

**BC Geological Survey
Coal Assessment Report
1052**



2018 Michel Coal Exploration Program



ASSESSMENT REPORT TITLE PAGE AND SUMMARY

TITLE OF REPORT: Assessment Report:
2018 Michel Coal Exploration Program

TOTAL COST: \$3,373,445.16

AUTHOR(S): Dave Thompson, P.Geo.

A handwritten signature in black ink, appearing to read 'D. Thompson', written over a grey rectangular background.

SIGNATURE(S):

NOTICE OF WORK PERMIT NUMBER(S)/DATE(S):

1. Mines Act Permit CX-05-017, Approval #14-1630657-0625, issued June 25, 2013
2. Mines Act Permit CX-05-018, Approval #18-1630658-0912, issued Sept 12, 2018
3. Mines Act Permit CX-05-019, Approval #18-1630615-0927, issued Sept 27, 2018

YEAR OF WORK: 2018

PROPERTY NAME: Michel Coal Project: Loop Ridge, Tent Mountain and Michel Head Properties
CLAIM NAME(S) (on which work was done): Coal Licences #'s: 418318, 418319, 418631, 418632, 418634, 418645

COMMODITIES SOUGHT: Coal

MINING DIVISION: FORT STEELE

NTS / BCGS: 82G/10E

LATITUDE: 49.553° N

LONGITUDE: -114.731° W (at centre of work)

UTM Zone: 11 **EASTING:** 664144m **NORTHING:** 5491991m

OWNER(S): North Coal Limited

MAILING ADDRESS: 652F Sparwood Dr, Sparwood, BC V0B 2G0

OPERATOR(S) [who paid for the work]: North Coal Limited

REPORT KEYWORDS: Jurassic/Cretaceous, Mist Mountain Formation, Coal

REFERENCES TO PREVIOUS ASSESSMENT WORK AND ASSESSMENT REPORT NUMBERS:

Assessment Report #1025: 2016 Loop Ridge Exploration Program

Assessment Report #1026: 2016 Michel Head Exploration Program

Assessment Report #1039: 2017 Loop Ridge Phase 2 (Loop South) Exploration Program

Assessment Report #1040: 2017 Tent Mountain Exploration Program



ASSESSMENT REPORT

2018 Michel Coal Exploration Program



Owner and Operator: North Coal Limited

Authorship: Dave Thompson, P.Ge.

Chief Geologist, North Coal Limited

Table 1.1 and Section 8 remain confidential under the terms of the Coal Act Regulation, and has been removed from the public version.

http://www.bclaws.ca/civix/document/id/complete/statreg/251_2004

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Appendix C	Sampling Summary
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Appendix E	Analytical and Processing Guidelines
Appendix F	Statement of Costs
Appendix G	Golder Seismic and Resistivity Report (.zip file attached)
Appendix H	Golder Waste Rock Dump Geotechnical Report (.zip file attached)
Appendix I	Golder Tent Mountain Pit Stability Geotechnical Report (.zip attached)

1 Introduction and Summary

This report describes the 2018 exploration work conducted on the Michel Coal Project owned by North Coal Limited in the Michel Creek area near Sparwood, BC. (Figure 1.1).

The Michel Coal Project is currently comprised of 16 contiguous coal licenses owned by North Coal Limited on which three principal coal deposits have been extensively explored and modelled. The Tent Mountain and Michel Head deposits were originally owned and mapped by Kaiser Resources in the 1960’s and 1970’s. No information is known about any exploration drilling carried out at that time. The Loop Ridge deposit was owned by Crow’s Nest Pass Coal Co. who completed a test pit in 1969. Further test pit mining was completed by McGillivray Mining and Fording Coal in 1995 and 1996. Information is available for the 36 exploration drill holes completed in 1998 and 1999.

From 2013 to 2017, CanAus Coal Limited carried out several exploration drilling programs on each of the deposits, with a total of 49,197m of drilling completed in 325 holes. The data gathered from each of these campaigns was used to develop geological and resource models of each deposit. The models provide details sufficient for NI 43-101-compliant resource estimates and provide the geological basis for engineering at the Pre-Feasibility Study (PFS) level. Resource estimates were calculated based on the recommended data point spacing as outlined in GSC Paper 88-21 (Hughes et al, 1989), for complex coal deposits and the 2017 totals are summarized in Table 1.1.

[REDACTED]

[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]

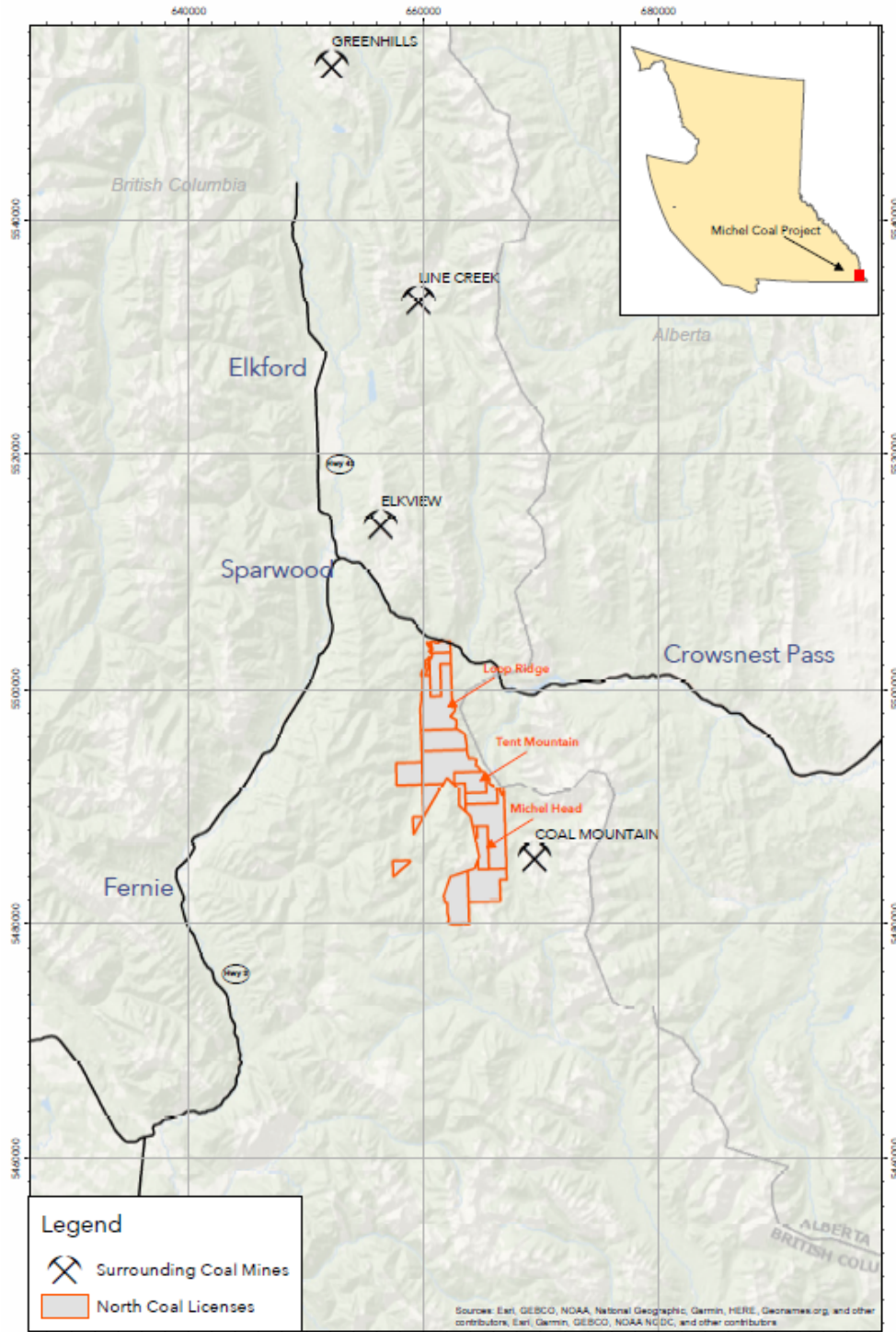
[REDACTED]

[REDACTED]

In late 2017, CanAus Coal Limited changed its name to North Coal Limited. In 2018, North Coal Limited completed 6325m of drilling in 45 holes, which included 5042m of exploration reverse circulation drilling in 21 holes and 438m of geotechnical core drilling in 2 holes on Tent Mountain. In addition, 555m, 158m, and 133m of geotechnical and hydrogeological reverse circulation drilling was completed on Loop Ridge, Tent Mountain and Michel Head,

respectively. A series of shallow seismic and resistivity surveys were completed in potential waste rock dump areas of all three deposits to test the overburden depth.

Figure 1.1 Location Plan



Legend

- Surrounding Coal Mines
- North Coal Licenses

Source: Esri, GEBCO, NOAA, National Geographic, Garmin, HERE, Geonames.org, and other contributors, Esri, Garmin, GEBCO, NOAA, NADIC, and other contributors



North Coal Limited
Michel Coal Project
Location Map
v2019-03-15



2 Property and Location

2.1 Ownership

Coal exploration and development rights are wholly owned by North Coal Limited. Surface rights are held by CanWel Timber Limited, as part of their free-hold Tent Mountain Block (PID 023-431-482, Lot 2 District Lot 4590, Kootenay District Plan 229332). There are no oil and gas drilling activities on the property; however, the TransCanada Pipeline, which carries natural gas from wells in Alberta, runs through the Loop Ridge deposit from east to west and two FortisBC branch pipelines, which supply the town of Sparwood and local operating mines, follow the right-of-way along Michel Creek.

At this time there are no environmental liabilities identified on the property.

2.2 Property

The approximate centre point of the Michel Coal Project is at Tent Mountain at 5,492,062N and 664,325E (UTM NAD 83 Zone 11). The Michel Coal Project coal licenses, held by North Coal, are summarized in Table 2.2.1. The 2018 work was performed on coal licenses 418318, 418319, 418631, 418632, 418634 and 418645. A location map shows information on the licenses (Figure 2.2.1).

Table 2.2.1 Michel Coal Project Coal Licenses

License	Owner	Type	Anniversary Date	Area (ha)
418317	North Coal Limited	License	30-Apr-19	342
418318	North Coal Limited	License	30-Apr-19	417
418319	North Coal Limited	License	30-Apr-19	409
418269	North Coal Limited	License	18-Nov-19	247
418270	North Coal Limited	License	18-Nov-19	64
418271	North Coal Limited	License	18-Nov-19	104
418624	North Coal Limited	License	30-Apr-19	689
418625	North Coal Limited	License	30-Apr-19	133
418626	North Coal Limited	License	30-Apr-19	408
418627	North Coal Limited	License	30-Apr-19	27
418628	North Coal Limited	License	30-Apr-19	24
418629	North Coal Limited	License	30-Apr-19	1
418630	North Coal Limited	License	30-Apr-19	4
418631	North Coal Limited	License	30-Apr-19	151
418632	North Coal Limited	License	30-Apr-19	1160
418633	North Coal Limited	License	30-Apr-19	326
418634	North Coal Limited	License	30-Apr-19	1049
418645	North Coal Limited	License	19-Sep-19	1183
418646	North Coal Limited	License	19-Sep-19	801
418647	North Coal Limited	License	19-Sep-19	830
		Total		8369

The property is situated in the northwest trending Front Ranges of the Rocky Mountains physiographic region, which is characterized by a series of steep mountains running to the northwest, incised by west flowing streams. Figure 2.2.1 shows the Michel Coal Project with the Loop Ridge, Tent Mountain and Michel Head areas highlighted. Elevations range from ~1,400m along Michel Creek to a height of 2200m at Michel Head.

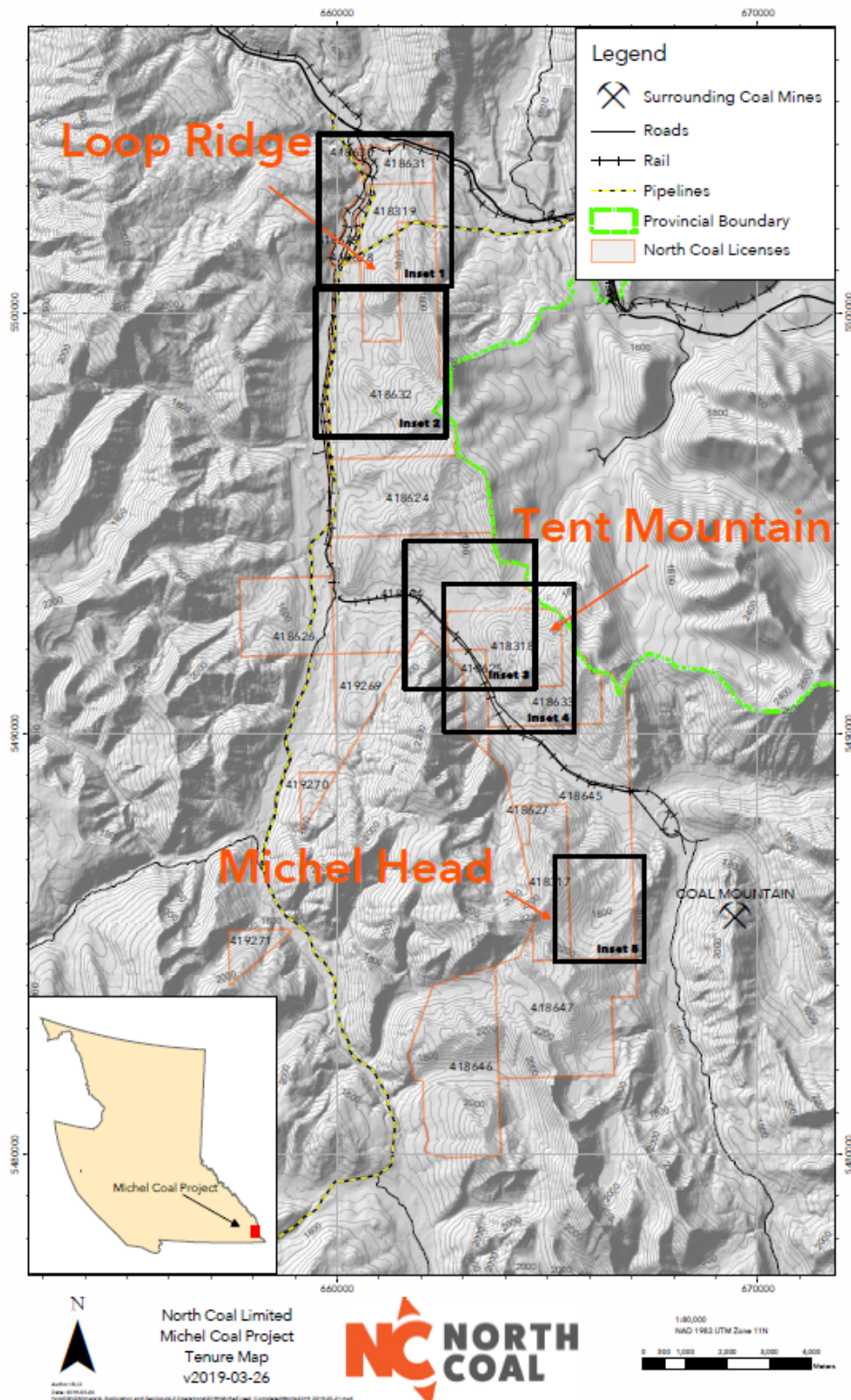
The Michel Coal Project is located between two open pit coal mines owned and operated by Teck Coal Limited. The Teck Elkview Operations, approximately 20km north from the center of Tent Mountain, produce metallurgical coal and their Coal Mountain Operations, approximately 9km south from the centre of Tent Mountain, produced both thermal and PCI coal until operations were ceased in 2018.

The climate is characterized by long, cold winters and short, cool to hot summers. In Sparwood, the temperature ranges from a record high of 39°C in the summer to a record low of -39.8°C in the winter, with a mean maximum in August of 23.6°C and a mean minimum in December of -11.6°C. Temperatures at the higher altitudes of the property would be slightly lower. The average amount of precipitation in Sparwood is 603mm with an equivalent of 248cm of that falling as snow. The Michel Coal Project property generally has dense forest cover of pine and spruce; however, a significant portion of the property has been logged recently.

2.3 Location and Access

The Michel Coal Project is located southeast of the town of Sparwood in the Michel Creek valley, southeast British Columbia. Primary road access to the general area is via the Crowsnest Highway (Highway 3), which is an all-weather paved major highway connecting Sparwood with Fernie in the west and communities of the Crowsnest Pass in the east. The project area is accessed by driving east from Sparwood along Highway 3 for 11km and turning south onto Corbin Road. Access to the project area is through a network of logging and exploration trails which branch off from Corbin Road over a distance of 20km.

