

**BC Geological Survey
Coal Assessment Report
1050**



COAL ASSESSMENT REPORT TITLE PAGE AND SUMMARY

TITLE OF REPORT: Elkview Operations 2018 Exploration Report

TOTAL COST: \$1,614,881

AUTHOR(S): Esaias E. (Bert) Schalekamp
SIGNATURE(S): Esaias E. (Bert) Schalekamp

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

Mine Permit No.: C-2
Mine No.: 0600337201401
File: 14675-35-04

YEAR OF WORK: 2018

PROPERTY NAME: Elkview Operation, Teck Coal Limited

COAL LICENSE(S) AND/OR LEASES ON WHICH PHYSICAL WORK WAS DONE:

LOT 1 District LOT 4588 Kootenay
District PLAN 9330, Except parts included in PLAN 9591, 10218, RW PLAN 12980 and PLAN
NEP89674

MINERAL INVENTORY MINFILE NUMBER(S), IF KNOWN: 0600337

MINING DIVISION: Fort Steele

NTS / BCGS: 082G10, 082G15 / 082G076

LATITUDE: 49° 47' 10" N

LONGITUDE: 114° 49' 39" W (at centre of work)

UTM Zone: 11 EASTING: 49.702 NORTHING: -114.818

OWNER(S): Teck Coal Limited

MAILING ADDRESS:

Teck Coal Limited
Elkview Operations
RR 1, Hwy 3
Sparwood, BC
V0B 2G1

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

Teck Coal Limited

MAILING ADDRESS:

Same as above

REPORT KEYWORDS (lithology, age, stratigraphy, structure, alteration, mineralization,
size and attitude. **Do not use abbreviations or codes**)

REFERENCES TO PREVIOUS ASSESSMENT WORK AND ASSESSMENT REPORT NUMBERS:

SUMMARY OF TYPES OF WORK IN THIS REPORT		EXTENT OF WORK (in metric units)	ON WHICH TENURES
GEOLOGICAL (scale, area)		NA	
	Ground, mapping	NA	
	Photo interpretation	NA	
GEOPHYSICAL (line-kilometres)		NA	
	Ground (Specify types)	NA	
	Airborne (Specify types)	NA	
	Borehole	30 Drillholes completed	LOT 1, District LOT 4588, Kootenay District Plan 9330
	Gamma, Resistivity,	8,338 Meters	All exploration work was completed within active mining pits on the same property as above
	Resistivity	8,338 Meters	
	Caliper	8,338 Meters	
	Deviation	8,338 Meters	
	Dip Others (specify)	0 Meters	
	Core	N/A	
	Non-core	8,340 Meters	
SAMPLING AND ANALYSES			
Total # of Samples			
127	Proximate		Currently estimates only, work still ongoing, will forward when completed
	Ultimate		
120	Petrographic		
120	Vitrinite reflectance		
	Coking		
	Wash tests		
PROSPECTING (scale/area)		NA	

PREPARATORY/PHYSICAL		
Line/grid (km)	NA	
Trench (number, metres)	NA	
Bulk sample(s)	NA	

Elkview Operations
Coal Assessment Report
2018 Exploration Program

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Appendix A – Cross Sections (North – South through Elkview Property)

Separated data:

2018 Geophysical Logs

2017 composite results are still being processed, however completed composite data is attached. 2018 analysis of plys is almost complete, however composite data is currently unavailable Information regarding 2017 and 2018 composites will be forwarded when complete.

Statements of Author's Academic and Professional Qualifications

CERTIFICATE OF QUALIFIED PERSON

Name: Esaias E. (Bert) Schalekamp, P. Geo.
Position: Senior Geological Supervisor
Company: Teck Coal Limited
Address: Elkview Operations
RR 1, Hwy. 3
Sparwood, BC
VOB 2G1

I, Esaias E Schalekamp, P. Geo., am employed as a Senior Geologist Supervisor, at Elkview Operations. This certificate applies to the report titled "Elkview Operations, Summary Report, 2018 Exploration Program". I graduated from the University Of Pretoria, South Africa with a Master of Science Degree specializing in Geology, 2007. I am a member of the Association of Professional Engineers and Geoscientists of British Columbia (# 40404). I started my career in South Africa in 1991 with Anglo American plc, Coal Division. From 2007 to 2011, I worked for Peace River Coal Inc. (Anglo American plc) on the Roman Mountain and Horizon projects and various greenfields and brownfields projects in Tumbler Ridge, BC. From 2011 to the present, I have worked for Teck Coal Limited at the Fording River Operations (2011 to 2013) and from 2013 at the Elkview Operations. As a result of my experience and qualifications, I am a Qualified Person as defined in National Instrument 43-101 Standards of Disclosure for Mineral Projects (NI 43-101).



Esaias E Schalekamp, P. Geo.

1.0 Introduction

1. General Geography and History

The Elkview property is located approximately 3 km east of Sparwood. It is accessed by driving east on Highway 3, then turning on to the Elkview Mine access road as illustrated in Figure 1 – Elkview Property Lease Map, 2018 on the following page. The general coordinates of the property is Latitude: 49° 47' 10" N, Longitude: 114° 49' 39" W. The tenure associated with this site is LOT 1, DISTRICT LOT 4588, KOOTENAY DISTRICT PLAN 9330 as shown in Figure 2 – Elkview Property Tenure Map, 2018 on Page 6. Elkview Operations forms part of the larger group of TECK COAL LIMITED.

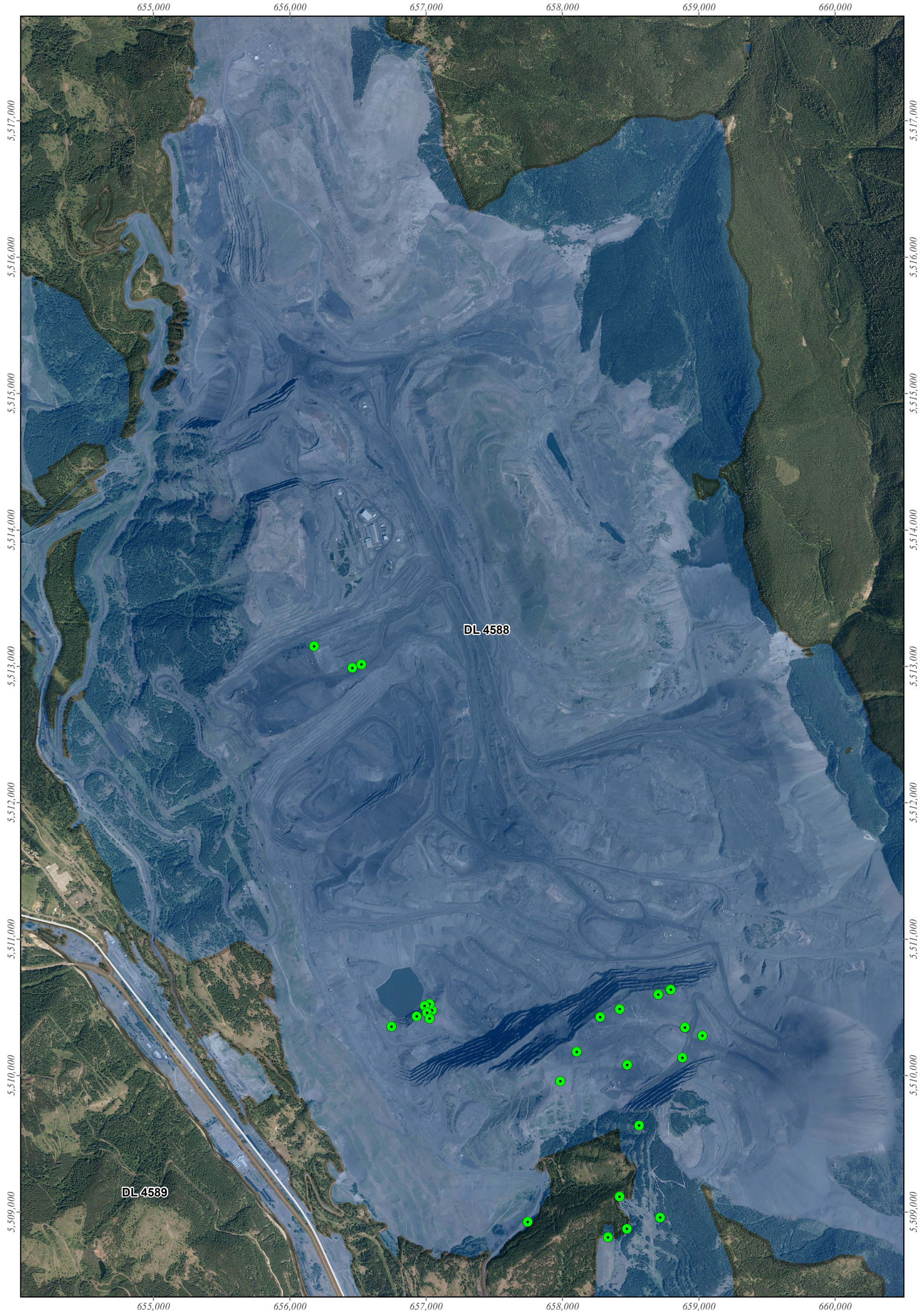
The Elkview mine site is situated within the front ranges of the southern Canadian Rocky Mountains. The coal measures are contained within the Mist Mountain Formation of the Kootenay Group.

Historical mining on the Elkview property began late in the 19th century and included underground mining of upper coal seams on both Baldy and Natal ridges. By 1969, Kaiser Resources Limited progressed to large-scale open pit operations of the Balmer Mine. Reclamation permit (C-2 permit) was approved in 1970 authorizing the operation of the Balmer Mine under the BC Mines Act.

On August 31, 1992, Westar Mining Limited (successor to Kaiser Resources Limited) was petitioned into bankruptcy. On December 9, 1992, Teck Corporation acquired the assets of the Balmer property including all fixed infrastructure related to the Balmer Mine, mine equipment owned by Westar, and clear title to a portion of the original Kaiser Lands where coal-mining rights were acquired from Crowsnest Industries. Elkview Coal Corporation (ECC) formed to operate the newly renamed Elkview Mine as a wholly owned subsidiary of Teck Corporation.

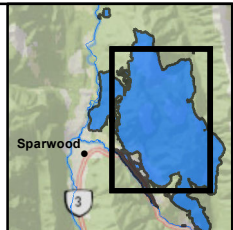
All approvals previously issued to Westar Mining - Balmer Operations were considered to be in good standing. Elkview made an application to resume operations under Section 10(1) of the Coal Act on April 26, 1993. An amended reclamation C-2 permit was issued on May 3, 1993. Mining and coal processing re-started shortly thereafter and continues today. There have been a number of amendments to the C-2 permit since 1993, as new operating areas and supporting infrastructure have been required. In 1996, an Environmental Assessment Certificate (EAC) was issued for the development of Bodie Spoil.

Since 1970, EVO has produced steel-making coal for sale to various customers globally. As of 2013, total disturbance at EVO was 4,167 hectares (ha) with 2,902 ha of this area reclaimed.



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**Figure 1:
Elkview Property Lease Map 2018**

- 2018 Exploration Actual DH
- Parcel Fabric
- C-2 Permit Boundary

DATE: 1/9/2019	MINE OPERATION: Elkview
SCALE: 1:25,000	COORDINATE SYSTEM: NAD 1983 UTM Zone 11N

2. Geology

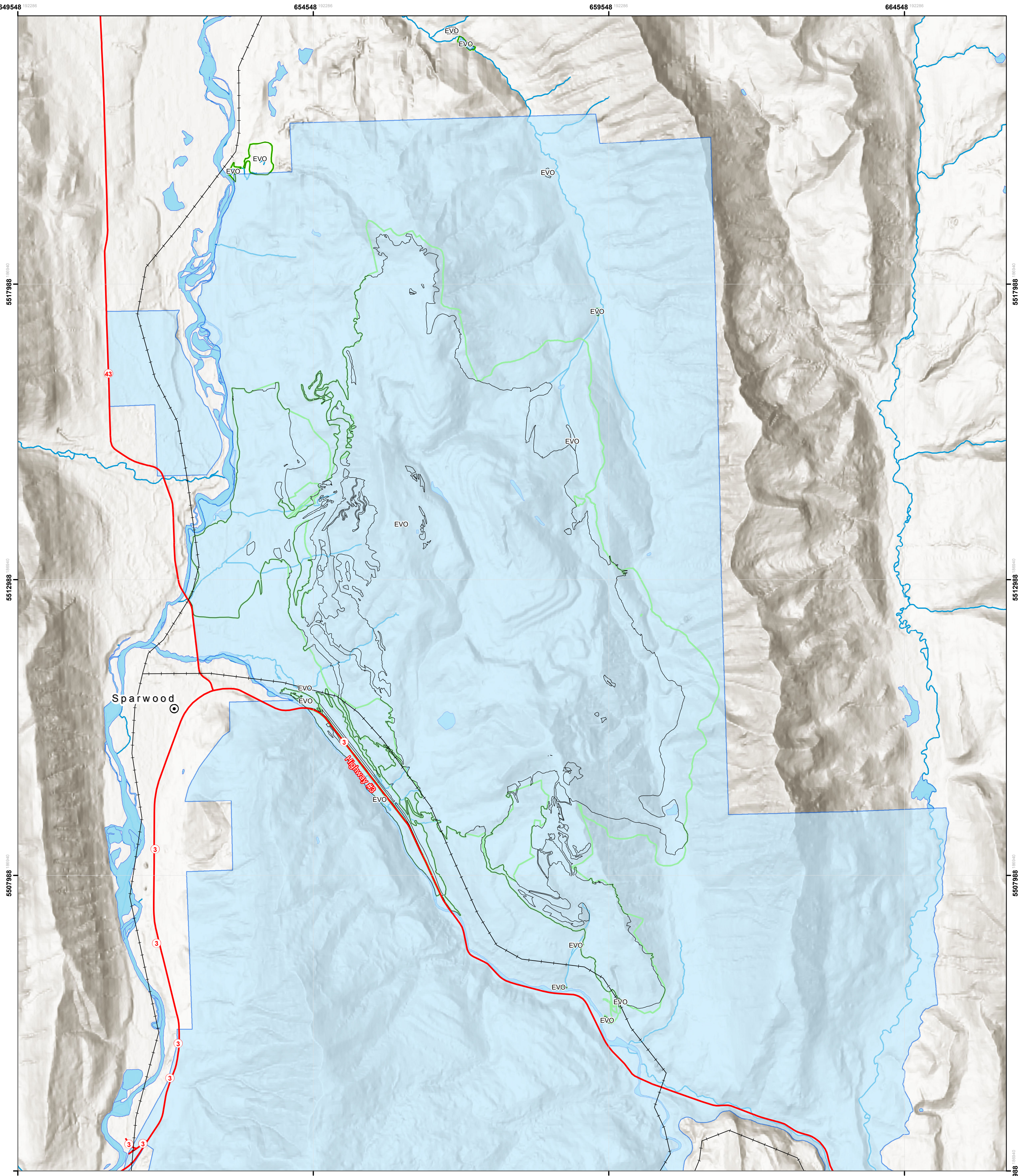
i. Stratigraphy

The general stratigraphy at Elkview Operations is summarized in Table 1 below.





