, you may ask the Information and Privacy Commissioner to review this decision. To request a review, you must complete and deliver a Request for Review form within 60 days from the date of this notice to the Commissioner at 410, 9925 – 109 Street, Edmonton, Alberta, T5K 2J8. The form is available under the Resources tab on the Commissioner's website www.oipc.ab.ca or you can call 1-888-878-4044 to request a copy of the form.

If you request a review, please provide the Commissioner with a copy of your original request, any letters of clarification, a copy of this letter and the reason why you are requesting a review.

If you have any questions or concerns, please write or call me at (780) 644-8515.

Yours truly,

Angie Chenier
Access and Privacy Advisor

Spencer Podgurski

From: diana.frechette@gov.ab.ca
Sent: Friday, July 09, 2021 9:07 AM
To: Spencer Podgurski
Subject: [E21-S-0832] RD No Records



Environment & Parks and Agriculture & Forestry
FOIP Office
10th Floor, 9Triple8 Jasper,
9888 Jasper Avenue NW
Edmonton, Alberta, T5J 5C6
Telephone: 780-427-4429
www.alberta.ca

July 9, 2021

Mr. spencer podgurski
ParklandGEO
102, 4756 Riverside drive
Red Deer, Alberta

Your File #: RD7434 - CH
Order Number: FOIPRD-2021-9114

Dear Mr. podgurski:

Re: Routine Disclosure Request FOIPRD-2021-9114 for Information Routinely Available Under the Environmental Protection and Enhancement (EPEA) Legislation.

Our office received your request on June 30, 2021 for the following subject records:

Location: Plan 1989Z Lot 22,23,24,25,26,27 Block 3 Halkirk; 111 Main Strret, Halkirk
The Village of Halkirk, Earl Roger Spady, William Evan Campion, Arthur Oswald Campion,
Name(s): Elizabeth Ann Campion The Village of Halkirk, Earl Roger Spady, William Evan Campion, Arthur Oswald Campion, Elizabeth Ann Campion
Time Frame: Historical to Jun 30, 2021
Records: any environmental records pertaining to air, water, groundwater, surface water and soil concerns as well as any documentation on fires, approval warnings, remediation certificates etc. Also, any spills, releases, infractions, fines warnings for: property, people, roadways and railways concerning the property identified below

Alberta Environment and Parks has conducted a search of department records based on the search parameters you provided to this office and has not identified any routinely available records relating to the subject of your request. As a result of our findings, your Routine Disclosure request has been closed.

If you have any further questions or concerns, please write or call me at (780) 644-8515.

Yours truly,

Angie Chenier
Access and Privacy Advisor

Spencer Podgurski

From: Lara.Highet@gov.ab.ca
Sent: Tuesday, July 13, 2021 4:08 PM
To: Spencer Podgurski
Subject: [E21-S-0829] Closure Letter No Records Available



Environment & Parks and Agriculture & Forestry
FOIP Office
10th Floor, 9Triple8 Jasper,
9888 Jasper Avenue NW
Edmonton, Alberta, T5J 5C6
Telephone: 780-427-4429
www.alberta.ca

July 13, 2021

Mr. spencer podgurski
ParklandGEO
102, 4756 Riverside drive
Red Deer, Alberta T4N 2N7

Your File #: RD7434 - SC VO PW
FOIP Request #: E21-S-0829
Order Number: FOIPRD-2021-9111

Dear Mr. podgurski:

Re: Freedom of Information and Protection of Privacy Act Request for records pertaining to the property located at 131 Main Street, 103 Main Street, Halkirk

The following is in response to your request of June 30, 2021 for access under the Freedom of Information and Protection of Privacy Act to the following subject records:

Location: Plan 1989Z Block 3 Lot 1, Plan 1989Z Block 3 Lot 2, Plan 1989Z Block 3 Lot 3; 131 Main Street, 103 Main Street, Halkirk

Name(s): The Village of Halkirk and Globe Realty Corporation any environmental records pertaining to air, water, groundwater, surface water and soil concerns as well as any documentation on fires, approval warnings, remediation certificates etc. Also, any spills, releases, infractions, fines warnings for: property, people, roadways and railways concerning the property identified below

Time Frame: Historical to Jun 30, 2021

Records: any environmental records pertaining to air, water, groundwater, surface water and soil concerns as well as any documentation on fires, approval warnings, remediation certificates etc. Also, any spills, releases, infractions, fines warnings for: property, people, roadways and railways concerning the property identified below

A search of Alberta Environment & Parks record holdings has not identified any records relating to the subject of your request, based on the search parameters you provided to this office.

If you have any questions or concerns about the processing of your FOIP request, please write to the above address or call me at 780-641-8666, so that we can look at ways to address these issues. If, however, we are unable to resolve your concerns, under section 65(1) of the Freedom of Information and Protection of Privacy Act, you may ask the Information and Privacy Commissioner to review this decision. To request a review, you must complete and deliver a Request for Review form within 60 days from the date of this notice to the Commissioner at 410, 9925 – 109 Street, Edmonton, Alberta, T5K 2J8. The form is available under the Resources tab on the Commissioner's website www.oipc.ab.ca or you can call 1-888-878-4044 to request a copy of the form.

If you request a review, please provide the Commissioner with a copy of your original request, any letters of clarification, a copy of this letter and the reason why you are requesting a review.

If you have any questions or concerns, please write or call me at 780-641-8666.

Yours truly,

Hilda-Klara Banda
Access & Privacy Advisor

Spencer Podgurski

From: Lara.Highet@gov.ab.ca
Sent: Tuesday, July 13, 2021 4:06 PM
To: Spencer Podgurski
Subject: [E21-S-0829] RD No Records



Environment & Parks and Agriculture & Forestry
FOIP Office
10th Floor, 9Triple8 Jasper,
9888 Jasper Avenue NW
Edmonton, Alberta, T5J 5C6
Telephone: 780-427-4429
www.alberta.ca

July 13, 2021

Mr. spencer podgurski
ParklandGEO
102, 4756 Riverside drive
Red Deer, Alberta

Your File #: RD7434 - SC VO PW
Order Number: FOIPRD-2021-9111

Dear Mr. podgurski:

Re: Routine Disclosure Request FOIPRD-2021-9111 for Information Routinely Available Under the Environmental Protection and Enhancement (EPEA) Legislation.

Our office received your request on June 30, 2021 for the following subject records:

Location: Plan 1989Z Block 3 Lot 1, Plan 1989Z Block 3 Lot 2, Plan 1989Z Block 3 Lot 3; 131 Main Street, 103 Main Street, Halkirk
The Village of Halkirk and Globe Realty Corporation any environmental records pertaining to air, water, groundwater, surface water and soil concerns as well as any documentation on fires, approval warnings, remediation certificates etc. Also, any spills, releases, infractions, fines warnings for: property, people, roadways and railways concerning the property identified below

Name(s):

Time Frame: Historical to Jun 30, 2021

Records: any environmental records pertaining to air, water, groundwater, surface water and soil concerns as well as any documentation on fires, approval warnings, remediation certificates etc. Also, any spills, releases, infractions, fines warnings for: property, people, roadways and railways concerning the

property identified below

Alberta Environment and Parks has conducted a search of department records based on the search parameters you provided to this office and has not identified any routinely available records relating to the subject of your request. As a result of our findings, your Routine Disclosure request has been closed.

If you have any further questions or concerns, please write or call me at 780-641-8666.

Yours truly,

Hilda-Klara Banda
Access & Privacy Advisor

Spencer Podgurski

From: Lara.Highet@gov.ab.ca
Sent: Thursday, July 08, 2021 9:46 AM
To: Spencer Podgurski
Subject: [E21-S-0827] Closure Letter No Records Available



Environment & Parks and Agriculture & Forestry
FOIP Office
10th Floor, 9Triple8 Jasper,
9888 Jasper Avenue NW
Edmonton, Alberta, T5J 5C6
Telephone: 780-427-4429
www.alberta.ca

July 8, 2021

Mr. spencer podgurski
ParklandGEO
102, 4756 Riverside drive
Red Deer, Alberta T4N 2N7

Your File #: RD7434 - WTP
FOIP Request #: E21-S-0827
Order Number: FOIPRD-2021-9109

Dear Mr. podgurski:

Re: Freedom of Information and Protection of Privacy Act Request for records pertaining to the property located at 119 Main Street, Halkirk

The following is in response to your request of June 30, 2021 for access under the Freedom of Information and Protection of Privacy Act to the following subject records:

Location: Plan 1989Z Block 3 Lot 17, Plan 1989Z Block 3 Lot 18, Plan 1989Z Block 3 Lot 19, Plan 1989Z Block 3 Lot 20, Plan 1989Z Block 3 Lot 21; 119 Main Street, Halkirk

Name(s): The Village of Halkirk The Village of Halkirk

Time Frame: Historical to Jun 30, 2021

Records: any environmental records pertaining to air, water, groundwater, surface water and soil concerns as well as any documentation on fires, approval warnings, remediation certificates etc. Also, any spills, releases, infractions, fines warnings for: property, people, roadways and railways concerning the property identified below

A search of Alberta Environment & Parks record holdings has not identified any records relating to the subject of your request, based on the search parameters you provided to this office.

If you have any questions or concerns about the processing of your FOIP request, please write to the above address or call me at 780-641-8666, so that we can look at ways to address these issues. If, however, we are unable to resolve your concerns, under section 65(1) of the Freedom of Information and Protection of Privacy Act, you may ask the Information and Privacy Commissioner to review this decision. To request a review, you must complete and deliver a Request for Review form within 60 days from the date of this notice to the Commissioner at 410, 9925 – 109 Street, Edmonton, Alberta, T5K 2J8. The form is available under the Resources tab on the Commissioner's website www.oipc.ab.ca or you can call 1-888-878-4044 to request a copy of the form.

If you request a review, please provide the Commissioner with a copy of your original request, any letters of clarification, a copy of this letter and the reason why you are requesting a review.

If you have any questions or concerns, please write or call me at 780-641-8666.

Yours truly,

Hilda-Klara Banda
Access & Privacy Advisor

Spencer Podgurski

From: Lara.Highet@gov.ab.ca
Sent: Thursday, July 08, 2021 9:45 AM
To: Spencer Podgurski
Subject: [E21-S-0827] RD No Records

Environment & Parks and Agriculture & Forestry
FOIP Office
10th Floor, 9Triple8 Jasper,
9888 Jasper Avenue NW
Edmonton, Alberta, T5J 5C6
Telephone: 780-427-4429
www.alberta.ca



July 8, 2021

Mr. spencer podgurski
ParklandGEO
102, 4756 Riverside drive
Red Deer, Alberta

Your File #: RD7434 - WTP
Order Number: FOIPRD-2021-9109

Dear Mr. podgurski:

Re: Routine Disclosure Request FOIPRD-2021-9109 for Information Routinely Available Under the Environmental Protection and Enhancement (EPEA) Legislation.

Our office received your request on June 30, 2021 for the following subject records:

Location: Plan 1989Z Block 3 Lot 17, Plan 1989Z Block 3 Lot 18, Plan 1989Z Block 3 Lot 19, Plan 1989Z Block 3 Lot 20, Plan 1989Z Block 3 Lot 21; 119 Main Street, Halkirk

Name(s): The Village of Halkirk The Village of Halkirk

Time Frame: Historical to Jun 30, 2021

Records: any environmental records pertaining to air, water, groundwater, surface water and soil concerns as well as any documentation on fires, approval warnings, remediation certificates etc. Also, any spills, releases, infractions, fines warnings for: property, people, roadways and railways concerning the property identified below

Alberta Environment and Parks has conducted a search of department records based on the search parameters you provided to this office and has not identified any routinely available records relating to the subject of your request. As a result of our findings, your Routine Disclosure request has been closed.

If you have any further questions or concerns, please write or call me at 780-641-8666.

Yours truly,

Hilda-Klara Banda
Access & Privacy Advisor

Spencer Podgurski

From: Lara.Highet@gov.ab.ca
Sent: Tuesday, July 13, 2021 3:51 PM
To: Spencer Podgurski
Subject: [E21-S-0828] Closure Letter No Records Available



Environment & Parks and Agriculture & Forestry
FOIP Office
10th Floor, 9Triple8 Jasper,
9888 Jasper Avenue NW
Edmonton, Alberta, T5J 5C6
Telephone: 780-427-4429
www.alberta.ca

July 13, 2021

Mr. spencer podgurski
ParklandGEO
102, 4756 Riverside drive
Red Deer, Alberta T4N 2N7

Your File #: RD7434 - Fire Hall
FOIP Request #: E21-S-0828
Order Number: FOIPRD-2021-9110

Dear Mr. podgurski:

Re: Freedom of Information and Protection of Privacy Act Request for records pertaining to the property located at 302 Railway Avenue, Halkirk

The following is in response to your request of June 30, 2021 for access under the Freedom of Information and Protection of Privacy Act to the following subject records:

Location: Plan 1989Z Block 3 Lot 7, Plan 1989Z Block 3 Lot 8, Plan 1989Z Block 3 Lot 9, Plan 1989Z Block 3 Lot 10; 302 Railway Avenue, Halkirk

Name(s): The Village of Halkirk, Earl Roger Spady, William Evan Campion, Arthur Oswald Campion, Elizabeth Ann Campion The Village of Halkirk, Earl Roger Spady, William Evan Campion, Arthur Oswald Campion, Elizabeth Ann Campion

Time Frame: Historical to Jun 30, 2021

Records: any environmental records pertaining to air, water, groundwater, surface water and soil concerns as well as any documentation on fires, approval warnings, remediation certificates etc. Also, any spills, releases, infractions, fines warnings for: property, people, roadways and railways concerning the property identified below

A search of Alberta Environment & Parks record holdings has not identified any records relating to the subject of your request, based on the search parameters you provided to this office.

If you have any questions or concerns about the processing of your FOIP request, please write to the above address or call me at 780-641-8666, so that we can look at ways to address these issues. If, however, we are unable to resolve your concerns, under section 65(1) of the Freedom of Information and Protection of Privacy Act, you may ask the Information and Privacy Commissioner to review this decision. To request a review, you must complete and deliver a Request for Review form within 60 days from the date of this notice to the Commissioner at 410, 9925 – 109 Street, Edmonton, Alberta, T5K 2J8. The form is available under the Resources tab on the Commissioner's website www.oipc.ab.ca or you can call 1-888-878-4044 to request a copy of the form.

If you request a review, please provide the Commissioner with a copy of your original request, any letters of clarification, a copy of this letter and the reason why you are requesting a review.

If you have any questions or concerns, please write or call me at 780-641-8666.

Yours truly,

Hilda-Klara Banda
Access & Privacy Advisor

Spencer Podgurski

From: Lara.Highet@gov.ab.ca
Sent: Tuesday, July 13, 2021 3:50 PM
To: Spencer Podgurski
Subject: [E21-S-0828] RD No Records

Environment & Parks and Agriculture & Forestry
FOIP Office
10th Floor, 9Triple8 Jasper,
9888 Jasper Avenue NW
Edmonton, Alberta, T5J 5C6
Telephone: 780-427-4429
www.alberta.ca



July 13, 2021

Mr. spencer podgurski
ParklandGEO
102, 4756 Riverside drive
Red Deer, Alberta

Your File #: RD7434 - Fire Hall
Order Number: FOIPRD-2021-9110

Dear Mr. podgurski:

Re: Routine Disclosure Request FOIPRD-2021-9110 for Information Routinely Available Under the Environmental Protection and Enhancement (EPEA) Legislation.

Our office received your request on June 30, 2021 for the following subject records:

Location: Plan 1989Z Block 3 Lot 7, Plan 1989Z Block 3 Lot 8, Plan 1989Z Block 3 Lot 9, Plan 1989Z Block 3 Lot 10; 302 Railway Avenue, Halkirk

Name(s): The Village of Halkirk, Earl Roger Spady, William Evan Campion, Arthur Oswald Campion, Elizabeth Ann Campion The Village of Halkirk, Earl Roger Spady, William Evan Campion, Arthur Oswald Campion, Elizabeth Ann Campion

Time Frame: Historical to Jun 30, 2021

Records: any environmental records pertaining to air, water, groundwater, surface water and soil concerns as well as any documentation on fires, approval warnings, remediation certificates etc. Also, any spills, releases, infractions, fines warnings for: property, people, roadways and railways concerning the property identified below

Alberta Environment and Parks has conducted a search of department records based on the search parameters you provided to this office and has not identified any routinely available records relating to the subject of your request. As a result of our findings, your Routine Disclosure request has been closed.

If you have any further questions or concerns, please write or call me at 780-641-8666 .

Yours truly,

Hilda-Klara Banda
Access & Privacy Advisor



Environmental Public Health
300 Jordan Parkway, Red Deer, AB T4P 0G8
Tel: 403 356 6335
Fax: 403 356 6433

INVOICE # CN-2021-0687
July 8, 2021
Parkland Geotechnical Consulting Ltd.
#102 4756 Riverside Drive
Red Deer, AB
T4N 2N7

Dear Spencer,

Re: Your request for records search

On June 25, 2021, our office received your request for information regarding the following properties:

101, 103, 111, 114, 119 & 302 Main Street
126, 406 & 502 Alberta Avenue
110 Berry Street
302 Railway Avenue
Halkirk, AB

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 properties comply 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.

The amount of \$250 is owing for this service. Please issue payment payable to:

Alberta Health Services
Environmental Public Health, Central Zone
300 Jordan Parkway
Red Deer, AB T4P 0G8

Sincerely,

Ann Vandermost
Administrative Assistant
Environmental Public Health, Central Zone
Johnstone Crossing Community Health Centre
300 Jordan Parkway, Red Deer, AB T4P 0G8
tel: 403-356-6335 fax: 403-356-6433



Environmental Public Health
300 Jordan Parkway, Red Deer, AB T4P 0G8
Tel: 403 356 6335
Fax: 403 356 6433

INVOICE # CN-2021-0694
August 10, 2021
Parkland Geotechnical Consulting Ltd.
#102 4756 Riverside Drive
Red Deer, AB
T4N 2N7

Dear Spencer,

Re: Your request for records search

On July 13, 2021, our office received your request for information regarding the following property:

16018 Township Road 383A
Halkirk, AB

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.

The amount of \$50 is owing for this service. Please issue payment payable to:

Alberta Health Services
Environmental Public Health, Central Zone
300 Jordan Parkway
Red Deer, AB T4P 0G8

Sincerely,

Ann Vandermost
Administrative Assistant
Environmental Public Health, Central Zone
Johnstone Crossing Community Health Centre
300 Jordan Parkway, Red Deer, AB T4P 0G8
tel: 403-356-6335 fax: 403-356-6433

ENVIRONMENTAL LAW CENTRE

#410, 10115 - 100A Street, Edmonton, AB T5J 2W2

Phone: (780) 424-5099 Fax: (780) 424-5133

Internet: www.elc.ab.ca E-Mail: elc@elc.ab.ca

June 30, 2021

Our File: 135741

Mr. Spencer Podgurski
ParklandGEO
102, 4756 Riverside Drive
Red Deer, AB T4N 2N7

Dear Mr. Podgurski:

RE: Search Requested - The Village of Halkirk

In response to your request of June 30, 2021, we have searched the Environmental Enforcement Historical Search Service database for an exact match with respect to the above request, and can advise that as of today's date, there have been NO enforcement actions issued by Alberta Environment and Parks (AEP) pursuant to the Alberta "Environmental Protection and Enhancement Act" ("EPEA") and its predecessor legislation, the "Hazardous Chemicals Act", "Agricultural Chemicals Act", "Clean Water Act" and "Clean Air Act" to 1971, and/or pursuant to the "Water Act" from 1999 onwards.

This search is limited to the following enforcement actions under EPEA and its predecessor legislation: Tickets, Prosecutions, Administrative Penalties, Warnings, Enforcement Orders, Enforcement Orders Concerning Waste, Environmental Protection Orders, Emergency Environmental Protection Orders, Emission Control Orders, Chemical Control Orders, Water Quality Control Orders and Stop Orders. This search is limited to the following enforcement actions under the Water Act: Prosecutions, Administrative Penalties, Water Management Orders, Warnings and Enforcement Orders. It does not include Clean Up Orders issued under the Litter Act or Environmental Protection Orders respecting unsightly property issued under EPEA; this information may be available from the local municipality.

Enforcement actions are entered in the database following: (1) the decision date, for prosecutions; (2) the date an administrative penalty was paid or due (30 days after issuance), whichever is sooner; and (3) the date the document was issued for all other enforcement actions.

These search results are based on information provided by AEP. AEP advises that they try to provide the best information possible. However, AEP advises that it cannot guarantee that the information provided is complete or accurate and that any person relying on these search results does so at their own risk. More information may be gained by referring to original enforcement documents. Alberta Energy Regulator (AER) enforcement actions are not included (see the AER Public Compliance dashboard database).

Copies of orders are available from the Environmental Law Centre. Any other enforcement information may be available directly from Alberta Environment.

Yours sincerely,



Cindy Dewing
Enforcement Search Service
Encl.

ENVIRONMENTAL LAW CENTRE

#410, 10115 - 100A Street, Edmonton, AB T5J 2W2

Phone: (780) 424-5099 Fax: (780) 424-5133

Internet: www.elc.ab.ca E-Mail: elc@elc.ab.ca

June 30, 2021

Our File: 135742

Mr. Spencer Podgurski
ParklandGEO
102, 4756 Riverside Drive
Red Deer, AB T4N 2N7

Dear Mr. Podgurski:

RE: Search Requested - The Halkirk Methodist Church

In response to your request of June 30, 2021, we have searched the Environmental Enforcement Historical Search Service database for an exact match with respect to the above request, and can advise that as of today's date, there have been NO enforcement actions issued by Alberta Environment and Parks (AEP) pursuant to the Alberta "Environmental Protection and Enhancement Act" ("EPEA") and its predecessor legislation, the "Hazardous Chemicals Act", "Agricultural Chemicals Act", "Clean Water Act" and "Clean Air Act" to 1971, and/or pursuant to the "Water Act" from 1999 onwards.

This search is limited to the following enforcement actions under EPEA and its predecessor legislation: Tickets, Prosecutions, Administrative Penalties, Warnings, Enforcement Orders, Enforcement Orders Concerning Waste, Environmental Protection Orders, Emergency Environmental Protection Orders, Emission Control Orders, Chemical Control Orders, Water Quality Control Orders and Stop Orders. This search is limited to the following enforcement actions under the Water Act: Prosecutions, Administrative Penalties, Water Management Orders, Warnings and Enforcement Orders. It does not include Clean Up Orders issued under the Litter Act or Environmental Protection Orders respecting unsightly property issued under EPEA; this information may be available from the local municipality.

Enforcement actions are entered in the database following: (1) the decision date, for prosecutions; (2) the date an administrative penalty was paid or due (30 days after issuance), whichever is sooner; and (3) the date the document was issued for all other enforcement actions.

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Copies of orders are available from the Environmental Law Centre. Any other enforcement information may be available directly from Alberta Environment.

Yours sincerely,



Cindy Dewing
Enforcement Search Service
Encl.

ENVIRONMENTAL LAW CENTRE

#410, 10115 - 100A Street, Edmonton, AB T5J 2W2

Phone: (780) 424-5099 Fax: (780) 424-5133

Internet: www.elc.ab.ca E-Mail: elc@elc.ab.ca

June 30, 2021

Our File: 135743

Mr. Spencer Podgurski
ParklandGEO
102, 4756 Riverside Drive
Red Deer, AB T4N 2N7

Dear Mr. Podgurski:

RE: Search Requested - Globe Realty Corporation Limited

In response to your request of June 30, 2021, we have searched the Environmental Enforcement Historical Search Service database for an exact match with respect to the above request, and can advise that as of today's date, there have been NO enforcement actions issued by Alberta Environment and Parks (AEP) pursuant to the Alberta "Environmental Protection and Enhancement Act" ("EPEA") and its predecessor legislation, the "Hazardous Chemicals Act", "Agricultural Chemicals Act", "Clean Water Act" and "Clean Air Act" to 1971, and/or pursuant to the "Water Act" from 1999 onwards.

This search is limited to the following enforcement actions under EPEA and its predecessor legislation: Tickets, Prosecutions, Administrative Penalties, Warnings, Enforcement Orders, Enforcement Orders Concerning Waste, Environmental Protection Orders, Emergency Environmental Protection Orders, Emission Control Orders, Chemical Control Orders, Water Quality Control Orders and Stop Orders. This search is limited to the following enforcement actions under the Water Act: Prosecutions, Administrative Penalties, Water Management Orders, Warnings and Enforcement Orders. It does not include Clean Up Orders issued under the Litter Act or Environmental Protection Orders respecting unsightly property issued under EPEA; this information may be available from the local municipality.

Enforcement actions are entered in the database following: (1) the decision date, for prosecutions; (2) the date an administrative penalty was paid or due (30 days after issuance), whichever is sooner; and (3) the date the document was issued for all other enforcement actions.

These search results are based on information provided by AEP. AEP advises that they try to provide the best information possible. However, AEP advises that it cannot guarantee that the information provided is complete or accurate and that any person relying on these search results does so at their own risk. More information may be gained by referring to original enforcement documents. Alberta Energy Regulator (AER) enforcement actions are not included (see the AER Public Compliance dashboard database).

Copies of orders are available from the Environmental Law Centre. Any other enforcement information may be available directly from Alberta Environment.

Yours sincerely,



Cindy Dewing
Enforcement Search Service
Encl.

ENVIRONMENTAL LAW CENTRE

#410, 10115 - 100A Street, Edmonton, AB T5J 2W2

Phone: (780) 424-5099 Fax: (780) 424-5133

Internet: www.elc.ab.ca E-Mail: elc@elc.ab.ca

June 30, 2021

Our File: 135744

Mr. Spencer Podgurski
ParklandGEO
102, 4756 Riverside Drive
Red Deer, AB T4N 2N7

Dear Mr. Podgurski:

RE: Search Requested - All In One Contracting Ltd.

In response to your request of June 30, 2021, we have searched the Environmental Enforcement Historical Search Service database for an exact match with respect to the above request, and can advise that as of today's date, there have been NO enforcement actions issued by Alberta Environment and Parks (AEP) pursuant to the Alberta "Environmental Protection and Enhancement Act" ("EPEA") and its predecessor legislation, the "Hazardous Chemicals Act", "Agricultural Chemicals Act", "Clean Water Act" and "Clean Air Act" to 1971, and/or pursuant to the "Water Act" from 1999 onwards.


This search is limited to the following enforcement actions under EPEA and its predecessor legislation: Tickets, Prosecutions, Administrative Penalties, Warnings, Enforcement Orders, Enforcement Orders Concerning Waste, Environmental Protection Orders, Emergency Environmental Protection Orders, Emission Control Orders, Chemical Control Orders, Water Quality Control Orders and Stop Orders. This search is limited to the following enforcement actions under the Water Act: Prosecutions, Administrative Penalties, Water Management Orders, Warnings and Enforcement Orders. It does not include Clean Up Orders issued under the Litter Act or Environmental Protection Orders respecting unsightly property issued under EPEA; this information may be available from the local municipality.

Enforcement actions are entered in the database following: (1) the decision date, for prosecutions; (2) the date an administrative penalty was paid or due (30 days after issuance), whichever is sooner; and (3) the date the document was issued for all other enforcement actions.

These search results are based on information provided by AEP. AEP advises that they try to provide the best information possible. However, AEP advises that it cannot guarantee that the information provided is complete or accurate and that any person relying on these search results does so at their own risk. More information may be gained by referring to original enforcement documents. Alberta Energy Regulator (AER) enforcement actions are not included (see the AER Public Compliance dashboard database).

Copies of orders are available from the Environmental Law Centre. Any other enforcement information may be available directly from Alberta Environment.

Yours sincerely,



Cindy Dewing
Enforcement Search Service
Encl.