Figure 2.2.1 – License Plan



3 Program Overview

3.1 Goals and Parameters

There were three main goals of the 2018 exploration program on the Michel Coal Project:

1. Exploration
 - a. To confirm and define the coal seam structure and interpretation on Tent Mountain as modelled from the 2017 drilling program;
 - b. To extend the boundaries of the Tent Mountain deposit in all directions with drilling designed to provide data which would enable a re-model and re-evaluation of coal resources. A coal sampling program of RC chips was designed to provide coal quality analytical results to confirm the potential for a hard-coking coal product;
2. Geotechnical
 - a. A series of near surface Electrical Resistivity Tomography (ERT) and Seismic Refraction (SRT) surveys to confirm depth of overburden in proposed waste rock dump foundation areas in Loop Ridge (North and South), Tent Mountain and Michel Head;
 - b. A series of shallow drillholes and test pits to investigate overburden depth and composition. Vibrating Wire Piezometers (VWP) installed in some holes to provide spatially distributed data of water pressures within the overburden soils. This data would support the waste rock dump slope stability assessments and design;
 - c. Two oriented core holes drilled in the area of the proposed Tent Mountain open pit to assess geological and geotechnical conditions in support of pit design;
3. Hydrogeological
 - a. A series of shallow drillholes for the installation of piezometers to evaluate groundwater conditions in support of the waste rock dump slope stability assessments and on-going environmental assessment requirements. For more information regarding the North Coal Limited environmental assessment, please refer to the following link:
<https://ceaa-acee.gc.ca/050/documents/p80110/125708E.pdf>;

3.2 History

In 1964, Crow's Nest Pass Coal Co. explored the Loop Ridge property and completed a test pit in 1969, mining between 60,000t and 100,000t. Further test pit mining of 50,000t was completed by McGillivray Mining and Fording Coal in 1995 and 1996. Fording Coal completed two drill programs on the property in 1998 and 1999, totaling 36 holes.

In 1972 Kaiser Resources conducted an exploration program of road building, geological mapping and coal outcrop sampling on the Tent Mountain property between Tent Mountain and

Michel Creek, just west of the Alberta-BC border. No known coal exploration drilling was undertaken. Kaiser estimated the potential resource on the Tent Mountain property at 11.3Mt.

The Michel Head property was geologically mapped by Kaiser Resources in 1972. No known coal exploration drilling was undertaken, although one historical drillhole casing was located on the property.

From 2013 to 2017, CanAus Coal Limited carried out several exploration drilling programs on each of the deposits, with a total of 49,197m of drilling completed in 325 holes. The data gathered from each of these campaigns was used to develop geological and resource models of each deposit. The models provided details sufficient for NI 43-101-compliant resource estimates and provided the geological basis for engineering at the Pre-Feasibility Study (PFS) level. Resource estimates were calculated based on the recommended data point spacing as outlined in GSC Paper 88-21 (Hughes et al, 1989), for complex coal deposits and are summarized in Table 1.1. Core drilling and RC chip sampling formed a component of these campaigns and the samples obtained were processed and analyzed to determine coal quality. The results of these analyses indicated favourable hard coking-coal qualities.

In November 2017, CanAus Coal Limited changed its name to North Coal Limited.

3.3 2018 Drilling

In 2018, a total of 6325m of drilling was completed in 45 holes, which included 5042m of exploration reverse circulation drilling in 20 holes and 438m of geotechnical core drilling in 2 holes on Tent Mountain. In addition, 555m, 158m, and 133m of geotechnical and hydrogeological reverse circulation drilling in 23 holes was completed on Loop Ridge, Tent Mountain and Michel Head, respectively. The exploration reverse circulation holes were drilled at appropriate spacing to collect sufficient structural, stratigraphic and coal quality data to support an update of the 2017 resource model and re-evaluate the Tent Mountain coal resources. The geotechnical core holes were drilled to assess geological and geotechnical conditions in support of pit design. The geotechnical reverse circulation holes were drilled to investigate overburden depth, composition and water pressures in support of potential waste rock dump assessments. These same holes were drilled to support hydrogeological evaluation and on-going data requirements for North Coal Limited's environmental assessment. The locations, depths and orientations of all 2018 drillholes are shown in Figures 3.3.1, 3.3.2, 3.3.3, 3.3.4, 3.3.5 and Table 3.3.1.

All of the 2018 exploration reverse circulation drill holes and geotechnical core holes were geophysically logged with through-pipe gamma and neutron, and with open-hole density, deviation and dipmeter tools when possible. The core holes were also logged with optical and acoustic viewers.

All drill collars were surveyed with base-station corrected differential GPS equipment to centimetre-level accuracy.