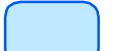

Table 1 - Regional Stratigraphy

Period	Litho-Stratigraphic Units		Principle Rock Types
Recent			Colluvium
Quaternary			Clay, silt, sand, gravel, cobbles
Lower Cretaceous	Blairmore Group		Massive bedded sandstones and conglomerates
Lower Cretaceous to Upper Jurassic	K O O T E N A Y R M I A G R S I O U P	Elk Formation	Sandstone, siltstone, shale, mudstones, chert pebble conglomerate, minor coal
		Mist Mountain Formation	Sandstone, siltstone, shale, mudstones, thick coal seams
		Moose Mountain Member	Medium to coarse-grained quartz-chert sandstone
		Weary Ridge Member	Fine to coarse-grained, slight ferruginous quartz-chert sandstone
Jurassic	Fernie Formation		Shale, siltstone, fine-grained sandstone
Triassic	Spray River Formation		Sandy shale, shale quartzite
	Rocky Mountain Formation		Quartzite
Mississippian	Rundle Group		Limestone

Economic coal occurs in the Mist Mountain Formation of the Jurassic-Cretaceous Kootenay Group as shown in Table 1. The formation abruptly and conformably overlies the Morrissey Formation. It averages 500 to 600 meters in thickness and contains from 4 to 30 plus seams. There is approximately 60m of cumulative mineable coal thickness within the Mist Mountain Formation as illustrated in Table 2 – Mist Mountain Formation Coal Seam Stratigraphy. Seams range in rank from high to low-volatile bituminous coal. The Elk Formation overlies the Mist Mountain Formation at the top of the Kootenay Group. Its characteristics are similar to those of the Mist Mountain, but lack coal seams of potential economic thickness, and contain sapropelic coals in addition to humic coals. The data confirms a general fining-upward sequence typical of fluvial-alluvial depositional systems.



Legend

-  Rail
-  Highway
-  Stream
-  C-2 Permit Boundary
-  Teck Fee Simple Land
-  Teck Coal Licences



Scale: 1:40,000



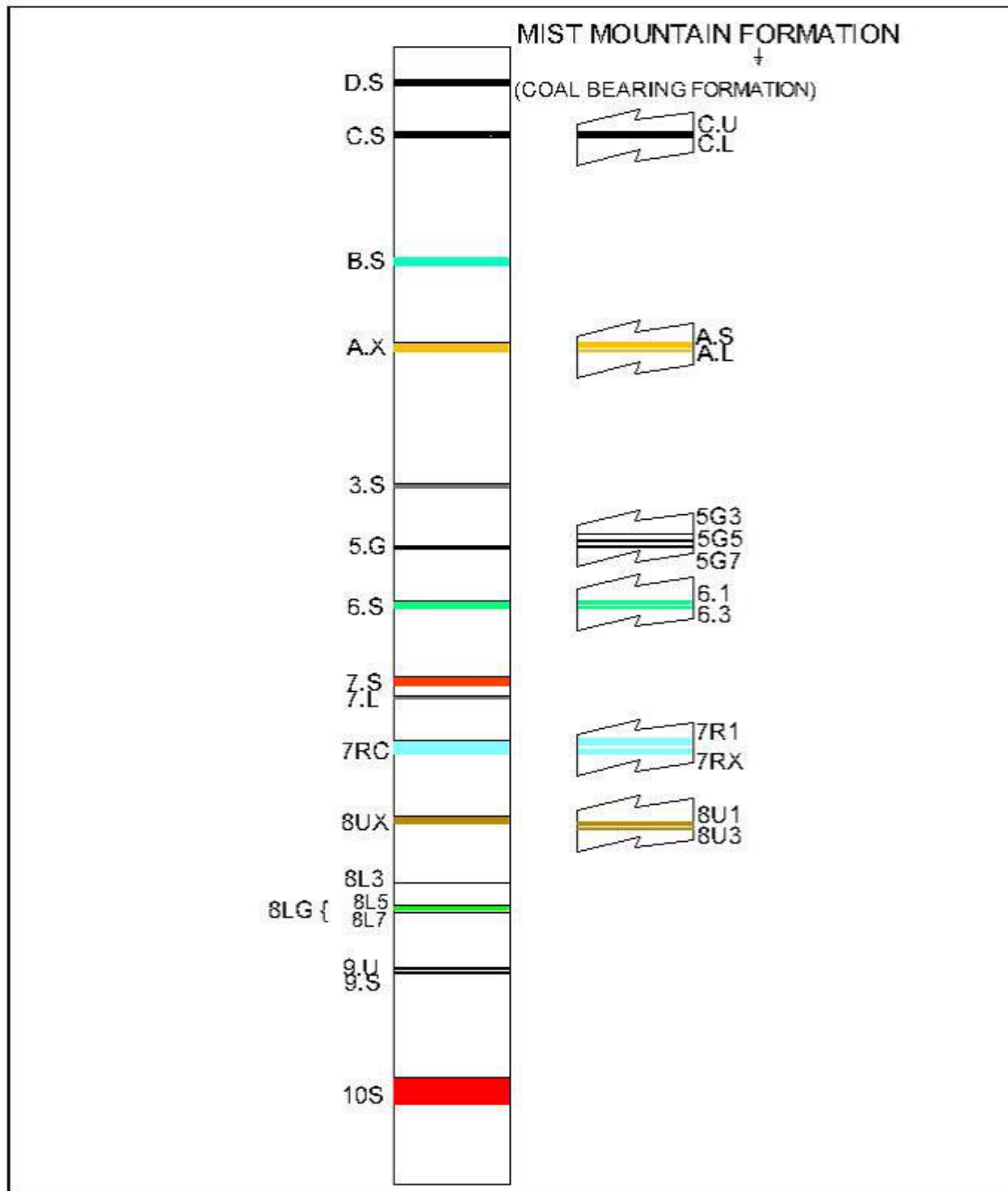
Elkview Operations
 District Lot 4588
 Kootenay District Plan 9330

**FIGURE 2:
 ELKVIEW PROPERTY TENURE MAP**

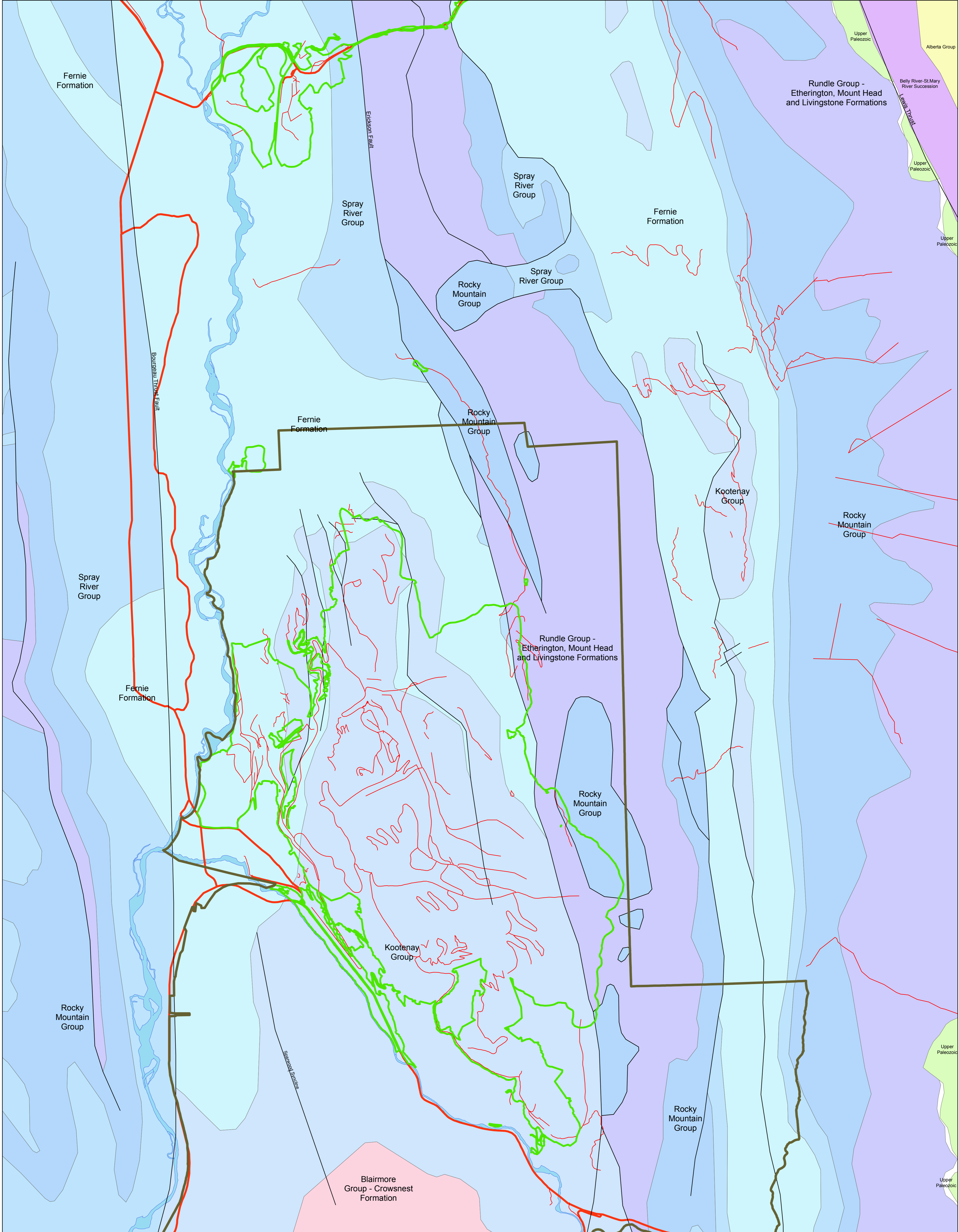
Projection: NAD 83 UTM11
 Date: May 29, 2018



Table 2 – Mist Mountain Formation Coal Seam Stratigraphy

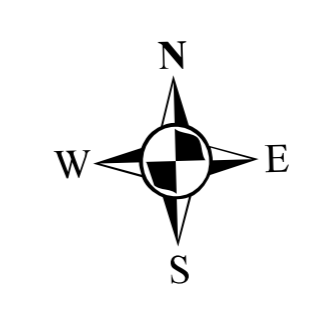


The coal-forming environment is believed to have been relatively isolated from sources of clastic material. Three coalfields lie within the Mist Mountain Formation in southeastern BC: Elk Valley Coalfield, Flathead Coalfield and the Crowsnest Coalfield. The Elkview mine is situated at the northern end of the Crowsnest Coalfield. It produces low to medium-volatile hard coking coal and lesser amounts of thermal coal from a large number of seams through a thick Mist Mountain Formation section. Refer to Figure 3 – “Regional Geology of Elkview Property” on the following page.

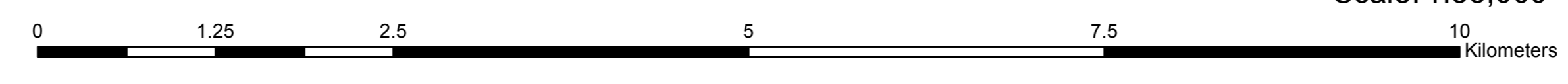


Legend	
Elkview Property	Geographical Units
C2 Permit Boundary	KA
2 Lane Gravel	KB-S
HWY	Mz
Haul Roads	Pzu
Sparwood Syncline	DFSA
Faults	JFe
Major River	JK
	KB
	MBE
	MRE
	PhPR
	TfSRf
	KTBC
	uPa

**Figure 3:
Regional Geology of
Elkview Property**



Scale: 1:35,000



Elkview Operation
Kootenay District Plan 9330
District Lot 4588
Date: Q1 2019

ii. Structure

The East Kootenay coalfields are underlain by the Lewis Thrust plate and form part of the Front Ranges of the Rocky Mountains. This area is characterized by initial compressional forces resulting in folding and thrust faulting followed by extensional structures such as normal faulting. The Crowsnest Coalfield is bounded by the west-dipping Erickson normal fault on the east and the Bourgeau thrust fault on the west.

