

**BC Geological Survey  
Coal Assessment Report  
1047**




**ASSESSMENT REPORT TITLE PAGE AND SUMMARY**

**TITLE OF REPORT: Assessment Report for The Crown Mountain Area 2018**

**TOTAL COST: \$ 6,095,211**

**AUTHOR(S): Art Palm**

**SIGNATURE(S):** 

**NOTICE OF WORK PERMIT NUMBER(S)/DATE(S):** 13-1630209-0528 18-1630209-0823  
14-1630209-1017

**YEAR OF WORK: 2018**

**PROPERTY NAME: Crown Mountain**

**CLAIM NAME(S) (on which work was done):**

**Coal Tenure Numbers :** 418150 418151 418152 418153 418154 418966

**COMMODITIES SOUGHT: Coal**

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

**MINING DIVISION: Kootenay Land District, Fort Steele Mining Division**

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

**LATITUDE: 49.815°**

**LONGITUDE: 117.723 (at centre of work)**

**UTM Zone:11 EASTING:663221 NORTHING:5521546**

**OWNER(S): NWP Coal Canada Ltd**

**MAILING ADDRESS:**

Suite 800, 1199 West Hastings Street, Vancouver, V6E 3T5

**OPERATOR(S) [who paid for the work]: NWP Coal Canada Ltd**

**MAILING ADDRESS: Suite 800, 1199 West Hastings Street, Vancouver, V6E 3T5**

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

Coking Coal, Drilling, Pre-Feasibility Study, environmental, quality

**REFERENCES TO PREVIOUS ASSESSMENT WORK AND ASSESSMENT REPORT NUMBERS:**

Assessment Report for the Crown Mountain Area 2012, March 21 2013

Assessment Report for the Crown Mountain Area 2013, March 21 2014

Assessment Report for the Crown Mountain Area 2014, January 21, 2015

Assessment Report for the Crown Mountain Area 2015, February 17, 2016

Assessment Report for the Crown Mountain Area 2016, February 1, 2017

Assessment Report for the Crown Mountain Area 2017, February 12, 2018

TYPE OF WORK IN THIS REPORT	EXTENT OF WORK (in metric units)	ON WHICH CLAIMS	PROJECT COSTS APPORTIONED (incl. support)
GEOLOGICAL (scale, area)			
Ground, mapping			
Photo interpretation			
GEOPHYSICAL (line-kilometres)			
Ground			
Magnetic			
Electromagnetic			
Induced Polarization			
Radiometric			
Seismic			
Other			
Airborne			
GEOCHEMICAL (number of samples analysed for ...)			
Soil			
Silt			
Rock			
Other			
DRILLING (total metres, number of holes, size, storage location)			
Core			
Non-core			
RELATED TECHNICAL			
Sampling / Assaying			
Petrographic			
Mineralographic			
Metallurgic			
PROSPECTING (scale/area)			
PREPATORY / PHYSICAL			
Line/grid (km)			
Topo/Photogrammetric (scale, area)			
Legal Surveys (scale, area)			
Road, local access (km)/trail			
Trench (number/metres)			
Underground development (metres)			
Other			
<b>TOTAL COST</b>			<b>See statement of costs</b>

2018 Assessment Report for the Crown Mountain Area

Kootenay Land District, Fort Steele Mining Division

NTS Map Sheets: 082G15, 082G10

Coal Tenure Numbers: 418150, 418151, 418152, 418153, 418154, 418966

British Columbia Map Reference: 082G077, 082G087

Latitude: 49.815 Longitude: 114.723

NOW 1630209 0528: Application Date 18 Jan 2013, Approval Date 29 May 2013 with subsequent amendments

Coal Licences Owned by: NWP Coal Canada Ltd  
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Exploration Program Operated by: NWP Coal Canada Ltd  
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Date Submitted: February 16, 2019

**TABLE OF CONTENTS**

Introduction	1
2018 Project Objectives	1
Property Description and Access	1
Property History	4
Property Location and Coal Tenure	5
2018 Summary of Work	6
Costs Incurred	9
Drilling	9
Geophysical Logging	10
Coal Sampling	10
Coal Analysis	10
Geological Mapping	10
Geological Setting	11
Regional Stratigraphy	11
Regional Structure	16
Property Stratigraphy	17
Property Structure	17
Coal Geology	21
Deposit Type	21
Coal Occurrence and Mineralization	22
Conclusions	24
Author's Qualifications	25
References	26

**LIST OF TABLES**

Table 1: Coal License Tenure Data	6
Table 2: Drill Hole Data 1969-2018	7
Table 3: Costs Incurred:	9
Table 4: Summary of Major Seam Thickness	23
Table 5: Summary of Rider Seam Thickness	24

**LIST OF FIGURES**

Figure 1: Property Location and Coal Tenure Map	3
Figure 2: Drill Hole Locations	8
Figure 3: Stratigraphic Column	12
Figure 4: Regional Geology	13
Figure 5: North and South Block Geology	19
Figure 6: Southern Extension Geology	20

## INTRODUCTION

A comprehensive exploration program was conducted at Crown Mountain from June-October 2018 consisting of large diameter core drilling for bulk sampling and small diameter core drilling for geotechnical/geochemical evaluation. This was the first coal exploration on site since 2013. Other work on the project consisted of environmental data collection associated, in part, with previous exploration (ongoing groundwater sampling, etc). In addition, work continued on the EA Application.

### 2018 Project Objectives and Components

The 2018 program had the following objectives:

- Drill 16 additional 6-inch core holes to collect adequate bulk sample.
- Drill six 3-inch geotechnical core holes.

The 6-inch holes were all drilled within the known reserve area. The 3-inch holes were located to coincide with future pit walls.

### Property Description and Access

The property is located in a mountainous area at relatively high elevations about 13 km east of Sparwood, BC and about 150 km line-of-sight south southwest from Calgary, Alberta. The North Block and South Block of the property are located about 35 km by road from Sparwood. Similarly, the South Extension is a road distance of 20 km from the same location. The location of the property is shown on Figure 1. The property is divided up into three areas: the North Block, South Block and Southern Extension Block.

Access to the North and South Blocks is via British Columbia Highway 43, and the Line Creek Road, both of which are paved, and via a series of unpaved secondary roads and trails. Access to the Southern Extension Block is via Highway 3 and the gravel Alexander Creek Road. On the property, drill sites and other exploration locations require the use of suitable 4x4 vehicles for surface access due to the nature of the roads.

The main line of the Canadian Pacific Railroad lies adjacent to Highway 3 from Alberta to Sparwood and then trends south to Fernie before continuing on to the ports on the west coast. A spur from this line extends to the north following the Elk Valley to service the Line Creek and other mines of that area.

The relief on the property is generally in the range from 2,200 m to about 1,850 m. However in Alexander Creek which drains the property it is typically in the range from 1,400 m to 1,500 m. On the top of Gaff Peak, located to the west of the licenses the elevation is as much as 2,479 m. For most of the property, topography consists of rugged ridges with moderate to steep-sloping sides at higher elevations and gentle slopes at lower elevations. The setting is truly mountainous, underlain mostly by structurally deformed sandstone, siltstone, mudstone and coal.

Alexander Creek drains the property and passes through the center of the southern part of the property, trending generally from north to south. Other important rivers in the area include the Elk River, the valley

of which includes Highway 3 to the west of the property and the Crowsnest River to the south; Alexander Creek flows into the Crowsnest River. Water should be available from any of these sources or from several streams that are tributaries to these rivers. Power lines follow the route of Highway 3 and service the various communities in the area.

Records from the weather recording station indicate total average yearly precipitation is 105 cm with winter snowfall averaging 368 cm. The highest and lowest temperatures recorded at Fernie were 36°C and minus 40°C, respectively. Despite the temperature range, the open pit mines in the surrounding region operate through all seasons of the year.

During exploration in this general area snow depths in the higher elevations have been reported to exceed 4 m in places. Snow can cover the ground from late September to the end of May at higher elevations. The property, especially in the east, is vegetated by native vegetation that is typical of the Subalpine Forest zone of this area.