Figure 3.3.1 Loop Ridge North Drilling Plan

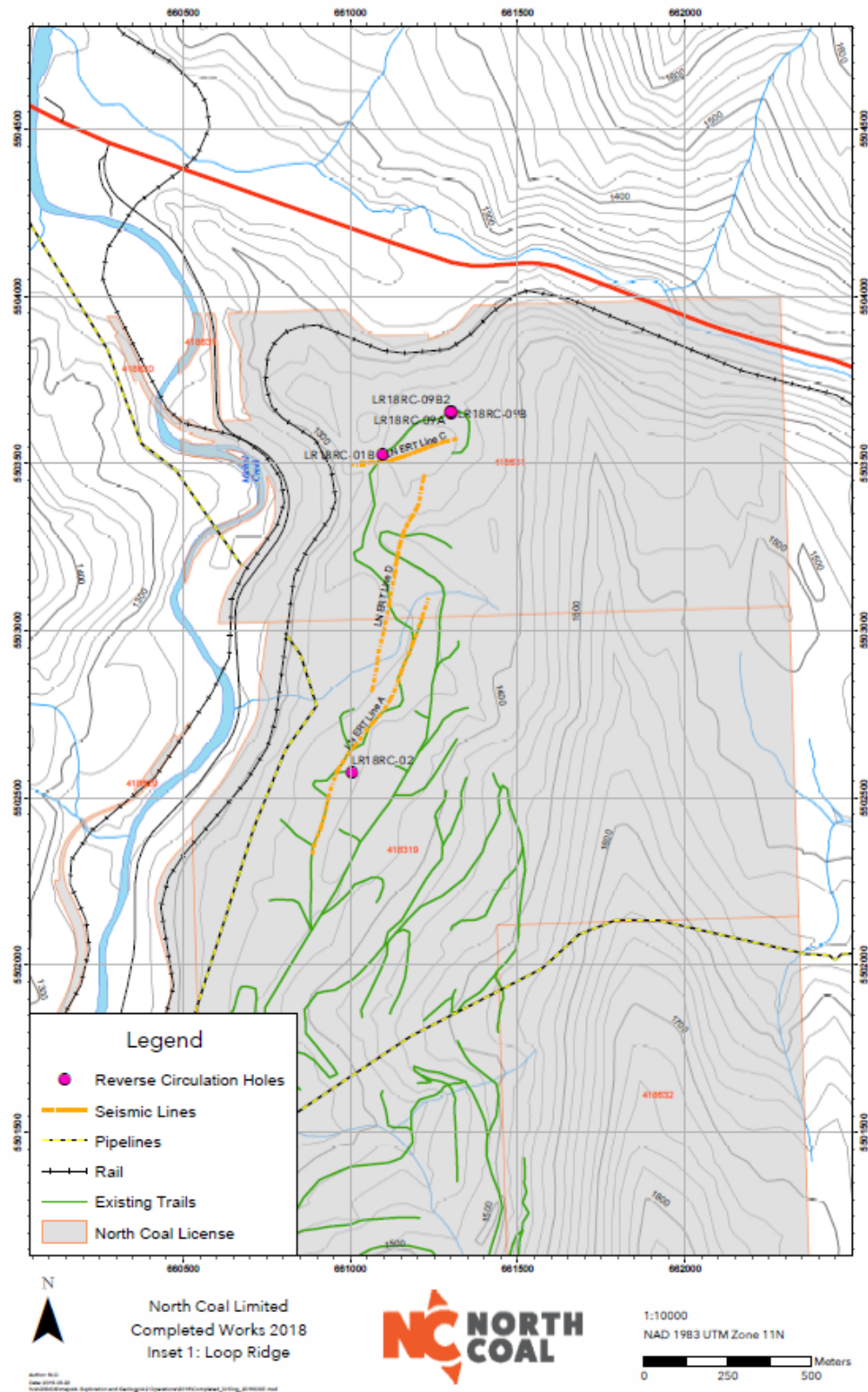


Figure 3.3.2 Loop Ridge South Drilling Plan

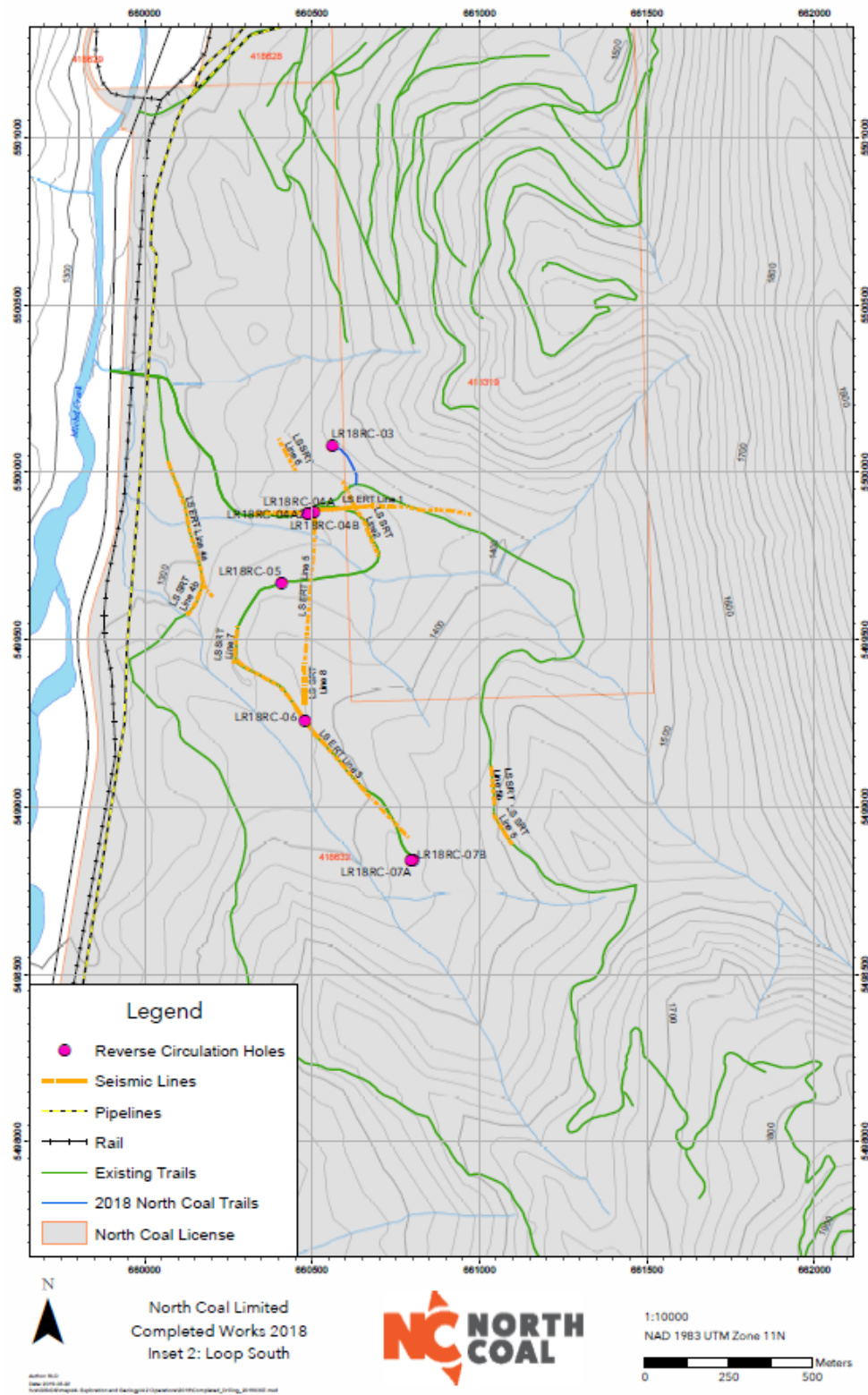


Figure 3.3.3 Tent Mountain North Drilling Plan

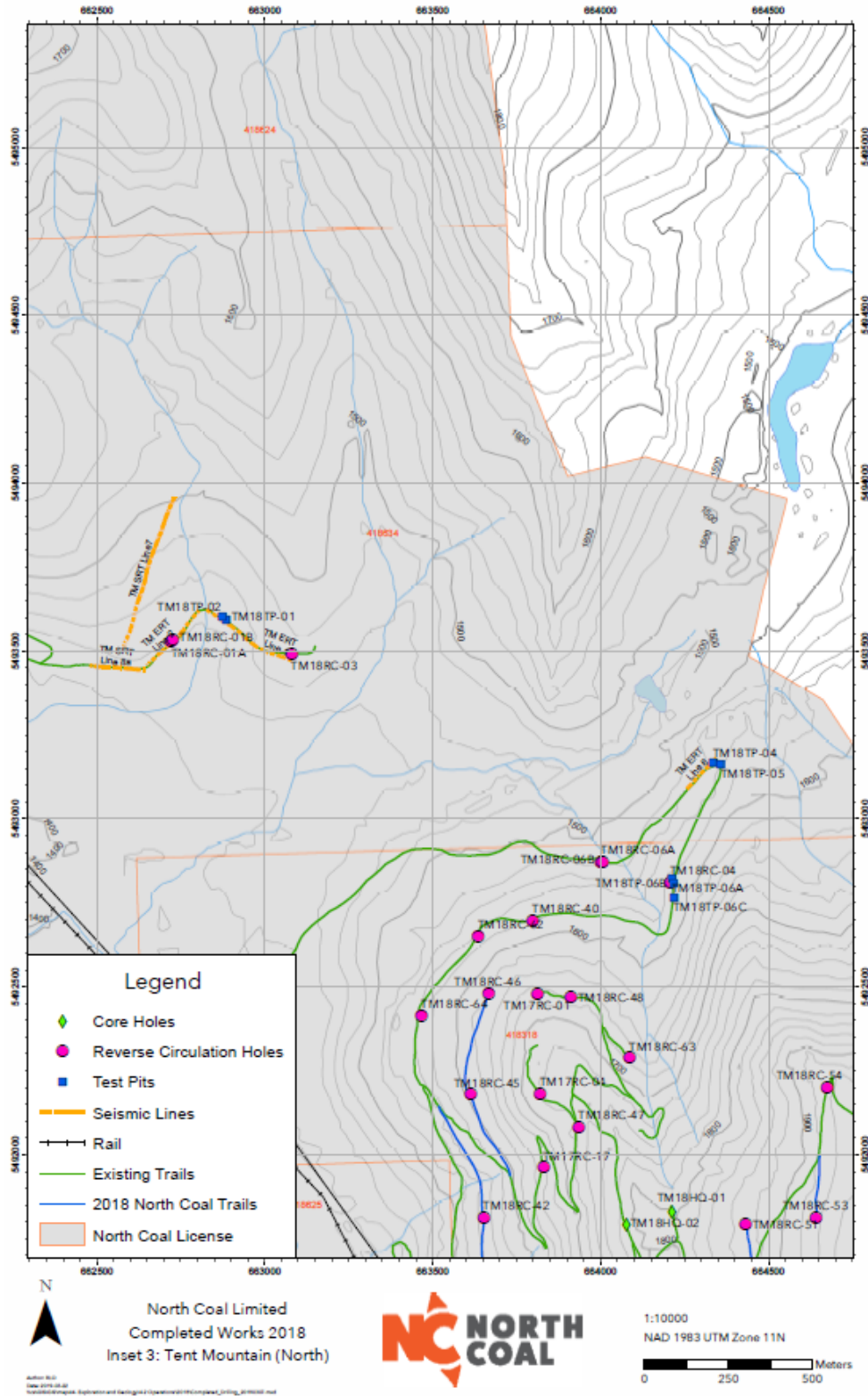


Figure 3.3.4 Tent Mountain South Drilling Plan

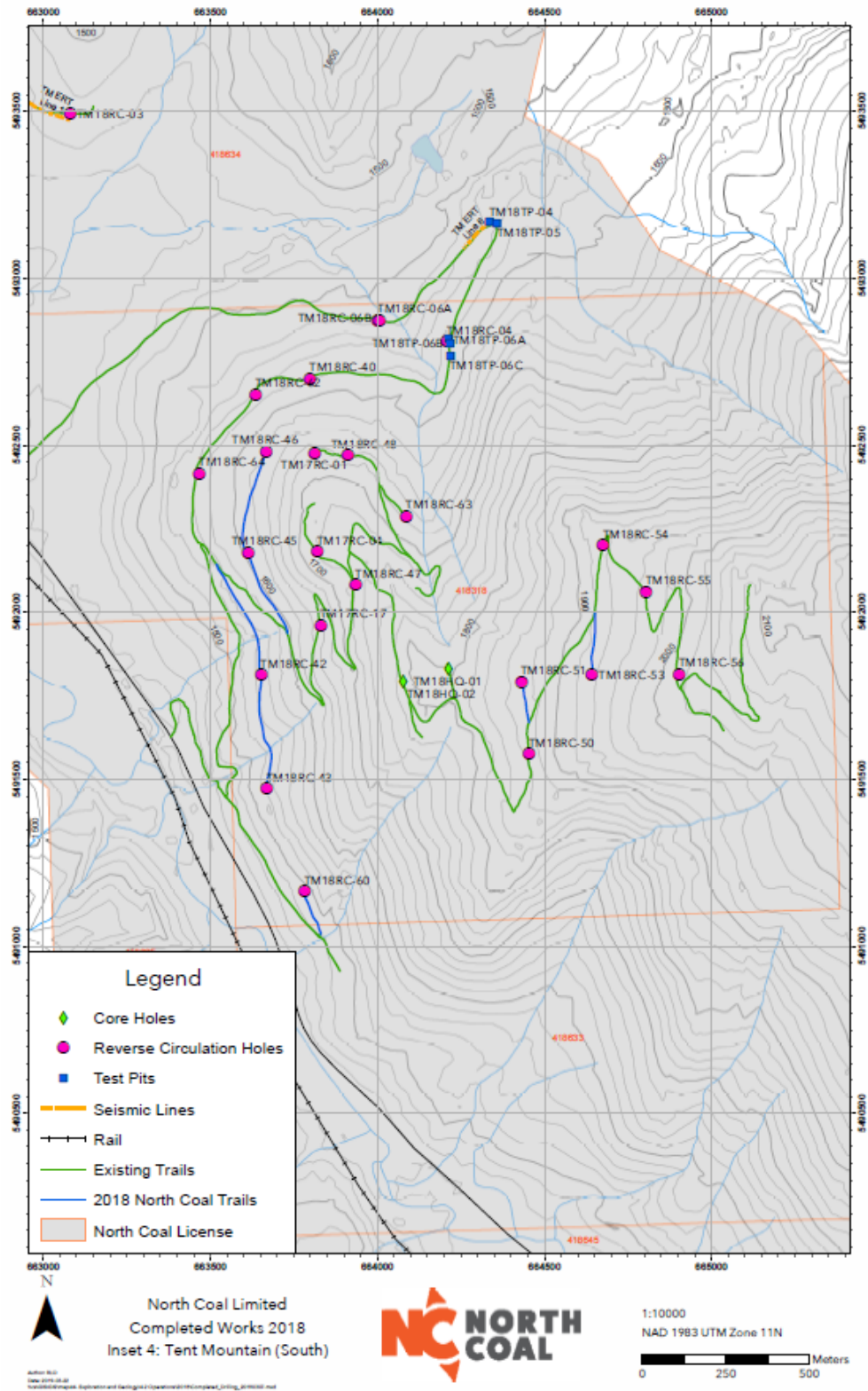


Figure 3.3.5 Michel Head Drilling Plan

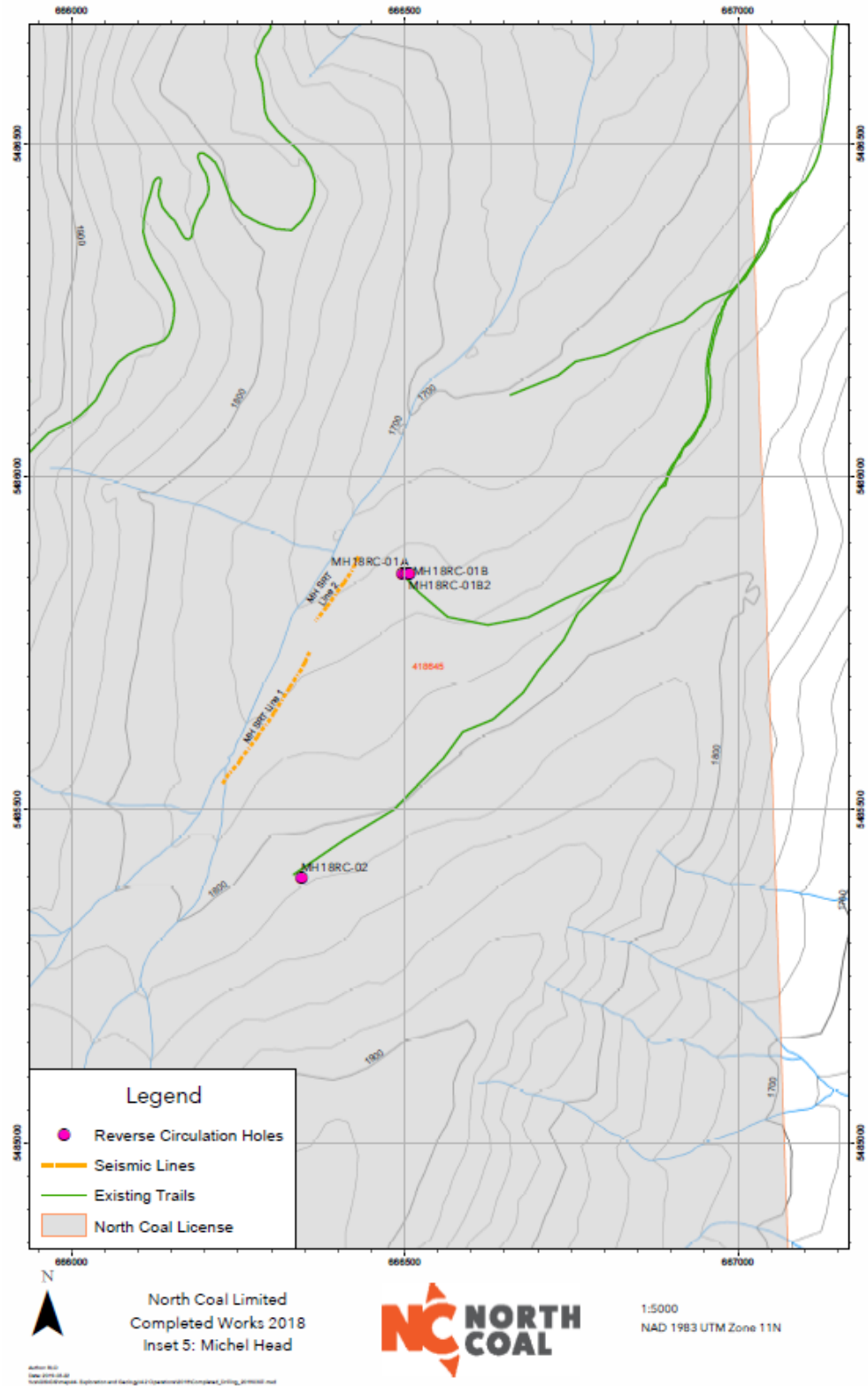


Table 3.3.1 Drillhole Locations

2018 Michel Coal Exploration Program

Location	Hole ID	Hole Type	Purpose	Date	Surveyed Coordinates			Azimuth	Dip	Depth (m)
					Easting	Northing	Elevation			
Loop Ridge	LR18RC-01B	114mm RC	Geotech/Hydro	17-Sep-18	661096	5503527	1339	0	-90	77.7
Loop Ridge	LR18RC-02	114mm RC	Geotech/Hydro	29-Aug-18	661004	5502578	1345	0	-90	29.46
Loop Ridge	LR18RC-03	114mm RC	Geotech/Hydro	09-Sep-18	660561	5500079	1366	0	-90	15.24
Loop Ridge	LR18RC-04A	114mm RC	Geotech/Hydro	05-Sep-18	660491	5499878	1338	0	-90	5.99
Loop Ridge	LR18RC-04A2	114mm RC	Geotech/Hydro	07-Sep-18	660504	5499881	1339	0	-90	129.1
Loop Ridge	LR18RC-04B	114mm RC	Geotech/Hydro	04-Sep-18	660486	5499877	1338	0	-90	28.96
Loop Ridge	LR18RC-05	114mm RC	Geotech/Hydro	15-Sep-18	660409	5499671	1342	0	-90	22.45
Loop Ridge	LR18RC-06	114mm RC	Geotech/Hydro	10-Sep-18	660478	5499259	1375	0	-90	18.23
Loop Ridge	LR18RC-07A	114mm RC	Geotech/Hydro	13-Sep-18	660801	5498842	1430	0	-90	68.1
Loop Ridge	LR18RC-07B	114mm RC	Geotech/Hydro	14-Sep-18	660795	5498839	1430	0	-90	19.76
Loop Ridge	LR18RC-09A	114mm RC	Geotech/Hydro	27-Aug-18	661301	5503656	1337	0	-90	44.07
Loop Ridge	LR18RC-09B	114mm RC	Geotech/Hydro	21-Aug-18	661300	5503650	1341	0	-90	12.19
Loop Ridge	LR18RC-09B2	114mm RC	Geotech/Hydro	25-Aug-18	661299	5503656	1337	0	-90	83.83
Michel Head	MH18RC-01A	114mm RC	Geotech/Hydro	27-Sep-18	666497	5485855	1744	0	-90	34.6
Michel Head	MH18RC-01B	114mm RC	Geotech/Hydro	28-Sep-18	666502	5485855	1745	0	-90	8.97
Michel Head	MH18RC-01B2	114mm RC	Geotech/Hydro	01-Oct-18	666507	5485855	1745	0	-90	80.1
Michel Head	MH18RC-02	114mm RC	Geotech/Hydro	25-Sep-18	666345	5485398	1809	0	-90	8.94
Tent Mountain	TM17RC-01	114mm RC	Exploration	22-Jun-18	663813	5492477	1664	0	-90	359.9
Tent Mountain	TM17RC-04	114mm RC	Exploration	30-Jun-18	663821	5492182	1709	0	-90	415.25
Tent Mountain	TM17RC-17	114mm RC	Exploration	20-Jul-18	663831	5491961	1646	0	-90	340
Tent Mountain	TM18HQ-01	76mm Core	Geotechnical	12-Jun-18	664213	5491833	1791	128	-73	200
Tent Mountain	TM18HQ-02	76mm Core	Geotechnical	19-Jun-18	664078	5491793	1783	118	-72	238
Tent Mountain	TM18RC-01A	114mm RC	Geotech/Hydro	20-Sep-18	662721	5493529	1444	0	-90	62
Tent Mountain	TM18RC-01B	114mm RC	Geotech/Hydro	19-Sep-18	662726	5493532	1444	0	-90	14.48
Tent Mountain	TM18RC-03	114mm RC	Geotech/Hydro	18-Sep-18	663080	5493492	1477	0	-90	9.07
Tent Mountain	TM18RC-04	114mm RC	Geotech/Hydro	04-Oct-18	664208	5492811	1576	0	-90	12
Tent Mountain	TM18RC-06A	114mm RC	Geotech/Hydro	03-Oct-18	664002	5492873	1511	0	-90	56
Tent Mountain	TM18RC-06B	114mm RC	Geotech/Hydro	04-Oct-18	664007	5492872	1511	0	-90	16
Tent Mountain	TM18RC-40	114mm RC	Exploration	08-Aug-18	663798	5492698	1565	0	-90	325
Tent Mountain	TM18RC-42	114mm RC	Exploration	02-Aug-18	663653	5491813	1535	0	-90	275.5
Tent Mountain	TM18RC-43	114mm RC	Exploration	31-Jul-18	663668	5491473	1513	0	-90	224
Tent Mountain	TM18RC-45	114mm RC	Exploration	27-Jul-18	663614	5492179	1590	0	-90	282
Tent Mountain	TM18RC-46	114mm RC	Exploration	23-Jul-18	663666	5492481	1601	0	-90	297
Tent Mountain	TM18RC-47	114mm RC	Exploration	17-Jul-18	663935	5492082	1722	88	-69	335.78
Tent Mountain	TM18RC-48	114mm RC	Exploration	25-Jun-18	663912	5492470	1656	70	-58	230

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Tent Mountain	TM18RC-50	114mm RC	Exploration	13-Jul-18	664454	5491575	1858	0	-90	117
Tent Mountain	TM18RC-51	114mm RC	Exploration	12-Jul-18	664431	5491792	1856	0	-90	230
Tent Mountain	TM18RC-53	114mm RC	Exploration	10-Jul-18	664641	5491813	1923	0	-90	147
Tent Mountain	TM18RC-54	114mm RC	Exploration	08-Jul-18	664675	5492200	1925	0	-90	124.7
Tent Mountain	TM18RC-55	114mm RC	Exploration	06-Jul-18	664804	5492062	1954	87	-68	170
Tent Mountain	TM18RC-56	114mm RC	Exploration	04-Jul-18	664903	5491815	2005	0	-90	160
Tent Mountain	TM18RC-60	114mm RC	Exploration	10-Aug-18	663781	5491164	1479	0	-90	120
Tent Mountain	TM18RC-62	114mm RC	Exploration	07-Aug-18	663636	5492651	1555	0	-90	400
Tent Mountain	TM18RC-63	114mm RC	Exploration	14-Jul-18	664087	5492288	1668	98	-68	220.22
Tent Mountain	TM18RC-64	114mm RC	Exploration	06-Oct-18	663467	5492415	1550	90	-70	256.5

4 2018 Exploration Work

4.1 Drilling

From June until October of 2018, 5042m of exploration reverse circulation drilling in 21 holes was completed on Tent Mountain along new and existing trails to gather sufficient structural, stratigraphic and coal quality data to support an update of the 2017 resource model. This drilling included the deepening of three of the 2017 holes.

Good Earth Drilling Services Limited was the single drilling contractor used during the program and completed all of the drilling between June 15 and October 6, 2018. A Novamac Exploro-Tra ET-645 (Rig 130) drill with an automated pipe loading system was used throughout the program. The compressor was mounted on a separate tracked Morooka unit, and the cyclone was mounted on a separate wheeled unit. Reverse circulation drilling was carried out in competent rock. All 2018 drill holes were cased with welded-joint steel casing using an ODEX system. The casing was left in the holes and the holes were left open. Artesian-flowing holes were plugged and sealed according to Mines Act regulations and mineral exploration best practice.

Casing was installed into near-surface bedrock at an average of 9m in depth. In most areas, overburden was less than one metre thick and a good seal for drilling was successfully achieved after penetrating the first few metres of fractured bedrock.

4.2 Geophysical Logging

As per industry standard, all exploration drill holes were geophysically logged. The geophysical contractor was Century Wireline Services, based in Red Deer, Alberta.

All open holes were logged with a gamma/neutron/deviation tool (#9058A) and with a gamma/density/resistivity/caliper tool (#9239). Where open-hole conditions were favourable, the

holes were logged with a dipmeter tool (#9411A). All holes were also logged through the drill pipe with a gamma tool (#9068A) and a neutron tool (#9067A). Century has provided .las and .tif files of all geophysical logs.

All holes were logged within hours of drilling. Several of the holes were blocked within the coal seams and an open-ended drill string was lowered through the area of blockage to allow the geophysical tool to pass through and achieve a successful open-hole log. Occasionally, this process had to be repeated several times per hole to obtain a full log.

In general, the quality of the data was found to be good.

All of the 2018 geophysical logs are included in Appendix A.

4.3 Surveying

CIMA Geomatics conducted a survey of drillhole locations for North Coal Limited. Align Surveys was subcontracted to perform the field survey on site.

A static GPS survey was performed from the Priddis Canadian Active Control System monument PRDS CACS-GSD 756047 to several spikes that were placed on site. These placed spikes were used as local control benchmarks for the survey. Survey point 17 is one of these local control benchmarks and was used for the RTK survey of the drillhole locations. As an additional check for positional accuracy, a Precise Point Position (PPP) was processed for survey point 17 from the GPS data logged at that position.

