AGENDA
NORTHERN SUNRISE COUNTY
MUNICIPAL PLANNING COMMISSION MEETING
JUNE 22, 2026
NORTHERN SUNRISE COUNTY COUNCIL CHAMBER
9:30 AM

Page

1. CALL THE MEETING TO ORDER

2. LAND ACKNOWLEDGEMENT

3. ADOPTION OF THE AGENDA

4. ADOPTION OF THE MINUTES

5. APPLICATION FOR DEVELOPMENT

3 - 83 A) **26-13 Doug McCullough & Heart River Golf Course**
Plan 1222064; Block 2; Lot 1 (Heart River Recreational Lot 9)
Recreational Cabin
MPC Development Permit Memo 26-13
26-13 Development Permit Application _Redacted
Heart River Lots
GP4716 Heart River Golf Club Geo Report r0

84 - 104 B) **26-14 Tina Paluck**
NE.22.82.19.W5M
Moved in Trailer (Over 25 years old)
MPC Development Permit Memo 26-14
26-14 Development Permit Application_Redacted
Site Inspection June 11 2026

105 - 113 C) **26-15 Islander Oil & Gas Inc.**
SE.6.82.12.W5M
Industrial Work Camp
MPC Development Permit Memo 26-15
26-15 Development Permit Application

114 - 129 D) **26-18 Northern Cross Oilfield**
SE.16.84.20.W5M
Moved in Trailer (Over 25 years old)
MPC Development Permit Memo 26-18
26-18 Development Permit Application_Redacted

6. APPLICATION FOR SUBDIVISION

130 - 138 A) **26MK013 Limoges Seed Farms Ltd.**
NW.20.81.19.W5M
14.68-acre Farmstead Separation
MPC Subdivision Memo 26MK013
26MK013 Subdivision Application_Redacted

7. SUBDIVISION REQUEST

10:00 a.m. Kimberly Gour

A) Subdivision Request on SE.16.84.20.W5M

8. BUSINESS ARISING OUT OF THE MINUTES/UNFINISHED BUSINESS

9. CHAIRMAN'S REPORT

10. DEVELOPMENT OFFICER'S REPORT

11. CORRESPONDENCE/INFORMATION

139 - 153 A) **Mihtha Askiy Data Center Presentation**
Northern Sunrise County's Economic Development Committee
June 2026
2026.06 - Mihta Askiy - Sunrise County Ec Dev

12. ADJOURNMENT

NORTHERN SUNRISE COUNTY

Bag 1300, 135 Sunrise Road
Peace River, AB
T8S 1Y9
northernsunrise.net

Municipal Planning Commission
Development Permit Report Form

Date of MPC Meeting: June 22, 2026
Development Permit Application Number: 26-13
Date of Report: June 10, 2026
Report Author: Jennifer Regal
CC: Cindy Millar

Applicant Information

Applicant Name: Doug McCullough
Landowner (if different): Heart River Golf Course

Subject Site Details

Legal Land Description: Plan 1222064; Block 2; Lot 1
Rural Address (if applicable):
Land Use District: Rural Recreational District
Existing Buildings / Structures: Lot 9 is vacant
Existing Use: Rural Recreational
Adjacent Land Uses: Recreational lots for cabins and RV's

Proposed Development

Type of Development: Recreational Cabin
Description of Proposal: 16 by 40 cabin
Total Area Affected (acres/hectares): 640 square feet
Other Required Approvals (AEP, AUC, etc.): N/A

Policy Review

Municipal Development Plan Alignment
✓ **Yes** ☐ **No**
Comments: No concerns
Within an Area Structure
☐ **Yes** X **No**
Comments:

Land Use Bylaw Review

Relevant District Regulations: **Section 6.21 Rural Recreational District**
Variance Required: ☐ **Yes X No**
If yes, specify:

Summary of LUB Considerations:

Section 6.21 identifies Recreational Cabin as a Discretionary Use within the district. The development is consistent within the district, and the setbacks are at the Development Authority's discretion except for the side yard setback, and that setback is met and exceeded.

NORTHERN SUNRISE COUNTY

Bag 1300, 135 Sunrise Road
Peace River, AB
T8S 1Y9
northernsunrise.net

Internal & External Referrals

Operations & Infrastructure Review:

N/A

Other Department or Agency Comments:

N/A

Planning Assessment

Provide a concise summary of planning considerations, site suitability, use compatibility, environmental items, access, and any other relevant factors.

The Applicant is looking to place a 640 square foot Recreational Cabin at the Hearts Haven Seasonal RV Park, within Lot 9. The Heart River Golf Course has signed the development permit application as the landowner and have no concerns with the development. The Heart River Golf Course is located along the Heart River. A geotechnical was completed in 2020; to provide specific regulations regarding the development of the Hearts Haven Seasonal RV Park and the Heart River Golf Course, Figure 4 of the report shows the toe of the bank and the minimum setback. Lot 9 exceeds the permanent structure setback identified in the 2020 Geotechnical Report. The proposed recreational cabin will be consistent with the adjacent structures and the Rural Recreational District.

Recommendation of the Development Officer

☐ Approve **X** Approve with Conditions ☐ Refuse

Suggested Conditions (if applicable)

1. The development plan as shown on attached Schedule "A".
2. The developer must satisfy the requirements, if any, of: Alberta Health Services, Alberta Municipal Affairs Safety Codes disciplines (building, electrical, gas, fire, and plumbing), and Alberta Environment and Protected Areas.
3. The developer is responsible for proper disposal of waste construction material within 2 weeks of completing development.
4. Issuance of this development permit does not exempt the applicant from obtaining required building, electrical, plumbing, gas, or fire permits. No construction may commence until all required Safety Codes permits have been issued by an accredited agency.
5. Within 60 days of receiving Safety Codes inspections, the developer shall provide Northern Sunrise County with copies of all building, electrical, gas, fire, and plumbing inspections reports.
6. Any change in the use of this development (including expansion or intensification) requires a new development permit.

Attachments

X Application Form
X Site Plan / Schedule A
X Supporting Reports

NORTHERN SUNRISE COUNTY

Bag 1300, 135 Sunrise Road
Peace River, AB
T8S 1Y9
northernsunrise.net

Development Permit Application Form

(office use only)

Development Permit File No.: 26-13		Date Application Received: May 8, 2026
Tax Roll No.: 315621	Development Permit Fee: $50	Date Fee Received: May 8/26
Date Application Deemed Complete: May 22, 2026		Date of Decision:
This project is:		
New construction ☒ Residential_____ ☐ Commercial_____ ☐ Industrial_____ ☐ Other		☐ Addition to existing building ☐ Change of use ☐ Revisions to an approved DP
District: Rural Recreational District		IDP (if any):
Proposed Use(s) (as listed in the land use bylaw): Recreational Cabin		
☐ Permitted Use		☒ Discretionary Use
Plans Attached:		
Site Plan: YES or NO		Floor Plan: YES or NO

Fee information *This fee information is provided for convenience only and is subject to change as per the Fees and Charges Bylaw B464/25*

RESIDENTIAL:	*NON-RESIDENTIAL:*
*$0-$249,999 - **$50 APPLICATION FEE***	*$0-$249,000 - **$100 APPLICATION FEE***
*$250,000+ - **$100 APPLICATION FEE***	*$250,000-$499,000 - **$250 APPLICATION FEE***
	*$500,000 - $999,000 - **$500 APPLICATION FEE***
	*$1 MILLION - $4,999,999 - **$1000 APPLICATION FEE***
	*$5 MILLION+ - **$2,500 APPLICATION FEE***

This application is to be completed in full by the registered owner of the land or by an authorized person acting on behalf of the owner. Please meet with the Planning and Development Department prior to submitting your application.

STATEMENT OF INTENT

I/We, X Doug McEwllough hereby make application to develop:
X Lot #9 Build a 16x40 Cabin.

NORTHERN SUNRISE COUNTY

Bag 1300, 135 Sunrise Road
Peace River, AB
T8S 1Y9
northernsunrise.net

APPLICANT INFORMATION

1)	Applicant: Doug McCullough		Company: N/A
	Email Ad [redacted]		
	Mailing A		
	Town: Peace River	Prov.: AB	Postal Code: [redacted]
2)	Registered Owner: Heart River Golf Course (if applicant is other than ov		Company: Heart River Golf Course
	Email Address: heartrivergolfclub@gmail.com		Telephone: 780-322-3977
	Mailing Address: Box 353		Alternate Telephone: 780-618-8776
	Town: Nampa	Prov.: AB	Postal Code: T0H 2R0

DEVELOPMENT INFORMATION

3)	Rural Address:		
	Legal Description: pt. of SW-28-81-20-W5th	Plan:	Block: Lot:
4)	Detail the proposed use(s) of the building/site:	Cabin Lot 9	
	Detail all proposed new buildings or structures on site:		
	Building Site: Length (ft/m): 16 x 40 - including garage	**Building Site:** Width (ft/m)	
	Building Site: Height (grade to peak) (ft/m): 16'	**Building Site:** Sq. foot (ft/m)	
	Water Supply: connected	**Sewer Supply:** connected pump out tank	
	Proposed setbacks from the property line:		
	Front Yard (ft/m):	Rear Yard (ft/m): pump out tank	
N/A	Side Yard 1 (ft/m):	Side Yard 2 (ft/m):	
	Setbacks From:		
	Top of Bank (ft/m):	House/shop/other (ft/m):	
	Water body (ft/m):		
	Estimated Project Commencement Date: May 19/26	Estimated Project Completion Date: May 2027	
	Construction Costs: 40,000		

NORTHERN SUNRISE COUNTY

Bag 1300, 135 Sunrise Road
Peace River, AB
T8S 1Y9
northernsunrise.net

RIGHT OF ENTRY

X I/We, Dave McEwen give consent to allow a person(s) designated by Northern Sunrise County the right to enter and inspect the above land and/or building(s) with respect to this application only.	
Signature:	Date: May 12/26

ABANDONED WELL DECLARATION

Subject to the Alberta Energy Regulator Directive 079 the applicant is required to obtain confirmation of the exact location of any abandoned well and required setbacks from well from the Well Licensee. Please confirm the exact location of any abandoned well and required setbacks from well.
https://geodiscover.alberta.ca/GDA/Viewer/?Viewer=GDA.

6)	Abandoned well is:	○ Present ○ Absent
	Signature of Applicant	Date

If an abandoned well is present, please complete the declaration.
I/We, _____ have reviewed information provided by the Energy Resources Conservation Board ("ERCB") as set out in ERCB Directive 079, Surface Development in Proximity to Abandoned Wells, and can advise that the licensee(s) responsible for all abandoned wells within the site of proposed development has been contacted in order to have the Abandoned Well Locating and Testing Protocol completed in accordance with ERCB Directive 079. To prevent damage to the well, a temporary identification marker will be placed on abandoned wells prior to construction, according to the confirmed well location(s) on site. The site of proposed development contains the following abandoned well(s):

ERCB Well License #	Licensee name	Licensed Surface Location	Contact Personnel Name	Phone number

CERTIFICATION AND SIGNATURE
Registered owner or person acting on their behalf

I, hereby certify that I *a) am the registered owner or b) am authorized to act on behalf of the registered owner(s)*, and that the information given on the form is complete and is, to the best of my knowledge, a true statement of the facts relating to this application.

X	Applicant's Signature:		Date: May 12/26
X	Landowner's Signature:	Kate Blakely Dale Espetveidt	Date: May 13/26

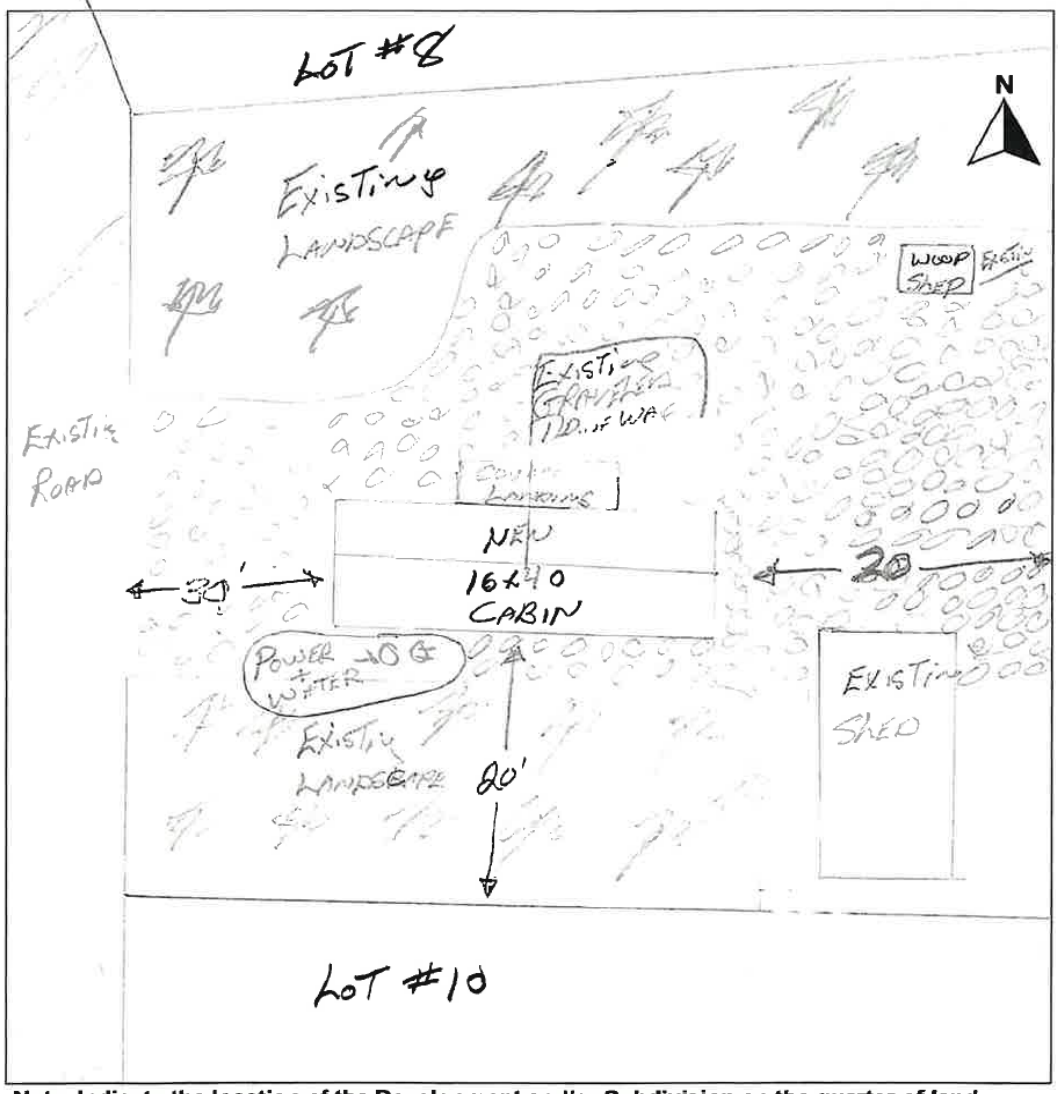
NORTHERN SUNRISE COUNTY

Bag 1300, 135 Sunrise Road
Peace River, AB
T8S 1Y9
northernsunrise.net

SCHEDULE "A"

Page 1 of 2

Plot Plan



Note: Indicate the location of the Development and/or Subdivision on the quarter of land.

CABIN REPLACING PARK TRAILER THAT WAS REMOVED.

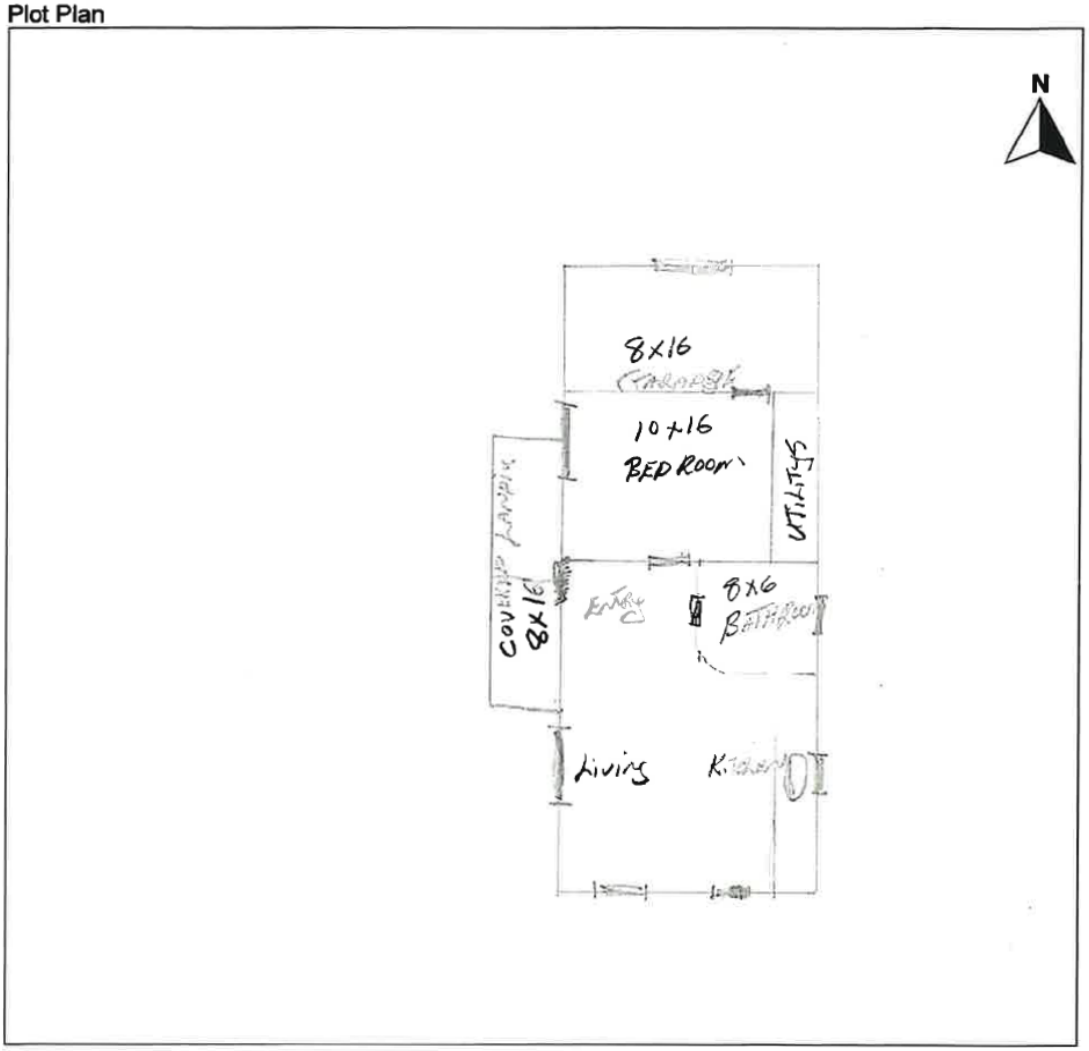
NORTHERN SUNRISE COUNTY

Bag 1300, 135 Sunrise Road
Peace River, AB
T8S 1Y9
northernsunrise.net

SCHEDULE "A"

Page 2 of 2

Plot Plan



Note: Draw a detailed map of the development area highlighting the following:
Provide the closest distance of proposed development(s) from:

1. All property lines
2. All roads and approaches
3. Top of the bank (if it is within 200 feet of the proposed development) from all water bodies and watercourses
4. All existing and proposed buildings

Note: Top of the bank is considered the point of first drop from the plain where the development is proposed

NORTHERN SUNRISE COUNTY

Bag 1300, 135 Sunrise Road
Peace River, AB
T8S 1Y9
northernsunrise.net

ADDITIONAL APPLICATION REQUIREMENTS

The Development Permit Application must be completed prior to a decision being made. Below is a generalized list of requirements. The Development Officer may require additional information per Land Use Bylaw B458/24 depending on the specific nature of the application. Please meet with the Planning and Development Department prior to submitting your application, to review the required information.

The application must include the following:

OFFICE	COMPLETED BY APPLICANT
Y/N	☒ Application fee –The fee must be paid in full at the time of application.
Y/N	☐ Rural Addressing Application - Additional form to complete if the development is the first dwelling in any district other than hamlet residential.
Y/N	☐ Geotechnical Assessment - If the development application is within the top of bank setbacks identified by the land use bylaw, a geotechnical assessment must be prepared by a qualified professional Geotechnical Engineer licensed to practice in Alberta.
Y/N	☐ I have read and understand the recommendations included in the 2013 Thurber Report Initials ☐ Heart River Golf Course has Geotechnical
Y/N	☐ Manufactured Home – Floor plans that must include: 1) roof pitch 2) eaves 3) width to length ratio 4) pictures of siding/proposed skirting
Y/N	☐ Moved In Buildings – What year was the building constructed _____.
Y/N	☐ Applications for the Moved In Building shall include: 1) Coloured photographs of the building 2) Statement regarding the present location of the building 3) Notification of the relocation route 4) A complete site plan showing all buildings and located or to be located on the property.
Y/N	☐ Roadside Development Permit from Transportation and Economic Corridors: If the development is within **300 meters** of a provincial highway (Highways 2, 688, 986, 88, 750, 744 & 683) right of way boundary, or within **800 meters** of the center point of an intersection of the highway with another public road, a roadside development permit is required from Transportation and Economic Corridors.

PLEASE NOTE THAT THIS IS AN APPLICATION FORM ONLY AND DOES NOT AUTHORIZE THE COMMENCEMENT OF DEVELOPMENT OR USE OF A BUILDING OR LAND. A SEPARATE DECISION NOTICE WILL BE ISSUED ONCE YOUR APPLICATION HAS BEEN PROCESSED. PLEASE ALLOW 40 (FORTY) DAYS FOR THE PROCESSING AND ISSUANCE OF A DECISION ON YOUR APPLICATION.


S.W. ¼ SEC. 28-81-20-W5M
S.W. ¼ SEC. 28-81-20-W5M
N
PHASE A
PHASE B
SOLD
SOLD
SOLD
SOLD
SOLD
SOLD
SOLD
SOLD
SOLD
SOLD
S.W. ¼ SEC. 23-81-20-W5M
N.W. ¼ SEC. 21-81-20-W5M

Geotechnical, Environmental and Materials Engineering

Red Deer · Sherwood Park · Grande Prairie · Calgary · Fort McMurray
Peace River · Medicine Hat · Lethbridge · Fort St. John · Estevan · Regina

SLOPE STABILITY INVESTIGATION

HEART RIVER GOLF CLUB

NW 21-081-20-W5M
NEAR NAMPA, ALBERTA
NORTHERN SUNRISE COUNTY

PREPARED FOR

HEART RIVER GOLF CLUB

NAMPA, ALBERTA

PREPARED BY

PARKLAND GEOTECHNICAL LTD.

GRANDE PRAIRIE, ALBERTA

PROJECT No.: GP4716

DATE: DECEMBER 18, 2020

TABLE OF CONTENTS

FIGURES

TABLES

APPENDICES

1.0 INTRODUCTION

Heart River Golf Club is proposing to construct a new clubhouse within the quarter section NW 21-081-20-W5M near Nampa, Alberta. It is also understood that the golf club has recently developed the treed area north of the golf course into seasonal lots. Parkland Geotechnical Ltd. (ParklandGEO) was commissioned to perform a slope stability assessment at this site to determine safe setback distances for permanent structures and safe development lines from the slopes on this site. This report summarizes the results of field and laboratory testing programs and slope stability analysis and presents geotechnical recommendations for design and construction.

1.1 SCOPE OF WORK

The scope of work was outlined to Mr. Dale Espetveidt of Heart River Golf Club in proposal PRO-GP19-188-Rev1 dated April 23, 2020. The purpose of the investigation was to examine and assess soil parameters, assess the stability of the existing slopes, and provide setback distances from the slopes. Authorization to proceed was provided by Mr. Espetveidt by signing a professional services agreement.

1.2 PREVIOUS INVESTIGATIONS

Thurber Engineering Ltd. conducted a general top-of-bank setback study for the Northern Sunrise County in 2013 (File number 19-5097-3, November 25, 2013). The purpose of their report was to establish generic safe setback distances for development in areas along the creek and river valleys and establish areas where further geotechnical investigations were required prior to development. The findings presented by Thurber were used to update and enforce the County's Land Use Bylaw (B275_15, November, 2019). The Heart River Valley was included in this study. Based on the results provided in Section 4.5 on page 55 of the Land Use Bylaw, the minimum setback distance without a site specific geotechnical assessment for a parcel of land located near the top of break for a slope less than 20 m high is to be two times the height of the slope; and at the toe of a river valley is 15 m from the toe of the slope for a slope height less than 40 m.

2.0 SITE AND PROJECT DESCRIPTION

The Heart River Golf Club was located within NW-21-081-20- W5M, about 3 km east of Nampa, Alberta, as shown on the Area Plan, Figure 1. The subject site is located in Northern Sunrise County. The property was situated within an old river valley flood plain with the Heart River meandering from east to west along the golf course. The river valley was very sinuous with signs of oxbow formations noted south and east of the property. The Heart River valley was mostly treed land, the areas surrounding the river valley consisted of agricultural lands to the north and south.

The Heart River was approximately 12 to 28 m wide and estimated to be approximately 1.0 m deep along the golf club. The river banks were mostly vegetated clay with some exposed cobbles near the outflow of the drainage course.

The slopes on the property was mostly gentle to moderately sloped. A steep slope was noticed during the site investigation on August 15, 2020 near the green on the second hole. The steep slope was 10 m high at an inclination of 1.9 Horizontal: 1 Vertical (1.9H:1V) or flatter, and signs of active surficial sloughing were observed during the site investigation. The slopes near the clubhouse were 5 to 8 m high at inclinations of 2.1 to 3.2H:1V, no signs of active slope movement were noticed near the clubhouse during the site investigation. The slopes along the north edge of the campground was 10 m high at inclinations of 2.9H:1V or flatter. The slopes were vegetated with spruce and poplar trees or grass.

Existing development on the site included a clubhouse, a 9-hole golf course and a campground with seasonal lots located in the north area of the property, as shown on Figures 2 and 3. It is understood that the client is looking to sell the seasonal lots in the campground. A new clubhouse will eventually be built near the location of the existing clubhouse and the client is requesting foundation recommendations for the eventual new clubhouse.

3.0 AERIAL PHOTOGRAPH REVIEW

A review of aerial photographs for the area from 1952 to 2020 was conducted by ParklandGEO. The aerial photographs can be found on Figures 12 to 18 and observations are as follows:

Year	Site Features and Changes	Slope and Stream Changes
1952	Site was located within the old river valley of Heart River, with visible old oxbows near the center of the site. Agricultural land to the north, Hear River to the south.	Visible slope failure along the north bank of the Hear River meander. Old oxbows with water to the east of the site. Signs of erosion evident on outside bends of creek near Cross Section D-D'.

1971	The south half of the site was forested. The area south of the river valley was developed as agricultural land.	The river meander remained relatively the same. The old oxbows east of the site showed signs of drying. Increased erosion area visible on outside bend near site.
1983	The site was developed as a golf course. An access road was constructed accessing the site from the north. A clubhouse was constructed at the end of the access road. The area west of the clubhouse was developed into a camping area.	The river meander remained relatively the same. The old oxbows east of the site have almost completely dried up.
1997	The site remained relatively unchanged. The clubhouse was expanded and the camping area west of the clubhouse was abandoned.	The river meander remained relatively the same.
2002	The site was relatively unchanged. A new storage building was constructed west of the clubhouse near the old camping area.	The river meander remained relatively the same.
2006	The area south of the river was developed as an expansion of the golf course, appearing as the current day golf course. A new bridge was constructed connecting the new area to the historical course.	The river meander remained relatively the same. Several ponds were constructed on the east half of the golf course.
2020	The forested area near the north perimeter of the site was developed into seasonal lots. The other areas of the site remained relatively unchanged.	The river meander remained relatively the same.

Between 1952 and 2020, the site was developed into a golf course, the Heart River meander remained relatively unchanged during this period of time. Signs of erosion were noted on the outside bend of the river in all aerial photographs reviewed. The existing clubhouse was constructed between 1971 and 1983, and was expanded between 1983 and 1997 and has remained relatively unchanged since then. The golf course was developed between 1971 and 1983, the golf course was expanded to include an area south of the river between 2002 and 2006. The seasonal lots were developed between 2006 and 2020. There was no evidence of large slope failures along the river valley impacting the site.

4.0 FIELD AND LABORATORY PROGRAMS

On July 1st and 2nd, 2020, seven (7) boreholes were drilled to a maximum depth of 15.5 metres below ground level (mbgl), at the locations shown on Figures 3. An eighth borehole was originally planned along the upper Heart River top of bank, but was unable to be drilled due to access restrictions. The drilling was conducted using a track-mounted drill rig with a continuous flight, 150 mm diameter, solid stem auger rig operated by Frontier Enviro-Drilling Ltd. Supervision of the drilling, soil sampling, and logging of the various soil strata was performed by Ms. Danielle Biendarra, G.I.T. of ParklandGEO. The detailed borehole logs are provided in Appendix A.

1. All samples were examined in the field and classified using the Modified Unified Soil Classification System.

2. Disturbed samples for moisture content were obtained at depths intervals of 1.0 m in all boreholes. Standard Penetration Tests (SPT) were performed at depth intervals of 1.5 m where possible in all boreholes.

3. Hand slotted, 25 mm diameter PVC standpipes were installed in six boreholes. The groundwater conditions were measured upon completion of drilling and again on September 23, 2020, about 2.5 months after drilling.

4. The borehole locations were surveyed by ParklandGEO personnel using a rod-mounted Trimble Geo 7X. The survey was performed referencing to a geodetic datum (accurate to within 60 cm).

5. All soil samples were returned to ParklandGEO's Grande Prairie laboratory for selected testing to determine the soil properties. The laboratory program consisted of moisture contents, Atterberg Limits, Particle Size Analysis (Hydrometer Test) and Sieve Analysis. One sample was sent to ParklandGEO's Sherwood Park laboratory for a Direct Shear Test. The results of all laboratory testing are shown on the borehole logs and in Appendix B.

5.0 SUBSURFACE CONDITIONS

The general soil profile at the site consisted of soils with varying amounts of silt and clay content or granular materials in the upper 3.3 m, which was underlain by thick clay till deposits. Detailed descriptions of the soil conditions encountered are provided on the borehole logs in Appendix A along with the definitions of the terminology and symbols used. The following is a brief description of the soil types encountered.

5.1 TOPSOIL

Surficial topsoil between 200 mm to 600 mm thick was encountered at the surface of Boreholes 20-01, 20-06 and 20-07. The topsoil contained some clay, was organic, wet and black. The thickness of topsoil may vary between boreholes.

5.2 GRAVEL FILL

Gravel fill up to 200 mm thick was encountered at the surface of Boreholes 20-03, 20-04, 20-05 and 20-08. The gravel was sandy, contained some silt, some clay and was damp to moist. The gravel was used as a surfacing layer near the existing clubhouse and seasonal lots.

5.3 CLAY

Lacustrine clay was encountered below the surficial soils in all boreholes except Borehole 20-06 and continued to depths from 0.7 to 3.3 m. The clay contained little to some silt, trace sand, was high plastic, contained silt lenses and was damp. Based on the results of two grain size analyses, the soil texture was 57 to 75 percent clay, 20 to 35 percent silt and 4 to 8 percent sand. Atterberg Limits showed Liquid Limits (LL) of 60 to 71 percent and Plastic Limits (PL) of 15 to 17 percent, indicating high plasticity. SPT “N” values ranged from 9 to 24 blows for 300 mm of penetration, which is considered stiff to very stiff. The moisture content averaged 23 percent, which is considered below the estimated Optimum Moisture Content (OMC).

A sample of clay was selected at a depth of 3.0 m from Borehole 20-05 for direct shear testing. The results indicated a peak effective cohesion c’) value of 18 kPa and an effective friction angle (φ’) of 19.4 degrees. The residual friction angle was 15.9 degrees with residual cohesion of 8 kPa.

5.4 SAND AND GRAVEL

Sand and gravel was encountered below the lacustrine clay in Boreholes 20-03 and 20-04. The sand and gravel was loose and wet. Groundwater seepage and sloughing conditions were encountered during drilling in this stratum. Based on one sieve analysis, the sand and gravel contained 2 percent clay and silt, 69 percent sand and 29 percent gravel. The sand and gravel, as well as the sand and silt are likely fluvial deposits.

5.5 SAND AND SILT

Relatively thin layers of sand and silt with varying amount of sand were encountered below the surficial topsoil in Borehole 20-06 and below the lacustrine clay in Borehole 20-08. Based on one grain size analysis, the sand and silt in Borehole 20-06 contained 16 percent clay, 28 percent silt and 57 percent sand. Atterberg limits showed a LL of 24 percent and a PL of 12 percent, indicating low plasticity. SPT "N" values ranged from 7 to 8 blows, which is considered firm to stiff. The moisture content averaged 19 percent, which is considered above the estimated OMC.

5.6 SAND

A thin layer of sand was encountered below the lacustrine clay in Borehole 20-07. The sand was well sorted, contained trace gravel, was loose and moist. Based on one sieve analysis, the soil texture was 12 percent clay and silt, 88 percent sand and less than 1 percent gravel. One SPT "N" value for the sand was 8 blows, indicating the sand was loose. The moisture content ranged from 16 to 18 percent, which is considered to be above the estimated OMC.

5.7 CLAY TILL

Clay till was encountered below the upper soils and extended beyond the maximum depth drilled of 15.5 m. The clay till contained some silt, little sand, trace gravel, rust and coal inclusions, was medium plastic and damp. Based on three grain size analyses, the clay till contained on average 32 percent clay, 40 percent silt, 27 percent sand and less than 1 percent gravel. Atterberg limits showed an average LL of 39 percent and an average PI of 13 percent, indicating medium plasticity. SPT "N" values ranged from 14 to 41 blows, which is considered stiff to hard. The moisture content was at an average of 17 percent, which is considered to be near the estimated OMC. Although not encountered, the local till deposits are known to contain cobbles, boulders and coal seams.

5.8 ROUTINE LABORATORY TESTING

The following tables summarize the laboratory test results.

TABLE 1: DIRECT SHEAR TEST RESULTS

Borehole No.	Depth (m)	Effective Friction Angle (degrees)		Effective Cohesion c', kPa)		MUSCS*
		Peak	Residual	Peak	Residual	
20-05	3.0	19.4	15.9	18	8	CI

* Modified Unified Soil Classification System

TABLE 2: SUMMARY OF LABORATORY TEST RESULTS

Borehole	Soil	Depth (m)	Grain Size Analysis (%)				Limits (%)			Soil Type
			Clay	Silt	Sand	Gravel	LL	PL	PI	
20-01	Clay	2.5	57	35	8	0	60	15	45	CH
20-05		1.2	75	20	4	0	71	17	54	CH
20-06	Sand & Silt	1.3	16	27	57	0	12	24	12	SC
20-04	Sand & Gravel	2.5	2		69	29	-	-	-	SP
20-07	Sand	1.2	12		88	1	-	-	-	SM
20-03	Clay Till	5.0	30	41	28	1	40	13	27	CI
20-05		7.5	33	38	29	1	39	13	26	CI
20-08		4.1	34	40	25	1	40	12	28	CI

5.9 GROUNDWATER

Trace groundwater seepage was encountered during drilling of the sand and gravel and silt layers, the boreholes were dry on completion of drilling. A second groundwater measurement in the standpipes was completed on September 23, 2020 about 2.5 months after drilling. The groundwater levels generally ranged between 1 to 5 m. Groundwater conditions are summarized on the following table:

TABLE 3: GROUNDWATER CONDITIONS

Borehole	Surface Elevation (m)	Depth of Borehole (m)	Groundwater		
			Depth on Completion (m)	Depth Sept 23, 2020 (m)	Elevation Sept 23, 2020 (m)
20-01	581.3	15.5	Dry	2.8	578.5
20-03	575.6	12.5	Dry	9.1	566.5
20-04	580.1	11.0	Dry	2.1	578.0
20-05	580.8	12.5	Dry	4.4	576.4
20-06	574.2	12.3	Dry	1.0	573.2
20-07	571.4	11.0	Dry	4.9	566.5

The regional groundwater table is expected to be hydraulically connected to the river which has a normal surface elevation of approximately 564 m. The low permeable clay and clay till restricts groundwater infiltration and movement, and perched groundwater may be encountered within the sand or gravel seams. Groundwater elevations are expected to fluctuate on a seasonal basis and will be highest after periods of prolonged heavy precipitation or snow melt. Seasonally high groundwater levels will decrease during dry periods as the groundwater infiltrates. Groundwater infiltration may be slowed and perch conditions may be present during periods of high precipitation.

6.0 SLOPE STABILITY ASSESSMENT

The golf course is located in an area where local County Bylaws require a slope assessment for new developments. A slope stability analysis was conducted to assess the potential sensitivity of the slope from the proposed new clubhouse, the existing seasonal lots and river, and to assess if the slope poses a risk to the proposed structures.

Slope stability is described in terms of the Factor of Safety (FS) against slope failure, which is the ratio of total forces promoting failure and the sum of all forces resisting failure. In general, a FS of less than 1 indicates that failure is expected, and a FS greater than 1 indicates that the slope is stable. The FS of a slope will increase slightly as vegetation is established on the face, thereby protecting the sub-soils from erosion and weathering. A slope with a FS between 1.0 and 1.3 is considered to be marginally stable due to variability in soils, groundwater levels, erosion, and other factors. A slope is considered to be a “long-term” stable slope if it has a FS of at least 1.5.

The critical failure surface is the failure surface with the lowest calculated FS intersecting the proposed development. For top-of-bank development, a setback distance equal to the distance where a FS of at least 1.5 is recommended for structures as they generally represent a higher risk and higher potential for loss of investment. A FS of 1.3 can be applied to lower risk developments such as landscaping and temporary structures. If a slope does not have an acceptable FS, a minimum setback distance (rear property line for FS = 1.3 and permanent foundation line for 1.5) from the crest will be required to provide this factor of safety. The crest is identified as the line where there is a distinct break in the grade at the top of the slope as determined by the intersection of the slope angle with the extension of upland surface grade. Setbacks may also be set from the toe of slopes.

This dual set-back line provides a buffer zone which might be subject to slope movement, but will provide some warning of slope failure to the owner before the structure is impacted. Under this system it must be accepted that these yard features will be subject to a higher risk of movement than the building structures.

6.1 SLOPE PROFILES

LiDAR elevation data provided by Heart River Golf Club was used in conjunction with the survey data collected by ParklandGEO to generate cross sections that were used to develop slope models for the stability assessment (Figures 7 to 10).

From the top-of-bank of the river valley to the rivers edge, the slope configuration consists of an upper slope indicating the start of the river valley and a lower slope near the river with gentle to moderate slopes along the floodplain. The upper slope had inclinations ranging from 2.9H:1V to 4.8H:1V and the lower slope had inclinations at 1.9H:1V or flatter. The clubhouse location was on a ridge near the upper slope. The slopes near the clubhouse were at inclinations ranging from 2.1H:1V to 3.3H:1V towards the south, east and west. It is understood that the proposed clubhouse is to be located on top of an existing hill near the existing clubhouse and the existing seasonal lots were developed near the toe of the upper slope.

6.2 SLOPE INSPECTION AND TOP-OF-BANK LOCATION

A site inspection was conducted by ParklandGEO personnel in order to visually inspect the slopes at the subject site on August 15, 2019. This assessment was used to determine whether any recent movement occurred within the vicinity of the slopes and to establish the location of the top-of-bank. The following observations were noted at the time of the investigation:

1. The upper and lower slopes were well vegetated with poplar and birch trees, as well as small bushes. The majority of the trees were growing vertically, with little or no leaning observed. Areas along the drainage path did have signs erosion and downed trees particularly towards the lower slope. No failures were observed near seasonal lots.