ENVIRONMENTAL LAW CENTRE

#410, 10115 - 100A Street, Edmonton, AB T5J 2W2

Phone: (780) 424-5099 Fax: (780) 424-5133

Internet: www.elc.ab.ca E-Mail: elc@elc.ab.ca

June 30, 2021

Our File: 135745

Mr. Spencer Podgurski
ParklandGEO
102, 4756 Riverside Drive
Red Deer, AB T4N 2N7

Dear Mr. Podgurski:

RE: Search Requested - The Crown Lumber Company Limited

In response to your request of June 30, 2021, we have searched the Environmental Enforcement Historical Search Service database for an exact match with respect to the above request, and can advise that as of today's date, there have been NO enforcement actions issued by Alberta Environment and Parks (AEP) pursuant to the Alberta "Environmental Protection and Enhancement Act" ("EPEA") and its predecessor legislation, the "Hazardous Chemicals Act", "Agricultural Chemicals Act", "Clean Water Act" and "Clean Air Act" to 1971, and/or pursuant to the "Water Act" from 1999 onwards.

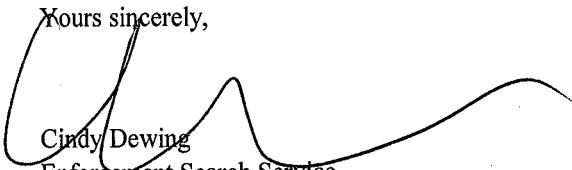
This search is limited to the following enforcement actions under EPEA and its predecessor legislation: Tickets, Prosecutions, Administrative Penalties, Warnings, Enforcement Orders, Enforcement Orders Concerning Waste, Environmental Protection Orders, Emergency Environmental Protection Orders, Emission Control Orders, Chemical Control Orders, Water Quality Control Orders and Stop Orders. This search is limited to the following enforcement actions under the Water Act: Prosecutions, Administrative Penalties, Water Management Orders, Warnings and Enforcement Orders. It does not include Clean Up Orders issued under the Litter Act or Environmental Protection Orders respecting unsightly property issued under EPEA; this information may be available from the local municipality.

Enforcement actions are entered in the database following: (1) the decision date, for prosecutions; (2) the date an administrative penalty was paid or due (30 days after issuance), whichever is sooner; and (3) the date the document was issued for all other enforcement actions.

These search results are based on information provided by AEP. AEP advises that they try to provide the best information possible. However, AEP advises that it cannot guarantee that the information provided is complete or accurate and that any person relying on these search results does so at their own risk. More information may be gained by referring to original enforcement documents. Alberta Energy Regulator (AER) enforcement actions are not included (see the AER Public Compliance dashboard database).

Copies of orders are available from the Environmental Law Centre. Any other enforcement information may be available directly from Alberta Environment.

Yours sincerely,



Cindy Dewing
Enforcement Search Service
Encl.

ENVIRONMENTAL LAW CENTRE

#410, 10115 - 100A Street, Edmonton, AB T5J 2W2

Phone: (780) 424-5099 Fax: (780) 424-5133

Internet: www.elc.ab.ca E-Mail: elc@elc.ab.ca

June 30, 2021

Our File: 135746

Mr. Spencer Podgurski
ParklandGEO
102, 4756 Riverside Drive
Red Deer, AB T4N 2N7

Dear Mr. Podgurski:

RE: Search Requested - Canadian Imperial Bank of Commerce

In response to your request of June 30, 2021, we have searched the Environmental Enforcement Historical Search Service database for an exact match with respect to the above request, and can advise that as of today's date, there have been NO enforcement actions issued by Alberta Environment and Parks (AEP) pursuant to the Alberta "Environmental Protection and Enhancement Act" ("EPEA") and its predecessor legislation, the "Hazardous Chemicals Act", "Agricultural Chemicals Act", "Clean Water Act" and "Clean Air Act" to 1971, and/or pursuant to the "Water Act" from 1999 onwards.


This search is limited to the following enforcement actions under EPEA and its predecessor legislation: Tickets, Prosecutions, Administrative Penalties, Warnings, Enforcement Orders, Enforcement Orders Concerning Waste, Environmental Protection Orders, Emergency Environmental Protection Orders, Emission Control Orders, Chemical Control Orders, Water Quality Control Orders and Stop Orders. This search is limited to the following enforcement actions under the Water Act: Prosecutions, Administrative Penalties, Water Management Orders, Warnings and Enforcement Orders. It does not include Clean Up Orders issued under the Litter Act or Environmental Protection Orders respecting unsightly property issued under EPEA; this information may be available from the local municipality.

Enforcement actions are entered in the database following: (1) the decision date, for prosecutions; (2) the date an administrative penalty was paid or due (30 days after issuance), whichever is sooner; and (3) the date the document was issued for all other enforcement actions.

These search results are based on information provided by AEP. AEP advises that they try to provide the best information possible. However, AEP advises that it cannot guarantee that the information provided is complete or accurate and that any person relying on these search results does so at their own risk. More information may be gained by referring to original enforcement documents. Alberta Energy Regulator (AER) enforcement actions are not included (see the AER Public Compliance dashboard database).

Copies of orders are available from the Environmental Law Centre. Any other enforcement information may be available directly from Alberta Environment.

Yours sincerely,



Cindy Dewing
Enforcement Search Service
Encl.

ENVIRONMENTAL LAW CENTRE

#410, 10115 - 100A Street, Edmonton, AB T5J 2W2

Phone: (780) 424-5099 Fax: (780) 424-5133

Internet: www.elc.ab.ca E-Mail: elc@elc.ab.ca

June 30, 2021

Our File: 135747

Mr. Spencer Podgurski
ParklandGEO
102, 4756 Riverside Drive
Red Deer, AB T4N 2N7

Dear Mr. Podgurski:

RE: Search Requested - Revelstoke Building Materials Limited

In response to your request of June 30, 2021, we have searched the Environmental Enforcement Historical Search Service database for an exact match with respect to the above request, and can advise that as of today's date, there have been NO enforcement actions issued by Alberta Environment and Parks (AEP) pursuant to the Alberta "Environmental Protection and Enhancement Act" ("EPEA") and its predecessor legislation, the "Hazardous Chemicals Act", "Agricultural Chemicals Act", "Clean Water Act" and "Clean Air Act" to 1971, and/or pursuant to the "Water Act" from 1999 onwards. However, we enclose a report which may be related to the subject of your search.

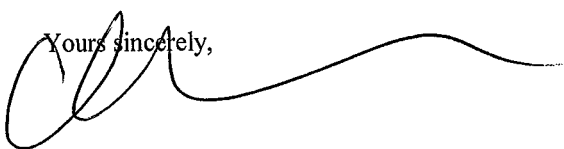
This search is limited to the following enforcement actions under EPEA and its predecessor legislation: Tickets, Prosecutions, Administrative Penalties, Warnings, Enforcement Orders, Enforcement Orders Concerning Waste, Environmental Protection Orders, Emergency Environmental Protection Orders, Emission Control Orders, Chemical Control Orders, Water Quality Control Orders and Stop Orders. This search is limited to the following enforcement actions under the Water Act: Prosecutions, Administrative Penalties, Water Management Orders, Warnings and Enforcement Orders. It does not include Clean Up Orders issued under the Litter Act or Environmental Protection Orders respecting unsightly property issued under EPEA; this information may be available from the local municipality.

Enforcement actions are entered in the database following: (1) the decision date, for prosecutions; (2) the date an administrative penalty was paid or due (30 days after issuance), whichever is sooner; and (3) the date the document was issued for all other enforcement actions.

These search results are based on information provided by AEP. AEP advises that they try to provide the best information possible. However, AEP advises that it cannot guarantee that the information provided is complete or accurate and that any person relying on these search results does so at their own risk. More information may be gained by referring to original enforcement documents. Alberta Energy Regulator (AER) enforcement actions are not included (see the AER Public Compliance dashboard database).

Copies of orders are available from the Environmental Law Centre. Any other enforcement information may be available directly from Alberta Environment.

Yours sincerely,



Cindy Dewing
Enforcement Search Service
Encl.

ENVIRONMENTAL LAW CENTRE
 #410, 10115 - 100A Street, Edmonton, AB T5J 2W2
 Phone: (780) 424-5099 Fax: (780) 424-5133
 Internet: www.elc.ab.ca E-Mail: elc@elc.ab.ca

Environmental Enforcement Historical Search Service

Accountable Party	Action	Decision Date/ Penalty	Municipality/ Legal Description/s	Act/s & Section/s	Comments/Disposition
Revelstoke Company Ltd.	Emission Control Order	13-Nov-1973 \$0.00	Sentinel	CAA 6(1)	Company operates an industrial plant; air contaminant concentrations exceed maximum allowable particulate and visible emission levels; directed to submit procedures for operating within limits; apply for permit if burning is to continue; submit progress reports on modification or elimination of incinerator; this ECO revoked 05/16/74.
Revelstoke Company Ltd.	Emission Control Order	16-May-1974 \$0.00	Sentinel	CAA 6(1)	Company operates an industrial plant; opting to continue using incinerator as means of wood waste disposal; directed to apply for permit and install equipment required to operate within emission limits; advise Director of anticipated completion; this ECO replaces ECO issued 11/13/73.

Report Printed:
 June 30, 2021
 2:50 PM
 Page 1 of 1

Search Requested:
 Revelstoke Building Materials Limited

Acts:
 ACA: Agriculture Chemicals Act
 AEPEA: Environmental Protection Enhancement Act(S.A.1992)
 AEPEA(R) Environmental Protection & Enhancement Act(R.S.A.2000)
 BCA: Beverage Container Act
 CAA: Clean Air Act
 CC: Criminal Code (Canada)
 CWA: Clean Water Act
 DEA: Dept. of Environment Act
 FFA: Fisheries Act (Canada)
 HCA: Hazardous Chemicals Act
 LA: Litter Act
 TDGCA: Transportation of Dangerous Goods Control Act
 WA: Water Act

ENVIRONMENTAL LAW CENTRE

#410, 10115 - 100A Street, Edmonton, AB T5J 2W2

Phone: (780) 424-5099 Fax: (780) 424-5133

Internet: www.elc.ab.ca E-Mail: elc@elc.ab.ca

June 30, 2021

Our File: 135748

Mr. Spencer Podgurski
ParklandGEO
102, 4756 Riverside Drive
Red Deer, AB T4N 2N7

Dear Mr. Podgurski:

RE: Search Requested - County of Paintearth No. 18

In response to your request of June 30, 2021, we have searched the Environmental Enforcement Historical Search Service database for an exact match with respect to the above request, and can advise that as of today's date, there have been NO enforcement actions issued by Alberta Environment and Parks (AEP) pursuant to the Alberta "Environmental Protection and Enhancement Act" ("EPEA") and its predecessor legislation, the "Hazardous Chemicals Act", "Agricultural Chemicals Act", "Clean Water Act" and "Clean Air Act" to 1971, and/or pursuant to the "Water Act" from 1999 onwards.


This search is limited to the following enforcement actions under EPEA and its predecessor legislation: Tickets, Prosecutions, Administrative Penalties, Warnings, Enforcement Orders, Enforcement Orders Concerning Waste, Environmental Protection Orders, Emergency Environmental Protection Orders, Emission Control Orders, Chemical Control Orders, Water Quality Control Orders and Stop Orders. This search is limited to the following enforcement actions under the Water Act: Prosecutions, Administrative Penalties, Water Management Orders, Warnings and Enforcement Orders. It does not include Clean Up Orders issued under the Litter Act or Environmental Protection Orders respecting unsightly property issued under EPEA; this information may be available from the local municipality.

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Copies of orders are available from the Environmental Law Centre. Any other enforcement information may be available directly from Alberta Environment.

Yours sincerely,



Cindy Dewing
Enforcement Search Service
Encl.



Water Well Drilling Report

[View in Imperial](#) [Export to Excel](#)

GIC Well ID 157782
GoA Well Tag No.
Drilling Company Well ID
Date Report Received 1981/03/26

GOWN ID

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.

Well Identification and Location										Measurement in Metric	
Owner Name HALKIRK, TOWN OF		Address HALKIRK			Town		Province		Country		Postal Code
Location	<i>1/4 or LSD</i> NE	<i>SEC</i> 24	<i>TWP</i> 38	<i>RGE</i> 16	<i>W of MER</i> 4	<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>52.284876</u> Longitude <u>-112.153761</u> Elevation _____ m How Location Obtained _____ Map					How Elevation Obtained _____ Not Obtained	

Drilling Information	
Method of Drilling Rotary	Type of Work New Well
Proposed Well Use Municipal	

Formation Log			Measurement in Metric
Depth from ground level (m)	Water Bearing	Lithology Description	
3.66		Gray Clay	
4.27		Gray Shale	
6.10		Black Shale & Coal	
9.45		Gray Shale	
10.67		Gray Sandstone	
16.46		Gray Shale	
19.20		Gray Sandstone	
22.25		Gray Shale	
23.16		Gray Sandstone	
29.26		Gray Shale	
34.75		Gray Sandstone	
35.05		Gray Shale	
35.36		Coal	
39.93		Gray Shale	
41.15		Gray Sandstone	
43.59		Gray Shale	
44.50		Gray Sandstone	
48.16		Gray Shale	
50.29		Gray Sandy Shale	
54.25		Gray Shale	
55.78		Gray Sandstone	
60.96		Gray Shale	

Yield Test Summary			Measurement in Metric
<i>Recommended Pump Rate</i> <u>0.00</u> L/min			
<i>Test Date</i>	<i>Water Removal Rate (L/min)</i>	<i>Static Water Level (m)</i>	
1981/01/22	15.91	20.42	

Well Completion				Measurement in Metric
<i>Total Depth Drilled</i>	<i>Finished Well Depth</i>	<i>Start Date</i>	<i>End Date</i>	
60.96 m		1981/01/21	1981/01/22	
Borehole				
<i>Diameter (cm)</i>	<i>From (m)</i>	<i>To (m)</i>		
0.00	0.00	60.96		
Surface Casing (if applicable)		Well Casing/Liner		
Steel		Steel		
<i>Size OD :</i>	<u>14.12</u> cm	<i>Size OD :</i>	<u>11.43</u> cm	
<i>Wall Thickness :</i>	<u>0.620</u> cm	<i>Wall Thickness :</i>	<u>0.000</u> cm	
<i>Bottom at :</i>	<u>10.06</u> m	<i>Top at :</i>	<u>0.00</u> m	
		<i>Bottom at :</i>	<u>60.96</u> m	
Perforations				
<i>From (m)</i>	<i>To (m)</i>	<i>Diameter or Slot Width (cm)</i>	<i>Slot Length (cm)</i>	<i>Hole or Slot Interval (cm)</i>
<i>Perforated by</i> Torch				
Annular Seal Driven				
<i>Placed from</i> <u>0.00</u> m to <u>0.00</u> m				
<i>Amount</i> _____				
Other Seals				
<i>Type</i>			<i>At (m)</i>	
Screen Type				
<i>Size OD :</i> <u>0.00</u> cm				
<i>From (m)</i>	<i>To (m)</i>	<i>Slot Size (cm)</i>		
<i>Attachment</i> _____				
<i>Top Fittings</i> _____		<i>Bottom Fittings</i> _____		
Pack				
<i>Type</i> _____		<i>Grain Size</i> _____		
<i>Amount</i> 0.00				

Contractor Certification	
<i>Name of Journeyman responsible for drilling/construction of well</i> UNKNOWN NA DRILLER	<i>Certification No</i> 1
<i>Company Name</i> LOUSANA WATER WELLS (1987) LTD.	<i>Copy of Well report provided to owner</i> <i>Date approval holder signed</i>



Water Well Drilling Report

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GIC Well ID 157782
GoA Well Tag No.
Drilling Company Well ID
Date Report Received 1981/03/26

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GOWN ID

Well Identification and Location										Measurement in Metric	
Owner Name HALKIRK, TOWN OF		Address HALKIRK		Town		Province		Country		Postal Code	
Location	<i>1/4 or LSD</i> NE	<i>SEC</i> 24	<i>TWP</i> 38	<i>RGE</i> 16	<i>W of MER</i> 4	<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>52.284876</u> Longitude <u>-112.153761</u> Elevation _____ m How Location Obtained _____ Map					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 _____	
Gas _____					Depth _____ m					Geophysical Log Taken _____	
					Submitted to ESRD _____						
Additional Comments on Well _____					Sample Collected for Potability _____					Submitted to ESRD <u>Yes</u>	

Yield Test			Taken From Ground Level	Measurement in Metric
<i>Test Date</i> 1981/01/22	<i>Start Time</i> 12:00 AM	<i>Static Water Level</i> 20.42 m	<i>Depth to water level</i>	
			Pumping (m)	Elapsed Time Minutes:Sec
				Recovery (m)
Method of Water Removal				
Type <u>Pump</u>				
Removal Rate <u>15.91 L/min</u>				
Depth Withdrawn From <u>54.86 m</u>				
If water removal period was < 2 hours, explain why _____				

Water Diverted for Drilling		
<i>Water Source</i>	<i>Amount Taken</i> L	<i>Diversion Date & Time</i>

Contractor Certification	
<i>Name of Journeyman responsible for drilling/construction of well</i> UNKNOWN NA DRILLER	<i>Certification No</i> 1
<i>Company Name</i> LOUSANA WATER WELLS (1987) LTD.	<i>Copy of Well report provided to owner</i> <i>Date approval holder signed</i>



Water Well Drilling Report

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GIC Well ID 183135
GoA Well Tag No.
Drilling Company Well ID
Date Report Received 1959/08/19

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 HALKIRK, TOWN OF#1		Address HALKIRK			Town		Province		Country		Postal Code	
Location	1/4 or LSD	SEC	TWP	RGE	W of MER	Lot	Block	Plan	Additional Description			
	NE	24	38	16	4							
Measured from Boundary of					GPS Coordinates in Decimal Degrees (NAD 83)							
_____ m from _____					Latitude <u>52.284876</u> Longitude <u>-112.153761</u>					Elevation _____ m		
_____ m from _____					How Location Obtained					How Elevation Obtained		
					Not Verified					Not Obtained		

Drilling Information	
Method of Drilling Unknown	Type of Work Chemistry
Proposed Well Use Municipal	

Formation Log			Measurement in Metric
Depth from ground level (m)	Water Bearing	Lithology Description	
3.66		Clay & Boulders	
8.84		Shale	
11.28		Coal	
24.99		Shale	
25.91		Coal	
28.96		Sandy Shale	
35.97		Shale	
37.19		Coal	
43.89		Sandy Shale	
44.50		Soft Sandstone	
52.43		Shale	
57.30		Sandstone & Shale Strg's	
68.58		Shale	
68.88		Coal	
82.91		Shale & Coal	
85.04		Sandstone	
87.78		Sandy Shale & Sandstone Ledges	
92.66		Shale	
93.27		Coal	
106.68		Sandy See Comments	
110.34		Hard Sandstone	
113.39		Shale	
115.82		Unknown	

Yield Test Summary			Measurement in Metric
Recommended Pump Rate			0.00 L/min
Test Date	Water Removal Rate (L/min)	Static Water Level (m)	
1959/08/19	0.00	24.38	

Well Completion				Measurement in Metric
Total Depth Drilled	Finished Well Depth	Start Date	End Date	
115.82 m				
Borehole				
Diameter (cm)	From (m)	To (m)		
0.00	0.00	115.82		
Surface Casing (if applicable)		Well Casing/Liner		
		Unknown		
Size OD :	<u>0.00 cm</u>	Size OD :	<u>0.00 cm</u>	
Wall Thickness :	<u>0.000 cm</u>	Wall Thickness :	<u>0.000 cm</u>	
Bottom at :	<u>0.00 m</u>	Top at :	<u>0.00 m</u>	
		Bottom at :	<u>115.82 m</u>	
Perforations				
From (m)	To (m)	Diameter or Slot Width (cm)	Slot Length (cm)	Hole or Slot Interval (cm)
36.58	115.82	0.000		0.00
Perforated by Unknown				
Annular Seal Formation Packer				
Placed from <u>0.00 m</u> to <u>24.38 m</u>				
Amount _____				
Other Seals				
Type		At (m)		
Screen Type				
Size OD : <u>0.00 cm</u>				
From (m)	To (m)	Slot Size (cm)		
Attachment _____				
Top Fittings _____		Bottom Fittings _____		
Pack				
Type _____		Grain Size _____		
Amount 0.00				

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



Water Well Drilling Report

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GIC Well ID 183135
GoA Well Tag No.
Drilling Company Well ID
Date Report Received 1959/08/19

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GOWN ID

Well Identification and Location										Measurement in Metric	
Owner Name HALKIRK, TOWN OF#1		Address HALKIRK			Town		Province		Country		Postal Code
Location	1/4 or LSD NE	SEC 24	TWP 38	RGE 16	W of MER 4	Lot	Block	Plan	Additional Description		
Measured from Boundary of _____ m from _____ _____ m from _____					GPS Coordinates in Decimal Degrees (NAD 83) Latitude <u>52.284876</u> Longitude <u>-112.153761</u> Elevation _____ m How Location Obtained Not Verified					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 _____	
Gas _____					Depth _____ m					Geophysical Log Taken _____	
					Submitted to ESRD _____						
Additional Comments on Well 350' SHALE, COAL & SANDSTONE LAYERS. WELL WAS SURG					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 1959/08/19	Start Time 12:00 AM	Static Water Level 24.38 m		
			Pumping (m)	Recovery (m)
			Elapsed Time Minutes:Sec	
Method of Water Removal				
Type <u>Bailer</u>				
Removal Rate <u>0.00 L/min</u>				
Depth Withdrawn From <u>24.38 m</u>				
If water removal period was < 2 hours, explain why				

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

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



Water Well Drilling Report

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GIC Well ID 183136
GoA Well Tag No.
Drilling Company Well ID
Date Report Received

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GOWN ID

Well Identification and Location										Measurement in Metric	
Owner Name HALKIRK, TOWN OF#2		Address HALKIRK		Town		Province		Country		Postal Code	
Location	1/4 or LSD NE	SEC 24	TWP 38	RGE 16	W of MER 4	Lot	Block	Plan	Additional Description		
Measured from Boundary of _____ m from _____ _____ m from _____				GPS Coordinates in Decimal Degrees (NAD 83) Latitude <u>52.284876</u> Longitude <u>-112.153761</u> Elevation _____ m How Location Obtained _____ Not Verified				How Elevation Obtained _____ Not Obtained			

Drilling Information	
Method of Drilling Unknown	Type of Work Chemistry
Proposed Well Use Municipal	

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

Yield Test Summary			Measurement in Metric
Recommended Pump Rate _____ L/min			
Test Date	Water Removal Rate (L/min)	Static Water Level (m)	

Well Completion				Measurement in Metric
Total Depth Drilled	Finished Well Depth	Start Date	End Date	
76.20 m				
Borehole				
Diameter (cm)	From (m)	To (m)		
0.00	0.00	76.20		
Surface Casing (if applicable)		Well Casing/Liner		
Size OD : _____ 0.00 cm		Size OD : _____ 0.00 cm		
Wall Thickness : _____ 0.000 cm		Wall Thickness : _____ 0.000 cm		
Bottom at : _____ 0.00 m		Top at : _____ 0.00 m		
		Bottom at : _____ 0.00 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 _____ 0.00 m to _____ 0.00 m				
Amount _____				
Other Seals				
Type		At (m)		
Screen Type				
Size OD : _____ 0.00 cm				
From (m)	To (m)	Slot Size (cm)		
Attachment _____				
Top Fittings _____		Bottom Fittings _____		
Pack				
Type _____		Grain Size _____		
Amount _____ 0.00				

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



Water Well Drilling Report

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GIC Well ID 183136
GoA Well Tag No.
Drilling Company Well ID
Date Report Received

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GOWN ID

Well Identification and Location										Measurement in Metric	
Owner Name HALKIRK, TOWN OF#2		Address HALKIRK		Town		Province		Country		Postal Code	
Location	1/4 or LSD NE	SEC 24	TWP 38	RGE 16	W of MER 4	Lot	Block	Plan	Additional Description		
Measured from Boundary of _____ m from _____ _____ m from _____					GPS Coordinates in Decimal Degrees (NAD 83) Latitude <u>52.284876</u> Longitude <u>-112.153761</u> Elevation _____ m How Location Obtained _____ Not Verified					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 _____ L/min					Pump Installed _____					Depth _____ m	
Recommended Pump Intake Depth (From TOC) _____ m					Type _____					Make _____ H.P. _____	
					Model (Output Rating) _____						
Did you Encounter Saline Water (>4000 ppm TDS) _____					Depth _____ m					Well Disinfected Upon Completion _____	
Gas _____					Depth _____ m					Geophysical Log Taken _____	
					Submitted to ESRD _____						
Additional Comments on Well _____					Sample Collected for Potability _____					Submitted to ESRD <u>Yes</u>	

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

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

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



Water Well Drilling Report

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GIC Well ID 183137
GoA Well Tag No.
Drilling Company Well ID
Date Report Received

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GOWN ID

Well Identification and Location										Measurement in Metric	
Owner Name HALKIRK, TOWN OF#3		Address HALKIRK		Town		Province		Country		Postal Code	
Location	1/4 or LSD NE	SEC 24	TWP 38	RGE 16	W of MER 4	Lot	Block	Plan	Additional Description		
Measured from Boundary of _____ m from _____ _____ m from _____				GPS Coordinates in Decimal Degrees (NAD 83) Latitude <u>52.284876</u> Longitude <u>-112.153761</u> How Location Obtained Not Verified				Elevation _____ m How Elevation Obtained Not Obtained			

Drilling Information	
Method of Drilling Unknown	Type of Work Chemistry
Proposed Well Use Municipal	

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

Yield Test Summary			Measurement in Metric
Recommended Pump Rate _____ L/min			
Test Date	Water Removal Rate (L/min)	Static Water Level (m)	

Well Completion				Measurement in Metric
Total Depth Drilled	Finished Well Depth	Start Date	End Date	
57.91 m				
Borehole				
Diameter (cm)	From (m)	To (m)		
0.00	0.00	57.91		
Surface Casing (if applicable)		Well Casing/Liner		
Size OD : _____ 0.00 cm		Size OD : _____ 0.00 cm		
Wall Thickness : _____ 0.000 cm		Wall Thickness : _____ 0.000 cm		
Bottom at : _____ 0.00 m		Top at : _____ 0.00 m		
		Bottom at : _____ 0.00 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 _____ 0.00 m to _____ 0.00 m				
Amount _____				
Other Seals				
Type		At (m)		
Screen Type				
Size OD : _____ 0.00 cm				
From (m)	To (m)	Slot Size (cm)		
Attachment _____				
Top Fittings _____		Bottom Fittings _____		
Pack				
Type _____		Grain Size _____		
Amount _____ 0.00				

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



Water Well Drilling Report

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GIC Well ID 183137
GoA Well Tag No.
Drilling Company Well ID
Date Report Received

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GOWN ID

Well Identification and Location										Measurement in Metric	
Owner Name HALKIRK, TOWN OF#3		Address HALKIRK		Town		Province		Country		Postal Code	
Location	<i>1/4 or LSD</i> NE	<i>SEC</i> 24	<i>TWP</i> 38	<i>RGE</i> 16	<i>W of MER</i> 4	<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>52.284876</u> Longitude <u>-112.153761</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		L/min		Describe _____							
Recommended Pump Rate _____ L/min			Pump Installed _____			Depth _____ m					
Recommended Pump Intake Depth (From TOC) _____ m			Type _____			Make _____			H.P. _____		
										Model (Output Rating) _____	
Did you Encounter Saline Water (>4000 ppm TDS) _____				Depth _____ m		Well Disinfected Upon Completion _____					
Gas _____				Depth _____ m		Geophysical Log Taken _____					
										Submitted to ESRD _____	
Additional Comments on Well _____						Sample Collected for Potability _____		Submitted to ESRD <u>Yes</u>			

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

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

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



Water Well Drilling Report

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GIC Well ID 183138
GoA Well Tag No.
Drilling Company Well ID
Date Report Received 1958/04/18

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GOWN ID

Well Identification and Location										Measurement in Metric
Owner Name HALKIRK, TOWN OF#4		Address HALKIRK		Town		Province		Country		Postal Code
Location	1/4 or LSD NE	SEC 24	TWP 38	RGE 16	W of MER 4	Lot	Block	Plan	Additional Description	
Measured from Boundary of _____ m from _____ _____ m from _____					GPS Coordinates in Decimal Degrees (NAD 83) Latitude <u>52.284876</u> Longitude <u>-112.153761</u>			Elevation <u>832.10</u> m		
					How Location Obtained Not Verified			How Elevation Obtained Estimated		