The results of the PPP matched with the static survey results from PRDS CACS-GSD 756047 within 0.03m horizontally and 0.04m in elevation. The survey was performed in NAD 83 (CSRS) datum and the coordinates produced are UTM Zone 11 North. The Vertical Datum Is CGVD28 and elevations are orthometric heights. The geoid model used was GSD95.

The drillhole locations were surveyed in relation to survey point 17 (located along Corbin Road). Measurements were made to the approximate center of the drill holes at the surface entry points. Based on the terrain conditions and the survey methodology, the estimated positional accuracy of the drillhole surface locations is 0.20m in horizontal and 0.26m in vertical.

The locations of drillholes are shown in Table 3.3.1.

4.4 Sampling and Analysis

4.4.1 Reverse Circulation Sampling

Coal seams were intersected in 19 of the 21 exploration reverse circulation holes and were sampled in 1m increments and later combined into single seam samples and analyzed for proximate, FSI and ash chemistry. Several seam samples were also washed to a single cut-point density and analyzed for rheology, ash chemistry and petrography. A total of 246 individual samples were collected from the RC holes (Table 4.4.1). The samples were sealed in heavy gauge plastic bags and immediately sent to Birtley Labs in Calgary, Alberta for coal quality analysis (details in Appendix C). Sub-samples from the Birtley samples were sent to Pearson Petrography in Victoria, British Columbia for petrographic analysis. Analytical results from Birtley Labs and Pearson Petrography are shown in Appendix D.

Table 4.4.1 Sample Summary

Reverse Circulation Samples	
Hole	Number of Samples
TM17RC-01	7
TM17RC-04	17
TM17RC-17	9
TM18RC-40	38
TM18RC-42	11
TM18RC-43	9
TM18RC-45	13
TM18RC-46	16
TM18RC-47	29
TM18RC-48	5
TM18RC-50	14
TM18RC-51	7
TM18RC-53	7
TM18RC-54	8
TM18RC-55	5
TM18RC-56	13
TM18RC-60	2
TM18RC-62	16
TM18RC-63	20
Total	246

5 2018 Geotechnical Work

5.1 Waste Rock Dump Seismic and Resistivity Surveys

A series of near surface Electrical Resistivity Tomography (ERT) and Seismic Refraction (SRT) surveys were performed by Golder Associates to determine the depth of the overburden in the proposed waste rock dump foundation areas in Loop Ridge (North and South), Tent Mountain and Michel Head. Twenty-two transects of ERT or seismic refraction totaling 7,705 m were collected in the Loop North, Loop South, Tent Mountain, and Michel Head areas. The locations of the transects are shown in Figures 3.3.1, 3.3.2, 3.3.3, 3.3.4, and 3.3.5. Overburden and bedrock type varied between areas but, in general, five distinct units were commonly seen. Overburden consisted of glacial kame deposits, glaciolacustrine deposits, and deposits of varying grain size which is most likely a glacial till material or a colluvium. Bedrock was defined as either bedrock (being competent) or as weathered bedrock. The preliminary results of the surveys were used to guide the overburden drilling.

Further details regarding the seismic and resistivity surveys are available in the Golder Associates report “North Coal Michel Coal Project Geophysical Report” found in Appendix G.

5.2 Waste Rock Dump Overburden Drilling and Test Pits

A total of 846m of reverse circulation drilling in 23 holes was completed near the base of the proposed waste rock dumps in the Loop Ridge, Tent Mountain, and Michel Head areas. The locations, depths and orientations of all 2018 drillholes are shown in Figures 3.3.1, 3.3.2, 3.3.3, 3.3.4, 3.3.5. The purpose of the drilling was to collect data in support of the Golder Associates slope stability assessments. The drilling contractor, equipment and methodology were the same as that described in section 4.1 of this report. The field investigations included the following:

- 13 successful drillholes in overburden soils with standard penetration testing (SPT);
- Collection and geotechnical logging of recovered soil samples from the dedicated geotechnical drillholes and test pits.

Seven test pits (of which 4 successfully encountered bedrock) were excavated during the geotechnical site investigation, and their locations are shown in Figure 3.3.3. In addition to estimating the depth to bedrock, the purpose of the test pits was to expose shallow foundation conditions, collect bulk samples for laboratory testing, and observe shallow groundwater conditions.

Further details regarding the waste rock dump overburden drilling and test pits are available in the Golder Associates report “Michel Coal Project 2018 Waste Dump Geotechnical and Hydrogeological Field Investigations” found in Appendix H.

5.3 Pit Slope Stability Core Drilling

In order to assist the slope design of the Upper West Pit on Tent Mountain, two inclined core holes of 200m and 238m depth into the footwall slope were drilled. The intention was to confirm rock quality and bedding dip orientations in the hanging wall and footwall of the East fault. The 76mm core holes were drilled by Good Earth Drilling Services using the Novamac Exploro-Tra ET-645 (Rig 130) drill with an automated pipe loading system. The locations of the drill holes are shown on Figure 3.3.3 and Table 3.3.1.

Geotechnical core logging was carried out in the drillholes to confirm rock quality. Acoustic and optical televiewer surveys were carried out in each hole to determine the bedding dips. A vibrating wire piezometer was grouted into one drillhole to confirm groundwater pressures and gradients in the existing natural slopes.

Samples were collected for strength testing; unconfined compressive strength testing, and direct shear testing of bedding surfaces, and fault gouge and fault surfaces.

Further details regarding the pit slope stability core drilling are available in the Golder Associates report “Tent Mountain 2018 Open Pit Geotechnical Field Investigations Report” found in Appendix I.

6 2018 Hydrogeology Work

The following hydrogeological data was collected in the geotechnical reverse circulation drillholes in support of the waste rock dump slope stability assessments and on-going environmental assessment requirements:

- hydrogeological airlift testing in five drillholes;
- hydrogeological packer testing in five drillholes;
- open standpipe piezometer installations in 13 drillholes;
- Vibrating Wire Piezometer (VWP) installations in nine drillholes.

The purpose of the airlift testing was to check, at regular depth intervals or periodically, the flow discharged by the rock formation into the drillhole. The purpose of the packer testing was to test the overall hydraulic conductivity or flow (if measurable) in the rock mass at selected large-scale intervals, at smaller intervals and to select the screened intervals for the open standpipe piezometer installations. Water level readings are measured in the open standpipe and water samples can also be recovered. The vibrating wire piezometer installations provide spatially distributed data of water pressures within the overburden soils that will form the foundation of the proposed waste dumps.

Further details regarding the hydrogeology work are available in the Golder Associates report “Michel Coal Project 2018 Waste Dump Geotechnical and Hydrogeological Field Investigations” found in Appendix H.

7 Geology

7.1 Regional Structure

The East Kootenay coalfields lie in the Front Ranges of the Rocky Mountains which are characterized by north to northwest trending concentric folds and west dipping thrust faults. Tertiary normal faults, some of which are listric and probably occupy earlier thrust surfaces, are also a major feature.

The Crowsnest coalfield is a complex synclinorium in the Lewis thrust sheet. The major compressional features of the basin are the synclines linked en echelon by low-amplitude anticlines. A series of west dipping thrust faults dominate the structure of the north half of the basin. The major extensional feature is the Erickson fault system, which juxtaposes Mississippian limestone and the Kootenay Group. The fault has a minimum, west side down, displacement of 1,200m.

7.2 Stratigraphy

The Jurassic-Cretaceous Kootenay Group occupies part of a northwest trending belt of predominantly non-marine rocks comprising part of the Rocky Mountain Foothills and Front Ranges of southwestern Alberta and southeastern British Columbia. The Kootenay Group extends from just north of the United States border in the south to the North Saskatchewan River in the north (Gibson, 1985).

The Kootenay Group of the Rocky Mountain Foothills and Front Ranges encompasses the stratigraphic interval between the Jurassic Fernie Group below and the Lower Cretaceous Blairmore Group above (Gibson, 1985).

Three formations are recognized within the Kootenay Group, including the basal sandstone, Morrissey Formation, the coal-bearing Mist Mountain Formation, and the upper Elk Formation, (Figure 7.2.1).

Knowledge and definition of the stratigraphic column is required prior to any correlation and structural work. Figure 7.3.1 has been compiled from the drilling and interpretation of the geology to date at Tent Mountain. Tent Mountain stratigraphy is typical of the Jurassic-Cretaceous Kootenay group. The primary coal-bearing formation is the Mist Mountain, comprised of interbedded siltstones, mudstones, sandstones, and coal seams with average thicknesses ranging from 0.8 to 10.8m, and locally as thick as 29.0m (mineable thicknesses). Coal seams are typically interbedded with many rock partings, and abundant marginal carbonaceous material which has been classified as waste in the current model. On average, the aggregate thickness of coal seams at Tent Mountain is 32.0m mineable true thickness, or 43.7m

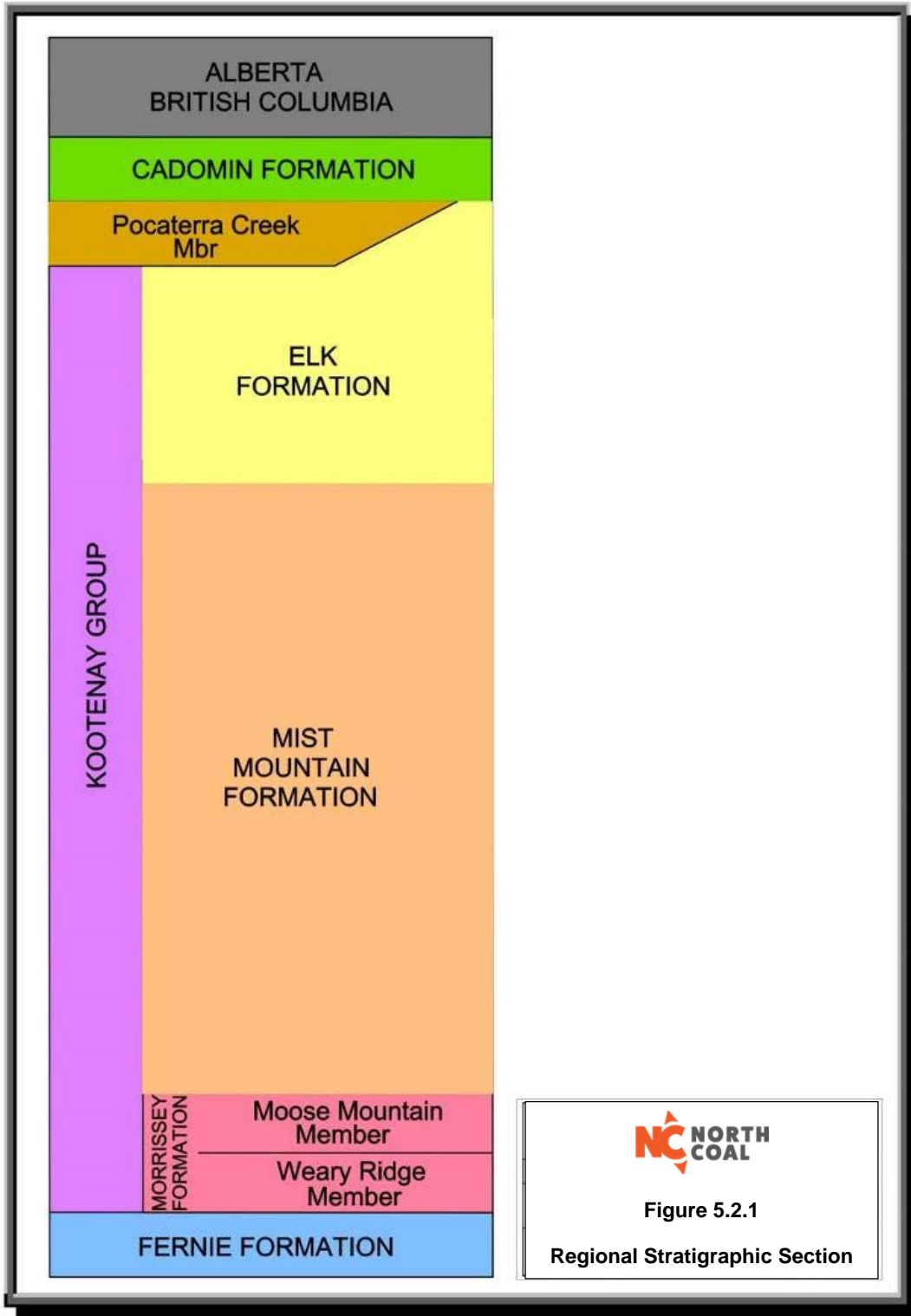
total true thickness. An updated geological and resource model will be completed in 2019, based on additional data obtained in the 2018 exploration program on Tent Mountain.

The Mist Mountain formation is underlain by highly resistant sandstones of the Morrissey formation (Moose Mountain and Weary Ridge members) which form a regional marker unit. Rare thin coal seams are found in the Morrissey formation; seam 15 is interpreted to be within the Morrissey.

The Kootenay group is underlain by marine shales of the Fernie formation. The Fernie formation has not been observed in drilling or outcrop at Tent Mountain but is observed at the base of sequence in surrounding deposits.

Table 7.3.1 lists the seams, the number of intercepts as well as the minimum, maximum and mean thickness of each.

Figure 7.2.1 Regional Stratigraphic Section



7.3 Geological Overview

Drilling on the Michel Coal Project has occurred principally within the Mist Mountain Formation. The Tent Mountain deposit is divided by two faults into three fault blocks (Figures 6.2 and 6.3). The coal seams in the western fault block are truncated to the west by a reverse thrust fault with greater than 400m displacement. The central fault block includes Seams 22-29 (middle Mist Mountain sequence) and 32-36 (upper Mist Mountain sequence), interpreted as an upright syncline with bedding dips typically 40 degrees but locally steeper, and localized structural thickening of coal in the fold hinge. The east block contains only Seam 15 (lower Morrisey sequence), which dips shallowly to the west, with gentle folding and dips from 10-30 degrees.

The west fault is interpreted to truncate the coal deposit, with no coal modeled in the west block. This interpretation explains the absence of coal in roadcuts in this area but has not been confirmed by drilling.

Dips throughout Tent Mountain vary from 10 to 80 degrees on average, with localized zones of near vertical strata. Coal seam 15 in the eastern fault block moderately dips to the west and coal seams in the western fault block lie conformably within a syncline. Localized slumping of strata near surface has occurred on the property and is visible in Lidar imagery.

It is possible that Tent Mountain seams may correlate with seams at Loop Ridge, Loop South, and/or Michel Head. An understanding of this relationship may be possible with further coal quality analysis and further development of all models. Therefore, new seam names were chosen which were sufficiently different from other projects to avoid correlation implications. Numeric seam names increase in the younging direction, as in other North Coal models (Table 7.3.1).