2. The upper valley slopes appeared to be stable with no signs of recent slope movements. The lower slopes along the river generally appeared to be clay with cobbles near the river bank. A steep slope with signs of slope failure was noticed during the site visit near Borehole 20-08. The slope was at an inclination of 1.9H:1V and the slope face was stripped of vegetation. The steep inclination was likely caused by undercutting of the toe due to river meander and erosion. From review of air photographs in Section 3.0, the failure has been present since 1952 and had remained relatively unchanged.

3. The slopes near the existing clubhouse appeared to be stable with no signs of recent slope movements, the slopes were well vegetated with grass and trees.

6.3 SOIL STRATIGRAPHY

The soil stratigraphy used in the analysis was based on the borehole drilling completed by ParklandGEO. The general soil profile in the upland areas consisted of topsoil overlying clay, and thick deposits of clay till. Relatively thin layers of fluvial deposits were encountered during drilling in the river valley, which were likely deposited by the Heart River as its meander changed. The depth of the fluvial deposits were generally consistent at 1 to 3 m below the surface.

6.4 STABILITY ANALYSES

A stability analyses was performed using data from the borehole logs, surface profile information from the LiDAR data and soil parameters estimated from field and laboratory tests. Four slope sections were analyzed, as shown on Figures 3 to 6.

Limit equilibrium analysis was carried out using the Slope/W software program to evaluate the factor of safety for representative slope profiles. The factor of safety was calculated using the Morgenstern-Price Method using a range of parameters to assess the model sensitivity.

The residual condition was used to determine the potential risk and magnitude of slope regression, as it relates to the proposed building location. Based on local experience, borehole drilling data and field and laboratory testing, the following soil parameters were estimated:

TABLE 4: ESTIMATED SOIL PROPERTIES

Soil	Unit Weight (γ, kN/m^3)	Cohesion (c' , kPa)	Friction Angle (Φ' , degrees)
Clay	17	8	16
Clay Till	18	10	28

For long-term stability, effective soil parameters and a predicted long-term pressure/groundwater condition were used in the analysis. In order to examine conditions that may be encountered when the groundwater is highest, the stability analysis was developed based on a groundwater table that was about 0 to 1 m higher than what was measured in the piezometers. This assumption was made in order to model the behavior of the slope during worst case conditions such as periods of high precipitation or spring thaw. Since the owner's preference is to construct a new clubhouse near the footprint of the existing clubhouse, a building load of 100 kPa was applied at the location of the existing clubhouse.

6.5 MODELING RESULTS

A summary of the modeling results is presented in Table 5.

TABLE 5: SUMMARY OF MODELING RESULTS

Section	Location	Inclination	Minimum FS	Setback (m) FS = 1.5	Reference Figure
A-A'	Upper Slope	4.8:1	2.86	N/A	7
B-B'	Upper Slope	2.9:1	1.89	N/A	8
C-C' (West)	Clubhouse	3.3:1	2.09	N/A	9
C-C' (East)	Clubhouse	2.1:1	1.30	6	9
D-D'	Lower Slope	1.9:1	1.10	13	11

The stability results indicated that Section A-A' and B-B' are considered stable in their present configuration. This is consistent with the observed slope conditions. The analyses show that the risk of a deep seated slope failure along north slope of this river valley is considered low, with slope movement in the near future expected to be limited to surficial sloughing. This assessment is based on the existing geometry of the slope and soils encountered in the boreholes.

The lower slopes were considered relatively stable. The steep slope near Borehole 20-08 as modeled from Section C-C', showed a marginally stable slope at residual conditions. The setbacks consider river meander changes in the near future.

The typical setback requirement for permanent structures is a FS of 1.5 based on long-term expected conditions and take into account the potential of sudden changes to the site, such as a rise in the groundwater table. The models do not include any allowance for erosion of the slope toe.

6.6 STABILITY ASSESSMENT

From the air photograph review in Section 3.0, the existing slope face has historically been relatively stable in the vicinity of the proposed clubhouse. The slopes near the clubhouse have inclinations ranging from 2.1H:1V for the east slope to 3.3H:1V or flatter for the west slope. The slopes examined were found to be marginally stable to stable with FS of 1.30 and 2.09 for the east and west slope, respectively. There was no indication from the site inspection or the stability assessment that would indicate that the slopes would not remain stable in the foreseeable future. The impact of any changes to the river are not expected to have a significant impact on the clubhouse. Since the river is more than 150 m away.

The upper valley slopes examined were found to be stable at inclinations of 2.9H:1V or flatter with FS of 1.9 to 2.9H:1V. No signs of recent slope movement were noticed during the site inspections near where the newly developed seasonal lots were located. There are no indications that the upper slopes would not remain stable in the foreseeable future. The changes to the river are not expected to impact the seasonal lots.

The lower river slopes examined were found to be marginally stable at inclinations of 1.9H:1V or flatter with a FS of 1.1. Signs of slope movement were noticed near Borehole 20-08, the slope face was stripped of trees and partly stripped of grass and vegetation. The steep inclination and slope movement is likely due to the Heart River's meander and erosion at the toe of the slope. Flooding to the Heart River is expected to accelerate the rate of erosion at the toe and increase the rate of slope movement. A development setback of 13 m from the top of bank of the steep slope was applied for a FS of 1.5.

7.0 DISCUSSION AND RECOMMENDATIONS

7.1 DISCUSSION

The existing upper valley slopes and the slopes near the clubhouse were found to be stable when considering intact soil strengths and existing groundwater conditions. The lower river slopes were generally found to be stable, except for a location near Borehole 20-08 where the slope is considered to be marginally stable. As with most areas near Nampa, the main mechanisms that will trigger slope failures are excessive groundwater pressures and the erosion of the slope toe causing oversteepening. At this site, the upper slopes and the clubhouse area are protected from toe erosion by a wide flood plain that separates the toe from the river. The lower slopes do not have this protection and are more susceptible to erosion.

With the provision of modest setback distances to account for adverse soil and groundwater conditions, the site would be suitable for the intended new clubhouse and the developed seasonal lots.

Although only a minimal setback is being recommended, it remains good practice to ensure that all critical site services are located as far away from the slope as possible.

7.2 SETBACK RECOMMENDATIONS

Based on the nature of the development, the stability investigation and analyses, the setback recommendations are provided in Table 6 based on stability with an allowance for long-term erosion. The locations of the setback lines are shown on Figures 4 to 6.

TABLE 6: SETBACK LINES

Slope Configuration	Cross Sections	Setback from Top of Bank or Toe of Slope		Figure
		Building Setback	Development Setback	
Upper Slope	A-A', B-B'	10 m	0 m	4
Clubhouse	C-C'	5 to 10 m	5 to 10 m	6
Lower Slope	D-D'	6 m	6 m	5

- The Building Setback Line applies to permanent structures located near the top-of- bank or slope toe. Building setbacks should maintain the distances noted in the table above, or the County required rear or side yard setback requirements, whichever is greater.

- The Development Setback Line is for rear extent of development and property lines from the top-of-bank or slope toe only.

- It is not recommended to install critical site services (power, communication, gas, water and sewer) between any buildings and the development setback line. Driveways and roads should similarly be located more than 10 m from the top-of-bank.

7.3 TOP OF SLOPE DEVELOPMENT RECOMMENDATIONS

The slope face may be subject to minor surficial failures, especially in steepened areas. Slope face stability is influenced by precipitation, surface erosion, groundwater and soil moisture conditions. In order to reduce the possibility of surficial slumping the slope should be kept well vegetated. It is also important that the site development does not initiate any detrimental changes to the subsurface conditions and steepen the slope. For the slope face and areas above all slopes at this site, the following recommendations are provided:

- Permanent removal of the vegetation from the slope face is not recommended and growth of new vegetation on the slope should be encouraged. The banks should be well vegetated with native vegetation with deep root systems that can grow with only natural precipitation.

- Erosion control measures should be implemented as necessary. Site grading should be designed to drain surface water due to rainfall and snow-melt away from the slope. If required, features to carry concentrated flows over the top-of bank should be engineered.

- Excess material from excavations should be removed from the top of the slope; and under no circumstances be wasted over the slope face. No new fill should be placed adjacent to or within 10 m of the top-of-bank. Fills around upland buildings should be placed on native in-organic sub-grade and should be kept to less than 1.5 m in thickness. Significant post development grading along the crest area should not be undertaken without a detailed engineering review. Cut and fill volumes must balance to ensure no new net loading is applied at the top-of-bank.

7.4 GENERAL SLOPE CARE

The following general suggestions are intended as a guide to minimize the impact of the development on the stability of the local slopes.

- Thin fills placed on sloped areas should be placed on prepared inorganic soil. Fills should not be placed on topsoil.

- Excessive watering of lawns and trees near the slope must be avoided.

- Fill, grass cuttings and/or construction debris should not be disposed of over the slope crest or on the slope face.

- Unnecessary disturbance to the existing vegetation near the crest, on the slope, or near the toe of the slope should be discouraged. Removal of grass, trees, shrubs and undergrowth on the slope will have a negative impact on the slope stability.

- A healthy vegetative cover on the entire site should be maintained during construction, and in disturbed areas, re-vegetated as soon as possible after construction.

These general recommendations are considered to be "common sense" actions to undertake or avoid in order to minimize potential disturbance to the slope. These recommendations are considered to be important to the safety of the proposed development, and it is considered prudent to follow these recommendations to maintain a low risk to the proposed property at this site. The recommendations and guidelines above are considered to be general and may be subject to site specific modification interpretation based on the review of a qualified geotechnical engineer.

8.0 CONSTRUCTION RECOMMENDATIONS

8.1 GEOTECHNICAL EVALUATION

The proposed development is to consist of the construction of a new clubhouse at the location of the existing clubhouse. The clubhouse is located on the crest of a 5 to 8 m high hill with inclinations of 3.3H:1V to the west and 2.1H:1V to the east. The existing clubhouse is located about 10 m west of the east top of bank and about 8 m from the west top of bank. Foundation loads for the building are expected to be light to moderate. There appears to be adequate room within the Building Setbacks for the new clubhouse.

Overall, the site conditions were considered fair for the proposed development due to the presence of high plastic clay underlain by a thick deposit of clay till. Bored Cast-In-Place (CIP) concrete piles are considered to be a suitable foundation option for the observed soil conditions at this site. The observed groundwater conditions suggest a relatively shallow groundwater table. The most significant geotechnical issues at this site include:

1. The proposed clubhouse will be located next to existing slopes as discussed in Section 7.0. The building should be located west of the development setback line as shown on Figure 6. General slope care recommendations should be followed to protect the slope faces.

2. High plastic clays were encountered within the near surface soil profile. High plastic swelling soils exhibit significant potential for volume change (shrinkage and swelling) with changes in moisture. Swelling issues are expected for slabs and possibly for footings. Deep pile foundations are preferable over conventional footings due to the presence of high plastic clays. Problems related to swelling clays and some recommendations to mitigate these problems are presented in Section 8.2.

3. The foundation conditions are considered to be suitable for several pile options including bored CIP concrete piles and screw piles. The site is considered to be marginally suited to footing foundations due to the presence of high plastic swelling clay at the expected bearing depth. Foundation recommendations are only given for bored CIP concrete piles. Recommendations for other foundation options can be provided upon request.

4. Based on the 1 in 25-year return period winter, the depth of frost penetration in the Peace Region is approximately 2.5 m for high plastic clay.

8.2 SWELLING CLAY ISSUES

High plastic, swelling clays are present in near surface soils at this site, which is typical in the Peace Region. High plastic soils will exhibit volume changes such as swelling and shrinkage with changes in soil moisture content. Swelling potential decreases at higher soil moisture contents in the order of 35 percent or greater. The high plastic soils observed at this site have soil moisture levels ranging between 23 to 27 percent with an average of 26 percent. The typical problem with swelling soils is that the soils are exposed to wet and dry conditions during construction. When a shallow footing, slab or pavement is placed over the soil the evapo-transpiration conditions change and the soil gains moisture. Since structural features are placed after shrinkage, the effects of swelling are magnified when the soil re-establishes a new soil moisture equilibrium. Swelling pressures up to 250 kPa are considered possible at this site, which is well in excess of some foundation and typical slab loads. The swelling problems are magnified by the variation of plasticity in the subgrade, which might lead to non-uniform swelling and harmful differential heave.

If swelling is a concern, the ideal option is to provide a structurally supported floor slab underlain by a crushable void form or crawl space. This option is relatively expensive but it will provide the most predictable level of slab performance and may be justified for slabs with strict vertical tolerances. If the Owner is willing to accept some risk then it may be acceptable to construct a grade supported slab and try to minimize the potential for differential slab movement. If subgrade conditions are uniform heave will still occur but the potential for differential heave may be reduced. The following construction practices can be used to try and reduce possible problems with heaving/shrinking:

1. Higher plastic clays could be mixed with a suitable low to medium plastic backfill material. Given the thick deposits of high plastic clay at this site, complete removal is not considered to be practical.

2. Swelling pressures and heave potential are reduced when soil moisture contents approach 35 percent. Soils drier than this will be subject to higher swelling. It is crucial not to allow exposed subgrade soils to dry during construction through the use of protective layer such as mud slabs; or the subgrade can be moisture conditioned by flooding or injection prior to placement of the gravel base and slab. If subgrade conditions are uniform, heave may still occur, but the potential for differential heave will be reduced.

3. The design of water lines and heating ducts beneath slab on grade floors can have a significant impact on subgrade soils and require very careful design and construction measures.

4. Interior non-load bearing walls need to be designed to accommodate potential vertical movement of the slab.

5. Exterior drainage around the building perimeter is important to minimize the potential for infiltration into subgrade soils. Roof and other drains should discharge into storm sewers. If this is not possible, roof drains should discharge well clear of the building. The use of paving stones adjacent to buildings is also not recommended unless special design considerations are used to promote the drainage of water away from buildings. Pavement areas around the building should be kept high. The surface of the top of the subgrade should mirror the surface grades and shed infiltration water away. The placement of snow piles from the parking area should be located well away from buildings.

These steps can be taken to reduce and possibly eliminate the detrimental effects of swelling clays on foundations and slab work. Due the nature of these soils however, there is no procedure that can be followed that can to totally eliminate the risk other than construction of a structural floor slab.

8.3 SITE PREPARATION

The development site should be stripped of topsoil, gravel, soft fill or weak native subgrade from areas to be occupied by the proposed clubhouse. Any areas of unsuitable material should be subcut to a sufficient depth to remove the soft material or to bridge over the material to give proper support to construction traffic pavements and slabs. Following removal of any undesirable soils, all exposed subgrade soils in pavement areas and building areas to be occupied by a slab-on-grade structures should be inspected for possible exposed high plastic clay deposits. The exposed surface should then be scarified to a minimum depth of 150 mm, moisture adjusted and compacted to a minimum of 98 percent of Standard Proctor Maximum Dry Density (SPMDD). In the building area the clay subgrade surface should be moisture adjusted to a moisture content 2 to 4 percent above the Optimum Moisture Content (OMC). If soft subgrade conditions are encountered these compaction recommendations and proposed construction procedures should be reviewed.

Fill required to bring the site up to grade should preferably be low to medium plastic clay or well graded select granular material such as sand or gravel. The subgrade is expected to be high plastic silty clay in cut areas and is moderately suited for use as engineered fill. Use of clay for engineered fill will require very careful moisture control. Fill material within the proposed building areas should be placed to a uniform density of 98 percent of SPMDD. Fills of over 1.0 m deep, including trench backfill within the building should be placed uniformly to at least 100 percent of SPMDD and be either at or slightly over OMC. Exterior backfill outside of building footprints should be placed in thin lifts compacted to at least 95 percent of SPMDD and engineered building pads should extend 1 m beyond the footprint of the building.

Compliance with this recommendation for exterior areas is important because poorly compacted backfill adjacent to foundation structures will settle, which may lead to ponding of surface water against foundation walls or grade beams. It is recommended the maximum thickness of any lift after compaction should not exceed 200 mm for granular material and 150 mm for clays. Uniformity of compaction is of most importance.

Excess surface water should be drained away from the building site as quickly as possible, both during and after construction. Site drainage must be directed away from the foundation wall. It is recommended to provide a 3 percent backslope from the building for a distance of at least 3 m. The slope of exterior backfill should be checked periodically to verify water is shed away from the building. If the backfill settles causing water to pond against the foundation wall, the surface should be regraded.

Roof and other drains should discharge into storm sewers or, if this is not possible, they should discharge well clear of the building. Landscaping should be designed to minimize the need for watering adjacent to the proposed building. Water should not be allowed to pond adjacent to the proposed building or on the proposed pavement areas. A minimum grade of 2 percent is recommended to promote surface runoff and minimize potential saturation and degradation of the subgrade. High traffic areas within the site should be kept high. The surface of the top of the subgrade should mirror the surface grades and shed infiltration water away from areas of high traffic.

8.4 BUILDING CODE

As per the latest version of the National Building Code-Alberta Edition (NBC-AE), the use of Limit States Design (LSD) is required for the design of buildings and their structural components including foundations. The limit states of LSD design are classified into two groups; the Ultimate Limit States (ULS) and the Serviceability Limit States (SLS). The ULS design requirements in the NBC-AE reference the Structural Commentaries in the User Guide of the National Building Code of Canada (NBCC).

8.4.1 Ultimate Limit States - ULS

The ULS case is primarily concerned with safety and the levels of load and resistance at the point of collapse or structural failure. The geotechnical value for this case is the ultimate resistance. For foundation design this ultimate resistance value is reduced using a Geotechnical Resistance Factor (GRF) which is based on the reliability index of the geotechnical data used to determine the ultimate resistance for the foundation loading case.

As per the NBCC the following GRF values should be used for foundation design:

TABLE 7: LSD GEOTECHNICAL RESISTANCE FACTORS*

GEOTECHNICAL CASE	Resistance Factors
DEEP FOUNDATIONS (PILES)	
Vertical resistance by semi-empirical analysis and in-situ test data	0.4
Vertical resistance from analysis of dynamic monitoring results	0.5
Vertical resistance from analysis of static load test results	0.6
Uplift resistance by semi-empirical analysis and in-situ test data	0.3
Uplift resistance from analysis of static load test results	0.4

* NBCC - Users Guide - Structural Commentaries (Part 4 of Division B) - Commentary K -Foundations.

8.4.2 Serviceability Limit States - SLS

The SLS case occurs when the foundation loads cause movements or vibrations that are greater than the structure can tolerate before the intended use of the structure is restricted or hindered. The SLS case is addressed by determining the maximum available resistance to keep the foundation deformation within tolerable limits under service loads (i.e. settlement, lateral deflection, etc.). Typically, the foundation loads, configurations and serviceability tolerances have to be known to properly determine geotechnical SLS resistance values.

For axial loading conditions the SLS resistance is addressed by determining the limiting load to keep foundation settlements within tolerable limits. Tolerable total and differential settlements should be verified by the structural engineer, but for normal buildings the tolerable limit of settlement for foundations is typically about 25 mm. Less than 25 mm of settlement is expected to mobilize the ultimate pile resistance for the size of piles required at this site. Therefore, the SLS case is not expected to govern friction pile foundation design unless very strict settlement tolerances are required (i.e. less than 10 mm of settlement). This settlement potential of the proposed piles may be checked once pile design and loading conditions are finalized.

8.4.3 Seismic Considerations

The National Building Code of Canada (2019) requires buildings to be designed to resist a minimum earthquake force. The formula for obtaining minimum earthquake force is dependent of several factors including the Foundation Factor (F) which should be determined using a Site Class of C for this site (Table 4.1.8.4.A). The subgrade soil was stiff clay overlying stiff to hard clay till. The till at depth of 9 to 10 m has an estimated shear strength of over 100 kPa.

8.5 BORED CIP CONCRETE PILES - ULS DESIGN

The soil conditions for this site are suitable for bored CIP concrete piles. Either straight-shaft or belled end-bearing piles could be considered. Bored CIP concrete piles may be designed based on the ultimate skin friction or end-bearing resistance provided in the following table.

TABLE 8: BORED CIP CONCRETE PILES - ULTIMATE RESISTANCE

Soil Type	Depth (mbg)	Elevation (m)	Ultimate		Factored ULS (φ = 0.4)	
			Skin Friction	End Bearing	Skin Friction	End Bearing
Frost Zone	0 - 1.5	-	0	-	0	-
Clay	-	Above 577.1	60	-	24	-
Clay Till	-	577.1 - 576.3	75	-	30	-
Clay Till	-	Below 576.3	75	1620	30	648

The factored ULS resistance in this table are calculated by multiplying the unfactored value by a geotechnical resistance factor (GRF) of 0.4. The upper 1.5 m of pile shaft for a heated structure and 2.5 m for an unheated structure, or the length of pile shaft in new fill, whichever is greater, should be assumed to carry no load. For end-bearing piles, the shaft should be assumed to carry no load. For belled piles, care must be taken to provide a bearing surface at the base of the pile free from all loose and disturbed soil. It should be noted that pile bells must be formed within the self supporting clay soils. Additional recommendations for CIP concrete piles are as follows:

1. To resist uplift forces created by frost action, the minimum depth of straight shaft piles for heated structures should be 6.0 m below final grade. If this embedment requirement cannot be met, the piles should be belled to provide the necessary protection against frost uplift. Belled piles should have a minimum depth of 4.5 m.

2. Steel casing should be available on site during construction and should be used to prevent sloughing and groundwater seepage into the drill-hole, if required.

3. Pile excavations should be filled with concrete within 2 hours of completing the pile excavation.

4. A minimum shaft diameter of 400 mm is recommended for CIP concrete piles. The minimum centre to centre spacing of straight shaft piles should be 3 pile diameters unless group reduction factors are applied. The minimum spacing of belled piles should be sufficient to provide at least 0.5 m of separation between the edges of adjacent bells founded at similar elevations.

5. If belled piles are used:

   - a bell to shaft ratio up to 3:1 would be acceptable, as long as the angle on the roof of the bell is 45° or steeper, to ensure that the load being transferred from the shaft to the bell is properly spread over the entire area of the bell.

   - the minimum distance from the underside of any sand layer to the roof of the bell should be 1.5 m.

   - to avoid potential settlement in loose soils remaining after shaft is drilled, the base of the bell should be sub-cut by the belling tool at least 50 mm below the final depth achieved by the auger used to drill the shaft.

   - bells should not be placed within sand lenses or sand/gravel layers (if encountered).

6. Steel reinforcement should extend the full length of the pile for belled piles and at least 6 m for friction piles.

7. All pile installations should be inspected by a qualified geotechnical engineer or technician to verify that design criteria are met or exceeded.

8.6 EXCAVATION SAFETY

All excavation work must comply with the requirements of the Alberta Occupational Health and Safety Act (OHS Act, 2018), OHS Regulation (2018) and OHS Code (2019). The OHS Code contains the technical requirements that support the Act and Regulation.

Specifically with reference to Part 32, Section 442(2) the OHS Code, the soils on this site would be classified as "likely to crack or crumble". The near surface high plastic clay is known to contain slickensides and fissures which further reduce the stability of open cut faces. Loose fills may also become unstable if left open. Excavation side slopes are not expected to be able to stand near vertical for extended periods of time. From Section 451 of the OHS Code, for excavations deeper than 1.5 m, the side slopes should be cut back at an angle of not less than 45 degrees measured from the vertical (1H:1V). Alternatively, near vertical trenched excavations may be constructed in conjunction with a movable shield.

Stockpiles of materials and excavated soil should be kept back from the crest by a distance equal to at least the depth of excavation. Similarly, wheel loads should be kept back at least 1.5 m from the crest.

8.7 CONCRETE

The typical water soluble sulphate concentration in the Nampa region would indicated a severe potential for sulphate attack and therefore it is recommended that an S-2 classification be applied to all concrete exposed to soils, as per the CAN/CSA-A23.1-14 standards. High Sulphate Resistant (Type HS) hydraulic cement may be used for concrete placed in contact with native soil. The minimum 56 day compressive strength is 32 MPa with a maximum water to cement ratio of 0.45.

8.8 FROST PROTECTION FOR BURIED FACILITIES

Based on the 1 in 25 year return period winter, the depth of frost penetration in the Nampa area is approximately 2.5 m for clay. Therefore, the recommended minimum buried depth for water lines and sewers is 2.9 m.

8.9 INSPECTION

It is recommended that on-site inspection and testing be performed to verify that actual site conditions are consistent with assumed conditions which meet or exceed design criteria. Based on the NBC-AE, adequate levels of inspection include: testing of engineered fill and the inspection of deep foundation installations.

9.0 LIMITATIONS AND CLOSURE

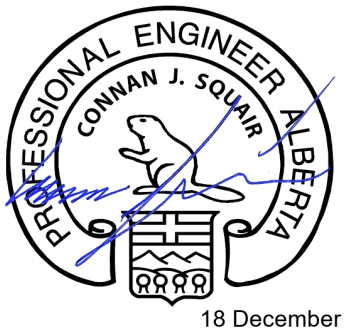
Geological conditions are variable. The recommendations presented in this report, and any subsequent correspondence, are based on an evaluation of information derived from seven borehole locations and from local experience. The conditions found are thought to be reasonably representative of the site. If different subsoil and groundwater conditions are encountered, this office must be notified and recommendations submitted herein will be reviewed and revised as required.

This report has been prepared for the exclusive use of **Heart River Golf Club** and their approved agents for specific application to the project and site described in this report. 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. It has been prepared in accordance with generally accepted geotechnical engineering practices. No other warranty is made either express or implied. Parkland Geotechnical 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.

We trust that this report meets with your current requirements. If there are any questions, please contact the undersigned.

Respectfully submitted,

PARKLAND GEOTECHNICAL LTD.



18 December 2020

Chang Liu, E.I.T.
Geotechnical Engineer-In-Training

Connan Squair, P.Eng.
Geotechnical Engineer

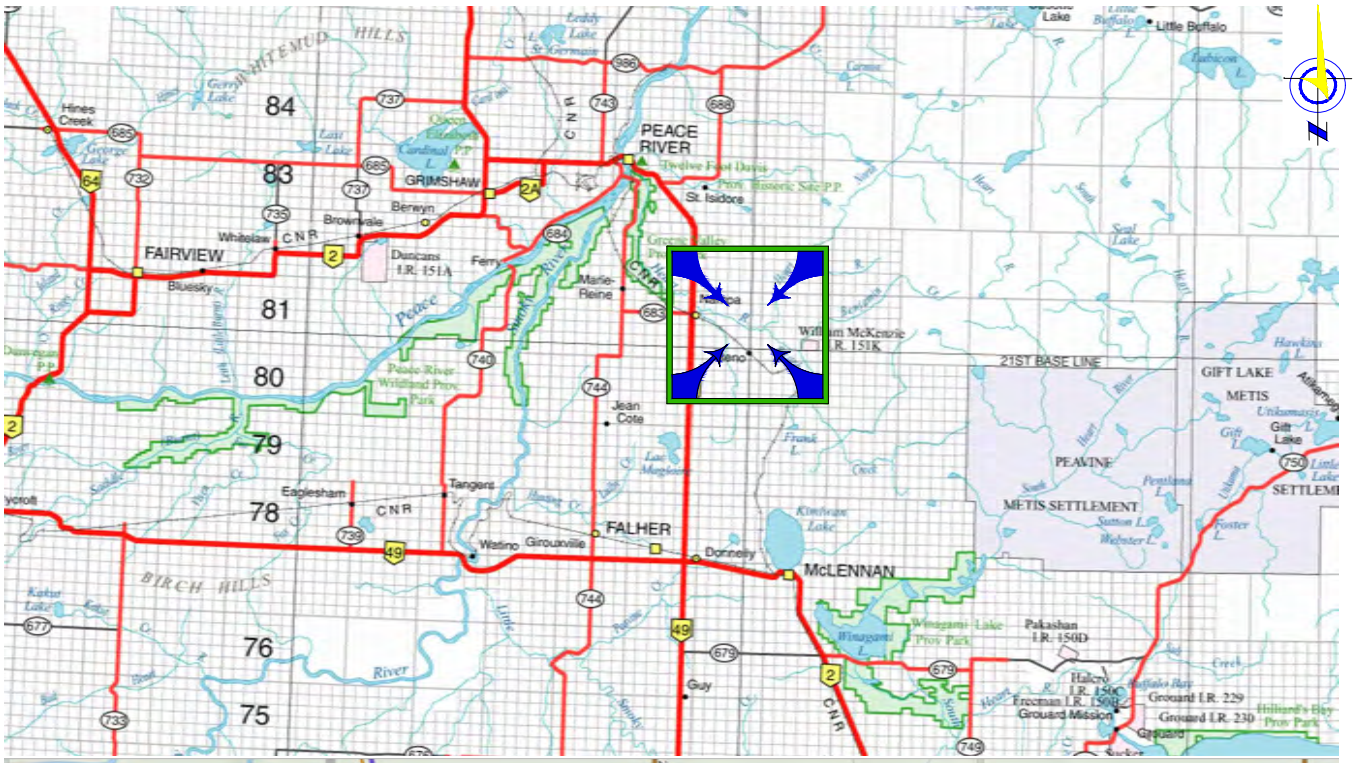
APEGA Permit to Practice No. P09516

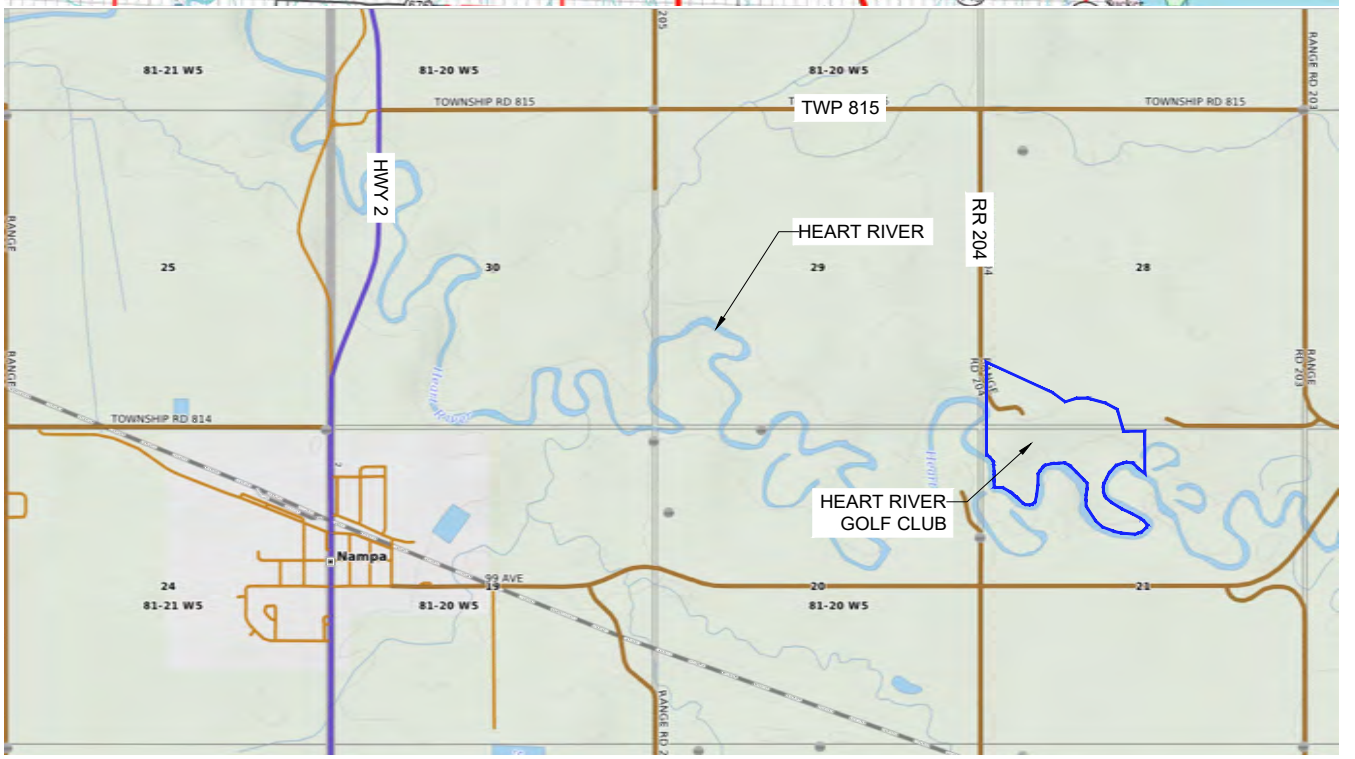
18 December 2020

Responsible Member:
Connan Squair, P.Eng
Geotechnical Engineer

Reviewed by:
Michael McCormick, M.Eng., P.Eng.
Principal Geo-Environmental Engineer

FIGURES



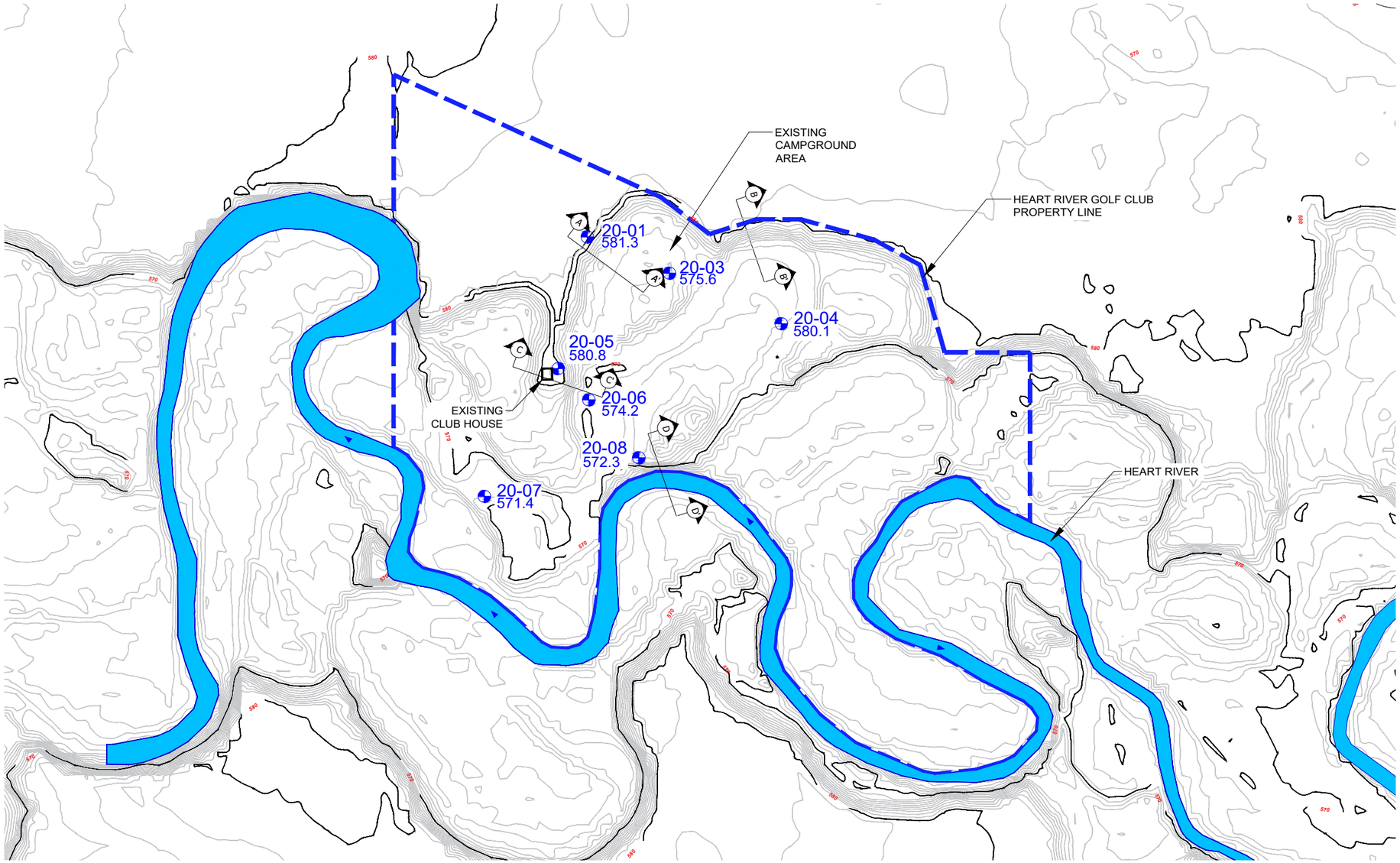


Parkland GEO	CLIENT: HeartRiver GOLF CLUB	AREA PLAN		
		GEOTECHNICAL INVESTIGATION HEART RIVER GOLF CLUB, NAMPA, AB		
		DRAWN: CL	CHK'D.: MMc	REV #: 0	DATE: DECEMBER 2020
		SCALE: NTS	JOB NO. GP4716	DRAWING NO. FIGURE 1	

NOTES:

1. AERIAL PHOTOGRAPH OBTAINED FROM ABADATA DATAGRAPHICS. ON OCTOBER 9, 2020.

Parkland GEO	CLIENT: Heart River Golf Club	AERIAL PLAN			
		GEOTECHNICAL INVESTIGATION HEART RIVER GOLF CLUB, NAMPA, AB			
		DRAWN: CL	CHK'D.: MMc	REV #: 0	DATE: DECEMBER 2020
		SCALE: NTS	JOB NO. GP4716		DRAWING NO. FIGURE 2



LEGEND:

- CROSS SECTIONS
- 20-01 580.0 BOREHOLE ELEVATION (m)
- MAJOR CONTOUR LINES (10 m)
- MINOR CONTOUR LINES (1 m)
- RIVER FLOW DIRECTION

SCALE (metres)

-140 -70 0 70 140 280

NOTES:

1. LEGAL SURVEY OBTAINED FROM ALBERTA LAND SURVEYORS DATED MAY 22, 2012.
2. BOREHOLE SURVEY DATA OBTAINED BY PARKLAND GEO USING TRIMBLE 7X.
3. DRAWING INTENDED FOR BOREHOLE REFERENCE ONLY. NOT TO BE USED FOR DESIGN OR CONSTRUCTION PURPOSES.