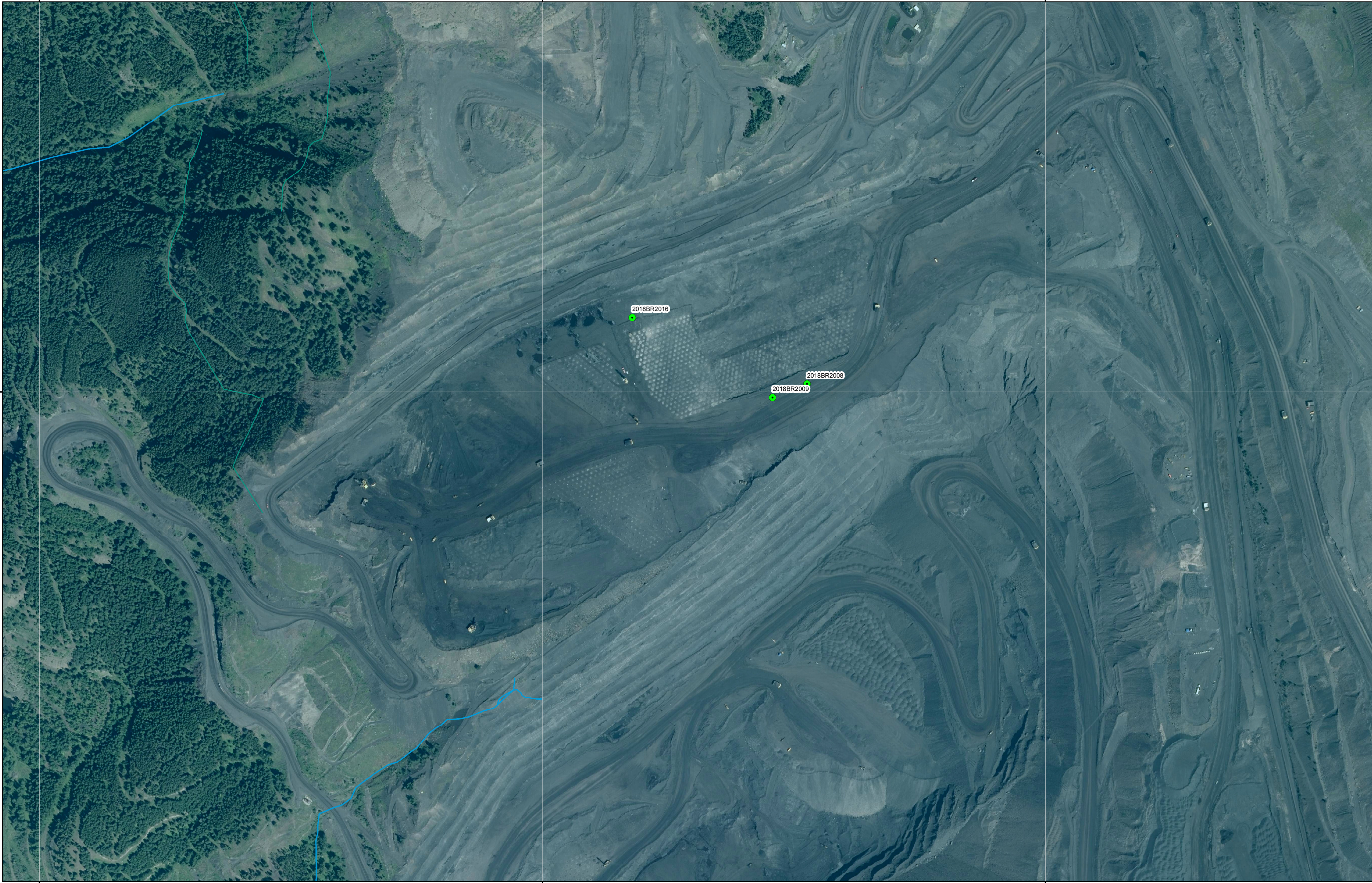
The geology within the Elkview property dips towards the west at approximately twenty degrees and plunges gradually to the south at about four to eight degrees. Multiple thrust faults and normal faults occur throughout the property mostly striking in a north west to southeast orientation. This has resulted in coal seam repeats and structural deformation and complexity along the thrust fault boundaries.

The geology at the Elkview Operations is classified as moderate and complex as per the Geological Survey of Canada Paper 88-21 "*A Standardized Coal Resource/Reserve Reporting System for Canada*". There are numerous normal faults and thrust faults at the Elkview Operations that vary in structural displacement. Some of these faulted areas are associated with folds, over turned coal seams and other structural deformations.

2.0 Exploration Program 2018

1. Goals/ Objectives

The 2018 Exploration program was designed to support high geological confidence in the active 2-3 year mine planning window and future expansion into Natal Phase 3 (NP3). Priority was placed on NP3 holes that had been deferred from 2017 due to high wildfire risk during the past drill season. This drilling will define coal volumes and qualities while providing the structural information required to set the NP3 highwall in advance of permitting. In-pit reverse circulation (RC) drilling was completed to improve geological confidence in BR2, NP1 and NP2. Large diameter coring (9" LDC) was completed to obtain coke-strength data for the lower rank 10P coal on the east side of NP2. Figures 4-5 on the following pages are plan views of the 2018 drilling of BR2 and Natal Ridge.



Legend

- 2018 Actual Large Diameter Core DH
- 2018 Actual Reverse Circulation DH
- C2 Permit Boundary
- Highway
- Historical Trails
- Stream

Scale: 1:5,000

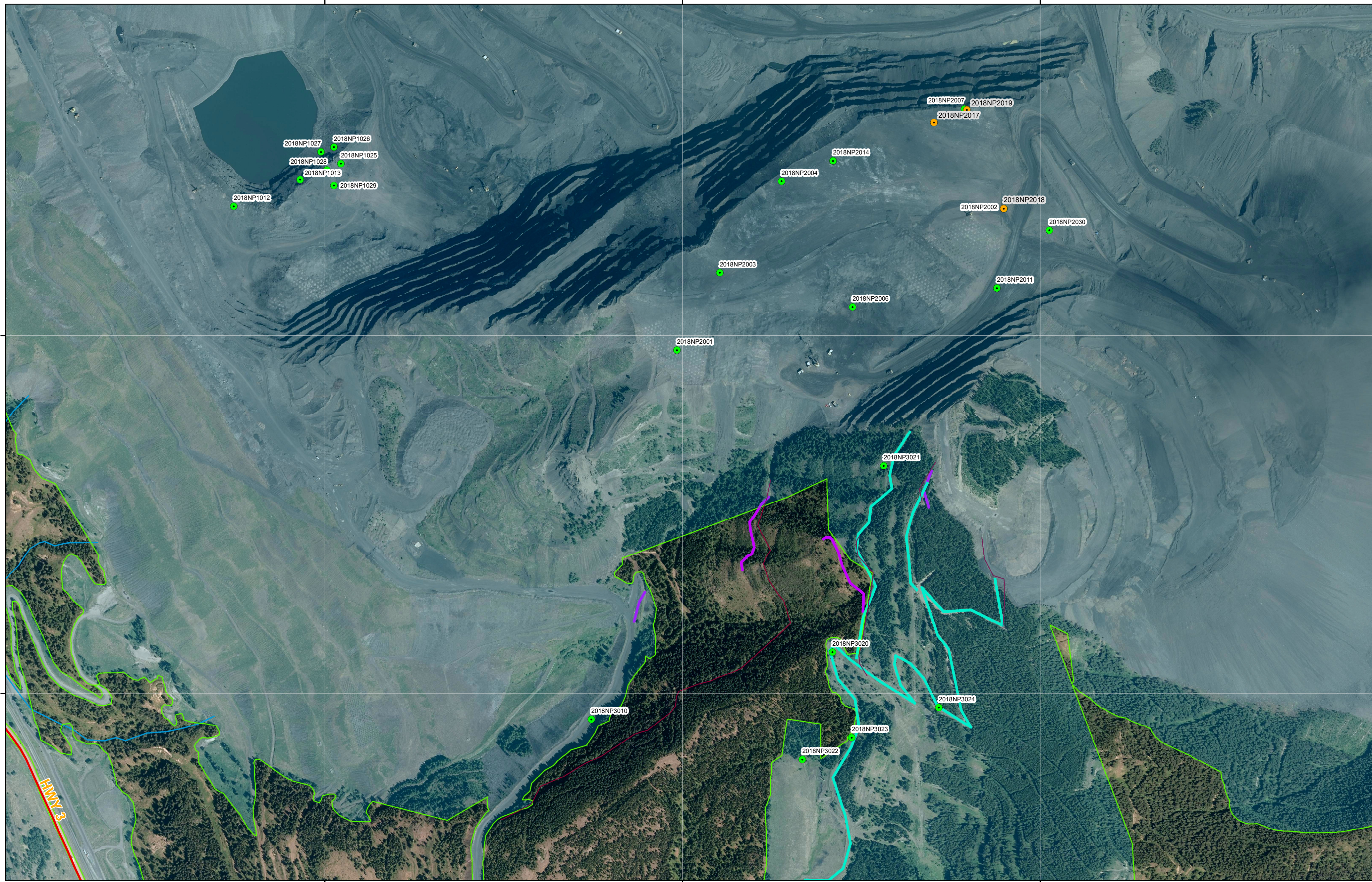
Meters

Elkview Operations
 District Lot 4588
 Kootenay District Plan 9330

Projection: NAD 83 UTM11
 Date: Q1 2019
 Ortho Date: Sept 2017
 Author: Kimberly Pidwerbeski

**FIGURE 4:
 2018 ELKVIEW DRILLHOLE MAP
 BALDY RIDGE 1 & 2**

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Legend

- 2018 Actual Large Diameter Core DH
- 2018 Actual Reverse Circulation DH
- C2 Permit Boundary
- Highway
- Historical Trails
- Stream

Scale: 1:7,000

Meters

Elkview Operations
 District Lot 4588
 Kootenay District Plan 9330

Projection: NAD 83 UTM11
 Date: Q1 2019
 Ortho Date: Sept 2017
 Author: Kimberly Pidwerbeski

**FIGURE 5:
 2018 ELKVIEW DRILLHOLE MAP
 NATAL PHASE 1, 2 & 3**

Teck

2. Summary of Work Done

Twenty-seven (27) reverse circulation drillholes and three (3) large diameter core drillholes were completed in the Baldy Ridge and Natal Ridge areas at Elkview Operations for a total of 8,338 m of drilling and 0.1ha disturbed. Existing mine roads and exploration roads were utilized for all drill pads. Drilling locations are illustrated in Figures 4-5 on the previous page and were located within the C-2 boundary.

Three (3) drillholes were drilled in BR2 for a total of 533m in 2018. The majority of these drillholes were placed within the complex fault zone to provide additional geological confidence for the model and production forecast.

In-pit drilling was also completed within the NP1 pit (7 drillholes) and NP2 pit (14 drillholes) for a total of 3,924m in 2018. Drilling in NP1 pit focused on confirming 10 seam structure and volumes. Drilling in NP2 pit focused on providing geological confidence for the model and production forecast. Three (3) holes in NP2 were drilled as pilot holes for the three (3) 9" Large Diameter Core (LDC) holes that were also drilled. The intent of the LDC holes was to gain carbonization quality information on 10P prior to mining.

Six (6) drillholes were drilled in Natal Phase 3 (NP3) for geotechnical, mine design and wall placement purposes for a total of 3,290m.

Foraco Drilling Ltd. Was contra reverse circulation rotary drilling with one 650m maximum depth drill rig. Century Wireline Services performed geophysical logging. Gamma, neutron, and drillhole geophysical tools were run downhole for all drillholes. Optical and acoustic Televiewer wireline tools were run downhole for two (2) holes in NP2 and two (2) holes in NP3.

A total of 2,614 coal sample increments were collected and an estimated 200 seam composites will be analyzed to confirm coal quality, rheology, petrography and mineral ash analysis.

Coal seams intersected in reverse circulation drillholes were sampled at half-meter intervals (plys) and sent to the Elkview Central Lab. Raw ash, FSI, and, Residual Moisture (proximate analysis) were performed on ply samples. Current mining practices, geophysical log signatures and ply sample analysis are the main pieces of information used to generate composite samples from plys and determine core sample intervals. Lab analysis will determine Ash, VM, RM, Sulfur, Phosphorous, FSI, LT, FC and Rheology for composite samples at specific gravities 1.35 and 1.50 S.G. Raw and clean proximate analysis and rheological analysis will be performed by the Elkview Central Lab. All mineral ash analysis work will be sent to Greenhills Operations lab. Select composites and core samples were selected for additional analysis, performed by David E. Pearson and Associates (Victoria, BC).

Four exploration holes were selected to sample the top of the Morrissey Formation for potential acid generation (PAG) material. Specifically, the top ~10m of Moose Mountain Member (competent sandstone) was sampled at 1.0m intercepts in 2018NP2002, 2018NP2003, 2018NP2011 and 2018NP3020. Geochemical parameters associated with PAG material (i.e. acid potential and neutralizing potential) will be determined for all submitted samples. Results of the analysis will be included in annual reclamation reports and in subsequent summary reports.