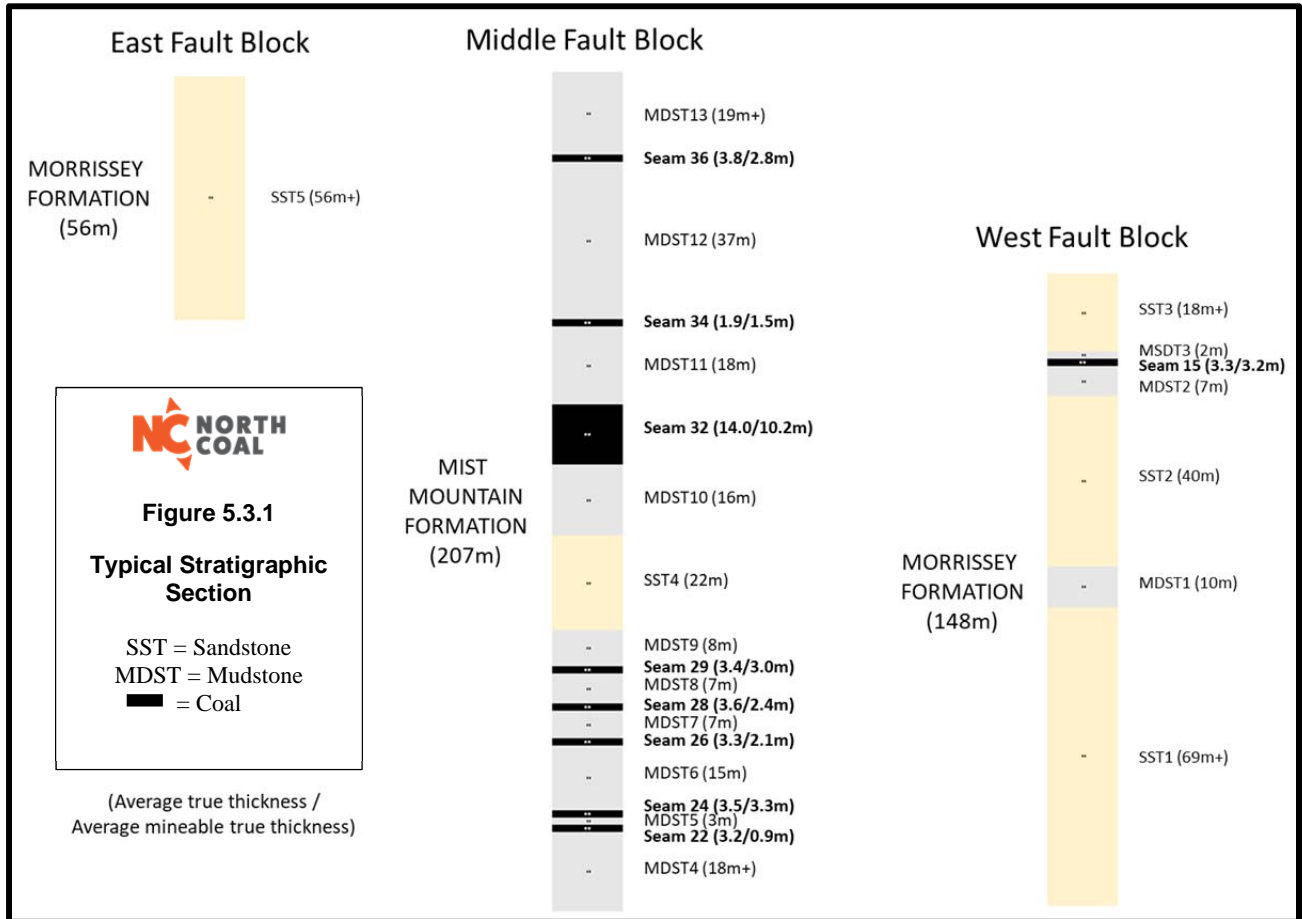
The North Coal Tent Mountain deposit lies immediately west of the previously mined Alberta Tent Mountain deposit. The structural and stratigraphic relationship between these adjacent deposits has not been modeled, however it is believed that the deposits are separated by at least one major fault and coals may not be similar.

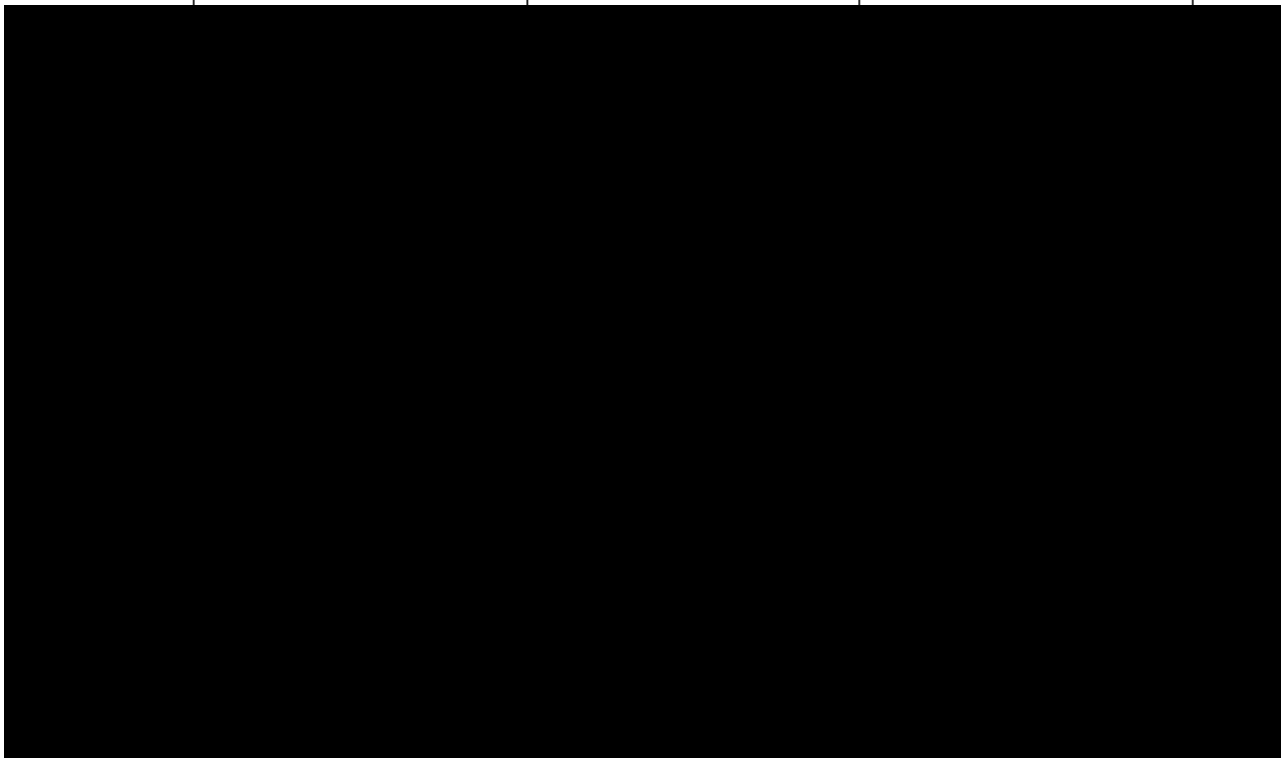
Table 7.3.1 Tent Mountain Seam Data

Seam	Intercepts	Minimum (m)	Maximum (m)	Mean (m)
36	9	0.6	12.2	3.8
34	20	0.6	5.1	1.9
32	20	5.6	42.7	14.0
29	10	0.6	7.9	3.4
28	13	0.6	10.3	3.6
26	14	0.6	9.3	3.3
24	13	1.0	7.2	3.5
22	13	0.2	4.1	3.2

15	8	2.8	3.9	3.3
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Figure 7.3.1 Typical Stratigraphic Section





9 Reclamation

North Coal policy is to keep exploration disturbance to the smallest practical area. Natural soil profiles are maintained whenever possible to enhance natural regeneration and to control erosion-causing runoff. Drill sites are recontoured and revegetated as soon as work is completed and deemed not required for future use. In addition, all exploration areas are left in a clean, safe and stable condition at the end of each field season. North Coal has developed and follows a Best Practices Management Plan which describes the methods used in the design, construction, deactivation and reclamation of exploration access trails and drill sites.

Primary access in 2018 was via existing exploration trails and new excavated trails, as described in Section 2.3. During trail and pad construction, woody debris was buried or stacked to the greatest extent possible, and shoulder areas were contoured to a naturalistic form. Drainage is controlled by ditches and culverts, with some supplemental cross-ditching.

Drill pads were constructed on exploration trails and landings where deactivation consisted of filling and re-contouring sumps. Otherwise, pads and trails were left as-is in anticipation of future work. Steeper trails were temporarily deactivated with cross-ditches.



10 Expenditures

Actual exploration expenditure for this work during the period June through December 2018 was \$3,373,445.16. Major expense items are shown in Table 10.1.

Table 10.1 Michel Coal Project Expenditures

Drilling	\$ 1,647,824.00
Technical Services	\$ 1,089,102.16
Analytical	\$ 51,909.00
Heavy Equipment	\$ 199,657.00
Safety and First Aid	\$ 169,900.00
Licenses and Permits	\$ 65,678.00
Personnel	\$ 141,669.00
Miscellaneous	\$ 7,706.00
Total	\$ 3,373,445.16

Details are presented in Appendix F.

11 Conclusions

The 2018 exploration program on Tent Mountain was successful in gathering sufficient structural, stratigraphic and coal quality data to update the 2017 resource model. The drill spacing and extent in the 2018 program allowed for a significant expansion and increased definition of the geological structure and stratigraphy on Tent Mountain. The sample analytical results from 2017 and 2018 confirm that the Tent Mountain deposit is conducive to achieving a high quality hard coking coal product. An updated geological and resource model is expected to be completed in 2019.

The Geotechnical and Hydrogeological investigations completed on the Loop Ridge, Tent Mountain and Michel Head proposed waste dump areas were successful in identifying overburden thicknesses and consistency. Piezometers were installed successfully which provide on-going data on geotechnical and hydrogeological conditions which will aid in the design and placement of the future waste dumps.

The geotechnical core holes into the footwall slope of the proposed Upper West Pit on Tent Mountain confirmed rock quality and bedding dip orientations which will assist in the slope design of the proposed pit.

12 References

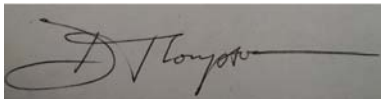
- Beresford, E.W., 1975. Kaiser Resources; Exploration on B.C. Coal Licences 21 and 22. Assessment Report 449abc.
- Beresford, E.W., 1976. Kaiser Resources; Exploration on B.C. Coal Licences 21 and 22. Assessment Report 449de.
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13 Statement of Qualifications

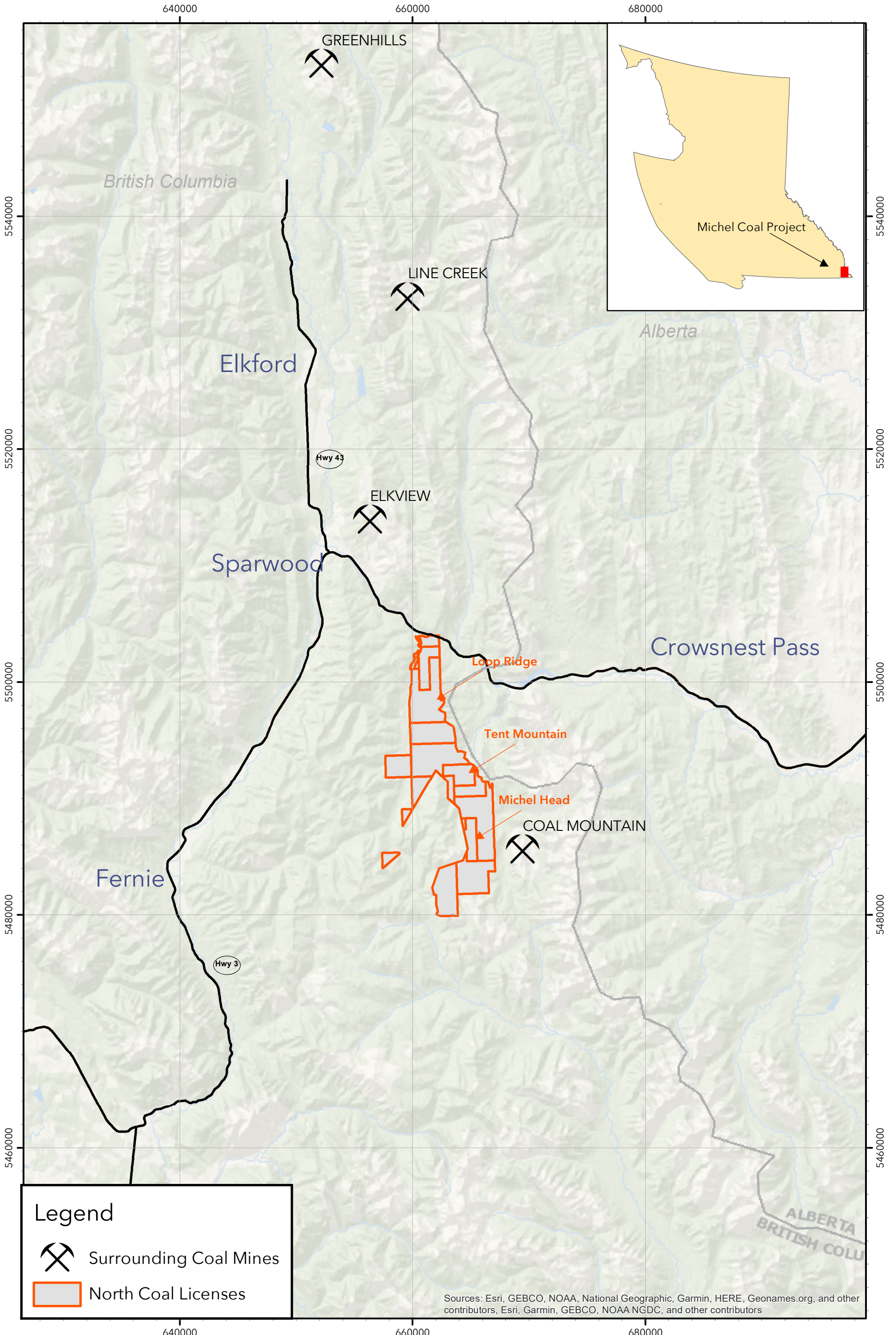
I, David A. Thompson, BSc, P.Geo., of 201-35 Rivermount Pl, Fernie BC V0B 1M7, do hereby certify that:

1. I am Chief Geologist for North Coal Limited.
2. I graduated with a B.Sc. from the University of BC in 1986.
3. I am a member of the Association of Professional Engineers and Geoscientists of British Columbia (Member ID #150701) and the Association of Professional Engineers and Geoscientists of Alberta (Member ID #184563).
4. I have worked as a geologist for a total of nineteen years since my graduation from university.
5. My past experience includes fourteen years working in coal exploration and mining in British Columbia and Alberta. I have managed large scale exploration programs for the definition and resource development of several complex metallurgical coal deposits up to and including the feasibility stage and mine development of those deposits. I was also the Chief Geologist in the production department at Peace River Coal's Trend Mine in Tumbler Ridge BC.
6. I am responsible for the entire Assessment Report titled "Assessment Report: 2018 Michel Coal Exploration Program" dated 31 April 2019.
7. I was on site for the entirety of the 2018 exploration program.
8. To the best of my knowledge, information and belief, the Assessment Report contains all scientific and technical information that is required to conform to the Mineral Tenure Act Regulations of British Columbia.
9. I consent to the filing of the Assessment Report with the British Columbia Ministry of Energy and Mines Geological Survey Branch.

Dated this 31st day of April 2019.

A handwritten signature in black ink, appearing to read 'D. Thompson', written over a grey rectangular background.

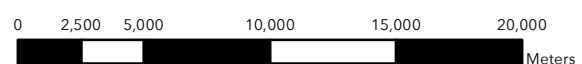
Dave Thompson, P.Geo.
North Coal Limited.