REV #	DATE	DETAILS

DRAWN:	CHK'D.:	REV #:	DATE:
CL	MMc	0	DECEMBER 2020

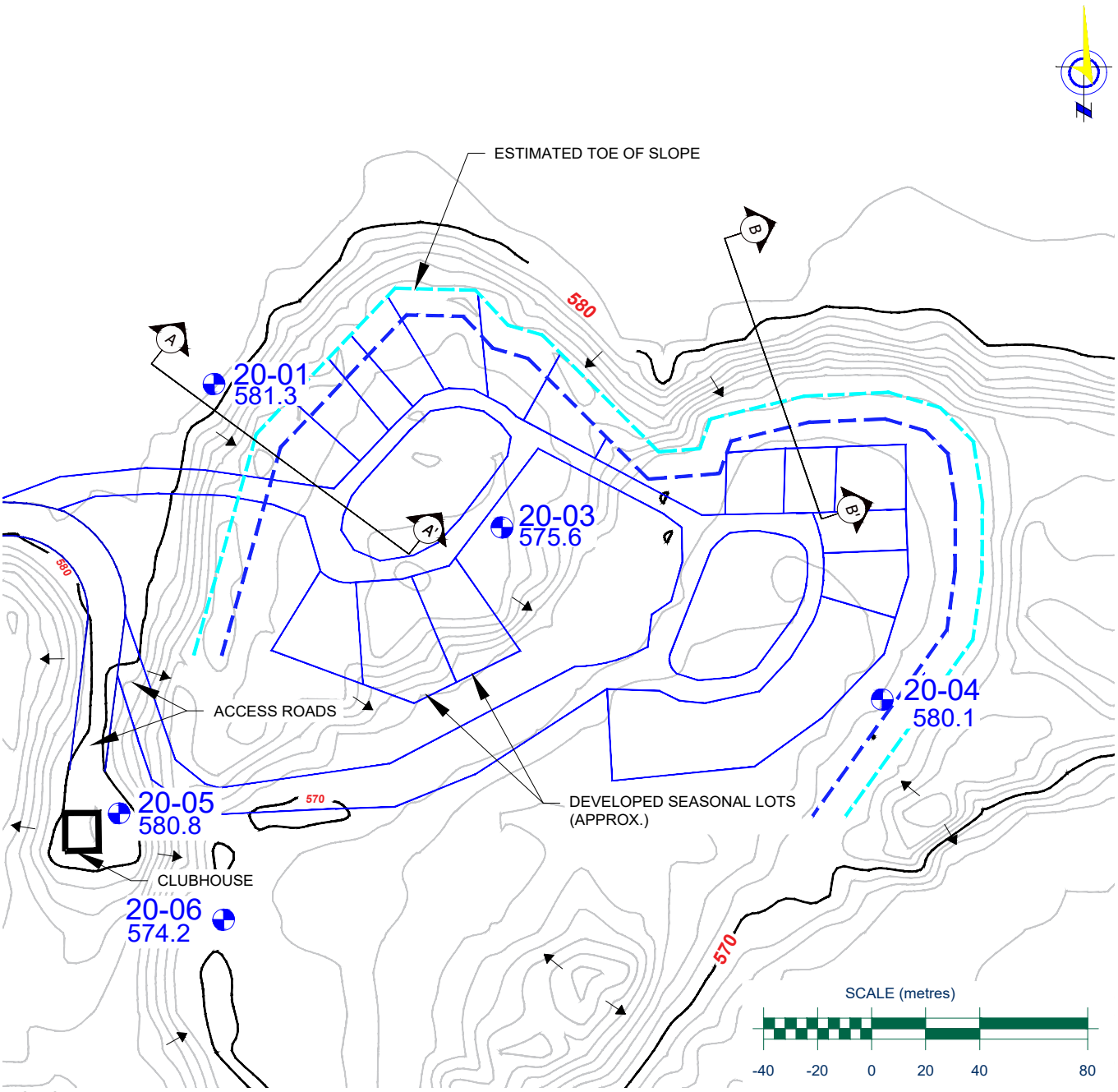
Parkland GEO

CLIENT: Heart River Golf Club

SITE PLAN

GEOTECHNICAL INVESTIGATION
HEART RIVER GOLF CLUB, NAMPA, AB

SCALE:	JOB NO.	DRAWING NO.
AS SHOWN	GP4716	FIGURE 3



NOTES:

1. LiDAR DATA AND BASE PLAN PROVIDED BY HEART RIVER GOLF CLUB.
2. DRAWING IS FOR CONCEPTUAL PURPOSES ONLY. NOT ALL FEATURES OR STRUCTURES MAY BE SHOWN.
3. SEASONAL LOT BOUNDARIES ARE APPROXIMATED FROM AERIAL IMAGES

LEGEND:

- TOE OF SLOPE LINE (APPROX.)
- PERMANENT STRUCTURE SETBACK (10 m)
- SLOPE DIRECTION
- MAJOR CONTOUR LINES (10 m)
- MINOR CONTOUR LINES (1 m)

ParklandGEO

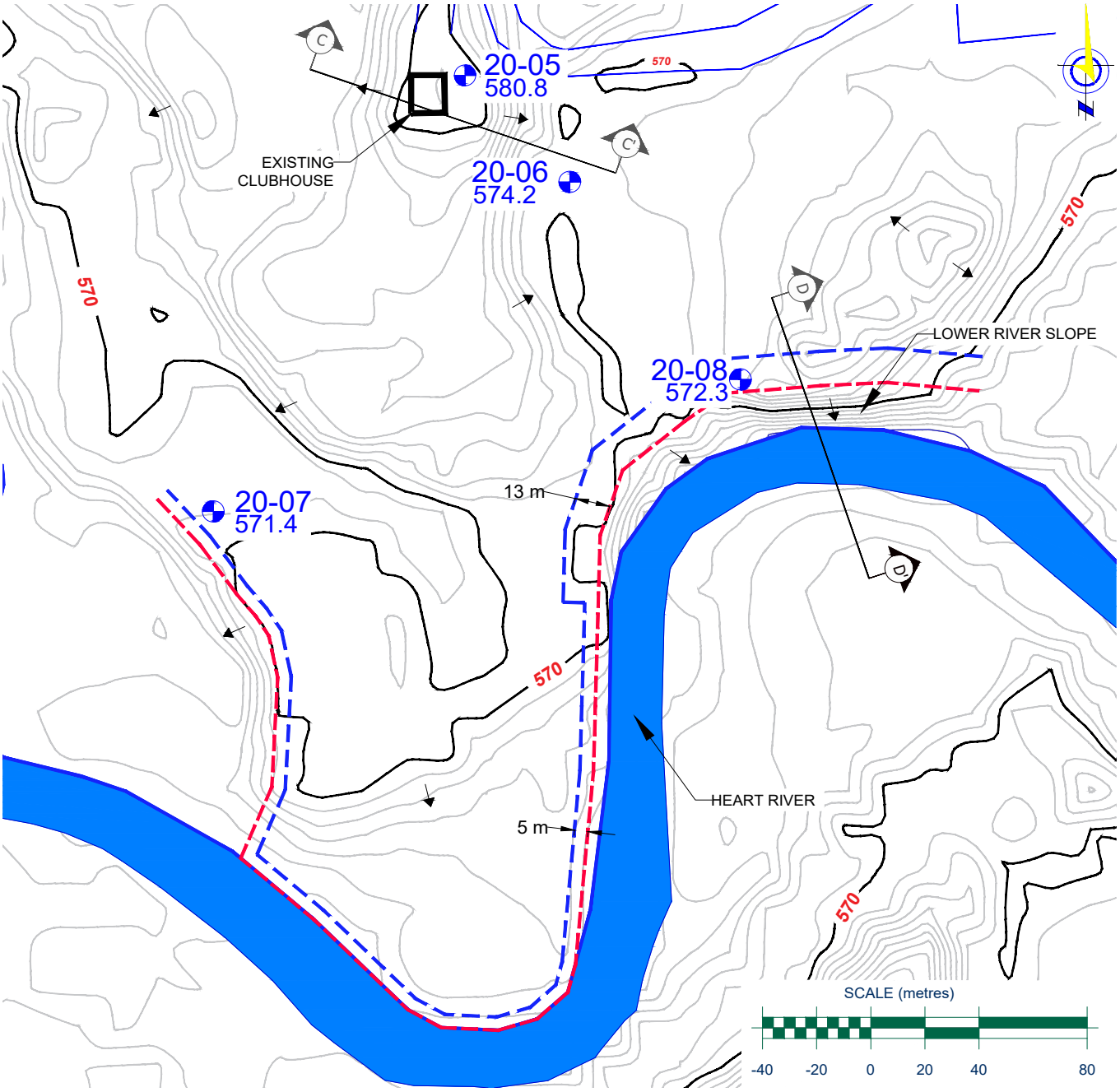
CLIENT: HeartRiver GOLF CLUB

TOPOGRAPHY PLAN - CAMPGROUND

GEOTECHNICAL INVESTIGATION
HEART RIVER GOLF CLUB, NAMPA, AB

DRAWN:	CHK'D.:	REV #:	DATE:
CL	MMc	0	OCTOBER 2020

SCALE:	JOB NO.	DRAWING NO.
1:2000	GP4716	FIGURE 4



NOTES:

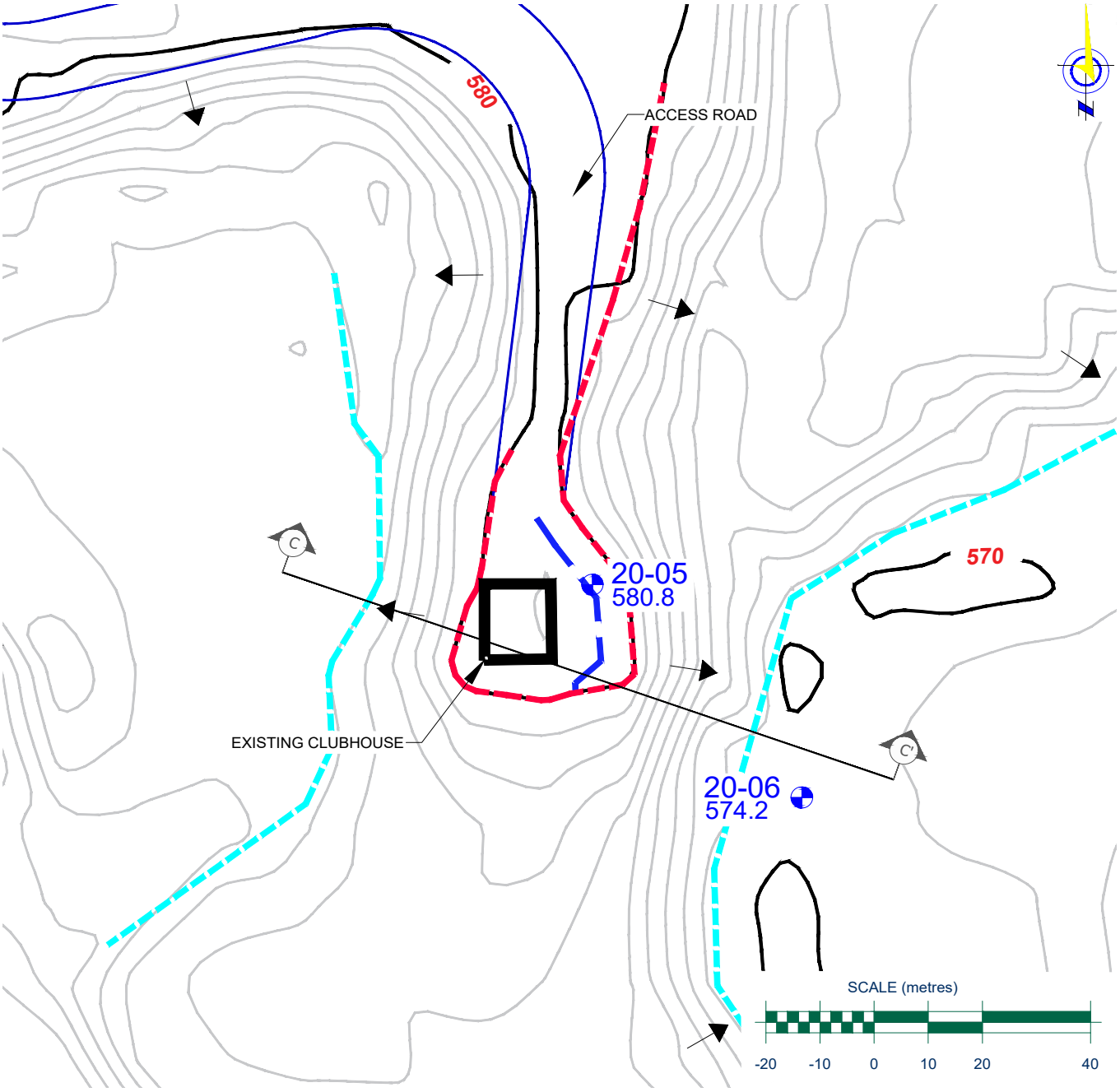
1. LiDAR DATA AND BASE PLAN PROVIDED BY HEART RIVER GOLF CLUB.
2. DRAWING IS FOR CONCEPTUAL PURPOSES ONLY. NOT ALL FEATURES OR STRUCTURES MAY BE SHOWN.

LEGEND:

- TOP OF BANK LINE (APPROX.)
- DEVELOPMENT SETBACK (5-10 m)
- SLOPE DIRECTION
- MAJOR CONTOUR LINES (10 m)
- MINOR CONTOUR LINES (1 m)

Parkland GEO	CLIENT: Heart River Golf Club	TOPOGRAPHY PLAN - LOWER SLOPE GEOTECHNICAL INVESTIGATION HEART RIVER GOLF CLUB, NAMPA, AB

DRAWN:	CHK'D.:	REV #:	DATE:
CL	MMc	0	DECEMBER 2020
SCALE:	JOB NO.		DRAWING NO.
1:2000	GP4716		FIGURE 5



NOTES:

1. LiDAR DATA AND BASE PLAN PROVIDED BY HEART RIVER GOLF CLUB.
2. DRAWING IS FOR CONCEPTUAL PURPOSES ONLY. NOT ALL FEATURES OR STRUCTURES MAY BE SHOWN.

LEGEND:

- TOE OF SLOPE (APPROX.)
- TOP OF BANK LINE (APPROX.)
- DEVELOPMENT SETBACK (6 m)
- MAJOR CONTOUR LINES (10 m)
- MINOR CONTOUR LINES (1 m)
- SLOPE DIRECTION

Parkland GEO

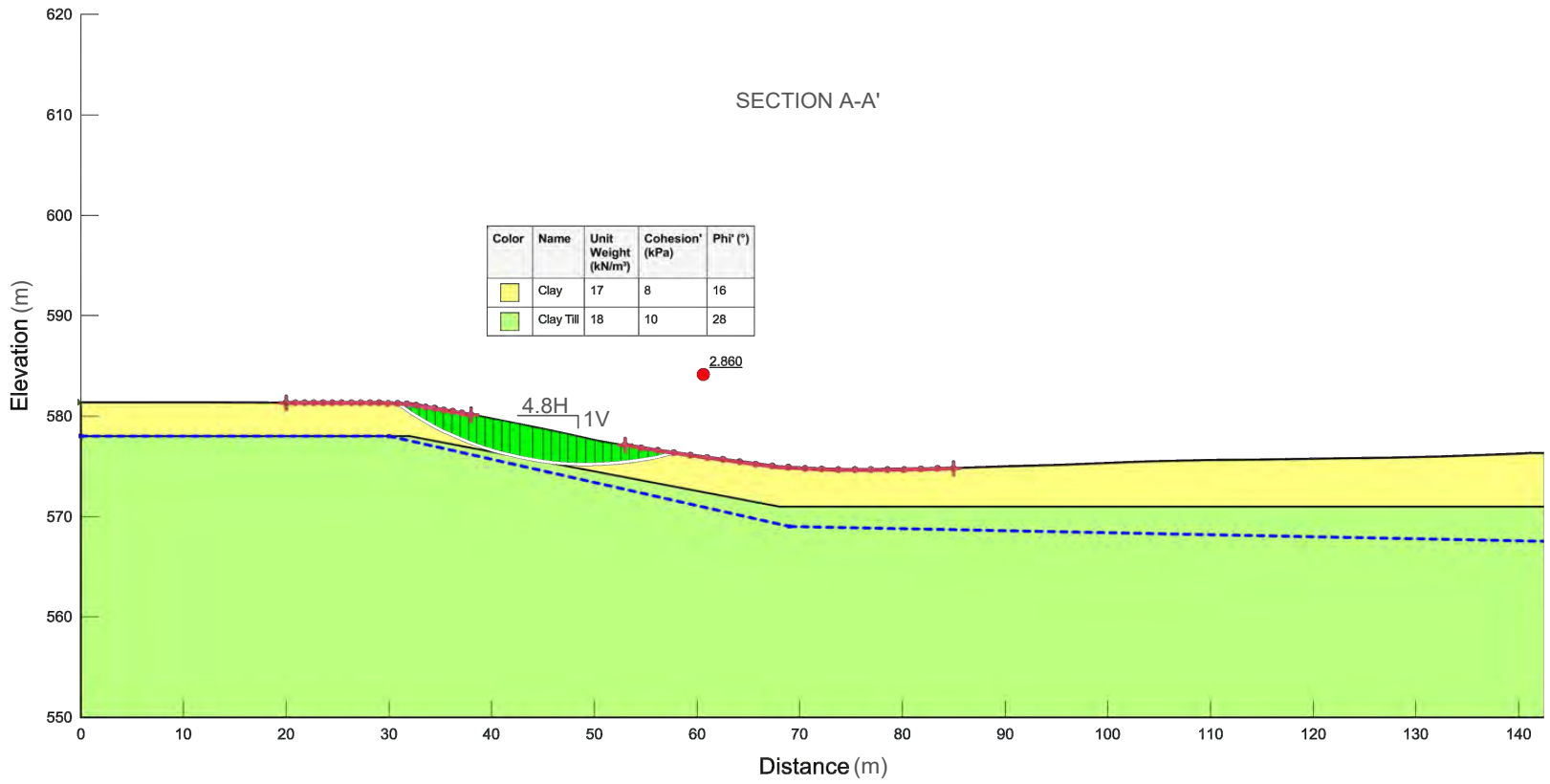
CLIENT: Heart River Golf Club

TOPOGRAPHY PLAN - CLUBHOUSE

GEOTECHNICAL INVESTIGATION
HEART RIVER GOLF CLUB, NAMPA, AB

DRAWN:	CHK'D.:	REV #:	DATE:
CL	MMc	0	OCTOBER 2020

SCALE:	JOB NO.	DRAWING NO.
1:1000	GP4716	FIGURE 6



NOTES:

1. SURFACE PROFILE EXTRACTED FROM LIDAR DATA PROVIDED BY HEART RIVER GOLF CLUB.
2. MODEL FOR CONCEPTUAL REFERENCE ONLY, NOT FOR CONSTRUCITON

Parkland GEO

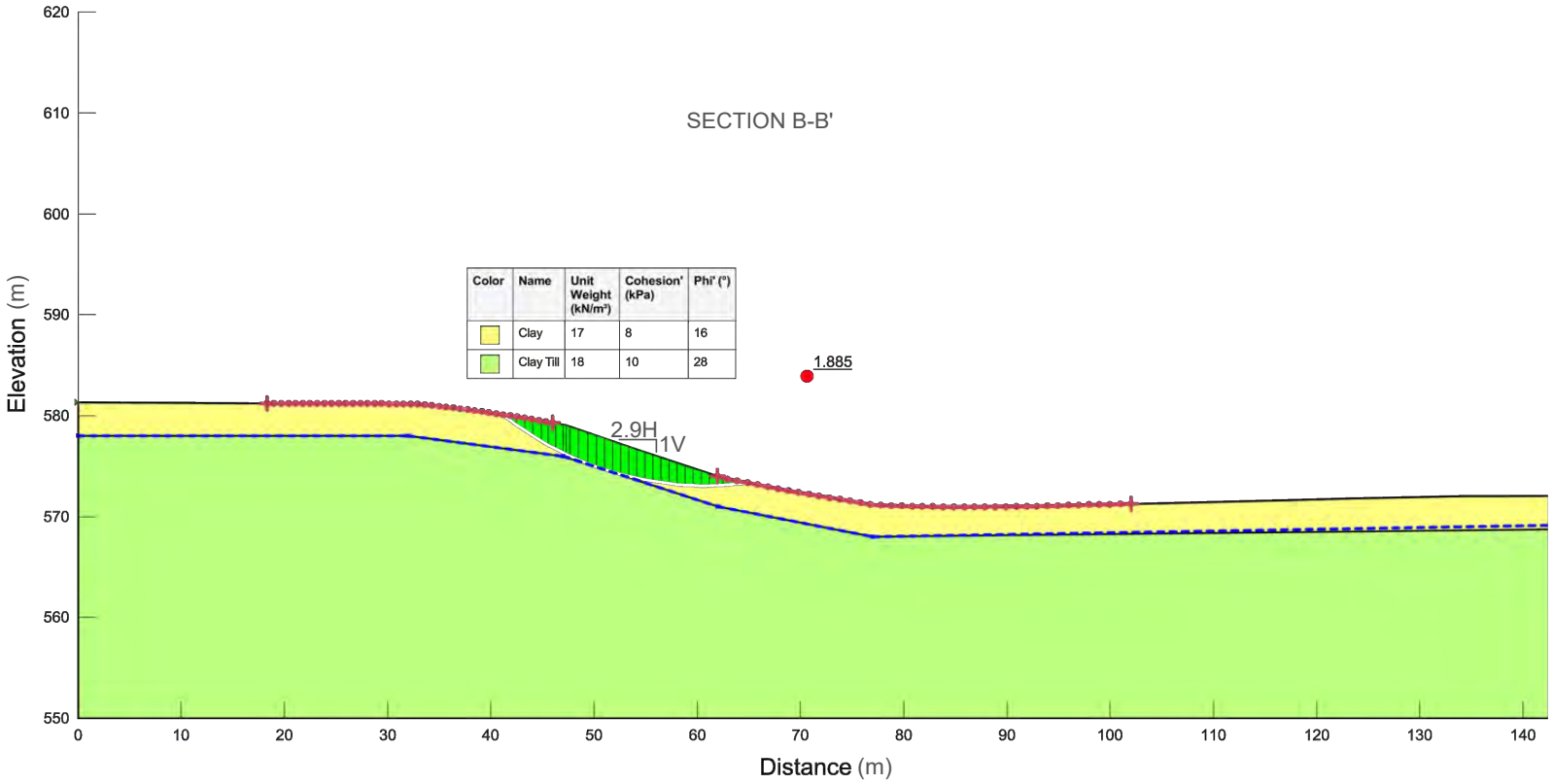
CLIENT: HeartRiver GOLF CLUB

SECTION A-A' SLOPE MODELING

GEOTECHNICAL INVESTIGATION
HEART RIVER GOLF CLUB, NAMPA, AB

DRAWN:	CHK'D.:	REV #:	DATE:
CL	MMc	0	DECEMBER 2020

SCALE:	JOB NO.	DRAWING NO.
AS SHOWN	GP4716	FIGURE 7



NOTES:

1. SURFACE PROFILE EXTRACTED FROM LIDAR DATA PROVIDED BY HEART RIVER GOLF CLUB.
2. MODEL FOR CONCEPTUAL REFERENCE ONLY, NOT FOR CONSTRUCITON

Parkland GEO

CLIENT: Heart River Golf Club

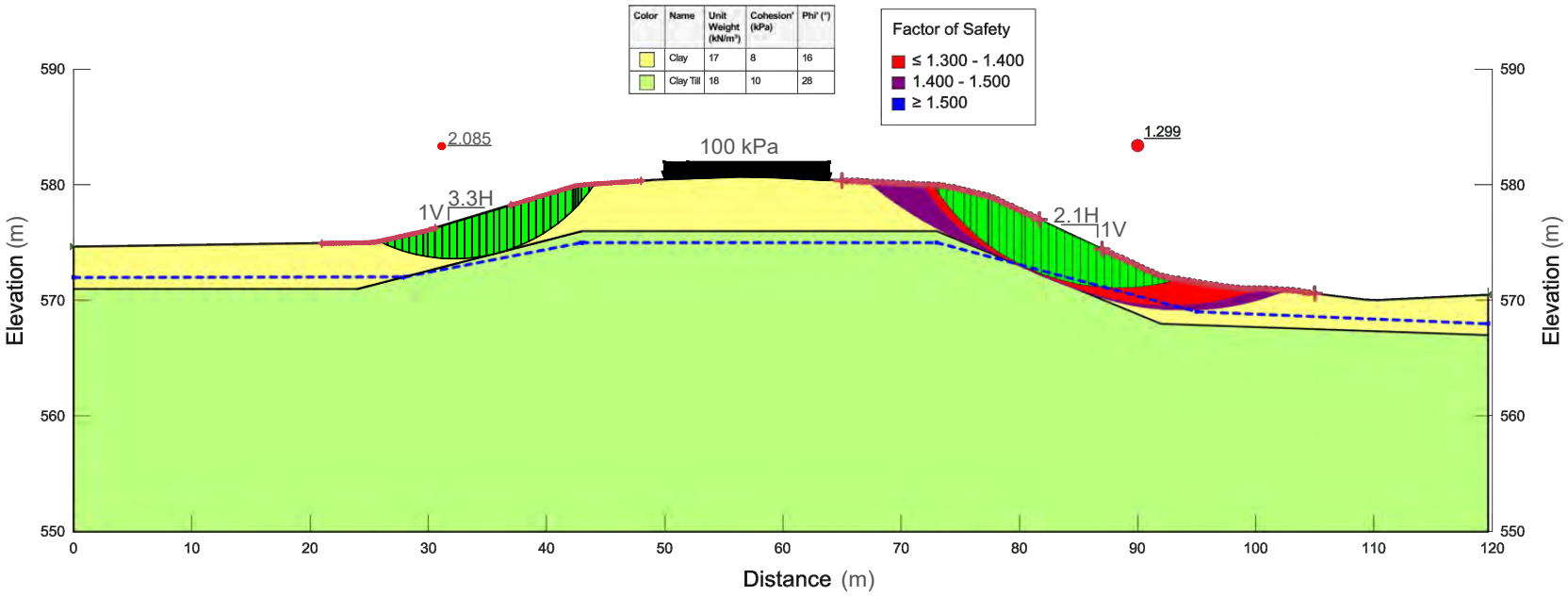
SECTION B-B' SLOPE MODELING

GEOTECHNICAL INVESTIGATION
HEART RIVER GOLF CLUB, NAMPA, AB

DRAWN:	CHK'D.:	REV #:	DATE:
CL	MMc	0	DECEMBER 2020

SCALE:	JOB NO.	DRAWING NO.
AS SHOWN	GP4716	FIGURE 8

SECTION C-C'

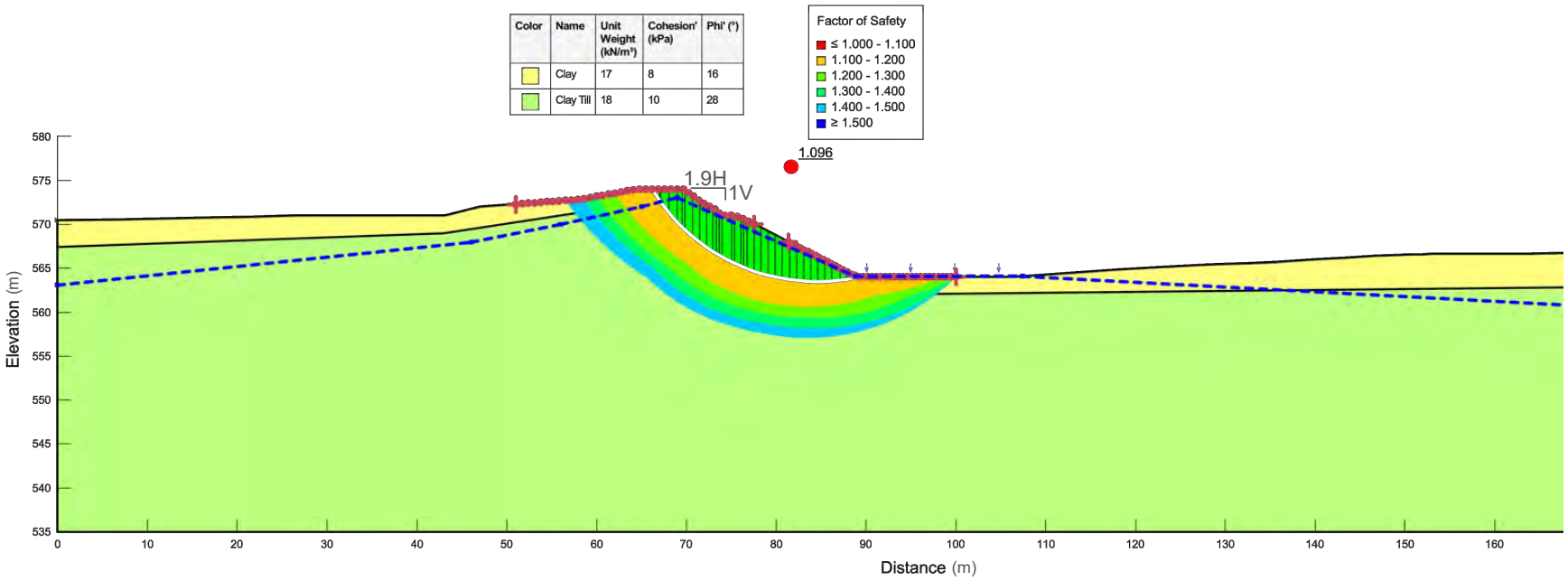


NOTES:

1. SURFACE PROFILE EXTRACTED FROM LIDAR DATA PROVIDED BY HEART RIVER GOLF CLUB.
2. MODEL FOR CONCEPTUAL REFERENCE ONLY, NOT FOR CONSTRUCITON

ParklandGEO	CLIENT: HeartRiver GOLF CLUB	**SECTION C-C' SLOPE MODELING**	
		GEOTECHNICAL INVESTIGATION HEART RIVER GOLF CLUB, NAMPA, AB	
		DRAWN: CL	CHK'D.: MMc
		REV #: 0	DATE: DECEMBER 2020
		SCALE: AS SHOWN	JOB NO. GP4716
		DRAWING NO. FIGURE 9	

SECTION D-D'



NOTES:

1. SURFACE PROFILE EXTRACTED FROM LIDAR DATA PROVIDED BY HEART RIVER GOLF CLUB.
2. MODEL FOR CONCEPTUAL REFERENCE ONLY, NOT FOR CONSTRUCITON

ParklandGEO

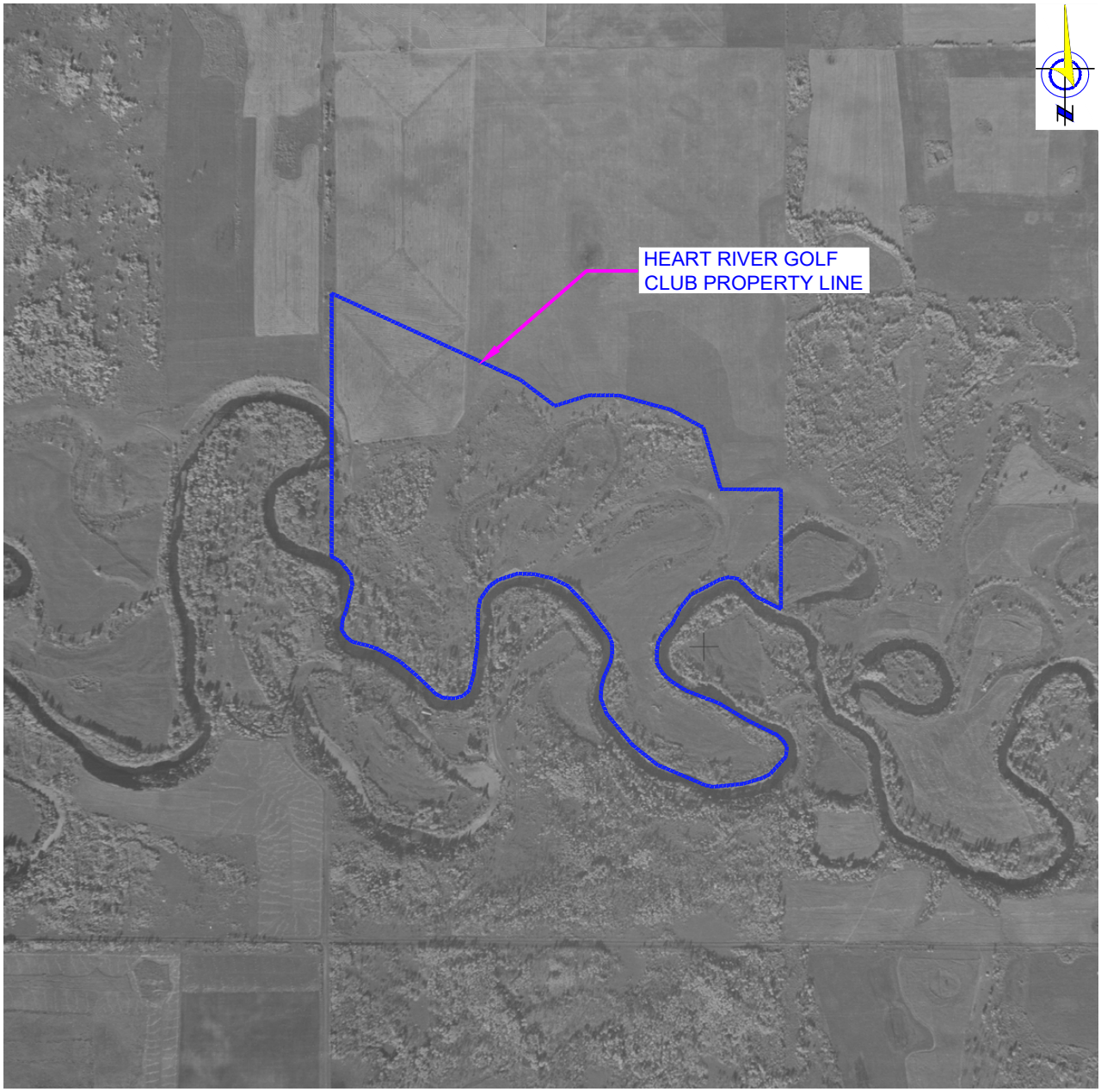
CLIENT: HeartRiver GOLF CLUB

SECTION D-D' SLOPE MODELING

GEOTECHNICAL INVESTIGATION
HEART RIVER GOLF CLUB, NAMPA, AB

DRAWN:	CHK'D.:	REV #:	DATE:
CL	MMc	0	DECEMBER 2020

SCALE:	JOB NO.	DRAWING NO.
AS SHOWN	GP4716	FIGURE 10



NOTE:
AERIAL PHOTOGRAPH OBTAINED FROM ALBERTA ENVIRONMENT AND PARKS. DATED SEPTEMBER 19, 1952.

SCALE (metres)

-200 -100 0 100 200 400

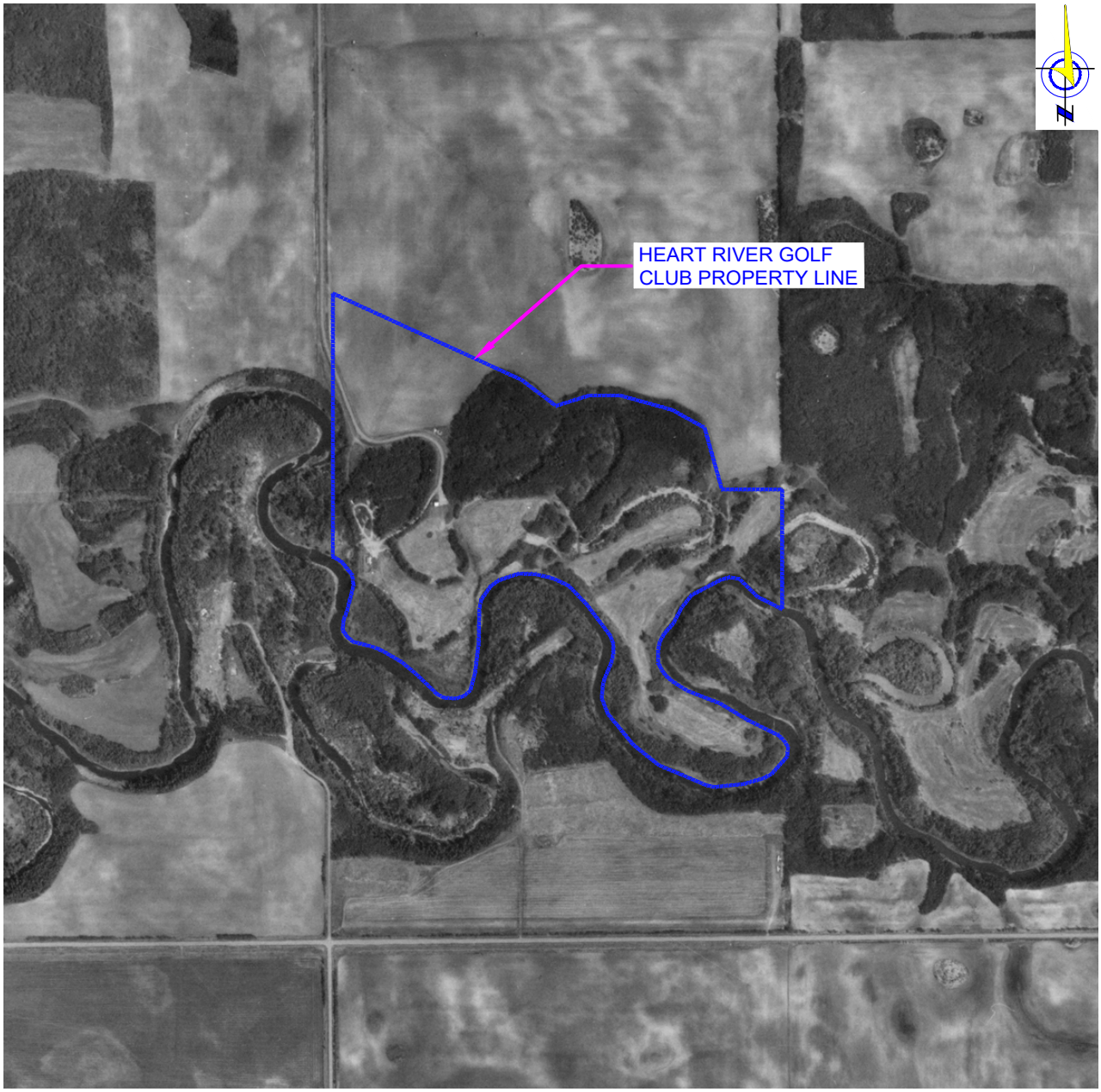
Parkland GEO	CLIENT: Heart River Golf Club	1952 AERIAL PHOTO	
		GEOTECHNICAL INVESTIGATION HEART RIVER GOLF CLUB, NAMPA, AB	
		DRAWN: CL / CHK'D.: MMc / REV #: 0	DATE: DECEMBER 2020
		SCALE: 1:10000 / JOB NO. GP4716	DRAWING NO. FIGURE 11

NOTE:
AERIAL PHOTOGRAPH OBTAINED FROM ALBERTA ENVIRONMENT AND PARKS. DATED MAY 23, 1971.