Drilling Information	
Method of Drilling Unknown	Type of Work Chemistry
Proposed Well Use Municipal	

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)	
1958/04/10	0.00	14.33	

Well Completion				Measurement in Metric
Total Depth Drilled	Finished Well Depth	Start Date	End Date	
82.91 m				
Borehole				
Diameter (cm)	From (m)	To (m)		
0.00	0.00	82.91		
Surface Casing (if applicable) Steel		Well Casing/Liner Steel		
Size OD : <u>17.78</u> cm		Size OD : <u>15.24</u> cm		
Wall Thickness : <u>0.000</u> cm		Wall Thickness : <u>0.000</u> cm		
Bottom at : <u>24.38</u> m		Top at : <u>0.00</u> m		
		Bottom at : <u>82.91</u> m		
Perforations				
From (m)	To (m)	Diameter or Slot Width (cm)	Slot Length (cm)	Hole or Slot Interval(cm)
Perforated by Unknown				
Annular Seal Driven				
Placed from <u>0.00</u> m to <u>24.38</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 <u>0.00</u>				

Contractor Certification	
Name of Journeyman responsible for drilling/construction of well UNKNOWN NA DRILLER	Certification No 1
Company Name MJOLSNESS & MCKENZIE	Copy of Well report provided to owner Date approval holder signed



Water Well Drilling Report

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GIC Well ID 183138
GoA Well Tag No.
Drilling Company Well ID
Date Report Received 1958/04/18

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GOWN ID

Well Identification and Location										Measurement in Metric	
Owner Name HALKIRK, TOWN OF#4		Address HALKIRK		Town		Province		Country		Postal Code	
Location	<i>1/4 or LSD</i> NE	<i>SEC</i> 24	<i>TWP</i> 38	<i>RGE</i> 16	<i>W of MER</i> 4	<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>52.284876</u> Longitude <u>-112.153761</u> How Location Obtained Not Verified				Elevation <u>832.10</u> m How Elevation Obtained Estimated			

Additional Information										Measurement in Metric
Distance From Top of Casing to Ground Level _____ cm					Is Artesian Flow _____					Is Flow Control Installed _____
Rate _____ L/min		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 _____						
Gas _____		Depth _____ m		Geophysical Log Taken _____		Submitted to ESRD _____				
Additional Comments on Well		Sample Collected for Potability _____		Submitted to ESRD <u>Yes</u>						
OWNER REPORTS CLAY AQUIFER. LAB REPORTS WATER IS U DUE TO HIGH SODA CONTENT (92.75 GRAINS/GAL)										

Yield Test			Taken From Ground Level	Measurement in Metric
Test Date	Start Time	Static Water Level	Depth to water level	
1958/04/10	12:00 AM	14.33 m		
			Pumping (m)	Recovery (m)
			Elapsed Time	Minutes:Sec
Method of Water Removal				
Type <u>Bailer</u>				
Removal Rate _____ 0.00 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 MJOLSNESS & MCKENZIE	Copy of Well report provided to owner Date approval holder signed



Water Well Drilling Report

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GIC Well ID 183139
GoA Well Tag No.
Drilling Company Well ID
Date Report Received 1959/09/03

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GOWN ID

Well Identification and Location										Measurement in Metric	
Owner Name HALKIRK SCHOOL #2		Address HALKIRK		Town		Province		Country		Postal Code	
Location	<i>1/4 or LSD</i> NE	<i>SEC</i> 24	<i>TWP</i> 38	<i>RGE</i> 16	<i>W of MER</i> 4	<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>52.284876</u> Longitude <u>-112.153761</u> Elevation _____ m How Location Obtained _____ Not Verified					How Elevation Obtained _____ Not Obtained	

Drilling Information	
Method of Drilling Unknown	Type of Work Chemistry
Proposed Well Use Municipal	

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

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

Well Completion				Measurement in Metric
<i>Total Depth Drilled</i>	<i>Finished Well Depth</i>	<i>Start Date</i>	<i>End Date</i>	
0.00 m				
Borehole				
Diameter (cm)	From (m)	To (m)		
0.00	0.00	0.00		
Surface Casing (if applicable)		Well Casing/Liner		
Size OD : _____ 0.00 cm		Size OD : _____ 0.00 cm		
Wall Thickness : _____ 0.000 cm		Wall Thickness : _____ 0.000 cm		
Bottom at : _____ 0.00 m		Top at : _____ 0.00 m		
		Bottom at : _____ 0.00 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 _____ 0.00 m to _____ 0.00 m				
Amount _____				
Other Seals				
Type		At (m)		
Screen Type				
Size OD : _____ 0.00 cm				
From (m)	To (m)	Slot Size (cm)		
Attachment _____				
Top Fittings _____		Bottom Fittings _____		
Pack				
Type _____		Grain Size _____		
Amount 0.00				

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



Water Well Drilling Report

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GIC Well ID 183139
GoA Well Tag No.
Drilling Company Well ID
Date Report Received 1959/09/03

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GOWN ID

Well Identification and Location										Measurement in Metric	
Owner Name HALKIRK SCHOOL #2		Address HALKIRK			Town		Province		Country		Postal Code
Location	1/4 or LSD NE	SEC 24	TWP 38	RGE 16	W of MER 4	Lot	Block	Plan	Additional Description		
Measured from Boundary of _____ m from _____ _____ m from _____					GPS Coordinates in Decimal Degrees (NAD 83) Latitude <u>52.284876</u> Longitude <u>-112.153761</u> Elevation _____ m How Location Obtained _____ Not Verified					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 _____ L/min					Pump Installed _____					Depth _____ m	
Recommended Pump Intake Depth (From TOC) _____ m					Type _____					Make _____ H.P. _____	
					Model (Output Rating) _____						
Did you Encounter Saline Water (>4000 ppm TDS) _____					Depth _____ m					Well Disinfected Upon Completion _____	
Gas _____					Depth _____ m					Geophysical Log Taken _____	
					Submitted to ESRD _____						
Additional Comments on Well					Sample Collected for Potability _____					Submitted to ESRD <u>Yes</u>	
LAB REPORTS WATER IS UNSUITABLE DUE TO EXTREMELY H CONTENT											

Yield Test			Taken From Ground Level	Measurement in Metric
Test Date	Start Time	Static Water Level		
		m		
Method of Water Removal				
Type _____				
Removal Rate _____ L/min				
Depth Withdrawn From _____ 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 UNKNOWN DRILLER	Copy of Well report provided to owner Date approval holder signed



Water Well Drilling Report

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GIC Well ID 183141
GoA Well Tag No.
Drilling Company Well ID
Date Report Received 1958/06/23

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GOWN ID

Well Identification and Location										Measurement in Metric
Owner Name HALKIRK SCHOOL		Address HALKIRK		Town		Province		Country		Postal Code
Location	<i>1/4 or LSD</i> NE	<i>SEC</i> 24	<i>TWP</i> 38	<i>RGE</i> 16	<i>W of MER</i> 4	<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>52.284876</u> Longitude <u>-112.153761</u>			Elevation _____ m		
					How Location Obtained Not Verified			How Elevation Obtained Not Obtained		

Drilling Information	
Method of Drilling Unknown	Type of Work Chemistry
Proposed Well Use Municipal	

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

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

Well Completion				Measurement in Metric
<i>Total Depth Drilled</i>	<i>Finished Well Depth</i>	<i>Start Date</i>	<i>End Date</i>	
50.29 m				
Borehole				
Diameter (cm)	From (m)	To (m)		
0.00	0.00	50.29		
Surface Casing (if applicable)		Well Casing/Liner		
Unknown				
Size OD : <u>7.62 cm</u>		Size OD : <u>0.00 cm</u>		
Wall Thickness : <u>0.000 cm</u>		Wall Thickness : <u>0.000 cm</u>		
Bottom at : <u>0.00 m</u>		Top at : <u>0.00 m</u>		
		Bottom at : <u>0.00 m</u>		
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 m</u> to <u>0.00 m</u>				
Amount _____				
Other Seals				
Type		At (m)		
Screen Type				
Size OD : <u>0.00 cm</u>				
From (m)	To (m)	Slot Size (cm)		
Attachment _____				
Top Fittings _____		Bottom Fittings _____		
Pack				
Type _____		Grain Size _____		
Amount <u>0.00</u>				

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



Water Well Drilling Report

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GIC Well ID 183141
GoA Well Tag No.
Drilling Company Well ID
Date Report Received 1958/06/23

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GOWN ID

Well Identification and Location										Measurement in Metric	
Owner Name HALKIRK SCHOOL		Address HALKIRK		Town		Province		Country		Postal Code	
Location	1/4 or LSD NE	SEC 24	TWP 38	RGE 16	W of MER 4	Lot	Block	Plan	Additional Description		
Measured from Boundary of _____ m from _____ _____ m from _____				GPS Coordinates in Decimal Degrees (NAD 83) Latitude <u>52.284876</u> Longitude <u>-112.153761</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		L/min		Describe _____		Describe _____		Describe _____			
Recommended Pump Rate _____ L/min		L/min		Pump Installed _____		Depth _____ m		Depth _____ m			
Recommended Pump Intake Depth (From TOC) _____ m		m		Type _____		Make _____		H.P. _____			
				Model (Output Rating) _____		Model (Output Rating) _____		Model (Output Rating) _____			
Did you Encounter Saline Water (>4000 ppm TDS) _____		Depth _____ m		Well Disinfected Upon Completion _____		Geophysical Log Taken _____		Submitted to ESRD _____			
Gas _____		Depth _____ m		Submitted to ESRD _____		Submitted to ESRD _____		Submitted to ESRD <u>Yes</u>			
Additional Comments on Well LAB REPORTS WATER IS UNSUITABLE DUE TO HIGH SODA C (108 GRAINS/GAL)											

Yield Test			Taken From Ground Level	Measurement in Metric
Test Date	Start Time	Static Water Level		
		m		
Method of Water Removal				
Type _____				
Removal Rate _____ L/min		L/min		
Depth Withdrawn From _____ m		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 UNKNOWN DRILLER	Copy of Well report provided to owner Date approval holder signed



Water Well Drilling Report

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GIC Well ID 183144
GoA Well Tag No.
Drilling Company Well ID
Date Report Received 1958/03/25

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GOWN ID

Well Identification and Location										Measurement in Metric	
Owner Name HALKIRK SCHOOL		Address HALKIRK		Town		Province		Country		Postal Code	
Location	<i>1/4 or LSD</i> NE	<i>SEC</i> 24	<i>TWP</i> 38	<i>RGE</i> 16	<i>W of MER</i> 4	<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>52.284876</u> Longitude <u>-112.153761</u> Elevation <u>834.24</u> m How Location Obtained _____ How Elevation Obtained _____ Not Verified					Estimated	

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

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

Yield Test Summary			Measurement in Metric
<i>Recommended Pump Rate</i> <u>0.00</u> L/min			
Test Date	Water Removal Rate (L/min)	Static Water Level (m)	
1958/03/26	0.00	24.38	

Well Completion				Measurement in Metric
<i>Total Depth Drilled</i>	<i>Finished Well Depth</i>	<i>Start Date</i>	<i>End Date</i>	
97.54 m				
Borehole				
Diameter (cm)	From (m)	To (m)		
0.00	0.00	97.54		
Surface Casing (if applicable)		Well Casing/Liner		
<i>Size OD :</i> <u>0.00</u> cm		<i>Size OD :</i> <u>0.00</u> cm		
<i>Wall Thickness :</i> <u>0.000</u> cm		<i>Wall Thickness :</i> <u>0.000</u> cm		
<i>Bottom at :</i> <u>0.00</u> m		<i>Top at :</i> <u>0.00</u> m		
		<i>Bottom at :</i> <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				
<i>Placed from</i> <u>0.00</u> m <i>to</i> <u>0.00</u> m				
<i>Amount</i> _____				
Other Seals				
Type		At (m)		
Screen Type				
<i>Size OD :</i> <u>0.00</u> cm				
From (m)	To (m)	Slot Size (cm)		
<i>Attachment</i> _____				
<i>Top Fittings</i> _____		<i>Bottom Fittings</i> _____		
Pack				
<i>Type</i> _____		<i>Grain Size</i> _____		
<i>Amount</i> <u>0.00</u>				

Contractor Certification	
<i>Name of Journeyman responsible for drilling/construction of well</i> UNKNOWN NA DRILLER	<i>Certification No</i> 1
<i>Company Name</i> UNKNOWN DRILLER	<i>Copy of Well report provided to owner</i> <i>Date approval holder signed</i>



Water Well Drilling Report

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GIC Well ID 183144
GoA Well Tag No.
Drilling Company Well ID
Date Report Received 1958/03/25

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GOWN ID

Well Identification and Location										Measurement in Metric	
Owner Name HALKIRK SCHOOL		Address HALKIRK			Town		Province		Country		Postal Code
Location	<i>1/4 or LSD</i> NE	<i>SEC</i> 24	<i>TWP</i> 38	<i>RGE</i> 16	<i>W of MER</i> 4	<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>52.284876</u> Longitude <u>-112.153761</u> How Location Obtained Not Verified				Elevation <u>834.24</u> m How Elevation Obtained Estimated		

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 _____				
Gas _____					Depth _____ m		Geophysical Log Taken _____				
					Submitted to ESRD _____						
Additional Comments on Well					Sample Collected for Potability _____			Submitted to ESRD <u>Yes</u>			
LAB REPORTS WATER IS UNSUITABLE DUE TO HIGH SODA C (98.69 GRAINS/GAL)											

Yield Test			Taken From Ground Level	Measurement in Metric
			Depth to water level	
Test Date 1958/03/26	Start Time 12:00 AM	Static Water Level 24.38 m		
			Pumping (m)	Recovery (m)
			Elapsed Time Minutes:Sec	
Method of Water Removal				
Type _____				
Removal Rate _____ 0.00 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 L	Diversion Date & Time

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



Water Well Drilling Report

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GIC Well ID 183145
GoA Well Tag No.
Drilling Company Well ID
Date Report Received 1980/12/05

GOWN ID

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.

Well Identification and Location										Measurement in Metric	
Owner Name HALKIRK, VILL OF		Address HALKIRK		Town		Province		Country		Postal Code	
Location	<i>1/4 or LSD</i> NE	<i>SEC</i> 24	<i>TWP</i> 38	<i>RGE</i> 16	<i>W of MER</i> 4	<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>52.284876</u> Longitude <u>-112.153761</u> How Location Obtained Not Verified					Elevation <u>830.58</u> m How Elevation Obtained Estimated	

Drilling Information			
Method of Drilling Rotary		Type of Work Test Hole-Decommissioned View Decommissioning Report	
Proposed Well Use Municipal		Plugged	<u>1980/09/03</u>
		Plugged with	<u>Unknown</u>
		Amount	_____

Formation Log			Measurement in Metric
Depth from ground level (m)	Water Bearing	Lithology Description	
5.79		Gray Clay	
8.23		Gray Shale	
10.06		Gray Sandstone	
10.67		Gray Shale	
11.28		Coal	
20.73		Gray Shale	
23.47		Brown Shale	
30.48		Gray Shale	

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)	
1980/09/03	4.55	0.00	

Well Completion				Measurement in Metric
Total Depth Drilled	Finished Well Depth	Start Date	End Date	
30.48 m			1980/09/03	
Borehole				
Diameter (cm)	From (m)	To (m)		
0.00	0.00	30.48		
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 <u>0.00</u>				

Contractor Certification	
Name of Journeyman responsible for drilling/construction of well UNKNOWN NA DRILLER	Certification No 1
Company Name LOUSANA WATER WELLS (1987) LTD.	Copy of Well report provided to owner Date approval holder signed



Water Well Drilling Report

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GIC Well ID 183145
GoA Well Tag No.
Drilling Company Well ID
Date Report Received 1980/12/05

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GOWN ID

Well Identification and Location										Measurement in Metric
Owner Name HALKIRK, VILL OF		Address HALKIRK		Town		Province		Country		Postal Code
Location	1/4 or LSD NE	SEC 24	TWP 38	RGE 16	W of MER 4	Lot	Block	Plan	Additional Description	
Measured from Boundary of _____ m from _____ _____ m from _____					GPS Coordinates in Decimal Degrees (NAD 83) Latitude <u>52.284876</u> Longitude <u>-112.153761</u>			Elevation <u>830.58 m</u>		
					How Location Obtained Not Verified			How Elevation Obtained Estimated		

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 _____			
Gas _____					Depth _____ m		Geophysical Log Taken _____			
										Submitted to ESRD _____
Additional Comments on Well					Sample Collected for Potability _____			Submitted to ESRD _____		
DRILLER REPORTS WELL WAS ABANDONED DUE TO INSUFFIC SUPPLY										

Yield Test			Taken From Ground Level	Measurement in Metric
			Depth to water level	
Test Date 1980/09/03	Start Time 12:00 AM	Static Water Level 0.00 m		
			Pumping (m)	Recovery (m)
			Elapsed Time Minutes:Sec	
Method of Water Removal				
Type <u>Bailer</u>				
Removal Rate <u>4.55 L/min</u>				
Depth Withdrawn From <u>0.00 m</u>				
If water removal period was < 2 hours, explain why				

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

Contractor Certification	
Name of Journeyman responsible for drilling/construction of well UNKNOWN NA DRILLER	Certification No 1
Company Name LOUSANA WATER WELLS (1987) LTD.	Copy of Well report provided to owner Date approval holder signed



Water Well Drilling Report

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GIC Well ID 183147
GoA Well Tag No.
Drilling Company Well ID
Date Report Received 1980/01/01

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GOWN ID

Well Identification and Location										Measurement in Metric
Owner Name HALKIRK, VILL OF#WTH 3-79		Address HALKIRK		Town		Province		Country		Postal Code
Location	<i>1/4 or LSD</i> NE	<i>SEC</i> 24	<i>TWP</i> 38	<i>RGE</i> 16	<i>W of MER</i> 4	<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>52.284876</u> Longitude <u>-112.153761</u>			Elevation <u>832.71</u> m		
					How Location Obtained Not Verified			How Elevation Obtained Estimated		

Drilling Information	
Method of Drilling Rotary	Type of Work Test Hole
Proposed Well Use Municipal	

Formation Log			Measurement in Metric
Depth from ground level (m)	Water Bearing	Lithology Description	
3.96		Brown Till & Clay	
5.18		Gray Sandstone	
8.23		Gray Shale	
8.53		Coal	
9.14		Gray Sandy Shale	
10.67		Gray Shale	
10.97		Coal	
12.80		Gray Shale	
14.02		Gray Sandstone	
23.77		Gray Shale	
24.08		Coal	
25.91		Gray Shale	
27.43		Gray Sandstone	
32.92		Gray Shale	
34.75		Gray Shale	
36.27		Gray Shale	
37.49		Coal	
48.77		Gray Shale	

Yield Test Summary			Measurement in Metric
<i>Recommended Pump Rate</i> <u>0.00</u> L/min			
<i>Test Date</i>	<i>Water Removal Rate (L/min)</i>	<i>Static Water Level (m)</i>	
1979/12/17	11.37	0.00	

Well Completion				Measurement in Metric
<i>Total Depth Drilled</i>	<i>Finished Well Depth</i>	<i>Start Date</i>	<i>End Date</i>	
48.77 m			1979/12/17	
Borehole				
<i>Diameter (cm)</i>	<i>From (m)</i>	<i>To (m)</i>		
0.00	0.00	48.77		
Surface Casing (if applicable)		Well Casing/Liner		
<i>Size OD :</i>	<u>0.00</u> cm	<i>Size OD :</i>	<u>0.00</u> cm	
<i>Wall Thickness :</i>	<u>0.000</u> cm	<i>Wall Thickness :</i>	<u>0.000</u> cm	
<i>Bottom at :</i>	<u>0.00</u> m	<i>Top at :</i>	<u>0.00</u> m	
		<i>Bottom at :</i>	<u>0.00</u> m	
Perforations				
<i>From (m)</i>	<i>To (m)</i>	<i>Diameter or Slot Width (cm)</i>	<i>Slot Length (cm)</i>	<i>Hole or Slot Interval (cm)</i>
<i>Perforated by</i>				
Annular Seal				
<i>Placed from</i> <u>0.00</u> m <i>to</i> <u>0.00</u> m				
<i>Amount</i> _____				
<i>Other Seals</i>				
<i>Type</i>		<i>At (m)</i>		
Screen Type				
<i>Size OD :</i> <u>0.00</u> cm				
<i>From (m)</i>	<i>To (m)</i>	<i>Slot Size (cm)</i>		
<i>Attachment</i> _____				
<i>Top Fittings</i> _____		<i>Bottom Fittings</i> _____		
Pack				
<i>Type</i> _____		<i>Grain Size</i> _____		
<i>Amount</i> <u>0.00</u>				

Contractor Certification	
<i>Name of Journeyman responsible for drilling/construction of well</i> UNKNOWN NA DRILLER	<i>Certification No</i> 1
<i>Company Name</i> LOUSANA WATER WELLS (1987) LTD.	<i>Copy of Well report provided to owner</i> <i>Date approval holder signed</i>



Water Well Drilling Report

[View in Imperial](#) [Export to Excel](#)

GIC Well ID 183147
GoA Well Tag No.
Drilling Company Well ID
Date Report Received 1980/01/01

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 HALKIRK, VILL OF#WTH 3-79		Address HALKIRK		Town		Province		Country		Postal Code
Location	1/4 or LSD NE	SEC 24	TWP 38	RGE 16	W of MER 4	Lot	Block	Plan	Additional Description	
Measured from Boundary of _____ m from _____ _____ m from _____					GPS Coordinates in Decimal Degrees (NAD 83) Latitude <u>52.284876</u> Longitude <u>-112.153761</u> How Location Obtained Not Verified			Elevation <u>832.71 m</u> How Elevation Obtained Estimated		

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 _____				
Gas _____					Depth _____ m		Geophysical Log Taken _____				
					Submitted to ESRD _____						
Additional Comments on Well _____					Sample Collected for Potability _____			Submitted to ESRD _____			

Yield Test			Taken From Ground Level	Measurement in Metric
Test Date 1979/12/17	Start Time 12:00 AM	Static Water Level 0.00 m	Depth to water level	
			Pumping (m)	Elapsed Time Minutes:Sec
				Recovery (m)
Method of Water Removal				
Type Bailer				
Removal Rate <u>11.37 L/min</u>				
Depth Withdrawn From <u>48.77 m</u>				
If water removal period was < 2 hours, explain why				

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

Contractor Certification	
Name of Journeyman responsible for drilling/construction of well UNKNOWN NA DRILLER	Certification No 1
Company Name LOUSANA WATER WELLS (1987) LTD.	Copy of Well report provided to owner Date approval holder signed



Water Well Drilling Report

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GIC Well ID 183160
GoA Well Tag No.
Drilling Company Well ID
Date Report Received 1964/01/01

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		Address			Town		Province		Country		Postal Code	
HALKIRK, VILL OF		HALKIRK										
Location	1/4 or LSD	SEC	TWP	RGE	W of MER	Lot	Block	Plan	Additional Description			
	NE	24	38	16	4							
Measured from Boundary of					GPS Coordinates in Decimal Degrees (NAD 83)							
_____ m from _____					Latitude <u>52.284876</u> Longitude <u>-112.153761</u>					Elevation <u>832.10</u> m		
_____ m from _____					How Location Obtained					How Elevation Obtained		
					Not Verified					Estimated		

Drilling Information	
Method of Drilling Rotary	Type of Work New Well
Proposed Well Use Municipal	

Formation Log			Measurement in Metric
Depth from ground level (m)	Water Bearing	Lithology Description	
3.66		Clay & Boulders	
10.36		Shale	
11.28		Coal	
24.99		Shale	
25.91		Coal	
28.96	Yes	Water Bearing Shale	
35.97		Shale	
37.19		Coal	
43.89	Yes	Water Bearing Shale	
44.50	Yes	Water Bearing Sandstone	
52.43		Shale	
57.30		Sandstone & Shale Ledges	
68.58		Shale	
68.88		Coal	
82.91		Shale & Coal	
83.52		Sandstone	
87.78	Yes	Water Bearing Shale & Sandstone Ledges	
92.66		Shale	
93.27		Coal	
106.68		Sandy See Comments	
110.34		Hard Sandstone	
112.78		Shale	

Yield Test Summary			Measurement in Metric
Recommended Pump Rate			0.00 L/min
Test Date	Water Removal Rate (L/min)	Static Water Level (m)	
1959/06/01	15.91	24.38	
1959/06/01	22.73	24.38	

Well Completion				Measurement in Metric
Total Depth Drilled	Finished Well Depth	Start Date	End Date	
112.78 m			1959/06/01	
Borehole				
Diameter (cm)	From (m)	To (m)		
0.00	0.00	112.78		
Surface Casing (if applicable)		Well Casing/Liner		
		Unknown		
Size OD :	0.00 cm	Size OD :	13.97 cm	
Wall Thickness :	0.000 cm	Wall Thickness :	0.000 cm	
Bottom at :	0.00 m	Top at :	0.00 m	
		Bottom at :		107.29 m
Perforations				
From (m)	To (m)	Diameter or Slot Width (cm)	Slot Length (cm)	Hole or Slot Interval(cm)
Perforated by Unknown				
Annular Seal Formation Packer				
Placed from 0.00 m to 34.14 m				
Amount _____				
Other Seals				
Type _____				At (m) _____
Screen Type				
Size OD : 0.00 cm				
From (m)	To (m)	Slot Size (cm)		
Attachment _____				
Top Fittings _____		Bottom Fittings _____		
Pack				
Type _____		Grain Size _____		
Amount 0.00				

Contractor Certification	
Name of Journeyman responsible for drilling/construction of well UNKNOWN NA DRILLER	Certification No 1
Company Name MJOLSNESS & MCKENZIE	Copy of Well report provided to owner Date approval holder signed



Water Well Drilling Report

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GIC Well ID 183160
GoA Well Tag No.
Drilling Company Well ID
Date Report Received 1964/01/01

GOWN ID

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.

Well Identification and Location										Measurement in Metric	
Owner Name HALKIRK, VILL OF		Address HALKIRK		Town		Province		Country		Postal Code	
Location	1/4 or LSD NE	SEC 24	TWP 38	RGE 16	W of MER 4	Lot	Block	Plan	Additional Description		
Measured from Boundary of _____ m from _____ _____ m from _____				GPS Coordinates in Decimal Degrees (NAD 83) Latitude <u>52.284876</u> Longitude <u>-112.153761</u> How Location Obtained Not Verified				Elevation <u>832.10</u> m How Elevation Obtained Estimated			

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 Yes					Depth _____ m
Recommended Pump Intake Depth (From TOC) _____ 64.01 m					Type <u>SUB</u>		Make <u>20 STAGE 3/4 HP</u>		H.P. _____	
										Model (Output Rating) _____
Did you Encounter Saline Water (>4000 ppm TDS) _____					Depth _____ m		Well Disinfected Upon Completion _____			
Gas _____					Depth _____ m		Geophysical Log Taken _____			
										Submitted to ESRD _____
Additional Comments on Well					Sample Collected for Potability _____					Submitted to ESRD _____
350' COAL, SANDSTONE & SHALE LAYERS. DRILLER REPOR SODA WATER. SURGING & WASHING INCREASED THE FLOW T										

Yield Test				Taken From Ground Level	Measurement in Metric								
				Depth to water level									
Test Date	Start Time	Static Water Level											
1959/06/01	12:00 AM	24.38 m											
Method of Water Removal													
Type <u>Bailer</u>													
Removal Rate _____ 15.91 L/min													
Depth Withdrawn From _____ 0.00 m													
If water removal period was < 2 hours, explain why													
			<table border="1"> <thead> <tr> <th>Pumping (m)</th> <th>Elapsed Time Minutes:Sec</th> <th>Recovery (m)</th> </tr> </thead> <tbody> <tr> <td>112.78</td> <td>20:00</td> <td></td> </tr> <tr> <td></td> <td>60:00</td> <td>24.38</td> </tr> </tbody> </table>		Pumping (m)	Elapsed Time Minutes:Sec	Recovery (m)	112.78	20:00			60:00	24.38
Pumping (m)	Elapsed Time Minutes:Sec	Recovery (m)											
112.78	20:00												
	60:00	24.38											

Yield Test				Taken From Ground Level	Measurement in Metric								
				Depth to water level									
Test Date	Start Time	Static Water Level											
1959/06/01	12:00 AM	24.38 m											
Method of Water Removal													
Type <u>Bailer</u>													
Removal Rate _____ 22.73 L/min													
Depth Withdrawn From _____ 0.00 m													
If water removal period was < 2 hours, explain why													
			<table border="1"> <thead> <tr> <th>Pumping (m)</th> <th>Elapsed Time Minutes:Sec</th> <th>Recovery (m)</th> </tr> </thead> <tbody> <tr> <td>112.78</td> <td>90:00</td> <td></td> </tr> <tr> <td></td> <td>120:00</td> <td>24.38</td> </tr> </tbody> </table>		Pumping (m)	Elapsed Time Minutes:Sec	Recovery (m)	112.78	90:00			120:00	24.38
Pumping (m)	Elapsed Time Minutes:Sec	Recovery (m)											
112.78	90:00												
	120:00	24.38											

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 MJOLSNESS & MCKENZIE	Copy of Well report provided to owner Date approval holder signed

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Authorization Viewer - Search Results

The Search Used the Following Values:

Legal Land Location:	NE 24-038-16-W4
Act / Document Type:	Water Act, EPEA
Show Inactive Authorizations:	Yes

The resulting Authorizations based on the search criteria will be displayed below. A  will appear next to the Authorization when documentation is available for viewing or downloading. Please click [Viewer Help](#) if you encounter problems viewing the Authorization document.