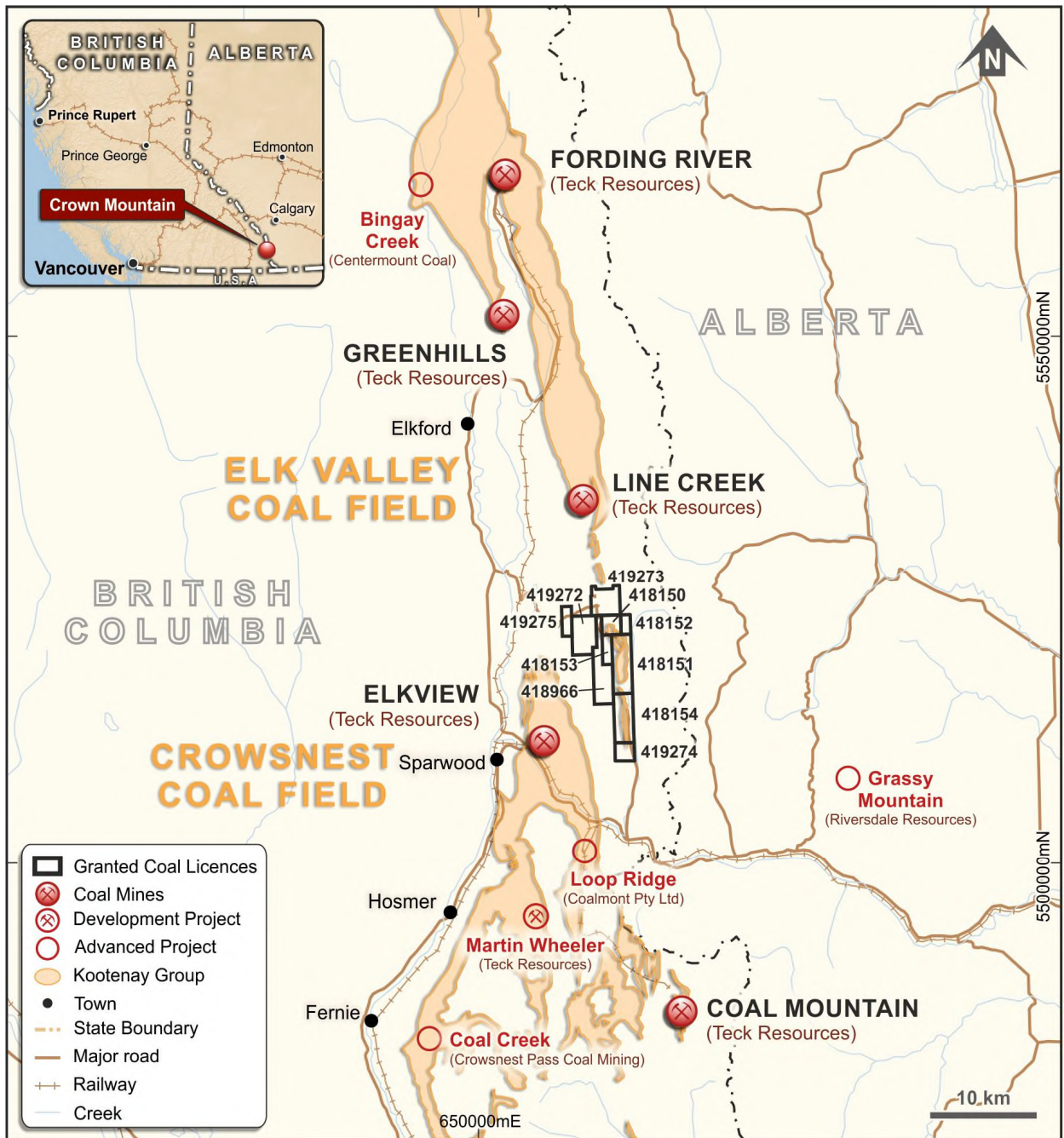


Figure 1: Property Location and Coal Tenure Map



## Property History

The history of exploration and development of this coal property extends back to coal development activities in southern Alberta and Southeast British Columbia of the late nineteenth century. At that time, the Crow's Nest Pass Coal Company was established in 1897 to develop the coal resources of the British Columbia side of the Crowsnest Pass. Several subsidiaries were created to operate ancillary activities. They included the Morrissey, Fernie and Michel Railway, and the Crows Nest Pass Electric Light and Power Company. Various mines were opened at Coal Creek, Natal, Michel and Morrissey. After the Second World War demand for coal dropped and the company diversified through a subsidiary, Crow's Nest Pass Oil and Gas Company. As the 1950s and 1960s progressed the mines were closed and the company moved into the forest products area.

In 1965 the name of the company was changed to Crows Nest Industries Ltd. In 1968 the company's coal resources were sold to Kaiser Steel and the assets of Crows Nest Pass Electric Light and Power were sold to British Columbia Hydro. However there are existing historic references to coal drilling exploration being completed by Crows Nest Industries Ltd. in the Crown Mountain area in 1969 and exploration data from that program has been used in the present report. Thus either the date of the sale to Kaiser is incorrect or the Crown Mountain asset was never sold to Kaiser Steel. Either way, the Crown Mountain Coal Property was owned by Crows Nest Industries in 1976.

A change in the demand for coal resulted in the company reacquiring some coal lands from Kaiser in 1976. In 1977 Shell Canada purchased the company and renamed it Crows Nest Resources Limited. That company was sold in 1991 and ownership and responsibility for at least some of its coal assets were transferred with the sale.

Crows Nest Resources Limited explored the property for three field seasons from 1979 through 1981. In 1979 the property was mapped and drilled, the latter including both core and cuttings sampling of different holes. The program of 1980 was a relatively minor one only including geologic mapping. The program of 1981 consisted of further mapping, hand trenching of seam exposures and the construction of a mechanically excavated pit and the collection of a bulk sample. These activities appear to be the last exploration works performed on this property during the Crows Nest Resources/Shell Canada tenure. Eventually the property was relinquished and later acquired by Morris Geological. It appears that no further exploration work was conducted on the property until it was acquired by Jameson.

Jameson Resources Limited through its subsidiary NWP Coal undertook a major exploration program which included field mapping, trenching and drilling in 2012. All exploration was supervised by Norwest Corporation. Field mapping was completed to verify the geological observations reported from the 1979 and 1981 programs. A total of 12 trenches, in which the coal seams were well exposed, were constructed using a back hoe. Some, but not all, of these were permitted as "Deep Trenches" with a depth of 3 m. Roadside-cut shallow trenches were usually less than 1.2 m deep. When a trench intersected coal it was sampled as channels and this material was also sent to the laboratory for analysis. The drilling and coal

sampling program included 41 holes for a total penetrated depth of 5,768 m. A total of nine angle holes and 31 vertical reverse circulation holes were drilled. All of the holes in the program were geophysically logged except where poor hole conditions prevented it.

In 2013 Jameson Resources once again conducted a field exploration program. This program consisted of reverse circulation (6 holes – 796 meters) and large diameter core drilling (7 holes – 853 meters), followed by a comprehensive lab analysis program. Results were reported in the 2013 Coal Assessment Report filed with the province.

There was no drilling/trenching or field geological work performed in 2014, 2015, 2016 or 2017 on the project.

The 2018 program totaled 4,674 meters of drilling, consisting of 16 LDC holes (and their pilot holes), and 6 geotechnical holes.

### **Property Location and Coal Tenure**

The Crown Mountain Coal Property is located in the Elk Valley Coalfield in the East Kootenay region of southeast British Columbia. It is approximately 150 km line-of-sight and 300 km by road southwest of Calgary, Alberta. The center of the property is about 30 km northeast of Sparwood, British Columbia, at Latitude 1140 43.6'W, Longitude 490 48.4'N, as shown on Figure 1. The location and distribution of the coal licenses is shown on Figure 1. According to the tenure records of the British Columbia Provincial Government, title to the coal licenses is held by NWP Coal Canada Ltd. (NWP Coal) of Vancouver, British Columbia. NWP Coal holds a 100% interest in ten adjacent coal licenses that cover a combined area of 5,630 ha. Table 1 is sourced from government records (MT online) concerning these titles.

**TABLE 1**  
**JAMESON RESOURCES LIMITED**  
**CROWN MOUNTAIN COAL PROPERTY**  
**COAL LICENSE TENURE DATA**

Tenure Number	Map Reference	Good To Date	Status	Mining District	Area (ha)
418150	082G087	May 2, 2019	Good Standing	Fort Steele	334
418151	082G077	May 2, 2019	Good Standing	Fort Steele	1001
418152	082G087	May 2, 2019	Good Standing	Fort Steele	167
418153	082G087	May 2, 2019	Good Standing	Fort Steele	251
418154	082G087	May 2, 2019	Good Standing	Fort Steele	835
418966	082G087	Dec 13, 2019	Good Standing	Fort Steele	974
419272	082G087	Dec 20, 2019	Good Standing	Fort Steele	779
419273	082G087	Dec 20, 2019	Good Standing	Fort Steele	705
419274	082G077	Dec 20, 2019	Good Standing	Fort Steele	334
419275	082G086	Dec 20, 2019	Good Standing	Fort Steele	250

Jameson, acting through NWP Coal, originally acquired the coal license rights to the Crown Mountain Coal Property from Robert J. Morris. The completion of that transaction led Jameson to acquire a 90% interest in the property, the remaining 10% being retained by Robert J. Morris as an undivided interest.

Please refer to Figure 1 (page 3) for detail on the license locations.

## 2018 Summary of Work

Table 2 which follows lists all coal exploration holes drilled to-date on Crown Mountain including coordinates and elevations as located by a professional surveyor. To summarize:

- Coal quality: a total of three different drilling rigs drilled a total of 26 holes totaling 3576 meters.
  - This total includes pilot holes and terminated/lost holes.
  - There were 16 LDC (6-inch) core holes completed.
- Geotechnical: a total of two drill rigs drilled 7 holes totaling 1098 meters in depth.
  - The total includes one lost hole.
  - There were 6 SDC (3-inch) holes completed)

The table and figure below provide additional details and locations.