SCALE (metres)

-200 -100 0 100 200 400

Parkland GEO	CLIENT: Heart River Golf Club	1971 AERIAL PHOTO	
		GEOTECHNICAL INVESTIGATION HEART RIVER GOLF CLUB, NAMPA, AB	
		DRAWN: CL / CHK'D.: MMc / REV #: 0	DATE: DECEMBER 2020
		SCALE: 1:10000 / JOB NO. GP4716	DRAWING NO. FIGURE 12

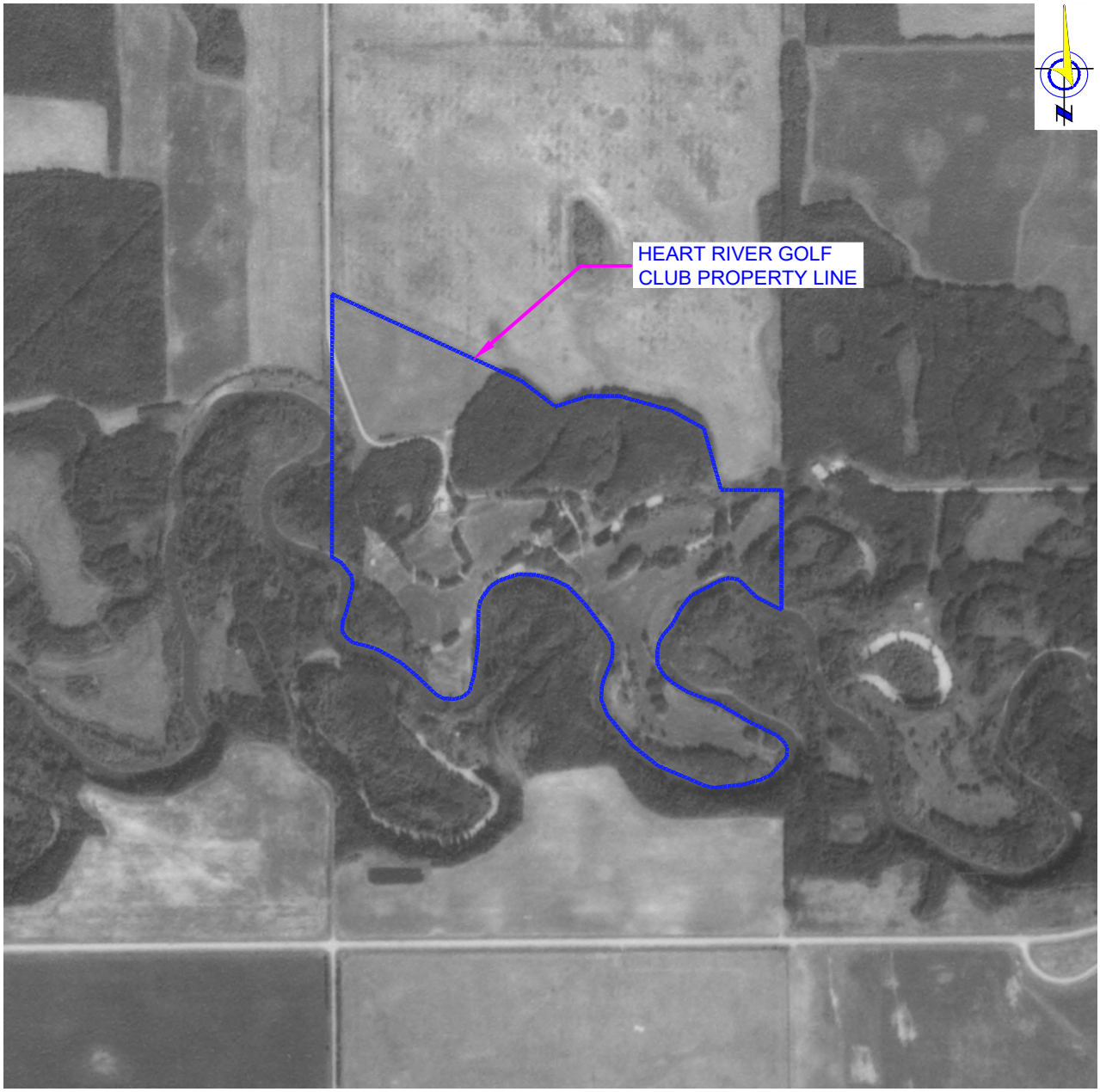


NOTE:
AERIAL PHOTOGRAPH OBTAINED FROM ALBERTA ENVIRONMENT AND PARKS. DATED MAY 29, 1983.

SCALE (metres)

-200 -100 0 100 200 400

Parkland GEO	CLIENT: Heart River Golf Club	1983 AERIAL PHOTO	
		GEOTECHNICAL INVESTIGATION HEART RIVER GOLF CLUB, NAMPA, AB	
		DRAWN: CL	CHK'D.: MMc	REV #: 0	DATE: DECEMBER 2020
		SCALE: 1:10000	JOB NO. GP4716	DRAWING NO. FIGURE 13	



NOTE:
AERIAL PHOTOGRAPH OBTAINED FROM ALBERTA ENVIRONMENT AND PARKS. DATED SEPTEMBER 1, 1997.

SCALE (metres)

-200 -100 0 100 200 400

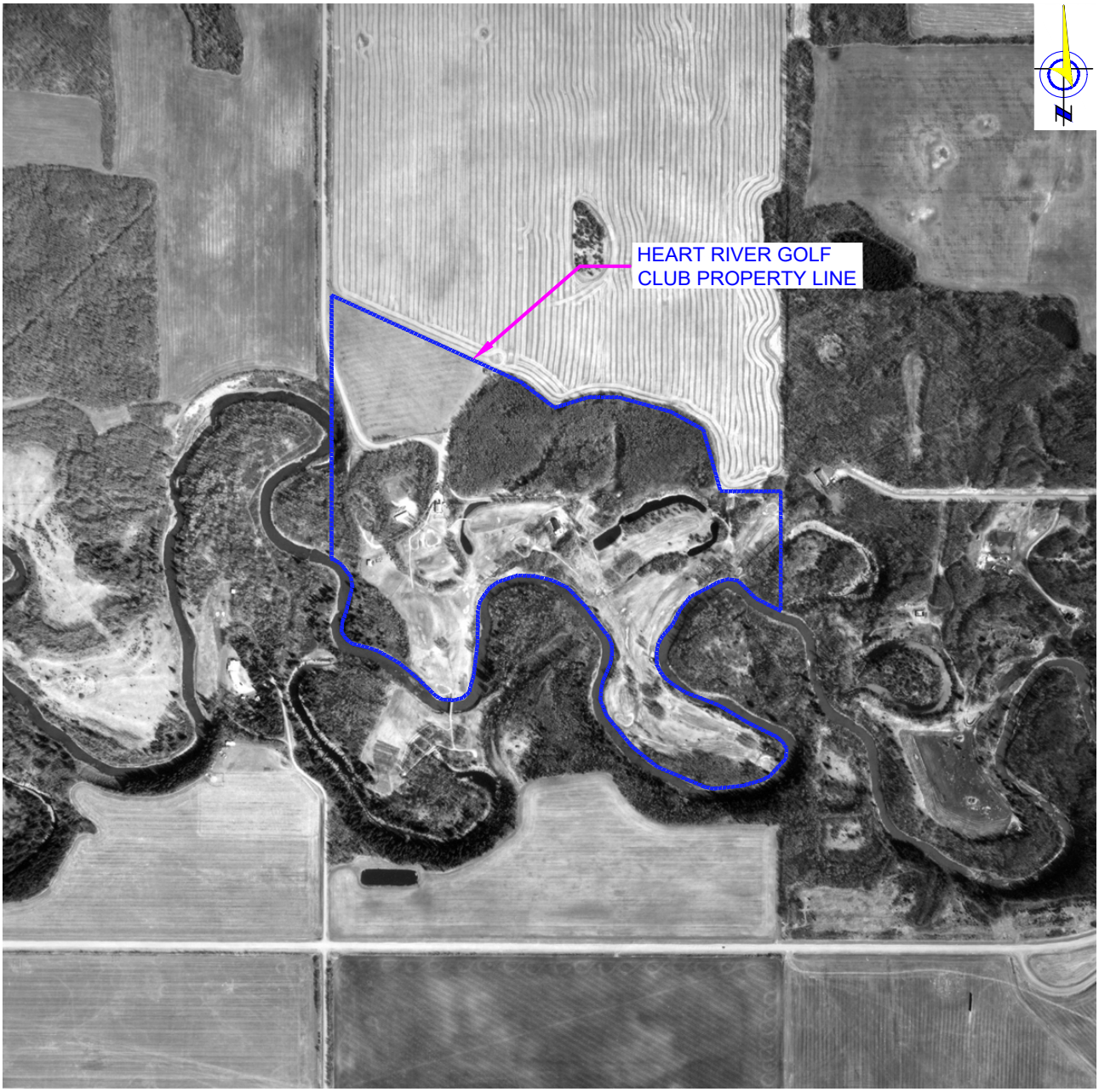
ParklandGEO	CLIENT: HeartRiver GOLF CLUB	1997 AERIAL PHOTO		
		GEOTECHNICAL INVESTIGATION HEART RIVER GOLF CLUB, NAMPA, AB		
		DRAWN: CL	CHK'D.: MMc	REV #: 0	DATE: DECEMBER 2020
		SCALE: 1:10000	JOB NO. GP4716	DRAWING NO. FIGURE 14	

NOTE:
AERIAL PHOTOGRAPH OBTAINED FROM ALBERTA ENVIRONMENT AND PARKS. DATED AUGUST 22, 2002.

SCALE (metres)

-200 -100 0 100 200 400

Parkland GEO	CLIENT: Heart River Golf Club	2002 AERIAL PHOTO	
		GEOTECHNICAL INVESTIGATION HEART RIVER GOLF CLUB, NAMPA, AB	
		DRAWN: CL	CHK'D.: MMc
		REV #: 0	DATE: DECEMBER 2020
		SCALE: 1:10000	JOB NO. GP4716
		DRAWING NO. FIGURE 15	



NOTE:
AERIAL PHOTOGRAPH OBTAINED FROM ALBERTA ENVIRONMENT AND PARKS. DATED APRIL 26, 2006.

SCALE (metres)

-200 -100 0 100 200 400

Parkland GEO	CLIENT: Heart River Golf Club	2006 AERIAL PHOTO	
		GEOTECHNICAL INVESTIGATION HEART RIVER GOLF CLUB, NAMPA, AB	
		DRAWN: CL / CHK'D.: MMc / REV #: 0	DATE: DECEMBER 2020
		SCALE: 1:10000 / JOB NO. GP4716	DRAWING NO. FIGURE 16

NOTE:
AERIAL PHOTOGRAPH OBTAINED ABADATA ON
OCTOBER 9, 2020.

SCALE (metres)

-200 -100 0 100 200 400

ParklandGEO	CLIENT: HeartRiver GOLF CLUB	2020 AERIAL PHOTO	
		GEOTECHNICAL INVESTIGATION HEART RIVER GOLF CLUB, NAMPA, AB	
		DRAWN: CL / CHK'D.: MMc / REV #: 0 / DATE: DECEMBER 2020	
		SCALE: 1:10000 / JOB NO. GP4716 / DRAWING NO. FIGURE 17	

Photograph 1: Facing northwest towards west hill near clubhouse.

Photograph 2: Facing north towards east hill near clubhouse.

Photograph 3: Facing north from near Heart River banks towards clubhouse.

All photographs taken on August 15, 2019.

Photograph 4: Facing west from top of bank of steep hill at lower slopes, Heart River meander cutting into toe of slope.

Photograph 5: Facing northwest towards steep hill at lower slopes, slope face stripped of vegetation indicating recent slope movement.

Photograph 6: Facing north towards upper slopes near seasonal lots.

All Photographs taken on August 15, 2019.

APPENDIX A

BOREHOLE LOGS
EXPLANATION SHEETS

BOREHOLE NO.: 20-01

CLIENT: Heart River Golf Course
SITE: Nampa Heart River Golf Course
PROJECT NO.: GP4716
BH LOCATION: North Driving Range

Depth (m)	Description	Symbol	Moisture (Wp |-----X-----| Wl) 25 50 75	Type	Sample No	SPT (N)	Comments	Well Completion Details	Elevation (m)
0	GROUND SURFACE								581.3
0	***Topsoil*** Some clay, soft, dark, organics.		26						
1	***Clay*** Some silt, high plastic, stiff, massive, silt lensing.		21	G	1G1				
				G	1G2		Grain Size Analysis (at 2.5 m) Clay: 57.2% Silt: 34.5% Sand: 8.3% Atterberg Limits PL: 15.0% LL: 60.0% PI: 45.0%		
2			15		1D1	24			
			17						
3			19	G	1G3				578.0
					1D2	11			
4	***Clay Till*** Some silt, trace gravel, trace sand, medium plastic, massive, moist, iron staining, gypsum inclusions.		28	G	1G4				
5			16		1D3	21			
6			17	G	1G5				
					1D4	30			
7			15	G	1G6				
8			16		1D5	25			
9			17						
					1D6	32			
10			16	G	1G7				
11			17		1D7				
12	-From 12.1 to 12.4 m, dark brown		17		1D8	41			
13			16	G	1G8				
14			17		1D9	37			
15			15		1D10	39			565.8
16	END OF BOREHOLE Borehole dry upon completion Groundwater at 2.8 m on Sept 23, 2020								
17									

Well Completion Details: Bentonite; Sept 23, 2020; 25 mm PVC; Cuttings; 25 mm Slotted PVC; Sand

LOGGED BY: DB
CONTRACTOR: Frontier Enviro-Drilling
RIG/METHOD: Solid Stem Track Mount
NOTES:

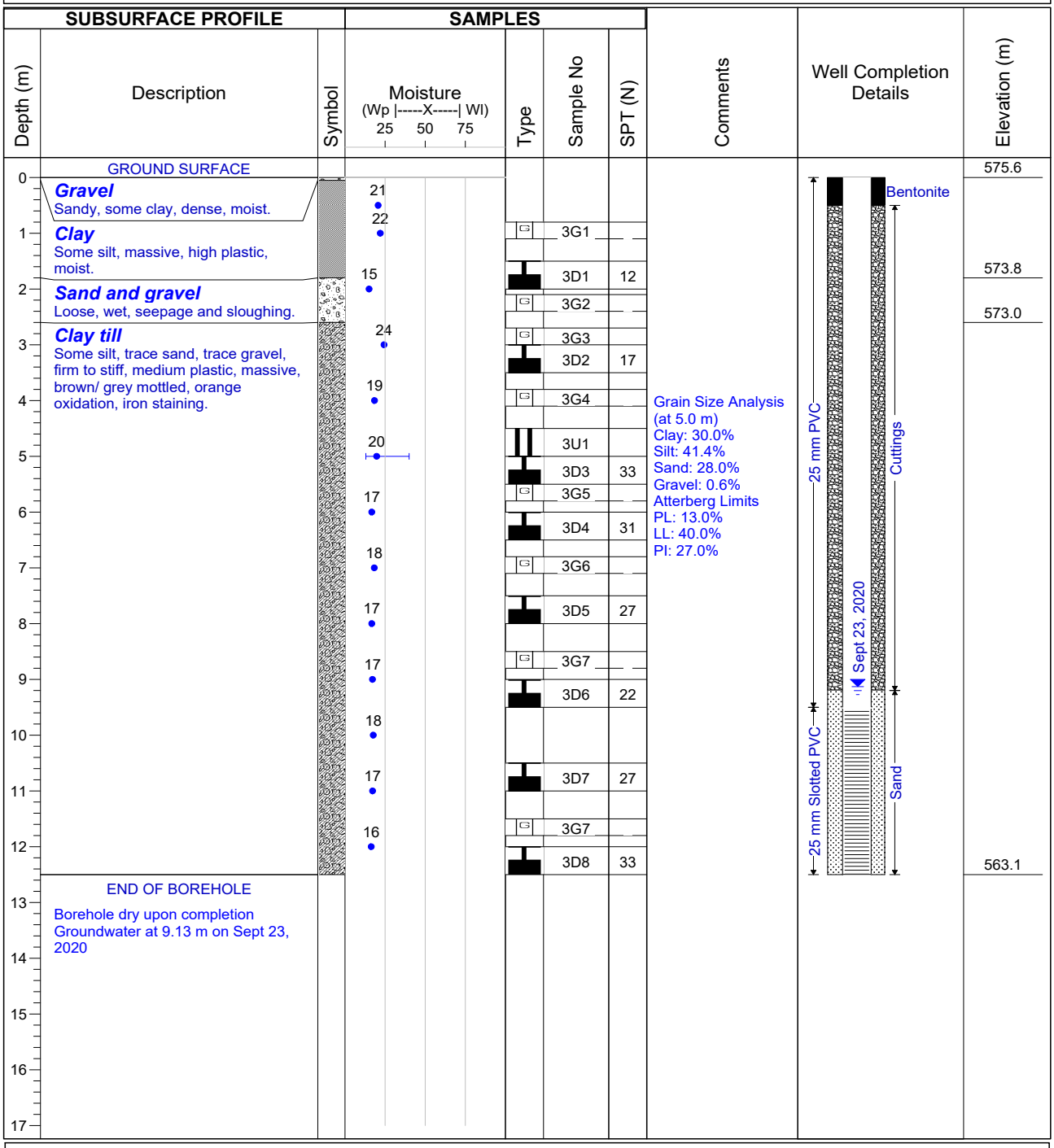
DATE: July 2, 2020
GROUND ELEVATION (m): 581.3
NORTHING (m): 6211079
EASTING (m): 495213

Parkland GEO

BOREHOLE NO.: 20-03

CLIENT: Heart River Golf Course
SITE: Nampa Heart River Golf Course

PROJECT NO.: GP4716
BH LOCATION: Upper Campground



LOGGED BY: DB
CONTRACTOR: Frontier Enviro-Drilling
RIG/METHOD: Solid Stem Track Mount
NOTES:

DATE: July 2, 2020
GROUND ELEVATION (m): 575.6
NORTHING (m): 6211032
EASTING (m): 495317

BOREHOLE NO.: 20-04

CLIENT: Heart River Golf Course
SITE: Nampa Heart River Golf Course

PROJECT NO.: GP4716
BH LOCATION: Lower Campground

Depth (m)	Description	Symbol	Moisture (Wp |-----X-----| Wl) 25 50 75	Type	Sample No	SPT (N)	Comments	Well Completion Details	Elevation (m)
0	GROUND SURFACE								580.1
0	***Gravel*** Sandy, some silt, some clay, surfacing for camping lot.		22				Cased hole with hollow stem augers to 3.0 m	Bentonite	
1			22		4G1				
1	***Clay*** trace sand, firm, high plastic, masstive, moist, brown.		18		4D1	9	Sieve Analysis (at 2.5 m) Clay & Silt: 1.5% Sand: 69.4% Gravel: 29.1%	Sept 23, 2020	578.2
2	***Sand and Gravel*** Loose, orange iron staining, wet. seepage. - From 0 to 3.0 m, hollow stem augers used		18		4G2				577.3
3					4D2	19		25 mm PVC	
4	***Clay Till*** Some silt, trace sand, trace gravel, firm to stiff, moist, medium platic, grey, gypsum inclusions.		18		4G3			Cuttings	
5			17		4D3	21			
6	-From 6.2 to 7.1 m, trace silt lenses, very thin		16		4G4				
6					4D4	23			
7			16						
8	- From 7.7 to 9.4 m, thin grey silt lenses throughout.		18		4D5	26			
8					4G5				
9			16		4G6				
9					4U1				
10			15		4D6	23		25 mm Slotted PVC	
10					4G7			Sand	
11					4D7	26			569.1
11	END OF BOREHOLE Borehole dry upon completion Groundwater at 2.06 m on Sept 23, 2020								
12									
13									
14									
15									
16									
17									

LOGGED BY: DB
CONTRACTOR: Frontier Enviro-Drilling
RIG/METHOD: Solid Stem Track Mount
NOTES:

DATE: July 2, 2020
GROUND ELEVATION (m): 580.1
NORTHING (m): 6210967
EASTING (m): 495458

Parkland GEO

BOREHOLE NO.: 20-05

CLIENT: Heart River Golf Course
SITE: Nampa Heart River Golf Course

PROJECT NO.: GP4716
BH LOCATION: East of Clubhouse

Depth (m)	Description	Symbol	Moisture (Wp |-----X-----| Wl) 25 50 75	Type	Sample No	SPT (N)	Comments	Well Completion Details	Elevation (m)
0	GROUND SURFACE								580.8
0	***Gravel*** sandy, silty, some clay, dense, moist.		27				Grain Size Analysis (at 1.2 m) Clay: 75.2% Silt: 20.4% Sand: 4.4% Atterberg Limits PL: 17.0% LL: 71.0% PI: 54.0%	Bentonite	580.4
1	***Clay*** Some silt, firm, high plastic, massive, moist, brown.		26 27	G	5G1				
2			27		5D1				
3			23	G	5G2				
3					5U1				577.1
4	***Clay Till*** Some silt, trace sand, trace gravel, very stiff, medium plastic, gypsum inclusions, moist.		23		5D2	11			
4				G	5G3				
5			17		5D3	31			
6			17	G	5G4				
6	- At 6.2 m, mottled light/ dark brown				5D4	30			
7			17	G	5G5		Grain Size Analysis (at 7.5 m) Clay: 32.7% Silt: 38.0% Sand: 28.9% Gravel: 0.4% Atterberg Limits PL: 13.0% LL: 39.0% PI: 26.0%		
8	- At 7.8 m, light orange/ brown		17 18		5D5				
9			18	G	5G6				
9					5D6	28			
10			17						
11			17		5D7	30			
11	- At 11.3 m, dark grey								
12			17		5D8	23			568.3
13	END OF BOREHOLE Borehole dry upon completion Groundwater at 4.4 m on Sept 23, 2020								
14									
15									
16									
17									

Well Completion Details: 25 mm PVC; Sept 23, 2020; Cuttings; 25 mm Slotted PVC; Sand

LOGGED BY: DB
CONTRACTOR: Frontier Enviro-Drilling
RIG/METHOD: Solid Stem Track Mount
NOTES:

DATE: July 1, 2020
GROUND ELEVATION (m): 580.8
NORTHING (m): 6210906
EASTING (m): 495172

Parkland GEO

BOREHOLE NO.: 20-06

CLIENT: Heart River Golf Course
SITE: Nampa Heart River Golf Course

PROJECT NO.: GP4716
BH LOCATION: South of Clubhouse

SUBSURFACE PROFILE | **SAMPLES**

Depth (m)	Description	Symbol	Moisture (Wp |-----X-----| Wl) 25 50 75	Type	Sample No	SPT (N)	Comments	Well Completion Details	Elevation (m)
0	GROUND SURFACE						Grain Size Analysis (at 1.3 m) Clay: 15.6% Silt: 27.5% Sand: 56.9% Atterberg Limits PL: 12.0% LL: 24.0% PI: 12.0% Cased hole with hollow stem augers to 3.0 m	Sept 23, 2020 Bentonite 25 mm PVC Cuttings 25 mm Slotted PVC Sand	574.2
0	***Topsoil*** Some clay, organics, wet, black.		99						573.6
1	***Sand and silt*** some clay, soft, massive, iron staining, grey/orange mottled, moist to wet. - At 1.5 m, wet gravel within sand and silt - At 1.5 m, seepage		21		6G1				
1					6D1	7			
2			13						
2					6G2				571.6
3					6G3				
3			20		6D2	14			
3	***Clay Till*** Some silt, trace sand, trace gravel, trace cobbles, firm to stiff, medium plastic, massive, moist, dark grey.								
4			18		6G4				
4					6D3	17			
5			59						
5					6G5				
6					6U1				
6					6D4	18			
7			18		6G6				
7					6D5	22			
8			18						
9			17		6D6	16			
10			17		6G7				
10					6D7	16			
11			17						
12					6D8	29			561.9
12	END OF BOREHOLE								
13	Borehole dry upon completion Groundwater at 1.03 m on Sept 23, 2020								
14									
15									
16									
17									

LOGGED BY: DB
CONTRACTOR: Frontier Enviro-Drilling
RIG/METHOD: Solid Stem Track Mount
NOTES:

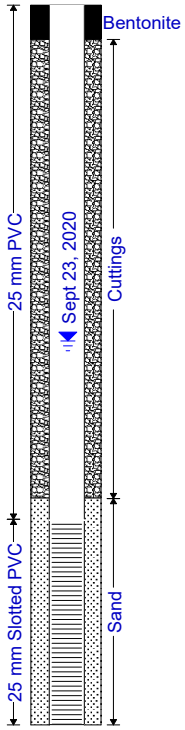
DATE: July 1, 2020
GROUND ELEVATION (m): 574.2
NORTHING (m): 6210869
EASTING (m): 495215

BOREHOLE NO.: 20-07

CLIENT: Heart River Golf Course
SITE: Nampa Heart River Golf Course

PROJECT NO.: GP4716
BH LOCATION: Southwestern greens

Depth (m)	Description	Symbol	Moisture (Wp |-----X-----| Wl) 25 50 75	Type	Sample No	SPT (N)	Comments	Well Completion Details	Elevation (m)
0	GROUND SURFACE								571.4
0	***Topsoil*** Some clay, some silt, roots, moist, dark.		29						
1	***Clay*** Little sand, firm, massive, moist, grey/ brown.		16		7G1		Sieve Analysis (at 1.2 m) Clay & Silt: 12.1% Sand: 87.8% Gravel: 0.1%		570.5
1					7G2				
2			18		7D1	8			569.5
2	***Sand*** Well sorted, trace gravel, loose, moist - From 1.7 to 2.0 m, gravels and sand, trace seepage, some sloughing				7G3				
3			18		7D2	11			
4			17						
4	***Clay Till*** Some silt, trace sand, trace gravel, firm to stiff, medium plastic, moist, grey.				7G4				
5			18		7D3	18			
6			17						
7	- 2.5 m of sloughing upon completion.		17		7D4	22			
7					7G5				
8			17		7D5	25			
9			17						
9					7D6	24			
10			16		7G6				
11					7D7	16			560.4
11	END OF BOREHOLE								
12	Borehole dry upon completion Groundwater at 4.9 m on Sept 23, 2020								
13									
14									
15									
16									
17									



LOGGED BY: DB
CONTRACTOR: Frontier Enviro-Drilling
RIG/METHOD: Solid Stem Track Mount
NOTES:

DATE: July 2, 2020
GROUND ELEVATION (m): 571.4
NORTHING (m): 6210744
EASTING (m): 495083

Parkland GEO

BOREHOLE NO.: 20-08

CLIENT: Heart River Golf Course
SITE: Nampa Heart River Golf Course

PROJECT NO.: GP4716
BH LOCATION: Southern greens

Depth (m)	Description	Symbol	Moisture (Wp |-----X-----| Wl) 25 50 75	Type	Sample No	SPT (N)	Comments	Well Completion Details	Elevation (m)
0	GROUND SURFACE								572.3
0	***Gravel***		18						
1	***Clay*** Some silt, trace gravel, firm, high plastic, massive, damp.		13		8G1				571.6
2	***Silt and sand*** Trace clay, trace gravel, firm, massive, damp, orange/ brown.		16		8D1	29			570.7
3	***Clay Till*** Some silt, trace sand, trace gravel, medium plastic, massive, iron staining, gypsum inclusions, moist, brown.		18		8G2				
3					8D2	20	Grain Size Analysis (at 4.1 m) Clay: 34.2% Silt: 39.7% Sand: 25.2% Gravel: 0.9% Atterberg Limits PL: 12.0% LL: 40.0% PI: 28.0%		
4	- At 3.9 m, dark grey		17						
4			17		8G3				
5			17		8U1				
5					8D3	15			
6	- From 6.0 to 6.5 m, iron staining and very thin sand lenses		17		8G4				
6					8D4	17			
7			18						
8			17		8D5	24			
9			17		8G5				
9					8D6	21			
10			17						
11			17		8D7	28			
11					8G6				
12	- From 11.5 to 12.0 m, trace sand lenses		18						
12					8D8	20			559.8
13	END OF BOREHOLE Borehole dry upon completion								
14									
15									
16									
17									

Well Completion Details: Auger Cuttings

LOGGED BY: DB
CONTRACTOR: Frontier Enviro-Drilling
RIG/METHOD: Solid Stem Track Mount
NOTES:

DATE: July 1, 2020
GROUND ELEVATION (m): 572.3
NORTHING (m): 6210794
EASTING (m): 495278

THE PARKLANDGEO CONSULTING GROUP
EXPLANATION OF TERMS AND SYMBOLS

The terms and symbols used on the borehole logs to summarize the results of the field investigation and subsequent laboratory testing are described on the following pages.

The borehole logs are a graphical representation summarizing the soil profile as determined during site specific field investigation. The materials, boundaries, and conditions have been established only at the borehole location at the time of drilling. The soil conditions shown on the borehole logs are not necessarily representative of the subsurface conditions elsewhere across the site. The transitions in soil profile can have gradual rather than distinct boundaries.

1. **PRINCIPAL SOIL TYPE** – The major soil type by weight of material or by behaviour.

Material	Grain Size
Boulders	Larger than 300 mm
Cobbles	75 mm to 300 mm
Coarse Gravel	19 mm to 75 mm
Fine Gravel	5 mm to 19 mm
Coarse Sand	2 mm to 5 mm
Medium Sand	0.425 mm to 2 mm
Fine Sand	0.075 mm to 0.425 mm
Silt	0.020 to 0.075 mm
Clay	Smaller than 0.020 mm

2. **DESCRIPTION OF MINOR SOIL TYPE** – Minor soil types are identified by weight of minor component.

Descriptor	Percent
and	35 to 50
some	20 to 35
little	10 to 20
trace	1 to 10

3. **CONSISTENCY OF FINE GRAINED SOILS** – The following terms are used relative to undrained shear strength and Standard Penetration Test (SPT), N value, for blows per 300 mm penetration (ASTM D1586).

Description	Undrained Shear Strength, C_u (kPa)	SPT N Value
Very Soft	Less than 12	Less than 2
Soft	12 to 25	2 to 4
Firm	25 to 50	4 to 8
Stiff	50 to 100	8 to 15
Very Stiff	100 to 150	15 to 30
Hard	Over 150	Over 30

4. **RELATIVE DENSITY OF COARSE GRAINED SOIL** – The following terms are used relative to Standard Penetration Test (SPT), N value, for blows per 300 mm penetration (ASTM D1586).

Description	SPT N Value
Very Loose	Less than 4
Loose	4 to 10
Compact	10 to 30
Dense	30 to 50
Very Dense	Over 50

5. **TYPICAL SEDIMENTARY BEDROCK TYPES AND CLASSIFICATION** – The following terms are based on visual inspection and field/laboratory identification tests.

Characteristic	Sandstone	Mudrocks			
		Siltstone	Mudstone	Clayshale	Claystone
Composition	>50% Sand $CaCO_3$ or silica binder. Use weak acid to test for $CaCO_3$.	>50% Silt	33% to 66% Silt & 33% to 66% Clay	>50% Clay & <33% Silt	
Bedding	Banding possible Non- Fissile Wackes – dirty sandstone matrix (>15% clay)	Non-Fissile & Non-laminated	Non-Fissile & Non-laminated	Fissile	Non-Fissile

Definitions

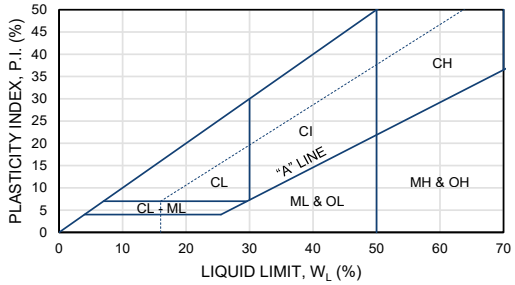
Fissile — Breaks apart on bedding planes, not fractures.
Shale — Only used to describe a fissile clay mudrock.
Slate — Hard mudstone exposed to high pressure and temperature.
Limestone — Sedimentary rock (i.e. particles) formed from calcium carbonate minerals from skeletal fragments of marine organisms such as coral. Particles generally too small to see with eye.

Parkland GEO

THE PARKLANDGEO CONSULTING GROUP
EXPLANATION OF TERMS AND SYMBOLS

MODIFIED UNIFIED CLASSIFICATION SYSTEM FOR SOILS

MAJOR DIVISION			GROUP SYMBOL	GRAPH SYMBOL	TYPICAL DESCRIPTION	LABORATORY CLASSIFICATION CRITERIA	
COARSE GRAINED SOILS (MORE THAN HALF BY WEIGHT LARGER THAN NO. 200 SIEVE)	**GRAVELS** MORE THAN HALF COARSE GRAINS LARGER THAN NO. 4 SIEVE	**CLEAN GRAVELS** (LITTLE OR NO FINES)	**GW**		WELL GRADED GRAVELS, GRAVEL-SAND MIXTURE, LITTLE OR NO FINES	$C_U = \frac{D_{60}}{D_{10}} \geq 4$ AND $Cc = \frac{(D_{30})^2}{D_{10} \times D_{60}} = 1$ to 3	
			GP		POORLY GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES	NOT MEETING ABOVE REQUIREMENTS	
		DIRTY GRAVELS (WITH SOME FINES)	**GM**		SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES	CONTENT OF FINES EXCEEDS 12%	ATTERBERG LIMITS BELOW "A" LINE OR P.I. LESS THAN 4
			GC		CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES		ATTERBERG LIMITS ABOVE "A" LINE AND P.I. GREATER THAN 7
	SANDS MORE THAN HALF FINE GRAINS SMALLER THAN NO. 4 SIEVE	**CLEAN SANDS** (LITTLE OR NO FINES)	**SW**		WELL GRADED SANDS, GRAVELLY SANDS WITH LITTLE OR NO FINES	$C_U = \frac{D_{60}}{D_{10}} \geq 6$ AND $Cc = \frac{(D_{30})^2}{D_{10} \times D_{60}} = 1$ to 3	
			SP		POORLY GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES	NOT MEETING ABOVE REQUIREMENTS	
		DIRTY SANDS (WITH SOME FINES)	**SM**		SILTY SANDS, SAND-SILT MIXTURES	CONTENT OF FINES EXCEEDS 12%	ATTERBERG LIMITS BELOW "A" LINE OR P.I. LESS THAN 4
			SC		CLAYEY SANDS, SAND-CLAY MIXTURES		ATTERBERG LIMITS ABOVE "A" LINE AND P.I. GREATER THAN 7
FINE-GRAINED SOILS (MORE THAN HALF BY WEIGHT PASSES NO. 200 SIEVE)	**SILTS** BELOW "A" LINE NEGLIGIBLE ORGANIC CONTENT	$W_L < 50\%$	**ML**		INORGANIC SILTS & VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY	CLASSIFICATION IS BASED UPON PLASTICITY CHART (SEE BELOW)	
		$W_L > 50\%$	**MH**		INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS, FINE SANDY OR SILTY SOILS		
	CLAYS ABOVE "A" LINE NEGLIGIBLE ORGANIC CONTENT	$W_L < 30\%$	**CL**		INORGANIC CLAYS OF LOW PLASTICITY, GRAVELLY, SANDY, OR SILTY SOILS		
		$30\% < W_L < 50\%$	**CI**		INORGANIC CLAYS OF MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS		
		$W_L > 50\%$	**CH**		INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS		
	ORGANIC SILTS & CLAYS BELOW "A" LINE	$W_L < 50\%$	**OL**		ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW AND MEDIUM PLASTICITY		
		$W_L > 50\%$	**OH**		ORGANIC CLAYS OF HIGH PLASTICITY, ORGANIC SILTS		
HIGHLY ORGANIC SOILS			**Pt**		PEAT AND OTHER HIGHLY ORGANIC SOILS	STRONG COLOR OR ODOR, AND OFTEN FIBROUS TEXTURE	



NOTES ON SOIL CLASSIFICATION AND DESCRIPTION:

1. Soil are classified and described according to their engineering properties and behaviour.
2. Boundary classification for soil with characteristics of two groups are given combined group symbols (e.g. GW-GC is a well graded gravel sand mixture with clay binder between 5 and 12%).
3. Soil classification is in accordance with the Unified Soil Classification System (ASTM D2487) with the exception that an inorganic clay of medium plasticity (CI) is recognized.
4. The use of modifying adjectives may be employed to define the estimated percentage range of minor components.