2 Result(s)

	Document 00049694-00-00 HALKIRK/WMF/WASTE TRANSFER STATION is held by Waste Connections of Canada Inc., under the provisions of the <i>Environmental Protection & Enhancement Act</i> . This Notification is currently issued as of Mar. 24, 1998 and does not expire.
	Document 00073626-00-00 HALKIRK/STOCK/HAROLD CHICK - F00073626 is held by Harold Chick, under the provisions of the <i>Water Act</i> . This Registration is currently issued as of Jun. 10, 2002 and does not expire.

Clear & Return

Comments regarding the Authorization Viewer page may be directed to the Regulatory Approvals Centre RAC.Environment@gov.ab.ca.



49694-00-00

EPZA Application No.

001-49694 Date 16-MAR-98
Regulatory Approvals Centre A.K



Beulah Tec Limited

14374 Park Drive
Edmonton AB Canada T5R 5V2
tel : +1 403 484 6368
fax : +1 403 481 2431
internet: polet@esaa.org

12 November 1997

Mr. A.K. (Al) Kennedy, P. Eng.
Alberta Environmental Protection
3rd. Floor, Provincial Building, 4920 - 51 Street
Red Deer, AB T4N 6K8

012
-03- 1 n 1998
AEP

Dear Al,

Re: Halkirk Municipal Waste Transfer Station

On behalf of CWR Waste Management Corporation Inc., please accept this letter as formal notification of the establishment of a transfer station for the collection of municipal wastes from Halkirk and environs. We hereby confirm the transfer station will conform with the draft Alberta Environmental Protection's (AEP) Alberta Municipal Waste Transfer Stations Guidelines, (May 3, 1996).

The site is on the municipal landfill site of the Village of Halkirk, (NE-24-38-16-W4). It is currently licensed as a waste management facility under the authority of the East Central Regional Health Authority. Upon the opening of the transfer station, the site will no longer be used as a landfill, and will be reclaimed beginning in the spring of 1998.

The site has been used as a waste management facility for a number of years and is well accepted by the public and compatible with neighbouring land uses, (all agricultural). Access to the boundary of the site is via paved road. The road into the site will be upgraded.

50 cubic yard partitioned containers with sealed lids will be used. All putrescent wastes will be in containers, and all non-putrescent recyclable waste will be in containers or structures. The site is being designed to accommodate 520 tonnes/year.

A retaining wall will be installed upon the design of a structural engineer. It will allow direct deposition into the waiting containers. Improvement of access, signage and recyclable structures will complete the capital improvements. Everything else including gates & signage is in place. The well treed area is supplemented with fencing to reduce wind-blown litter. The site is set back and not visible from the road or any residence.

The site will be signed appropriately. The site will be supervised by appropriately trained staff during operating hours. Operation of and acceptance of waste at the Halkirk transfer station will be in accordance with the AEP's draft Waste Transfer Stations Guidelines, and the operating and emergency response plan of CWR Waste Management Corporation Inc.

Yours sincerely,


Mark Polet, P. Biol.

c: Tim Peterson, CWR Waste Management Corporation Inc.
Wayne Richardson, CWR Waste Management Corporation Inc.

June 21, 2021

Mr. Spencer Podgurski
Parkland GEO
102 4756 Riverside Dr
Red Deer AB T4N 2N7

EMAIL: spencer.podgurski@parklandgeo.com

Re: ASCA Storage Tank Search – Your File No. RD7434(1)

Dear Mr. Podgurski,

As per your search request dated June 17, 2021, Alberta Safety Codes Authority (ASCA) has searched the storage tank database for existing and former installations of storage tank systems, as defined by the Fire Code, including those known to be inside structures at the following address:

1. Lot 4, Block 1, Plan 0621408, Halkirk AB

The search of the storage tank database determined no records were available for the address requested.

The Freedom of Information and Protection of Privacy Act governs the information provided. Please note that the database is **not** complete. The main limitation of the database is that it only includes information reported through registration and permitting or a survey of abandoned sites completed in 1992 and should not be considered a comprehensive inventory of all past or present storage tank sites. ASCA's storage tank systems database is solely maintained based on information provided by owners and or operators of storage tank systems; therefore, the database may not reflect information related to all existing or former storage tank systems in Alberta. Further information on storage tank systems or investigations involving a spill/release or contamination may be filed with the local fire service or Alberta Environment.

Regards,

ASCA Associate
ascatanks@safetycodes.ab.ca

June 21, 2021

Mr. Spencer Podgurski
Parkland GEO
102 4756 Riverside Dr
Red Deer AB T4N 2N7

EMAIL: spencer.podgurski@parklandgeo.com

Re: ASCA Storage Tank Search – Your File No. RD7434(2)

Dear Mr. Podgurski,

As per your search request dated June 17, 2021, Alberta Safety Codes Authority (ASCA) has searched the storage tank database for existing and former installations of storage tank systems, as defined by the Fire Code, including those known to be inside structures at the following address:

1. Lot 26-27, Block 7, Plan 1989Z, Halkirk AB

The search of the storage tank database determined no records were available for the address requested.

The Freedom of Information and Protection of Privacy Act governs the information provided. Please note that the database is **not** complete. The main limitation of the database is that it only includes information reported through registration and permitting or a survey of abandoned sites completed in 1992 and should not be considered a comprehensive inventory of all past or present storage tank sites. ASCA's storage tank systems database is solely maintained based on information provided by owners and or operators of storage tank systems; therefore, the database may not reflect information related to all existing or former storage tank systems in Alberta. Further information on storage tank systems or investigations involving a spill/release or contamination may be filed with the local fire service or Alberta Environment.

Regards,

ASCA Associate
ascatanks@safetycodes.ab.ca

June 21, 2021

Mr. Spencer Podgurski
Parkland GEO
102 4756 Riverside Dr
Red Deer AB T4N 2N7

EMAIL: spencer.podgurski@parklandgeo.com

Re: ASCA Storage Tank Search – Your File No. RD7434(3)

Dear Mr. Podgurski,

As per your search request dated June 17, 2021, Alberta Safety Codes Authority (ASCA) has searched the storage tank database for existing and former installations of storage tank systems, as defined by the Fire Code, including those known to be inside structures at the following address:

1. Lot 2, Block 8, Plan 1045MC, Halkirk AB

The search of the storage tank database determined no records were available for the address requested.

The Freedom of Information and Protection of Privacy Act governs the information provided. Please note that the database is **not** complete. The main limitation of the database is that it only includes information reported through registration and permitting or a survey of abandoned sites completed in 1992 and should not be considered a comprehensive inventory of all past or present storage tank sites. ASCA's storage tank systems database is solely maintained based on information provided by owners and or operators of storage tank systems; therefore, the database may not reflect information related to all existing or former storage tank systems in Alberta. Further information on storage tank systems or investigations involving a spill/release or contamination may be filed with the local fire service or Alberta Environment.

Regards,

ASCA Associate
ascatanks@safetycodes.ab.ca

June 21, 2021

Mr. Spencer Podgurski
Parkland GEO
102 4756 Riverside Dr
Red Deer AB T4N 2N7

EMAIL: spencer.podgurski@parklandgeo.com

Re: ASCA Storage Tank Search – Your File No. RD7434(4)

Dear Mr. Podgurski,

As per your search request dated June 17, 2021, Alberta Safety Codes Authority (ASCA) has searched the storage tank database for existing and former installations of storage tank systems, as defined by the Fire Code, including those known to be inside structures at the following address:

1. Lots 11-13, Block 3, Plan 1989Z, Halkirk AB

The search of the storage tank database determined no records were available for the address requested.

The Freedom of Information and Protection of Privacy Act governs the information provided. Please note that the database is **not** complete. The main limitation of the database is that it only includes information reported through registration and permitting or a survey of abandoned sites completed in 1992 and should not be considered a comprehensive inventory of all past or present storage tank sites. ASCA's storage tank systems database is solely maintained based on information provided by owners and or operators of storage tank systems; therefore, the database may not reflect information related to all existing or former storage tank systems in Alberta. Further information on storage tank systems or investigations involving a spill/release or contamination may be filed with the local fire service or Alberta Environment.

Regards,

ASCA Associate
ascatanks@safetycodes.ab.ca

June 21, 2021

Mr. Spencer Podgurski
Parkland GEO
102 4756 Riverside Dr
Red Deer AB T4N 2N7

EMAIL: spencer.podgurski@parklandgeo.com

Re: ASCA Storage Tank Search – Your File No. RD7434(5)

Dear Mr. Podgurski,

As per your search request dated June 17, 2021, Alberta Safety Codes Authority (ASCA) has searched the storage tank database for existing and former installations of storage tank systems, as defined by the Fire Code, including those known to be inside structures at the following address:

1. Lots 1-3, Block 3, Plan 1989Z, Halkirk AB

The search of the storage tank database determined no records were available for the address requested.

The Freedom of Information and Protection of Privacy Act governs the information provided. Please note that the database is **not** complete. The main limitation of the database is that it only includes information reported through registration and permitting or a survey of abandoned sites completed in 1992 and should not be considered a comprehensive inventory of all past or present storage tank sites. ASCA's storage tank systems database is solely maintained based on information provided by owners and or operators of storage tank systems; therefore, the database may not reflect information related to all existing or former storage tank systems in Alberta. Further information on storage tank systems or investigations involving a spill/release or contamination may be filed with the local fire service or Alberta Environment.

Regards,

ASCA Associate
ascatanks@safetycodes.ab.ca

June 21, 2021

Mr. Spencer Podgurski
Parkland GEO
102 4756 Riverside Dr
Red Deer AB T4N 2N7

EMAIL: spencer.podgurski@parklandgeo.com

Re: ASCA Storage Tank Search – Your File No. RD7434(6)

Dear Mr. Podgurski,

As per your search request dated June 17, 2021, Alberta Safety Codes Authority (ASCA) has searched the storage tank database for existing and former installations of storage tank systems, as defined by the Fire Code, including those known to be inside structures at the following address:

1. Lots 22-27, Block 3, Plan 1989Z, Halkirk AB

The search of the storage tank database determined no records were available for the address requested.

The Freedom of Information and Protection of Privacy Act governs the information provided. Please note that the database is **not** complete. The main limitation of the database is that it only includes information reported through registration and permitting or a survey of abandoned sites completed in 1992 and should not be considered a comprehensive inventory of all past or present storage tank sites. ASCA's storage tank systems database is solely maintained based on information provided by owners and or operators of storage tank systems; therefore, the database may not reflect information related to all existing or former storage tank systems in Alberta. Further information on storage tank systems or investigations involving a spill/release or contamination may be filed with the local fire service or Alberta Environment.

Regards,

ASCA Associate
ascatanks@safetycodes.ab.ca

June 21, 2021

Mr. Spencer Podgurski
Parkland GEO
102 4756 Riverside Dr
Red Deer AB T4N 2N7

EMAIL: spencer.podgurski@parklandgeo.com

Re: ASCA Storage Tank Search – Your File No. RD7434(7)

Dear Mr. Podgurski,

As per your search request dated June 17, 2021, Alberta Safety Codes Authority (ASCA) has searched the storage tank database for existing and former installations of storage tank systems, as defined by the Fire Code, including those known to be inside structures at the following address:

1. Lots 17-21, Block 3, Plan 1989Z, Halkirk AB

The search of the storage tank database determined no records were available for the address requested.

The Freedom of Information and Protection of Privacy Act governs the information provided. Please note that the database is **not** complete. The main limitation of the database is that it only includes information reported through registration and permitting or a survey of abandoned sites completed in 1992 and should not be considered a comprehensive inventory of all past or present storage tank sites. ASCA's storage tank systems database is solely maintained based on information provided by owners and or operators of storage tank systems; therefore, the database may not reflect information related to all existing or former storage tank systems in Alberta. Further information on storage tank systems or investigations involving a spill/release or contamination may be filed with the local fire service or Alberta Environment.

Regards,

ASCA Associate
ascatanks@safetycodes.ab.ca

June 21, 2021

Mr. Spencer Podgurski
Parkland GEO
102 4756 Riverside Dr
Red Deer AB T4N 2N7

EMAIL: spencer.podgurski@parklandgeo.com

Re: ASCA Storage Tank Search – Your File No. RD7434(8)

Dear Mr. Podgurski,

As per your search request dated June 17, 2021, Alberta Safety Codes Authority (ASCA) has searched the storage tank database for existing and former installations of storage tank systems, as defined by the Fire Code, including those known to be inside structures at the following address:

1. Lots 7-10, Block 3, Plan 1989Z, Halkirk AB

The search of the storage tank database determined no records were available for the address requested.

The Freedom of Information and Protection of Privacy Act governs the information provided. Please note that the database is **not** complete. The main limitation of the database is that it only includes information reported through registration and permitting or a survey of abandoned sites completed in 1992 and should not be considered a comprehensive inventory of all past or present storage tank sites. ASCA's storage tank systems database is solely maintained based on information provided by owners and or operators of storage tank systems; therefore, the database may not reflect information related to all existing or former storage tank systems in Alberta. Further information on storage tank systems or investigations involving a spill/release or contamination may be filed with the local fire service or Alberta Environment.

Regards,

ASCA Associate
ascatanks@safetycodes.ab.ca

June 21, 2021

Mr. Spencer Podgurski
Parkland GEO
102 4756 Riverside Dr
Red Deer AB T4N 2N7

EMAIL: spencer.podgurski@parklandgeo.com

Re: ASCA Storage Tank Search – Your File No. RD7434(9)

Dear Mr. Podgurski,

As per your search request dated June 17, 2021, Alberta Safety Codes Authority (ASCA) has searched the storage tank database for existing and former installations of storage tank systems, as defined by the Fire Code, including those known to be inside structures at the following address:

1. Lots 13-14, Block 2, Plan 1989Z, Halkirk AB

The search of the storage tank database determined no records were available for the address requested.

The Freedom of Information and Protection of Privacy Act governs the information provided. Please note that the database is **not** complete. The main limitation of the database is that it only includes information reported through registration and permitting or a survey of abandoned sites completed in 1992 and should not be considered a comprehensive inventory of all past or present storage tank sites. ASCA's storage tank systems database is solely maintained based on information provided by owners and or operators of storage tank systems; therefore, the database may not reflect information related to all existing or former storage tank systems in Alberta. Further information on storage tank systems or investigations involving a spill/release or contamination may be filed with the local fire service or Alberta Environment.

Regards,

ASCA Associate
ascatanks@safetycodes.ab.ca

June 21, 2021

Mr. Spencer Podgurski
Parkland GEO
102 4756 Riverside Dr
Red Deer AB T4N 2N7

EMAIL: spencer.podgurski@parklandgeo.com

Re: ASCA Storage Tank Search – Your File No. RD7434

Dear Mr. Podgurski,

As per your search request dated June 17, 2021, Alberta Safety Codes Authority (ASCA) has searched the storage tank database for existing and former installations of storage tank systems, as defined by the Fire Code, including those known to be inside structures at the following address:

1. Lot 3, Block 11, Plan 7822147, Halkirk AB

The search of the storage tank database determined no records were available for the address requested.

The Freedom of Information and Protection of Privacy Act governs the information provided. Please note that the database is **not** complete. The main limitation of the database is that it only includes information reported through registration and permitting or a survey of abandoned sites completed in 1992 and should not be considered a comprehensive inventory of all past or present storage tank sites. ASCA's storage tank systems database is solely maintained based on information provided by owners and or operators of storage tank systems; therefore, the database may not reflect information related to all existing or former storage tank systems in Alberta. Further information on storage tank systems or investigations involving a spill/release or contamination may be filed with the local fire service or Alberta Environment.

Regards,

ASCA Associate
ascatanks@safetycodes.ab.ca

RECEIVED
PAGE 02
JUN - 8 1998



Petroleum Tank Management
Association of Alberta
1590-10203 Jasper Avenue
Edmonton, AB T5J 2N9
PH: 403-425-8285 FAX: 403-425-4722

RECEIVED
JUN - 4 1998
P.T.M.A.A.

PETROLEUM STORAGE TANK
CLOSURE REPORT
Part A

Underground storage tank systems must be removed from the ground and disposed of in accordance with Section 4.10.3 and 4.10.4 of the Alberta Fire Code. Upon completion of the tank(s) removal, complete this form and mail or fax same to the PTMAA. If contamination is encountered during removal of tank(s), notification must be made to the fire authority in accordance with Section 4.3.17.2 of the Alberta Fire Code 1992 and Alberta Environmental Protection at 1-800-222-8514 in accordance with Section 99 of the Environmental Protection & Enhancement Act.

DATE RECEIVED: 98/06/04 Municipality #: 018-03 Site #: 262
Inspection by: P.C.D. Yes No File # _____
Fire Official Yes No File # _____
G.P.B. File # _____

FACILITY NAME: HALKIRK CORNER SERVICE Site #: 262
Address: Box 141
City: HALKIRK Postal Code: T0C 1M0 Telephone: 884-2456
Legal Land Descr.: LSD ___ % of Sec. ___ Twp. ___ Rgs. ___ NW of ___ Mer. or Lot ___ Block 7 Plan 1989Z

NAME: Dale Kent 4496 - MELODY TRNT
Address: Box 141 City: HALKIRK
Postal Code: T0C 1M0 Contact Person: Dale Telephone: 884-2456

Tank Registration #	Capacity (litres)	Age	Product Stored	Material	Date Removed	Reason For Removal (Decomm., Upgrade, Leaking)	Tank Replaced Yes/No
			Diesel		June 9/98	No longer used	No
			Gas		"	No longer "	No
			Gas		"	" " "	No

NAME: Nattestad Contracting Telephone #: _____
Address: Stettler City: Stettler
Postal Code: _____ Certified Contractor: Contractor Certification #: _____

DECOMMISSION DATE
94/06/09 No longer operating

PETROLEUM STORAGE TANK CLOSURE REPORT - Part B Page 2

SECTION 5: TANK DISPOSAL INFORMATION

Tanks were transported to: _____
Name

Address

for. recycle (salvage) or landfill or unregulated use (specify) _____

SECTION 6: SITE REMEDIATION INFORMATION (where applicable)

Was contamination encountered during removal or decommissioning? Yes No
Was a site subsurface investigation conducted? Yes No

If yes,
Who did investigation: _____
Company Contact

Address Telephone

Was remediation/clean-up work conducted at the site? Yes No
(soil and/or groundwater)

Current Status of Work
Remediation/clean-up work Complete Ongoing

If complete, date completed: 941009
YY/MM/DD

Complete to Level: Level I Level II Level III Other

Nature of remediation: In situ Onsite Treatment Offsite Treatment

Method of soil treatment: Landfilling Landspreading Other Specify _____
Was groundwater impacted? Yes No

Explain: _____
Remediation supervised by: _____
Company Contact

Address Telephone

If ongoing, date of anticipated completion: _____
YY/MM/DD

Was Alberta Environmental Protection notified? Yes No _____
YY/MM/DD

Notification to: _____ Branch: _____

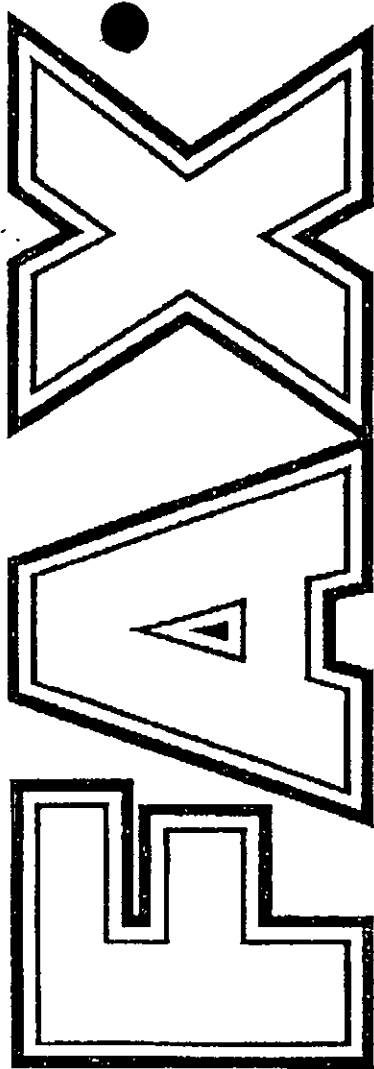
Was fire official notified? Yes No _____
YY/MM/DD

Notification to: _____ Department: _____

Report on remediation completed/submitted Yes No

Submitted to: _____ Department: _____

4040-HA03-2



T R A N S M I T T A L

To: PCD

Fax #: _____ Phone #: _____

From: PTMAA

Date: JUNE 4/98 Pages to follow: _____

COMMENTS

F.Y.T

Multiple horizontal lines for additional comments or notes.



**Petroleum
Tank Management
Assoc. of Alberta**

Suite 1580, 10303 Jasper Ave
Edmonton, AB T5J 3N8
PH: 403-425-8265 (TANK)
FAX: 403-425-4722

op id
173982

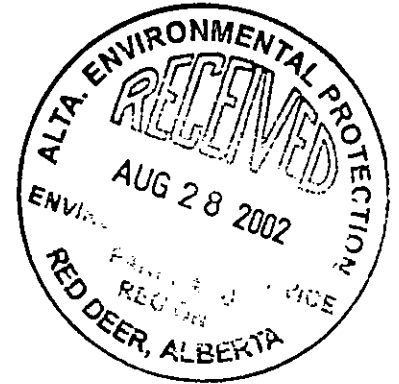


SAFETY CODES COUNCIL

Underground Tank Remediation Program
14th Floor, Commerce Place
10155 - 102 Street
Edmonton Alberta T5J 4L4

Tel: 780/415-8671
Fax: 780/415-8664

August 26, 2002



Central Region
Alberta Environment
3rd Floor Provincial Building
4920 - 51 Street
Red Deer, AB T4N 6K8

Dear Karen Gervais:

RE: Phase II Environmental Site Assessment Reports

Enclosed are the Phase II Environmental Site Assessment reports for the following sites, which were funded by the Underground Tank Remediation Program.

- Site #9186 - Former Service Station
- Site #9267 - Former Service Station
- Site #9327 - Former Service Station
- Site #1966 - McKenzie Motors Ltd. Coronation
- Site #9192 - Zelmco Enterprises Inc.
- Site #5147 - Tiger Lily Repair Ltd.

We welcome any comments that you may wish to make.

Yours truly,

Karen Clarke

Karen Clarke
Technical Coordinator

Enc.,

RECEIVED JUL 31 2002

**Lot 1&2, Block 4, Plan 19897 - Halkirk
Subsurface Environmental Investigation**

9327

Available for Public Distribution

Prepared For:
Thomas Chadwick

Prepared By:
Sabatini Earth Technologies Inc.

July 2002

SABATINI EARTH TECHNOLOGIES INC.

SABATINI EARTH TECHNOLOGIES INC.

203, 6919 - 32nd AVENUE N.W.
CALGARY, ALBERTA T3B 0K6
TEL: (403) 247-1813
FAX: (403) 247-1814

9315 - 35th AVENUE N.W.
EDMONTON, ALBERTA T6E 5R5
TEL: (780) 438-0844
FAX: (780) 435-1812

July 26, 2002

File: 0205-3603

Thomas Chadwick
P.O. Box 204
Halkirk, AB T0C 1M0

Attention: Thomas Chadwick:

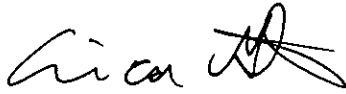
Dear Mr. Chadwick:

**RE: Subsurface Environmental Investigation – Plan 19897 Block 4 Lot 1&2
Halkirk**

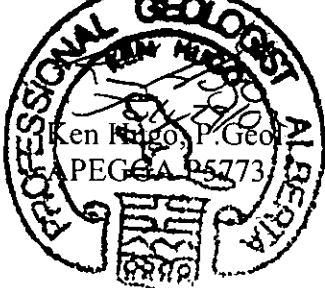
Please find enclosed a report detailing the results of a subsurface investigation at the above-mentioned site. The investigation consisted of drilling 8 holes at the site and collecting soil and groundwater samples for field and lab analysis of petroleum constituents. Details of the findings and conclusions are contained within this report.

Should you have any questions please do not hesitate to contact the undersigned.

Yours truly,
SABATINI EARTH TECHNOLOGIES INC.



Erica Gohl, EIT





EXECUTIVE SUMMARY

Eight holes were drilled at the property located on the corner of Barry Street and Railroad Avenue legal description of Plan 19897 Block 4 Lots 1&2 in the village of Halkirk Alberta in June of 2002. Soil samples were collected for field and lab analysis of petroleum constituents. Three of the holes were completed as monitoring wells to allow for the collection of a groundwater sample to determine if petroleum constituents are present within the groundwater.

The site is currently vacant property covered by wild grass. Formerly, a service garage for vehicles and farm machinery utilized the site. The age of the garage is unknown. However, the garage dates to at least 1969. A 300-gallon gasoline tank was located in the southeast corner. It is reported that the gasoline tank and building were removed sometime in the early 1980's.

Residential standards for fine-grained soils are the appropriate level of risk management as detailed in Alberta Environment guidelines. This standard is based on the residential use and close proximity of the neighbouring establishments to the subject site.

Field and lab analysis show that soil and groundwater contamination is not present on the site. Therefore, remediation measures are not required.

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H) Conclusions and Recommendations	7

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Norwest groundwater analysis report	16 - 17

Appendix

Sieve Analysis Report

A) Introduction

A subsurface investigation was undertaken at the request of Thomas Chadwick at Plan 19897 Block 4 Lots 1&2 located on the east corner of Barry Street and Railway Avenue in Halkirk, Alberta. Personnel from Sabatini Earth Technologies Inc. of Calgary, Alberta undertook the investigation in June of 2002.

The investigation was undertaken as part of an Alberta Municipal Affairs program to undertake subsurface investigations at retail petroleum storage tank sites (their file 9327). The report follows the format and assessment methods as outlined in Alberta Environments *Risk Management Guidelines for Petroleum Storage Tank Sites (2001)*.

B) Background

The subject site was a former garage that had a 300-gallon underground tank located in the southeast corner of the site that supplied gasoline to a single pump located on the south side of the site. The age of the garage is unknown but aerial photographs from the 1960's and 1970's indicate the garage being present on the site as shown on Plate 2. The garage was mainly utilized as a service shop for vehicles and farm machinery. It was reported that the garage and gasoline tank were dismantled sometime in the early 1980's. The subject site has been vacant undeveloped land since this time.