Hole Name	Easting (m)	Northing (m)	EL	Datum	Projection (Zone)	Dip	Asm	Lease	Prospect	Hole Type	Core Diameter	Geophysical Tools Run	Total Depth (m)	Year Drilled
CM18-03-GC	662936	5521991	2201	NAD83 CSRS	UTM 11	Vertical	-	418150	North	SDC	75mm	CDRGV	191	2018
CM18-04-LDC1	662959	5521999	2142	NAD83 CSRS	UTM 11	Vertical	-	418150	North	LDC	150mm	CDRGV	189	2018
CM18-04-LDC2	662561	5521797	2142	NAD83 CSRS	UTM 11	Vertical	-	418150	North	LDC	150mm	CDRGV	188	2018
CM18-04-P1	662557	5521802	2142	NAD83 CSRS	UTM 11	Vertical	-	418150	North	RC	n/a	CDRGV	189	2018
CM18-05-GC	662537	5521550	2073	NAD83 CSRS	UTM 11	Vertical	-	418153	North	SDC	75mm	DGN	138	2018
CM18-05-GC2	662531	5521550	2073	NAD83 CSRS	UTM 11	Vertical	-	418153	North	SDC	75mm	CDRGV	150	2018
CM18-06-LDC1	662644	5521395	2030	NAD83 CSRS	UTM 11	Vertical	-	418153	North	LDC	150mm	CDRGV	102	2018
CM18-06-LDC2	662651	5521393	2030	NAD83 CSRS	UTM 11	Vertical	-	418153	North	LDC	150mm	CDRGV	100	2018
CM18-06-P1	662636	5521399	2030	NAD83 CSRS	UTM 11	Vertical	-	418153	North	RC	n/a	CDRGV	111	2018
CM18-07-LDC1	662858	5521644	2172	NAD83 CSRS	UTM 11	Vertical	-	418150	North	LDC	150mm	CDRGV	77	2018
CM18-10-GC	663348	5521476	2121	NAD83 CSRS	UTM 11	Vertical	-	418151	North	SDC	75mm	CDRGV	126	2018
CM18-14-LDC1	663640	5521159	2142	NAD83 CSRS	UTM 11	Vertical	-	418151	East	LDC	150mm	CDRGV	143	2018
CM18-14-LDC2	663642	5521154	2142	NAD83 CSRS	UTM 11	Vertical	-	418151	East	LDC	150mm	CDRGV	143	2018
CM18-14-P1	663639	5521163	2142	NAD83 CSRS	UTM 11	Vertical	-	418151	East	RC	n/a	CDRGV	153	2018
CM18-14-P2	663643	5521149	2142	NAD83 CSRS	UTM 11	Vertical	-	418151	East	RC	n/a	CDRGV	153	2018
CM-18-16-GC	663650	5519986	2108	NAD83 CSRS	UTM 11	Vertical	-	418151	South	SDC	75mm	CDRGV	167	2018
CM-18-16-LDC1	663652	5519977	2108	NAD83 CSRS	UTM 11	Vertical	-	418151	South	LDC	150mm	CDRGV	173	2018
CM-18-16-LDC2	663653	5519970	2109	NAD83 CSRS	UTM 11	Vertical	-	418151	South	LDC	150mm	CDRGV	173	2018
CM-18-16-LDC3	663649	5519974	2108	NAD83 CSRS	UTM 11	Vertical	-	418151	South	LDC	150mm	CDRGV	190	2018
CM-18-16-P1	663651	5519982	2108	NAD83 CSRS	UTM 11	Vertical	-	418151	South	RC	n/a	CDRGV	191	2018
CM-18-18-LDC1	663827	5519917	2084	NAD83 CSRS	UTM 11	Vertical	-	418151	South	LDC	150mm	CDRGV	103	2018
CM-18-18-P1	663818	5519512	2084	NAD83 CSRS	UTM 11	Vertical	-	418151	South	RC	n/a	DGN	122	2018
CM18-21-LDC1	663443	5519117	1957	NAD83 CSRS	UTM 11	Vertical	-	418151	South	LDC	150mm	CDRGV	87	2018
CM18-21-P1	663444	5519109	1957	NAD83 CSRS	UTM 11	Vertical	-	418151	South	RC	n/a	DGN	151	2018
CM-18-22-P1	663148	5518579	1871	NAD83 CSRS	UTM 11	Vertical	-	418151	South	RC	n/a	n/a	74	2018
CM-18-23-P1	663521	5518712	1912	NAD83 CSRS	UTM 11	Vertical	-	418151	South	RC	n/a	n/a	125	2018
CM-18-24-LDC1	663761	5518110	1950	NAD83 CSRS	UTM 11	Vertical	-	418151	South	LDC	150mm	CDRGV	117	2018
CM18-25-GC	663406	5518181	1886	NAD83 CSRS	UTM 11	Vertical	-	418151	South	SDC	75mm	CDRGV	135	2018
CM18-25-LDC1	663407	5518173	1886	NAD83 CSRS	UTM 11	Vertical	-	418151	South	LDC	150mm	CDRGV	155	2018
CM18-25-LDC2	663407	5518168	1887	NAD83 CSRS	UTM 11	Vertical	-	418151	South	LDC	150mm	CDRGV	152	2018
CM18-26-LDC1	663483	5518173	1882	NAD83 CSRS	UTM 11	Vertical	-	418151	South	LDC	150mm	CDRGV	126	2018
CM18-27-GC2	663257	5518430	1877	NAD83 CSRS	UTM 11	Vertical	-	418151	South	SDC	75mm	CDRGV	189	2018
CM18-28-P1	663226	5517781	1788	NAD83 CSRS	UTM 11	Vertical	-	418151	South	RC	n/a	DGN	109	2018
CM12-01-CH	662429	5522037	2143	NAD83 CSRS	UTM 11	Vertical	-	418150	North	LDC	150mm	CDRGV	152	2013
CM13-12-CH	662856	5521641	2171	NAD83 CSRS	UTM 11	Vertical	-	418150	North	LDC	150mm	CDRGV	73	2013
CM13-15	663221	5521546	2132	NAD83 CSRS	UTM 11	Vertical	-	418151	East	LDC	150mm	CDRGV	139	2013
CM13-15-CH	663225	5521545	2132	NAD83 CSRS	UTM 11	Vertical	-	418151	East	LDC	150mm	CDRGV	124	2013
CM11-11-CH	662704	5521503	2088	NAD83 CSRS	UTM 11	Vertical	-	418151	North	LDC	150mm	CDRGV	126	2013
CM13-06	662823	5521114	1998	NAD83 CSRS	UTM 11	Vertical	-	418151	North	RC	n/a	CDRGV	54	2013
CM13-17	663621	5520986	2138	NAD83 CSRS	UTM 11	Vertical	-	418151	South	RC	n/a	CDRGV	194	2013
CM13-22-CH	663756	5519710	2121	NAD83 CSRS	UTM 11	Vertical	-	418151	South	LDC	150 mm	CDRGV	126	2013
CM13-25	663769	5519797	1938	NAD83 CSRS	UTM 11	Vertical	-	418151	South	RC	n/a	CDRGV	115	2013
CM13-25-CH	663769	5519794	1938	NAD83 CSRS	UTM 11	Vertical	-	418151	South	LDC	150mm	CDRGV	102	2013
CM11-19-CH	663409	5518162	1886	NAD83 CSRS	UTM 11	Vertical	-	418151	South	LDC	150 mm	CDRGV	150	2013
CM13-20	663264	5518426	1877	NAD83 CSRS	UTM 11	Vertical	-	418151	South	RC	n/a	CDRGV	158	2013
CM13-19	663402	5518852	1929	NAD83 CSRS	UTM 11	Vertical	-	418151	South	RC	n/a	CDRGV	136	2013
CM11-02	662609	5522132	2209	NAD83 CSRS	UTM 11	50	60	418150	North	RC	n/a	CDRGV	174	2012
CM11-04	662613	5521986	2200	NAD83 CSRS	UTM 11	Vertical	-	418150	North	RC	n/a	CDRGV	184	2012
CM11-12	662856	5521636	2171	NAD83 CSRS	UTM 11	Vertical	-	418150	North	RC	n/a	CDRGV	116	2012
CM11-02B	662476	5521913	2141	NAD83 CSRS	UTM 11	50	265	418150	North	RC	n/a	DGN	125	2012
CM11-03A	662483	5521909	2142	NAD83 CSRS	UTM 11	Vertical	-	418150	North	RC	n/a	CDRGV	186	2012
CM11-07	662689	5521856	2184	NAD83 CSRS	UTM 11	Vertical	-	418150	North	RC	n/a	CDRGV	163	2012
CM11-02B	662621	5522137	2209	NAD83 CSRS	UTM 11	Vertical	-	418150	North	RC	n/a	CDRGV	144	2012
CM11-11	662692	5521415	2087	NAD83 CSRS	UTM 11	Vertical	-	418151	North	RC	n/a	CDRGV	142	2012
CM11-08	662386	5521473	2087	NAD83 CSRS	UTM 11	Vertical	-	418151	North	RC	n/a	CDRGV	82	2012
CM11-22	663757	5519707	2121	NAD83 CSRS	UTM 11	Vertical	-	418151	South	RC	n/a	CDRGV	166	2012
CM11-14	663520	5519291	2000	NAD83 CSRS	UTM 11	Vertical	-	418151	South	RC	n/a	DGN	136	2012
CM11-18	663690	5518475	1957	NAD83 CSRS	UTM 11	Vertical	-	418151	South	RC	n/a	DGN	109	2012
CM11-16C	663481	5519045	1957	NAD83 CSRS	UTM 11	Vertical	-	418151	South	RC	n/a	DGN	111	2012
CM11-20	663482	5517888	1882	NAD83 CSRS	UTM 11	Vertical	-	418151	South	RC	n/a	CDRGV	131	2012
CM11-19	663407	5518158	1885	NAD83 CSRS	UTM 11	Vertical	-	418151	South	RC	n/a	CDRGV	172	2012
CM11-17	663511	5518711	1955	NAD83 CSRS	UTM 11	Vertical	-	418151	South	RC	n/a	DGN	169	2012
CM12-21	663069	5519560	1861	NAD83 CSRS	UTM 11	Vertical	-	418151	South	RC	n/a	DGN	160	2012
CM11-21	663796	5518821	1988	NAD83 CSRS	UTM 11	Vertical	-	418151	South	RC	n/a	DGN	62	2012
CM11-15	663763	5519115	2021	NAD83 CSRS	UTM 11	Vertical	-	418151	South	RC	n/a	CDRGV	141	2012
CM11-22B	663755	5519712	2121	NAD83 CSRS	UTM 11	50	75	418151	South	RC	n/a	CDRGV	160	2012
CM12-18	663809	5520572	2216	NAD83 CSRS	UTM 11	Vertical	-	418151	South	RC	n/a	CDRGV	231	2012
CM12-01A	662422	5522046	2143	NAD83 CSRS	UTM 11	Vertical	-	418150	North	RC	n/a	CDRGV	178	2012
CM12-01B	662420	5522045	2143	NAD83 CSRS	UTM 11	50	265	418150	North	RC	n/a	CDRGV	148	2012
CM12-09	662352	5522095	2134	NAD83 CSRS	UTM 11	Vertical	-	418150	North	RC	n/a	CDRGV	163	2012
CM12-10	662417	5522084	2143	NAD83 CSRS	UTM 11	Vertical	-	418150	North	RC	n/a	CDRGV	172	2012
CM12-17	663512	5521328	2132	NAD83 CSRS	UTM 11	Vertical	-	418151	South	RC	n/a	CDRGV	148	2012
CM12-19	663793	5520179	2160	NAD83 CSRS	UTM 11	Vertical	-	418151	South	RC	n/a	CDRGV	182.5	2012
CM12-28	663752	5518099	1948	NAD83 CSRS	UTM 11	Vertical	-	418151	South	RC	n/a	CDRGV	142	2012
CM12-29	663415	5518997	1935	NAD83 CSRS	UTM 11	Vertical	-	418151	South	RC	n/a	n/a	64	2012
CM12-25	663232	5519111	1918	NAD83 CSRS	UTM 11	Vertical	-	418151	South	RC	n/a	CDGN	133	2012
CM12-24	663015	5519114	1864	NAD83 CSRS	UTM 11	Vertical	-	418151	South	RC	n/a	CDRGV	157	2012
CM12-31	662558	5521434	2038	NAD83 CSRS	UTM 11	Vertical	-	418153	North	RC	n/a	DGN	100	2012
CM12-16	662709	5521346	2010	NAD83 CSRS	UTM 11	Vertical	-	418151	North	RC	n/a	DGN	82	2012
CM12-06	662509	5521760	2122	NAD83 CSRS	UTM 11	50	256	418150	North	RC	n/a	CDRGV	175.5	2012
CM12-04	662597	5521633	2112	NAD83 CSRS	UTM 11	Vertical	-	418150	North	RC	n/a	DGN	181	2012
CM12-34A	663763	5514055	1619	NAD83 CSRS	UTM 11	Vertical	-	418154	Southern Ext.	RC	n/a	CDRGV	118	2012
CM12-34B	663761	5514055	1619	NAD83 CSRS	UTM 11	60	60	418154	Southern Ext.	RC	n/a	DGN	109	2012
CM12-33B	663478	5516252	1740	NAD83 CSRS	UTM 11	65	60	418151	Southern Ext.	RC	n/a	CDRGV	123	2012
CM12-36B	663440	5515916	1745	NAD83 CSRS	UTM 11	70	60	418154	Southern Ext.	RC	n/a	CDRGV	75	2012
CM12-38B	663442	5516101	1750	NAD83 CSRS	UTM 11	50	60	418151	Southern Ext.	RC	n/a	DGN	192	2012
CM079-101B	662584	5521800	2152	NAD83 CSRS	UTM 11	Vertical	-	418150	North	Core	Hole dia. 4 3/4"	DGN	45.2	1979
CM079-105B	663399	5519491	1988	NAD83 CSRS	UTM 11	Vertical	-	418151	South	Core	Hole dia. 5 3/4"	DGN	66.3	1979
CM089-25	662503	5521893	2148	NAD83 CSRS	UTM 11	Vertical	-	418150	North	Rotary	n/a	n/a	152.7	1969
CM089-26	662749	5521693	2167	NAD83 CSRS	UTM 11									