THE PARKLANDGEO CONSULTING GROUP
EXPLANATION OF TERMS AND SYMBOLS

GENERAL SYMBOLS

FS	factor of safety
V	volume
W	weight
π	Pi = 3.1416
g	acceleration due to gravity = 9.81 m/s^2
t	time
Δ	change in, (e.g. Δt is change in time)

SOIL INDEX PROPERTIES

w, mc	soil water (moisture) content
ρ	bulk density
ρ_d	dry density
ρ_w	density of water
ρ_s	density of solid particles
γ	bulk unit weight = ρg (i.e. mass density x gravity)
γ_d	dry unit weight
γ_w	unit weight of water = 9.81 kN/m^3
γ_s	unit weight of solid particles
γ'	unit weight of submerged soil
D_R	relative density of solid particles ($D_R = \rho_s / \rho_w$) (formerly specific gravity G_S)
e	void ratio
n	porosity
S	degree of saturation
LL, w_L	liquid limit
PL, w_P	plastic limit
PI, I_P	plasticity index = (LL - PL)
w_S	shrinkage limit
I_L	liquidity index = (w - PL) / PI
I_C	consistency index = (LL - w) / PI
e_{max}	void ratio in loosest state
e_{min}	void ratio in densest state
I_D	density index = (e_{max} - e) / (e_{max} - e_{min}) (formerly relative density)

ONE DIMENSIONAL CONSOLIDATION PROPERTIES

c_c	compression index in normally consolidated range
c_r	recompression index in over-consolidated range
c_s	swelling index
c_a	coefficient of secondary consolidation
c_v	coefficient of consolidation
m_V	coefficient of volume change
T_V	time factor (vertical direction)
U	degree of consolidation
σ_p	pre-consolidation stress
OCR	over-consolidation ratio = σ_p / σ'_{vo}

HYDRAULIC PROPERTIES

h	hydraulic head
i	hydraulic gradient
i_v	vertical hydraulic gradient
k	hydraulic conductivity (coefficient of permeability)
K	permeability (m^2)
q	volumetric rate of flow
v	velocity of flow
j	seepage force per unit volume

SHEAR STRENGTH PROPERTIES

τ	shear strength = c' + σ' tan φ'
τ	shear strength = q_U / 2
q_U	compressive strength = (σ_1 - σ_3) = 2 c_U
τ_p	peak shear strength
τ_r	residual shear strength
φ'	effective angle of internal friction (phi)
δ	angle of interface friction
μ	coefficient of friction = tan δ
c'	effective cohesion
c_U, s_U	undrained shear strength (for φ = 0 case)
p	mean total stress = (σ_1 + σ_3)/2
p'	mean effective stress = (σ'_1 + σ'_3)/2
S_t	sensitivity

STRESS AND STRAIN PROPERTIES

γ	shear strain
ε	linear strain
ε_V	volumetric strain
η	coefficient of viscosity
ν	poisson's ratio
σ	total stress
σ'	effective stress = (σ' = σ – *u*)
u	pore water pressure
σ'_{vo}	initial effective overburden stress
σ_1	major principal stress
σ_2	intermediate principal stress
σ_3	minor principal stress
σ_{oct}	octahedral (mean) stress = (σ_1 + σ_2 + σ_3)/3
τ	shear stress
E	Young's modulus (modulus of elasticity)
G	shear modulus of deformation
G_{max}	small strain shear modulus = ρV_S
V_S	shear wave velocity
K	bulk modulus of compressibility

APPENDIX B

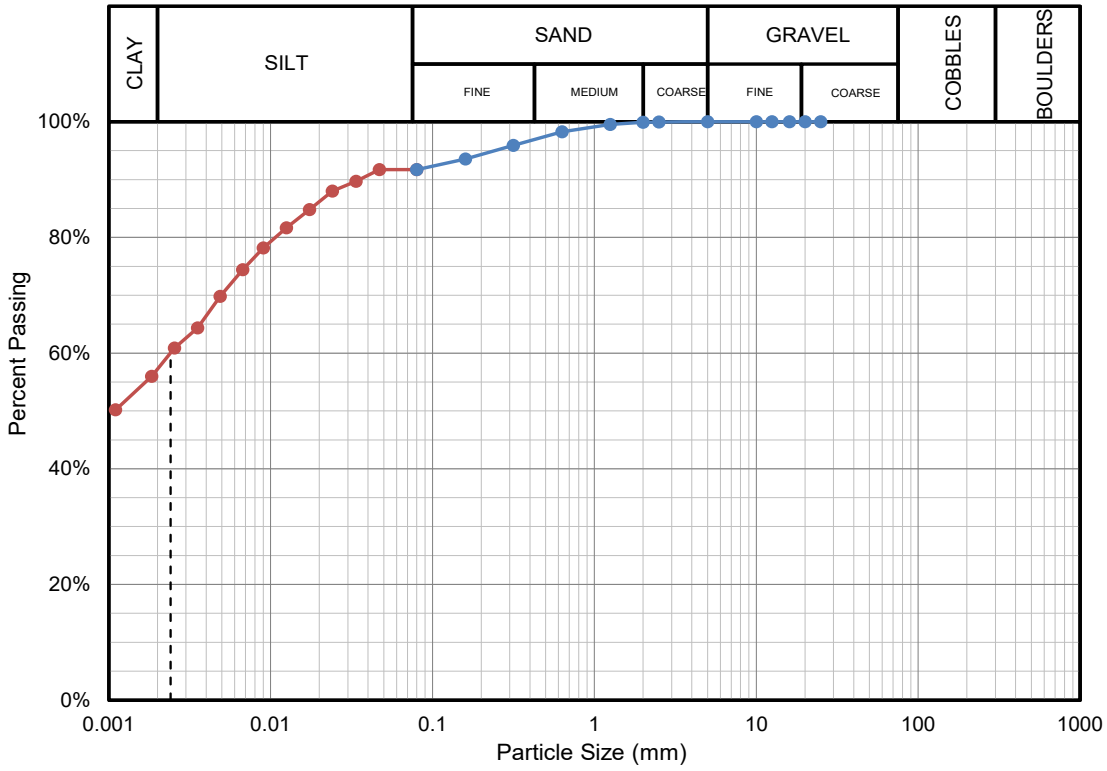
LABORATORY RESULTS

PARTICLE-SIZE ANALYSIS, LIQUID LIMIT, PLASTIC LIMIT, AND PLASTICITY

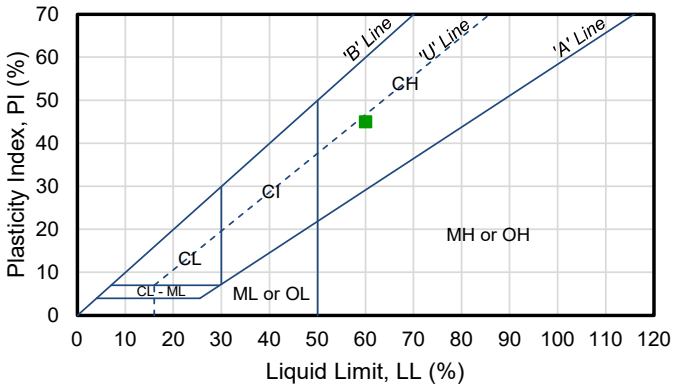
ASTM D422 & ASTM D4318

PROJECT: Nampa Heart River Golf Course Slope Assessment
PROJECT#: GP4716
CLIENT: Heart River Golf Course
SOIL DESCRIPTION: clay, some silt, trace sand

SAMPLE DATE: July 1-2, 2020
TEST DATE: July 13, 2020
SAMPLE ID: 1G3
DEPTH: 2.5 m



PARTICLE-SIZE ANALYSIS	Gravel	0.0%
	Sand	8.3%
	Silt	34.5%
	Clay	57.2%
	D_{10}	---
	D_{30}	---
	D_{60}	0.0024 mm
	C_U	---
	C_C	---
LIMITS	PL	15
	LL	60
	PI	45



Modified Unified Soil Classification	Group Symbol
Fat clay	CH

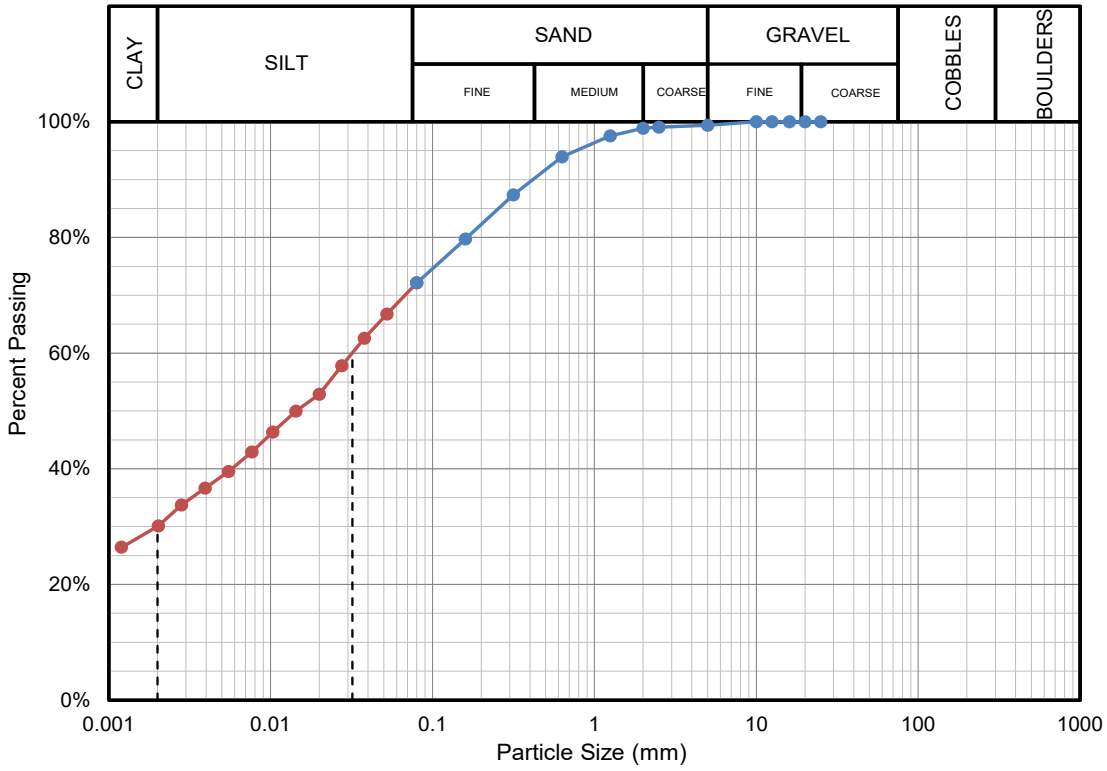
TECH: PG
CHECKED: RW

PARTICLE-SIZE ANALYSIS, LIQUID LIMIT, PLASTIC LIMIT, AND PLASTICITY

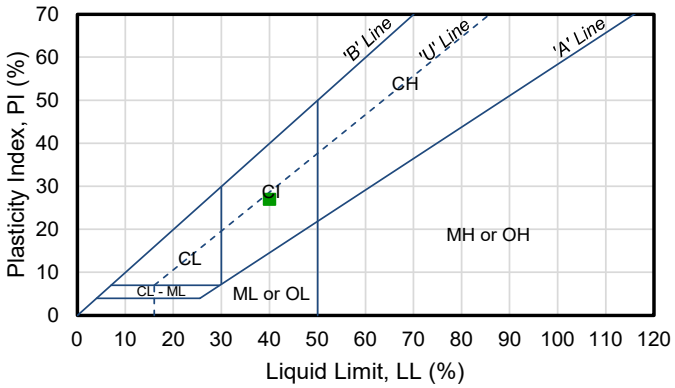
ASTM D422 & ASTM D4318

PROJECT: Nampa Heart River Golf Course Slope Assessment
PROJECT#: GP4716
CLIENT: Heart River Golf Course
SOIL DESCRIPTION: silt, some clay, some sand

SAMPLE DATE: July 1-2, 2020
TEST DATE: July 13, 2020
SAMPLE ID: 3D3
DEPTH: 5.0 m



PARTICLE-SIZE ANALYSIS	Gravel	0.6%
	Sand	28.0%
	Silt	41.3%
	Clay	30.0%
	D_{10}	---
	D_{30}	0.0020 mm
	D_{60}	0.0319 mm
	C_U	---
	C_C	---
LIMITS	PL	13
	LL	40
	PI	27



Modified Unified Soil Classification	Group Symbol
Lean clay with sand	CI

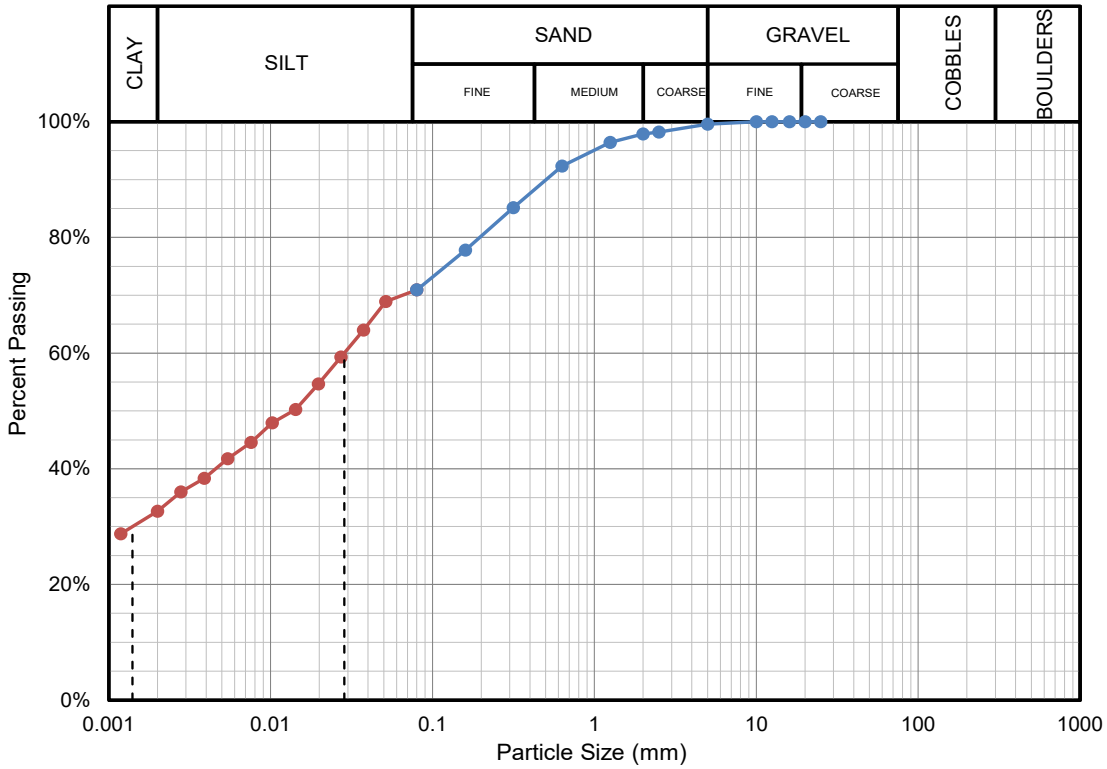
TECH: PG
CHECKED: RW

PARTICLE-SIZE ANALYSIS, LIQUID LIMIT, PLASTIC LIMIT, AND PLASTICITY

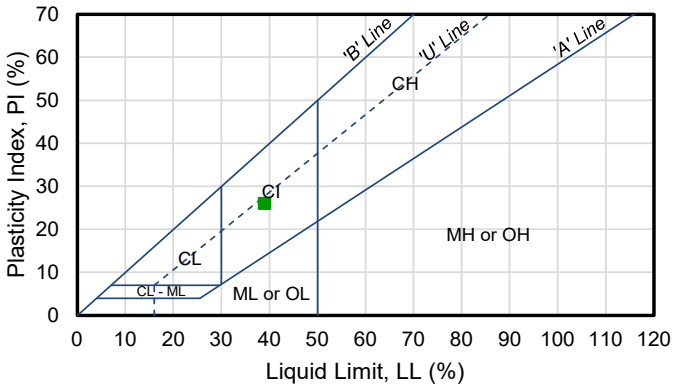
ASTM D422 & ASTM D4318

PROJECT: Nampa Heart River Golf Course Slope Assessment
PROJECT#: GP4716
CLIENT: Heart River Golf Course
SOIL DESCRIPTION: silt, some clay, some sand

SAMPLE DATE: July 1-2, 2020
TEST DATE: July 13, 2020
SAMPLE ID: 5D5
DEPTH: 7.5 m



PARTICLE-SIZE ANALYSIS	Gravel	0.4%
	Sand	28.9%
	Silt	38.0%
	Clay	32.6%
	D_{10}	---
	D_{30}	0.0014 mm
	D_{60}	0.0285 mm
	C_U	---
	C_C	---
LIMITS	PL	13
	LL	39
	PI	26



Modified Unified Soil Classification	Group Symbol
Lean clay with sand	CI

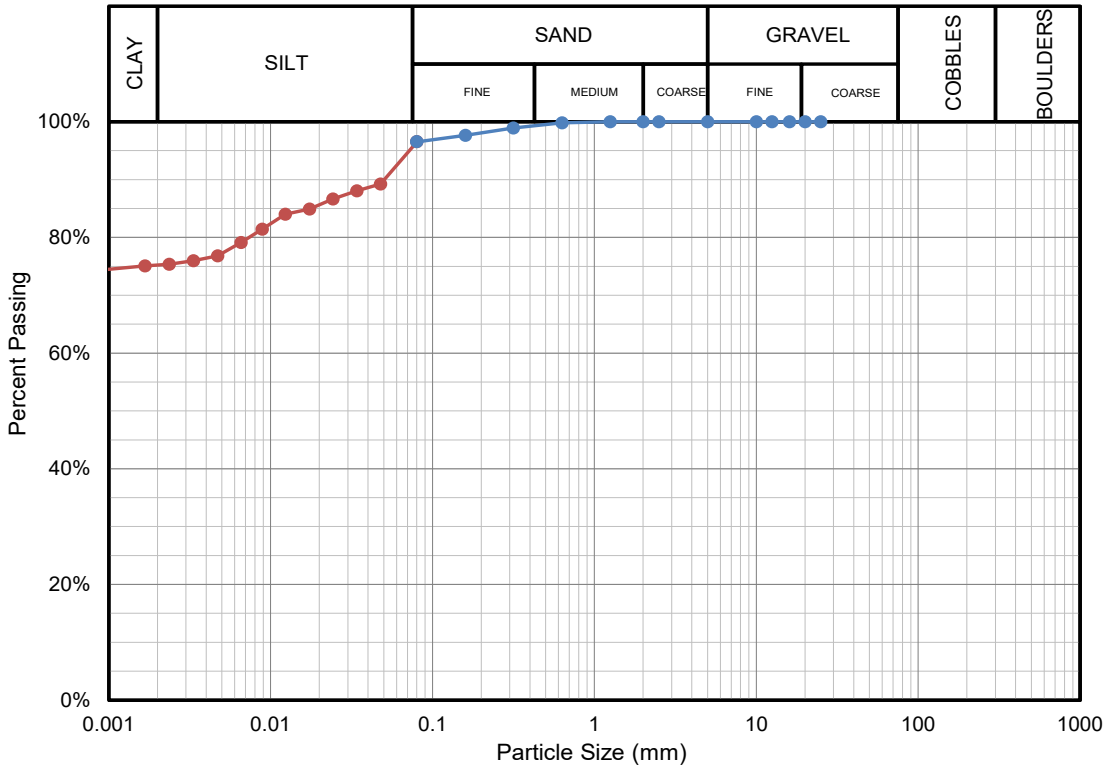
TECH: PG
CHECKED: RW

PARTICLE-SIZE ANALYSIS, LIQUID LIMIT, PLASTIC LIMIT, AND PLASTICITY

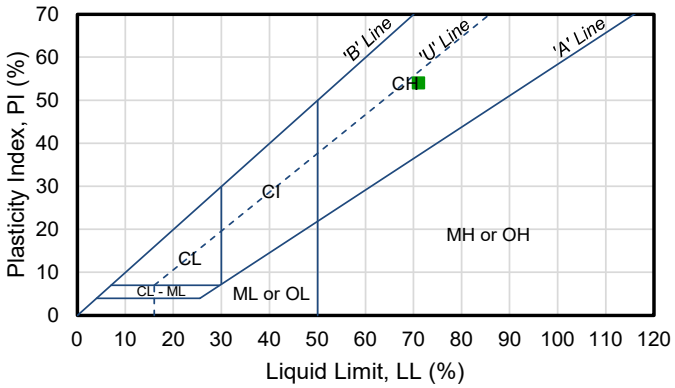
ASTM D422 & ASTM D4318

PROJECT: Nampa Heart River Golf Course Slope Assessment
PROJECT#: GP4716
CLIENT: Heart River Golf Course
SOIL DESCRIPTION: clay, some silt, trace sand

SAMPLE DATE: July 1-2, 2020
TEST DATE: July 13, 2020
SAMPLE ID: 5G1
DEPTH: 1.2 m



PARTICLE-SIZE ANALYSIS	Gravel	0.0%
	Sand	4.4%
	Silt	20.4%
	Clay	75.2%
	D_{10}	---
	D_{30}	---
	D_{60}	---
	C_U	---
	C_C	---
LIMITS	PL	17
	LL	71
	PI	54



Modified Unified Soil Classification	Group Symbol
Fat clay	CH

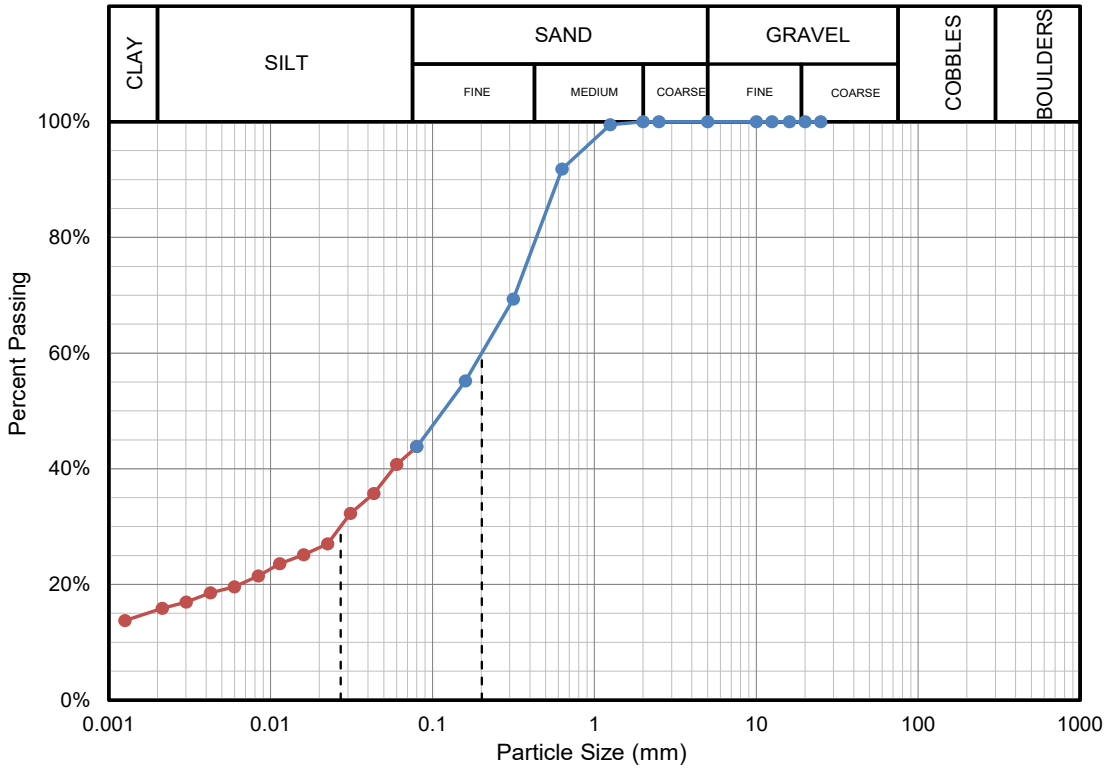
TECH: PG
CHECKED: RW

PARTICLE-SIZE ANALYSIS, LIQUID LIMIT, PLASTIC LIMIT, AND PLASTICITY

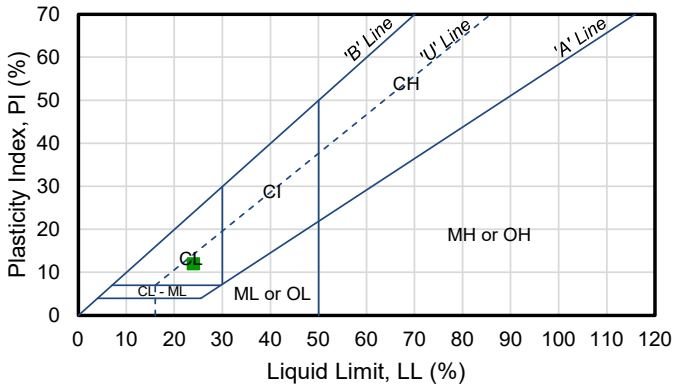
ASTM D422 & ASTM D4318

PROJECT: Nampa Heart River Golf Course Slope Assessment
PROJECT#: GP4716
CLIENT: Heart River Golf Course
SOIL DESCRIPTION: sand, some silt, little clay

SAMPLE DATE: July 1-2, 2020
TEST DATE: July 13, 2020
SAMPLE ID: 6D1
DEPTH: 1.3 m



PARTICLE-SIZE ANALYSIS	Gravel	0.0%
	Sand	56.9%
	Silt	27.5%
	Clay	15.6%
	D_{10}	---
	D_{30}	0.0270 mm
	D_{60}	0.2016 mm
	C_U	---
	C_C	---
LIMITS	PL	12
	LL	24
	PI	12



Modified Unified Soil Classification	Group Symbol
Clayey sand	SC

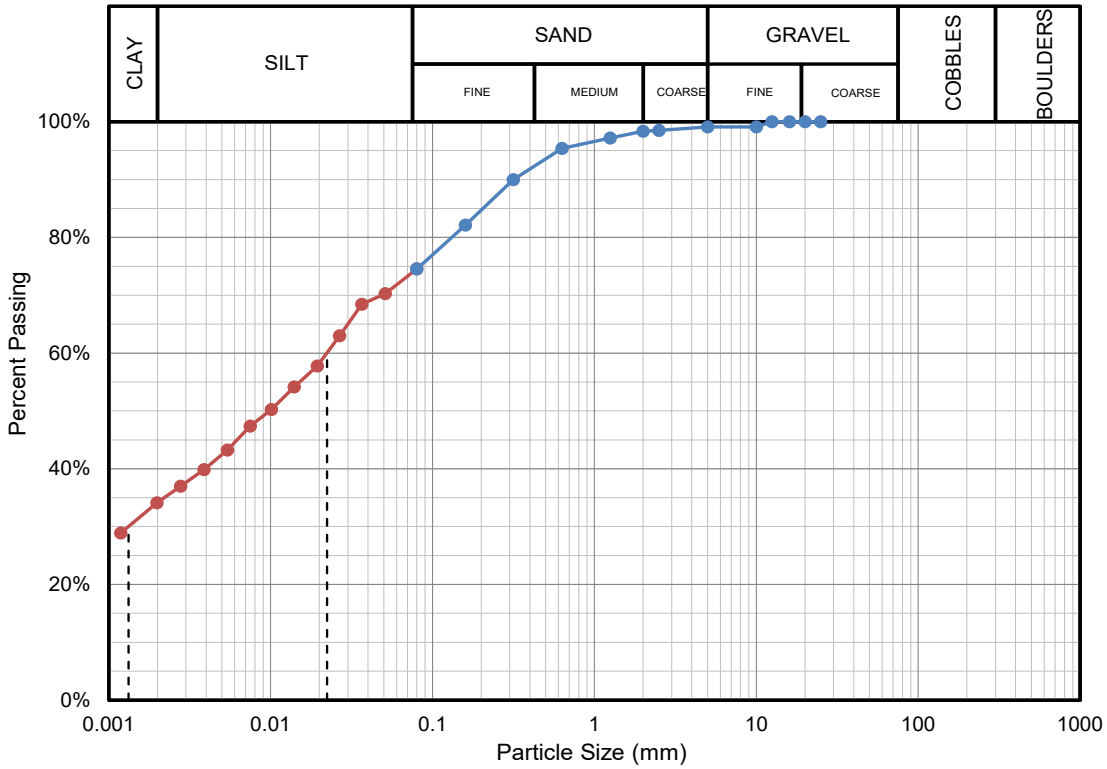
TECH: PG
CHECKED: RW

PARTICLE-SIZE ANALYSIS, LIQUID LIMIT, PLASTIC LIMIT, AND PLASTICITY

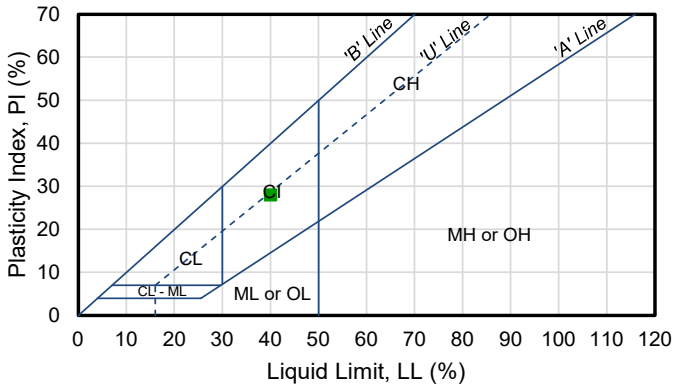
ASTM D422 & ASTM D4318

PROJECT: Nampa Heart River Golf Course Slope Assessment
PROJECT#: GP4716
CLIENT: Heart River Golf Course
SOIL DESCRIPTION: silt, some clay, some sand

SAMPLE DATE: July 1-2, 2020
TEST DATE: July 13, 2020
SAMPLE ID: 8G3
DEPTH: 4.1 m



PARTICLE-SIZE ANALYSIS	Gravel	0.9%
	Sand	25.2%
	Silt	39.8%
	Clay	34.2%
	D_{10}	---
	D_{30}	0.0013 mm
	D_{60}	0.0222 mm
	C_U	---
	C_C	---
LIMITS	PL	12
	LL	40
	PI	28



Modified Unified Soil Classification	Group Symbol
Lean clay with sand	CI

TECH: PG
CHECKED: RW

SIEVE PARTICLE-SIZE ANALYSIS

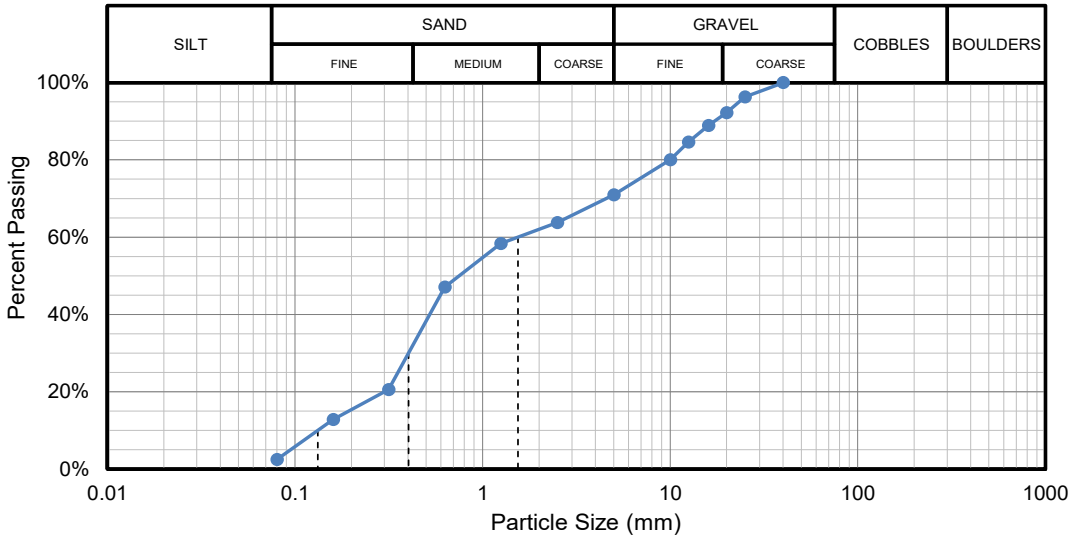
ASTM C136

PROJECT: Nampa Heart River Golf Course Slope Assessment
PROJECT#: GP4716
CLIENT: Heart River Golf Course
SOIL DESCRIPTION: SP - Poorly graded sand with gravel

SAMPLED: July 1&2, 2020
TESTED: July 10, 2020
SAMPLE ID: 4G2
DEPTH: 2.5 m

MASS MEASUREMENTS AND PERCENT PASSING

Sieve Size (mm)	Mass Retained on Sieve (g)	Cumulated Mass Retained (g)	Total Mass Finer (g)	Percent Passing
80				
63				
50				
40	0.0	0.0	1611.3	100.0%
25	59.4	59.4	1551.9	96.3%
20	66.5	125.9	1485.4	92.2%
16.0	52.6	178.5	1432.8	88.9%
12.5	69.4	247.9	1363.4	84.6%
10.0	73.3	321.2	1290.1	80.1%
5.00	147.1	468.3	1143.0	70.9%
2.50	115.0	583.3	1028.0	63.8%
1.25	87.6	670.9	940.4	58.4%
0.630	181.6	852.5	758.8	47.1%
0.315	427.1	1279.6	331.7	20.6%
0.160	125.1	1404.7	206.6	12.8%
0.080	166.4	1571.1	40.2	2.5%
Pan	8.7	1579.8	---	---



RESULTS		
	Gravel	29.1%
	Sand	69.4%
	Silt & Clay	1.5%

GRAIN SIZE		
	D_{10}	0.13 mm
	D_{30}	0.40 mm
	D_{60}	1.54 mm

COEFF.		
	Uniformity, C_U	11.6
	Curvature, C_C	0.8

SIEVE PARTICLE-SIZE ANALYSIS

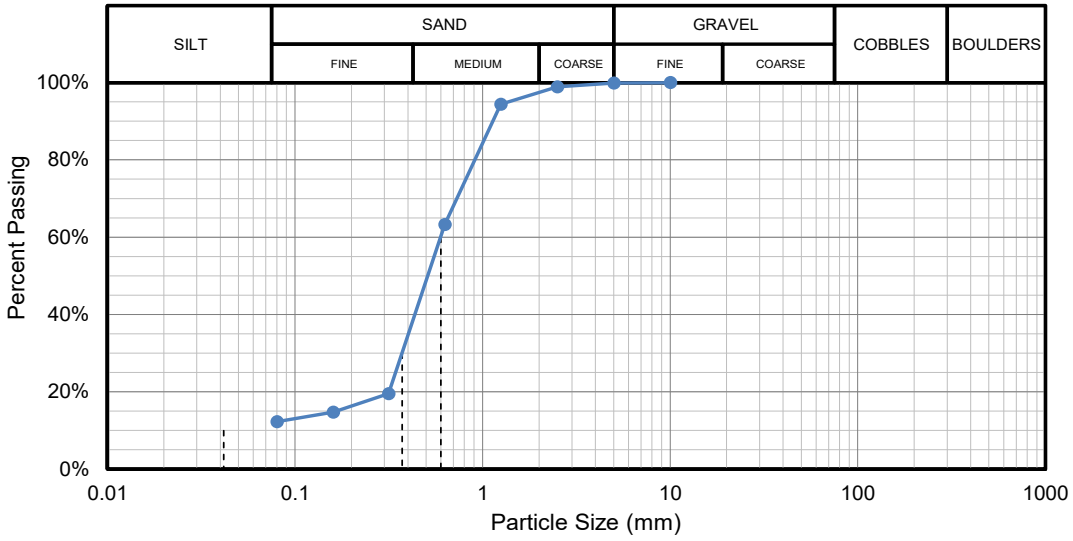
ASTM C136

PROJECT: Nampa Heart River Golf Course Slope Assessment
PROJECT#: GP4716
CLIENT: Heart River Golf Course
SOIL DESCRIPTION: SM - Silty sand

SAMPLED: July 1&2, 2020
TESTED: July 10, 2020
SAMPLE ID: 7G2
DEPTH: 1.2 m

MASS MEASUREMENTS AND PERCENT PASSING

Sieve Size (mm)	Mass Retained on Sieve (g)	Cumulated Mass Retained (g)	Total Mass Finer (g)	Percent Passing
80				
63				
50				
40				
25				
20				
16.0				
12.5				
10.0	0.0	0.0	797.2	100.0%
5.00	1.0	1.0	796.2	99.9%
2.50	7.7	8.7	788.5	98.9%
1.25	35.9	44.6	752.6	94.4%
0.630	248.2	292.8	504.4	63.3%
0.315	349.0	641.8	155.4	19.5%
0.160	38.2	680.0	117.2	14.7%
0.080	19.3	699.3	97.9	12.3%
Pan	7.8	707.1	---	---



RESULTS		
	Gravel	0.1%
	Sand	87.8%
	Silt & Clay	12.1%

GRAIN SIZE		
	D_{10}	0.04 mm
	D_{30}	0.37 mm
	D_{60}	0.60 mm

COEFF.		
	Uniformity, C_U	14.4
	Curvature, C_C	5.6

DIRECT SHEAR TEST

ASTM D3080

PROJECT: Nampa Heart River Golf Course
PROJECT#: GP4716
CLIENT: Nampa Heart River Golf Course
Soil Classification: Clay

SAMPLE ID: 5U1 @ 3.0 m
SAMPLE DATE: July 1, 2020
TEST DATE: August 3, 2020
SAMPLE CONDITION: Undisturbed

		SAMPLE 1		SAMPLE 2		SAMPLE 3	
		Initial	Final	Initial	Final	Initial	Final
SAMPLE DIMENSIONS	Height (mm)	25.70	25.70	25.33	24.77	25.65	24.69
	Diameter (mm)	63.50	63.50	63.50	63.50	63.50	63.50
	Area (mm^2)	3167	3167	3167	3167	3167	3167
	Volume (mm^3)	81400	81394	80229	78458	81242	78195
SOIL PROPERTIES	Wt. Wet Soil + Rings (g)	257.4	-	261.00	-	261.10	-
	Wt. Rings (g)	106.5	-	106.5	-	106.5	-
	Wt. Wet Soil (g)	150.9	-	154.5	-	154.6	-
	Wet Density (kg/m^3)	1854	-	1926	-	1903	-
	Moisture Content (%)	21.4	24.5	18.7	23.4	24.6	26.8
	Dry Density (kg/m^3)	1527	-	1622	-	1527	-
	Assumed Specific Gravity	2.75		2.75		2.75	
	Porosity	0.44	-	0.41	-	0.44	-
	Void Ratio	0.80	-	0.70	-	0.80	-
	Degree of Saturation (%)	73.52	-	74.06	-	84.53	-
RESULTS SUMMARY	Consolidation (%)	0.01%		2.21%		3.75%	
	Consolidation Time (min)	721		3056		3037	
	T_{50} (min)	4.75		4.75		4.75	
	Deformation Rate (mm/min)	0.0400		0.0400		0.0400	
	Normal Stress (kPa)	40		75		150	
	Peak Shear Stress (kPa)	28		50		69	
	Residual Shear Stress (kPa)	19		30		50	
INDEX TESTING	Liquid Limit	--		Gravel (%)		--	
	Plastic Limit	--		Sand (%)		--	
	Plasticity Index	--		Silt (%)		--	
	Soil Classification	--		Clay (%)		--	

	SHEAR RESULTS (Linear Best Fit)	
	PEAK	RESIDUAL
c'	18 kPa	8 kPa
ϕ'	19.4°	15.9°

Test Machine: Humboldt HM-2560A and HM5755 Direct/Residual Shear test apparatus with a 63.5 mm diameter round shear box. Horizontal and vertical strains measured by displacement transducers, and shear stress via a load cell. Normal force was applied with pneumatic pressure through a loading yoke.