C) Land Use Assessment (LUA)

i Site Description

The site is located within a commercial/residential area of the village of Halkirk and is currently vacant. Natural gas is supplied to the site from the main feeder line in the alley north of the site, as shown on Plate 3.

Residences occupy the property immediately to the north of the site. A residence is located

approximately 20 m to the east of the site followed by a tank storage/machine shop. Further to the east is the Halkirk School. Railway Avenue borders the site to the south followed by vacant land and the abandoned railway right of way. Berry Street is immediately west of the site followed by the village fire hall approximately 10 m from the site. Main Street Halkirk is located further west at a distance of approximately 150 m. Most residences and commercial establishments obtain water and sewage from the village infrastructure.

No surface water bodies are located within 500 m of the site. Near by village and individual water wells obtain water from depths of approximately 300 feet (~ 90 m).

Residential Hydrocarbon Criteria for Fine-Grained Soil, as defined in Alberta Environments *Risk Management Guidelines for Petroleum Storage Tank Sites (2001)*, should be applied to the site.

ii Subsoil Type

The area is underlain by clay to a depth of approximately 3.5 m followed by shale/sandstone bedrock. A sieve and hydrometer test was undertaken on a sample of the soil. Results of the test are shown on Plate 18. The water table was not fully stabilized at the time of the return trip to the site. However, it is estimated that the water table will be located within the clay layer at a depth of approximately 2.5 m below grade.

D) Field Investigations

i Rational for Field Investigations

Eight holes were drilled on the site with the aid of an auger rig supplied by Beck Drilling and Environmental Services Ltd. of Calgary, Alberta. The locations of the test holes are shown on Plate 1. The test hole locations were chosen to determine if there was any contamination associated with the current and previous petroleum storage on the site.

A grid pattern was used in drilling the site for the determination of any contamination associated

with the operations of the former service garage. Test Hole #1 started in the southeast corner of the site near where the 300-gallon gasoline tank was apparently kept. Since the site is rectangular in shape and undeveloped a rough grid pattern was used for the remaining test holes.

ii Field Procedure

Prior to the drilling program the underground lines were located through the services of Alberta 1 Call and a private line locator (Line Locators Ltd.).

During the drilling operations soil samples were collected at 0.75 m intervals. The samples were analysed in the field for the presence of petroleum hydrocarbons by performing a hydrocarbon headspace analysis test. This test comprises placing approximately 250 mg of soil into a sealable plastic bag. The bag is kept at a temperature of approximately 20° C and the vapours in the bag are analysed for their hydrocarbon content with the use of a Gastec 201 catalytic hydrocarbon detector calibrated with hexane. The Gastec instrument was calibrated the day before field operations commenced.

Duplicate soil samples were collected into glass jars from the auger flights for later selection of lab analysis samples. The samples were kept at a temperature of approximately 4° C until submission to the lab.

Three of the test holes were completed as monitoring wells with the installation of 52 mm diameter PVC pipe that was slotted over the lowermost 5 m in TH #1, TH #4 and TH #7. Clean sand (8 - 12 mesh size) was placed in the annulus between the slotted pipe and the borehole walls. Bentonite chips were placed in the annulus around the solid pipe and were hydrated. Flush mounted casing protectors were placed over the wells. The wells were surveyed with a builders transit against a common datum (gas pipeline on east side of site) to aid in determining groundwater flow directions.

Test holes not completed as monitoring wells were backfilled with a mixture of cuttings and bentonite to ensure a seal.

A return trip to the site was made 20 days after well installation to measure fluid and vapour properties within the wells. Groundwater sample was collected for lab analysis of petroleum constituents.

Fluid levels in the wells were measured with the aid of a Solinst interface probe that measures both free product (floating hydrocarbons) and water levels. Groundwater table elevations were taken and a water sample was taken from the Test Hole #4. The samples were collected with the aid of a new disposable bailer that was kept wrapped in factory plastic until use. The groundwater samples were collected into appropriate 40 ml vials and 1 litre amber jar and kept at a temperature of approximately 4° C until delivery to the lab.

iii Soil Field Results

The results of the drilling investigation showing hydrocarbon headspace readings, water levels, strata encountered and monitoring well design are shown on the test hole logs on Plates 4 – 11. The area is immediately underlain by topsoil followed by clay to a depth of approximately 3.5 m below grade. Light grey/brown shale/sandstone bedrock is encountered beneath the clay layer.

The highest hydrocarbon headspace vapour reading obtained throughout the drilling process was 80 ppm. The field results and observations indicate low to undetectable levels of petroleum constituents throughout the entire subject site.

iv Groundwater Field Results

Results of the readings on the monitoring wells is as follows:

Well	Elevation	Hydrocarbon Vapour	Free Product	Groundwater Depth	Groundwater Elevation	Sample Collected
#1	99.71 m	< 20 ppm	No	2.45 m	97.26 m	No
#4	99.87 m	< 20 ppm	No	2.20 m	97.67 m	Yes
#7	99.89 m	< 20 ppm	No	5.54 m	94.35 m	No

At the time of the return visit the water table had not fully stabilized. The significant head drop of well #7 and the flat topography of the area indicate this. As a result, the groundwater flow directions could not be determined at this time.

E) Laboratory Investigations

i Soil Analysis

Four soil samples were collected for lab analysis of petroleum constituents. The samples were collected from around the water table where the highest petroleum concentrations are typically found, should they be present. The complete lab report from Norwest Labs is shown on Plates 12 - 15. A summary of the results, with a comparison to residential hydrocarbon criteria for fine-grained soils is as follows:

Parameter	THI #1 3.0m	THI #2 2.25m	THI #4 2.25m	THI # 2.75m	Commercial Criteria
Vapour Levels	40	40	40	<20	-
Benzene	0.02	<0.02	<0.02	<0.02	1.9
Toluene	0.02	<0.02	0.06	<0.02	300
Ethyl Benzene	<0.02	<0.02	<0.02	<0.02	450
Xylene	0.07	<0.02	0.04	0.02	500
F1	<1	<1	<1	<1	260
F2	10	<10	<10	<10	900
F3	204	14	16	12	800
F4	23	<10	<10	<10	5600

Note All results in mg/kg except vapour in ppm, Bold numbers are those that exceed criteria limits.

ii Groundwater Analysis

The lab report from Norwest for the groundwater analysis is shown on Plates 16-17. A summary of the results, with a comparison to residential hydrocarbon criteria for groundwater, is as follows:

Parameter	Well #4	Commercial Criteria
Benzene	<0.001	3.5
Toluene	<0.001	228
Ethyl Benzene	<0.001	NG
Xylene	<0.001	163
F1	<0.01	9
F2	<0.1	11

Note: All results in mg/L; Bold numbers are those that exceed Commercial Limits; NG = no guideline

F) Data Evaluation

A good correlation was noted between the lab and field results. The soil samples with low detectable hydrocarbon headspace readings showed low to undetectable levels of petroleum constituents based on the lab analysis.

G) Site Assessment

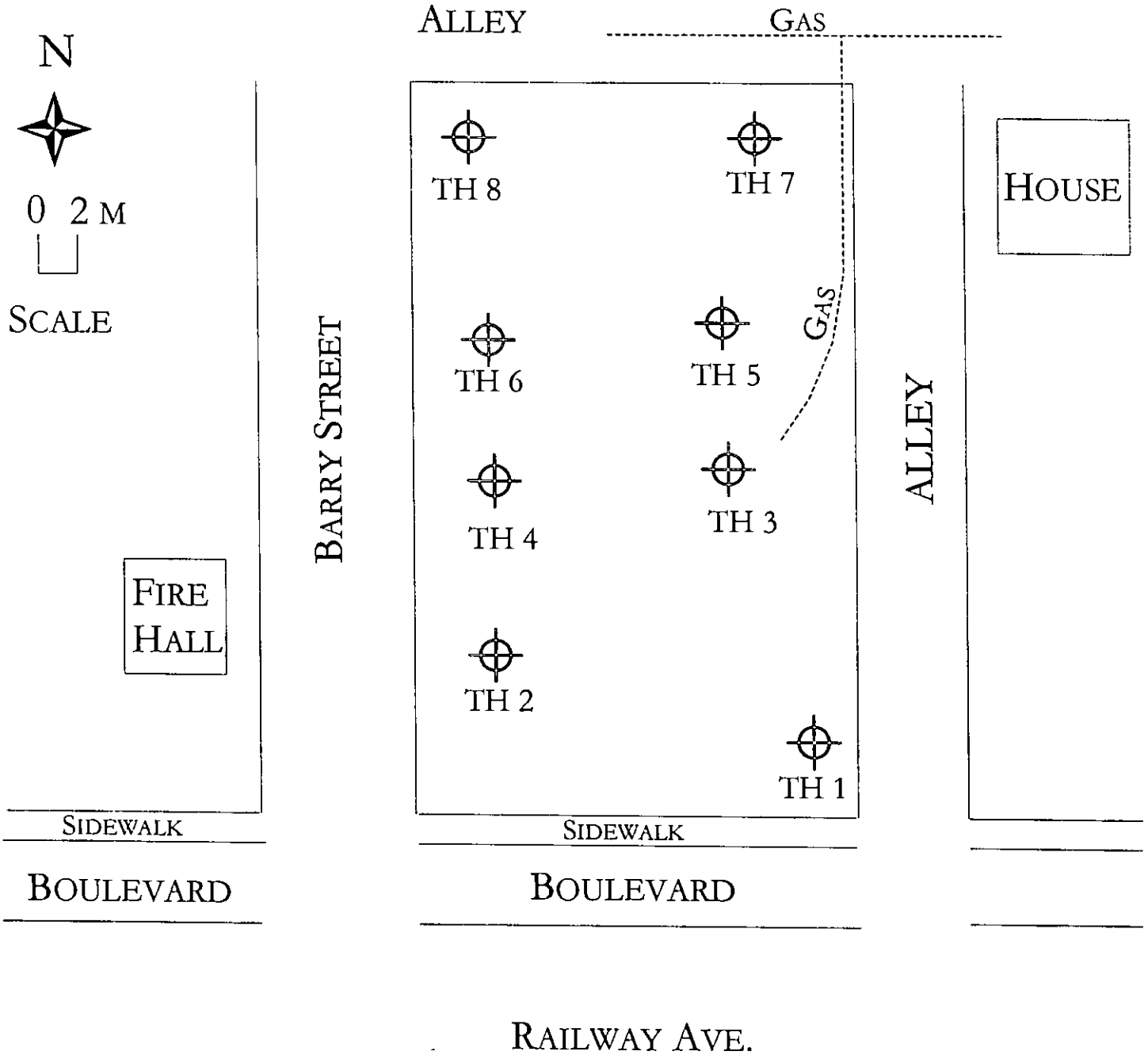
The soil and groundwater underlying the subject site showed low to undetectable levels of petroleum constituents which are all well below the criteria.

H) Conclusions and Recommendations

The results from the field and lab analysis reveal that the soil and groundwater underlying the site are well below the residential criteria for fine-grained soil as outlined in Alberta

● Environments *Risk Management Guidelines for Petroleum Storage Tank Sites (2001)*. No remediation is necessary for this site.

RESIDENTIAL PROPERTY



 TEST HOLE LOCATIONS

Sabatini Earth Technologies Inc.

Thomas Chadwick

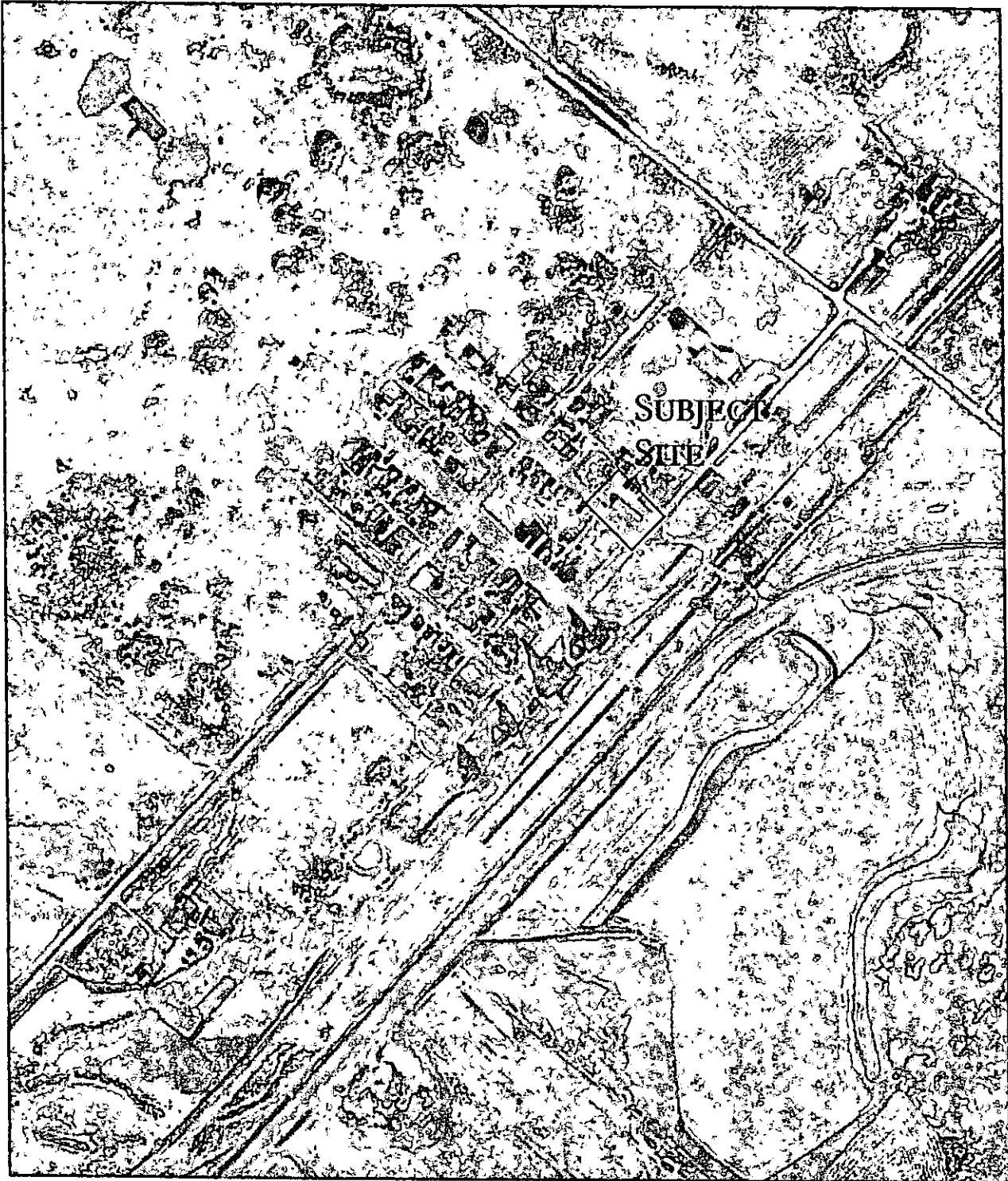
Lots 1 and 2, Block 4, Plan 19897, Halkirk
Site Map

Drawn By: EG

Date: July 3/02

Plate No: 1





Sabatini Earth Technologies Inc.

Thomas Chadwick

**Lots 1 and 2, Block 4, Plan 19897, Halkirk
Aerial Photograph (1969)**

Drawn By: EG

Date: July 3, 2002

Plate No 2



3A. VIEW OF SITE LOOKING NORTH



3B. VIEW OF SITE LOOKING NORTHWEST

Sabatini Earth Technologies Inc.

Thomas Chadwick

Lots 1 and 2, Block 4, Plan 19897, Halkirk
Site Photos

Drawn By: EG

Date: July 26, 2002

Plate No 3

Project Chadwick - Halkirk Project No. 0205-3603 Boring/Well TH02 - 01
 Location SE Corner of Lot Logged By EG Date Drilled June 25/02
 Drill Method Solid Stem Auger Drill Co. Beck Drilling Water Level read on July 15/02
 Sample Method Auger Flights Rig Type Truck Mounted Boring Depth 6.0 m
 Borehole Diameter 0.15 metres Driller D. Harrison Well Depth 6.0 m
 Casing Elevation 99.71 m Ground elevation 99.71 m Water Level: 2.45 m

Depth (m)	Hydrocarbon Headspace Analysis	Water Level	Graphic Log	Sample Type	Lithological Description Of Material	Well Diagram
						Steel Capped
1	40 ppm			Bag	TOPSOIL	
2	40 ppm			Bag	CLAY - stiff - brown - damp - medium plastic - some gravels	
3	40 ppm			Bag	--- getting wetter with depth	
3	40 ppm	7-15-02		Jar	BEDROCK --- light grey band from 2.75 - 3.5 m	
4	20 ppm			Bag		
5	60 ppm			Bag	- hard - dry - light brown	
6	20 ppm			Bag		
7					End Hole @ 6.0 m Monitoring Well Installed	
8						
9						

Project Chadwick - Halkirk Project No. 0205-3603 Boring/Well TH02 - 02
 Location SW Corner of Lot Logged By EG Date Drilled June 25/02
 Drill Method Solid Stem Auger Drill Co. Beck Drilling Water Level read on N/A
 Sample Method Auger Flights Rig Type Truck Mounted Boring Depth 6.0 m
 Borehole Diameter 0.15 metres Driller D. Harrison Well Depth N/A
 Casing Elevation N/A Ground elevation N/A Water Level: N/A

Depth (m)	Hydrocarbon Headspace Analysis	Water Level	Graphic Log	Sample Type	Lithological Description Of Material	Well Diagram
					TOPSOIL	No Well Installed
1	20 ppm			Bag	CLAY	
	20 ppm			Bag	- stiff	
2				Bag	- brown	
	40 ppm			Jar	- damp	
	40 ppm			Bag	- medium plastic	
3				Bag	--- getting wetter with depth	
4	80 ppm			Bag	BEDROCK	
	60 ppm			Bag	--- brown, hard layer from 3.75 - 4.75 m	
5	40 ppm			Bag	- grey	
6	40 ppm			Bag		
7					End Hole @ 6.0 m No Well Installed	
8						
9						


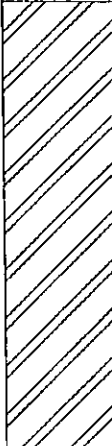

Project Chadwick - Halkirk Project No. 0205-3603 Boring/Well TH02 - 03
 Location Next to Gas Line Logged By EG Date Drilled June 25/02
 Drill Method Solid Stem Auger Drill Co. Beck Drilling Water Level read on N/A
 Sample Method Auger Flights Rig Type Truck Mounted Boring Depth 6.0 m
 Borehole Diameter 0.15 metres Driller D. Harrison Well Depth N/A
 Casing Elevation N/A Ground elevation N/A Water Level: N/A

Depth (m)	Hydrocarbon Headspace Analysis	Water Level	Graphic Log	Sample Type	Lithological Description Of Material	Well Diagram
					TOPSOIL	No Well Installed
1	40 ppm			Bag	CLAY	
2	40 ppm			Bag	- stiff - brown - damp - some gravels	
	40 ppm			Bag		
3	40 ppm			Jar Bag	--- getting wetter with depth	
4	40 ppm			Bag	BEDROCK	
5	60 ppm			Bag	- light grey - dry - shale/sandstone	
6	40 ppm			Bag		
7					End Hole @ 6.0 m No Well Installed	
8						
9						

Project Chadwick - Halkirk Project No. 0205-3603 Boring/Well TH02 - 04
 Location 10 m east of TH #3 Logged By EG Date Drilled June 25/02
 Drill Method Solid Stem Auger Drill Co. Beck Drilling Water Level read on July 15/02
 Sample Method Auger Flights Rig Type Truck Mounted Boring Depth 6.0 m
 Borehole Diameter 0.15 metres Driller D. Harrison Well Depth 6.0 m
 Casing Elevation 99.87 m Ground elevation 99.87 m Water Level: -2.20 m

Depth (m)	Hydrocarbon Headspace Analysis	Water Level	Graphic Log	Sample Type	Lithological Description Of Material	Well Diagram
0					TOPSOIL	
1	40 ppm		Bag	CLAY		
2	60 ppm		Bag	- stiff - brown - damp		
2	40 ppm	▼ 5 7-15-02	Jar	--- wet @ 2.75 m		
3	20 ppm		Bag			
4	60 ppm		Bag	BEDROCK		
5	40 ppm		Bag	- shale/sandstone - dry - grey		
6	40 ppm		Bag			
7					End Hole @ 6.0 m Monitoring Well Installed	
8						
9						

Project Chadwick - Halkirk Project No. 0205-3603 Boring/Well TH02 - 05
 Location 12 m north of TH #3 Logged By EG Date Drilled June 25/02
 Drill Method Solid Stem Auger Drill Co. Beck Drilling Water Level read on N/A
 Sample Method Auger Flights Rig Type Truck Mounted Boring Depth 6.0 m
 Borehole Diameter 0.15 metres Driller D. Harrison Well Depth N/A
 Casing Elevation N/A Ground elevation N/A Water Level: N/A

Depth (m)	Hydrocarbon Headspace Analysis	Water Level	Graphic Log	Sample Type	Lithological Description Of Material	Well Diagram
					SAND (fill) - light brown, dry, well-sorted	No Well Installed
1	40 ppm			Bag	CLAY - stiff - brown - dry - low plastic	
2	40 ppm			Bag		
3	20 ppm			Bag		
4	20 ppm			Bag	--- getting damp with depth	
4	60 ppm			Bag	BEDROCK --- brown @ 4.0 m	
5	20 ppm			Bag	- light grey - dry - hard - stiff	
6	20 ppm			Bag		
7					End Hole @ 6.0 m No Well Installed	
8						
9						

Project Chadwick - Halkirk Project No. 0205-3603 Boring/Well TH02 - 06
 Location 10 m east of TH #5 Logged By EG Date Drilled June 25/02
 Drill Method Solid Stem Auger Drill Co. Beck Drilling Water Level read on N/A
 Sample Method Auger Flights Rig Type Truck Mounted Boring Depth 6.0 m
 Borehole Diameter 0.15 metres Driller D. Harrison Well Depth N/A
 Casing Elevation N/A Ground elevation N/A Water Level: N/A

Depth (m)	Hydrocarbon Headspace Analysis	Water Level	Graphic Log	Sample Type	Lithological Description Of Material	Well Diagram
1	60 ppm			Bag	TOPSOIL	No Well Installed
	20 ppm			Bag	CLAY --- damp @ 1.5 m	
2	40 ppm			Bag	- stiff - brown - dry - hard - intermittent organic strips	
	40 ppm			Jar Bag		
3	80 ppm			Bag	BEDROCK --- grey layer from 3.75 - 4.0 m	
4	60 ppm			Bag	- brown - dry - crumbly - stiff	
5	40 ppm			Bag	--- grey from 5.0 - 6.0 m	
6	20 ppm			Bag		
7					End Hole @ 6.0 m No Well Installed	
8						
9						

Project Chadwick - Halkirk Project No. 0205-3603 Boring/Well TH02 - 07
 Location NE Corner of Lot Logged By EG Date Drilled June 25/02
 Drill Method Solid Stem Auger Drill Co. Beck Drilling Water Level read on July 15/02
 Sample Method Auger Flights Rig Type Truck Mounted Boring Depth 6.0 m
 Borehole Diameter 0.15 metres Driller D. Harrison Well Depth 6.0 m
 Casing Elevation 99.89 m Ground elevation 99.89 m Water Level: 5.54 m

Depth (m)	Hydrocarbon Headspace Analysis	Water Level	Graphic Log	Sample Type	Lithological Description Of Material	Well Diagram
0					TOPSOIL	<p>Steel Capped</p> <p>Bentonite</p> <p>Solid Pipe</p> <p>4 - 8 Mesh Sand</p> <p>Screen</p>
1	20 ppm			Bag	CLAY	
2	20 ppm			Bag	- stiff - brown - dry - hard	
3	40 ppm			Bag		
4	20 ppm			Bag	BEDROCK	
5	60 ppm			Bag	- stiff - dry - grey	
6	40 ppm	5 7-15-02		Bag		
6	20 ppm			Bag	End Hole @ 6.0 m Monitoring Well Installed	
7						
8						
9						

Project Chadwick - Halkirk Project No. 0205-3603 Boring/Well TH02 - 08
 Location NW Corner of Lot Logged By EG Date Drilled June 25/02
 Drill Method Solid Stem Auger Drill Co. Beck Drilling Water Level read on N/A
 Sample Method Auger Flights Rig Type Truck Mounted Boring Depth 6.0 m
 Borehole Diameter 0.15 metres Driller D. Harrison Well Depth N/A
 Casing Elevation N/A Ground elevation N/A Water Level: N/A

Depth (m)	Hydrocarbon Headspace Analysis	Water Level	Graphic Log	Sample Type	Lithological Description Of Material	Well Diagram
					TOPSOIL	No Well Installed
1	40 ppm			Bag	CLAY - stiff - brown - damp - low plastic	
	80 ppm			Bag		
2	80 ppm			Bag		
	<20 ppm			Jar Bag		
4	80 ppm			Bag		
5	40 ppm			Bag	BEDROCK	
	40 ppm			Bag		
6	40 ppm			Bag	End Hole @ 6.0 m No Well Installed	
7						
8						
9						Plate 11



**NORWEST
LABS**

Agri-Food & Environmental Group
Calgary Edmonton Winnipeg Lethbridge Surrey

Analytical Report

Norwest Labs
Bay 6, 2712-37 Avenue N.E.
Calgary, AB. T1Y-5L3
Phone: (403) 291-2022
Fax: (403) 291-2021

Bill to: Sabatini Earth Technologies Inc.
Report to: Sabatini Earth Technologies Inc

6919 - 32 Avenue N W
Calgary, AB, Canada
T3B 0K6

Attn: Ken Hugo

Sampled By EAG
Company

Project
ID: 0205-3603
Name: Chadwick
Location: Halkirk
LSD:
P.O.:
Acct. Code:

NWL Lot ID: **178945**
Control Number: E 97290
Date Received: Jun 28, 2002
Date Reported: Jul 11, 2002
Report Number: 277815

Page: 1 of 3

Analyte	Units	Results	Results			Detection Limit
			178945-1	178945-2	178945-3	
		NWL Number	178945-1	178945-2	178945-3	
		Sample Date	Jun 25, 2002	Jun 25, 2002	Jun 25, 2002	
		Sample Description	TH1 3.0 m	TH4 2.25 m	TH8 2.75 m	
Mono-Aromatic Hydrocarbons - Soil						
Benzene	Dry Weight	mg/kg	0.02	<0.02	<0.02	0.02
Toluene	Dry Weight	mg/kg	0.02	0.06	<0.02	0.02
Ethylbenzene	Dry Weight	mg/kg	<0.02	<0.02	<0.02	0.02
Total Xylenes (m,p,o)	Dry Weight	mg/kg	0.07	0.04	0.02	0.02
Volatile Petroleum Hydrocarbons - Soil						
F1 C6-C10	Dry Weight	mg/kg	<1	<1	<1	1
F1 -BTEX	Dry Weight	mg/kg	<1	<1	<1	1
Extractable Petroleum Hydrocarbons - Soxhlet						
F2 C10-C16	Dry Weight	mg/kg	10	<10	<10	10
F3 C16-C34	Dry Weight	mg/kg	204	16	12	10
F4 C34-C50	Dry Weight	mg/kg	22	<10	<10	10
F4HTGC C34-C50+	Dry Weight	mg/kg	23	<10	<10	10
Gravimetric Heavy Hydrocarbons - Soil						
F4G	Dry Weight	mg/kg	<500	<500	<500	500
Silica Gel Cleanup						
Silica Gel Cleanup			Done	Done	Done	
Soil % Moisture						
Moisture	Soil % Moisture	%	16.7	22.5	15.9	



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Calgary, AB. T1Y-5L3
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Bill to: Sabatini Earth Technologies Inc.
Report to: Sabatini Earth Technologies Inc

6919 - 32 Avenue N. W
Calgary, AB, Canada
T3B 0K6

Attn. Ken Hugo

Sampled By EAG
Company

Project
ID: 0205-3603
Name: Chadwick
Location: Halkirk
LSD:
P.O.:
Acct. Code:

NWL Lot ID: **178945**
Control Number: E 97290
Date Received: Jun 28, 2002
Date Reported: Jul 11, 2002
Report Number: 277815

Page: 2 of 3

NWL Number 178945-4
Sample Date Jun 25, 2002
Sample Description TH2 2.25 m

Analyte	Units	Results	Results	Results	Detection Limit
Mono-Aromatic Hydrocarbons - Soil					
Benzene	Dry Weight	mg/kg	<0.02		0.02
Toluene	Dry Weight	mg/kg	<0.02		0.02
Ethylbenzene	Dry Weight	mg/kg	<0.02		0.02
Total Xylenes (m,p,o)	Dry Weight	mg/kg	<0.02		0.02
Volatile Petroleum Hydrocarbons - Soil					
F1 C6-C10	Dry Weight	mg/kg	<1		1
F1 -BTEX	Dry Weight	mg/kg	<1		1
Extractable Petroleum Hydrocarbons - Soxhlet					
F2 C10-C16	Dry Weight	mg/kg	<10		10
F3 C16-C34	Dry Weight	mg/kg	14		10
F4 C34-C50	Dry Weight	mg/kg	<10		10
F4HTGC C34-C50+	Dry Weight	mg/kg	18		10
Gravimetric Heavy Hydrocarbons - Soil					
F4G	Dry Weight	mg/kg	<500		500
Silica Gel Cleanup					
Silica Gel Cleanup			Done		
Soil % Moisture					
Moisture	Soil % Moisture	%	14.2		

Approved by: Heather Gordon



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**NORWEST
LABS**

Methodology and Notes

Norwest Labs
 Bay 6, 2712-37 Avenue N.E.
 Calgary, AB. T1Y-5L3
 Phone: (403) 291-2022
 Fax: (403) 291-2021

Agri-Food & Environmental Group
 Calgary Edmonton Winnipeg Lethbridge Surrey

Bill to: Sabatini Earth Technologies Inc
Report to: Sabatini Earth Technologies Inc.