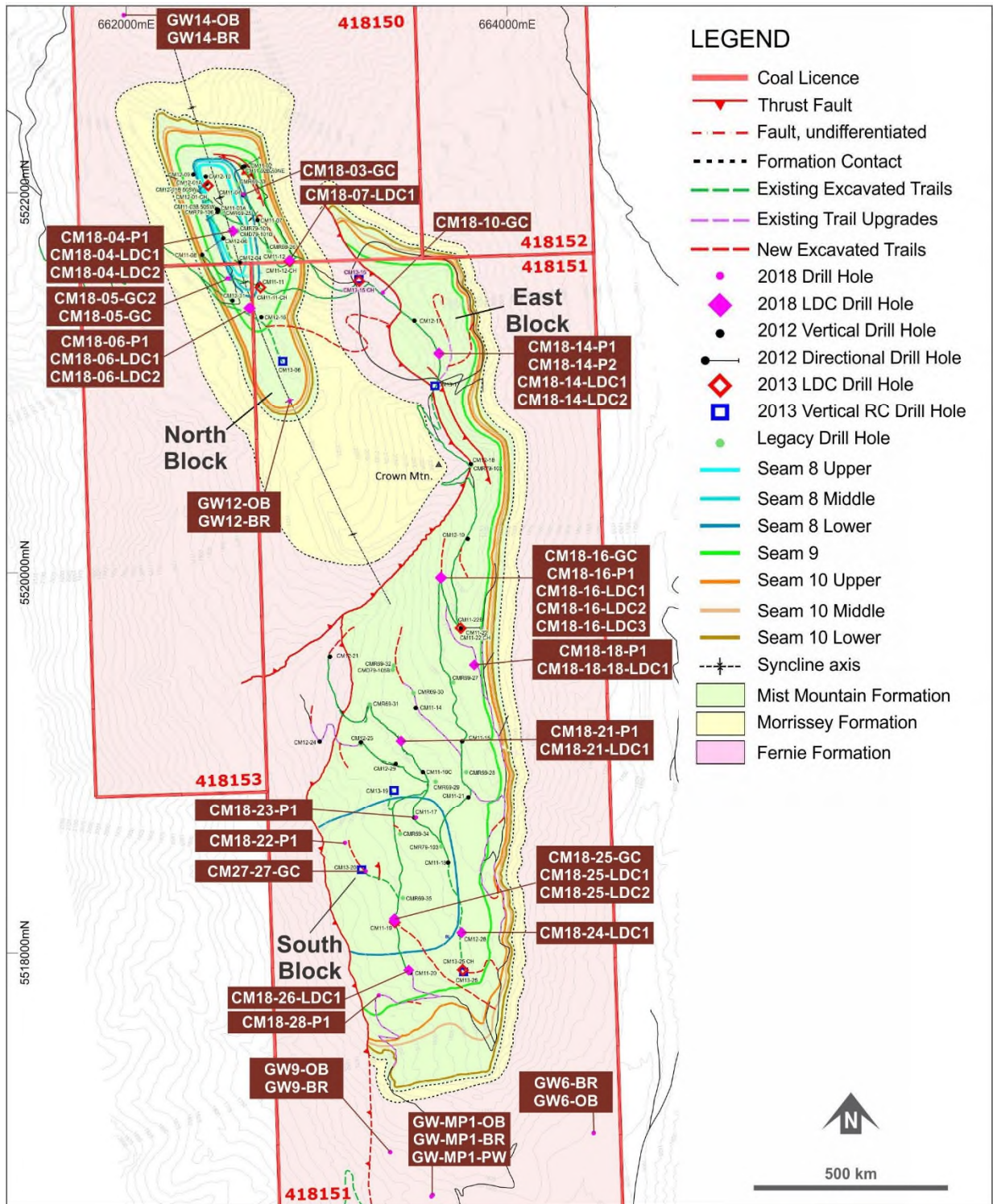


Figure 2: Drill Hole Locations

### COSTS INCURRED

The table below details costs incurred during 2018:

TABLE 3

**JAMESON RESOURCES LIMITED  
CROWN MOUNTAIN COAL PROPERTY  
COSTS INCURRED – 2018**

<b>Cost Centre</b>	<b>Amount</b>
<b>Exploration</b>	
Drilling	\$2,129,343.84
Environmental & Rehabilitation	\$821,753.61
Economic Studies	\$520,937.39
Exploration - Technical Services including field costs	\$394,431.37
Laboratory and Coal Quality Testwork	\$117,760.51
Acquisition	\$100,000.00
Environmental Assessment	\$236,007.71
First Nations	\$16,103.34
Rents/rates/permits	\$75,379.22
Surface Exploration	\$938,259.91
Geophysics and Remote sensing	\$156,668.69
Site Preparation	\$588,565.65
<b>TOTAL</b>	<b>\$6,095,211.24</b>

### DRILLING

All LDC holes were completed by large diameter coring with a nominal 6-inch diameter. Pilot holes were drilled by reverse circulation (RC). Only targeted coal-bearing zones were cored.

The SDC geotech holes were cored from surface (after casing) to the basal sandstone to a nominal 3-inch diameter. All core recovered was sent to (a) a geotech lab followed by (b) a geochemical lab for analysis.

As all core recovered was consumed by lab testing, no core was stored on site.

In addition, core stored on site from the 2013 drilling program was also sent to a geochemical lab in Vancouver.

## **GEOPHYSICAL LOGGING**

Geophysical logging was attempted on all exploration (LDC, pilot, and SDC) holes drilled in 2018:

- Some holes were bridged and logging could not continue.
- Files were prepared in PDF, TIFF, and LAS formats.
- Acoustic televiewer and dipmeter were used on selected holes.

Table 2 shows what probes were employed for each hole.

Data files for the geophysical logging have been sent to the province for uploading.

## **COAL SAMPLING**

Coal sampling was performed on the cored LDC holes. Each core was photographed and logged as it exited the hole. Core was then bagged and tagged for shipment to Birtley lab in Calgary.

The geologist field logs were later adjusted to the geophysical logs.

A chain-of-custody form was used and accompanied the core samples enroute. Shipment was via a refrigerated trailer supplied by Manitoulin.

## **COAL ANALYSIS**

As of the date of this report, there is no complete coal analysis data available on the individual samples. That work is in progress at Birtley, and will ultimately consist of:

- Washability per seam per pad.
- Coal quality per seam split.
- Coal and coke quality on a large bulk sample to be processed in a pilot plant and subsequently analyzed.

Due to the large amount of exploration work conducted in the coalfields this past summer, and limited lab processing capacity, there is a huge backlog of samples awaiting analysis. This analysis will not be completed before the renewal dates of the Crown Mountain licenses but will be forwarded to the province once NWP has received them and/or included in the 2019 Assessment Report.

## **GEOLOGIC MAPPING**

No additional geologic mapping was performed in 2018.

## **GEOLOGICAL SETTING**

### **Regional Stratigraphy**

The general stratigraphic succession is summarized on Figure 3. The Jurassic-Cretaceous Kootenay Group includes, from top to base, the Elk Formation, the Mist Mountain Formation, and the Morrissey Formation (Grieve and Ollerenshaw, 1989-2). The major coal bearing unit is the Mist Mountain Formation. The Kootenay Group conformably overlies the Fernie Formation. The regional geology of the property is shown on Figure 3.