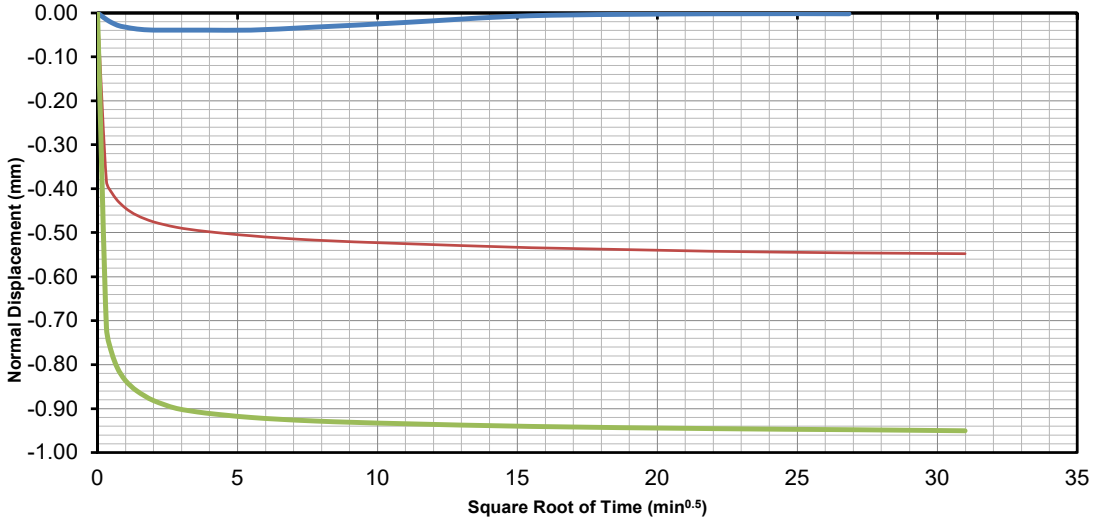
DIRECT SHEAR TEST

ASTM D3080

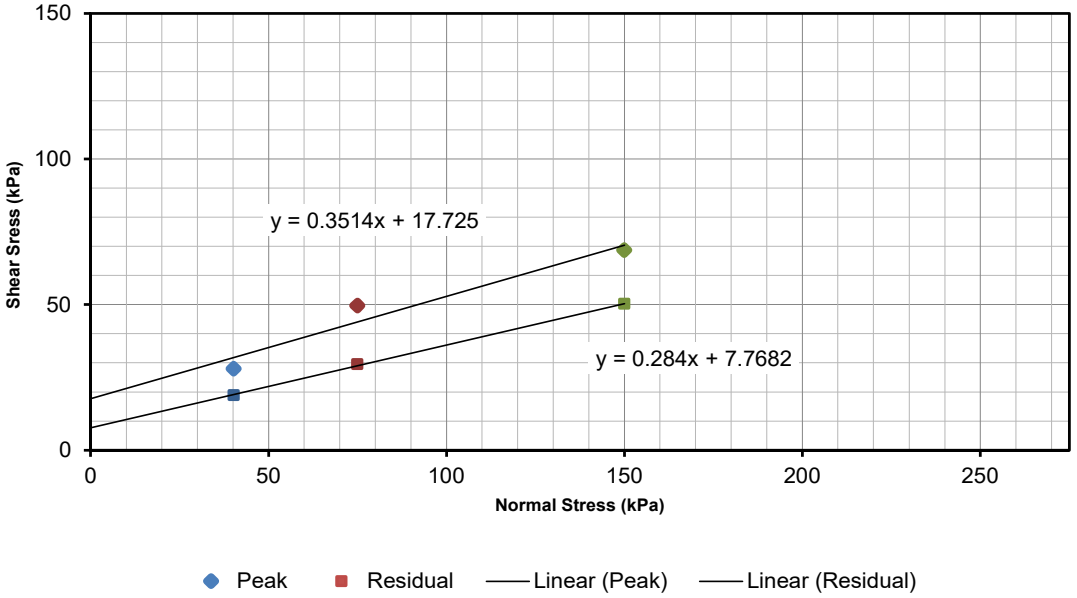
PROJECT: Nampa Heart River Golf Course
PROJECT#: GP4716
CLIENT: Nampa Heart River Golf Course

SAMPLE ID: 5U1 @ 3.0 m
SAMPLE DATE: July 1, 2020
TEST DATE: August 3, 2020

Consolidation Graph



Peak and Residual Results



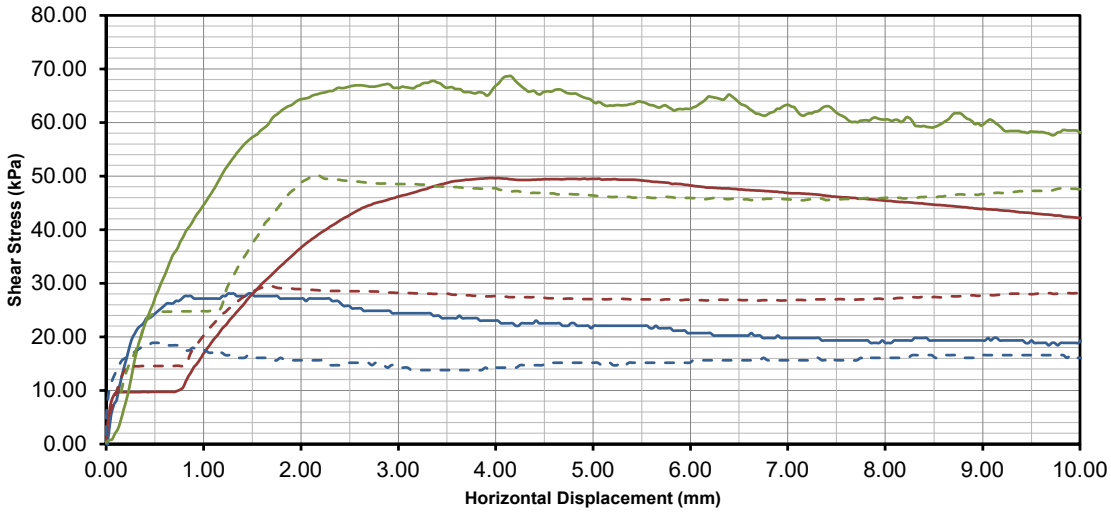
DIRECT SHEAR TEST

ASTM D3080

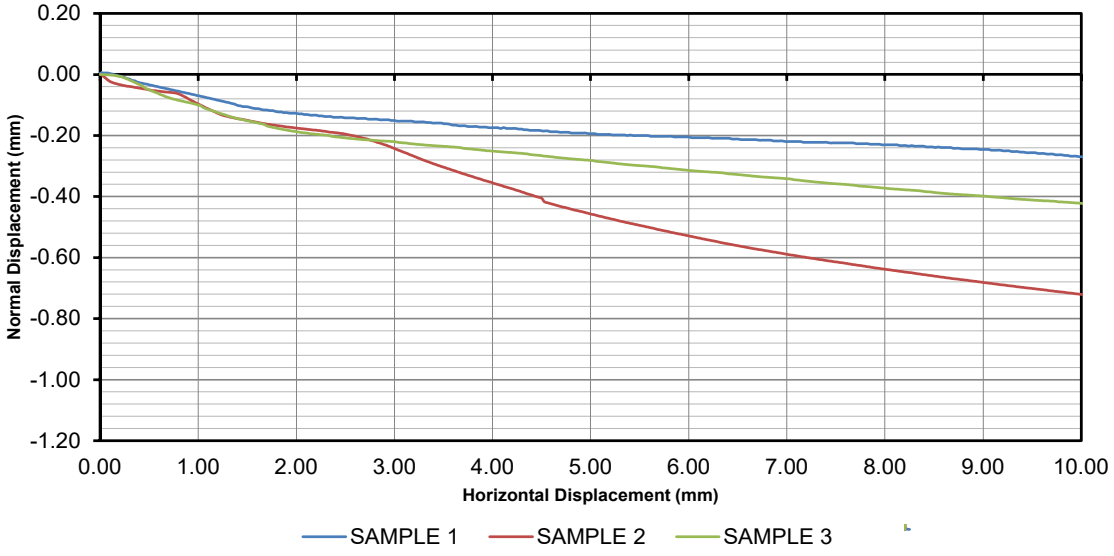
PROJECT: Nampa Heart River Golf Course
PROJECT#: GP4716
CLIENT: Nampa Heart River Golf Course

SAMPLE ID: 5U1 @ 3.0 m
SAMPLE DATE: July 1, 2020
TEST DATE: August 3, 2020

Peak and Residual Shear Stress



Horizontal vs Normal Displacement



LIMITATIONS

GENERAL TERMS, CONDITIONS
AND LIMITATIONS

THE PARKLANDGEO CONSULTING GROUP
GENERAL TERMS, CONDITIONS AND LIMITATIONS

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.

NORTHERN SUNRISE COUNTY

Bag 1300, 135 Sunrise Road
Peace River, AB
T8S 1Y9
northernsunrise.net

Municipal Planning Commission
Development Permit Report Form

Date of MPC Meeting: June 22, 2026
Development Permit Application Number: 26-14
Date of Report: June 12, 2026
Report Author: Jennifer Regal
CC: Cindy Millar

Applicant Information

Applicant Name: Tina Paluck
Landowner (if different): _____

Subject Site Details

Legal Land Description: NE.22.82.19.W5M
Rural Address (if applicable): A rural address will be needed if development permit application is approved.
Land Use District: Agricultural District
Existing Buildings / Structures: Manufactured Home
Existing Use: Rural Residential, bush, and crop land
Adjacent Land Uses: Agricultural land and rural residences

Proposed Development

Type of Development: Moved in Building older than 25-year-old
Description of Proposal: Manufactured Home for residential use
Total Area Affected (acres/hectares): 3158 square metres approximately
Other Required Approvals (AEP, AUC, etc.): _____

Policy Review

Municipal Development Plan Alignment
✓ **Yes** ☐ **No**
Comments: No concerns
Within an Area Structure
☐ **Yes** **X No**
Comments: _____

Land Use Bylaw Review

Specific Land Use Provisions: **Section 5.21 Moved in Buildings**
Variance Required: ☐ **Yes X No**
If yes, specify: _____

Summary of LUB Considerations:
Section 5.21 (1) speaks to the requirements of the moved in building to be considered as a discretionary use if they are twenty-five years or older. Section 5.21 (5) speaks to the requirements of ensuring that the moved in building is compatible to with the respect to the age and appearance of the neighbourhood, once the required renovations and improvements have been completed. Section 5.21 (6) speaks to the Development Authority may require the applicant to provide an acceptable security equal to the estimated amount of repairs to ensure completion of any renovations set out as a condition of approval of a permit.

NORTHERN SUNRISE COUNTY

Bag 1300, 135 Sunrise Road
Peace River, AB
T8S 1Y9
northernsunrise.net

Relevant District Regulations: Section 6.4 Agricultural District
Variance Required: ☐ Yes X No
If yes, specify: _____

Summary of LUB Considerations:

Section 6.4 identifies Dwelling Unit, Manufactured Home as a Permitted Use. However, Section 5.21(1) states that all Moved In Buildings over the age of twenty-five years or older are to be considered as a Discretionary Use. The setbacks are 24.4m for a front yard for a rural road, 15.2m for rear yard, and 15.2m for the side yards.

Internal & External Referrals

Operations & Infrastructure Review:

N/A

Other Department or Agency Comments:

Planning Assessment

Provide a concise summary of planning considerations, site suitability, use compatibility, environmental items, access, and any other relevant factors.

The Applicant had moved the trailer onto the site, prior to receiving development permit approval. Administration has no concerns with the trailer's compatibility with the adjacent land uses; it will be consistent with the dwellings once the required renovations are completed. The Applicant has created a new driveway and home site for the trailer within crop land; this driveway does not connect to the existing approach on TWP RD 832.5. as such the Applicant will be responsible for all costs for the construction of the approach. The trailer has been placed on pilings and will be skirted in wood. As part of the *Safety Codes Act*, RSA 2000, c, S-1. the trailer must be connected to a private sewage system and must meet all safety standards prior to occupancy. Section 5.21 (6) identifies that a security can be taken to ensure that the required renovations are completed within an acceptable timeframe.

Recommendation of the Development Officer

☐ Approve **X** Approve with Conditions ☐ Refuse

Suggested Conditions (if applicable)

1. The development plan as shown on attached Schedule "A".
2. The developer must satisfy the requirements, if any, of: Alberta Health Services, Alberta Municipal Affairs Safety Codes disciplines (building, electrical, gas, fire, and plumbing), and Alberta Environment and Protected Areas.
3. The developer is responsible for proper disposal of waste construction material within 2 weeks of completing development.
4. Issuance of this development permit does not exempt the applicant from obtaining required building, electrical, plumbing, gas, or fire permits. No construction may commence until all required Safety Codes permits have been issued by an accredited agency.

NORTHERN SUNRISE COUNTY

Bag 1300, 135 Sunrise Road
Peace River, AB
T8S 1Y9
northernsunrise.net

5. The developer must have the roof inspected and ensure that it meets current safety codes standards.
6. The developer must complete all exterior upgrades including but not limited to siding, windows, porch, and landscaping on or before July 1, 2027.
7. The developer will provide Northern Sunrise County's Development Officer photographs of progress at 60-day intervals, until the exterior upgrades, safety code standards, and landscaping is completed.
8. The trailer will not be occupied until an approved private sewage system is installed, and documentation is provided to Northern Sunrise County's Development Officer.
9. Within 60 days of receiving Safety Codes inspections, the developer shall provide Northern Sunrise County with copies of all building, electrical, gas, fire, and plumbing inspections reports.
10. Any change in the use of this development (including expansion or intensification) requires a new development permit.

Attachments

X Application Form
X Site Plan / Schedule A
X Supporting Reports

NORTHERN SUNRISE COUNTY

Bag 1300, 135 Sunrise Road
Peace River, AB
T8S 1Y9
northernsunrise.net

Development Permit Application Form

(office use only)

Development Permit File No.: 26-14		Date Application Received: May 21, 2026
Tax Roll No.: 45994	Development Permit Fee: 50.00	Date Fee Received: May 21/26
Date Application Deemed Complete:		Date of Decision:
This project is:		
New construction ☒ Residential Moved In building over 25 years old ☐ Commercial_____ ☐ Industrial_____ ☐ Other		☐ Addition to existing building ☐ Change of use ☐ Revisions to an approved DP
District: Agricultural District		IDP (if any):
Proposed Use(s) (as listed in the land use bylaw):		
☐ Permitted Use		☒ Discretionary Use
Plans Attached:		
Site Plan: YES or NO		Floor Plan: YES or NO

Fee information *This fee information is provided for convenience only and is subject to change as per the Fees and Charges Bylaw B464/25*

RESIDENTIAL:	***NON-RESIDENTIAL:***
✓ *$0-$249,999 -* ***$50 APPLICATION FEE***	*$0-$249,000 -* ***$100 APPLICATION FEE***
$250,000+ - ***$100 APPLICATION FEE***	*$250,000-$499,000 -* ***$250 APPLICATION FEE***
	$500,000 - $999,000 - ***$500 APPLICATION FEE***
	$1 MILLION - $4,999,999 - ***$1000 APPLICATION FEE***
	$5 MILLION+ - ***$2,500 APPLICATION FEE***

This application is to be completed in full by the registered owner of the land or by an authorized person acting on behalf of the owner. Please meet with the Planning and Development Department prior to submitting your application.

STATEMENT OF INTENT

I/We, TINA PALUCK hereby make application to develop:
TRAILER MOVED ON.

NORTHERN SUNRISE COUNTY

Bag 1300, 135 Sunrise Road
Peace River, AB
T8S 1Y9
northernsunrise.net

APPLICANT INFORMATION

1)	Applicant: TINA PALUCK	Company:
	Email Address: [redacted]	Telephone: [redacted]
	Mailing Address: [redacted]	Alternate Telephone:
	Prov.: [redacted]	Postal Code: [redacted]
2)	Registered Owner: (if applicant is other than owner) SAMANTHA PALUCK	Company:
	Email Address: [redacted]	Telephone: [redacted]
	Mailing Address: [redacted]	Alternate Telephone:
	Town: [redacted] Prov.: [redacted]	Postal Code: [redacted]

DEVELOPMENT INFORMATION

3)	Rural Address: 19201 TWP 824	
	Legal Description: NE 22-82-19-5	Plan: Block: Lot:
4)	Detail the proposed use(s) of the building/site: TRAILER TO LIVE IN	
	Detail all proposed new buildings or structures on site: MOVE TRAILER IN	
	Building Site: Length (ft/m): 62FT	**Building Site:** Width (ft/m) 14FT
	Building Site: Height (grade to peak) (ft/m): 14FT	**Building Site:** Sq. foot (ft/m) 980 SQFT
	Water Supply: WATER CO-OP	**Sewer Supply:** SEPTIC
	Proposed setbacks from the property line:	
	Front Yard (ft/m):	Rear Yard (ft/m):
	Side Yard 1 (ft/m):	Side Yard 2 (ft/m):
	Setbacks From:	
	Top of Bank (ft/m):	House/shop/other (ft/m):
	Water body (ft/m):	
	Estimated Project Commencement Date: NOW	Estimated Project Completion Date: JUNE 12/26
	Construction Costs: $15,000	

NORTHERN SUNRISE COUNTY

Bag 1300, 135 Sunrise Road
Peace River, AB
T8S 1Y9
northernsunrise.net

RIGHT OF ENTRY

I/We, TINA PALUCK give consent to allow a person(s) designated by Northern Sunrise County the right to enter and inspect the above land and/or building(s) with respect to this application only.	
Signature [redacted]	Date: MAY 21/2026

ABANDONED WELL DECLARATION

Subject to the Alberta Energy Regulator Directive 079 the applicant is required to obtain confirmation of the exact location of any abandoned well and required setbacks from well from the Well Licensee. Please confirm the exact location of any abandoned well and required setbacks from well.
https://geodiscover.alberta.ca/GDA/Viewer/?Viewer=GDA.

6)	Abandoned well is:	○ Present ○ Absent
	Signature of Applicant	Date

If an abandoned well is present, please complete the declaration.
I/We, _____ have reviewed information provided by the Energy Resources Conservation Board ("ERCB") as set out in ERCB Directive 079, Surface Development in Proximity to Abandoned Wells, and can advise that the licensee(s) responsible for all abandoned wells within the site of proposed development has been contacted in order to have the Abandoned Well Locating and Testing Protocol completed in accordance with ERCB Directive 079. To prevent damage to the well, a temporary identification marker will be placed on abandoned wells prior to construction, according to the confirmed well location(s) on site. The site of proposed development contains the following abandoned well(s):

ERCB Well License #	Licensee name	Licensed Surface Location	Contact Personnel Name	Phone number

CERTIFICATION AND SIGNATURE

Registered owner or person acting on their behalf

I, hereby certify that I *a) am the registered owner or b) am authorized to act on behalf of the registered owner(s)*, and that the information given on the form is complete and is, to the best of my knowledge, a true statement of the facts relating to this application.

7)	Applicant's Signature: [redacted]	Date: MAY 21/2026
	Landowner's Signature: [redacted]	Date: MAY 21/2026

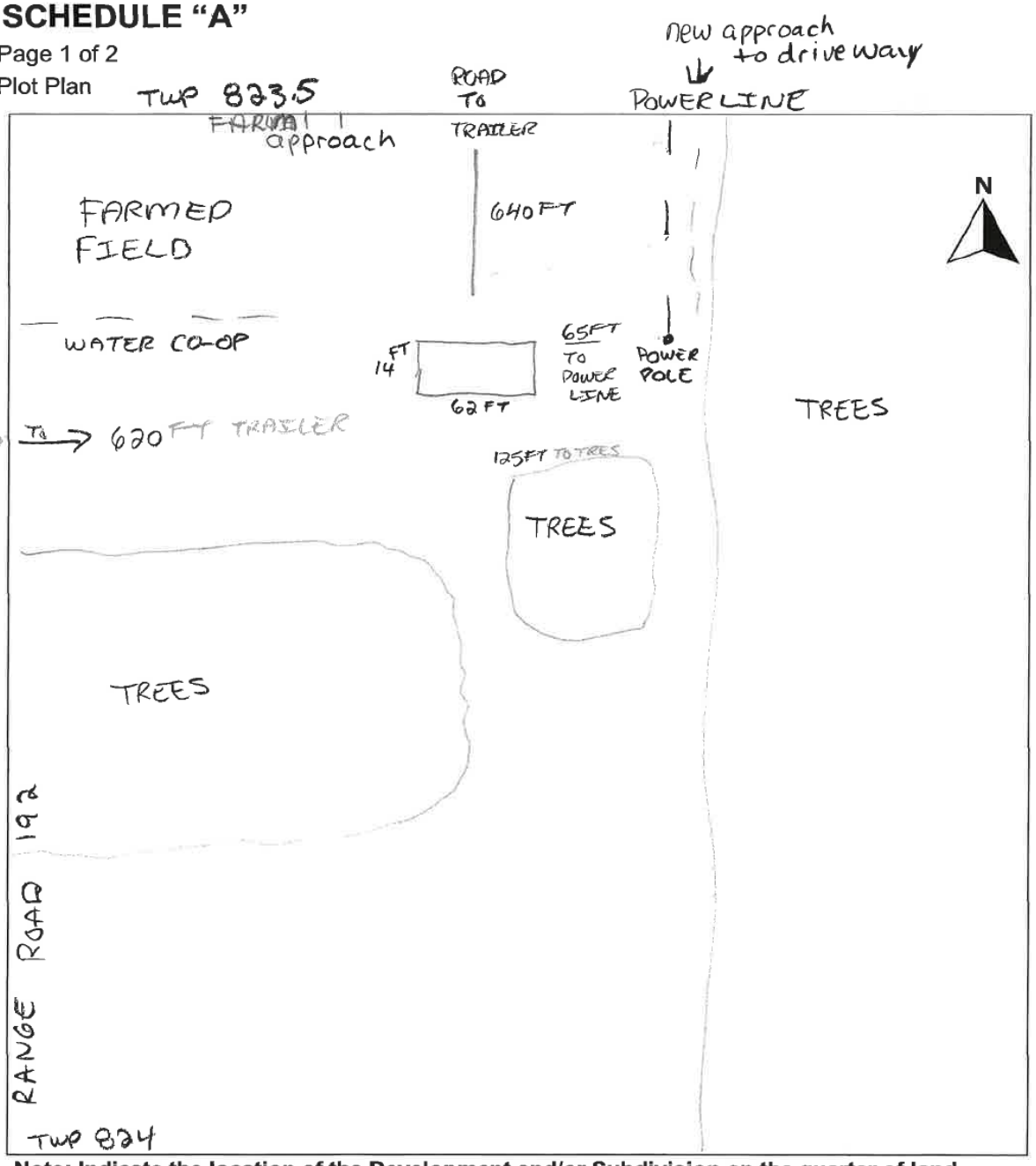
NORTHERN SUNRISE COUNTY

Bag 1300, 135 Sunrise Road
Peace River, AB
T8S 1Y9
northernsunrise.net

SCHEDULE "A"

Page 1 of 2

Plot Plan



Note: Indicate the location of the Development and/or Subdivision on the quarter of land.

N

NORTHERN SUNRISE COUNTY

Bag 1300, 135 Sunrise Road
Peace River, AB
T8S 1Y9
northernsunrise.net

ADDITIONAL APPLICATION REQUIREMENTS

The Development Permit Application must be completed prior to a decision being made. Below is a generalized list of requirements. The Development Officer may require additional information per Land Use Bylaw B458/24 depending on the specific nature of the application. Please meet with the Planning and Development Department prior to submitting your application, to review the required information.

The application must include the following:

OFFICE	COMPLETED BY APPLICANT
Y/N	☑ Application fee –The fee must be paid in full at the time of application.
Y/N	☐ Rural Addressing Application - Additional form to complete if the development is the first dwelling in any district other than hamlet residential.
Y/N	☐ Geotechnical Assessment - If the development application is within the top of bank setbacks identified by the land use bylaw, a geotechnical assessment must be prepared by a qualified professional Geotechnical Engineer licensed to practice in Alberta.
Y/N	☐ I have read and understand the recommendations included in the 2013 Thurber Report Initials ☐
Y/N	☐ Manufactured Home – Floor plans that must include: 1) roof pitch 2) eaves 3) width to length ratio 4) pictures of siding/proposed skirting
Y/N	☑ Moved In Buildings – What year was the building constructed 1971.
Y/N	☑ Applications for the Moved In Building shall include: 1) Coloured photographs of the building 2) Statement regarding the present location of the building 3) Notification of the relocation route 4) A complete site plan showing all buildings and located or to be located on the property.
Y/N	☐ Roadside Development Permit from Transportation and Economic Corridors: If the development is within **300 meters** of a provincial highway (Highways 2, 688, 986, 88, 750, 744 & 683) right of way boundary, or within **800 meters** of the center point of an intersection of the highway with another public road, a roadside development permit is required from Transportation and Economic Corridors.

PLEASE NOTE THAT THIS IS AN APPLICATION FORM ONLY AND DOES NOT AUTHORIZE THE COMMENCEMENT OF DEVELOPMENT OR USE OF A BUILDING OR LAND. A SEPARATE DECISION NOTICE WILL BE ISSUED ONCE YOUR APPLICATION HAS BEEN PROCESSED. PLEASE ALLOW 40 (FORTY) DAYS FOR THE PROCESSING AND ISSUANCE OF A DECISION ON YOUR APPLICATION.


5101 51 ST


LOADTRAIL

NORTHERN SUNRISE COUNTY

PLANNING AND DEVELOPMENT

Development Permit
Application 26-14

Development Officer's Report

Dated: June 11, 2026

Background

Administration received development permit application 26-14 on May 21, 2026. As the manufactured home is a "moved in building" and older than 25 years old, it becomes a discretionary use within the Agricultural District. Administration completed a site inspection June 11, 2026.

Site Inspection

Inspection Item	Verification	NSC Comments
Building located on parcel	X Yes □ No □ N/A □ Other	The trailer was moved onto the parcel May 26, 2026, Administration was made aware of the addition of the trailer on May 21, 2026.
Building location consistent with submitted site plan	X Yes □ No □ N/A □ Other	
Year of building confirmed	□ Yes □ No □ N/A X Other	The trailer is approximately 48 years old.
Site photographs taken by Administration	X Yes □ No □ N/A □ Other	
Exterior condition acceptable	□ Yes □ No □ N/A X Other	The trailer is consistent with a trailer of its age.
Roof condition acceptable	□ Yes □ No □ N/A X Other	The Developer will need to ensure that roof meets current safety standards.
Building appears suitable for long-term residential use and is not exhibiting significant deterioration, neglect, or structural concerns	□ Yes □ No □ N/A X Other	The trailer is consistent with a trailer of its age.
Building appears capable of meeting the intent of Section 5.21 Moved-In Buildings of Land Use Bylaw B458/24	□ Yes □ No □ N/A X Other	The trailer will require exterior upgrades including siding, windows, roofing, and skirting to be consistent with the neighbours residences.
Building age and appearance generally compatible with surrounding area	□ Yes □ No □ N/A X Other	There is a similar structure on the same parcel, the adjacent landowners own newer manufactured homes, and one landowner has a single detached dwelling identified by NSC Assessment department as constructed in 1958.
Renovations or improvements required prior to occupancy identified	X Yes □ No □ N/A □ Other	The Developer will need to connect power, water, propane, and a private sewage system prior to occupancy.
Foundation type identified	X Yes □ No □ N/A □ Other	Pilings
Permanent foundation proposed/identified	X Yes □ No □ N/A □ Other	
Existing approach available	X Yes □ No □ N/A □ Other	
New approach required	X Yes □ No □ N/A □ Other	The Developer has constructed a new driveway to the ditch along TWP Rd. 823.5.
Water source identified	X Yes □ No □ N/A □ Other	Connecting to East Peace Water Coop

Site Inspection

Inspection Item	Verification	NSC Comments
Sewage disposal method identified	□ Yes X No □ N/A □ Other	Developer is unsure of what type of system they will be installing.
Electrical servicing identified	X Yes □ No □ N/A □ Other	
Front yard setback appears compliant	X Yes □ No □ N/A □ Other	
Rear yard setback appears compliant	X Yes □ No □ N/A □ Other	
Side yard setbacks appear compliant	X Yes □ No □ N/A □ Other	

Overall Assessment

Overall Site Condition	The building site is level, and the driveway is well constructed.
Building Condition and Compatibility	The trailer is consistent with its age, and with exterior upgrades will be compatible.
Access Considerations	There is an existing approach on TWP RD 823.5, the Developer has constructed a driveway to the ditch, and if they want to access TWP RD. 823.5, it will be at the Developer's expense.
Servicing Considerations	The only concern with servicing is the lack of a private sewage system. This must be installed before occupancy.
Compliance with Land Use Bylaw B458/24	Currently, the trailer is not in compliance with the Land Use Bylaw. The trailer was moved onto site without a development permit. However, if the development permit is approved and the conditions of the exterior upgrades and confirmation that the structure meets the required safety codes standards, the trailer could be compliant.
Administration Concerns	Administration notes that the applicant's anticipated occupancy and project completion timelines have varied throughout the review process. While Administration has no concerns with the proposed development proceeding, there is concern that occupancy could occur before all required upgrades and servicing have been completed.
Recommended Conditions of Approval	Administration recommends that occupancy not occur until all conditions of approval have been satisfied, including the installation and operation of an approved private sewage disposal system and completion of any required upgrades identified by the Municipal Planning Commission. Given the outstanding work and uncertainty surrounding completion timelines, the Municipal Planning Commission may wish to consider requiring a refundable security deposit to ensure completion of all required improvements and servicing. This would provide assurance that the development will be completed in accordance with the approved permit and any conditions of approval. Administration recommends that the applicant provides written progress updates to the Development Officer every sixty (60) days until all conditions of approval have been satisfied. Regular updates would assist Administration in monitoring compliance, tracking project progress, and reporting back to the Municipal Planning Commission if required.

Site Photographs:

Existing Approach

Site Photographs:

Site Photographs:

Exterior Pictures

Site Photographs:

Driveway grading

Site Photographs:

Driveway grading

Site Photographs:

Driveway to Ditch

Site Photographs:

Condition of Exterior

Site Photographs:

Condition of Exterior

NORTHERN SUNRISE COUNTY

Bag 1300, 135 Sunrise Road
Peace River, AB
T8S 1Y9
northernsunrise.net

Municipal Planning Commission
Development Permit Report Form

Date of MPC Meeting: June 22, 2026
Development Permit Application Number: 26-15
Date of Report: June 12, 2026
Report Author: Jennifer Regal
CC: Cindy Millar

Applicant Information

Applicant Name: Islander Oil & Gass Inc.
Landowner (if different): _____

Subject Site Details

Legal Land Description: SE.6.82.12.W5M
Rural Address (if applicable): _____
Land Use District: Forestry District
Existing Buildings / Structures: Existing camp facility and ancillary buildings
Existing Use: Industrial Work Camp for Oil and Gas Developments
Adjacent Land Uses: Crown land and Oil/Gas Developments

Proposed Development

Type of Development: Temporary Work Camp
Description of Proposal: Industrial Work Camp
Total Area Affected (acres/hectares): 9.33 acres
Other Required Approvals (AEP, AUC, etc.): AER and AEP approvals previously issued.

Policy Review

Municipal Development Plan Alignment
✓ **Yes** ☐ **No**
Comments: No concerns
Within an Area Structure
☐ **Yes** X **No**
Comments: _____

Land Use Bylaw Review

Specific Land Use Provisions: **Section 5.30 Work Camp, Industrial**
Variance Required: ☐ **Yes X No**
If yes, specify: _____

Summary of LUB Considerations:
Section 5.30(2) speaks to ability to grant a development permit approval to a Work Camp within the Forestry District without a time restriction.

Relevant District Regulations: **Section 6.11 Forestry District**
Variance Required: ☐ **Yes X No**
If yes, specify: _____

Summary of LUB Considerations:
Section 6.11 identifies Work Camp, Industrial as a Discretionary Use. The setbacks are at the Development Authority's discretion Section 6.11(6) identifies the additional requirements for the industrial camp.

NORTHERN SUNRISE COUNTY

Bag 1300, 135 Sunrise Road
Peace River, AB
T8S 1Y9
northernsunrise.net

Internal & External Referrals

Operations & Infrastructure Review:

N/A

Other Department or Agency Comments:

N/A

Planning Assessment

Provide a concise summary of planning considerations, site suitability, use compatibility, environmental items, access, and any other relevant factors.

This site has been previously approved as 24-14. The Applicant is renewing their development permit application for an additional two years. The camp supports the Islander Oil and Gas's winter drilling projects. The camp houses 50 personnel. The sewage is treated onsite; the water will be above ground tanked. This development is a renewal of an existing camp in operation as such the site is suitable and the use is compatible in the district.

Recommendation of the Development Officer

☐ Approve **X** Approve with Conditions ☐ Refuse

Suggested Conditions (if applicable)

1. The development plan as shown on attached Schedule "A".
2. The developer must satisfy the requirements, if any, of: Alberta Health Services, Alberta Municipal Affairs Safety Codes disciplines (building, electrical, gas, fire, and plumbing), and Alberta Environment and Protected Areas.
3. The development is connected to potable water and has adequate wastewater storage and removal.
4. The developer provides an Emergency Response Plan for the Director of Protective Services review and approval.
5. The development will ensure all refuse and garbage shall be stored in suitable bear proof containers such that they don't create rodent harborage or create health issues.
6. The developer notifies the Development Officer when the camp is occupied and when the camp is no longer in operation.
7. The permit is valid for twenty-four months starting from the Date of Issue.
8. Any change in the use of this development (including expansion or intensification) requires a new development permit.

Attachments

X Application Form
X Site Plan / Schedule A
X Supporting Reports

NORTHERN SUNRISE COUNTY

Bag 1300, 135 Sunrise Road
Peace River, AB
T8S 1Y9

DEVELOPMENT PERMIT APPLICATION

RESIDENTIAL:	*NON-RESIDENTIAL:*
• *$0-$249,999 - **$50 APPLICATION FEE***	• *$0-$249,000 - **$100 APPLICATION FEE***
• *$250,000+ - **$100 APPLICATION FEE***	• *$250,000-$499,000 - **$250 APPLICATION FEE***
	• *$500,000 - $999,000 - **$500 APPLICATION FEE***
	• *$1 MILLION - $4,999,999 - **$1000 APPLICATION FEE***
	• *$5 MILLION+ - **$2,500 APPLICATION FEE***

For Office Use Only:

Date Received: May 21, 2026	Existing Land Use District: Forestry
Date Accepted:	Application Number: 26-15

APPLICATION INFORMATION		**COMPLETE IF DIFFERENT FROM APPLICANT**	
Name of Applicant: Islander Oil + Gas Inc.		Name of Registered Land Owner:	
Address: 3000, 500 4th Ave, NW		Address:	
Calgary, AB			
Postal Code: T2P 2V6	Res.: 403-984-5203 Bus.:	Postal Code:	Res.: Bus.:
Email: sbreen@islanderoil.com		Email:	
Preferred Method of Communication (email or telephone): m.hubscher@borealland.ca			

LAND INFORMATION

Legal description of proposed development site:

QTR./L.S	SEC	TWP	RG	W5M	OR	Registered Plan #	Block	Lot
SE	06	082	12					

Rural address of proposed development site:

Size of the proposed development site:

Length (ft/m)	Width (ft/m)	OR	Acres	Hectares
200	200			

The land is adjacent to:

- ☐ Provincial highway
- ☑ Public road (other than highway) Islander LOC062062
- ☐ Private road
- ☐ Creek/ravine/water body

If yes, what is the depth of the water body (ft/m): _____

What are the setbacks from the proposed facility (ft/m): _____

I have read and understand the recommendations included in the 2013 Thurber Report: ☐ Initial

DEVELOPMENT INFORMATION

Describe the proposed use of the land:

- ☐ Dwelling unit(s):
- ☐ Home occupation(s):
- ☐ Ancillary structure(s)/use(s):
- ☑ Commercial/industrial: Work Camp
- ☐ Other:

Building Site:

Length (ft/m)	Width (ft/m)	Height (grade to peak) (ft/m)	Sq2 (ft/m)	Other (ft/m)
200	200			

Indicate the proposed setback from the property line:

Front Yard (ft/m)	Rear Yard (ft/m)	Side Yard 1 (ft/m)	Side Yard 2 (ft/m)
> 20	> 20	> 20	> 20

Setbacks From:

Top of Bank (ft/m)	House/shop/other (ft/m)	Water body (ft/m)

Water Supply: Fresh water trucked to site

Sewer Supply: Wastewater treatment plant onsite, surface discharge of treated wastewater under TEA # 213649

DEVELOPMENT COST & PROJECT TIMELINES

Commencement Date:	Completion Date:	Construction Costs: $
Aug 2022	March 2023	< 249,000

ATTACHMENT

(a) Site plan:	(b) Floor plan:
☑ Yes ☐ No ☐ N/A	☐ Yes ☑ No ☐ N/A

DECLARATION

I/We hereby make application under the provisions of the Land Use Bylaw for a Development Permit in accordance with the plans and supporting information submitted herewith and form part of this application.

I/We understand that this application will not be accepted without the following:

(a) Application fee
(b) Site plan sketch that includes all relevant detail to the proposed development (i.e.: proposed and existing structures, property lines, creeks/ravines, parking and vehicle access, building plans, etc.)
(c) The application checklist completed, and all supporting documentation supplied as required by the development.

I/We declare that the above information is, to the best of my/our knowledge, factual & correct.

2026 - 05 - 21
Date

Signature of Applicant

Date

Signature of Registered Land

****Note: Signature of Registered Land Owner is required if different than the applicant*

RIGHT OF ENTRY

Right of Entry by an authorized person of the Northern Sunrise County for the purposes of a site inspection of the land affected by an application for a development permit.

The Municipal Government Act, Section 542(1)(a) states: A designated officer of the County may "enter such land or structure at any reasonable time, and carry out the inspection, enforcement or action authorized or required by the enactment or bylaw".

IN ACCORDANCE WITH SECTION 542 OF THE MUNICIPAL GOVERNMENT ACT, PLEASE COMPLETE THE FOLLOWING RIGHT OF ENTRY FORM AND SUBMIT WITH YOUR APPLICATION FOR A DEVELOPMENT PERMIT.

I do ☑ or I do not ☐ give consent for an authorized person of Northern Sunrise County to enter upon the land that is subject to an application for development permit, for the purpose of making a site inspection in order to evaluate the proposed development permit application.

Legal Description of Land: SE 06 / 082 / 12 W5M

Print Name in Block Capitals: MURRAY HUBSCHER

Signed: [signature]

Date: 2026-05-21

CHECKLIST

ADDITIONAL INFORMATION MAY BE REQUIRED DEPENDING ON THE TYPE AND LOCATION OF DEVELOPMENT

APPLICABLE (Y/N)	ATTACHMENT	DETAILS
N	Rural Addressing Application	Additional form to complete if the development is the first dwelling in any district other than hamlet residential.
N	Shop Drawings	Commercial developments as required by the development authority.
N	Manufactured Home	Floor plans that must include: 1) roof pitch 2) eaves 3) width to length ratio 4) pictures of siding/proposed skirting
N	Geotechnical Assessment	If the development application is within the top of bank setbacks identified by the land use bylaw, a geotechnical assessment must be prepared by a qualified professional Geotechnical Engineer licensed to practice in Alberta.
N	Roadside Development Permit from Alberta Transportation	If the development is within **300 meters** of a provincial highway (Highways 2, 688, 986, 88, 750, 744 & 683) right of way boundary, or within **800 meters** of the center point of an intersection of the highway with another public road, a roadside development permit is required from Alberta Transportation.
Y	Abandoned Oil Well Confirmation	If the building/addition is greater than 47m^2 (505.9 ft^2) a map from the Alberta Energy Regulator (AER) identifying the locations of, or confirming the absence of, any abandoned oil or gas wells on or within 25m (82 ft) of the site boundary is to be included. Go to www.geodiscover.alberta.ca for abandoned well location and status information.

Date:_____

SCHEDULE "A"

(Pg. 1 of 2)

PLOT PLAN

APPLICATION NO.

SEE ATTACHED.

Note: Indicate the location of the Development and/or Subdivision on the quarter of land.

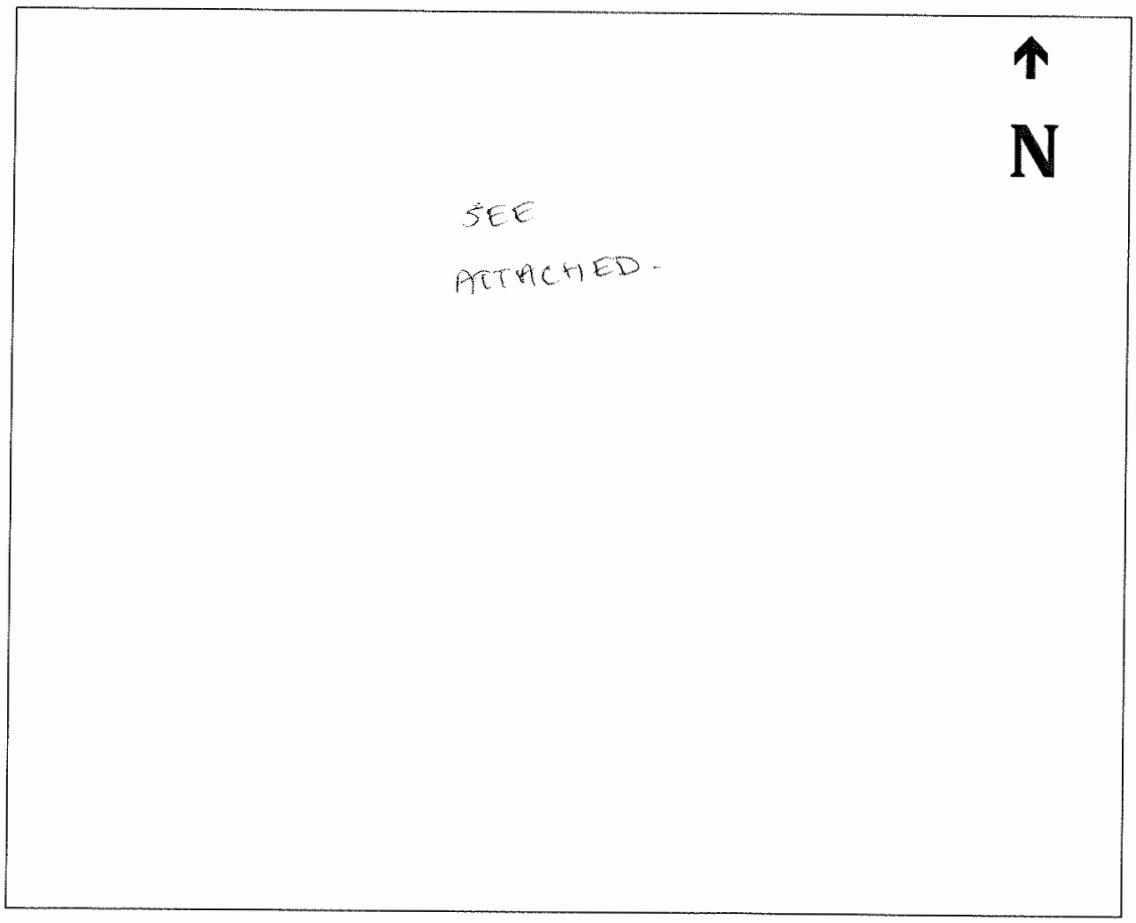
Date:_____

SCHEDULE "A"

(Page 2 of 2)

PLOT PLAN

APPLICATION NO.