6919 - 32 Avenue N W.
 Calgary, AB, Canada
 T3B 0K6

Attn. Ken Hugo
 Sampled By. EAG
 Company

Project
ID: 0205-3603
Name: Chadwick
Location: Halkirk
LSD:
P.O.:
Acct. Code:

NWL Lot ID: 178945
Control Number: E 97290
Date Received: Jun 28, 2002
Date Reported: Jul 11, 2002
Report Number: 277815

Method of Analysis:

Test	Reference	Method	Date of Analysis	Location	Analyst
BTEX-CCME - Soil	CCME	Reference Method - Canada-Wide Standard for PHC in Soil, CWS PHC	Jul 09, 2002	Norwest Labs Calgary	Neil Wood
TEH-CCME-Soil (Soxhlet)	CCME	Reference Method - Canada-Wide Standard for PHC in Soil, CWS PHC	Jul 09, 2002	Norwest Labs Calgary	My Linh Nguyen
			Jul 10, 2002	Norwest Labs Calgary	Rubin Kooner

* Norwest method(s) is based on reference method

References:

CCME Canadian Council of Ministers of the Environment

Comments:

F4G should be compared to F4(C34-C50) and the higher number should be used as the final F4



Petroleum Hydrocarbons in Soil
Batch Notes - Soxhlet Method

- | | | |
|-----------|--|------------------|
| 1 | The method used complies with the Reference Method for the Canada Wide Standards for Petroleum Hydrocarbons in Soil - Tier 1, April 2001 and is validated for use in Norwest laboratories. | |
| 2 | Deviations from the method. | None |
| 3 | Qualifications on results: | None |
| 4 | Silica gel treatment is done for fractions F2, F3, F4 and Gravimetric Heavy Hydrocarbons (if necessary and noted as F4G-sg). | |
| 5 | F1-BTEX: BTEX has been subtracted from the F1 fraction. | |
| 6 | F2-naphth and F3-PAH: selected PAHs have been subtracted from the appropriate fractions. | |
| 7 | F4G (or F4G-sg) is reported when the chromatogram did not descend to 5% of the baseline at C50, i.e., when more than 5% of the total carbon envelope elutes past C50. | |
| 8 | F4G: Gravimetric Heavy Hydrocarbons cannot be added to the C6 -C50 hydrocarbons. | |
| 9 | When both F4(C34-C50), F4G (or F4G-sg) are reported, the greater of the results is the F4 that is to be used for interpreting the CWS. | |
| 10 | Quality criteria met for the batch: <ul style="list-style-type: none"> • nC6 and nC10 response factors (RF) are within 30% of RF for toluene • nC10, nC16 and nC34 RFs are within 10% of each other • nC50 RF is within 70% of the average RF for nC10+nC16+nC34 • linearity is within 15% | v
v
v
v |
| 11 | Batch data for QC samples is available on request | |
| 12 | Extraction and analysis holding times were met. | v |



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Analytical Report

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Report to: Sabatini Earth Technologies Inc

6919 - 32 Avenue N. W.
Calgary, AB, Canada
T3B 0K6

Attn. Ken Hugo

Sampled By KM
Company SETL

Project
ID: 0205-3603
Name: HALKIRK
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: **181729**
Control Number: E 106656
Date Received: Jul 16, 2002
Date Reported: Jul 18, 2002
Report Number: 280309

Page: 1 of 2

NWL Number 181729-1
Sample Date Jul 15, 2002
Sample Description TH #4

Analyte	Units	Results	Results	Results	Detection Limit
Mono-Aromatic Hydrocarbons - Water					
Benzene	mg/L	<0.001			0.001
Toluene	mg/L	<0.001			0.001
Ethylbenzene	mg/L	<0.001			0.001
Total Xylenes (m,p,o)	mg/L	<0.001			0.001
Volatile Petroleum Hydrocarbons - Water					
F1 C6-C10	mg/L	<0.01			0.01
F1 -BTEX	mg/L	<0.01			0.01
Extractable Petroleum Hydrocarbons - Water					
F2 C10-C16	mg/L	<0.1			0.1
F3 C16-C34	mg/L	0.3			0.1

Approved by: Heather Gordon



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Methodology and Notes

Norwest Labs
Bay 6, 2712-37 Avenue N.E.
Calgary, AB. T1Y-5L3
Phone: (403) 291-2022
Fax: (403) 291-2021

Agri-Food & Environmental Group
Calgary Edmonton Winnipeg Lethbridge Surrey

Bill to: Sabatini Earth Technologies Inc
Report to: Sabatini Earth Technologies Inc

6919 - 32 Avenue N W
Calgary, AB, Canada
T3B 0K6

Attn. Ken Hugo
Sampled By KM
Company SETL

Project
ID: 0205-3603
Name: HALKIRK
Location:
LSD:
P.O.:
Acct. Code:

NWL Lot ID: **181729**
Control Number: E 106656
Date Received Jul 16, 2002
Date Reported Jul 18, 2002
Report Number 280309

Page: 2 of 2

Method of Analysis:

Test	Reference	Method	Date of Analysis	Location	Analyst
BTEX-CCME - Water	Alta. Env. Method	Hydrocarbon Soil and Water Quality Guidelines, C51260500	Jul 18, 2002	Norwest Labs Calgary	Tim Servage
TEH-CCME - Water	Alta. Env. Method	Hydrocarbon Soil and Water Quality Guidelines, C51260500	Jul 18, 2002	Norwest Labs Calgary	Sima Chowdhury

* Norwest method(s) is based on reference method

References:

Alta. Env. Method Alberta Environment Method

Comments:

Norwest Labs strongly recommends that this report is not reproduced except in full.

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Sabatini Earth Technologies Inc.

6919 Avenue N.W., Calgary, AB
Tel. (403) 247-1813, FAX No. (403) 247-1814

Sieve

Report Date:
Project Number:
Report Number:

Analysis

17-Jul-202
0205-3603
3482

To: Hal Kirk

Copies To:

Client

Sample Type:

Grab

Sampled By:

EG

Source:

TH #3 @ 2.75m

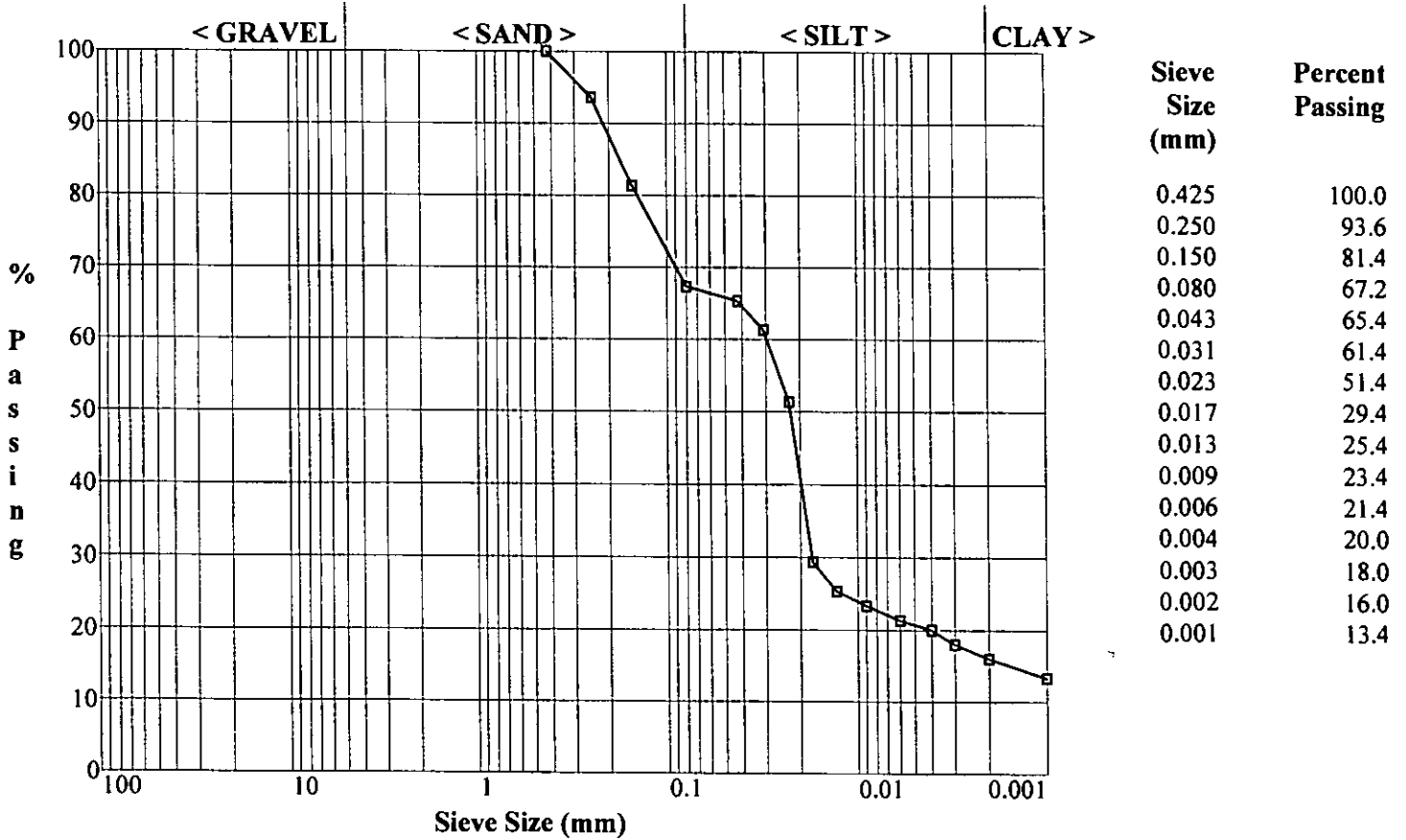
Tested By:

KM

Sample Date 9-Jul-202

Date Tested 12-Jul-202

Date Received 9-Jul-202



Sample Description: Sandy Silt with Some Clay

Comment: Sand=32.80%, Silt=51.20% and Clay=16.00%

Per

4040-5155-11
HA03-1

REFERENCE # 067303
 INCIDENT # _____
 INVESTIGATOR # _____
 RELATED CALL # _____
 INVESTIGATION FILE Y N
 ENTERED BY [Signature]

CALL INFORMATION

RECEIVED
SEP - 6 1996

DATE CALLED Y 96 M 08 D 29		TIME CALLED 1335	CALL TAKEN BY Chib	
CALLERS NAME Dwayne		FIRST Menstrom	LAST Menstrom	
AFFILIATION/ORGANIZATION Menstrom Transportation		FACILITY NAME		
ADDRESS		MUNICIPALITY Strathmore	HOME PHONE	WORK PHONE 934-3484

CALL COMMENTS
 removed UGST at Halkirk and Brown field schools.
 Found "a little bit of contamination" - mostly around ~~the~~ fill pipe from slop over the years. No soil samples were taken and the hole has been filled in for safety.
 NB Don - I did not ask for a letter or report. I told Dwayne if you needed more info, you would call him. Et.

REPORTED SOURCE Halkirk School	INCIDENT LOCATION Halkirk	INCIDENT DATE Y 96 M 08 D 29	INCIDENT TIME 1335
LS ___ S ___ T ___ R ___ W ___ M			

SOURCE/STATION	DATE			START TIME	END TIME	VALUE	UNITS	CONTAMINANT	APPROVAL LIMIT	WIND	
	YR	MON	DAY							DIR	SPEED

REFERRED TO Groundwater	NAME & NUMBER Don Wyrostek	DATE Y 96 M 08 D 29	TIME 1335
CALL TYPE	<input type="checkbox"/> AEP IN HOUSE <input type="checkbox"/> INDUSTRY NOTIFICATION <input type="checkbox"/> AGENCY NOTIFICATION <input type="checkbox"/> INDUSTRY CONTRAVENTION <input type="checkbox"/> PUBLIC COMPLAINT	LETTER REQUIRED Y <input type="checkbox"/> N <input checked="" type="checkbox"/> ASSIGNED TO <u>Don</u>	

Application No. 238582

March 3, 2020

Michael Yakielashek
Paintearth Regional Waste Management Ltd.
Box 479
Castor, AB TOC 0X0

Dear Mr. Yakielashek:

Re: Reclamation Application for Railway located between 35-9-W4M and 38-16W4M

This letter is to inform the Registration Holder that Alberta Environment and Parks received an application for a Reclamation Certificate on January 22, 2007 for a Railway line located between 35-9W4M and 38-16W4M.

Upon review of the application and in accordance with the *Conservation and Reclamation Regulations section 6(1)*

- *A reclamation inquiry must be conducted in respect of specified land when, in the Director's opinion, a complete and accurate application for a reclamation certificate has been received by the Director.*

Based on the review, the application was determined deficient as the information within the application does not fulfill section 12 of the *Conservation and Reclamation Regulations* "Application for a reclamation certificate".

Application requirements can be found online by searching "*Conservation and Reclamation Regulations*" and scrolling down to section 12(1) within the documents to "Application for reclamation certificate".

At this time Reclamation Certificate Application No. 238582 has been rejected.

Should you have any questions or concerns please do not hesitate to contact me directly at 780-427-2703 or by email at Colette.strap@gov.ab.ca.

Sincerely,



Colette Strap
Environmental Protection officer
Red Deer North Saskatchewan Region

cc Shannon Yacyshyn – Reclamation Approvals Coordinator
Valerie Collins – Regulatory Approvals Center



Spill/Complaint Information

COMPLAINT | 10-24-038-16 W4

JUNE 22, 1994 - INCIDENT #: 19942416

Incident Notified:	June 22, 1994	Incident Complete:	June 23, 1994
License #:			
Licensee (at time of Incident):	UNKNOWN OPERATOR/ADDRESS - USED BY FIELD SURVEILLANCE		
Current Licensee:			
Source:	Unknown		
Source In Compliance?	NO		
Cause:	Conversion		
Strike Area:	HALKIRK	Field Centre:	Red Deer
Concerns:	Operational Impact - Nuisance Physical Impact - Public Hazard		



Low Pressure Pipeline Information

NATURAL GAS CO-OPERATIVE CONTACT INFORMATION

Data Current To January 1, 2020

Name: Paintearth Gas Co-op Ltd.
Address: Box 5 Castor, T0C 0X0
Phone #: (403) 882-3974 **Alternate Phone #:**
Website: <http://www.paintearthgas.com>



Pipeline Information

PAINTEARTH GAS CO-OP LTD. | AB00021518 - 44

Government Pipeline Data Current to June 11, 2021

Permit Date:	August 24, 2020	License Date:	March 19, 1985
From Location:	9-24-38-16 W4M PL	To Location:	5-19-38-15 W4M PL
Length:	2.64 kms 1.65 mi	Status:	O
Substance:	NG	H₂S:	0 mol/kmol 0 ppm
Outside Diameter:	48.3 mm 1.9 "	Wall Thickness:	2.16 mm 0.09 "
Material:	A	Type:	6063
Grade:	T1A	Max Operating Pressure:	3100 kPa 450 psi
Joints:	H	Internal Coating:	U
Stress Level:	48 %	Environment:	
Original Permit Date:		Construction Date:	
Original License/Line No:	21518 - 6	NEB Registration:	
Last Occurrence Year:	1985	Abacus No:	N/A



Halkirk

- NPRI INDUSTRIAL SECTORS**
- ALUMINUM
 - CEMENT, LIME AND OTHER NON-METALLIC MINERALS
 - CHEMICALS
 - CONVENTIONAL OIL AND GAS EXTRACTION
 - ELECTRICITY
 - IRON AND STEEL
 - METALS (EXCEPT ALUMINUM AND IRON AND STEEL)
 - MINING AND QUARRYING
 - NON-CONVENTIONAL OIL EXTRACTION (INCLUDING OILSANDS AND HEAVY OIL)
 - OIL AND GAS PIPELINES AND STORAGE
 - OTHER MANUFACTURING
 - PETROLEUM AND COAL PRODUCTS REFINING AND MFG.
 - PLASTICS AND RUBBER
 - PULP AND PAPER
 - TRANSPORTATION EQUIPMENT MFG.
 - WASTE TREATMENT AND DISPOSAL
 - WATER AND WASTEWATER SYSTEMS
 - WOOD PRODUCTS
 - OTHER (EXCEPT MANUFACTURING)

3.38 km

Image © 2021 Maxar Technologies
Image County of Stettler
Image © 2021 CNES / Airbus



LIMITATIONS

General Terms and Conditions

The use of this attached report is subject to the following general terms and conditions.

1. **STANDARD OF CARE** - In the performance of professional services, ParklandGEO used the degree of care and skill ordinarily exercised under similar circumstances by reputable members of its profession practicing in the same or similar localities. No other warranty expressed or implied is made in any manner.
2. **INTERPRETATION OF THE REPORT** - The CLIENT recognizes that subsurface conditions will vary from those encountered at the location where borings, surveys, or explorations are made and that the data, interpretations and recommendation of ParklandGEO are based solely on the information available to him. Classification and identification of soils, rocks, geological units, contaminated materials and contaminant quantities will be based on commonly accepted practices in geotechnical or environmental consulting practice in this area. ParklandGEO will not be responsible for the interpretation by others of the information developed.
3. **SITE INFORMATION** - The CLIENT has agreed to provide all information with respect to the past, present and proposed conditions and use of the Site, whether specifically requested or not. The CLIENT acknowledged that in order for ParklandGEO to properly advise and assist the CLIENT, ParklandGEO has relied on full disclosure by the CLIENT of all matters pertinent to the Site investigation.
4. **COMPLETE REPORT** - The Report is of a summary nature and is not intended to stand alone without reference to the instructions given to ParklandGEO by the CLIENT, communications between ParklandGEO and the CLIENT, and to any other reports, writings or documents prepared by ParklandGEO for the CLIENT relative to the specific Site, all of which constitute the Report. The word "Report" shall refer to any and all of the documents referred to herein. In order to properly understand the suggestions, recommendations and opinions expressed by ParklandGEO, reference must be made to the whole of the Report. ParklandGEO cannot be responsible for use of any part or portions of the report without reference to the whole report. The CLIENT has agreed that "This report has been prepared for the exclusive use of the named CLIENT. 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. ParklandGEO accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report."

The CLIENT has agreed that in the event that any such report is released to a third party, the above disclaimer shall not be obliterated or altered in any manner. The CLIENT further agrees that all such reports shall be used solely for the purposes of the CLIENT and shall not be released or used by others without the prior written permission of ParklandGEO.

5. **LIMITATIONS ON SCOPE OF INVESTIGATION AND WARRANTY DISCLAIMER**
There is no warranty, expressed or implied, by ParklandGEO that:
 - a) the investigation uncovered all potential geo-hazards, contaminants or environmental liabilities on the Site; or
 - b) the Site is entirely free of all geo-hazards or contaminants as a result of any investigation or cleanup work undertaken on the Site, since it is not possible, even with exhaustive sampling, testing and analysis, to document all potential geo-hazards or contaminants on the Site.

The CLIENT acknowledged that:

- a) the investigation findings are based solely on the information generated as a result of the specific scope of the investigation authorized by the CLIENT;
 - b) unless specifically stated in the agreed Scope of Work, the investigation will not, nor is it intended to assess or detect potential contaminants or environmental liabilities on the Site;
 - c) any assessment regarding geological conditions on the Site is based on the interpretation of conditions determined at specific sampling locations and depths and that conditions may vary between sampling locations, hence there can be no assurance that undetected geological conditions, including soils or groundwater are not located on the Site;
 - d) any assessment is also dependent on and limited by the accuracy of the analytical data generated by the sample analyses;
 - e) any assessment is also limited by the scientific possibility of determining the presence of unsuitable geological conditions for which scientific analyses have been conducted; and
 - f) the laboratory testing program and analytical parameters selected are limited to those outlined in the CLIENT's authorized scope of investigation; and
 - g) there are risks associated with the discovery of hazardous materials in and upon the lands and premises which may inadvertently discovered as part of the investigation. The CLIENT acknowledges that it may have a responsibility in law to inform the owner of any affected property of the existence or suspected existence of hazardous materials and in some cases the discovery of hazardous conditions and materials will require that certain regulatory bodies be informed. The CLIENT further acknowledges that any such discovery may result in the fair market value of the lands and premises and of any other lands and premises adjacent thereto to be adversely affected in a material respect.
6. **COST ESTIMATES** - Estimates of remediation or construction costs can only be based on the specific information generated and the technical limitations of the investigation authorized by the CLIENT. Accordingly, estimated costs for construction or remediation are based on the known site conditions, which can vary as new information is discovered during construction. As some construction activities are an iterative exercise, ParklandGEO shall therefore not be liable for the accuracy of any estimates of remediation or construction costs provided.
 7. **LIMITATION OF LIABILITY** - The CLIENT has agreed that to the fullest extent permitted by the law ParklandGEO's total liability to CLIENT for any and all injuries, claims, losses, expenses or damages whatsoever arising out of or in anyway relating to the Project is contractually limited, as outlined in ParklandGEO's standard Consulting Services Agreement. Further, the CLIENT has agreed that to the fullest extent permitted by law ParklandGEO is not liable to the CLIENT for any special, indirect or consequential damages whatsoever, regardless of cause.
 8. **INDEMNIFICATION** - To the fullest extent permitted by law, the CLIENT has agreed to defend, indemnify and hold ParklandGEO, its directors, officers, employees, agents and subcontractors, harmless from and against any and all claims, defence costs, including legal fees on a full indemnity basis, damages, and other liabilities arising out of or in any way related to ParklandGEO's work, reports or recommendations.

APPENDIX Q

Detailed Cost Estimates and 10-year Capital Plan



ORDER OF MAGNITUDE COST ESTIMATE

Proposed Construction Year	Infrastructure Projects	Project Costs, Based on Year 2021 Dollars				PER YEAR
		Road Works*	Water System Upgrades**	Sanitary System Upgrades**	PROJECT TOTAL	
2022	George Street Local Road Reconstruction (Railway Avenue to Alberta Avenue)	\$230,000.00			\$230,000.00	\$301,000.00
	Alberta Avenue Overlay (George Street to Main Street)	\$35,000.00			\$35,000.00	
	Railway Avenue Improvements (Main Street to Berry Street)	\$36,000.00			\$36,000.00	
2023	Main Street Improvements (Railway Avenue to Alberta Avenue)	\$625,000.00	\$161,000.00	\$139,000.00	\$925,000.00	\$925,000.00
2024	Berry Street Improvements (Railway Avenue to Alberta Avenue)	\$320,000.00	\$183,000.00	\$14,000.00	\$517,000.00	\$812,000.00
	Railway Avenue Improvements (Berry Street to Howard Street)	\$181,000.00	\$114,000.00		\$295,000.00	
2025	Alberta Avenue Improvements (Main Street to Howard Street)	\$288,000.00	\$220,500.00	\$264,000.00	\$772,500.00	\$772,500.00
2026	Alberta Avenue Improvements (Howard Street to Range Road 160)	\$288,000.00	\$220,500.00	\$69,000.00	\$577,500.00	\$577,500.00
2027	Mercer Street Improvements (Railway Avenue to Alberta Avenue)	\$267,000.00	\$126,000.00		\$393,000.00	\$831,000.00
	Howard Street Improvements (Railway Avenue to Alberta Avenue)	\$181,000.00	\$156,000.00	\$101,000.00	\$438,000.00	
2028	Berry Street Improvements (Alberta Avenue to Pioneer Avenue)	\$354,000.00	\$147,000.00	\$159,000.00	\$660,000.00	\$1,044,000.00
	Spot Repair Sanitary Main between MH7 and MH16	\$40,000.00		\$51,000.00	\$91,000.00	
	Alberta Avenue Improvements (Village boundary to George Street)	\$178,000.00	\$75,000.00	\$40,000.00	\$293,000.00	
2029	George Street Improvements (Alberta Avenue to Pioneer Avenue)	\$240,000.00	\$138,000.00	\$61,000.00	\$439,000.00	\$934,000.00
	Main Street Improvements (Alberta Avenue to Pioneer Avenue)	\$275,000.00	\$159,000.00	\$61,000.00	\$495,000.00	
2030	Railway Avenue Improvements (Reservoir to Main Street) and Sanitary in the Alley	\$436,000.00	\$268,000.00	\$172,000.00	\$876,000.00	\$879,000.00
	Reset the PRV downstream of the reservoir to eliminate pressure reduction.		\$3,000.00		\$3,000.00	
2031	Spot Repair Sanitary Main between MH21 and MH21A			\$44,000.00	\$44,000.00	\$435,000.00
	Spot Repair Sanitary Main between MH21A and MH22			\$26,000.00	\$26,000.00	
	Spot Repair Sanitary Main between MH22 and MH23			\$26,000.00	\$26,000.00	
	Replace Sanitary Main between MH23 and MH24			\$74,000.00	\$74,000.00	
	Spot Repair Sanitary Main between MH24 and MH25			\$86,000.00	\$86,000.00	
	Spot Repair Sanitary Main between MH25 and Lagoon			\$44,000.00	\$44,000.00	
	Replace Lagoon Inlet Structure and Piping			\$69,000.00	\$69,000.00	
	Replace Lagoon Transfer Structure 4 and Piping			\$66,000.00	\$66,000.00	
Beyond 10 Year Program	Alberta Avenue (Mercer Street to George Street)				\$0.00	\$1,361,000.00
	Install 200 mm main on Railway (Howard Street to Range Road 160) and on Range Road 160 (Railway Avenue to Alberta Avenue)	\$570,000.00	\$291,000.00		\$861,000.00	
	Install 200 mm main on Range Road 160 (Alberta Avenue to Pioneer Avenue) and along the Pioneer Avenue alignment (Berry Street to Range Road 160)	\$166,000.00	\$334,000.00		\$500,000.00	
	TOTAL COSTS:	\$4,710,000.00	\$2,596,000.00	\$1,566,000.00	\$8,872,000.00	

*Roadworks Costs revised to reflect full replacement with water and sanitary replacement where required.