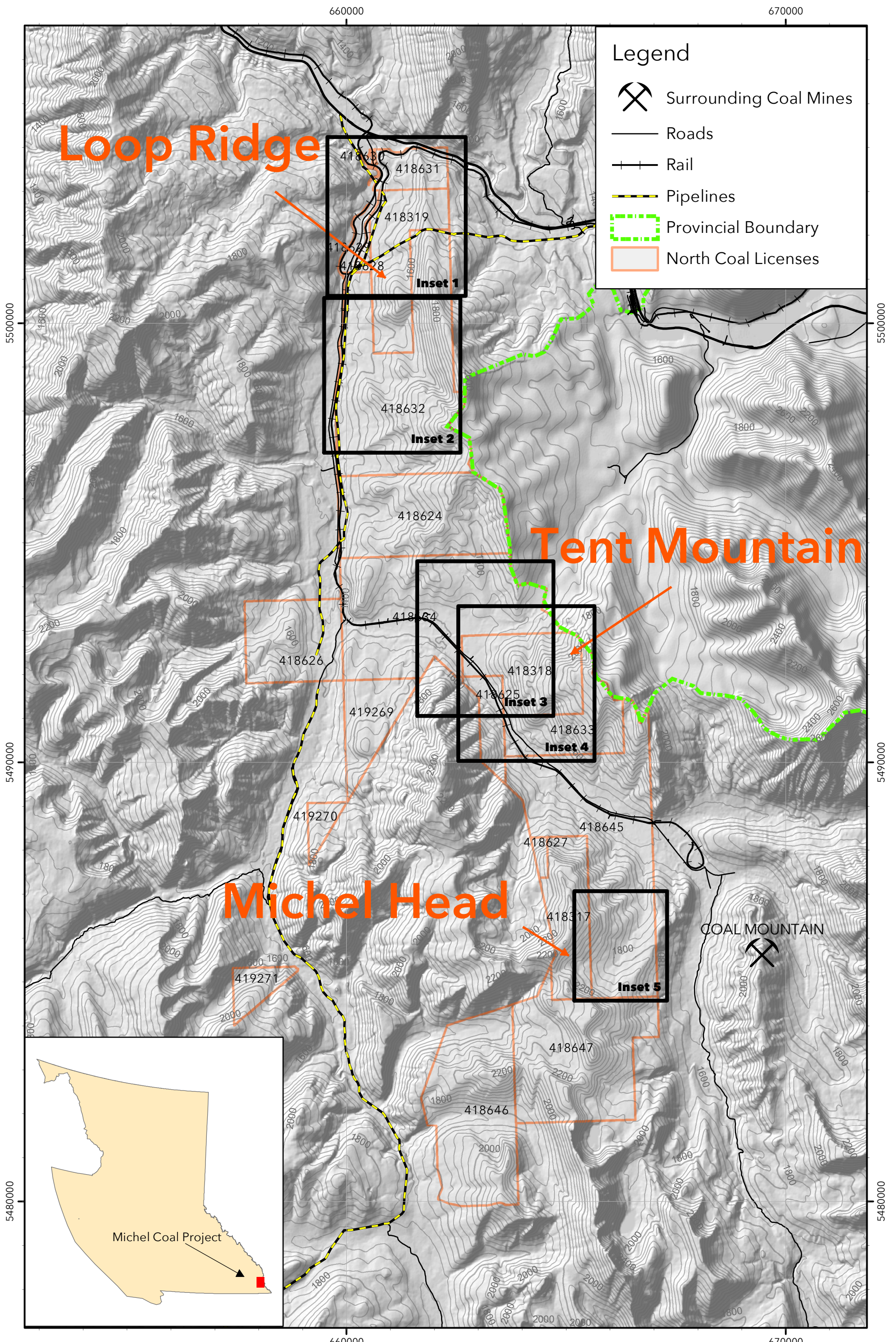


North Coal Limited
 Michel Coal Project
 Location Map
 v2019-03-15



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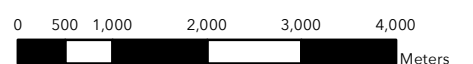


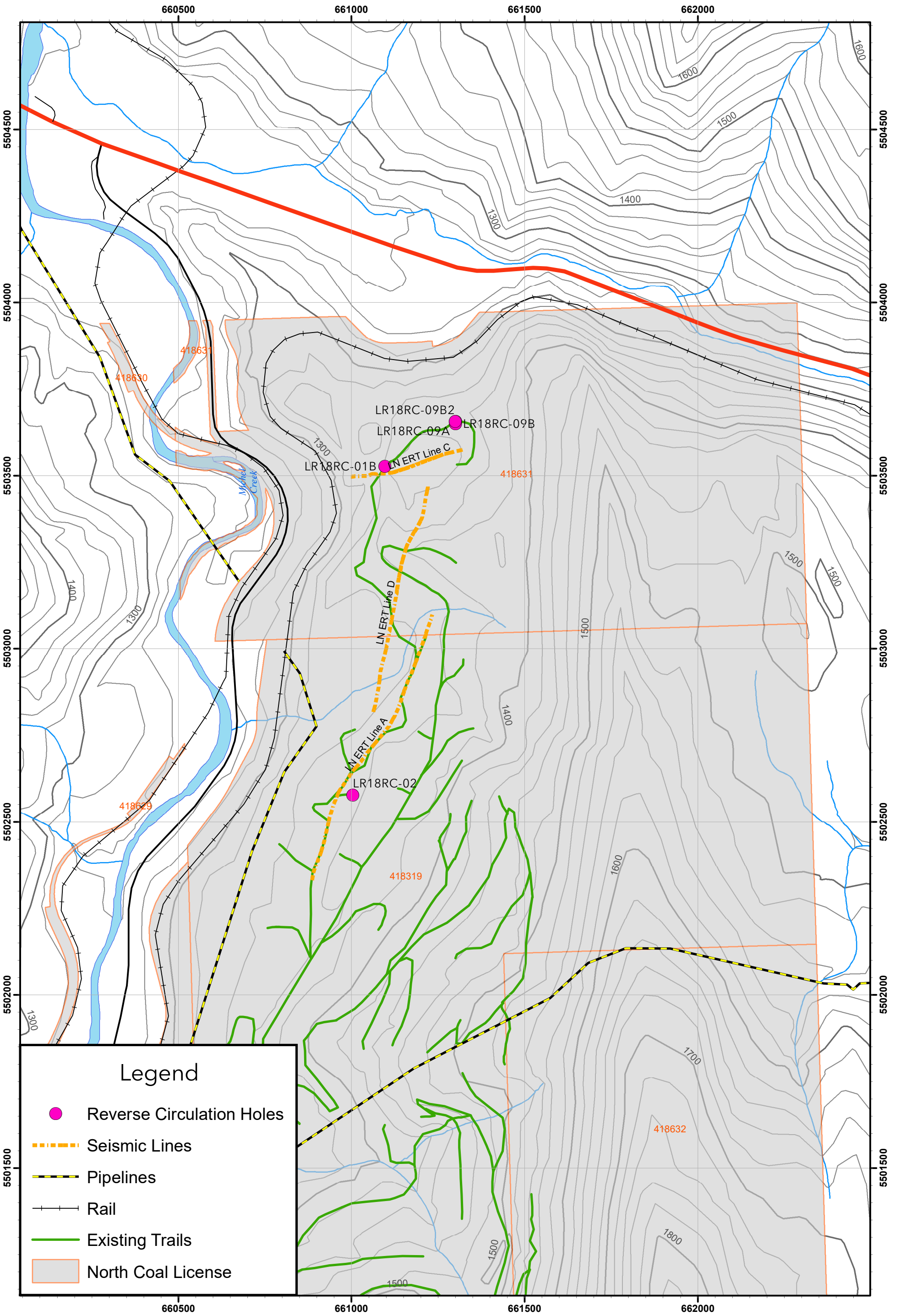


North Coal Limited
 Michel Coal Project
 Tenure Map
 v2019-03-26



1:80,000
 NAD 1983 UTM Zone 11N





Legend

- Reverse Circulation Holes
- - - Seismic Lines
- - - Pipelines
- + - Rail
- Existing Trails
- North Coal License



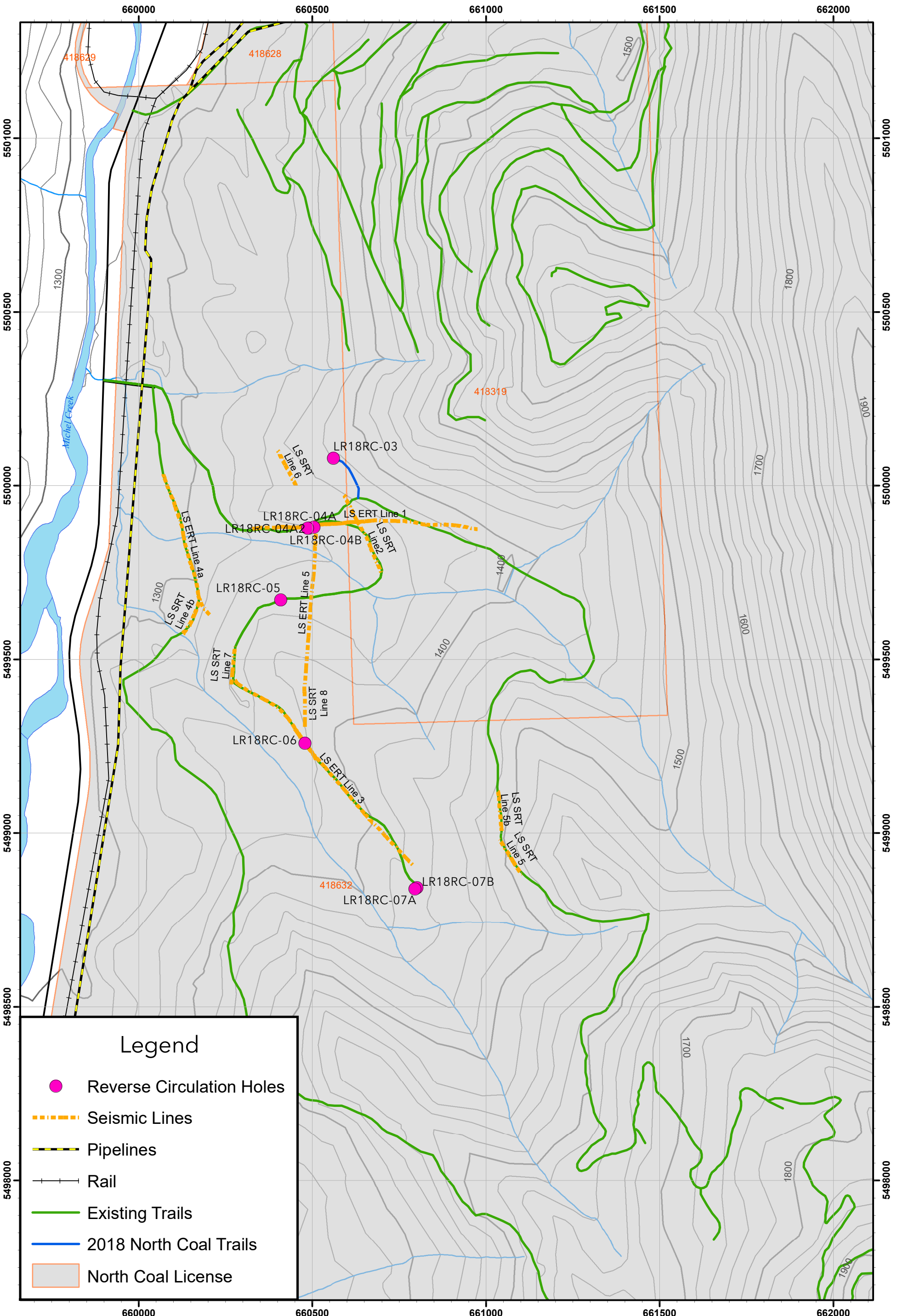
North Coal Limited
 Completed Works 2018
 Inset 1: Loop Ridge



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 NAD 1983 UTM Zone 11N



Author: RLO
 Date: 2019-03-22
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Legend

- Reverse Circulation Holes
- - - Seismic Lines
- - - Pipelines
- | | Rail
- Existing Trails
- 2018 North Coal Trails
- North Coal License



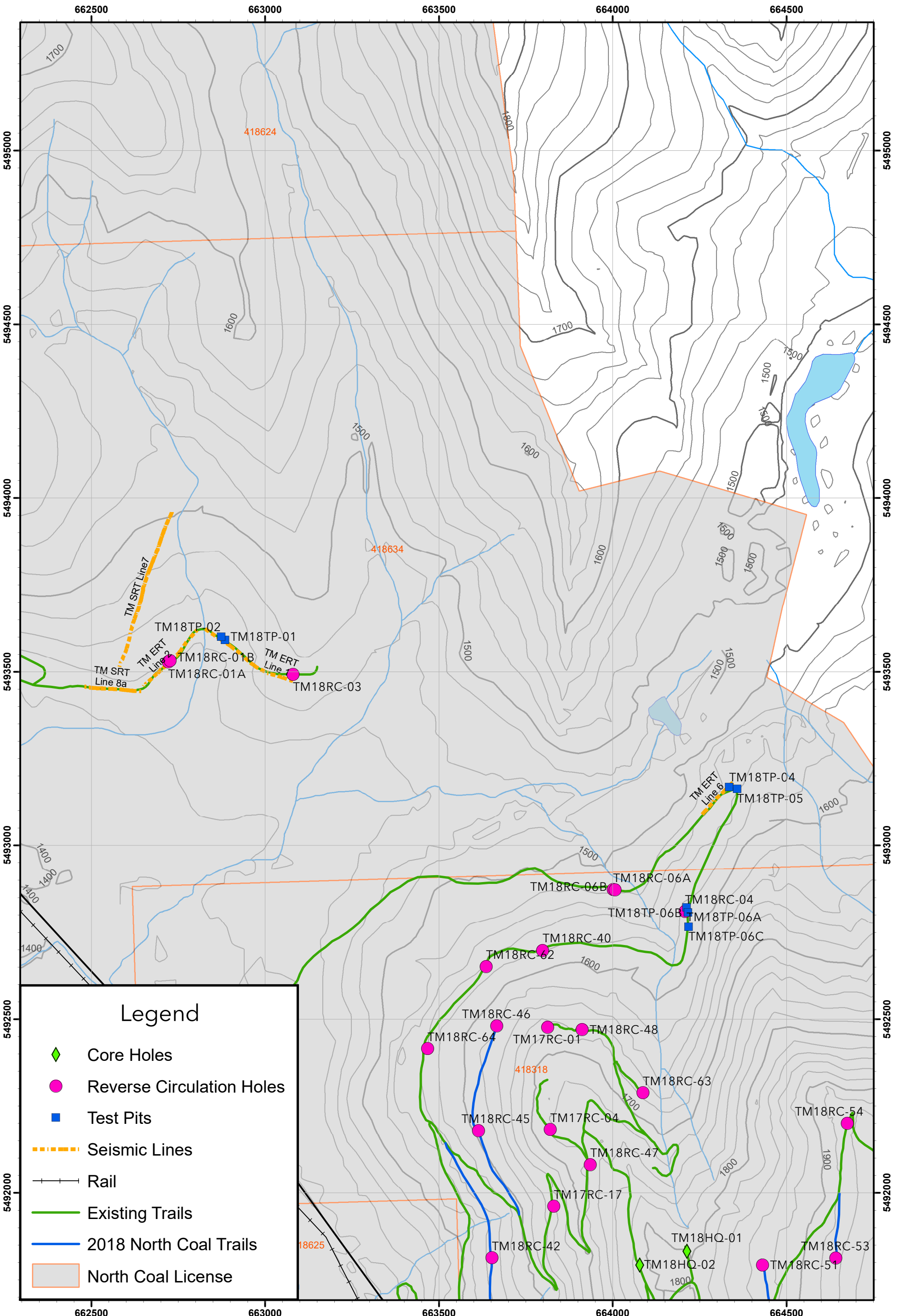
North Coal Limited
 Completed Works 2018
 Inset 2: Loop South



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 NAD 1983 UTM Zone 11N



Author: RLO
 Date: 2019-03-22
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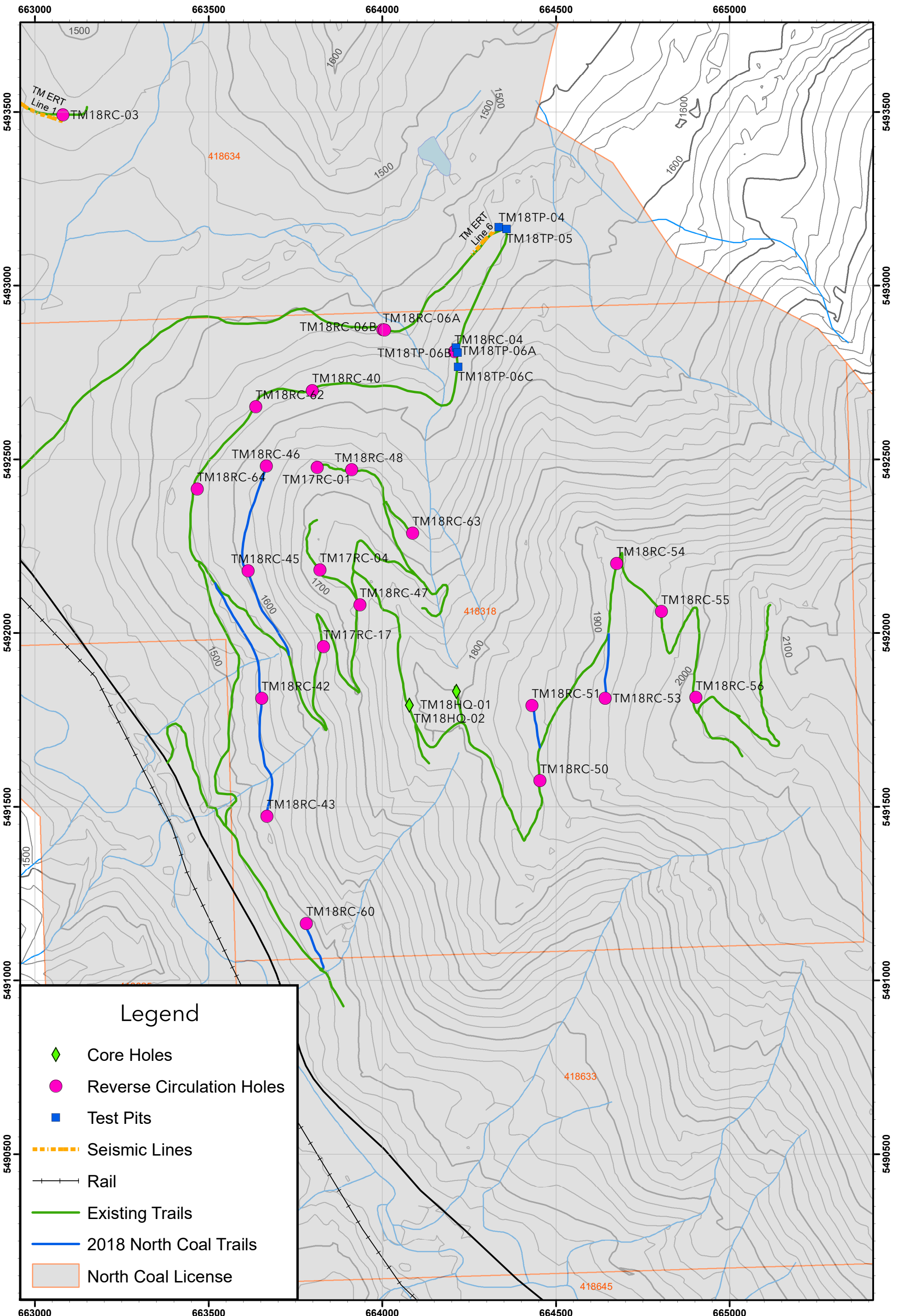