Note: **Draw a detailed map of the development area highlighting the following:**

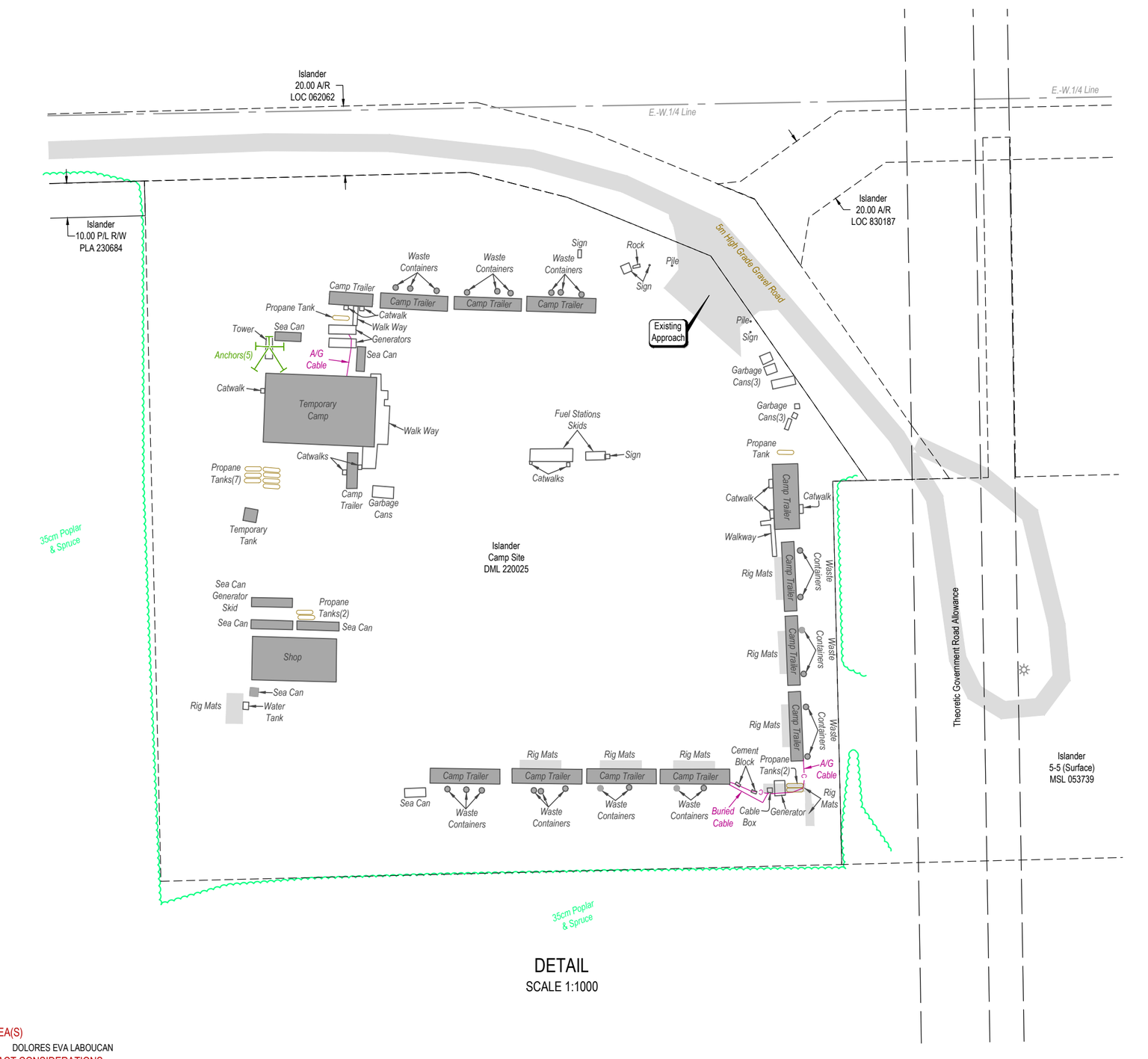
Provide the closest distance of proposed development(s) from:

1. All property lines
2. All roads and approaches
3. Top of the bank (if it is within 200 feet of the proposed development) from all water bodies and watercourses
4. All existing and proposed buildings

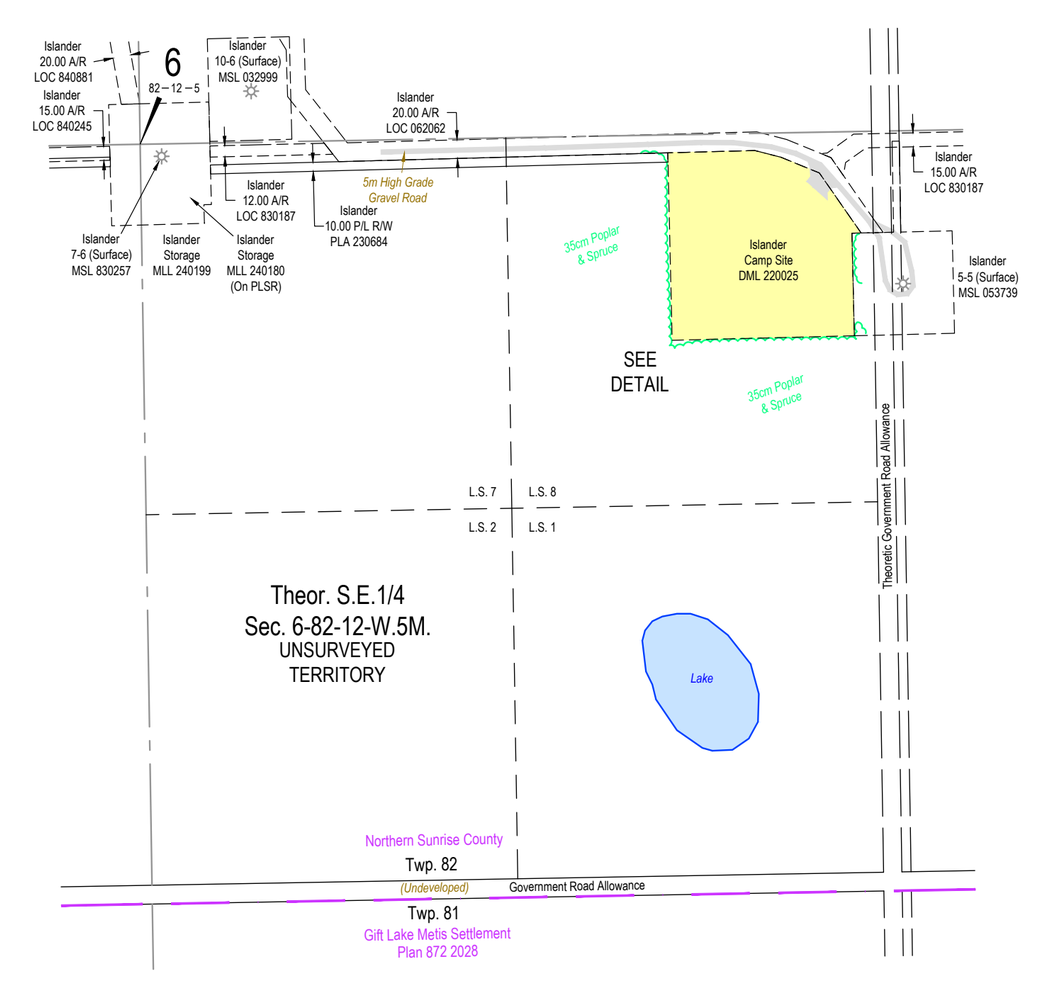
Note: **Top of the bank is considered the point of first drop from the plain where the development is proposed**

ISLANDER OIL & GAS INC.

SITE PLAN SHOWING AS-BUILT SURVEY OF
WORK CAMP - INDUSTRIAL
S.E.1/4 SEC. 6 TWP. 82 RGE. 12 W.5M.
NORTHERN SUNRISE COUNTY - ALBERTA
SCALE 1:5000



DETAIL
SCALE 1:1000



TRAPPING AREA(S)

TPA 919 DOLORES EVA LABOUCAN

SURFACE IMPACT CONSIDERATIONS

LAND LOCATION	ACTIVITY NO.	NAME
W5-12-082-06-SE	CTLS190024	WEST FRASER MILLS LTD.
	DTLS190004	ATIKAMEG TIMBER LIMITED PARTNERSHIP
	ACTIVE RTF/TFA(S)	ISLANDER OIL & GAS INC.
		SHELL CANADA ENERGY

LEGEND

PORTIONS REFERRED TO ARE SHOWN THUS:

COMPASS Geomatics Ltd.
11-4608 62nd Street
Red Deer, Alberta T4N 6T3
Office (403) 356-0111 Fax (403) 356-0114
www.compassgeomatics.ca

COMPASS DWG: 00637-21-AB-R3 SURVEYED BY: CG

ALBERTA LAND SURVEYORS' ASSOCIATION PERMIT NUMBER P266 Compass Geomatics Ltd.

NOTES

FACILITIES CURRENT AS OF 05/20/26

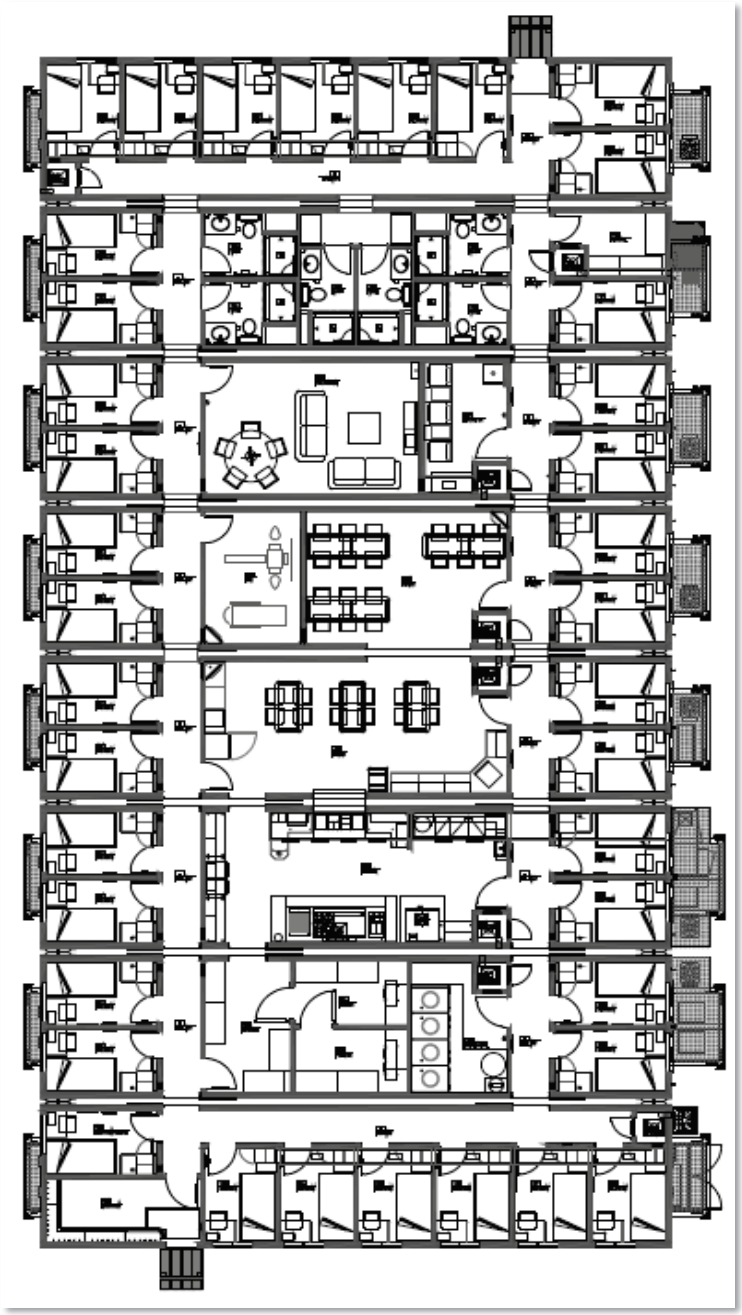
FINAL REVISION SUMMARY

3 REVISED AS-BUILT AT CAMP SITE (05/20/26) DAV/EJS
2 UPDATED AS-BUILT (09/11/24) HCB-MAY/EJS-ERF
1 UPDATE AS-BUILT (07/11/23) ES/MJC
0 ORIGINAL ISSUE (05/16/23) ES/MJC

CLIENT FILE NO. : _______
AFE NO. : D3079

REV. 3

8 Unit Side by Side Drill Camp



NORTHERN SUNRISE COUNTY

Bag 1300, 135 Sunrise Road
Peace River, AB
T8S 1Y9
northernsunrise.net

Municipal Planning Commission
Development Permit Report Form

Date of MPC Meeting: June 22, 2026
Development Permit Application Number: 26-18
Date of Report: June 15, 2026
Report Author: Jennifer Regal
CC: Cindy Millar

Applicant Information

Applicant Name: Northern Cross Oilfield Services Ltd.
Landowner (if different):

Subject Site Details

Legal Land Description: SE.16.84.20.W5M
Rural Address (if applicable): A rural address may be needed if development permit application is approved.
Land Use District: Agricultural District
Existing Buildings / Structures: Manufactured Home
Existing Use: Bush, crop land, and industrial shop.
Adjacent Land Uses: Agricultural land and rural residences

Proposed Development

Type of Development: Moved in Building older than 25-year-old
Description of Proposal: Manufactured Home for residential use
Total Area Affected (acres/hectares): 1280 square feet, within a 40 plus acre bush area
Other Required Approvals (AEP, AUC, etc.): Roadside Development Permit has been obtained from Transportation and Economic Corridors.

Policy Review

Municipal Development Plan Alignment
✓ **Yes** ☐ **No**
Comments: No concerns
Within an Area Structure
☐ **Yes** **X No**
Comments:

Land Use Bylaw Review

Specific Land Use Provisions: **Section 5.21 Moved in Buildings**
Variance Required: ☐ **Yes X No**
If yes, specify:

Summary of LUB Considerations:
Section 5.21 (1) speaks to the requirements of the moved in building to be considered as a discretionary use if they are twenty-five years or older. Section 5.21 (5) speaks to the requirements of ensuring that the moved in building is compatible with the respect to the age and appearance of the neighbourhood, once the required renovations and improvements have been completed. Section 5.21 (6) speaks to the Development Authority may require the applicant to provide an acceptable security equal to the estimated amount of repairs to ensure completion of any renovations set out as a condition of approval of a permit.

NORTHERN SUNRISE COUNTY

Bag 1300, 135 Sunrise Road
Peace River, AB
T8S 1Y9
northernsunrise.net

Relevant District Regulations: Section 6.4 Agricultural District
Variance Required: ☐ Yes X No
If yes, specify: _____

Summary of LUB Considerations:

Section 6.4 identifies Dwelling Unit, Manufactured Home as a Permitted Use. However, Section 5.21(1) states that all Moved In Buildings over the age of twenty-five years or older are to be considered as a Discretionary Use. The setbacks are 24.4m for a front yard for a rural road, 15.2m for rear yard, and 15.2m for the side yards.

Internal & External Referrals

Operations & Infrastructure Review:

N/A

Other Department or Agency Comments:

Planning Assessment

Provide a concise summary of planning considerations, site suitability, use compatibility, environmental items, access, and any other relevant factors.

The Applicant had moved the trailer onto the site, prior to receiving development permit approval. Administration has no concerns with the trailer's compatibility with the adjacent land uses; it will be consistent with the dwellings once the required renovations are completed. The Applicant has received the Roadside Development Permit from Transportation and Economic Corridors. A rural address sign may need to be obtained, depending on which access the residential dwelling will be utilizing. As part of the *Safety Codes Act*, RSA 2000, c, S-1. the trailer must meet all current safety regulations. Section 5.21 (6) identifies that a security can be taken to ensure that the required renovations are completed within an acceptable timeframe.

Recommendation of the Development Officer

☐ Approve **X** Approve with Conditions ☐ Refuse

Suggested Conditions (if applicable)

1. The development plan as shown on attached Schedule "A".
2. The developer must satisfy the requirements, if any, of: Alberta Health Services, Alberta Municipal Affairs Safety Codes disciplines (building, electrical, gas, fire, and plumbing), and Alberta Environment and Protected Areas.
3. The developer is responsible for proper disposal of waste construction material within 2 weeks of completing development.
4. Issuance of this development permit does not exempt the applicant from obtaining required building, electrical, plumbing, gas, or fire permits. No construction may commence until all required Safety Codes permits have been issued by an accredited agency.
5. The developer must complete all exterior upgrades including but not limited to siding, windows, porch, and landscaping on or before July 1, 2027.

NORTHERN SUNRISE COUNTY

Bag 1300, 135 Sunrise Road
Peace River, AB
T8S 1Y9
northernsunrise.net

6. Within 60 days of receiving Safety Codes inspections, the developer shall provide Northern Sunrise County with copies of all building, electrical, gas, fire, and plumbing inspections reports.
7. The trailer will not be occupied until all Safety Code inspections are obtained, and documentation is provided to Northern Sunrise County's Development Officer.
8. Any change in the use of this development (including expansion or intensification) requires a new development permit.

Attachments

X Application Form
X Site Plan / Schedule A
X Supporting Reports

NORTHERN SUNRISE COUNTY

Bag 1300, 135 Sunrise Road
Peace River, AB
T8S 1Y9

Development Permit Application Form

(office use only)

Development Permit File No.: 26-18		Date Application Received: June 8, 2026
Tax Roll No.: 46592	Development Permit Fee:	Date Fee Received:
Date Application Deemed Complete: June 12, 2026		Date of Decision:
This project is:		
New construction ☒ Residential Moved in Building over 25 years ☐ Commercial _____ ☐ Industrial _____ ☐ Other		☐ Addition to existing building ☐ Change of use ☐ Revisions to an approved DP
District: Agricultural District		IDP (if any):
Proposed Use(s) (as listed in the land use bylaw):		
☐ Permitted Use		☒ Discretionary Use
Plans Attached:		
Site Plan: YES or NO		Floor Plan: YES or NO

Fee information *This fee information is provided for convenience only and is subject to change as per the Fees and Charges Bylaw B464/25*

RESIDENTIAL:	***NON-RESIDENTIAL:***
$0-$249,999 - ***$50 APPLICATION FEE***	*$0-$249,000 -* ***$100 APPLICATION FEE***
$250,000+ - ***$100 APPLICATION FEE***	*$250,000-$499,000 -* ***$250 APPLICATION FEE***
	$500,000 - $999,000 - ***$500 APPLICATION FEE***
	$1 MILLION - $4,999,999 - ***$1000 APPLICATION FEE***
	$5 MILLION+ - ***$2,500 APPLICATION FEE***

This application is to be completed in full by the registered owner of the land or by an authorized person acting on behalf of the owner. Please meet with the Planning and Development Department prior to submitting your application.

STATEMENT OF INTENT

I/We, Kimberly Gour hereby make application to develop:

NORTHERN SUNRISE COUNTY

Bag 1300, 135 Sunrise Road
Peace River, AB
T8S 1Y9
northernsunrise.net

APPLICANT INFORMATION

1)	Applicant: Kimberly Gaur		Company:
	Email Address: [redacted]		Telephone: [redacted]
	Mailing Address: [redacted]		Alternate Telephone:
	Town: [redacted]	Prov. [redacted]	Postal Code: [redacted]
2)	Registered Owner: (if applicant is other than owner) [redacted]		Company: [redacted]
	Email Address: [redacted]		Telephone: [redacted]
	Mailing Address: [redacted]		Alternate Telephone:
	Town: [redacted]	Prov. [redacted]	Postal Code: [redacted]

DEVELOPMENT INFORMATION

3) Rural Address: 20308 TWP 842.

Legal Description: SE 4-4 Sec 16 TWP 84 Plan: 1 Block: 1 Lot:

4) Detail the proposed use(s) of the building/site: Rge 20 W5 future dwelling

Detail all proposed new buildings or structures on site: Winalta Modular

Building Site: Length (ft/m): 80	**Building Site:** Width (ft/m) 16
Building Site: Height (grade to peak) (ft/m): ~~12~~ 12'	**Building Site:** Sq. foot (ft/m) 1280
Water Supply: n/a at this time	**Sewer Supply:** tank by Sept 1, 2026
Proposed setbacks from the property line:	
Front Yard (ft/m): 320 ft	Rear Yard (ft/m): 2320'
Side Yard 1 (ft/m): 600 ft	Side Yard 2 (ft/m): 1960'
Setbacks From:	
Top of Bank (ft/m): n/a	House/shop/other (ft/m): n/a
Water body (ft/m): 550'	
Estimated Project Commencement Date: June 8/26	Estimated Project Completion Date: Sept 1, 2026
Construction Costs: None	

326 40

NORTHERN SUNRISE COUNTY

Bag 1300, 135 Sunrise Road
Peace River, AB
T8S 1Y9
northernsunrise.net

RIGHT OF ENTRY

I/We, Kimberly Gour give consent to allow a person(s) designated by Northern Sunrise County the right to enter and inspect the above land and/or building(s) with respect to this application only.

Signature:	Date:
My K Gour	June 1, 2026

ABANDONED WELL DECLARATION

Subject to the Alberta Energy Regulator Directive 079 the applicant is required to obtain confirmation of the exact location of any abandoned well and required setbacks from well from the Well Licensee. Please confirm the exact location of any abandoned well and required setbacks from well.
https://geodiscover.alberta.ca/GDA/Viewer/?Viewer=GDA.

6)	Abandoned well is:	○ Present ○ Absent
	Signature of Applicant	Date

If an abandoned well is present, please complete the declaration.

I/We, _____ have reviewed information provided by the Energy Resources Conservation Board ("ERCB") as set out in ERCB Directive 079, Surface Development in Proximity to Abandoned Wells, and can advise that the licensee(s) responsible for all abandoned wells within the site of proposed development has been contacted in order to have the Abandoned Well Locating and Testing Protocol completed in accordance with ERCB Directive 079. To prevent damage to the well, a temporary identification marker will be placed on abandoned wells prior to construction, according to the confirmed well location(s) on site. The site of proposed development contains the following abandoned well(s):

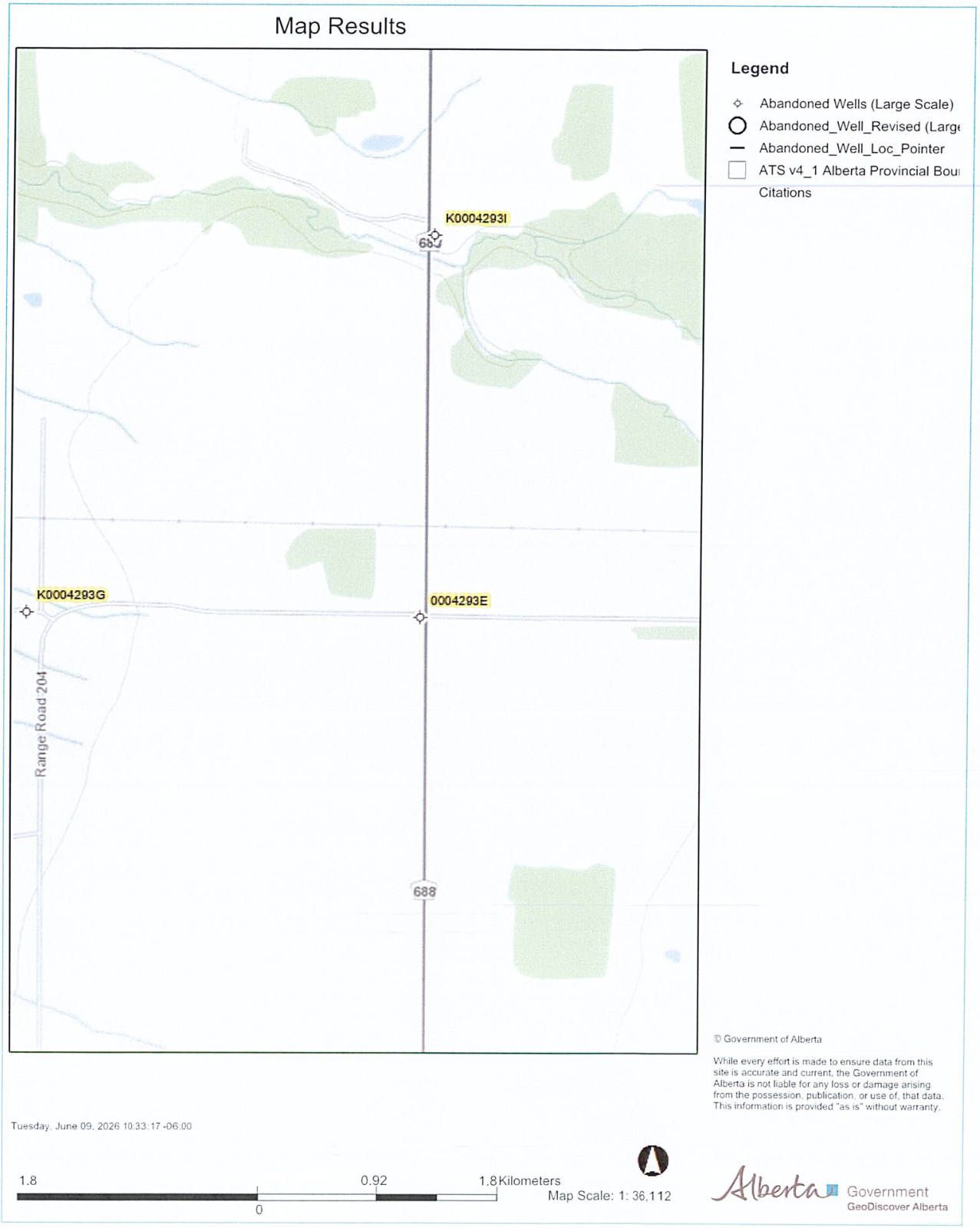
ERCB Well License #	Licensee name	Licensed Surface Location	Contact Personnel Name	Phone number

CERTIFICATION AND SIGNATURE

Registered owner or person acting on their behalf

I, hereby certify that I *a) am the registered owner or b) am authorized to act on behalf of the registered owner(s)*, and that the information given on the form is complete and is, to the best of my knowledge, a true statement of the facts relating to this application.

7)	Applicant's Signature: My K Gour	Date: June 1, 2026
	Landowner's Signature:	Date: June 1, 2026.


Map Results
Legend
Abandoned Wells (Large Scale)
Abandoned_Well_Revised (Large
Abandoned_Well_Loc_Pointer
ATS v4_1 Alberta Provincial Boui
Citations
K0004293I
K0004293G
0004293E
Range Road 204
688
© Government of Alberta
While every effort is made to ensure data from this site is accurate and current, the Government of Alberta is not liable for any loss or damage arising from the possession, publication, or use of, that data. This information is provided "as is" without warranty.
Tuesday, June 09, 2026 10:33:17 -06:00
1.8
0.92
1.8 Kilometers
0
Map Scale: 1: 36,112
Alberta Government
GeoDiscover Alberta

NORTHERN SUNRISE COUNTY

Bag 1300, 135 Sunrise Road
Peace River, AB
T8S 1Y9

RIGHT OF ENTRY

I/We, Kimberly Gour give consent to allow a person(s) designated by Northern Sunrise County the right to enter and inspect the above land and/or building(s) with respect to this application only.

Signature: [redacted] [redacted]

ABANDONED WELL DECLARATION

Subject to the Alberta Energy Regulator Directive 079 the applicant is required to obtain confirmation of the exact location of any abandoned well and required setbacks from well from the Well Licensee. Please confirm the exact location of any abandoned well and required setbacks from well.
https://geodiscover.alberta.ca/GDA/Viewer/?Viewer=GDA.

6)	Abandoned well is:	○ Present ○ Absent

Signature of Applicant — Date

If an abandoned well is present, please complete the declaration.

I/We, _____ have reviewed information provided by the Energy Resources Conservation Board ("ERCB") as set out in ERCB Directive 079, Surface Development in Proximity to Abandoned Wells, and can advise that the licensee(s) responsible for all abandoned wells within the site of proposed development has been contacted in order to have the Abandoned Well Locating and Testing Protocol completed in accordance with ERCB Directive 079. To prevent damage to the well, a temporary identification marker will be placed on abandoned wells prior to construction, according to the confirmed well location(s) on site. The site of proposed development contains the following abandoned well(s):

ERCB Well License #	Licensee name	Licensed Surface Location	Contact Personnel Name	Phone number

CERTIFICATION AND SIGNATURE

Registered owner or person acting on their behalf

I, hereby certify that I *a) am the registered owner or b) am authorized to act on behalf of the registered owner(s)*, and that the information given on the form is complete and is, to the best of my knowledge, a true statement of the facts relating to this application.

7) Applicant's Signature: [redacted] Date: [redacted]

Landowner's Signature: Date:

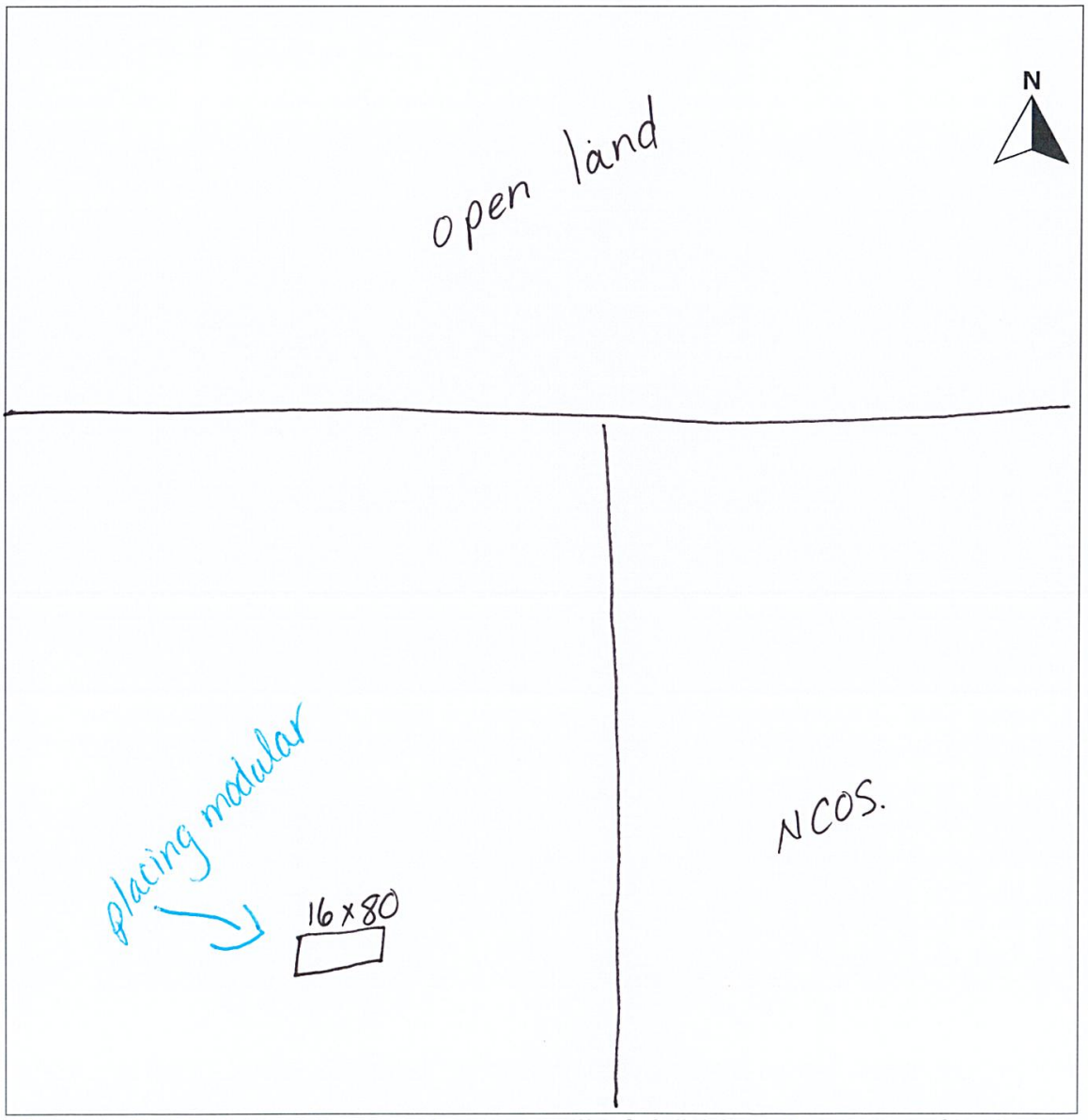
NORTHERN SUNRISE COUNTY

Bag 1300, 135 Sunrise Road
Peace River, AB
T8S 1Y9
northernsunrise.net

SCHEDULE "A"

Page 1 of 2

Plot Plan



Note: Indicate the location of the Development and/or Subdivision on the quarter of land.

NORTHERN SUNRISE COUNTY

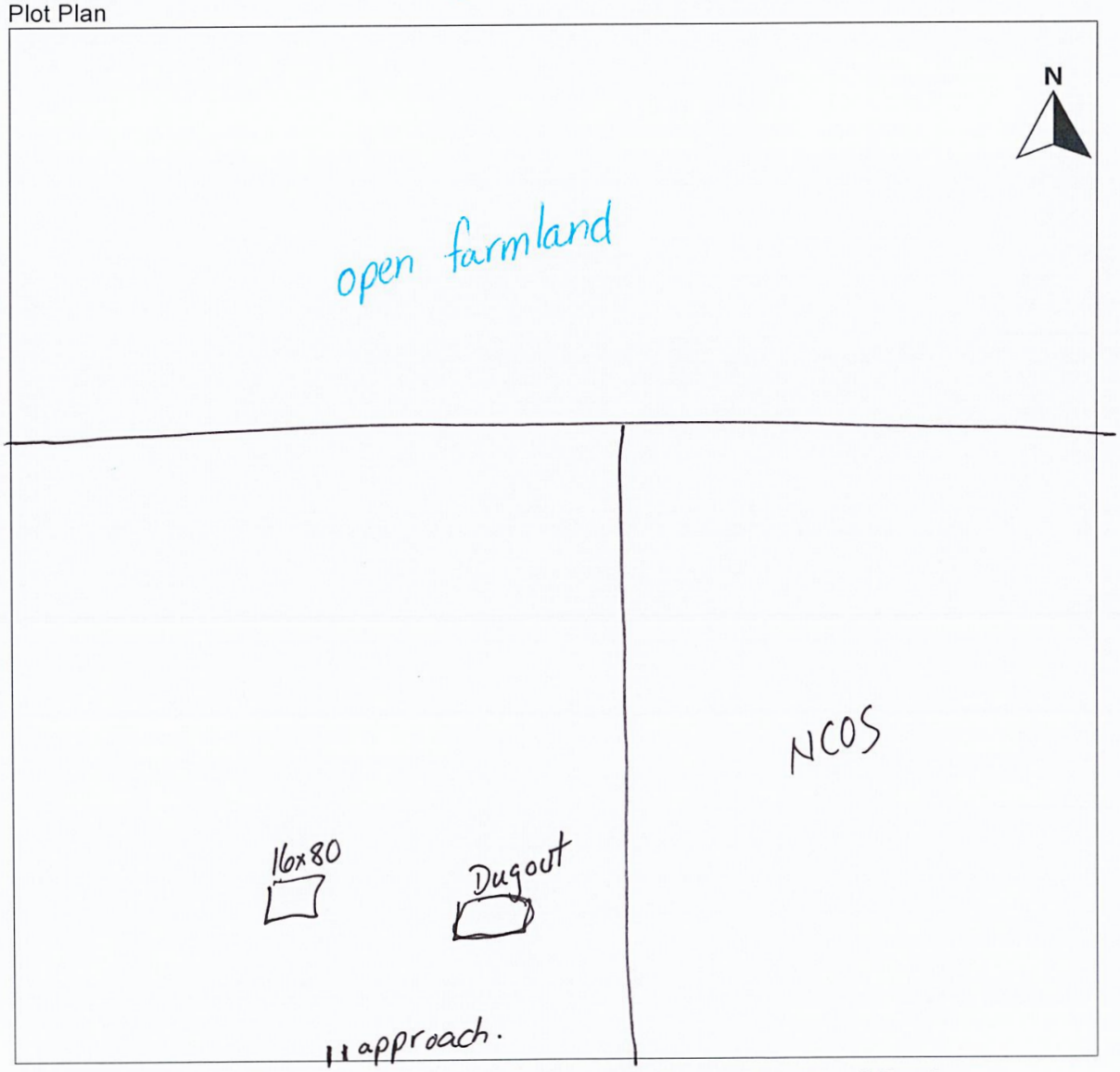
Bag 1300, 135 Sunrise Road
Peace River, AB
T8S 1Y9
northernsunrise.net

see tentative plan attached.

SCHEDULE "A"

Page 2 of 2

Plot Plan



Note: Draw a detailed map of the development area highlighting the following:
Provide the closest distance of proposed development(s) from:

1. All property lines
2. All roads and approaches
3. Top of the bank (if it is within 200 feet of the proposed development) from all water bodies and watercourses
4. All existing and proposed buildings

Note: Top of the bank is considered the point of first drop from the plain where the development is proposed

NORTHERN SUNRISE COUNTY

Bag 1300, 135 Sunrise Road
Peace River, AB
T8S 1Y9
northernsunrise.net

ADDITIONAL APPLICATION REQUIREMENTS

The Development Permit Application must be completed prior to a decision being made. Below is a generalized list of requirements. The Development Officer may require additional information per Land Use Bylaw B458/24 depending on the specific nature of the application. Please meet with the Planning and Development Department prior to submitting your application, to review the required information.

The application must include the following:

OFFICE	COMPLETED BY APPLICANT
Y/N	☑ Application fee –The fee must be paid in full at the time of application.
Y/N	☐ Rural Addressing Application - Additional form to complete if the development is the first dwelling in any district other than hamlet residential.
Y/N	☐ Geotechnical Assessment - If the development application is within the top of bank setbacks identified by the land use bylaw, a geotechnical assessment must be prepared by a qualified professional Geotechnical Engineer licensed to practice in Alberta.
Y/N	☐ I have read and understand the recommendations included in the 2013 Thurber Report Initials ☐
Y/N	☑ Manufactured Home – Floor plans that must include: 1) roof pitch 2/12 2) eaves yes 3) width to length ratio 16x80 4) pictures of siding/proposed skirting has plywood for move, siding is on order at St Isidore Co-Op will be complete by July 15, 2026
Y/N	☐ Moved In Buildings – What year was the building constructed 1994.
Y/N	☐ Applications for the Moved In Building shall include: 1) Coloured photographs of the building 2) Statement regarding the present location of the building 3) Notification of the relocation route 4) A complete site plan showing all buildings and located or to be located on the property.
Y/N	☐ Roadside Development Permit from Transportation and Economic Corridors: If the development is within **300 meters** of a provincial highway (Highways 2, 688, 986, 88, 750, 744 & 683) right of way boundary, or within **800 meters** of the center point of an intersection of the highway with another public road, a roadside development permit is required from Transportation and Economic Corridors.

PLEASE NOTE THAT THIS IS AN APPLICATION FORM ONLY AND DOES NOT AUTHORIZE THE COMMENCEMENT OF DEVELOPMENT OR USE OF A BUILDING OR LAND. A SEPARATE DECISION NOTICE WILL BE ISSUED ONCE YOUR APPLICATION HAS BEEN PROCESSED. PLEASE ALLOW 40 (FORTY) DAYS FOR THE PROCESSING AND ISSUANCE OF A DECISION ON YOUR APPLICATION.