**Water and Sanitary System Upgrade Costs do not include cost to repair road surface.

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Building	Section	System	Budget Year	Rating	Description/Deficiencies	Estimated Cost
Berry St. Campground	5.3.1	Panels and wireways capacity and condition.	2027	3	Some power service plug receptacle covers are broken and should be replaced.	\$ 500.00
Berry St. Campground	4.1.2	Exterior Plumbing Systems	2029	3	Yard hydrants for camping services. Piping has history of leakage, half have been repaired recently, expected to repair the other half within 10 years.	\$ 9,000.00
Total						\$ 9,500.00

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Building	Section	System	Budget Year	Rating	Description/Deficiencies	Estimated Cost
Church	4.2.1	Hand extinguishers, blankets and showers	2022	1	No hand-held fire extinguishers located in building. Recommended to provide if building is occupied.	\$ 500.00
Church	2.3.1	Exterior wall finishes	2023	2	- Painted wood siding is in poor condition. Recommended to repaint the exterior - The existing steeple is reportedly in poor condition. Recommended to repair the steeple	\$ 7,000.00
Church	2.3.2	Fascias, soffits, parapets	2023	2	- Missing wood soffit at the top of the steeple. See "Building Envelope" section below for estimated pricing. - Repaint all wood fascia.	\$ 2,000.00
Church	2.3.3	Building envelope	2023	2	- The existing steeple is reportedly in poor condition and allowed pigeons inside. Recommended to repair The steeple.	\$ 20,000.00
Church	5.4.1	Interior lighting systems and components	2027	3	Incandescent fixtures located throughout. Fixtures should be replaced with LED bulbs for higher energy efficiency.	\$ 500.00
Church	3.2.1	Floor materials and finishes.	2029	3	- Existing wood flooring is in fair condition. - Recommended to be refinished within the next 10 years.	\$ 15,000.00
Church	3.2.2	Wall materials and finishes.	2029	3	- Existing painted wood flooring is in fair condition. - Recommended to be repainted within the next 10 years.	\$ 7,000.00
Church	3.2.3	Ceiling materials and finishes.	2029	3	- Existing painted wood ceiling is in fair condition - Recommended to be repainted within the next 10 years at the same time as the walls.	\$ 3,000.00
Church	4.4.1	Heating capacity and reliability	2029	3	Gas-fired furnace is in poor condition. Recommended to replace furnace.	\$ 4,000.00
Church	4.5.1	Exhaust systems capacity and condition, washrooms	2029	3	No exhaust for congregation space. Recommended to provide cooling exhaust for summer occupancy.	\$ 3,000.00
Church	1.2.5	Signage.	2030	3	- Existing "Halkirk Community Church" sign by main entrance is in fair condition. - Peeling paint noted typically around the wording. Recommend to be replaced.	\$ 5,000.00
Church	1.1.3	Site landscaping.	2031	3	- Sidewalk, grass, trees, flower beds - Tree branches overhang over north building eavestrough should be trimmed to prevent excess debris blocking water flow in eavestrough.	\$ 1,000.00
Church	2.2.1	Assess and rate roof conditions and estimate costs for required improvements	2031	3	- Cedar shingles were last replaced in 1994 and it is close to the end of its theoretical life expectancy. It is recommended to be replaced.	\$ 50,000.00
Total						\$ 118,000.00

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Building	Section	System	Budget Year	Rating	Description/Deficiencies	Estimated Cost
Community Hall	4.2.2	Fire Suppression Systems - Other special situations	2022	1	No fire suppression on gas kitchen range exhaust hood. This is required by building code.	\$ 5,000.00
Community Hall	4.5.1.2	Exhaust systems capacity and condition. Basement	2022	1	No exhaust in basement washrooms. Exhaust in washrooms is required by ASHRAE 62.1	\$ 2,000.00
Community Hall	1.1.6	Evidence of sub-soil problems.	2023	2	- Village indicated the front entry cement pad heaved due to tree roots. - Recommended to remove the existing tree and replace concrete pad.	\$ 4,000.00
Community Hall	5.2.1	Fire and smoke alarm systems	2023	2	Fire pulls, smoke and heat detectors, and bell annunciators located throughout. Devices are past their expected life cycle and should be replaced. Also unable to located main panel during inspection (not located at main entrance). Recommended to replace system and devices.	\$ 15,000.00
Community Hall	Other	Foundation	2023	2	- signs of differential movement noted between different expansion indicated by cracks on floor tiles that was installed in 2006. - if the cracks in the floor tiles do not expand and contract with the seasons, there is likely not a concern at this time. However, if the cracks in the floor tiles expand and contract constantly and causes issue with the usage of the building, further review will be needed to determine the exact cause of the issue. - The Village indicated the basement gets some dampness at spring melt and heavy rain - It is likely that the water table around the building is fairly high. - Recommended to install a weeping tile system around the building's foundation completed with sump pump and install foundation waterproofing membrane to minimize the amount of moisture entering the basement	\$ 200,000.00
Community Hall	2.3.1	Exterior wall finishes	2026	2	- Stucco exterior shows some cracks and damage throughout the building. - Recommended to repair all cracks and damages.	\$ 10,000.00
Community Hall	5.1.2	Site and building exterior lighting	2027	3	Exterior lighting consists of incandescent fixtures. Recommended to replace with LED bulbs or fixtures as they fail.	\$ 500.00
Community Hall	5.4.1	Interior lighting systems and components	2027	3	T-8 fluorescent fixtures and incandescent fixtures located throughout. Fixtures should be replaced with LED bulbs for higher energy efficiency.	\$ 15,000.00
Community Hall	4.3.3	Plumbing fixtures	2029	3	Washrooms (x2 on main, x2 in basement) each with tank toilets, wall mounted urinals and counter mounted lavatories, in acceptable condition. Stainless steel sinks in kitchen, in good condition. Mop sink and utility sinks in janitor rooms, in acceptable condition. Fixtures in abandoned washrooms should be decommissioned completely and removed.	\$ 1,000.00

Building	Section	System	Budget Year	Rating	Description/Deficiencies	Estimated Cost
Community Hall	1.2.5	Signage.	2030	3	- "Halkirk Community Hall" signage at front of building - minor peeling of the paint noted. - Recommended to replace sign in the next 10 years.	\$ 5,000.00
Total						\$ 257,500.00

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Building	Section	System	Budget Year	Rating	Description/Deficiencies	Estimated Cost
Curling Rink	2.1.3.1	Roof structure	2022	FI	<ul style="list-style-type: none"> - Curling Rink consists of wood arch-rib structure - The north end of the roof appears to have sunk in relation to the north end of the building. However no sign of roof structure drop notice on the inside of the curling rink. The roof structure is not visible for a detail review as it is covered by the Curling Rink's ceiling finish. - Further review of the roof structure by removing the inside ceiling finish at the north end of the building is required to determine the condition of the roof structure. 	\$ 7,000.00
Curling Rink	3.2.3.1	Ceiling materials and finishes.	2022	1	<ul style="list-style-type: none"> - Mouldy and damaged ceiling finish noted in the Mechanical Room. - Replace ceiling drywall in the Mechanical Room 	\$ 3,000.00
Curling Rink	3.2.4	Interior doors and hardware.	2022	1	<ul style="list-style-type: none"> - Excess moisture in the basement of the Curling Rink caused the door to the basement to warp and black mould growth on the basement side of the door. - Replace door between Curling Rink and basement 	\$ 1,000.00
Curling Rink	4.2.2	Fire Suppression Systems - Other special situations	2022	1	<ul style="list-style-type: none"> - No fire suppression on gas kitchen range exhaust hood. This is required by building code. 	\$ 5,000.00
Curling Rink	Other	Refrigeration Plant Requirements	2022	1	<ul style="list-style-type: none"> - Ice plant room currently does not meet CSA B52 requirements for maintaining a vestibule between the ice plant and the curling arena. This must be constructed to be in compliance with this standard for refrigeration plants. 	\$ 10,000.00
Curling Rink	Other	Foundation - Lobby	2022	FI	<ul style="list-style-type: none"> - Basement's foundation walls are in critical condition. - Horizontal crack at mid-span of the foundation indicated the lateral pressure exerted by the soil outside of the foundation wall had once exceeded what the foundation walls can support. The walls do not contain reinforcement. - It was noted that remediation work had been completed to reinforce the wall on the south side of the basement by installation of 2 concrete corbels on the south wall. - The west and east foundation walls appear to have the same concern at the time of the review - Further investigation to determine suitable remediation work will be required. Prior to remediation work, additional loads that's not typical to the use in the past few years should not be applied to the ground adjacent to the Lobby area outside. I.e.. stockpiling soil, gravel, materials or snow around the outside of the Lobby area. - The lack of reinforcement in the concrete foundation wall also created uncontrolled cracks in the Curling Rink. - Once the foundation walls are repaired, it is recommended weeping tiles be installed around the building to prevent further water infiltration into the basement. 	\$ 9,000.00

Building	Section	System	Budget Year	Rating	Description/Deficiencies	Estimated Cost
Curling Rink	1.2.2	Surfacing of on-site road network	2023	2	- Concrete sidewalk - The sidewalk to the main entrance is generally cracked with grass growing through cracks. - It is recommended to replace this portion of the sidewalk	\$ 1,100.00
Curling Rink	4.4.1	Heating capacity and reliability - Lobby	2023	2	Lounge area is heated by gas-fired forced-air furnace, located in mechanical room in basement, in poor condition. Recommended to replace furnace.	\$ 4,000.00
Curling Rink	5.3.1	Panels and wireways capacity and condition.	2023	2	Distribution panel in ice plant is 70A, 120/240 single phase, in good condition. Distribution panel in kitchen is 50A, 120/240 single phase, in acceptable condition. Panel in basement has no cover and should be replaced or relocated (humid conditions in basement).	\$ 2,000.00
Curling Rink	Other	Ice Surface	2023	2	- Existing sand surface is in poor condition - It is recommended to relevel the surface	\$ 10,000.00
Curling Rink	Other	Foundation - Curling Rink	2023	2	- The lack of reinforcement in the concrete foundation wall also created uncontrolled cracks in the Curling Rink foundation. - Only vertical cracks were noted. These vertical cracks should be patched in order to prevent pest or water from entering the building. Patch will also provide indication in the future in the event of more foundation movement.	\$ 10,000.00
Curling Rink	4.6.2	Cooling distribution system and components	2027	3	Freon distribution pumps and condenser water pumps are in operable condition. Equipment is well past its expected life cycle and should be replaced.	\$ 10,000.00
Curling Rink	4.6.3	Cooling system controls	2027	3	No clear control system, all equipment is manually operated. Should be upgraded with equipment.	\$ 15,000.00
Curling Rink	5.1.2	Site and building exterior lighting	2027	3	Exterior lighting consists of incandescent fixtures. Fixtures should be replaced for higher efficient LED fixtures.	\$ 500.00
Curling Rink	5.4.1	Interior lighting systems and components	2027	3	Lighting for curling rink is LED, in acceptable condition. Interior lighting consists of fluorescent fixtures. Recommended to replace with LED for higher energy efficiency.	\$ 5,000.00
Curling Rink	4.6.1	Cooling system capacity and condition	2028	3	Ice plant system consisting of compressor, chiller, and condenser, in operable condition. Equipment is well past its expected life cycle and should be replaced.	\$ 150,000.00
Curling Rink	3.2.2	Wall materials and finishes.	2029	3	- Painted wall finishes. - Minor damage noted in front of the bleachers. Recommended to be repaired. - Repaint all wall surfaces recommended	\$ 5,000.00
Curling Rink	3.3.6	Availability of hazardous materials audit	2029	3	- No hazardous materials audit available - It is recommended an audit be completed for the building.	\$ 7,000.00
Curling Rink	4.3.3	Piping and fittings.	2029	3	Domestic piping appears to be a combination of copper and pex. Some piping in lobby is exposed and should be reconfigured to avoid potential damage.	\$ 1,000.00
Curling Rink	4.4.1.2	Heating capacity and reliability - Curling Rink	2029	3	Curling rink is heated by gas-fired ceiling hung unit heater and fan-coil heater fed from ice plant heat recovery system. Recommended to replace these unit heaters as they are past their expected life cycles.	\$ 4,000.00
Curling Rink	4.5.2	Exhaust systems capacity and condition, washrooms	2029	3	Ceiling exhaust fans for each of the 2 washrooms, in acceptable condition. Wall exhaust fans in curling arena and ice plant room, in acceptable condition. Exterior exhaust hoods are damaged and should be replaced to mitigate cold air infiltration.	\$ 1,000.00
Curling Rink	1.2.5	Signage.	2030	3	- Existing "Halkirk Curling Club" sign by main entrance is in fair condition. - Peeling paint noted typically on the sign. Recommended to be replaced.	\$ 5,000.00

Building	Section	System	Budget Year	Rating	Description/Deficiencies	Estimated Cost
Curling Rink	2.1.1.2	Floor structure and beams	2030	3	- Concrete slab on grade is in poor condition in the Mechanical Room - Slab is generally cracked. - It is recommended to sand down the floor to smooth at the cracks and patch. If further movement noted after remediation, re-condition and re-compact existing subgrade by removal of the slab will be required.	\$ 10,000.00
Curling Rink	2.3.2	Fascias, soffits, parapets	2030	3	- Metal fascia - Section of fascia is missing at the front of the building. It is recommended to replace the missing fascia.	\$ 500.00
Curling Rink	2.4.1	Doors	2030	3	- Peeling paint noted on all wood door and frames. - Repaint doors and frame	\$ 500.00
Curling Rink	2.4.2	Door accessories.	2030	3	- The gap below the rear exit door in the Curling rink was covered with a blanket to prevent cold air from entering. A door sweep and threshold should be installed to seal the gap between the bottom of the door and the threshold.	\$ 1,000.00
Curling Rink	3.2.1	Floor materials and finishes.	2030	3	- Carpet in the mezzanine and vinyl flooring are in good condition - Peeling paint noted on the painted concrete surface. - Recommended to repaint the main floor in the Lobby.	\$ 5,000.00
Total						\$ 282,600.00

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Building	Section	System	Budget Year	Rating	Description/Deficiencies	Estimated Cost
Fire Hall	3.2.4	Interior doors and hardware.	2022	1	- Damaged wired glass noted on the rated metal doors between garage bays and storage room. - replace wire glass on door to maintain fire-rating of the door.	\$ 1,000.00
Fire Hall	4.5.1.2	Exhaust systems capacity and condition. Shop	2022	1	No exhaust in parking bays. Exhaust is required by ASHRAE 62.1 for mechanical shops or parking garages. Recommended to install exhaust and intake with controls and gas detection.	\$ 10,000.00
Fire Hall	2.3.2	Fascias, soffits, parapets	2023	2	- Metal fascia and metal vented soffit - loose metal fascia noted on the east side of the building. It is recommended to re-attach the loose fascia before it completely come off.	\$ 500.00
Fire Hall	4.4.1.1	Heating capacity and reliability	2029	3	Office and washrooms/kitchen are heated by a gas-fired furnace, in operating condition. Furnace is near its expected life cycle and should be replaced.	\$ 4,000.00
Fire Hall	1.2.5	Signage.	2030	3	- "Halkirk Fire Dept." sign at the front of the building - The sign's facing is peeling off its backing and it is recommended to be replaced	\$ 5,000.00
Fire Hall	2.4.7	Overhead Doors	2030	3	- 5 overhead doors. - gaps noted between door seals at the bottom of the original building and the existing floor as well as the weatherstripping around the doors. - Recommended to replace weatherstripping and door seals around the 2 overhead doors located in the original building.	\$ 3,000.00
Total						\$ 23,500.00

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Building	Section	System	Budget Year	Rating	Description/Deficiencies	Estimated Cost
Mini Arena	2.1.3	Roof structure	2022	1	- Wood arch-rib structure in the Arena - Wood trusses roof structure at the 1950 addition (front area). - Sagged bottom chord of the trusses in the front area. The bottom chord should be reinforced by either a steel or wood plate.	\$ 1,000.00
Mini Arena	2.3.1	Exterior wall finishes	2023	2	- Metal cladded on top of wood sheathing. - Daylight can be seen through wood sheathing in the Arena. - Reattach all the loose wood sheathing to the structure below.	\$ 2,000.00
Mini Arena	2.4.7	Overhead Doors	2023	2	- 1 overhead door at the north end of the building - Village indicated the overhead door needs repair	\$ 2,000.00
Mini Arena	4.4.1	Heating capacity and reliability	2023	2	Front entry area is heated by a gas-fired unit heater, in poor condition. Recommended to replace. Arena area is unheated.	\$ 2,000.00
Mini Arena	3.2.2	Wall materials and finishes.	2029	3	- painted wood walls - it is recommended to repaint the walls	\$ 500.00
Mini Arena	3.2.1	Floor materials and finishes.	2030	3	- wood floor. Not finished. - It is recommended to paint the floor to protect the wood surface	\$ 500.00
Total						\$ 8,000.00

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Building	Section	System	Budget Year	Rating	Description/Deficiencies	Estimated Cost
Post Office	5.1.2	Site and building exterior lighting	2027	3	Lighting consists of incandescent bulbs. Bulbs should be replaced with LED bulbs or fixtures as they fail for higher energy efficiency.	\$ 500.00
Post Office	5.4.1	Interior lighting systems and components	2027	3	T-8 fluorescent fixtures and incandescent fixtures located throughout. Fixtures should be replaced with LED bulbs for higher energy efficiency.	\$ 2,000.00
Post Office	3.2.2	Wall materials and finishes.	2029	3	- Painted surface is recommended to be repainted	\$ 5,000.00
Post Office	2.3.1	Exterior wall finishes	2030	3	- Vinyl siding around the building - Damages to the siding due to grass trimmer typical around the building. - Replace damaged vinyl siding to protect the further damages to the building envelope.	\$ 3,000.00
Post Office	3.2.1	Floor materials and finishes.	2030	3	- painted floor at the front of the post office. Painted floor is recommended to be repainted - vinyl floor in the office. Vinyl flooring is in good condition.	\$ 1,000.00
Total						\$ 11,500.00

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Building	Section	System	Budget Year	Rating	Description/Deficiencies	Estimated Cost
Recreation Grounds	2.1.3	Roof structure	2022	F1	- East end of the pole shed sags. The building should be further review to determine the exact concern of the building.	\$ 6,000.00
Recreation Grounds	1.1.4	Site accessories	2026	2	- Damages on the bleachers noted at several location - Peeling paint noted on the bleachers as well. - Repair bleachers and repaint bleachers.	\$ 5,000.00
Recreation Grounds	5.4.1	Interior lighting systems and components	2027	3	Pole Shed: Incandescent fixtures located throughout. Fixtures should be replaced with LED bulbs for higher energy efficiency.	\$ 500.00
Total						\$ 11,500.00

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Building	Section	System	Budget Year	Rating	Description/Deficiencies	Estimated Cost
Senior Center	3.3.5	Barrier-free access.	2022	F1	- No barrier-free accessible washroom in the building - ramp entry at front door is not to standard grade - Not barrier free access to 2nd floor.	\$ 5,000.00
Senior Center	4.5.1.2	Exhaust systems capacity and condition. Basement	2022	1	No exhaust in basement. Recommended to add exhaust to mitigate moisture and corrosion to equipment.	\$ 5,000.00
Senior Center	3.2.4.2	Interior doors and hardware.	2023	2	'- Majority of the doors are missing in the Second floor. - replace missing doors.	\$ 5,000.00
Senior Center	3.2.4.2	Interior doors and hardware.	2023	2	'- Majority of the doors are missing in the Second floor. - replace missing doors.	\$ 5,000.00
Senior Center	4.3.3	Plumbing fixtures	2023	2	Washrooms (x2) each with tank toilet and wall mounted lavatory, in acceptable condition. Stainless steel sink in kitchen, in good condition.	\$ 3,000.00
Senior Center	Other	Foundation	2024	2	- Water pools on top of the basement slab. - Suspect high water level in the area keeps the basement consistently wet as the result of lack of weeping tile system and water infiltration through foundation walls. - Existing sump in the basement only removes water that has already entered the basement.	\$ 140,000.00
Senior Center	2.2.1.1	Roofing	2026	2	- Built-up roof system is closed to the end of its life expectancy - Recommended to be replaced with 2-ply SBS roof membrane system completed with slope insulation package.	\$ 26,000.00
Senior Center	1.1.4	Site accessories	2026	2	- Fence installed approximately 1985-1990 - Recommended to be replace in the next 3-5 years	\$ 7,500.00

Building	Section	System	Budget Year	Rating	Description/Deficiencies	Estimated Cost
Senior Center	3.2.1.2	Floor materials and finishes.	2026	2	- Original vinyl and wood flooring - The vinyl flooring in the second floor is in poor condition and should be replaced. - wood flooring should also be re-finished.	\$ 14,000.00
Senior Center	3.2.2.2	Wall materials and finishes.	2026	2	- Original building wall finishes are in poor condition - Repaint the second floor.	\$ 2,000.00
Senior Center	3.2.3.2	Ceiling materials and finishes.	2026	2	- Peeling paint ceiling noted in the second floor - Ceiling should be repainted	\$ 2,000.00
Senior Center	5.1.1	Primary service capacity and reliability	2027	3	Service is overhead, fed from the rear of the building. Main panel located on main floor. Main panel is past its expected lifespan and should be replaced	\$ 5,000.00
Senior Center	5.3.1	Panels and wireways capacity and condition.	2027	3	Cables, wiring and switches are original to building. There are no visible issues, but should be replaced to comply with current electrical codes for safety.	\$ 10,000.00
Senior Center	5.3.2	Power distribution and outlets	2027	3	Power distribution panels are located throughout. Some appear to be past their expected life spans and should be replaced.	\$ 4,000.00
Senior Center	5.4.1	Interior lighting systems and components	2027	3	T-8 fluorescent fixtures and incandescent fixtures located throughout. Fixtures should be replaced with LED bulbs for higher energy efficiency.	\$ 10,000.00
Senior Center	3.3.6	Availability of hazardous materials audit	2029	3	- No availability of hazardous material available. - The addition built in 1984 might contain asbestos construction material so it is recommended to perform a hazardous material audit on the building.	\$ 7,000.00
Senior Center	4.4.1.2	Heating capacity and reliability	2029	3	Main building is heated by forced air furnace in basement. Furnace looks to have been subject to high humidity and has sustained some corrosion and should be replaced, with the new unit potentially located in a less humid location.	\$ 5,000.00
Senior Center	1.2.5	Signage.	2030	3	- Existing "Halkirk Senior Centre" sign by main entrance is in fair condition. - Peeling paint noted typically around the wording. Recommend to be replaced.	\$ 5,000.00
Senior Center	2.1.2.1	Wall structure and columns	2030	3	- The original 1921 building consists of double wythes brick wall construction with header course every 6th course. - Vertical crack noted on the west side of the building under window. Crack extended from top of concrete foundation wall to underside of the window sill. - It is recommended to repoint the cracks in the mortar joint. - Wood columns supporting the main floor in the basement have visible signs of rot at the bottom due to prolonged exposure to moisture in the basement. The structural integrity of the columns are still good however, further exposure to moisture will continue degrade the structure and full replacement will be required. See "Foundation" section below for recommended remediation work.	\$ 1,000.00
Senior Center	2.4.4	Windows	2030	3	- Main floor windows in main floor replaced in 1980. These windows are at the end of its expected life expectancy. It is recommended to be replaced.	\$ 9,000.00
Senior Center	2.1.1.1	Floor structure and beams	2031	3	- Wood framed floor structure on the main floor and second floor - The surface of the concrete floor in the basement is mostly crumbled due to age and moisture in the basement. It is recommended to replace the concrete floor once the moisture issue in the basement is fixed.	\$ 18,000.00
Total						\$ 288,500.00

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Building	Section	System	Budget Year	Rating	Description/Deficiencies	Estimated Cost
Village Office	3.3.5	Barrier-free access.	2022	FI	- Not barrier-free accessible. - Village Office should be barrier free accessible which will include a ramp that meets the current Building Code and barrier-free path of travel to all public area in the building. - Further review to determine options to upgrade the building to meet Code's requirement of Barrier-Free.	\$ 5,000.00
Village Office	4.5.1.2	Exhaust systems capacity and condition. Shop	2022	1	No exhaust in Shop. Exhaust is required by ASHRAE 62.1 for mechanical shops or parking garages. Recommended to install exhaust and intake with controls and gas detection.	\$ 10,000.00
Village Office	4.4.1.2	Heating capacity and reliability	2023	2	Shop is heated by a ceiling-hung gas-fired unit heater. Unit heater is past its expected life cycle and should be replaced	\$ 2,000.00
Village Office	Other	Foundation	2025	2	- Floor heaves and door sticks in winter likely due to high water level in the area. - To minimize the movement, it is recommended to install a weeping tile system around the building at foundation level. This weeping tile can tie to the proposed weeping will around the Senior Center.	\$ 100,000.00
Village Office	1.1.4	Site accessories	2026	2	- Fence installed approximately 1985-1990' - Fence is close to the end of the expected life expectancy, should be replaced in the next 3-5 years - Front step completed with railing was replaced in 2014 and it is in good condition	\$ 5,000.00
Village Office	2.3.1	Exterior wall finishes	2026	2	- Original siding on the building - Siding is close to the end of its life expectancy, recommended to be replaced.	\$ 19,000.00
Village Office	3.2.1	Floor materials and finishes.	2026	2	- Original carpet and vinyl finish in poor condition at the end of life expectancy - Recommended to be replaced	\$ 19,000.00
Village Office	3.2.2	Wall materials and finishes.	2026	2	- Original wall finishes is at end of life expectancy - Recommended to be refinished	\$ 2,000.00
Village Office	5.3.2	Power distribution and outlets	2027	3	Power is distributed from main panel. Office area requires more outlets than are currently available. Recommended to install more outlets and add circuits to main panel.	\$ 1,000.00
Village Office	5.4.1.1	Interior lighting systems and components	2027	3	T-8 fluorescent fixtures and incandescent fixtures located throughout. Fixtures should be replaced with LED bulbs for higher energy efficiency.	\$ 7,000.00
Village Office	3.3.6	Availability of hazardous materials audit	2029	3	- No availability of hazardous material available. - The addition built in 1980 might contain asbestos construction material so it is recommended to perform a hazardous material audit on the building.	\$ 7,000.00
Village Office	2.4.4	Windows	2030	3	- Original windows - Windows are at the end of its expected life expectancy and recommended to be replaced.	\$ 5,000.00
Total						\$ 182,000.00

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ORDER OF MAGNITUDE COST ESTIMATE

Building	Section	System	Budget Year	Rating	Description/Deficiencies	Estimated Cost
Water Tower	1.1.4	Site accessories	2026	2	- Fence installed approximately 1985-1990 - It is recommended that the fence be replaced in the next 3-5 years	\$ 5,000.00
Water Tower	1.1.4.1	Site accessories (Water Tower)	2026	2	- Water Tower next to the Playground is not in service anymore. - Water Tower is constructed in 1977. - Painted plywood is used to keep insulation in-place. - The door provides access is in poor condition and should be replaced. - It is recommended to replace and repaint the plywood on the Water Tower	\$ 33,000.00
Total						\$ 38,000.00