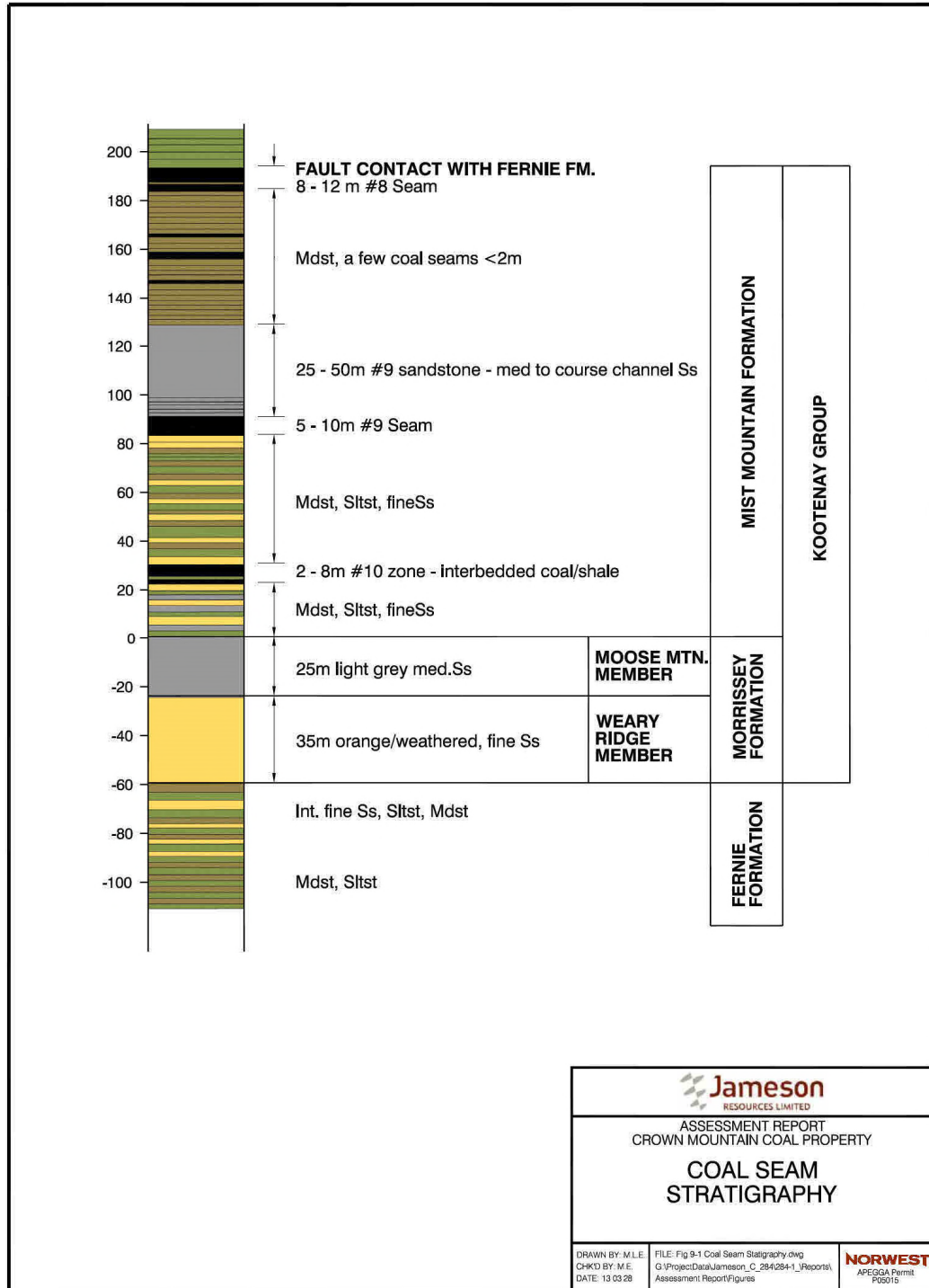


Figure 3: Stratigraphic Column

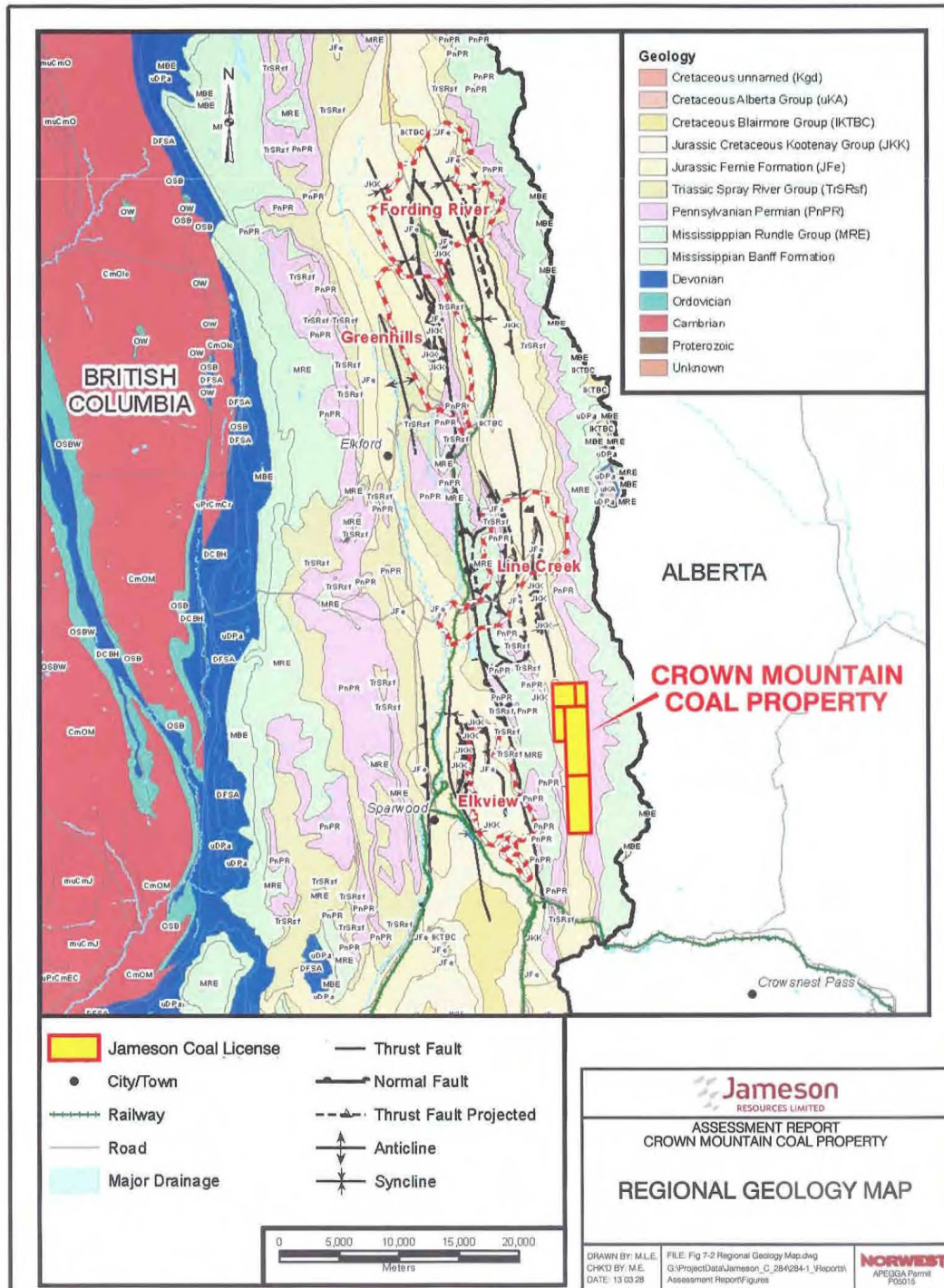


Figure 4: Regional Geology

### **The Fernie Formation**

Grieve and Kilby state that: “The marine Fernie Formation, of Jurassic age, is the oldest stratigraphic unit in the block. It is primarily a recessive unit, in contrast to the overlying Kootenay Group. Its base is marked by a thin band of phosphorite and phosphatic shale, which gives way to dark gray shale, overlain by the Rock Creek Member, which is composed of brownish silty shale with thin black limestone beds. The overlying Grey Beds consist of medium brownish grey shale with interbeds of calcareous sandstone and impure limestone (Price, 1962). A glauconitic sandstone or shale unit (Green Beds) immediately underlies the uppermost unit, the Passage Beds, which is a coarsening-upward sequence of interbedded shale and sandstone transitional to the Morrissey Formation of the overlying Kootenay Group”.

### **The Morrissey Formation**

The base of the overlying Late Jurassic to Early Cretaceous Kootenay Group is marked by the Morrissey Formation which is resistant and easily mapped in most areas of its occurrence. It averages 40 m in thickness in the area, and consists of two members (Gibson, 1985). The lower Weary Ridge Member is predominantly a fine-grained, quartzose, argillaceous, calcareous and ferruginous sandstone. The upper Moose Mountain Member is the more resistant and consists predominantly of medium-grained quartz-chert sandstone. Thin interbeds of carbonaceous shale and coal occur locally within the Moose Mountain Member.

### **The Mist Mountain Formation**

The economically important Mist Mountain Formation conformably overlies the Morrissey Formation. It is moderately recessive to moderately resistant depending on the proportion of resistant sandstone or conglomerate beds it contains. It averages 500 m in thickness in the Crowsnest coalfield. Mist Mountain Formation in the Crowsnest coalfield consists of an interbedded sequence of siltstone, sandstone, mudstone, shale, coal and conglomerate of predominantly nonmarine origin. Fine-grained clastic rocks tend to be dark grey because of their carbonaceous content, while the sandstones, which contain grains of quartz, chert and quartzite (Gibson, 1985), tend to be somewhat lighter in color.

The depositional environment for the Mist Mountain Formation is that of an interbedded sequence of sandstone, siltstone, mudstone, shale, and coal, with rare conglomerate. It represents sediment deposition on a non-marine delta plain which prograded eastward into the inland Fernie Sea, and which received terrigenous clastic material eroded from tectonically active uplands to the west (Gibson, 1977; Jansa, 1972). Sediments are believed to have been deposited on lower delta coastal plains and upper delta alluvial plains, with the former being restricted to the basal part of the section (Gibson, 1977; Jansa, 1972). Deposition in alluvial channels and flood plains is generally inferred, with the latter environment represented by deposits typical of levee, crevasse, splay, flood-basin and swamp or marsh settings (Gibson and Hughes, 1981). No marine or brackish water deposits have been identified within the section.

### **The Elk Formation**

The Elk Formation, which gradationally overlies the Mist Mountain Formation, is the uppermost formation in the Kootenay Group. It is a relatively resistant nonmarine unit dominated by coarse clastic rocks and in the Crowsnest coalfield it varies in thickness from a maximum of 482 m on Sparwood Ridge (Gibson, 1985) to 155 m near McLatchie Creek (Grieve and Ollerenshaw, 1989). Thicknesses of 327 m (Grieve and Ollerenshaw, 1989) and 253.5 m (Gibson, 1985) have been recorded at Flathead Ridge and Mount Taylor, respectively. In general it decreases in thickness from west to east. It is composed of sandstone, siltstone, mudstone, shale, coal and, locally, conglomerate. Sandstone units tend to be more numerous and laterally continuous than those in the Mist Mountain Formation. Conglomerates are associated with sandstone units and achieve greatest concentration and thickness within the thickest sections, that is, at the western edge of the coalfield. Siltstone is generally similar to that in the Mist Mountain Formation, with the exception of the light grey weathering, well-indurated "needle siltstones" (Gibson, 1977).