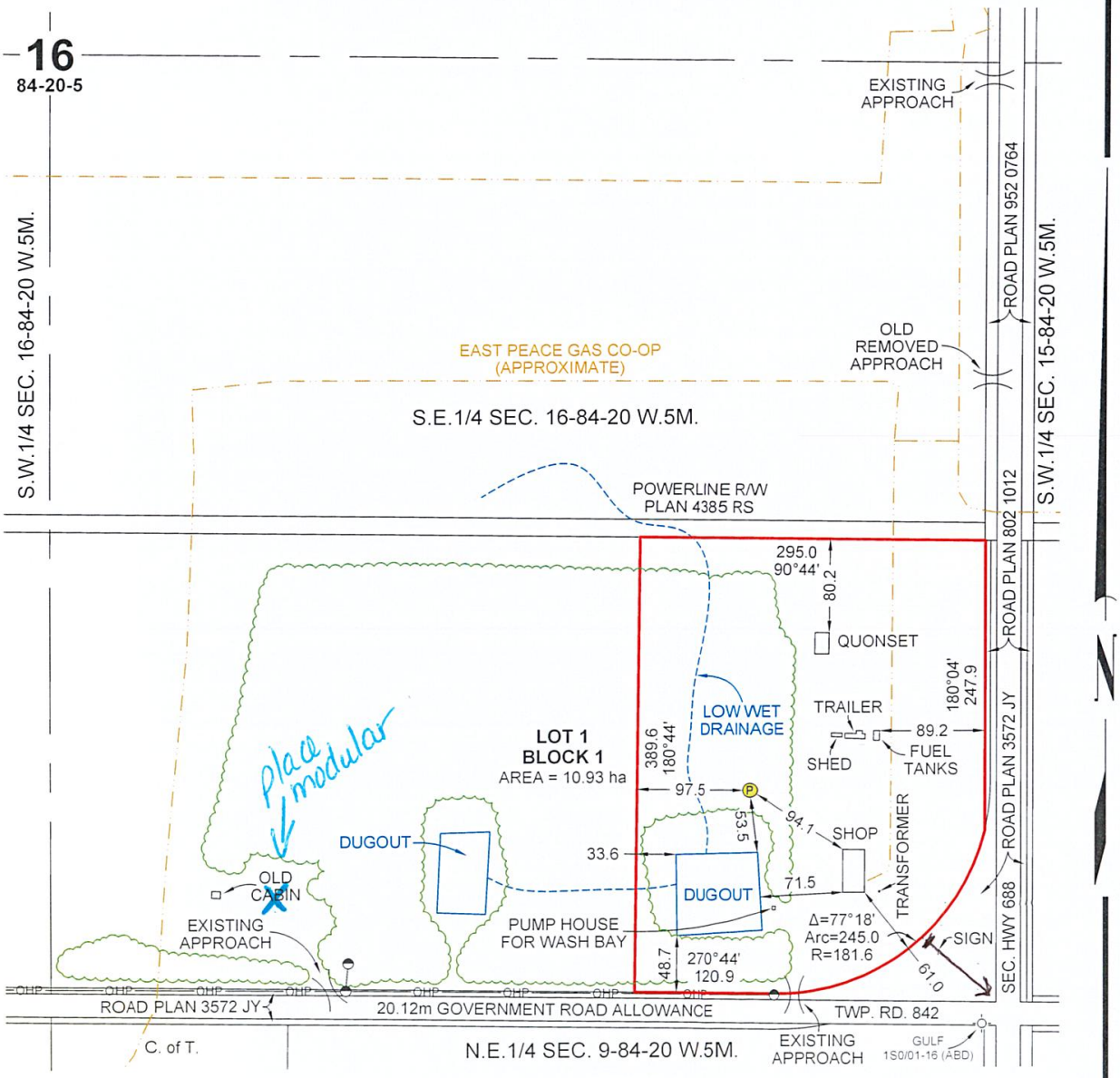
PAGE 1 OF 2

TENTATIVE PLAN

SHOWING PROPOSED SUBDIVISION WITHIN

S.E.1/4 Sec.16 Twp.84 Rge.20 W.5M.

NORTHERN SUNRISE COUNTY



LEGEND:

Proposed Parcel shown as: .....

Powerpole shown as: .....

Pumpout location shown as: .....

Distances are in metres and decimals thereof.

explore

Plan Prepared by:
Explore Geomatics Inc.
Edmonton, Alberta
Toll Free 1-866-936-1805
Fax No. 780-800-1927

40 20 0 50 100 200m
SCALE 1:5,000

REV. NO.	DESCRIPTION	DATE
0	PLAN ISSUED	APRIL 3, 2020

Job X034620 | Rev. 0 | SURVEYED BY: N.S. | CALCD BY: K.H. | DRAWN BY: S.H.


90-06155
Alberta
LABOUR
Client Services Division
HIS BUILDING WAS DESIGNED TO CONFORM TO REGULATIONS
UNDER THE UNIFORM BUILDING STANDARDS ACT WHICH WERE
N FORCE AT THE TIME OF CONSTRUCTION
MODULAR HOME
MAISON MODULAIRE
Based on the requirements of CSA Standard A277 and the National Building Code as detailed on the Specification Sheets inside the house.
ISSUE NO.
24689


Finished Project
Edit
Share

NORTHERN SUNRISE COUNTY

Bag 1300, 135 Sunrise Road
Peace River, AB
T8S 1Y9
northernsunrise.net

Municipal Planning Commission Subdivision Memorandum

Date of Municipal Planning Commission Meeting: June 22, 2026
Applicants Name: Borderline Surveys Ltd. & Limoges Seed Farms Ltd.
Legal Land Description: NW.20.81.19.W5M
Subdivision Application Number: 26MK013
Date of Report: June 15, 2026
Report Author: Jennifer Regal, Development Officer
CC: Cindy Millar, CAO

Recommendation:	That Subdivision Application 26MK013 be approved subject to the following conditions: 1. Any outstanding property taxes to be paid in full. 2. Access to the subdivision and the remainder of NW.20.81.19.W5M meets current County standards. 3. The open discharge system is relocated to meet current Provincial standards. 4. The offsite levy is paid in full to Northern Sunrise County. 5. A Developer's Agreement is to be entered into with the County to reflect the above conditions.
Background:	The application seeks to subdivide a 14.38-acre portion from NW.20.81.19.W5M for a Farmstead Separation. The parcel is located along TWP 814, between RR 195 and RR 194.5. The subdivision is using the bank of the Heart River as its west boundary. The open discharge system will need to be relocated, as such the parcel size increases for compliance. There is no apparent additional conflict with the Land Use Bylaw B458/24, the Municipal Development Plan Bylaw B397/21, or the *Municipal Government Act*.
Reserve Required:	No

MACKENZIE MUNICIPAL SERVICES AGENCY
SUBDIVISION COMMENTS

MUNICIPALITY: Northern Sunrise County
DATE RECEIVED: May 15, 2026
FILE: 26MK013
DEEMED COMPLETE ON: June 4, 2026
LEGAL: NW.20.81.19.W5M
EXPIRY DATE: August 3, 2026
APPLICANT/AGENT: Borderline Surveys Ltd.

PROPOSAL: The proposal is to subdivide 14.38 acres from an unsubdivided quarter section to accommodate a farmstead separation.

ACREAGE IN TITLE: Approximately 158.6 acres

RESERVE REQUIREMENT: N/A

PROXIMITY TO URBAN MUNIC: Approximately 6.59 miles east of Nampa (see location map).

PREVIOUS APPLICATIONS: N/A

SITE CHARACTERISTICS

C.L.I.: 90% $2^{6}_{C}\,4^{4}_{W}$ and 10% 2_{C}

TOPOGRAPHY: The topography is described as relatively flat.

EXISTING USE/DEVELOPMENT: The proposed lot contains an existing developed farmstead, comprised of a single-detached dwelling with a car port, two workshops, multiple storage sheds and shelters, a fuel pump with several fuel drums, grain bins, sea-cans and a chicken coop, together with associated servicing. The remainder of the lot is partly grassed and partly treed. The Heart River, which meanders through the quarter section in a north-south direction and severs the parcel into two, forms the western boundary of the proposed lot. The balance of the quarter section is largely cultivated, with some treed areas. There are two existing gas wells also located on the balance, one of which is an abandoned sour gas well. The quarter section is subject to several right of way agreements, caveated on title by East Peace Gas Co-op, East Peace Water Co-op, and Long Run Exploration Ltd.

ROAD ACCESS: Access to the proposed lot is gained via an existing approach from Township Road 814 to the north. Access to the balance of the quarter section is gained via a separate existing approach from Township Road 814 to the north, west of Heart River. It would have to be determined whether both accesses meet current County standards.

SERVICING: The proposed lot is serviced by East Peace Water Co-op Ltd for water supply, and an open discharge septic system for onsite sewage treatment and disposal. The discharge point of the sewage disposal system does not meet current Provincial setback standards, and is thus proposed to be relocated within the lot to meet current standards, as shown on the tentative plan.

PARCEL SIZE: The proposed parcel size of 14.38 acres may be deemed appropriate for the intended use.

LEGISLATION

LAND USE BYLAW: The proposed subdivision is located within the Agricultural District (A). The Land Use Bylaw permits a maximum parcel density of two (2) parcels per quarter section for residential uses, with the balance of the quarter section constituting one of the parcels. As this proposal represents a first parcel out subdivision, it complies with the parcel density regulations of the Land Use Bylaw.

The parcel size requirements for a farmstead separation within the Agricultural District specifies a minimum parcel size of 3 acres and a maximum of 10 acres. At 14.38 acres, the proposed parcel size exceeds the maximum parcel size requirement. However, pursuant to section 6.4 (4)(a) of the Land Use Bylaw, at the discretion of the Subdivision Authority, a larger parcel size may be allowed, taking into account site conditions, natural features, or existing development. In this instance, the larger parcel size may be supported due to the sparsely distributed development footprint onsite and the need to relocate the existing septic discharge system to comply with current setback standards.

All existing developments on the proposed lot meet the setback requirements of the Land Use Bylaw.

MUNICIPAL DEVELOPMENT PLAN: May be allowed.

INTERMUNICIPAL DEV. PLAN: N/A

MATTERS RELATED TO SUBDIVISION AND DEVELOPMENT REGULATION: Section 7 (6) (c) (e) (g) (h) and (m) apply. The proposal will be referred to the appropriate utility companies, Long Run Exploration Ltd, Environment and Protected Areas, the Alberta Energy Regulator, as well as Northern Sunrise County for comments.

MUNICIPAL GOVERNMENT ACT: No conflicts

(These comments are subject to change based on additional information that may be received).

MACKENZIE MUNICIPAL SERVICES AGENCY
Box 450 Berwyn AB T0H 0E0 - Phone: 780-338-3862 Fax: 780-338-3811 Email: info@mmsa.ca

FORM 1
APPLICATION FOR SUBDIVISION

FOR OFFICE USE ONLY
Date of Receipt for Completed Form: May 15, 2026 File No.: 26MK013 Fee Submitted: $ 725.00

THIS FORM IS TO BE COMPLETED IN FULL WHEREEVER APPLICABLE BY THE REGISTERED OWNER OF THE LAND THAT IS THE SUBJECT OF THE APPLICATION OR BY A PERSON AUTHORIZED TO ACT ON THE REGISTERED OWNERS BEHALF.

1. Name of registered owner of land to be subdivided: _____ (Full Name in Block Capitals)
   Address and phone number: [redacted]

2. Name of agent (person authorized to act on behalf of registered owner), if any: Borderline Surveys Ltd/Jason Coates (Full Name in Block Capitals)
   Address and phone number: _____

3. LEGAL DESCRIPTION AND AREA OF LAND TO BE SUBDIVIDED:

   All/part of the _____ ¼ Sec _____ TWP _____ Range _____ West of _____ Meridian

   Being all/parts of Lot _____ Block _____ Registered Plan No. _____ C.O.T. No. _____

   Area of the above parcel of land to be subdivided _____ hectares _____ (acres).

   Municipal Address if applicable _____

4. LOCATION OF LAND TO BE SUBDIVIDED:

   a. The land is situated in the municipality of _____

   b. Is the land situated immediately adjacent to the municipal boundary? Yes _____ No _____

      If "yes", the adjoining municipality is _____

   c. Is the land situated within 1.6 kilometres (1.0 miles) of the right-of-way of a highway? Yes _____ No _____

      If "yes", the Highway is No _____ the Secondary Road is No. _____.

   d. Does the proposed parcel contain or is it bounded by a river, stream, lake or other body of water or by a drainage ditch or canal?

      Yes _____ No _____ If "yes", state its name: _____

   e. Is the proposed parcel within 1.5 kilometres (0.932 miles) of a sour gas facility? Yes _____ No _____

5. EXISTING AND PROPOSED USE OF LAND TO BE SUBDIVIDED
   Describe:

   a. Existing use of the land _____

   b. Proposed use of the land _____

   c. The designated use of the land as classified under a land use bylaw _____

6. PHYSICAL CHARACTERISTICS OF LAND TO BE SUBDIVIDED (WHERE APPROPRIATE)

   a. Describe the nature of the topography of the land (flat, rolling, steep, mixed) _____

   b. Describe the nature of the vegetation and water on the land (brush, shrubs, tree stands, woodlots, etc – sloughs, creeks, etc) _____

   c. Describe the kind of soil on the land (sandy, loam, clay, etc) _____

7. EXISTING BUILDINGS ON THE LAND TO BE SUBDIVIDED

   Describe any buildings and any structures on the land and whether they are to be demolished or moved _____

8. WATER AND SEWER SERVICES

   If the proposed subdivision is to be served by other than a water distribution system and a wastewater collection system, describe the manner of providing water and sewage disposal.

9. REGISTERED OWNER OR PERSON ACTING ON THE REGISTERED OWNER'S BEHALF

   I, Borderline Surveys Ltd/Jason Coates (Full Name in Block Capitals) hereby certify that

   ☐ I am the registered owner, or

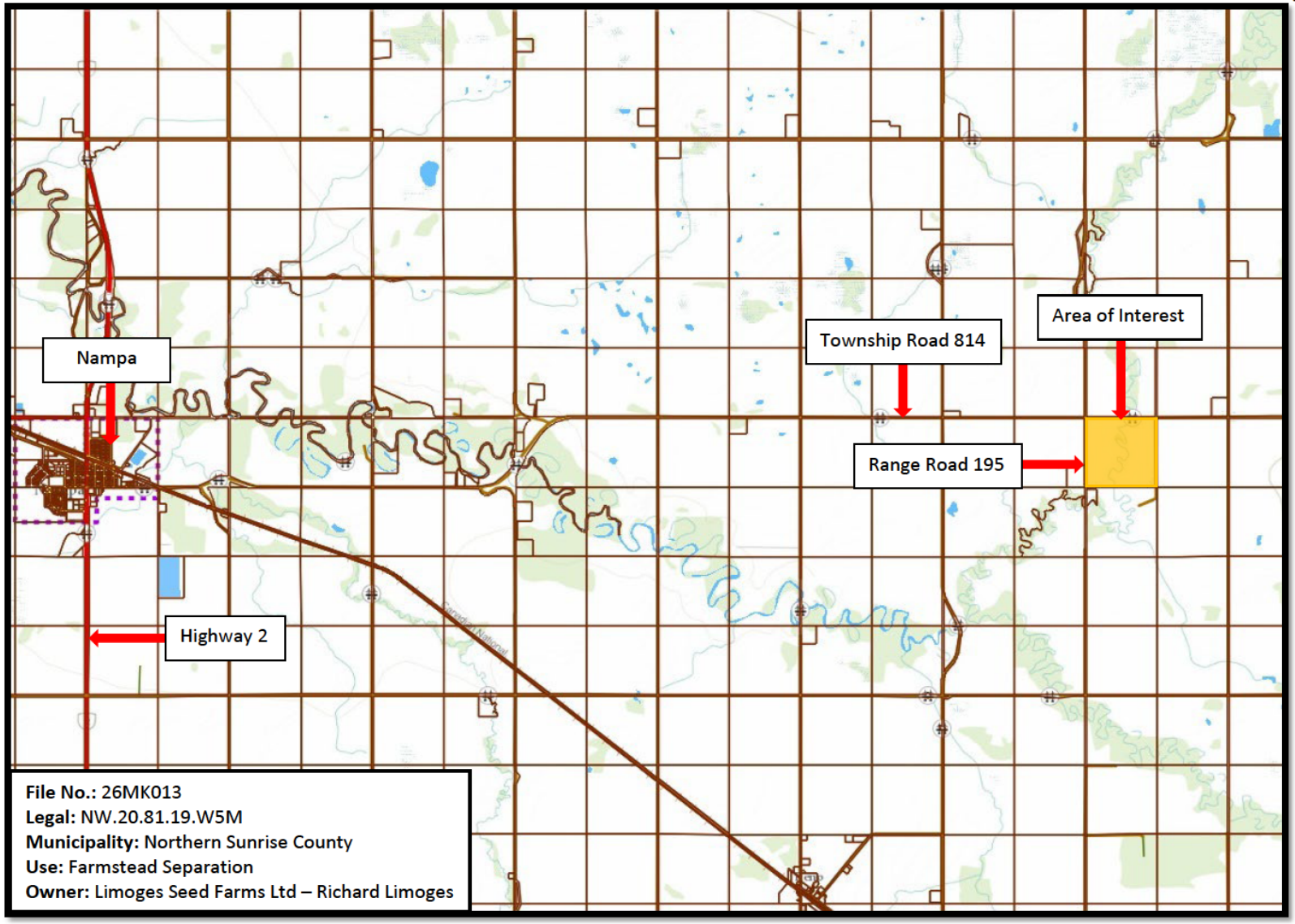
   ☒ I am the agent authorized to act on behalf of the registered owner

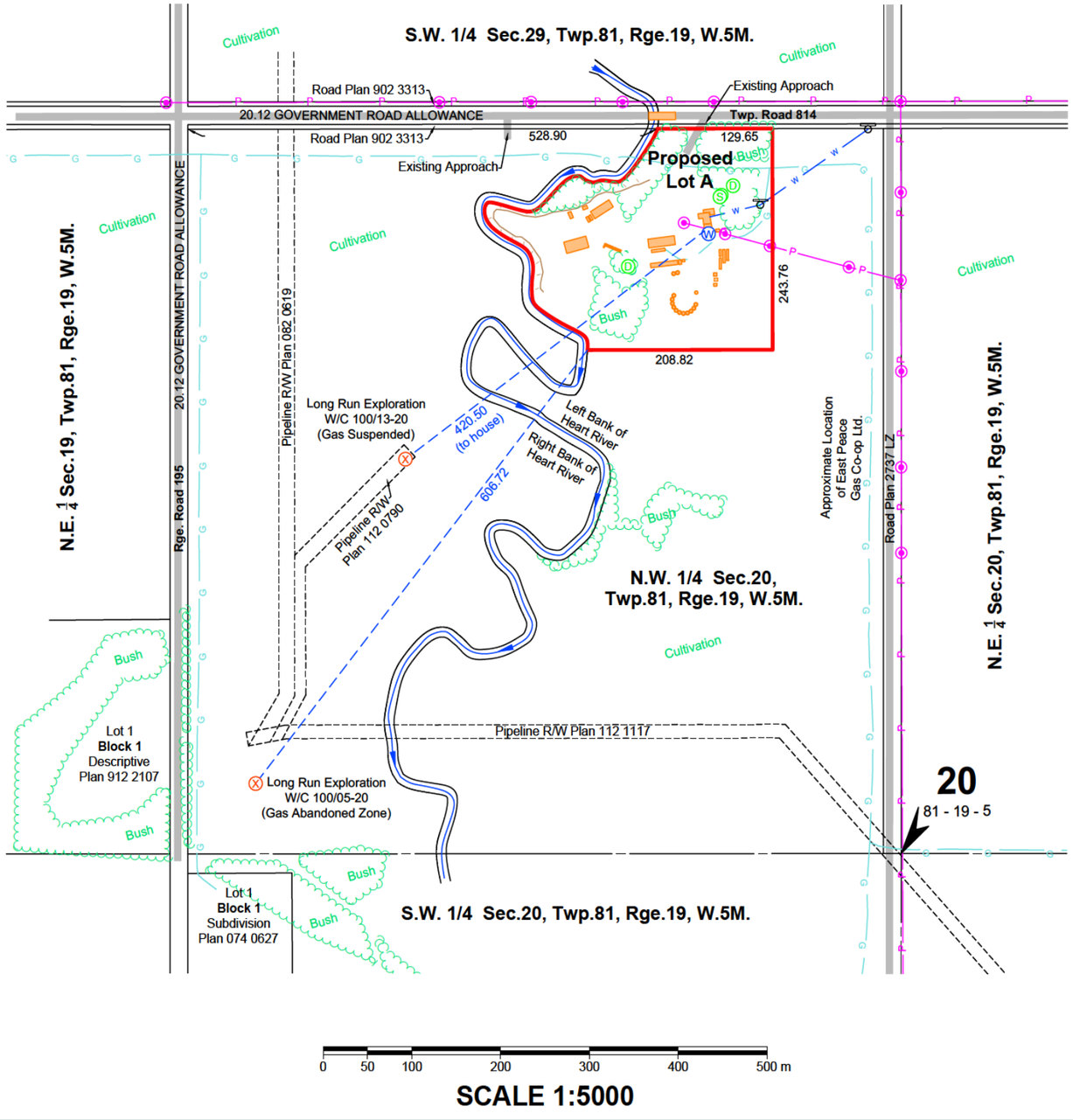
   and that the information given on this form is full and complete as is, to the best of my knowledge, a true statement of the facts relating to this application for subdivision.

   Address: _____ Signature: Jason Coates

   Phone No.: (780) 538-1955 / Cell (780) 330-9939 Date: _____

LOCATION MAP





TENTATIVE PLAN SHOWING

PROPOSED SUBDIVISION OF

N.W. $\frac{1}{4}$ Sec.20, Twp.81, Rge.19, W.5M.

(For Farmyard Separation)

Within

Northern Sunrise County, Alberta

Schedule of Area(s)

Contains 1 Lot,
Containing 5.82 ha (14.38 ac.)

Registered Title Encumbrances (Affecting Extent of Title)

792 188 589: Utility Right of Way - East Peace Gas Co-op Ltd.
992 098 188: Caveat - Right of Way Agreement - East Peace Water Co-op Ltd.
002 132 231: Caveat - Right of Way Agreement - East Peace Water Co-op Ltd.
052 228 366: Caveat - Surface Lease Under 20 Acres - Long Run Exploration Ltd.
052 304 668: Utility Right of Way - Long Run Exploration Ltd.
062 267 921: Caveat - Surface Lease Under 20 Acres - Long Run Exploration Ltd.
062 477 617: Caveat - Right of Way Agreement - East Peace Water Co-op Ltd.
082 029 957: Caveat - Right of Way Agreement - Long Run Exploration Ltd.
082 512 447: Caveat - Right of Way Agreement - East Peace Water Co-op Ltd.
102 162 107: Caveat - Right of Way Agreement - Long Run Exploration Ltd.
132 119 598: Caveat - Lease Interest - Richard Limoges

Notes

- Distances are in Metres and Decimals Thereof.
- Plan measurements based from a field inspection conducted on April 26, 2026.

Legend

Area Affected by This Plan is Outlined Thus.....
Roads Shown Thus.....
Overhead Power Shown Thus.....P
Fence Shown Thus.....X
Gate Post Shown Thus.....o GP
Power Pole & Anchor Shown Thus.....
Water Cistern Shown Thus.....W
Septic Tank Shown Thus.....S
Septic Discharge Shown Thus.....D

Land Owner(s)

Limoges Seed Farms Ltd.
C. of T. 262 094 024

Site Information

Address: #19451 Township Road 814

BORDERLINE SURVEYS
5003 46th Avenue
Spirit River, Alberta, T0H 3G0
Phone: (780) 538-1955
E-mail: jwc.surveyor@gmail.com

ALBERTA LAND SURVEYORS' ASSOCIATION
PERMIT NUMBER P298
BORDERLINE SURVEYS LTD.

PREPARED BY
Jason Coates, A.L.S.

Revision Table

No.	Revision Type	Drafted	Chk'd	Surveyed	Date
0	Original	ASB	LB/JC	JC	May 21, 2026

Client File No: N/A
File No: 260072T | Job No: 260072 | Sheet: 1 of 4
0 Revision

TENTATIVE PLAN SHOWING

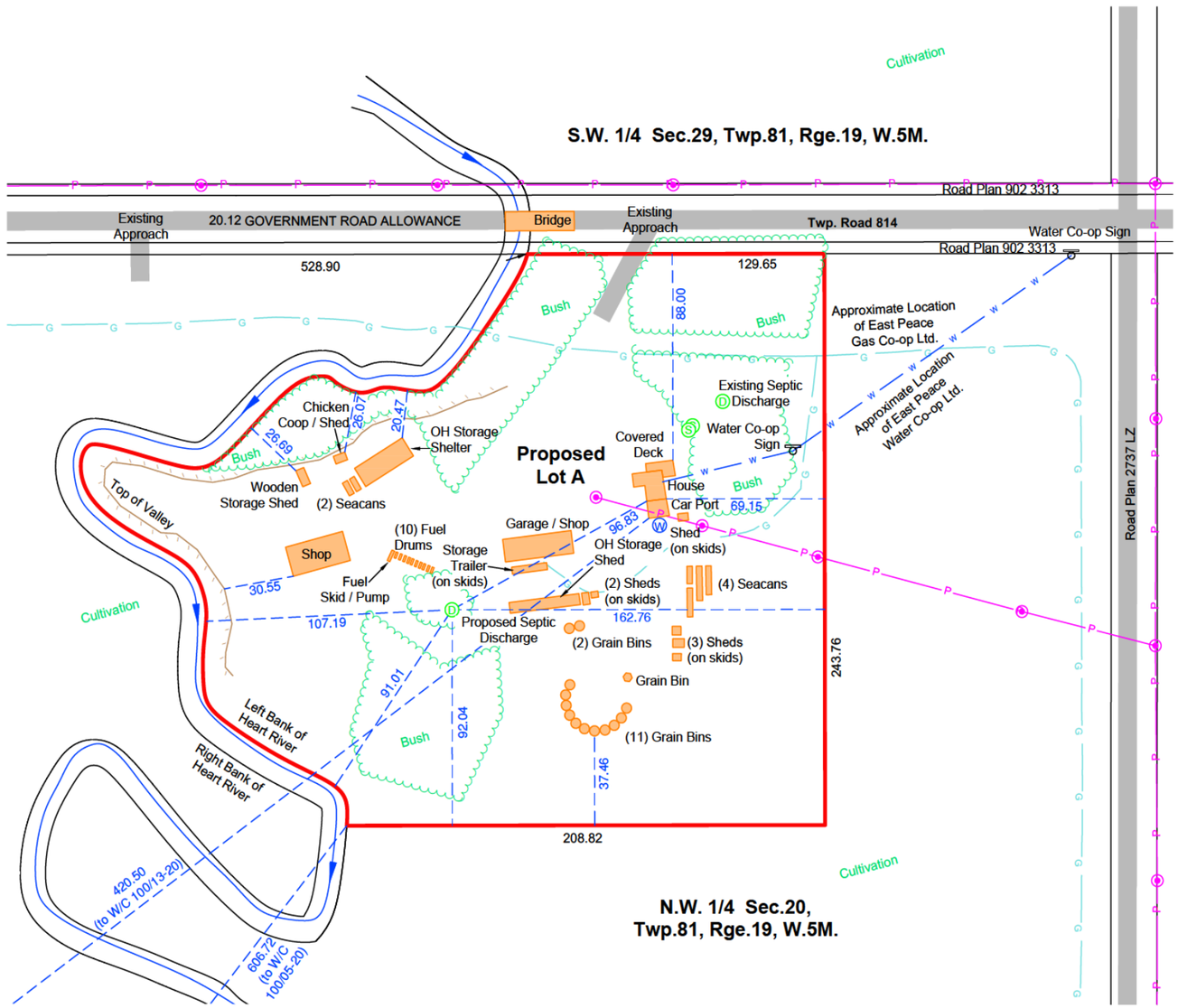
PROPOSED SUBDIVISION OF

N.W. $\frac{1}{4}$ Sec.20, Twp.81, Rge.19, W.5M.

(For Farmyard Separation)

Within

Northern Sunrise County, Alberta



N

EXISTING SEPTIC PROXIMITY INDEX	
FEATURE	EXISTING HOUSE DISCHARGE (m)
House	40.19
Cistern	59.60
S. Property Line	180.79
W. Property Line	104.77
N. Property Line	62.97
E. Property Line	44.42

Notes

- The house is served by a septic tank and discharge system.
- The Septic Discharge will be relocated.
- Water source is a water co-op.
- Some buildings may have been erected and others moved since the date of this photo.
- Heart River is 5m deep and less than 10% slope.
- There are abandoned wells in the subject quarter.

BORDERLINE SURVEYS
5003 46th Avenue
Spirit River, Alberta, T0H 3G0
Phone: (780) 538-1955
E-mail: jwc.surveyor@gmail.com

ALBERTA LAND SURVEYORS' ASSOCIATION
PERMIT NUMBER P298
BORDERLINE SURVEYS LTD.

PREPARED BY
Jason Coates, A.L.S.

Revision Table

No.	Revision Type	Drafted	Chk'd	Surveyed	Date
0	Original	ASB	LB/JC	JC	May 21, 2026

Client File No: N/A

File No: 260072T | Job No: 260072 | Sheet: 2 of 4 | 0 Revision

TENTATIVE PLAN SHOWING

PROPOSED SUBDIVISION OF

N.W. $\frac{1}{4}$ Sec.20, Twp.81, Rge.19, W.5M.

(For Farmyard Separation)

Within

Northern Sunrise County, Alberta

Photo is current Microsoft Bing Image dated October, 2024.

0 50 100 200 300 400 500 m

SCALE 1:5000

N

BORDERLINE SURVEYS

5003 46th Avenue
Spirit River, Alberta, T0H 3G0
Phone: (780) 538-1955
E-mail: jwc.surveyor@gmail.com

ALBERTA LAND SURVEYORS' ASSOCIATION
PERMIT NUMBER P298
BORDERLINE SURVEYS LTD.

PREPARED BY
Jason Coates, A.L.S.

Revision Table

No.	Revision Type	Drafted	Chk'd	Surveyed	Date
0	Original	ASB	LB/JC	JC	May 21, 2026

Client File No: N/A

File No: 260072T | Job No: 260072 | Sheet: 3 of 4 | 0 Revision

TENTATIVE PLAN SHOWING

PROPOSED SUBDIVISION OF

N.W. $\frac{1}{4}$ Sec.20, Twp.81, Rge.19, W.5M.

(For Farmyard Separation)

Within

Northern Sunrise County, Alberta

Photo is current Microsoft Bing Image dated October, 2024.

SCALE 1:2000

BORDERLINE SURVEYS

5003 46th Avenue
Spirit River, Alberta, T0H 3G0
Phone: (780) 538-1955
E-mail: jwc.surveyor@gmail.com

ALBERTA LAND SURVEYORS' ASSOCIATION
PERMIT NUMBER P298
BORDERLINE SURVEYS LTD.

PREPARED BY
Jason Coates, A.L.S.

Revision Table

No.	Revision Type	Drafted	Chk'd	Surveyed	Date
0	Original	ASB	LB/JC	JC	May 21, 2026

Client File No: N/A

File No: 260072T | Job No: 260072 | Sheet: 4 of 4 | 0 Revision

Northern Sunrise County Presentation

MIHTA ASKIY

Data Center

NSC Economic Development Committee

June 2026

Project Overview

MIHTA ASKIY
Data Center

What is the Mihta Askiy Data Center Project?

The Mihta Askiy Data Center is a First Nations partnered power facility and data center that brings lasting economic opportunity to the Peace region — built on existing infrastructure and developed responsibly over the long term.

Project Objectives

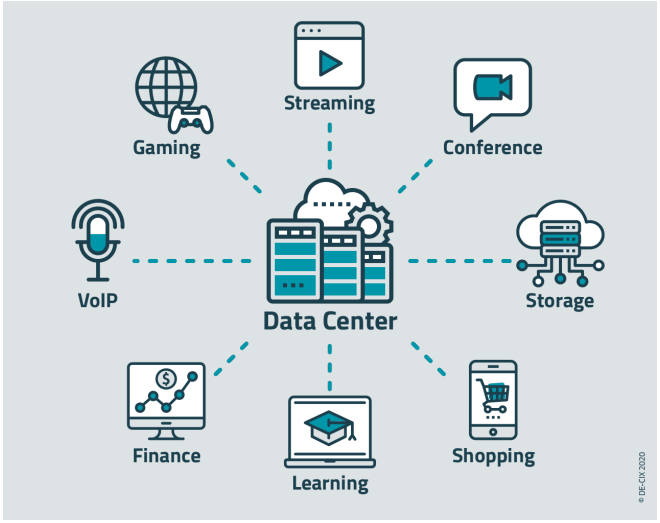
- To generate value by **repurposing an existing site**, rights-of-ways and local infrastructure while minimizing incremental disturbance
- To drive **rural economic development** in a region with strong enabling infrastructure and a skilled local workforce
- To execute the project alongside First Nations to ensure sustainable, **responsible development** throughout the 30+ year life of the project

Data Centers | A Changing Economy

As the use of Artificial Intelligence grows, technology companies are seeking new locations for datacenters. This creates an economic opportunity for Northern Sunrise County and the region.

What is a Data Center?

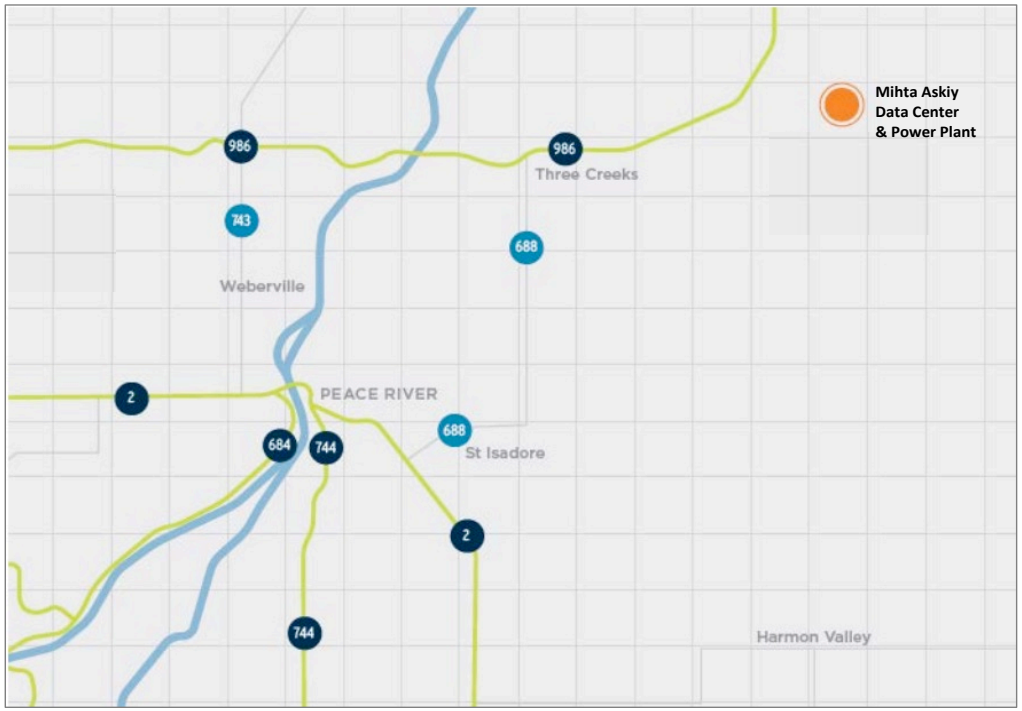
- **Digital Warehouse** – A facility full of powerful computers that store and process huge amounts of information.
- **The "Cloud" on the Ground** – Where cloud data and apps actually live.
- **Always On** – Built to run 24/7 with backup power, cooling, and security.
- **Heart of the Internet** – Powers websites, apps, online banking, streaming, and more.
- **AI Powerhouse** – Provides the high-speed computing needed to train and run artificial intelligence systems.



Mihta Askiy builds upon a partially completed industrial site

Site Aerial View (ca 2024)

Mihta Askiy is located 40 km northeast of Peace River, Alberta



Site History:

Carmon Creek heavy oil project
2012-2017

Power plant 2017-2019 (active)

Power plant 2019-2025 (inactive)

Mihta Askiy Data Center 2025+

Cooling the site without straining local water resources

Designed to use less

- Alberta's cool climate allows free-air cooling for most of the year
- Closed-loop, direct-to-chip cooling recirculates water rather than consuming it
- Efficient by design — modest water demand for a project of this size

Sourced responsibly

- Uses the site's existing, licensed Peace River allocation (originally for the power plant)
- Brackish, non-potable groundwater identified as backup — common in local industry
- A regulated, existing allocation — not a new draw on the watershed

Reusing a disturbed site keeps our impact low

Reusing an existing site

- Reuses the former Carmon Creek site — not untouched land (CNRL still operates here)
- Tie-ins follow existing rights-of-way — no new access roads
- Previously approved under EPEA, AUC & AER; field studies refreshed in 2025 and new applications submitted as necessary

Active, expert-led mitigation

- Qualified wildlife biologist on site during construction
- Nesting-season timing windows and setbacks for active nests
- Speed limits, wildlife-proof waste, and avian-safe equipment

Our commitment: minimize and monitor with guidance from independent experts

Mihta Askiy will provide economic benefits to the Peace Region

Investment and Employment Benefits

- Jobs through a multi-year construction period and a 30-year operating life
- ~750 jobs at construction peak; 100+ permanent roles once operating
- Contracts for local business during construction and ongoing maintenance
- Local spend on hospitality, lodging and construction services

Value for Alberta

- Development of technology infrastructure reduces reliance on foreign infrastructure for data services and creates local investment
- Access to 'compute power' for domestic and local initiatives (such as data sovereignty, defense, research, government databases, etc.)

Building the project with the region, not just in it

Workforce & education

- Early engagement with Northern Lakes College on local training pathways, supporting regional stewardship
- Address systemic barriers and help build a regional talent pipeline for construction and long-term operations
- Prioritizing the hiring and contracting of regional companies / workforce

Regional partnerships

- Ongoing dialogue with regional employers, including Mercer
- Coordinating with Northern Sunrise County on economic development initiatives and studies
- Become a new, key local employer and partner in regional economic diversification

Approvals are progressing — and engagement is open

Provincial environmental approval (EPEA) — in place
Federal impact assessment (IAAC) — approval received
AUC facility application (power plant, substation, ISD) — submitted
AESO system studies — complete

- Three rounds of wildlife & environmental field surveys completed in 2025
- Public engagement underway — including this meeting

Project Timeline

MIHTA ASKIY
Data Center

Mihta Askiy will begin operation in 2027

Date	Milestone
Q1 2025	Maskwa Environmental begins environmental surveys
Q3 2025	Project announcement & public consultation begins
Q4 2025	Commenced Impact Assessment Agency Canada process (Power Plant Pre-Screen)
Q1 2026	Complete IAAC screening process
Q1-Q3 2026	Alberta Utilities Commission power plant, transmission line and substation application submissions
Q3 2026	Final Investment Decision
Q1 2027	Site transmission tie-in to Wesley Creek substation
Q2 2027	Data Center Phase 1 (100 MW) startup with grid power
Q4 2027	Power Plant Phase 1 commissioning (400MW) and transfer to on-site power
Q1 2028	Data center Phase 2 startup (additional 250MW to total of 350MW compute)
Q4 2029	Data center (additional 200MW) and power plant (additional 250MW) Phase 3 buildout

Questions

MIHTA ASKIY
Data Center

Contact Us

info@sovereigndigitalinfrastructure.com

www.sovereigndigitalinfrastructure.com

MIHTA ASKIY
Data Center