The following table shows drillhole locations with respect to Coal Lease and District Lot boundaries:

Table 3 – Elkview Operations 2018 Drillhole locations

Mine pit / area	Drillholes
Baldy Ridge 2 (BR2)	2018BR2008, 2018BR2009, 2018BR2016
Natal Phase 1 (NP1)	2018NP1012, 2018NP1013, 2018NP1025, 2018NP1026, 2018NP1027, 2018NP1028, 2018NP1029
Natal Phase 2 (NP2)	2018NP2001, 2018NP2002, 2018NP2003, 2018NP2004, 2018NP2005, 2018NP2006, 2018NP2007, 2018NP2011, 2018NP2014, 2018NP2015, 2018NP2017, 2018NP2018, 2018NP2019, 2018NP2030
Natal Phase 3 (NP3)	2018NP3010, 2018NP3020, 2018NP3021, 2018NP3022, 2018NP3023, 2018NP3024

Table 4 – 2018 Drillhole Collar Survey

Hole ID	Dip	Northing	Easting	Elevation (m)	Total Depth (m)	Date Surveyed
2018NP2001	-90°	5509959	657984	1798.6	415	9-Jun-18
2018NP2002	-90°	5510355	658898	1800.4	323	11-Jun-18
2018NP2003	-90°	5510175	658104	1815.1	372	14-Jun-18
2018NP2004	-90°	5510431	658277	1816.2	263	15-Jun-18
2018NP2005	-90°	5504299	642802	1801.2	208	18-Jun-18
2018NP2006	-90°	5510079	658475	1800.9	336	20-Jun-18
2018NP2007	-90°	5510633	658788	1801.9	183.5	20-Jun-18
2018BR2008	-90°	5513016	656526	1679.0	195.5	26-Jun-18
2018BR2009	-90°	5512989	656458	1679.7	190	26-Jun-18
2018NP3010	-90°	5508928	657745	1557.5	380	28-Jun-18
2018NP2011	-90°	5510132	658879	1379.9	336	4-Jul-18
2018NP1012	-90°	5510361	656746	1379.9	177	2-Jul-18
2018NP1013	-90°	5510431	656931	1379.9	73.5	2-Jul-18
2018NP2014	-90°	5510487	658421	1801.3	257	20-Jun-18
2018NP2015	-90°	5504291	642784	1800.2	214	9-Jul-18
2018BR2016	-90°	5513149	656179	1699.8	147	9-Jul-18
2018NP2017	-90°	5510596	658703	1803.2	194	13-Sep-18
2018NP2018	-90°	5510355	658898	1785.5	221.6	18-Sep-18
2018NP2019	-90°	5510630	658794	1803.2	175.5	27-Sep-18
2018NP3020	-90°	5509115	658419	1810.7	591	13-Nov-18
2018NP3021	-90°	5509636	658562	1927.2	580	27-Nov-18
2018NP3022	-90°	5508815	658335	1736.1	549	30-Nov-18
2018NP3023	-90°	5508877	658473	1775.7	575	5-Dec-18
2018NP3024	-90°	5508960	654717	1860.1	615	10-Dec-18
2018NP1025	-90°	5510480	657045	1350.0	98	10-Dec-18
2018NP1026	-90°	5510526	657025	1350.0	74	13-Dec-18
2018NP1027	-90°	5510512	656989	1350.0	105	13-Dec-18
2018NP1028	-90°	5510462	657006	1350.1	104	14-Dec-18
2018NP1029	-90°	5510419	657026	1349.7	98	14-Dec-18
2018NP2030	-90°	5510294	659025	1785.3	286	18-Dec-18

3. Results

EVO incorporated all geophysical logging data obtained in 2018 into the existing geological model.

Coal samples from 2018 Exploration are being analyzed for raw ash, fsi and moisture prior to composite selection. Once received, all data is stored in the EVO Acquire Database. Seam qualities increase the knowledge of the coal's marketability and assist long-term mine planning in the region.

EVO will submit all data from the 2017 exploration program when available.

4. Statement of Costs

The 2018 exploration program total cost was \$1,614,881 and the cost breakdown is as follows.

Drilling cost, \$ 999,987 (RC - Foraco Drilling)

Coring cost, \$ 324,606 (LDC – Foraco Drilling)

Geophysical logging, \$ 167,318 (Century Wireline Services)

Drill pad construction \$ 85,470 (Down to Earth Excavating Ltd.)

Petrographic Analysis \$ 37,500 (Pearson Petrography)

The Teck Coal Ltd. Central Laboratory is completing the proximate analysis on the Plys, the washes on the composites and the rheology analysis. Greenhills Operation will complete Mineral Ash Analysis. Pearson and Associates Petrography will complete petrographic analysis.

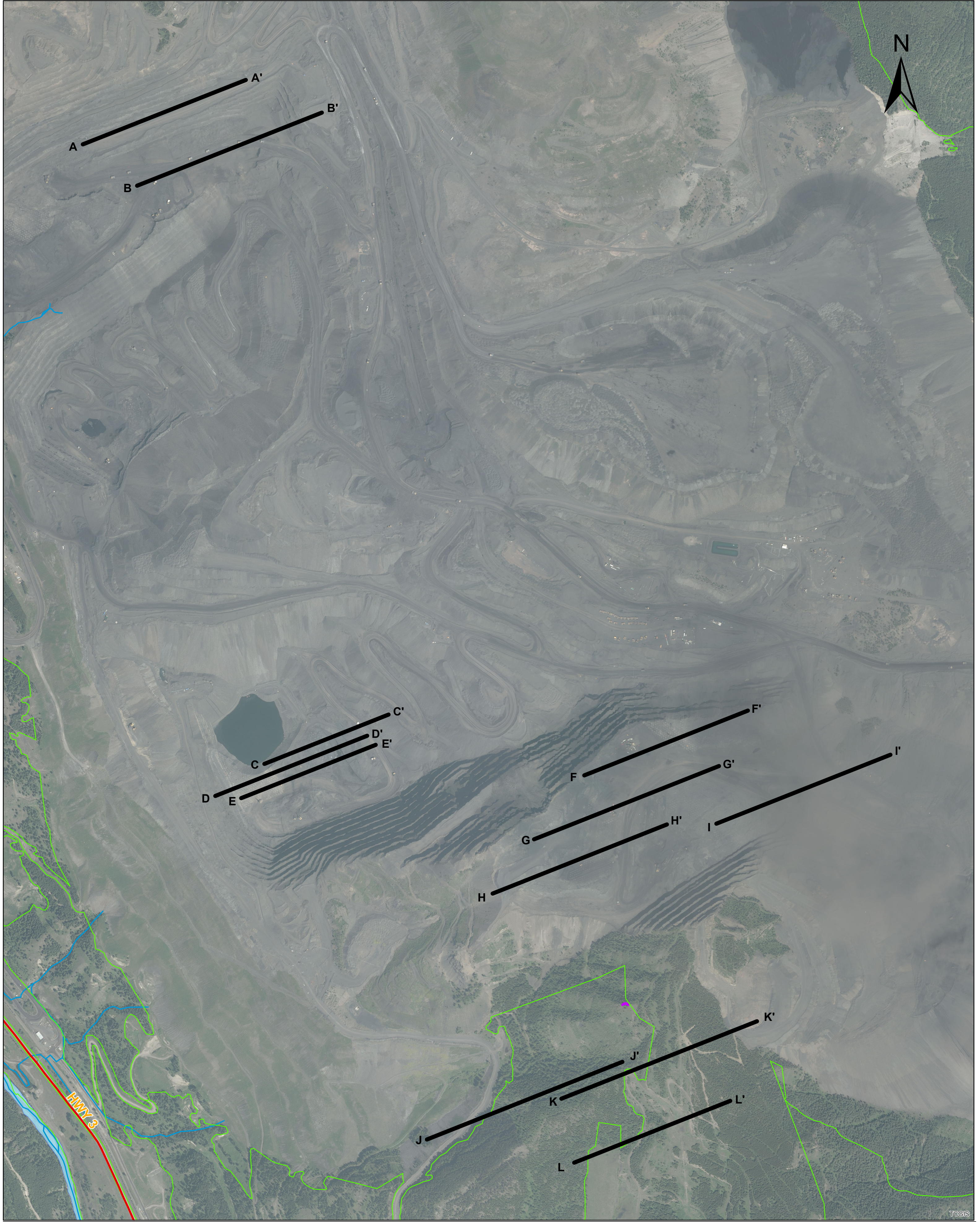
3.0 Conclusion

Available drillhole data from the 2018 exploration program was entered and interpreted as the program progressed. This enabled EVO to incorporate the newly updated geological structure and volumetric data into the Q4 2018 3DBM, dated November 15, 2018.

Analysis of the 2017 and 2018 coal samples is in progress. Results will be incorporated into Budget and EOY models for 2019.

The 2018 exploration program has successfully increased drillhole density in all the mentioned mining pits/areas. Televue data and geotechnical logging information have improved current pit shell design and are essential to ongoing mine design and planning of the Elkview Operations.

Appendix A – Cross Sections (North – South through Elkview Property)