### **The Blairmore Group**

The contact with the overlying Lower Cretaceous Blairmore Group occurs at the base of the Cadomin Formation, the basal unit of the nonmarine Blairmore Group. In the Crowsnest coalfield this contact is abrupt and scoured, but may be conformable, at least in the western part of the coalfield (Gibson, 1979; Ricketts and Sweet, 1985). The Cadomin Formation in the Crowsnest coalfield consists of one or more thick cliff-forming chert-pebble to cobble conglomerate beds separated by recessive greenish and maroon mudstone units with a locally developed thin bed of light grey, nodular-weathering micrite. The Cadomin Formation is gradationally overlain by the Lower Blairmore, which in the Crowsnest coalfield is a 455 m thick recessive sequence of greenish grey, grey and maroon mudstone, with interbedded siltstone, cherty sandstone, conglomerate and minor limestone (Ollerenshaw, 1981a). The conformably overlying Beaver Mines-Mill Creek Formation in the Crowsnest coalfield is a sequence of greenish grey and maroon mudstone, sandstone and conglomerate 1,875 m thick.

Unconformably overlying the Blairmore Group are two marine shale sequences of the Blackstone and Wapiabi Formations. These are separated by nonmarine sandstone and shale of the Cardium Formation of the Alberta Group.

The Mist Mountain Formation of the Jurassic-Cretaceous Kootenay Group is the primary coal-bearing unit on the property and encompasses all of the economic coal seams. It conformably overlies the Moose Mountain Member of the Morrissey Formation. Except where controlled by faulting in the northernmost part of the South Block, the Mist Mountain Formation is the formation which crops out at the surface. The Morrissey Formation conformably overlies the Fernie Formation; these units are separated by a transitional zone of interbedded shale and sandstone with the former having the same characteristics as those of the Fernie Formation. A marker bed, normally found 5 m to 10 m below the base of the Moose Mountain Member, was found in all drill holes on the property that penetrated to that depth.



Based on results from the 2012 drilling campaign, the North Block has a preserved thickness in the range from 43 m to 145 m of Mist Mountain Formation strata. The equivalent values for the South Block are from 72 m to 162 m. Similarly, on the Southern Extension the Mist Mountain sequence is from 55 m to 110 m thick.

The top of the underlying Morrissey Formation is located from about 2 m to 13 m below the 10 Seam Lower which is the deepest coal unit on the property. The contact is readily identifiable because the Morrissey Formation is a distinct, weathering-resistant unit. Above the 10 Seam is the 9 Seam; the roof of this seam in the North Block, and occasionally in the South Block, is a weathering-resistant blocky unit of fine-to-medium grained sandstone that commonly displays an orange weathering color, it is locally referred to as the Ridge Sandstone. Both the Ridge Sandstone and the sandstone of the Moose Mountain Formation are mapped at the surface at various locations throughout the property.

### **Regional Structure**

The tectonic history of this region has produced structural deformation on every scale. Southeast British Columbia coalfields are part of the Lewis Thrust plate. This plate is characterized by features associated with the compressional Laramide tectonic regime during deformation of the Rocky Mountain front ranges in late Cretaceous and early Tertiary time, namely flexural slip folds with north to northwest trending axes, and west-dipping thrust faults. A period of extensional faulting followed in late Eocene and early Oligocene time (Price, 1965), some of which occurred on earlier thrust fault surfaces.

According to Grieve (1993):

“The Lewis Thrust Sheet in the Elk Valley Coalfield is bounded to the east by the outcrop of the Lewis Thrust Fault and to the west by the Bourgeau Thrust Fault. The plane of the Lewis Thrust Fault has been folded by movement on a younger underlying thrust. Outcrop expressions of subsurface folds in the Lewis Thrust include the Alexander Creek Syncline and the Fording Mountain Anticline. The Alexander Creek Syncline underlies the entire length of the coalfield and encompasses the Line Creek Mine and the Eagle Mountain component of the Fording Coal Operation.

The Alexander Creek Syncline is the dominant structure in the Elk Valley Coalfield as it underlies the main body of the coalfield throughout its entire 97 km length. The syncline is generally upright but is locally steeply inclined. It is mainly an asymmetric fold, with the west limb being shorter in most cases.” Grieve maps the Alexander Creek Syncline as being the large syncline that forms the mineable structure on the North Block of Crown Mountain.

A second significant structure on the Crown Mountain Coal Property appears to be the Ewin Pass Fault. Again, according to Grieve (1993) “The Ewin Pass Fault occurs in the east limb of the Alexander Creek Syncline throughout much of the south half of the coalfield. It may also continue southward from Line Creek to Crown Mountain, assuming that the Crown Mountain

Fault is the same structure, although there is no direct evidence for this. Throughout its length it has had the effect of thickening the east limb by causing a repetition of strata. The Ewin Pass Fault has been depicted in the subsurface by Price and Grieve as a listric, west-dipping splay of the Lewis Thrust.

The Crown Mountain Fault has placed west dipping Fernie formation strata in the east limb of the Alexander Creek Syncline over west dipping strata of the lower part of the Mist Mountain Formation.”.

### **Property Stratigraphy**

The Mist Mountain Formation of the Jurassic-Cretaceous Kootenay Group is the primary coal-bearing unit on the property and encompasses all of the economic coal seams. It conformably overlies the Moose Mountain Member of the Morrissey Formation. Except where controlled by faulting in the northernmost part of the South Block, the Mist Mountain Formation is crops out at the surface. The Morrissey Formation conformably overlies the Fernie Formation; these units are separated by a transitional zone of interbedded shale and sandstone with the former having the same characteristics as those of the Fernie Formation. A marker bed, normally found 5 m to 10 m below the base of the Moose Mountain Member, was found in all drill holes on the property that penetrated to that depth.

Based on results from the 2012 drilling campaign, the North Block has a preserved thickness in the range from 43 m to 145 m of Mist Mountain Formation strata. The equivalent values for the South Block are from 72 m to 162 m. Similarly, on the Southern Extension the Mist Mountain sequence is from 55 m to 110 m thick.

The top of the underlying Morrissey Formation is located from about 2 m to 13 m below the 10 Seam Lower which is the deepest coal unit on the property. The contact is readily identifiable because the Morrissey Formation is a distinct, weathering-resistant unit. Above the 10 Seam is the 9 Seam and the roof of this seam in the North Block, and occasionally in the South Block, is a weathering-resistant blocky unit of fine-to-medium grained sandstone that commonly displays an orange weathering color, it is locally referred to as the Ridge Sandstone. Both the Ridge Sandstone and the sandstone of the Moose Mountain Formation are mapped at the surface at various locations throughout the property.

### **Property Structure**

Grieve (1993) has suggested that the major structures, the Alexander Creek Syncline and the Ewin Pass Fault associated with and located to the east of it, both extend south onto the Crown Mountain Coal Property. The presence of the syncline on the Crown Mountain property has been recognized for a long time and the Crown Mountain Fault, Grieve’s suggestion for the extension of the Ewin Pass Fault, has been well located by historic mapping on the property. These features cause the property to be broken into separate structural domains each with separate mining attributes or geological characteristics. These domains are referred to as the North Block, the South Block and the Southern Extension Block. The North

Block lies west of the Crown Mountain Fault and occupies the Alexander Creek Syncline axial region. The South Block is located on the east side of the Crown Mountain Fault and is generally located somewhat further south than the North Block. The Southern Extension is the natural strike extension of the South Block and is contiguous with it.

The location of the North Block is shown to the west of the Crown Mountain Fault on the illustration of Figure 4. The North Block is thus situated on the hanging wall side of the fault. On the property, the syncline is asymmetric with the west limb having a steeper dip than the east limb. The dip of the west limb is typically  $55^{\circ}$  while that of the east limb is  $44^{\circ}$ . The fold axis has a north-northwest trend.

The South Block is shown in the central and southern portions of Figure 4, on the east side of the Crown Mountain Fault. The South Block is thus located in the footwall sequence below this fault. In the past the structure of this part of the property was that of a monocline. However the 2012 and 2013 drill hole data and reexamination of the outcrop data, show that the dip of the beds “flatten-out” as they approach the fault toward the southwest. This indicates that the original structure of these beds was a syncline that has been truncated by the thrust fault and only the east limb of the syncline remains. This interpretation is consistent with the regional observation of Grieve referred to previously.

The Southern Extension, as with the South Block lies to the east of the Crown Mountain Thrust Fault in the footwall sequence below the fault as shown on Figure 5. There is an erosional break between the structure of the South Block and the Southern Extension. Besides the Crown Mountain Fault, field mapping indicates the presence of at least one small scale thrust fault splays that appear to be developed from the Crown Mountain Thrust. However, the Southern Extension has not been explored to the same extent as has the North and South Blocks: limited holes were drilled in 2012, and no exploration work was conducted in 2013. More exploration in the Southern Extension is needed to fully define the structure of this area.