North Coal Limited
 Completed Works 2018
 Inset 3: Tent Mountain (North)



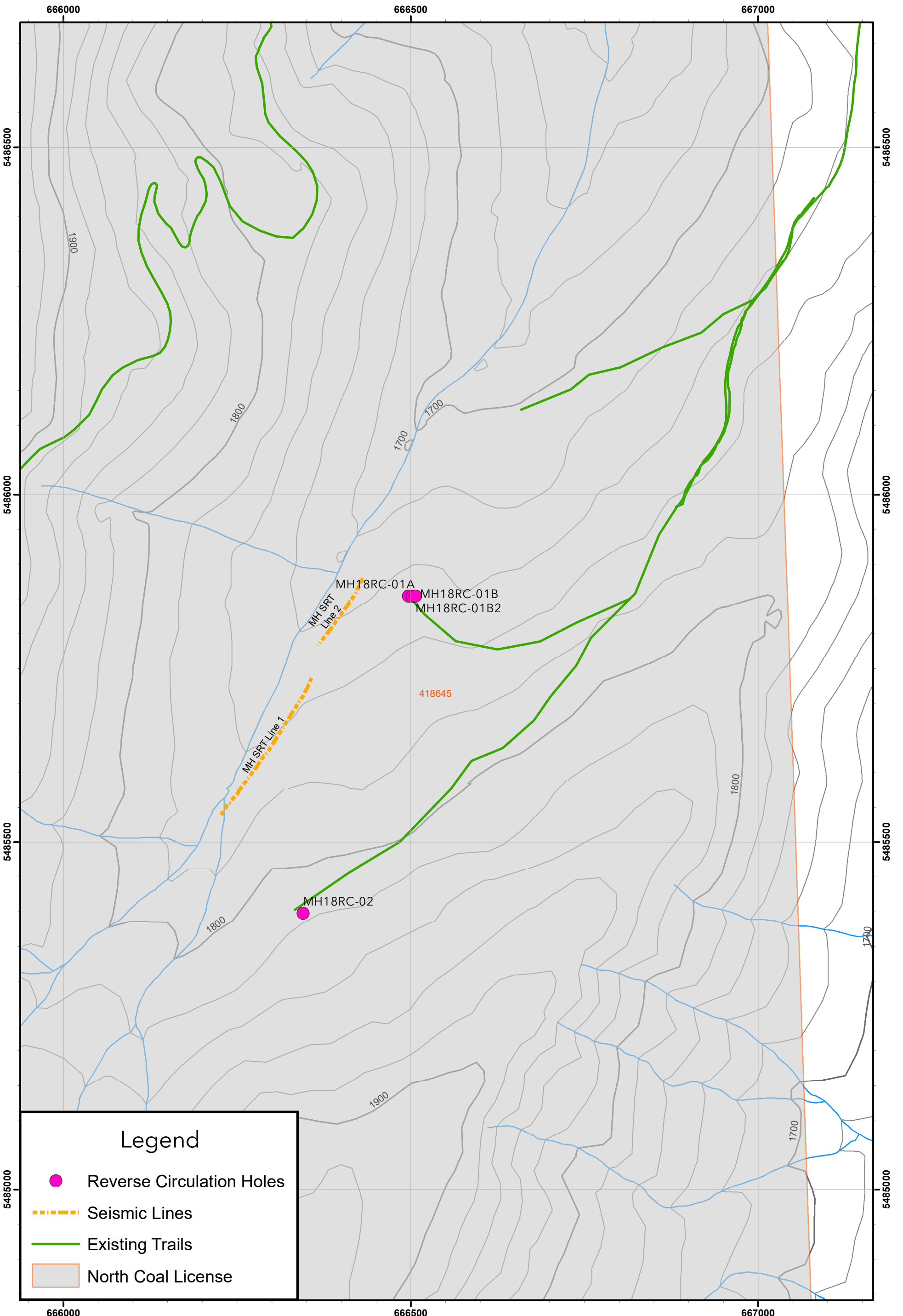
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 NAD 1983 UTM Zone 11N





Legend

- ◆ Core Holes
- Reverse Circulation Holes
- Test Pits
- - - Seismic Lines
- + + + Rail
- Existing Trails
- 2018 North Coal Trails
- North Coal License



Legend

- Reverse Circulation Holes
- - - Seismic Lines
- Existing Trails
- North Coal License



North Coal Limited
 Completed Works 2018
 Inset 5: Michel Head



1:5000
 NAD 1983 UTM Zone 11N

Author: RLO
 Date: 2019-03-22
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Appendices

- Appendix A Geophysical Logs – (in .ZIP file attached)
- Appendix B Drill Core Logs – (in .ZIP file attached)
- Appendix C Sampling Summary
- Appendix D Sample Analytical Results and Certificates – (in .ZIP file attached)
- Appendix E Analytical and Processing Guidelines
- Appendix F Statement of Costs
- Appendix G Golder Seismic and Resistivity Report – (in .ZIP file attached)
- Appendix H Golder Waste Rock Dump Geotechnical Report – (in .ZIP file attached)
- Appendix I Golder Tent Mountain Pit Stability Geotechnical Report – (in .ZIP file attached)

Appendix C - Sample Summary

Hole_ID	SampleID	CompositeSampleID	BirtleyID	PearsonID	Sample Type	From	To
TM18RC-40	26543	26543-26760	185150	38747	COAL	42.5	43.7
TM18RC-40	26544	26543-26760	185150	38747	COAL	43.7	44.7
TM18RC-40	26545	26543-26760	185150	38747	COAL	44.7	45.7
TM18RC-40	26546	26543-26760	185150	38747	COAL	45.7	46.7
TM18RC-40	26547	26543-26760	185150	38747	COAL	46.7	47.7
TM18RC-40	26548	26543-26760	185150	38747	COAL	47.7	48.7
TM18RC-40	26549	26543-26760	185150	38747	COAL	48.7	49.8
TM18RC-40	26550	26543-26760	185150	38747	COAL	49.8	50.8
TM18RC-40	26757	26543-26760	185150	38747	COAL	50.8	51.8
TM18RC-40	26758	26543-26760	185150	38747	COAL	51.8	52.8
TM18RC-40	26759	26543-26760	185150	38747	COAL	52.8	53.8
TM18RC-40	26760	26543-26760	185150	38747	COAL	53.8	54.8
TM18RC-40	26761				FOOTWALL	54.8	55.9
TM18RC-40	26762	26762-26768	185151	38748	COAL	98.6	99.6
TM18RC-40	26763	26762-26768	185151	38748	COAL	99.6	100.6
TM18RC-40	26764	26762-26768	185151	38748	COAL	100.6	101.6
TM18RC-40	26765	26762-26768	185151	38748	COAL	101.6	102.6
TM18RC-40	26766	26762-26768	185151	38748	COAL	102.6	103.6
TM18RC-40	26767	26762-26768	185151	38748	COAL	103.6	104.6
TM18RC-40	26768	26762-26768	185151	38748	COAL	104.6	105.6
TM18RC-40	26769				FOOTWALL	105.6	106.6
TM18RC-40	26770	26770-26772	185152	38749	COAL	127	128
TM18RC-40	26771	26770-26772	185152	38749	COAL	128	129
TM18RC-40	26772	26770-26772	185152	38749	COAL	129	130
TM18RC-40	26773				FOOTWALL	130	131
TM18RC-40	26774	26774-26775	185153	38750	COAL	213.3	214.5
TM18RC-40	26775	26774-26775	185153	38750	COAL	214.5	215.5
TM18RC-40	26776				PARTING	215.5	216.5
TM18RC-40	26777				COAL	216.5	217.5
TM18RC-40	26794	26794-26794	185154	38751	COAL	260.7	261.7
TM18RC-40	26795				FOOTWALL	261.7	262.7
TM18RC-40	26796	26796-26797	185155	38752	COAL	262.7	263.7
TM18RC-40	26797	26796-26797	185155	38752	COAL	263.7	264.7
TM18RC-40	26798				FOOTWALL	264.7	265.7
TM18RC-40	26799				COAL	272	273

2018 Michel Coal Exploration Program

TM18RC-40	26800				FOOTWALL	273	274
TM18RC-40	26803				COAL	276	277
TM18RC-40	26804				FOOTWALL	277	278
TM18RC-42	26751				COAL	154	155
TM18RC-42	26752				COAL	164	165
TM18RC-42	26753				COAL	165	166
TM18RC-42	26754				COAL	166	167
TM18RC-42	26755				PARTING	167	168
TM18RC-42	26756				COAL	168	169
TM18RC-42	26538	26538-26541	185149	38746	COAL	202.7	203.7
TM18RC-42	26539	26538-26541	185149	38746	COAL	203.7	204.7
TM18RC-42	26540	26538-26541	185149	38746	COAL	204.7	205.7
TM18RC-42	26541	26538-26541	185149	38746	COAL	205.7	206.7
TM18RC-42	26542				FOOTWALL	206.7	207.7
TM18RC-43	26529				COAL	51	52
TM18RC-43	26530				COAL	74.1	75.1
TM18RC-43	26531				COAL	75.1	76.1
TM18RC-43	26532				FOOTWALL	76.1	77.1
TM18RC-43	26533	26533-26535	184957	38591	COAL	124.4	125.4
TM18RC-43	26534	26533-26535	184957	38591	COAL	125.4	126.4
TM18RC-43	26535	26533-26535	184957	38591	COAL	126.4	127.4
TM18RC-43	26536				FOOTWALL	127.4	128.4
TM18RC-43	26537				COAL	130.4	131.4
TM18RC-45	26516				COAL	176	177.3
TM18RC-45	26517				COAL	189.5	190.5
TM18RC-45	26518	26518-26524	184958	38592	COAL	237.5	238.5
TM18RC-45	26519	26518-26524	184958	38592	COAL	238.5	239.5
TM18RC-45	26520	26518-26524	184958	38592	COAL	239.5	240.5
TM18RC-45	26521	26518-26524	184958	38592	COAL	240.5	241.5
TM18RC-45	26522	26518-26524	184958	38592	COAL	241.5	242.5
TM18RC-45	26523	26518-26524	184958	38592	COAL	242.5	243.5
TM18RC-45	26524	26518-26524	184958	38592	COAL	243.5	244.5
TM18RC-45	26525				COAL	244.5	245.5
TM18RC-45	26526				COAL	245.5	246.5
TM18RC-45	26527				FOOTWALL	246.5	247.5
TM18RC-45	26528				COAL	273.4	274.4
TM18RC-46	26500				COAL	107	108
TM18RC-46	26501				COAL	108	109
TM18RC-46	26502				COAL	132	133
TM18RC-46	26503				COAL	133	134

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TM18RC-46	26504				COAL	134	135
TM18RC-46	26505				COAL	135	136
TM18RC-46	26506				COAL	138	139
TM18RC-46	26507				COAL	139	140
TM18RC-46	26508	26508-26511	184862	38585	COAL	253.2	254.2
TM18RC-46	26509	26508-26511	184862	38585	COAL	254.2	255.2
TM18RC-46	26510	26508-26511	184862	38585	COAL	255.2	256.2
TM18RC-46	26511	26508-26511	184862	38585	COAL	256.2	257.2
TM18RC-46	26512				COAL	257.2	258.2
TM18RC-46	26513				COAL	258.2	259.2
TM18RC-46	26514				COAL	259.2	260.2
TM18RC-46	26515				FOOTWALL	260.2	261.2
TM18RC-47	26462	26462-26463	184863	38586	COAL	10.5	11.5
TM18RC-47	26463	26462-26463	184863	38586	COAL	11.5	12.5
TM18RC-47	26464				FOOTWALL	12.5	13.5
TM18RC-47	26465	26465-26472	184864	38587	COAL	37	38
TM18RC-47	26466	26465-26472	184864	38587	COAL	38	39
TM18RC-47	26467	26465-26472	184864	38587	COAL	39	40
TM18RC-47	26468	26465-26472	184864	38587	COAL	40	41
TM18RC-47	26469	26465-26472	184864	38587	COAL	41	42
TM18RC-47	26470	26465-26472	184864	38587	COAL	42	43
TM18RC-47	26471	26465-26472	184864	38587	COAL	43	44
TM18RC-47	26472	26465-26472	184864	38587	COAL	44	45
TM18RC-47	26473				FOOTWALL	45	46
TM18RC-47	26474	26474-26477	184865	38588	COAL	143	144
TM18RC-47	26475	26474-26477	184865	38588	COAL	144	145
TM18RC-47	26476	26474-26477	184865	38588	COAL	145	146
TM18RC-47	26477	26474-26477	184865	38588	COAL	146	147
TM18RC-47	26478				FOOTWALL	147	148
TM18RC-47	26479				COAL	188.2	189.2
TM18RC-47	26480				COAL	196.8	197.8
TM18RC-47	26481				FOOTWALL	197.8	198.8
TM18RC-47	26482	26482-26489	184866	38589	COAL	212.1	213.1
TM18RC-47	26483	26482-26489	184866	38589	COAL	213.1	214.1
TM18RC-47	26484	26482-26489	184866	38589	COAL	214.1	215.1
TM18RC-47	26485	26482-26489	184866	38589	COAL	215.1	216.1
TM18RC-47	26486	26482-26489	184866	38589	COAL	216.1	217.1
TM18RC-47	26487	26482-26489	184866	38589	COAL	217.1	218.1
TM18RC-47	26488	26482-26489	184866	38589	COAL	218.1	219.1
TM18RC-47	26489	26482-26489	184866	38589	COAL	219.1	220.1

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TM18RC-47	26490				FOOTWALL	220.1	221.1
TM18RC-48	26310				COAL	25.15	26.15
TM18RC-48	26311				FOOTWALL	26.15	27.15
TM18RC-48	26312				COAL	170	171.5
TM18RC-48	26313				COAL	181.25	182.25
TM18RC-48	26314				FOOTWALL	182.25	183.25
TM18RC-50	26428	26428-26432	184786	38502	COAL	28	28.5
TM18RC-50	26429	26428-26432	184786	38502	COAL	28.5	29.5
TM18RC-50	26430	26428-26432	184786	38502	COAL	29.5	30.5
TM18RC-50	26431	26428-26432	184786	38502	COAL	30.5	31.5
TM18RC-50	26432	26428-26432	184786	38502	COAL	31.5	32.5
TM18RC-50	26433				COAL	32.5	33.5
TM18RC-50	26434				COAL	69.5	70
TM18RC-50	26435	26435-26438	184787	38503	COAL	76	77
TM18RC-50	26436	26435-26438	184787	38503	COAL	77	78
TM18RC-50	26437	26435-26438	184787	38503	COAL	78	79
TM18RC-50	26438	26435-26438	184787	38503	COAL	79	80
TM18RC-50	26439				COAL	80	81
TM18RC-50	26440				COAL	81	82
TM18RC-50	26441				FOOTWALL	82	83
TM18RC-51	26421				COAL	88.5	89.5
TM18RC-51	26422				FOOTWALL	89.5	90.5
TM18RC-51	26423	26423-26425	184788	38504	COAL	97	98
TM18RC-51	26424	26423-26425	184788	38504	COAL	98	99
TM18RC-51	26425	26423-26425	184788	38504	COAL	99	100
TM18RC-51	26426				COAL	100	101
TM18RC-51	26427				FOOTWALL	101	102
TM18RC-53	26414				COAL	36	37
TM18RC-53	26415				COAL	42	43
TM18RC-53	26416	26416-26418	184789	38505	COAL	99	100
TM18RC-53	26417	26416-26418	184789	38505	COAL	100	101
TM18RC-53	26418	26416-26418	184789	38505	COAL	101	102
TM18RC-53	26419				COAL	102	103
TM18RC-53	26420				FOOTWALL	103	104
TM18RC-54	26406	26406-26406	184790	38506	COAL	27.3	28.3
TM18RC-54	26407				COAL	28.3	28.8
TM18RC-54	26408	26408-26410	184791	38507	COAL	77	78
TM18RC-54	26409	26408-26410	184791	38507	COAL	78	79
TM18RC-54	26410	26408-26410	184791	38507	COAL	79	80
TM18RC-54	26411				COAL	80	81