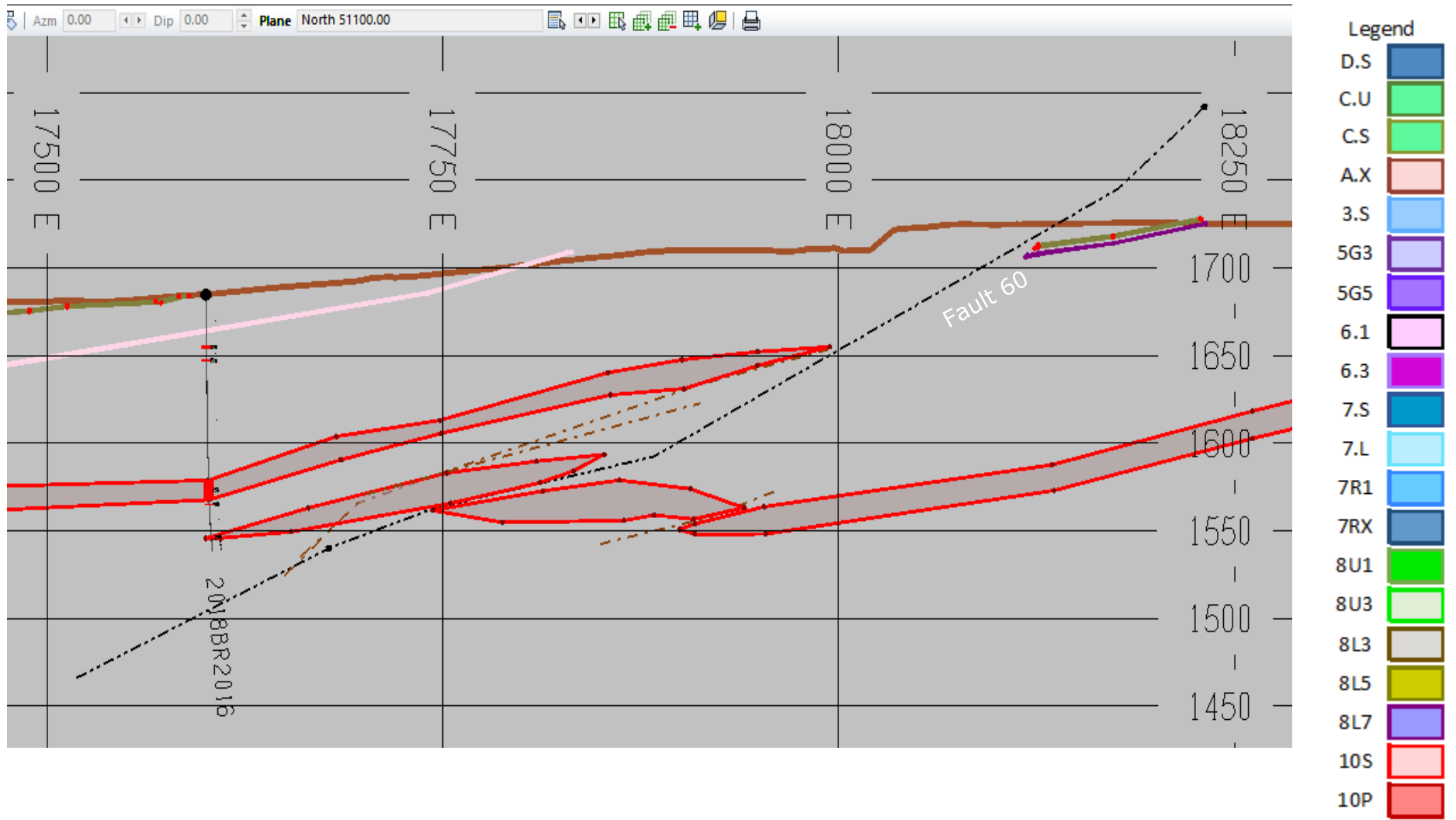


CROSS - SECTION PLAN MAP

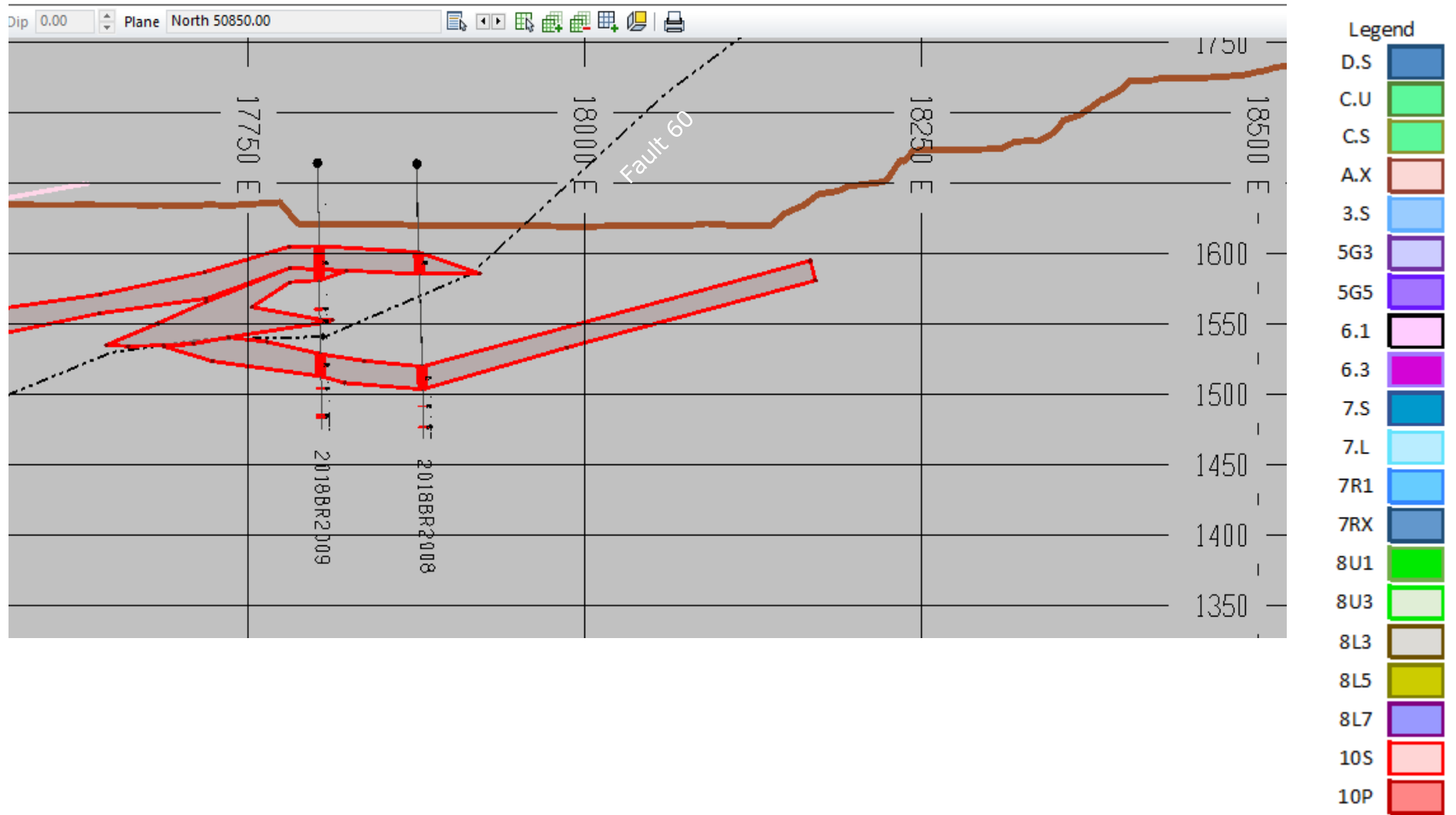
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Teck

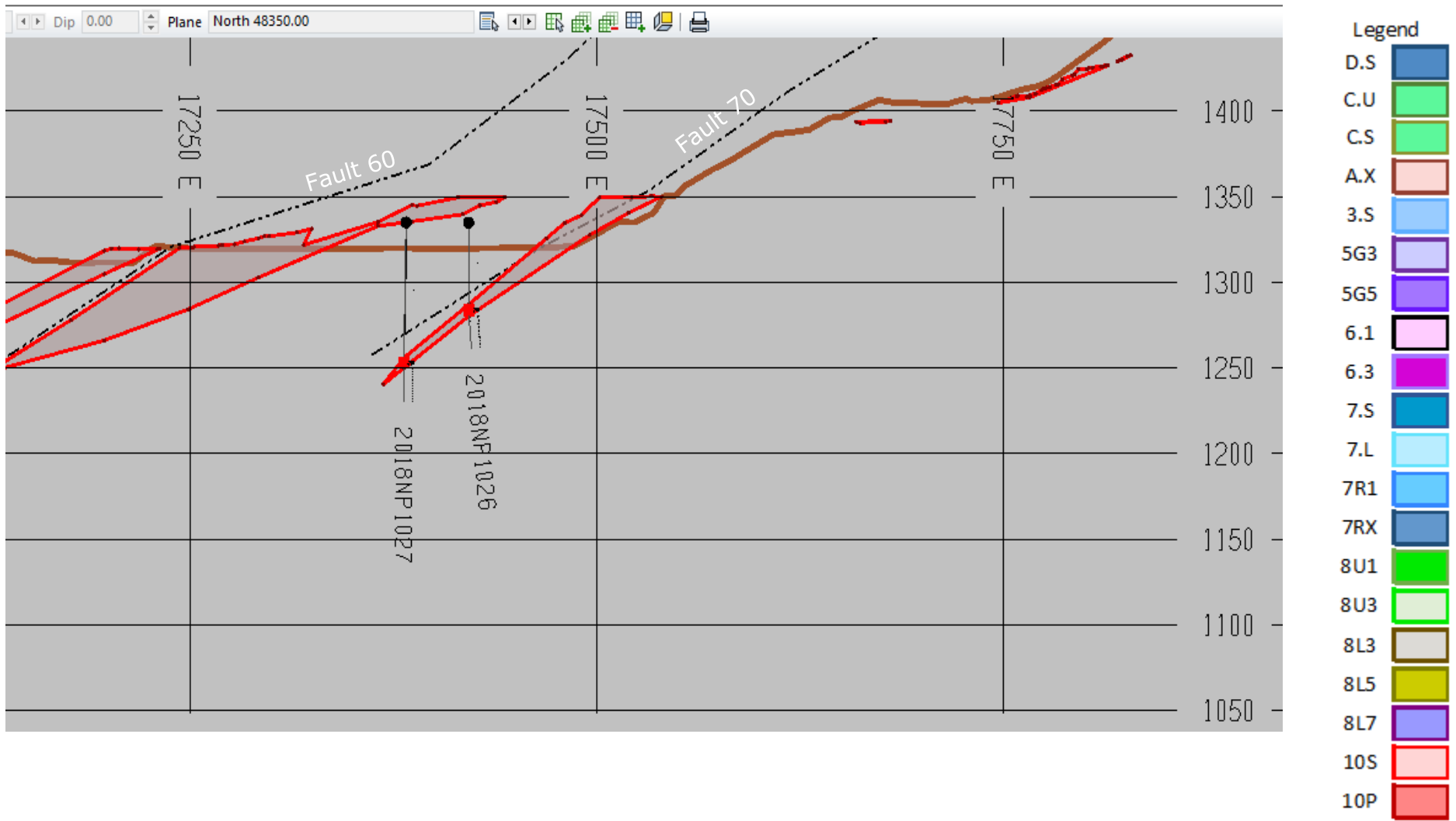
A – A': 2018BR2016 Cross Section – July 16, 2018 surface, updated geology, updated Fault 60



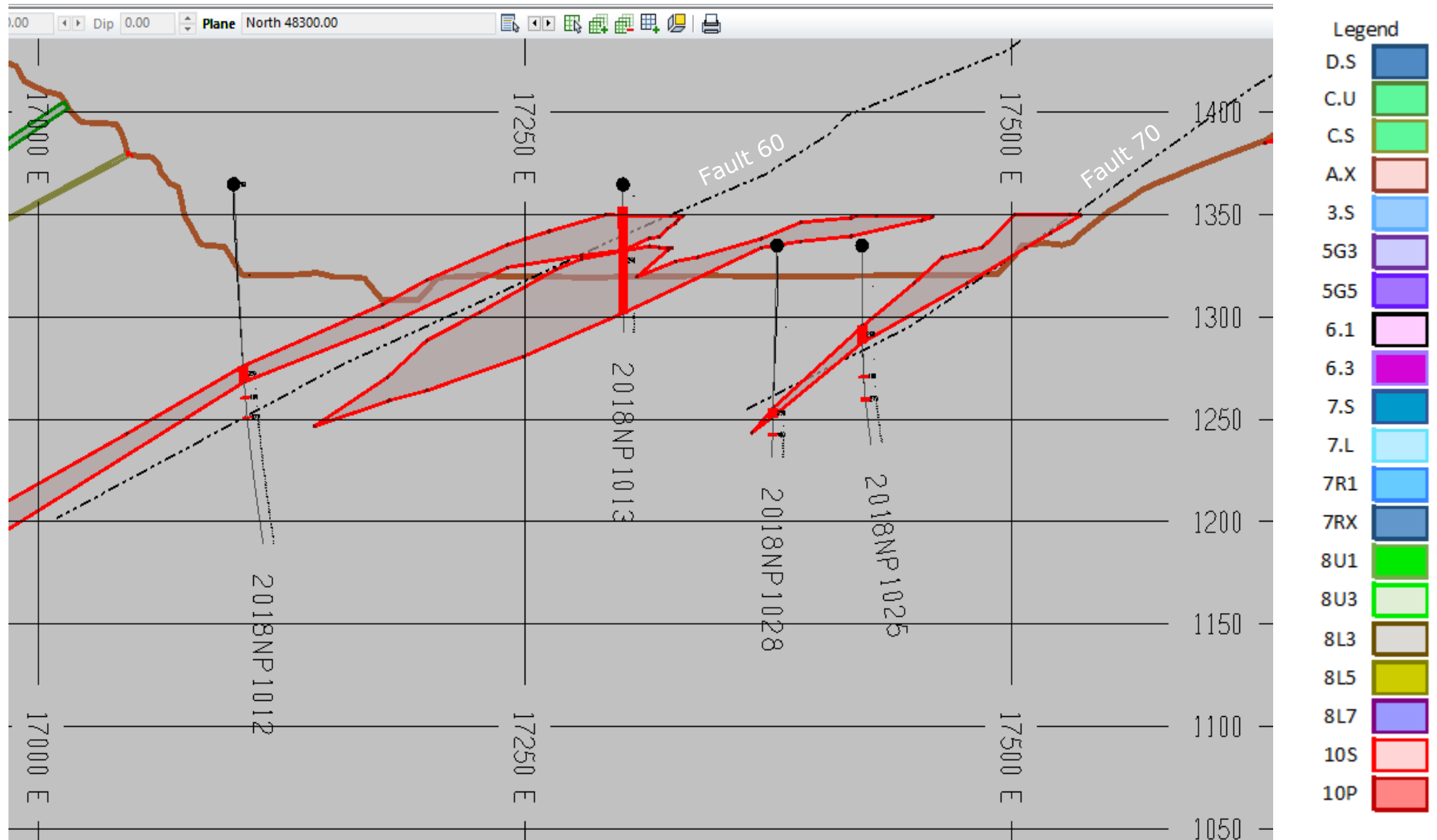
B – B': 2018BR2008 & 2018BR2009 Cross Section – July 16, 2018 surface, updated geology, updated Fault 60



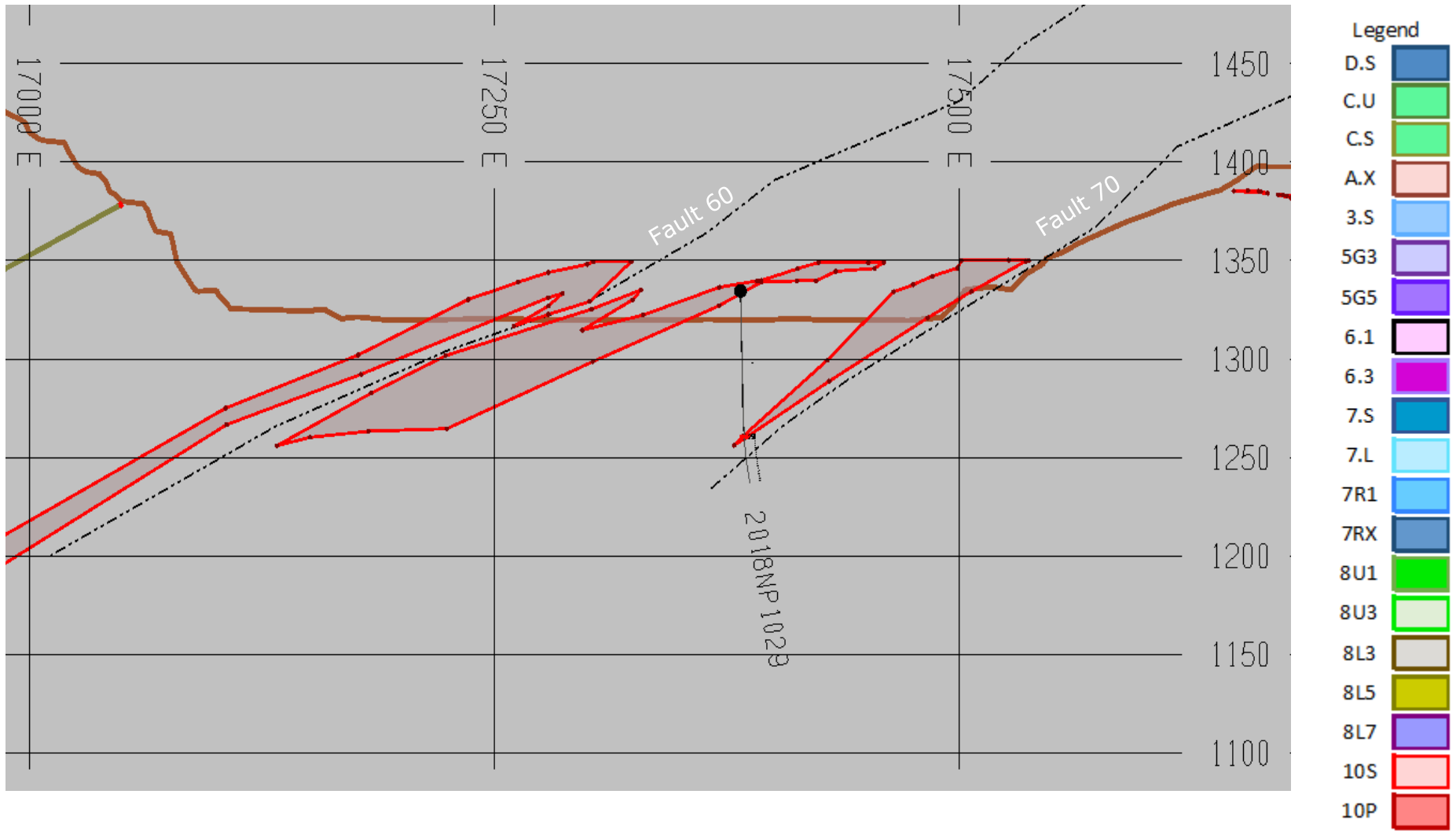
C – C': 2018NP1026 and 2018NP1027 Cross Section – July 16, 2018 surface, updated geology, updated Fault 60 and Fault 70