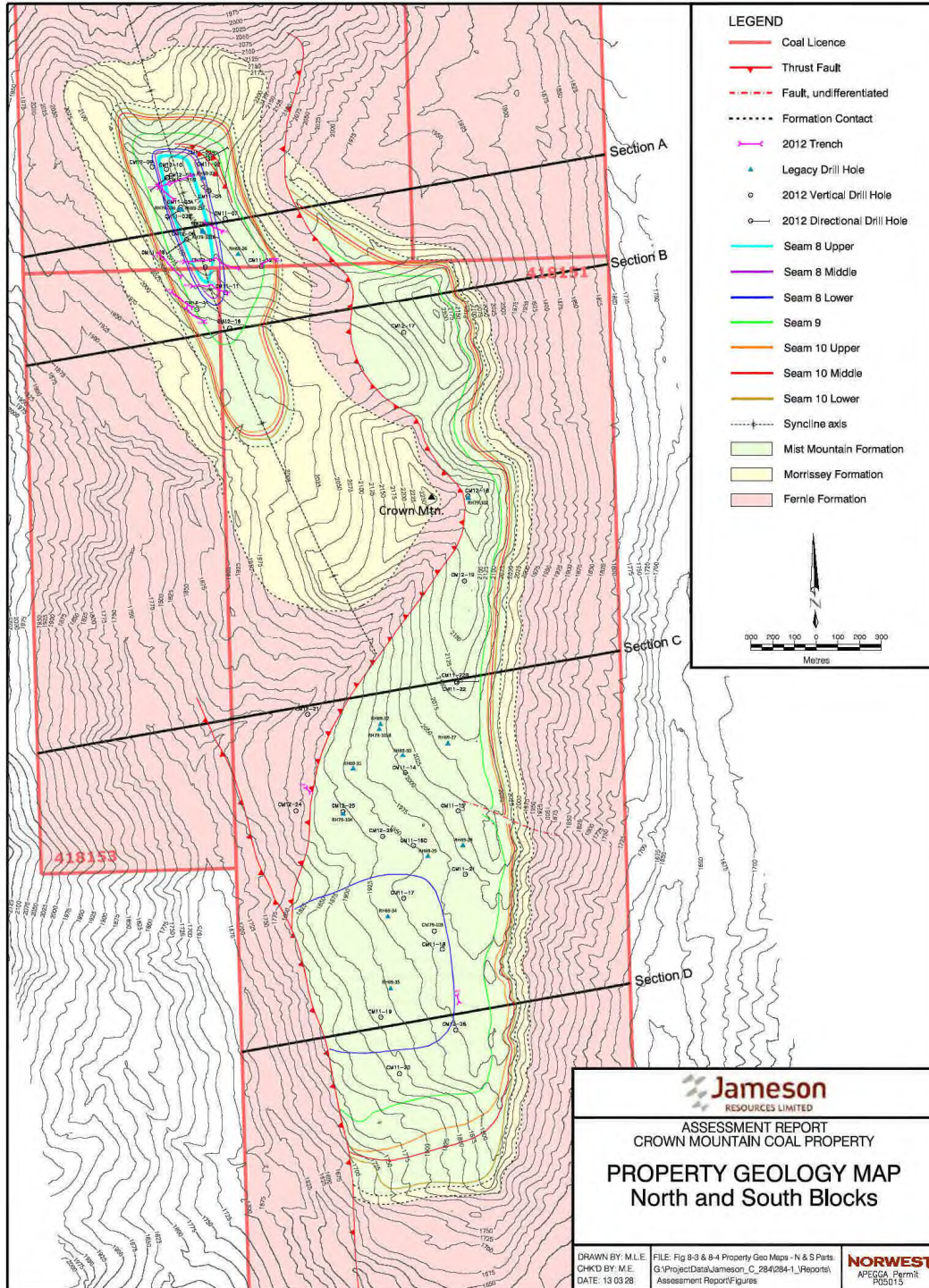


Figure 5: North and South Blocks



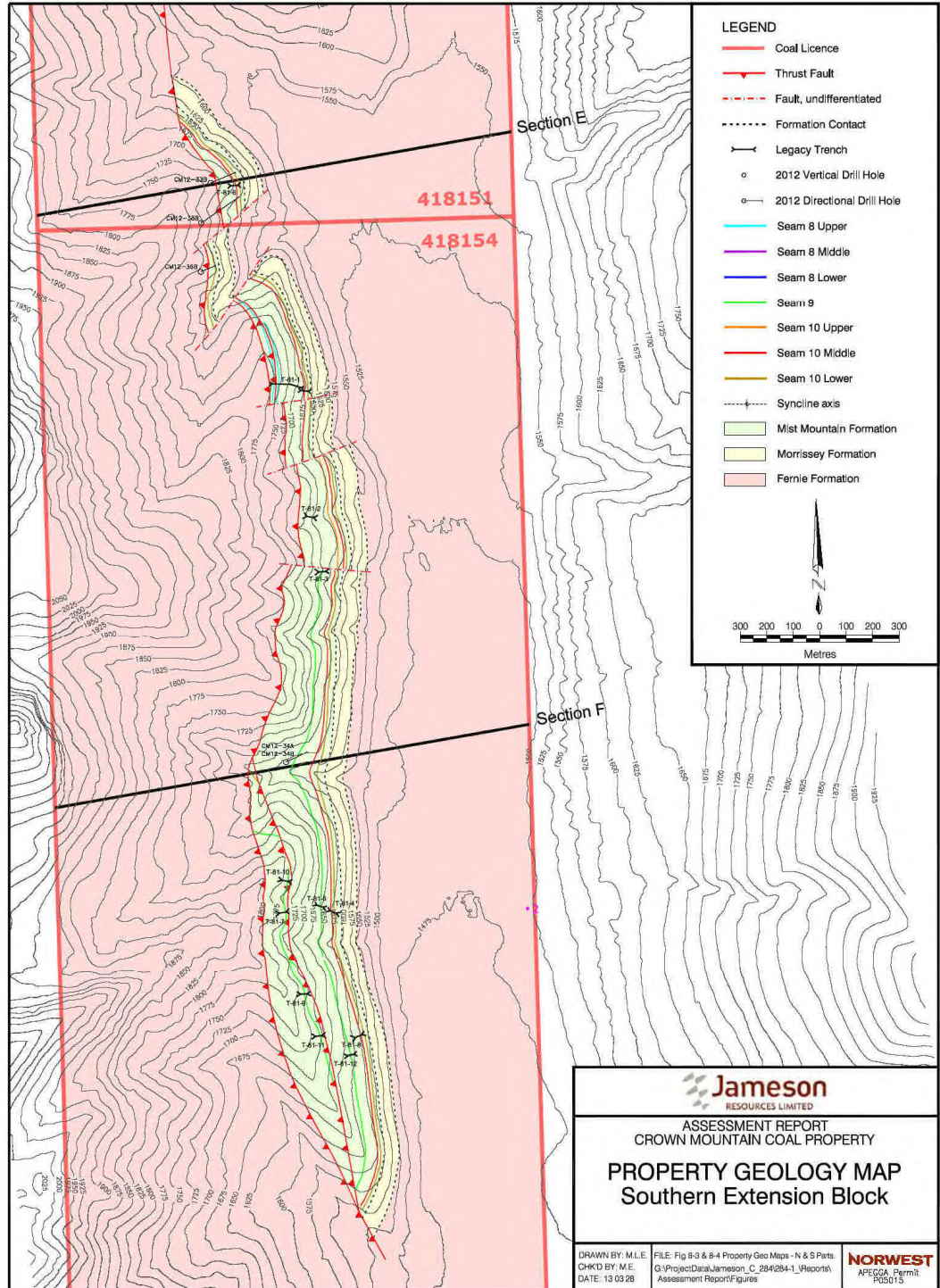


Figure 6: Southern Extension

## COAL GEOLOGY

### Deposit Type

The definition of “Deposit Type” for coal properties is different from that applied to other types of geologic deposits. Criteria applied to coal deposits for the purposes of determination of coal resources and reserves include both “Geology Type” as well as “Deposit Type”. For coal deposits this is an important concept because the classification of a coal deposit as a particular type determines the range of limiting criteria that may be applied during the estimation of Reserves and Resources.

“Geology Type” for coal deposits is a parameter that is specified in Geological Survey of Canada Paper 88-21, which is a reference for coal deposits as specified in NI 43-101. Coal “Geology Type” is a definition of the amount of geological complexity, usually imposed by the tectonic history of the area, and the classification of a coal deposit by “Geology Type” determines the approach to be used for the Resource/Reserve estimation procedures and the limits to be applied to certain key estimation criteria. The identification of a particular “Geology Type” for a coal property defines the confidence that can be placed in the extrapolation of data values away from a particular point of reference such as a drill hole.

The classification scheme of GSC Paper 88-21 is similar to many other international coal reserve classification systems but it has one significant difference. This system is designed to accommodate differences in the degree of tectonic deformation of different coal deposits in Canada. Four classes are provided for:

1. “Low” which is for deposits of the Plains type with low tectonic disturbance.
2. “Moderate” which is for deposits affected to some extent by tectonic deformation.
3. “Complex” which is for deposits subjected to relatively high levels of tectonic deformation.
4. “Severe” for Rocky Mountain type deposits which have been subjected to extreme levels of tectonic deformation.

The coal deposits of the Elk Valley Coalfield are typical of those for Inner Foothills and Rocky Mountain areas which have been subjected to a relatively high tectonic deformation. From place to place coal deposits of this type may be characterized by tight folds, some with steeply inclined or overturned limbs. These features can be seen in different parts of the coalfield but they are far from being universal.

The Crown Mountain Coal Property is divided into two distinct structural domains separated by a northerly trending thrust fault that is named the Crown Mountain Thrust Fault. These two domains exist as two distinct Geology Types.

On the northwest side of the thrust, located in the part of the property that is referred to as the North Block, there is a large syncline that is angular and tightly appressed. The axis of this fold is oriented at a shallow angle to the fault trend such that the fold axis and fault approach each other from the north boundary of the

property in a southerly direction. The structure of this area is clearly more disturbed tectonically than other parts of the property and it has the features that cause it to be categorized as a Complex Geology Type.

The structure of the sequence on the east side of the fault is significantly different from this. There the structure is simply a westerly dipping monocline. This area is referred to as the South Block. The lower level of tectonic disturbance for this area allows it to be categorized as a Moderate Geology Type. There is a third portion of the property that is the strike extension of the South Block. This area is referred to as the South Extension. At present the South Extension area has been explored to a much lesser extent than has both of the other two blocks. At present this area is categorized the same as the area that it adjoins to the north. Thus the South Extension is categorized as a Moderate Geology type.

“Deposit Type” as defined in GSC Paper 88-21 refers to the extraction method most suited to the coal deposit. There are four categories, which are:

- surface;
- underground;
- non-conventional; and
- sterilized.

Crown Mountain is close to important infrastructure including major roads, rail, power and a mining town site. These features will be important for the development of the property. Because of the nature of the terrain and the geology of the area Crown Mountain is suitable for the planning of development using surface mining methods. However, investigations are presently being undertaken to determine whether some forms of underground mining may also be applicable.

### **Coal Occurrence and Mineralization**

For coal deposits, “mineralization” refers to coal development and coal seam stratigraphy.

According to Grieve and Kilby (1989), within a complete stratigraphic section, “Coals in the Mist Mountain Formation are almost exclusively humic. Original banding has often been destroyed by shearing associated with Laramide deformation. They form an average of 10 % of the total thickness of the formation in seams which range from less than 1.0 m to greater than 15.0 m in thickness. Coal seams do not tend to cluster in any part of the stratigraphic section, and the only horizon which is consistently coal-bearing is the basal 20.0 m to 25.0 m of the formation”.