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TM18RC-54	26412				COAL	81	82
TM18RC-54	26413				FOOTWALL	82	83
TM18RC-55	26401				COAL	48.6	49.6
TM18RC-55	26402				FOOTWALL	49.6	50.6
TM18RC-55	26403				COAL	58	59
TM18RC-55	26404	26404-26404	184792	38508	COAL	99	106
TM18RC-55	26405				COAL	136.7	137.7
TM18RC-56	26332				COAL	10.1	11.1
TM18RC-56	26333				COAL	33.6	34.6
TM18RC-56	26350				HANGING WALL	38	39.5
TM18RC-56	26334	26334-26334	184793	38509	COAL	39.5	40.5
TM18RC-56	26335				FOOTWALL	40.5	41.5
TM18RC-56	26340				HANGING WALL	86	87
TM18RC-56	26341				HANGING WALL	87	87.3
TM18RC-56	26336	26336-26339	184794	38510	COAL	87.3	88.3
TM18RC-56	26337	26336-26339	184794	38510	COAL	88.3	89.3
TM18RC-56	26338	26336-26339	184794	38510	COAL	89.3	90.3
TM18RC-56	26339	26336-26339	184794	38510	COAL	90.3	91.3
TM18RC-56	26342				FOOTWALL	91.3	92
TM18RC-56	26343				FOOTWALL	92	93
TM18RC-60	26805				COAL	46.8	47.8
TM18RC-60	26806				FOOTWALL	47.8	48.8
TM18RC-62	26778	26778-26782	185148	38745	COAL	43.8	44.8
TM18RC-62	26779	26778-26782	185148	38745	COAL	44.8	45.8
TM18RC-62	26780	26778-26782	185148	38745	COAL	45.8	46.8
TM18RC-62	26781	26778-26782	185148	38745	COAL	46.8	47.8
TM18RC-62	26782	26778-26782	185148	38745	COAL	47.8	48.8
TM18RC-62	26783				FOOTWALL	48.8	49.8
TM18RC-62	26784				COAL	82.5	83.5
TM18RC-62	26785				COAL	83.5	84.5
TM18RC-62	26786				COAL	84.5	85.5
TM18RC-62	26787				FOOTWALL	85.5	86.5
TM18RC-62	26788				COAL	98.3	98.7
TM18RC-62	26789				PARTING	98.7	99.7
TM18RC-62	26790				COAL	99.7	100.7
TM18RC-62	26791				COAL	100.7	101.7
TM18RC-62	26792				FOOTWALL	101.7	102.7
TM18RC-62	26793				COAL	115	115.5
TM18RC-63	26442				COAL	32	32.5
TM18RC-63	26443				COAL	32.5	33.5

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TM18RC-63	26444				COAL	33.5	34.5
TM18RC-63	26445				FOOTWALL	34.5	35.5
TM18RC-63	26446	26446-26450	184795	38511	COAL	50.5	51
TM18RC-63	26447	26446-26450	184795	38511	COAL	51	52
TM18RC-63	26448	26446-26450	184795	38511	COAL	52	53
TM18RC-63	26449	26446-26450	184795	38511	COAL	53	54
TM18RC-63	26450	26446-26450	184795	38511	COAL	54	55
TM18RC-63	26451				FOOTWALL	55	56
TM18RC-63	26452	26452-26456	184796	38512	COAL	59	60
TM18RC-63	26453	26452-26456	184796	38512	COAL	60	61
TM18RC-63	26454	26452-26456	184796	38512	COAL	61	62
TM18RC-63	26455	26452-26456	184796	38512	COAL	62	63
TM18RC-63	26456	26452-26456	184796	38512	COAL	63	64
TM18RC-63	26457				FOOTWALL	64	65
TM18RC-63	26458				COAL	147	148
TM18RC-63	26459				COAL	148	149
TM18RC-63	26460				COAL	149	150
TM18RC-63	26461				FOOTWALL	150	151
TM17RC-01	21799				COAL	117	118
TM17RC-01	21800				COAL	118	119.3
TM17RC-01	21801				COAL	120.5	121
TM17RC-01	21802	21802-21806	174083	36625	COAL	139.7	140.7
TM17RC-01	21803	21802-21806	174083	36625	COAL	140.7	141.7
TM17RC-01	21804	21802-21806	174083	36625	COAL	141.7	142.7
TM17RC-01	21805	21802-21806	174083	36625	COAL	142.7	143.7
TM17RC-01	21806	21802-21806	174083	36625	COAL	143.7	144.7
TM17RC-01	21807				COAL	144.7	145.7
TM17RC-01	21808				COAL	145.7	146.7
TM17RC-01	21809	21809-21822	174084	36626	COAL	162.5	163.5
TM17RC-01	21810	21809-21822	174084	36626	COAL	163.5	164.5
TM17RC-01	21811	21809-21822	174084	36626	COAL	165	166
TM17RC-01	21812	21809-21822	174084	36626	COAL	166	167
TM17RC-01	21813	21809-21822	174084	36626	COAL	167	168
TM17RC-01	21814	21809-21822	174084	36626	COAL	168	169
TM17RC-01	21815	21809-21822	174084	36626	COAL	169	170
TM17RC-01	21816	21809-21822	174084	36626	COAL	170	171
TM17RC-01	21817	21809-21822	174084	36626	COAL	171	172
TM17RC-01	21818	21809-21822	174084	36626	COAL	172	173
TM17RC-01	21819	21809-21822	174084	36626	COAL	173	174
TM17RC-01	21820	21809-21822	174084	36626	COAL	174	175

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TM17RC-01	21821	21809-21822	174084	36626	COAL	175	176
TM17RC-01	21822	21809-21822	174084	36626	COAL	176	177
TM17RC-01	21823				PARTING	177	178
TM17RC-01	21824	21824-21824	172477	36627	COAL	187	188
TM17RC-01	26303	26303-26305	184471	38433	COAL	258.6	259.6
TM17RC-01	26304	26303-26305	184471	38433	COAL	259.6	260.6
TM17RC-01	26305	26303-26305	184471	38433	COAL	260.6	261.6
TM17RC-01	26306				FOOTWALL	261.6	262.6
TM17RC-01	26307				COAL	323.25	323.75
TM17RC-01	26308				COAL	323.75	324.75
TM17RC-01	26309				FOOTWALL	324.75	325.75
TM17RC-04	3097				COAL	72.5	73.5
TM17RC-04	3098				COAL	73.5	74.5
TM17RC-04	3099				COAL	74.5	75.5
TM17RC-04	3100				COAL	129.5	130.5
TM17RC-04	3151				COAL	130.5	131.5
TM17RC-04	3152	3152-3177	175197	36913	COAL	145.5	146.5
TM17RC-04	3153	3152-3177	175197	36913	COAL	146.5	147.5
TM17RC-04	3154	3152-3177	175197	36913	COAL	147.5	148.5
TM17RC-04	3155	3152-3177	175197	36913	COAL	148.5	149.5
TM17RC-04	3156	3152-3177	175197	36913	COAL	149.5	150.5
TM17RC-04	3157	3152-3177	175197	36913	COAL	150.5	151.5
TM17RC-04	3158	3152-3177	175197	36913	COAL	151.5	152.5
TM17RC-04	3159	3152-3177	175197	36913	COAL	152.5	153.7
TM17RC-04	3160	3152-3177	175197	36913	COAL	153.7	154.7
TM17RC-04	3161	3152-3177	175197	36913	COAL	154.7	155.7
TM17RC-04	3162	3152-3177	175197	36913	COAL	155.7	156.7
TM17RC-04	3163	3152-3177	175197	36913	COAL	156.7	157.7
TM17RC-04	3164	3152-3177	175197	36913	COAL	157.7	158.7
TM17RC-04	3165	3152-3177	175197	36913	COAL	158.7	159.8
TM17RC-04	3166	3152-3177	175197	36913	COAL	159.8	160.8
TM17RC-04	3167	3152-3177	175197	36913	COAL	160.8	161.8
TM17RC-04	3168	3152-3177	175197	36913	COAL	161.8	162.8
TM17RC-04	3169	3152-3177	175197	36913	COAL	162.8	163.8
TM17RC-04	3170	3152-3177	175197	36913	COAL	163.8	164.9
TM17RC-04	3171	3152-3177	175197	36913	COAL	166	167
TM17RC-04	3172	3152-3177	175197	36913	COAL	167	168
TM17RC-04	3173	3152-3177	175197	36913	COAL	168	169
TM17RC-04	3174	3152-3177	175197	36913	COAL	169	170
TM17RC-04	3175	3152-3177	175197	36913	COAL	170	171

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TM17RC-04	3176	3152-3177	175197	36913	COAL	171	172
TM17RC-04	3177	3152-3177	175197	36913	COAL	172	173
TM17RC-04	3178				COAL	173	174
TM17RC-04	26315				COAL	269.25	270.25
TM17RC-04	26316	26316-26317	184472	38434	COAL	274.15	275.15
TM17RC-04	26317	26316-26317	184472	38434	COAL	275.15	276.15
TM17RC-04	26318				COAL	276.15	277.15
TM17RC-04	26319				COAL	277.15	278.15
TM17RC-04	26320				FOOTWALL	278.15	279.15
TM17RC-04	26321	26321-26329	184473	38435	COAL	324.05	325.05
TM17RC-04	26322	26321-26329	184473	38435	COAL	325.05	326.05
TM17RC-04	26323	26321-26329	184473	38435	COAL	326.05	327.05
TM17RC-04	26324	26321-26329	184473	38435	COAL	327.05	328.05
TM17RC-04	26325	26321-26329	184473	38435	COAL	328.05	329.05
TM17RC-04	26326	26321-26329	184473	38435	COAL	329.05	330.05
TM17RC-04	26327	26321-26329	184473	38435	COAL	330.05	331.05
TM17RC-04	26328	26321-26329	184473	38435	COAL	331.05	332.05
TM17RC-04	26329	26321-26329	184473	38435	COAL	332.05	333.05
TM17RC-04	26330				FOOTWALL	333.05	334.05
TM17RC-04	26331				FOOTWALL	389.17	390.17
TM17RC-17	3228				COAL	13.5	14.5
TM17RC-17	3229	3229-3232	175215	36970	COAL	24.7	25.7
TM17RC-17	3230	3229-3232	175215	36970	COAL	25.7	26.7
TM17RC-17	3231	3229-3232	175215	36970	COAL	26.7	27.7
TM17RC-17	3232	3229-3232	175215	36970	COAL	27.7	28.7
TM17RC-17	3233				COAL	54.2	55.2
TM17RC-17	3234	3234-3250	175216	36971	COAL	55.2	56.2
TM17RC-17	3235	3234-3250	175216	36971	COAL	56.2	57.2
TM17RC-17	3236	3234-3250	175216	36971	COAL	57.2	58.2
TM17RC-17	3237	3234-3250	175216	36971	COAL	58.2	58.7
TM17RC-17	3238	3234-3250	175216	36971	COAL	59	60
TM17RC-17	3239	3234-3250	175216	36971	COAL	60	61
TM17RC-17	3240	3234-3250	175216	36971	COAL	61	62
TM17RC-17	3241	3234-3250	175216	36971	COAL	62	63
TM17RC-17	3242	3234-3250	175216	36971	COAL	63	64
TM17RC-17	3243	3234-3250	175216	36971	COAL	64	65
TM17RC-17	3244	3234-3250	175216	36971	COAL	65	66
TM17RC-17	3245	3234-3250	175216	36971	COAL	66	67
TM17RC-17	3246	3234-3250	175216	36971	COAL	67	68
TM17RC-17	3247	3234-3250	175216	36971	COAL	68	69

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TM17RC-17	3248	3234-3250	175216	36971	COAL	69	70
TM17RC-17	3249	3234-3250	175216	36971	COAL	70	71
TM17RC-17	3250	3234-3250	175216	36971	COAL	71	72
TM17RC-17	3251				COAL	72	73
TM17RC-17	26491				COAL	186.9	187.9
TM17RC-17	26492				COAL	187.9	188.9
TM17RC-17	26493				COAL	188.9	189.9
TM17RC-17	26494				FOOTWALL	189.9	190.9
TM17RC-17	26495	26495-26497	184867	38590	COAL	246.5	247.5
TM17RC-17	26496	26495-26497	184867	38590	COAL	247.5	248.5
TM17RC-17	26497	26495-26497	184867	38590	COAL	248.5	249.5
TM17RC-17	26498				FOOTWALL	249.5	250.5
TM17RC-17	26499				COAL	251.5	252.5

Appendix E - Analytical and Processing Guidelines

Receiving

Check that all samples received correspond to the sample sheet provided by sampling geologist.
Weigh each sample in bag, as received, and record weights on shipping manifest. Return completed manifest to client.
All samples must remain in cold storage when not undergoing processing.

Raw Ply Samples

On commencement, lay samples out to dry. If necessary, gently break intact core to ARD apparatus dimensions.
Report Mass (ar), Mass (ad), and Free Moisture.
Screen at 2mm. Report proportions of +2mm and -2mm material. Report ARD on +2mm fraction.
Recombine +2mm and -2mm fractions.

Compositing

Combine full mass of Raw Ply samples into Raw Composite as instructed.
Assign new Sample ID to Raw Composite as indicated by client.

Crush to pass -12.5mm

Head Raw Analysis

Undertake a raw coal analysis on a representative portion of the crushed coal
Analyse for Proximates, Total Sulphur, FSI, Relative Density, and MAA.

Sizing

Screen three size fractions and report sizing: -12.5+2mm, -2+0.25mm, -0.25+0mm

Recombine -12.5+2mm and -2+0.25mm size fractions
into one size fraction -12.5+0.25mm.

Washability

Complete float sink on -12.5mm+0.25mm size fraction.

Float sink each increment at 1.40, 1.50, 1.60 densities.

Analyse each density increment for proximates.

Analyse each density increment up to and including F1.60 for FSI.

On a -0.25mm fraction, undertake starvation flotation.

Report masses for all froths and tails.

Recombine fractions 1C, 2C, 3C into one fraction. Analyse proximates and FSI.

Recombine fractions 4C, 3T, 2T, 1T into one fraction. Analyse proximates

Reserve all materials for future work.

Clean Coal Composite

Instructions will be provided on the construction of Clean Composite.

Produce sufficient clean sample for the tests indicated below. **No bulk wash required.**

Assign new Sample ID to Clean Composite as indicated by client.

Analyse for the following:

Proximate Analysis

Total Sulphur

FSI

GCV

HGI

Ultimate Analysis

MAA including Pcoal

Gieseler Fluidity

Dilatation

Ship 100g subsample to Pearson Petrography (Vitrinite Reflectance and Macerals)

Appendix F – Statement of Costs

Budget Items	Contractor	Total \$
Drilling	Good Earth Drilling	1,647,824.00
Technical Services	Century Wireline Services	170,080.00
	Silenus Resource Mgt	87,849.00
	Lorax Environmental	23,200.00
	Golder Associates	708,233.16
	O'Kane Consultants	81,090.00
	Bob Leach Pty	12,740.00
	Vast Resources	1,980.00
	Align Surveys	3,930.00
Analytical	Birtley Coal & Mineral Testing	42,909.00
	Pearson & Associates	9,000.00
Heavy Equipment	Fiorentino Bros	46,255.00
	TruCut Logging	119,165.00
	Canada Culvert	14,327.00
	Canwel Fibre	13,297.00
	R and L Ventures Ltd.	3,093.00
	Bren Kar Logging	1,312.00
	Manitoulin Transport	2,208.00
Safety	TruCut Logging	169,900.00
Licenses	MEMPR	65,678.00
Personnel	Salaries and accommodations	141,669.00
Miscellaneous	Other	7,706.00
Total		3,373,445.16