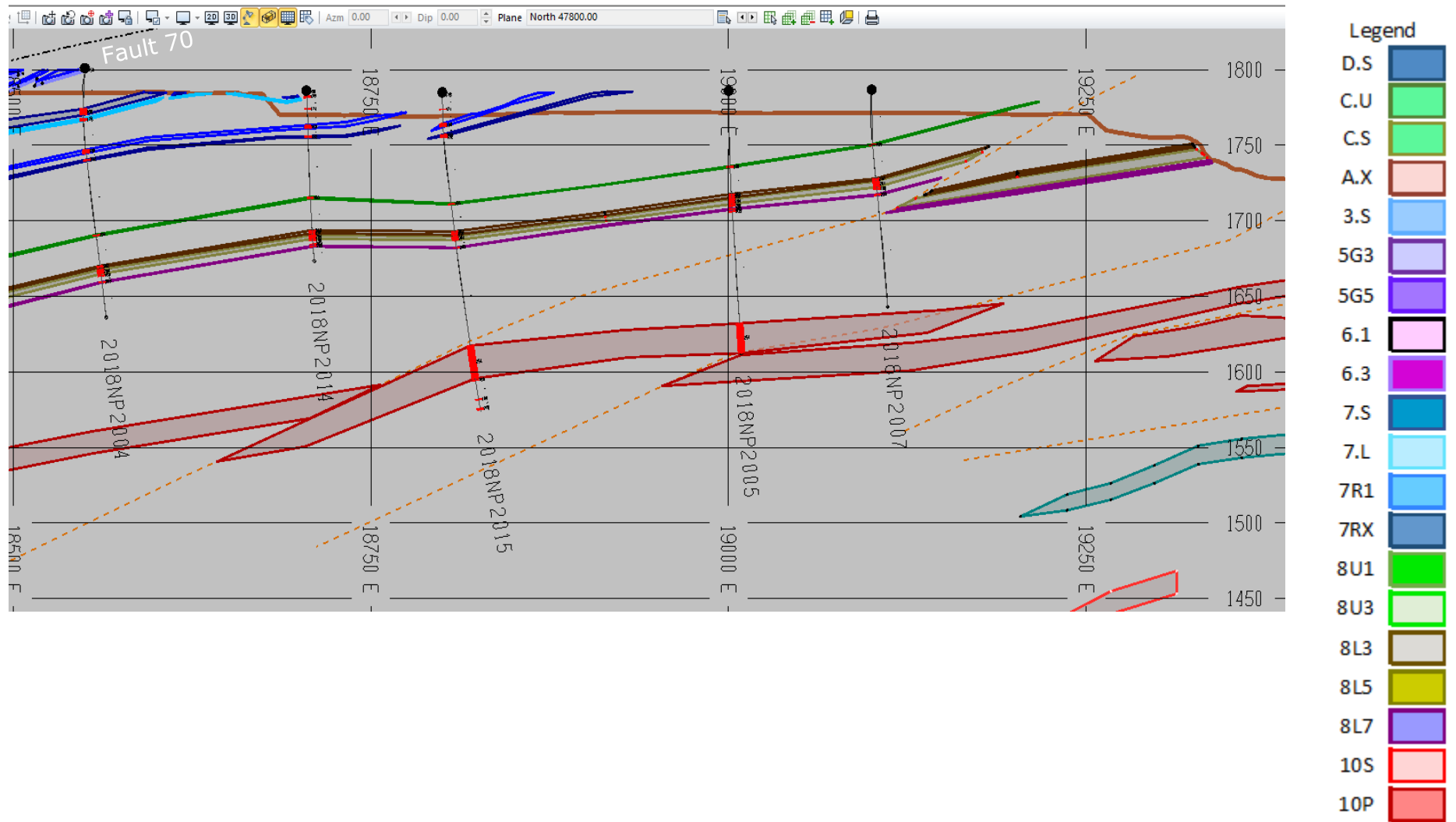
D – D': 2018NP1012, 2018NP1013, 2018NP1028, and 2018NP1025 Cross Section – July 16, 2018 surface, updated geology, updated Fault 60 and Fault 70



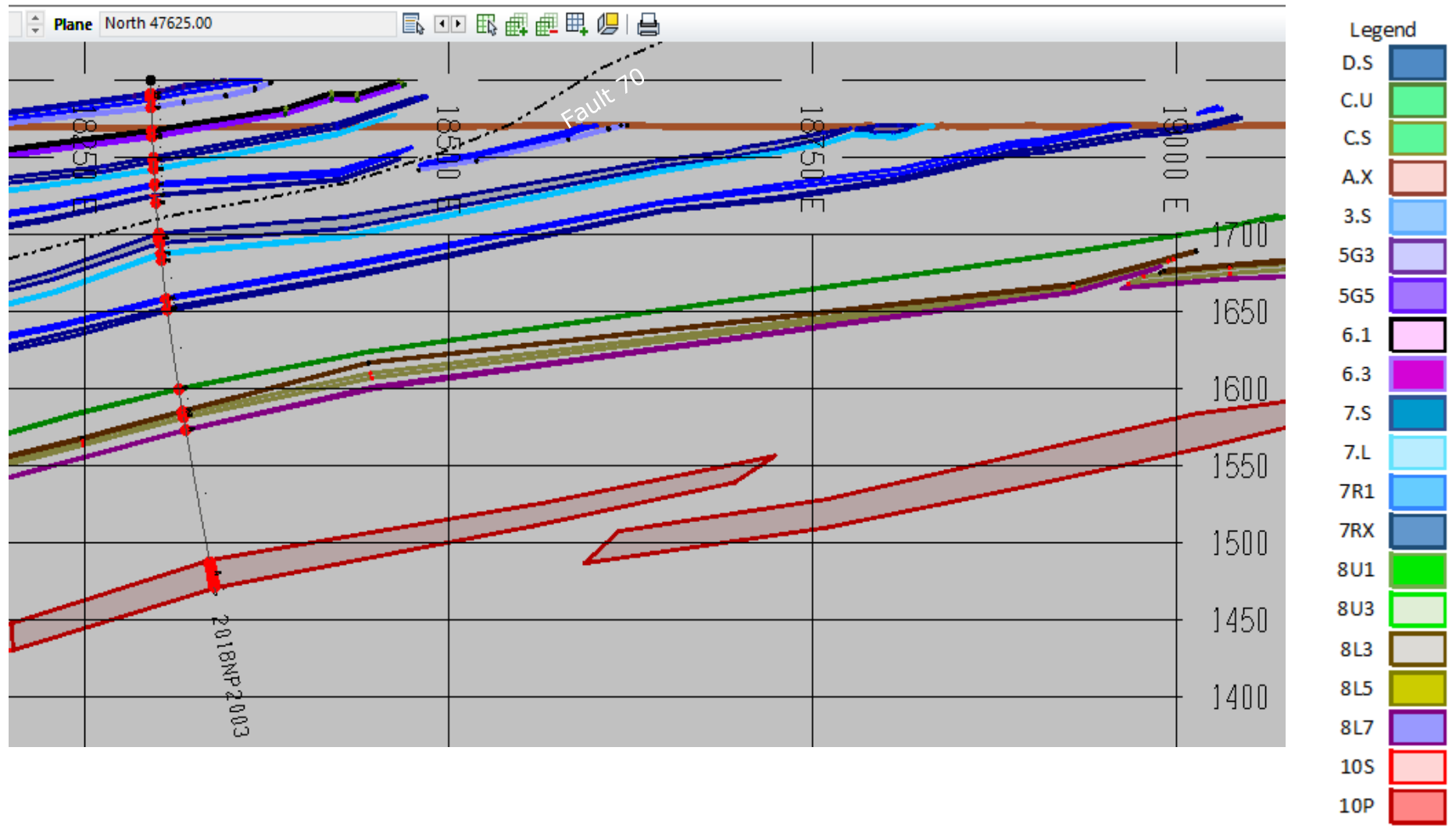
E – E': 2018NP1029 Cross Section – July 16, 2018 surface, updated geology, updated Fault 60 and Fault 70



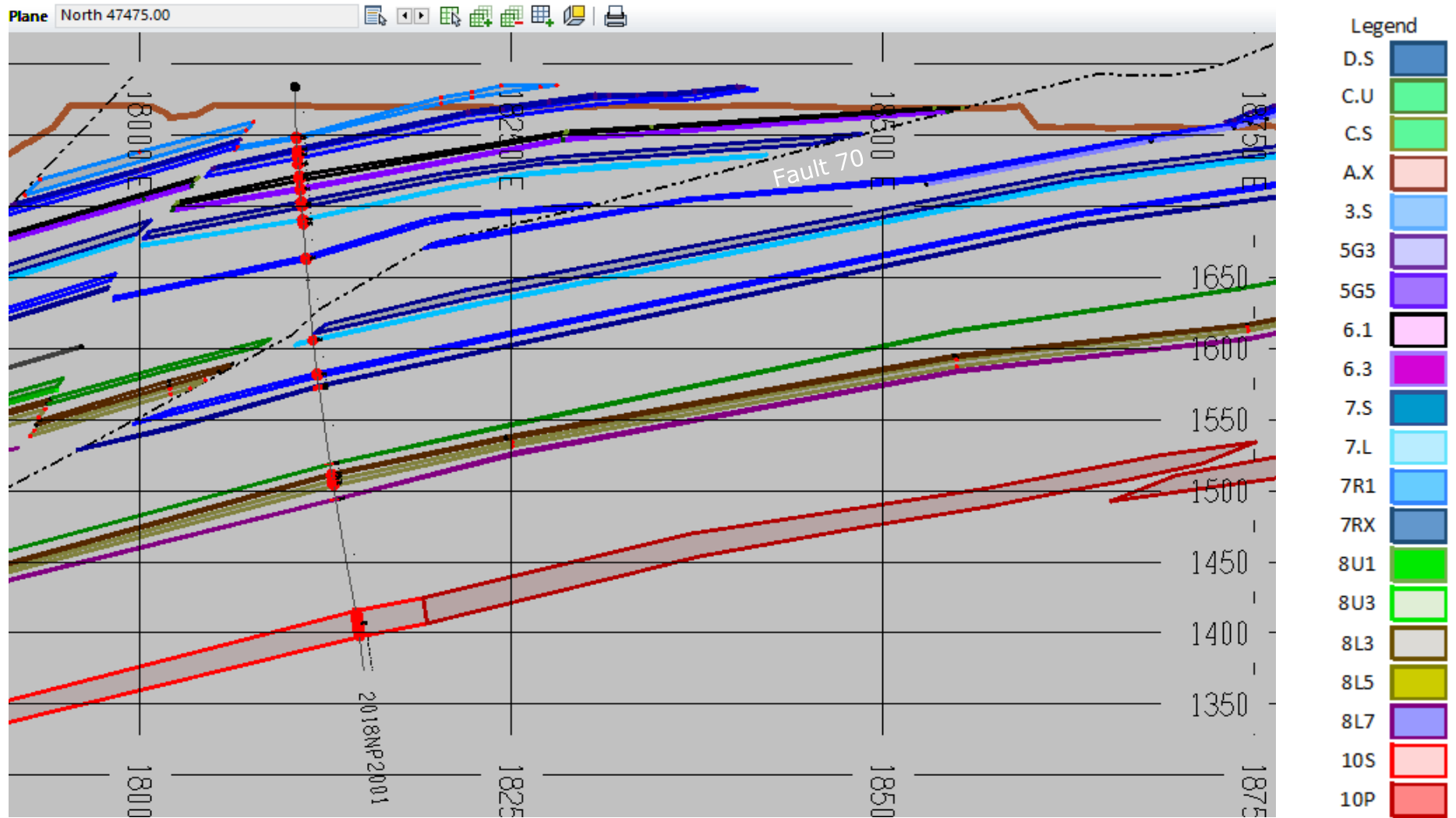
F – F': 2018NP2004, 2018NP2014, 2018NP2015, 2018NP2005, and 2018NP2007 Cross Section – July 16, 2018 surface, updated geology, updated Fault 70