ORDER OF MAGNITUDE COST ESTIMATE

DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	COST
Replace the 150 mm main from the reservoir to Main St. with a 200 mm main.				
1 Mobilization/Demobilization/Bonding & Insurance/Traffic Accommodation	1	L.S.	9,000.00	9,000.00
2 Connect to Existing Water Distribution System	3	ea.	3,200.00	9,600.00
3 Supply and Install 200 mm DR18 PVC Water Pipe and Fittings, Complete	340	m	400.00	136,000.00
4 Supply and Install 200 mm Watermain Isolation Valves, Complete	2	ea.	3,000.00	6,000.00
5 Replace Water Service to Property Line	6	ea.	4,200.00	25,200.00
			Subtotal	\$ 186,000.00
CONTINGENCY (25%)				\$ 47,000.00
ENGINEERING (15%)				\$ 35,000.00
Total				\$ 268,000.00
Replace the 150 mm main on Main St. between Alberta and Railway Ave with 200 mm main.				
1 Mobilization/Demobilization/Bonding & Insurance/Traffic Accommodation	1	L.S.	5,500.00	5,500.00
2 Connect to Existing Water Distribution System	2	ea.	3,200.00	6,400.00
3 Supply and Install 200 mm DR18 PVC Water Pipe and Fittings, Complete	160	m	400.00	64,000.00
4 Supply and Install 200 mm Watermain Isolation Valves, Complete	2	ea.	3,000.00	6,000.00
5 Replace Water Service to Property Line	7	ea.	4,200.00	29,400.00
			Subtotal	\$ 112,000.00
CONTINGENCY (25%)				\$ 28,000.00
ENGINEERING (15%)				\$ 21,000.00
Total				\$ 161,000.00
Replace the 150 mm main on Alberta Ave between Main St and Range Road 160 with a 200 mm main.				
1 Mobilization/Demobilization/Bonding & Insurance/Traffic Accommodation	1	L.S.	14,500.00	14,500.00
2 Connect to Existing Water Distribution System	5	ea.	3,200.00	16,000.00
3 Supply and Install 200 mm DR18 PVC Water Pipe and Fittings, Complete	410	m	400.00	164,000.00
4 Supply and Install 200 mm Watermain Isolation Valves, Complete	2	ea.	3,000.00	6,000.00
5 Supply and Install Hydrant, Complete	4	ea.	11,500.00	46,000.00
6 Replace Water Service to Property Line	14	ea.	4,200.00	58,800.00
			Subtotal	\$ 306,000.00
CONTINGENCY (25%)				\$ 77,000.00
ENGINEERING (15%)				\$ 58,000.00
Total				\$ 441,000.00
Replace the 150 mm main on Berry St between Alberta and Railway Ave with 200 mm main.				
1 Mobilization/Demobilization/Bonding & Insurance/Traffic Accommodation	1	L.S.	6,000.00	6,000.00
2 Connect to Existing Water Distribution System	1	ea.	3,200.00	3,200.00
3 Supply and Install 200 mm DR18 PVC Water Pipe and Fittings, Complete	165	m	400.00	66,000.00
4 Supply and Install 200 mm Watermain Isolation Valves, Complete	2	ea.	3,000.00	6,000.00
5 Supply and Install Hydrant, Complete	1	ea.	11,500.00	11,500.00
6 Replace Water Service to Property Line	8	ea.	4,200.00	33,600.00
			Subtotal	\$ 127,000.00
CONTINGENCY (25%)				\$ 32,000.00
ENGINEERING (15%)				\$ 24,000.00
Total				\$ 183,000.00
Replace the 150 mm main on Howard St between Alberta and Railway Ave with 200 mm main.				
1 Mobilization/Demobilization/Bonding & Insurance/Traffic Accommodation	1	L.S.	5,500.00	5,500.00
2 Connect to Existing Water Distribution System	1	ea.	3,200.00	3,200.00
3 Supply and Install 200 mm DR18 PVC Water Pipe and Fittings, Complete	150	m	400.00	60,000.00
4 Supply and Install 200 mm Watermain Isolation Valves, Complete	2	ea.	3,000.00	6,000.00
5 Supply and Install Hydrant, Complete	1	ea.	11,500.00	11,500.00
6 Replace Water Service to Property Line	5	ea.	4,200.00	21,000.00
			Subtotal	\$ 108,000.00
CONTINGENCY (25%)				\$ 27,000.00
ENGINEERING (15%)				\$ 21,000.00
Total				\$ 156,000.00

Replace 50 mm water main on Alberta Ave between Mercer and George St with 150 mm main					
1	Mobilization/Demobilization/Bonding & Insurance/Traffic Accommodation	1	L.S.	2,500.00	2,500.00
2	Connect to Existing Water Distribution System	3	ea.	3,200.00	9,600.00
3	Supply and Install 150 mm DR18 PVC Water Pipe and Fittings, Complete	100	m	325.00	32,500.00
4	Supply and Install 150 mm Watermain Isolation Valves, Complete	1	ea.	3,000.00	3,000.00
5	Replace Water Service to Property Line	1	ea.	4,200.00	4,200.00
				Subtotal	\$ 52,000.00
				CONTINGENCY (25%)	\$ 13,000.00
				ENGINEERING (15%)	\$ 10,000.00
				Total	\$ 75,000.00
Install 200 mm water main on Railway Ave from Berry to Howard St.					
1	Mobilization/Demobilization/Bonding & Insurance/Traffic Accommodation	1	L.S.	4,000.00	4,000.00
2	Connect to Existing Water Distribution System	2	ea.	3,200.00	6,400.00
3	Supply and Install 200 mm DR18 PVC Water Pipe and Fittings, Complete	170	m	400.00	68,000.00
				Subtotal	\$ 79,000.00
				CONTINGENCY (25%)	\$ 20,000.00
				ENGINEERING (15%)	\$ 15,000.00
				Total	\$ 114,000.00
Replace the 150 mm main on Berry St between Pioneer and Alberta Ave.					
1	Mobilization/Demobilization/Bonding & Insurance/Traffic Accommodation	1	L.S.	2,000.00	2,000.00
2	Connect to Existing Water Distribution System	2	ea.	2,700.00	5,400.00
3	Supply and Install 150 mm DR18 PVC Water Pipe and Fittings, Complete	155	m	325.00	50,375.00
4	Supply and Install 150 mm Watermain Isolation Valves, Complete	2	ea.	2,700.00	5,400.00
5	Replace Water Service to Property Line	10	ea.	3,700.00	37,000.00
				Subtotal	\$ 101,000.00
				CONTINGENCY (25%)	\$ 26,000.00
				ENGINEERING (15%)	\$ 20,000.00
				Total	\$ 147,000.00
Replace the 150 mm main on George St from Pioneer to Alberta Ave.					
1	Mobilization/Demobilization/Bonding & Insurance/Traffic Accommodation	1	L.S.	4,500.00	4,500.00
2	Connect to Existing Water Distribution System	2	ea.	3,200.00	6,400.00
3	Supply and Install 150 mm DR18 PVC Water Pipe and Fittings, Complete	150	m	325.00	48,750.00
4	Supply and Install 150 mm Watermain Isolation Valves, Complete	1	ea.	3,000.00	3,000.00
5	Supply and Install Hydrant, Complete	1	ea.	11,500.00	11,500.00
6	Replace Water Service to Property Line	5	ea.	4,200.00	21,000.00
				Subtotal	\$ 96,000.00
				CONTINGENCY (25%)	\$ 24,000.00
				ENGINEERING (15%)	\$ 18,000.00
				Total	\$ 138,000.00
Replace the 150 mm main on Main St between Pioneer and Alberta Ave.					
1	Mobilization/Demobilization/Bonding & Insurance/Traffic Accommodation	1	L.S.	5,500.00	5,500.00
2	Connect to Existing Water Distribution System	2	ea.	3,200.00	6,400.00
3	Supply and Install 150 mm DR18 PVC Water Pipe and Fittings, Complete	150	m	325.00	48,750.00
4	Supply and Install 150 mm Watermain Isolation Valves, Complete	1	ea.	3,000.00	3,000.00
5	Replace Water Service to Property Line	11	ea.	4,200.00	46,200.00
				Subtotal	\$ 110,000.00
				CONTINGENCY (25%)	\$ 28,000.00
				ENGINEERING (15%)	\$ 21,000.00
				Total	\$ 159,000.00

Install 200 mm main on Railway Ave from Howard St to Range Road 160, and on Range Road 160 from Railway to Alberta Ave.					
1	Mobilization/Demobilization/Bonding & Insurance/Traffic Accommodation	1	L.S.	10,000.00	10,000.00
2	Connect to Existing Water Distribution System	2	ea.	3,200.00	6,400.00
3	Supply and Install 200 mm DR18 PVC Water Pipe and Fittings, Complete	420	m	400.00	168,000.00
4	Supply and Install 200 mm Watermain Isolation Valves, Complete	2	ea.	3,000.00	6,000.00
5	Supply and Install Hydrant, Complete	1	ea.	11,500.00	11,500.00
				Subtotal	\$ 202,000.00
				CONTINGENCY (25%)	\$ 51,000.00
				ENGINEERING (15%)	\$ 38,000.00
				Total	\$ 291,000.00
Install 200 mm main on Mercer St from Railway to Alberta Ave.					
1	Mobilization/Demobilization/Bonding & Insurance/Traffic Accommodation	1	L.S.	4,500.00	4,500.00
2	Connect to Existing Water Distribution System	1	ea.	3,200.00	3,200.00
3	Supply and Install 200 mm DR18 PVC Water Pipe and Fittings, Complete	160	m	400.00	64,000.00
4	Supply and Install 200 mm Watermain Isolation Valves, Complete	1	ea.	3,000.00	3,000.00
5	Supply and Install Hydrant, Complete	1	ea.	11,500.00	11,500.00
				Subtotal	\$ 87,000.00
				CONTINGENCY (25%)	\$ 22,000.00
				ENGINEERING (15%)	\$ 17,000.00
				Total	\$ 126,000.00
Install 200 mm main on Range Road 160 from Alberta to Pioneer Ave, and along the Pioneer Ave alignment from Berry St to Range Road 160.					
1	Mobilization/Demobilization/Bonding & Insurance/Traffic Accommodation	1	L.S.	11,500.00	11,500.00
2	Connect to Existing Water Distribution System	1	ea.	3,200.00	3,200.00
3	Supply and Install 200 mm DR18 PVC Water Pipe and Fittings, Complete	470	m	400.00	188,000.00
4	Supply and Install 200 mm Watermain Isolation Valves, Complete	2	ea.	3,000.00	6,000.00
5	Supply and Install Hydrant, Complete	2	ea.	11,500.00	23,000.00
				Subtotal	\$ 232,000.00
				CONTINGENCY (25%)	\$ 58,000.00
				ENGINEERING (15%)	\$ 44,000.00
				Total	\$ 334,000.00

Spot Repair sanitary main between MH20 and MH21					
1	Mobilization/Demobilization/Bonding & Insurance/Traffic Accommodation	1	L.S.	2,500.00	2,500.00
2	Temporary Sanitary Bypass	1	L.S.	3,000.00	3,000.00
3	Sag Repair	3	ea.	12,500.00	37,500.00
4	Replace Sanitary Service to Property Line	1	ea.	4,900.00	4,900.00
Subtotal					\$ 48,000.00
CONTINGENCY (25%)					\$ 12,000.00
ENGINEERING (15%)					\$ 9,000.00
Total					\$ 69,000.00
Spot Repair sanitary main between MH19 and MH20					
1	Mobilization/Demobilization/Bonding & Insurance/Traffic Accommodation	1	L.S.	3,000.00	3,000.00
2	Temporary Sanitary Bypass	1	L.S.	3,000.00	3,000.00
3	Sag Repair	3	ea.	12,500.00	37,500.00
4	Replace Sanitary Service to Property Line	4	ea.	4,900.00	19,600.00
Subtotal					\$ 64,000.00
CONTINGENCY (25%)					\$ 16,000.00
ENGINEERING (15%)					\$ 12,000.00
Total					\$ 92,000.00
Spot Repair sanitary main between MH15 and MH14					
1	Mobilization/Demobilization/Bonding & Insurance/Traffic Accommodation	1	L.S.	2,500.00	2,500.00
2	Temporary Sanitary Bypass	1	L.S.	3,000.00	3,000.00
3	Sag Repair	1	ea.	12,500.00	12,500.00
4	Replace Sanitary Service to Property Line	6	ea.	4,900.00	29,400.00
Subtotal					\$ 48,000.00
CONTINGENCY (25%)					\$ 12,000.00
ENGINEERING (15%)					\$ 9,000.00
Total					\$ 69,000.00
Spot Repair sanitary main between MH7 and MH16					
1	Mobilization/Demobilization/Bonding & Insurance/Traffic Accommodation	1	L.S.	2,000.00	2,000.00
2	Temporary Sanitary Bypass	1	L.S.	3,000.00	3,000.00
3	Sag Repair	2	ea.	12,500.00	25,000.00
4	Replace Sanitary Service to Property Line	1	ea.	4,900.00	4,900.00
Subtotal					\$ 35,000.00
CONTINGENCY (25%)					\$ 9,000.00
ENGINEERING (15%)					\$ 7,000.00
Total					\$ 51,000.00
Spot Repair sanitary main between MH1 and MH2					
1	Mobilization/Demobilization/Bonding & Insurance/Traffic Accommodation	1	L.S.	1,000.00	1,000.00
2	Temporary Sanitary Bypass	1	L.S.	3,000.00	3,000.00
3	Sag Repair	1	ea.	12,500.00	12,500.00
Subtotal					\$ 17,000.00
CONTINGENCY (25%)					\$ 5,000.00
ENGINEERING (15%)					\$ 4,000.00
Total					\$ 26,000.00
Spot Repair sanitary main between MH2 and MH12					
1	Mobilization/Demobilization/Bonding & Insurance/Traffic Accommodation	1	L.S.	1,000.00	1,000.00
2	Temporary Sanitary Bypass	1	L.S.	3,000.00	3,000.00
3	Sag Repair	1	ea.	12,500.00	12,500.00
4	Replace Sanitary Service to Property Line	1	ea.	4,900.00	4,900.00
Subtotal					\$ 22,000.00
CONTINGENCY (25%)					\$ 6,000.00
ENGINEERING (15%)					\$ 5,000.00
Total					\$ 33,000.00

Full Replacement of sanitary main between MH16 and MH15

1	Mobilization/Demobilization/Bonding & Insurance/Traffic Accommodation	1	L.S.	3,000.00	3,000.00
2	Temporary Sanitary Bypass	1	L.S.	3,000.00	3,000.00
3	Supply and Install 200 mm SDR35 PVC Sewer Pipe and Fittings, Complete	90	m	350.00	31,500.00
4	Replace Sanitary Service to Property Line	5	ea.	4,900.00	24,500.00
Subtotal					\$ 62,000.00
CONTINGENCY (25%)					\$ 16,000.00
ENGINEERING (15%)					\$ 12,000.00
Total					\$ 90,000.00

Replace 150 mm sanitary main with 200 mm between MH18 and MH17

1	Mobilization/Demobilization/Bonding & Insurance/Traffic Accommodation	1	L.S.	3,500.00	3,500.00
2	Temporary Sanitary Bypass	1	L.S.	3,000.00	3,000.00
3	Supply and Install 200 mm SDR35 PVC Sewer Pipe and Fittings, Complete	110	m	350.00	38,500.00
4	Replace Sanitary Service to Property Line	4	ea.	4,900.00	19,600.00
5	Manhole Benching Repair (MH18)	1	ea.	4,000.00	4,000.00
Subtotal					\$ 69,000.00
CONTINGENCY (25%)					\$ 18,000.00
ENGINEERING (15%)					\$ 14,000.00
Total					\$ 101,000.00

Spot Repair sanitary main between MH25 and Lagoon Inlet Structure

1	Mobilization/Demobilization/Bonding & Insurance/Traffic Accommodation	1	L.S.	1,500.00	1,500.00
2	Temporary Sanitary Bypass	1	L.S.	3,000.00	3,000.00
3	Sag Repair	2	ea.	12,500.00	25,000.00
Subtotal					\$ 30,000.00
CONTINGENCY (25%)					\$ 8,000.00
ENGINEERING (15%)					\$ 6,000.00
Total					\$ 44,000.00

Spot Repair sanitary main between MH24 and MH25

1	Mobilization/Demobilization/Bonding & Insurance/Traffic Accommodation	1	L.S.	3,000.00	3,000.00
2	Temporary Sanitary Bypass	1	L.S.	3,000.00	3,000.00
3	Sag Repair	3	ea.	17,500.00	52,500.00
Subtotal					\$ 59,000.00
CONTINGENCY (25%)					\$ 15,000.00
ENGINEERING (15%)					\$ 12,000.00
Total					\$ 86,000.00

Full replacement of sanitary main between MH23 and MH24

1	Mobilization/Demobilization/Bonding & Insurance/Traffic Accommodation	1	L.S.	2,500.00	2,500.00
2	Temporary Sanitary Bypass	1	L.S.	3,000.00	3,000.00
3	Supply and Install 200 mm SDR35 PVC Sewer Pipe and Fittings, Complete	130	m	350.00	45,500.00
Subtotal					\$ 51,000.00
CONTINGENCY (25%)					\$ 13,000.00
ENGINEERING (15%)					\$ 10,000.00
Total					\$ 74,000.00

Spot Repair sanitary main between MH22 and MH23

1	Mobilization/Demobilization/Bonding & Insurance/Traffic Accommodation	1	L.S.	1,000.00	1,000.00
2	Temporary Sanitary Bypass	1	L.S.	3,000.00	3,000.00
3	Sag Repair	1	ea.	12,500.00	12,500.00
Subtotal					\$ 17,000.00
CONTINGENCY (25%)					\$ 5,000.00
ENGINEERING (15%)					\$ 4,000.00
Total					\$ 26,000.00

Spot Repair sanitary main between MH21A and MH22					
1	Mobilization/Demobilization/Bonding & Insurance/Traffic Accommodation	1	L.S.	1,000.00	1,000.00
2	Temporary Sanitary Bypass	1	L.S.	3,000.00	3,000.00
3	Sag Repair	1	ea.	12,500.00	12,500.00
				Subtotal	\$ 17,000.00
CONTINGENCY (25%)					\$ 5,000.00
ENGINEERING (15%)					\$ 4,000.00
				Total	\$ 26,000.00
Replace 100 mm sanitary main with 200 mm between MH1B and MH1A					
1	Mobilization/Demobilization/Bonding & Insurance/Traffic Accommodation	1	L.S.	2,500.00	2,500.00
2	Temporary Sanitary Bypass	1	L.S.	3,000.00	3,000.00
3	Supply and Install 200 mm SDR35 PVC Sewer Pipe and Fittings, Complete	50	m	350.00	17,500.00
4	Replace Sanitary Service to Property Line	4	ea.	4,900.00	19,600.00
5	Remove and Replace 5A Sanitary Manhole (1B)	3	vm	2,000.00	6,000.00
				Subtotal	\$ 49,000.00
CONTINGENCY (25%)					\$ 13,000.00
ENGINEERING (15%)					\$ 10,000.00
				Total	\$ 72,000.00
Replace 150 mm sanitary main with 200 mm between MH1A and MH1					
1	Mobilization/Demobilization/Bonding & Insurance/Traffic Accommodation	1	L.S.	1,500.00	1,500.00
2	Temporary Sanitary Bypass	1	L.S.	3,000.00	3,000.00
3	Supply and Install 200 mm SDR35 PVC Sewer Pipe and Fittings, Complete	50	m	350.00	17,500.00
4	Remove and Replace 5A Sanitary Manhole (1A)	3	vm	2,000.00	6,000.00
				Subtotal	\$ 28,000.00
CONTINGENCY (25%)					\$ 7,000.00
ENGINEERING (15%)					\$ 6,000.00
				Total	\$ 41,000.00
Replace 100 mm sanitary main with 200 mm between MH5 and MH4					
1	Mobilization/Demobilization/Bonding & Insurance/Traffic Accommodation	1	L.S.	1,500.00	1,500.00
2	Temporary Sanitary Bypass	1	L.S.	3,000.00	3,000.00
3	Supply and Install 200 mm SDR35 PVC Sewer Pipe and Fittings, Complete	50	m	350.00	17,500.00
4	Replace Sanitary Service to Property Line	1	ea.	4,900.00	4,900.00
				Subtotal	\$ 27,000.00
CONTINGENCY (25%)					\$ 7,000.00
ENGINEERING (15%)					\$ 6,000.00
				Total	\$ 40,000.00
Spot Repair sanitary main between MH6A and MH6 and Replace MH6					
1	Mobilization/Demobilization/Bonding & Insurance/Traffic Accommodation	1	L.S.	2,000.00	2,000.00
2	Temporary Sanitary Bypass	1	L.S.	3,000.00	3,000.00
3	Sag Repair	1	ea.	12,500.00	12,500.00
4	Replace Sanitary Service to Property Line	4	ea.	4,900.00	19,600.00
5	Remove and Replace 5A Sanitary Manhole (1)	2	vm	2,000.00	4,000.00
				Subtotal	\$ 42,000.00
CONTINGENCY (25%)					\$ 11,000.00
ENGINEERING (15%)					\$ 8,000.00
				Total	\$ 61,000.00
Spot Repair sanitary main between MH8 and MH7					
1	Mobilization/Demobilization/Bonding & Insurance/Traffic Accommodation	1	L.S.	2,000.00	2,000.00
2	Temporary Sanitary Bypass	1	L.S.	3,000.00	3,000.00
3	Sag Repair	1	ea.	12,500.00	12,500.00
4	Replace Sanitary Service to Property Line	5	ea.	4,900.00	24,500.00
				Subtotal	\$ 42,000.00
CONTINGENCY (25%)					\$ 11,000.00
ENGINEERING (15%)					\$ 8,000.00
				Total	\$ 61,000.00

Benching Repair in MH13 and MH14					
1	Mobilization/Demobilization/Bonding & Insurance/Traffic Accommodation	1	L.S.	500.00	500.00
2	Manhole Benching Repair	2	ea.	4,000.00	8,000.00
				Subtotal	\$ 9,000.00
				CONTINGENCY (25%)	\$ 3,000.00
				ENGINEERING (15%)	\$ 2,000.00
				Total	\$ 14,000.00
Replace Lagoon Inlet Structure and Piping					
1	Mobilization/Demobilization/Bonding & Insurance/Traffic Accommodation	1	L.S.	2,500.00	2,500.00
2	Cell Draining and Isolation	1	L.S.	20,000.00	20,000.00
3	Temporary Sanitary Bypass	1	L.S.	3,000.00	3,000.00
4	Supply and Install 250 mm SDR35 PVC Sewer Pipe and Fittings, Complete	15	m	450.00	6,750.00
5	Remove and Replace Lagoon Inlet Structure	1	L.S.	15,000.00	15,000.00
				Subtotal	\$ 48,000.00
				CONTINGENCY (25%)	\$ 12,000.00
				ENGINEERING (15%)	\$ 9,000.00
				Total	\$ 69,000.00
Replace Lagoon Transfer Structure 4 and Piping					
1	Mobilization/Demobilization/Bonding & Insurance/Traffic Accommodation	1	L.S.	2,500.00	2,500.00
2	Cell Draining and Isolation	1	L.S.	20,000.00	20,000.00
3	Supply and Install 250 mm SDR35 PVC Sewer Pipe and Fittings, Complete	15	m	450.00	6,750.00
4	Remove and Replace Lagoon Transfer Structure	1	L.S.	15,000.00	15,000.00
				Subtotal	\$ 45,000.00
				CONTINGENCY (25%)	\$ 12,000.00
				ENGINEERING (15%)	\$ 9,000.00
				Total	\$ 66,000.00

VILLAGE OF HALKIRK
CAPITAL PLAN REHABILITATION LISTING

SORT: Program Year

Village of Halkirk - Infrastructure Assessment and Ten Year Capital Plan
 Roadway System Upgrades



ORDER OF MAGNITUDE COST ESTIMATE

ASTM OCI	CONDITION	SEGMENT ID2	STREET	FROM	TO	SURFACE			PROGRAM YEAR	NEED YEAR	OCI	PDI	RCI	IRI (M/KM)	LOAD COND.	CONST COND.	MATERIAL COND.	ENVIRON COND.	DATA YEAR	TRAF LEVEL	EGT LEVEL	SUBGRD		COST
						TYPE	LANES	LANE-KM														LEVEL	TREATMENT LEVEL	
Poor		200	Berry Street	Railway Avenue	Alberta Avenue	AC	2	0.309	1	2021	41.1	52.3	31.6	5.87	POOR	FAIR	GOOD	GOOD	2021	Low	Med	Weak	Full Mill and Overlay + LBR	\$80,698
Poor		140	George Street	Railway Avenue	Alberta Avenue	AC	2	0.309	2	2021	40.1	49.6	31.9	6.59	POOR	FAIR	FAIR	POOR	2021	Low	Med	Weak	Local Reconstruction	\$229,616
Very Poor		20	Railway Avenue	Mercer Street	George Street	AC	2	0.197	3	2021	31.7	28.0	30.9	5.66	POOR	GOOD	GOOD	GOOD	2021	Low	Med	Weak	Full Mill and Overlay 50mm	\$33,767
Poor		30	Railway Avenue	George Street	Main Street	AC	2	0.203	3	2024	54.1	75.4	31.0	6.38	POOR	GOOD	GOOD	GOOD	2021	Low	Med	Weak	Full Mill and Overlay 50mm	\$34,763
Poor		40	Railway Avenue	Main Street	Berry Street	AC	2	0.206	3	2024	52.7	34.2	55.1	2.75	FAIR	FAIR	FAIR	POOR	2021	Low	Med	Weak	Full Mill and Overlay 50mm	\$35,253
Poor		50	Railway Avenue	Berry Street	Howard Street	AC	2	0.190	3	2022	48.9	0.1	56.9	2.69	FAIR	FAIR	FAIR	POOR	2021	Low	Med	Weak	Full Mill and Overlay 50mm	\$32,491
Poor		130	Mercer Street	Railway Avenue	Alberta Avenue	AC	2	0.305	4	2022	47.7	27.6	51.1	3.07	POOR	GOOD	GOOD	GOOD	2021	Low	Med	Weak	Full Mill and Overlay 50mm	\$52,114
Serious		180	Main Street	Railway Avenue	Alberta Avenue	AC	2	0.307	5	2021	20.7	36.1	14.1	9.82	POOR	FAIR	FAIR	POOR	2021	Low	Med	Weak	Local Reconstruction	\$227,904
Fair		70	Alberta Avenue	Village Limits	Mercer Street	AC	2	0.386	7	2025	56.0	58.7	46.2	3.63	FAIR	GOOD	GOOD	FAIR	2021	Low	Med	Weak	Full Mill and Overlay 50mm	\$66,011
Poor		90	Alberta Avenue	George Street	Main Street	AC	2	0.203	7	2021	43.5	48.4	36.8	5.00	POOR	GOOD	GOOD	GOOD	2021	Low	Med	Weak	Full Mill and Overlay 50mm	\$34,752
Fair		100	Alberta Avenue	Main Street	Berry Street	AC	2	0.204	7	2027	61.9	70.3	45.1	3.88	FAIR	GOOD	GOOD	GOOD	2021	Low	Med	Weak	Edge Mill/Repair and Overlay 50mm	\$29,765
Fair		120	Alberta Avenue	Howard Street	Range Road 160	AC	2	0.449	8	2025	55.7	47.4	52.7	3.08	FAIR	FAIR	FAIR	POOR	2021	Low	Med	Weak	Full Mill and Overlay 50mm	\$76,818
Satisfactory		150	George Street*	Alberta Avenue	Pioneer Avenue	AC	2	0.312	10	2030	70.2	83.8	43.6	4.01	FAIR	GOOD	GOOD	GOOD	2021	Low	Med	Weak	Edge Mill/Repair and Overlay 50mm	\$44,352
Fair		220	Howard Street	Railway Avenue	Alberta Avenue	AC	2	0.307	10	2030	69.7	86.6	40.3	4.73	FAIR	GOOD	GOOD	GOOD	2021	Low	Med	Weak	Edge Mill/Repair and Overlay 50mm	\$44,943
Satisfactory		60	Railway Avenue	Howard Street	Range Road 160	AC	2	0.472	Beyond Program	2033	81.7	76.8	64.3	2.08	GOOD	GOOD	GOOD	GOOD	2021	Low	Med	Weak	Edge Mill/Repair and Overlay 50mm	
Satisfactory		80	Alberta Avenue	Mercer Street	George Street	AC	2	0.194	Beyond Program	2031	73.8	80.7	51.1	3.11	FAIR	GOOD	GOOD	GOOD	2021	Low	Med	Weak	Edge Mill/Repair and Overlay 50mm	
Good		110	Alberta Avenue	Berry Street	Howard Street	AC	2	0.192	Beyond Program	2034	86.8	85.7	62.5	2.24	GOOD	GOOD	GOOD	GOOD	2021	Low	Med	Weak	Edge Mill/Repair and Overlay 50mm	
Good		210	Berry Street*	Alberta Avenue	Pioneer Avenue	AC	2	0.303	Beyond Program	2037	100.0	100.0	67.8	1.85	GOOD	GOOD	GOOD	GOOD	2021	Low	Med	Weak	Edge Mill/Repair and Overlay 50mm	