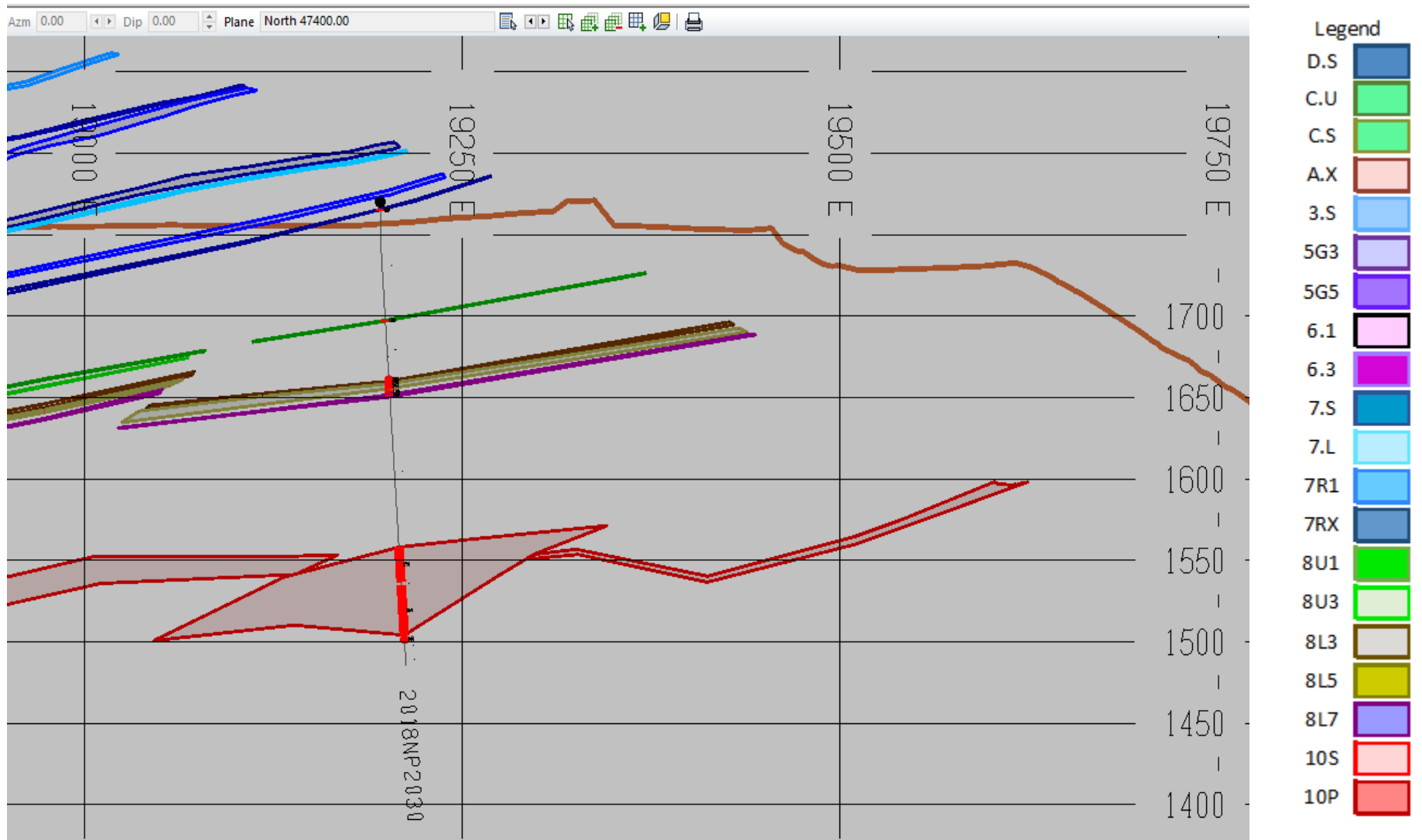
G – G': 2018NP2003 Cross Section – July 16, 2018 surface, updated geology, updated Fault 70



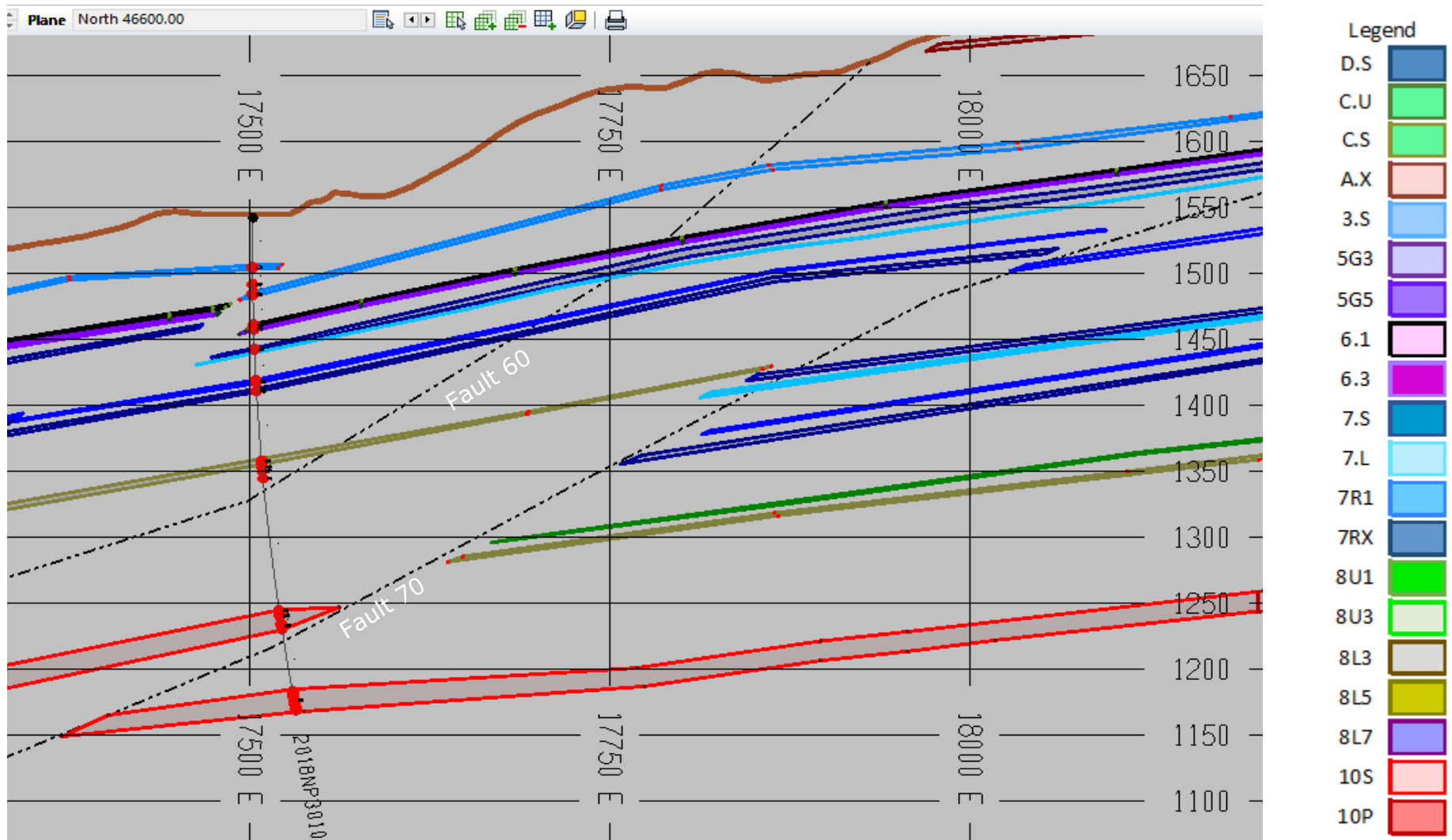
H – H': 2018NP2001 Cross Section – July 16, 2018 surface, updated geology, updated Fault 70



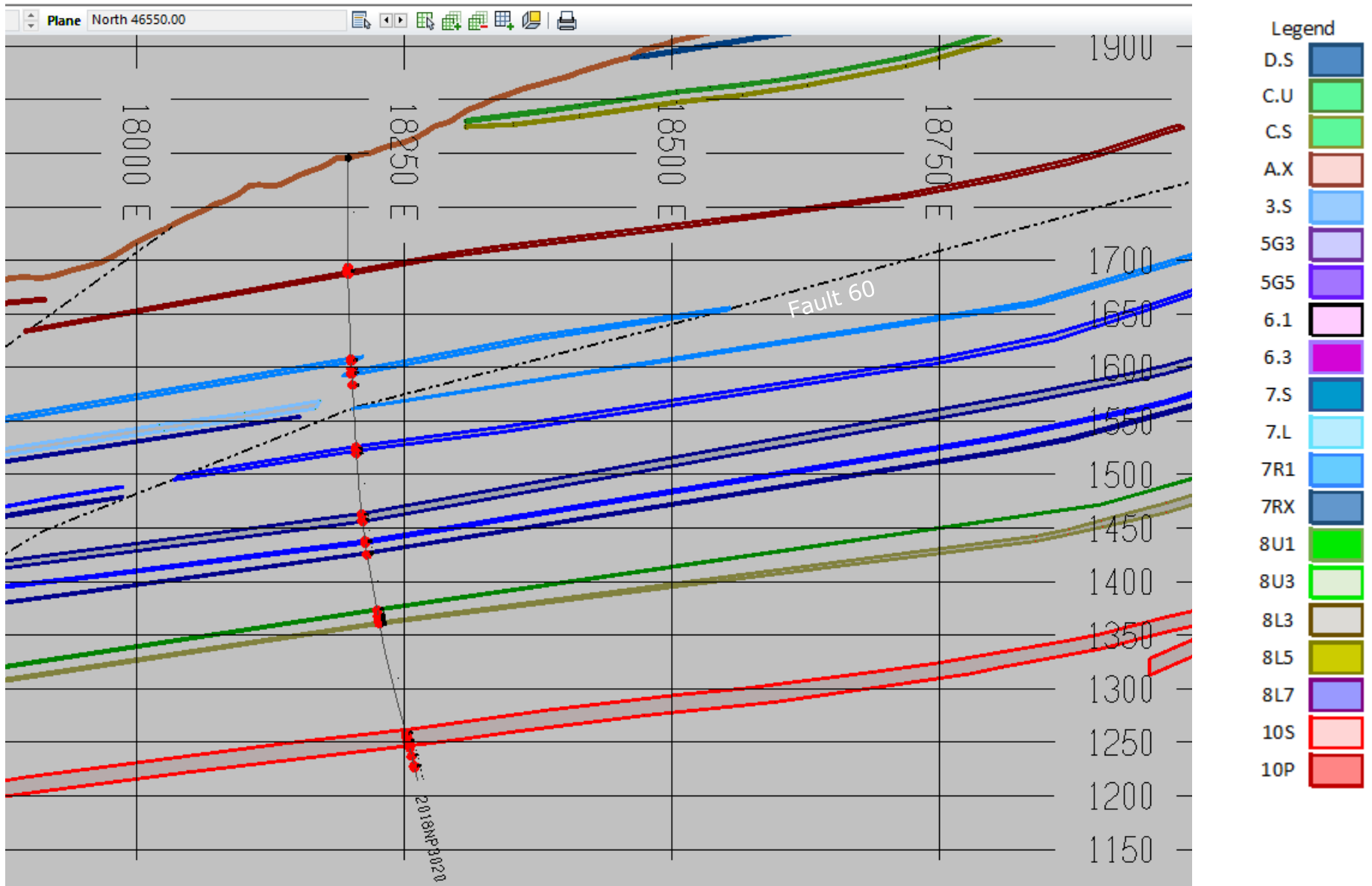
I – I': 2018NP2030 Cross Section – March 3, 2019 surface, updated geology



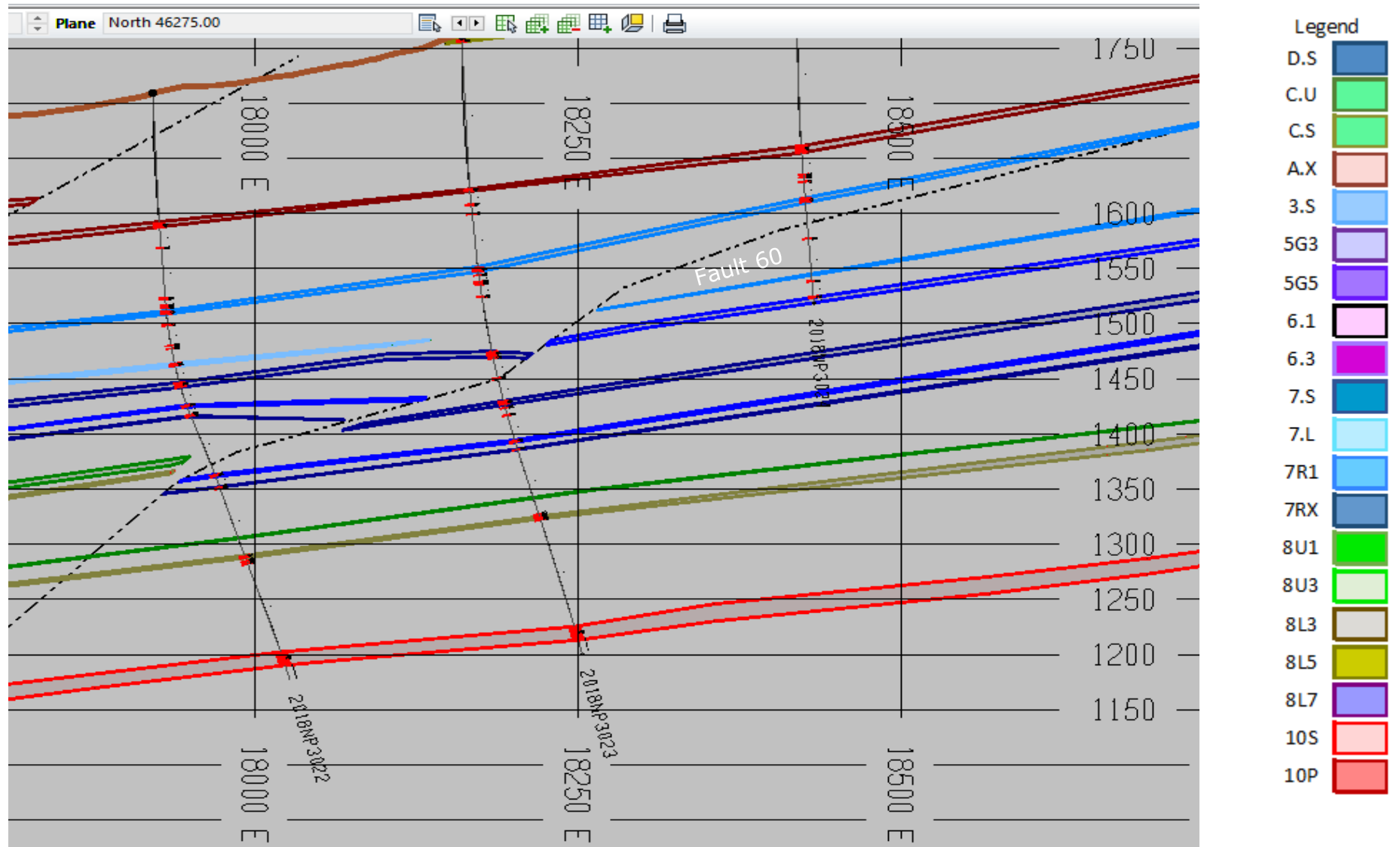
J – J': 2018NP3010 Cross Section – March 3, 2019 surface, updated geology, updated Fault 60 and Fault 70



K – K': 2018NP3020 Cross Section – April 2, 2018 surface, updated geology, updated Fault 60



L – L': 2018NP3022 and 2018NP3023 Cross Section – April 2, 2018 surface, updated geology, updated Fault 60



Teck Coal Core Logging Form



PROJECT Elkview 2018 LDC HOLEID 2018NP2017 LOGGED BY K.Pidwerbeski

competent = retains core shape.

Run Number	Box	DEPTH		Core Recovery		Described Interval (m)	Lithology	Colour	Hardness	Comments
		From	To	(m)	(%)					
1	1	159.00	159.80	0.8	100%	0.80	COAL	BLACK	SOFT	Shiny, friable, very broken
1	1	159.80	160.50	0.75	107%	0.70	COAL	BLACK	MED-SOFT	mostly competent coal, some fractures, shiny
1	2	160.50	161.10	0.3	50%	0.60	COAL	BLACK	SOFT	shiny, very broken, poor recovery
1	2	161.10	161.42	0.38	119%	0.32	COAL	BLACK	HARD	competent, few fractures
1	2	161.42	162.00	0.68	117%	0.58	COAL	BLACK	SOFT	Shiny, friable, very broken
2	1	162.00	162.20	0.2	100%	0.20	COAL	BLACK	SOFT	Shiny, friable, very broken
2	1	162.20	163.10	0.81	90%	0.90	COAL	BLACK	HARD	Competent core, few fractures
2	1	163.10	165.00	0.43	23%	1.90	COAL	BLACK	MED-SOFT	very fractured, larger broken pieces
3	1	165.00	165.90	0.22	24%	0.90	COAL	BLACK	SOFT	very fractured, larger broken pieces
3	1	165.90	167.10	1.20	100%	1.20	COAL	BLACK	HARD	competent, few fractures, top of interval slightly more fractured.
4	1	167.10	168.60	1.40	93%	1.50	COAL	BLACK	HARD	fairly competent, fine
4	2	168.60	169.40	0.80	100%	0.80	COAL	BLACK	HARD	fairly competent, fine
4	2	169.40	170.10	0.75	107%	0.70	COAL	BLACK	SOFT	very broken, fine
5	1	170.10	170.60	0.12	24%	0.50	COAL	BLACK	SOFT	very broken, poor recovery
5	1	170.60	171.10	0.50	100%	0.50	COAL	BLACK	MED-HARD	competent, slightly fractured
5	1	171.10	171.60	0.50	100%	0.50	COAL	BLACK	MED-HARD	broken, larger(1-3in) pieces
5	2	171.60	172.27	0.15	22%	0.67	COAL	BLACK	SOFT	broken, larger(1-3in) pieces, poor recovery
5	2	172.27	173.10	0.83	100%	0.83	COAL	BLACK	MED-HARD	quite competent, broken in spots.
6	1	173.10	174.60	1.60	107%	1.50	COAL	BLACK	SOFT	very broken, fine
6	2	174.60	175.80	0.81	67%	1.20	COAL	BLACK	MED-HARD	large, fractured pieces, slightly more competent than interval above.
7	1	175.80	177.30	1.40	93%	1.50	COAL	BLACK	SOFT	competent, friable, few fractures.
7	2	177.30	178.40	0.82	75%	1.10	COAL	BLACK	SOFT	competent, fine, friable
8	1	178.40	179.90	1.40	93%	1.50	COAL	BLACK	SOFT	fine, friable
8	2	179.90	180.60	0.77	110%	0.70	COAL	BLACK	MED-HARD	very fractured and broken
9	1	180.60	181.90	1.26	97%	1.30	COAL	BLACK	SOFT	soft, but competent, larger broken pieces at top of interval.
9	2	181.90	183.05	1.25	109%	1.15	COAL	BLACK	HARD	competent, some fractures
9	2	183.05	183.10	0.05	100%	0.05	CSHL	DRK GREY	HARD	some red-brown staining along fracture planes. Slickensides.
10	1	183.10	184.20	1.10	100%	1.10	COAL	BLACK	SOFT	competent, few fractures. Fine
10	1	184.20	184.60	0.35	87%	0.40	COAL	BLACK	MED-HARD	very friable
10	2	184.60	184.90	0.40	133%	0.30	COAL	BLACK	MED	friable, very broken, some larger pieces
11	1	184.90	186.40	1.50	100%	1.50	COAL	BLACK	HARD	competent, friable
11	2	186.40	187.10	0.30	43%	0.70	COAL	BLACK	SOFT	very broken, poor recovery
12	1	187.10	188.90	1.60	89%	1.80	COAL	BLACK	SOFT	very broken, poor recovery
13	1	188.90	191.60	1.50	56%	2.70	COAL	BLACK	SOFT	very broken, poor recovery
14	1	191.60	194.10	1.30	52%	2.50	COAL	BLACK	SOFT	fairly competent, carb shale mixed in.

Teck Coal Core Logging Form



PROJECT Elkview 2018 LDC HOLEID 2018NP2018 LOGGED BY K.Pidwerbeski

competent = retains core shape

Run Number	Box	DEPTH		Core Recovery		Described Interval (m)	Lithology	Colour	Hardness	Comments
		From	To	(m)	(%)					
1	1	200.20	201.30	1.10	100%	1.10	COAL	BLACK	SOFT	very broken, friable, shiny, some clay-rich gouge chunks.
1	1	201.30	201.70	0.40	100%	0.40	COAL	BLACK	SOFT	more competent, friable, some fractures
1	2	201.70	203.00	0.50	38%	1.30	COAL	BLACK	SOFT	very broken, friable, poor recovery
		203.00	204.50	0.00	0%					NO SAMPLE
2	1	204.50	205.60	1.10	100%	1.10	COAL	BLACK	SOFT	Very broken, friable
2	1	205.60	206.00	0.40	100%	0.40	COAL	BLACK	SOFT	Coal with rock mixed in, very angular.
3	1	206.00	206.40	0.40	100%	0.40	MST/SLT	BROWN	HARD	Very broken, angular
3	1	206.40	207.00	1.25	208%	0.60	COAL	BLACK	SOFT	Very broken
3	2	207.00	207.50	0.25	50%	0.50	COAL	BLACK	SOFT	Very broken
		207.50	209.50	0.00	0%					NO SAMPLE
4	1+2	209.50	210.00	2.30	460%	0.50	COAL	BLACK	SOFT	Very broken.
5	1	210.00	210.50	0.50	100%	0.50	COAL	BLACK	SOFT	Very broken.
5	1	210.50	210.60	0.10	100%	0.10	CLAY	LT. BROWN	SOFT	clay band with SLT fragments.
5	1	210.60	211.50	0.90	100%	0.90	COAL	BLACK	SOFT	Quite competent, few fractures. Some clay rich sections and a brownish dirty layer of coal
5	2	211.50	211.80	0.10	33%	0.30	COAL	BLACK	SOFT	very broken, dull
6	1	211.80	212.60	0.80	100%	0.80	COAL	BLACK	SOFT	competent, flaky, few fractures
6	1	212.60	212.80	0.30	150%	0.20	COAL	BLACK	SOFT	very broken
6	2	212.80	212.90	0.30	300%	0.10	COAL	BLACK	SOFT	very broken
6	2	212.90	213.80	0.90	100%	0.90	COAL	BLACK	SOFT	competent, quite a few fractures, shiny
7	1	213.80	215.30	1.15	77%	1.50	COAL	BLACK	SOFT	competent, quite a few fractures, shiny
7	2	215.30	216.80	0.80	53%	1.50	COAL	BLACK	SOFT	competent, quite a few fractures, shiny
8	1	216.80	217.10	0.45	150%	0.30	COAL	BLACK	SOFT	very broken, increasing clay content moving down the interval.
8	1	217.10	218.00	0.91	101%	0.90	COAL	BLACK	SOFT	high clay content
9	1	218.00	218.65	0.65	100%	0.65	COAL	BLACK	SOFT	very broken
9	1	218.65	218.75	0.10	100%	0.10	CLAY	LT. BROWN	SOFT	clay band
9	1	218.75	219.50	0.75	100%	0.75	COAL	BLACK	SOFT	competent, some clay mixed in.
9	2	219.50	220.00	0.50	100%	0.50	COAL	BLACK	SOFT	competent, some fractures, very broken at bottom.
10	1	220.00	220.10	0.10	100%	0.10	COAL	BLACK	SOFT	very broken. Clay rich
10	1	220.10	220.60	0.50	100%	0.50	CSHL	DRK GREY	HARD	very fractured, some clay mixed in.
10	1	220.60	221.60	1.00	100%	1.00	MST/SLT	LT. GREY	HARD	very fractured, angular, slickensides

Teck Coal Core Logging Form



PROJECT Elkview 2018 LDC HOLEID 2018NP2019 LOGGED BY K.Pidwerbeski

competent = retains core shape.

Run Number	Box	DEPTH		Core Recovery		Described Interval (m)	Lithology	Colour	Hardness	Comments
		From	To	(m)	(%)					
1	-									No Run # 1 box, starts at Run 2
2	1	150.80	152.60	1.20	67%	1.80	COAL	BLACK	SOFT	competent, shiny, few fractures, flaky
3	1	152.60	152.70	0.10	100%	0.10	COAL	BLACK	SOFT	very broken, just chips
3	1	152.70	153.20	0.70	140%	0.50	MST/SLT	GREY	HARD	very broken, angular, some slickensides
3	2	153.20	153.70	0.50	100%	0.50	MST/SLT	GREY	HARD	very broken, angular, some slickensides
3	2	153.70	154.00	0.30	100%	0.30	CSHL	DRK GREY/BLACK	HARD	very broken, angular, some coaly pieces
4	-									No Run #4 box
5	1 & 2	154.10	155.50	1.86	133%	1.40	COAL	BLACK	SOFT	very broken (chips) mixed with CSHL, no determinable depth.
6	1	155.50	156.45	0.85	89%	0.95	COAL	BLACK	SOFT	Some clay and CSHL mixed (dirty), broken and flaky
6	1	156.45	156.85	0.40	100%	0.40	CSHL	DRK GREY/BLACK	HARD	Fractured, angular, some slickensides
6	2	156.85	157.30	0.45	100%	0.45	CSHL	DRK GREY/BLACK	HARD	Fractured, angular, some slickensides
7	1	157.30	157.70	0.40	100%	0.40	CSHL	DRK GREY/BLACK	HARD	Fractured, angular, some slickensides
7	1	157.70	158.22	0.52	100%	0.52	COAL & CSHL	DRK GREY/BLACK	MED-HARD	Fault zone, coal and CSHL mixed together, broken, "ground up", mostly Coal.
7	1	158.22	158.32	0.10	100%	0.10	CSHL	DRK GREY/BLACK	HARD	CSHL Band, broken, slickensides
7	1	158.32	158.60	0.25	89%	0.28	COAL & CSHL	DRK GREY/BLACK/Brown	MED-HARD	Fault zone, coal and CSHL mixed together, broken, "ground up", mostly Coal. Clayey (brown), mostly CSHL
7	2	158.60	158.70	0.10	100%	0.10	CSHL	DRK GREY/BLACK	HARD	CSHL Band, broken, slickensides
7	2	158.70	159.33	0.40	63%	0.63	COAL & CSHL	DRK GREY/BLACK	MED-HARD	Fault zone, coal and CSHL mixed together, broken, "ground up", mostly Coal.
7	2	159.33	159.60	0.27	100%	0.27	CSHL	DRK GREY/BLACK	HARD	fractured.
8	1	159.60	159.75	0.15	100%	0.15	CSHL	DRK GREY/BLACK	HARD	fractured.
8	1	159.75	161.02	1.14	90%	1.27	COAL	BLACK	SOFT	competent, shiny, few fractures,
8	2	161.02	162.20	1.18	100%	1.18	COAL	BLACK	SOFT	competent, shiny, few fractures
9	1	162.20	163.70	1.00	67%	1.50	COAL	BLACK	SOFT	very broken, fine, dirty, Some CSHL mixed in.
9	2	163.70	165.20	0.93	62%	1.50	COAL	BLACK	SOFT	competent, but flaky and fractured. Interbedded with CSHL
10	1	165.20	166.20	0.95	95%	1.00	COAL	BLACK	SOFT	competent, fractures, some CSHL
10	2	166.20	167.00	0.80	100%	0.80	COAL	BLACK	SOFT	competent, fractures, some CSHL, some thin dirty bands.
11	1	167.00	168.30	1.25	96%	1.30	COAL	BLACK	SOFT	competent, few fractures, very fine at top
11	2	168.30	169.50	1.18	98%	1.20	COAL	BLACK	SOFT	very fractured.
12	1	169.50	170.50	1.20	120%	1.00	COAL	BLACK	SOFT	very fractured.
12	2	170.50	171.50	1.15	115%	1.00	COAL	BLACK	SOFT	very fractured.
13	1	171.50	172.80	1.36	105%	1.30	COAL	BLACK	SOFT	competent, flaky, few fractures
13	2	172.80	174.10	1.05	81%	1.30	COAL	BLACK	SOFT	competent, very fractured, friable, slickensides
13	2	174.10	174.33	0.23	100%	0.23	COAL & CSHL	DRK GREY/BLACK	SOFT	very broken coal with CSHL pieces mixed in.
14	1	174.33	175.33	1.00	100%	1.00	COAL	BLACK	SOFT	competent with dirty brown bands and CSHL fragments
14	2	175.33	175.50	0.17	100%	0.17	MST	GREY	Hard	sharp contact with coal above.