However it must be noted that the Mist Mountain Formation section in the Crown Mountain area is an erosional remnant. The whole of the section is not present on this property. The sequence on the property is known to include, in the most complete stratigraphic section, only Seam 8, at the top, through Seam 10 at the base and the various plies and splits of these seams.

Drilling has penetrated three principal seams on the property. The principal seams are named 8 Seam, 9 Seam and 10 Seam but 8 Seam and 10 Seam have been found to consist of three plies in each case. These plies are generally persistent across the property and each ply has thus been recognized as a separate seam. The term “Major Seam” has been defined to include all seven of these seams in order to distinguish them from other coal horizons, referred to as “Rider Seams” which also occur in the sequence. Thus there are a total of seven major seams and these are named the 8 Upper, 8 Middle, 8 Lower, 9, 10 Upper, 10 Middle, and 10 Lower Seams. These names are presented in descending stratigraphic order. Table 3 is a summary of the net coal average thicknesses for the major seams.

**TABLE 4**  
**JAMESON RESOURCES LIMITED**  
**CROWN MOUNTAIN COAL PROPERTY**  
**SUMMARY OF MAJOR SEAM AVERAGE NET COAL THICKNESS**

<b>Seam Name</b>	<b>North Block Average Thickness (m)</b>	<b>South Block Average Thickness (m)</b>	<b>Southern Extension Average Thickness (m)</b>
8 Upper	12.47	-	-
8 Middle	4.27	-	-
8 Lower	3.74	3.3	-
9	4.68	3.06	10.1
10 Upper	7.56	3.09	3.29
10 Middle	1.08	3.97	1.4
10 Lower	1.52	1.62	-
<b>Combined Average</b>	<b>35.32</b>	<b>15.04</b>	<b>14.79</b>

As Table 3 shows there is a significant difference in the combined net coal thickness for the North and South Blocks. However this is due to the fact that the upper plies of 8 Seam are eroded in that area, as they appear to be in the Southern Extension.

It has also been found that several of the seams have splits or “Rider Seams” associated with them from place-to-place. These riders are typically thinner and usually not as laterally continuous as the seams with which they are associated; the rider seams have been named with a prefix according to their overlying seam. From place-to-place the rider seams achieve mineable thickness. Table 4 shows the typical average net coal thickness for the rider seams on the property.

**TABLE 5**  
**JAMESON RESOURCES LIMITED**  
**CROWN MOUNTAIN COAL PROPERTY**  
**SUMMARY OF RIDER SEAM AVERAGE NET COAL THICKNESS**

<b>Seam Name</b>	<b>North Block Average Thickness (m)</b>	<b>South Block Average Thickness (m)</b>	<b>Southern Extension Average Thickness (m)</b>
8 Rider	0.98	2.10	-
9 Rider	1.85	0.85	2.52
10 Middle Rider	-	0.78	-
<b>Combined Average</b>	<b>2.83</b>	<b>3.73</b>	<b>2.52</b>

### **CONCLUSIONS**

The 2012 and 2013 drilling exploration programs, culminated by completion of the PFS in 2014 (updated in 2017), have identified Crown Mountain as a valuable and potentially viable low cost, high quality surface coal mining operation.

The 2018 exploration program targeted acquiring additional bulk sample to perform more comprehensive coal quality testing.



### **AUTHOR'S QUALIFICATIONS**

I, Mr. Art Palm, P.Eng., do hereby certify that:

1. I am a Mining Engineer and have been employed by the parent Company of NWP Coal Canada Limited, Jameson Resources Ltd, of Perth, Australia since August 2009.
2. I received a B.S. Mining Engineering from the Colorado School of Mines in 1976, and a Master of Business Administration from the University of Wyoming in 1983.
3. I have worked as a Mining Engineer since 1976.
4. I am a registered Professional Engineer in British Columbia and Alberta, Canada, and the United States of America (AL,AR,AZ,CA,CO,GA,ID,IL,KY,MD,OH,PA,NM,NV,UT,VA,WA,WV,WY).
5. I was directly involved with the Crown Mountain exploration and ancillary programs conducted in 2012, 2013 and 2018, as well as Norwest's completion of the PFS, and execution of environmental field work in 2015, 2016, 2017, and 2018.
6. I have read the definition of "qualified person" set out in National Instrument 43-101 ("NI 43-101") and certify that by reason of my education, affiliation with a professional association (as defined in NI 43-101) and past relevant work experience, I fulfil the requirements to be a "qualified person" for the purposes of NI 43-101.
7. I satisfy the requirements of a Competent Person as defined under the JORC Code, International Reciprocity of Competent Persons, as I am a member of APEGBC, which is listed by JORC as current ROPO/RPO's. As required by JORC, I satisfy the other code requirements of a Competent Person.

Dated at Vancouver, Canada this 16<sup>th</sup> day of February 2018



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Art Palm, P.Eng.

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9. Dawson, F.M., Lawrence G.F., and Anderson T.C. Coalbed Methane Resource Assessment of the Dominion Coal Blocks, Southeast British Columbia, Geological Survey of Canada Open File 3549 (1998); Parcel 73 Dominion Coal Block.
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11. British Columbia Ministry of Energy Mines and Petroleum Resources (1992): British Columbia Coal Quality Catalog, Information Circular 1992-20
12. Norwest Mine Services Ltd. (2001): Technical Review of the Elkview Coal Mine (2001). Public report originally prepared for Teck Corporation.
13. Norwest Corporation (2009): Technical Report – Fording River Operations. Public report originally prepared for Teck Coal Limited.
14. Teck Coal Limited (2011): NI 43-101 Technical Report on Coal Resources and Reserves of the Fording River Operation. Public Report originally prepared for Teck Resources Limited.

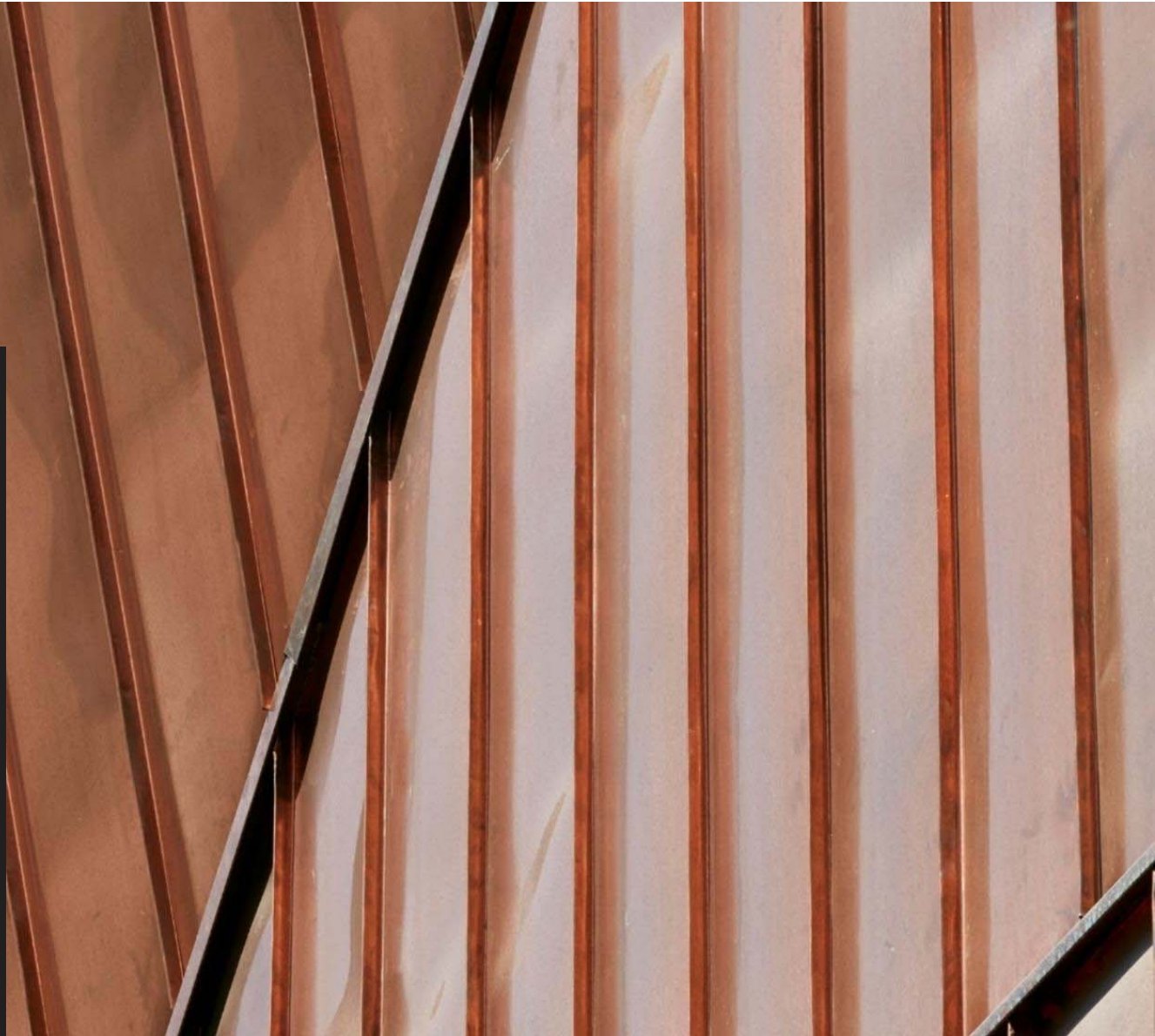
15. Norwest Corporation (2008): Technical Report – Greenhills Operations. Public Report originally prepared for Elk Valley Coal Corporation.
16. Teck Coal Limited (2011); Line Creek Operations Phase II Project Description Update. Public report originally prepared pursuant to the British Columbia Environmental Assessment Act.
17. Norwest Corporation (2013): Preliminary Economic Assessment (NI 43-101) Crown Mountain Coal Property. SE British Columbia. Public report originally prepared for Jameson Resources Limited and NWP Coal Canada LTD.





Crown Mountain 2019

# Cross-Sections







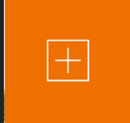
# Agenda

1. North Block
2. South Block



# Safety Moment

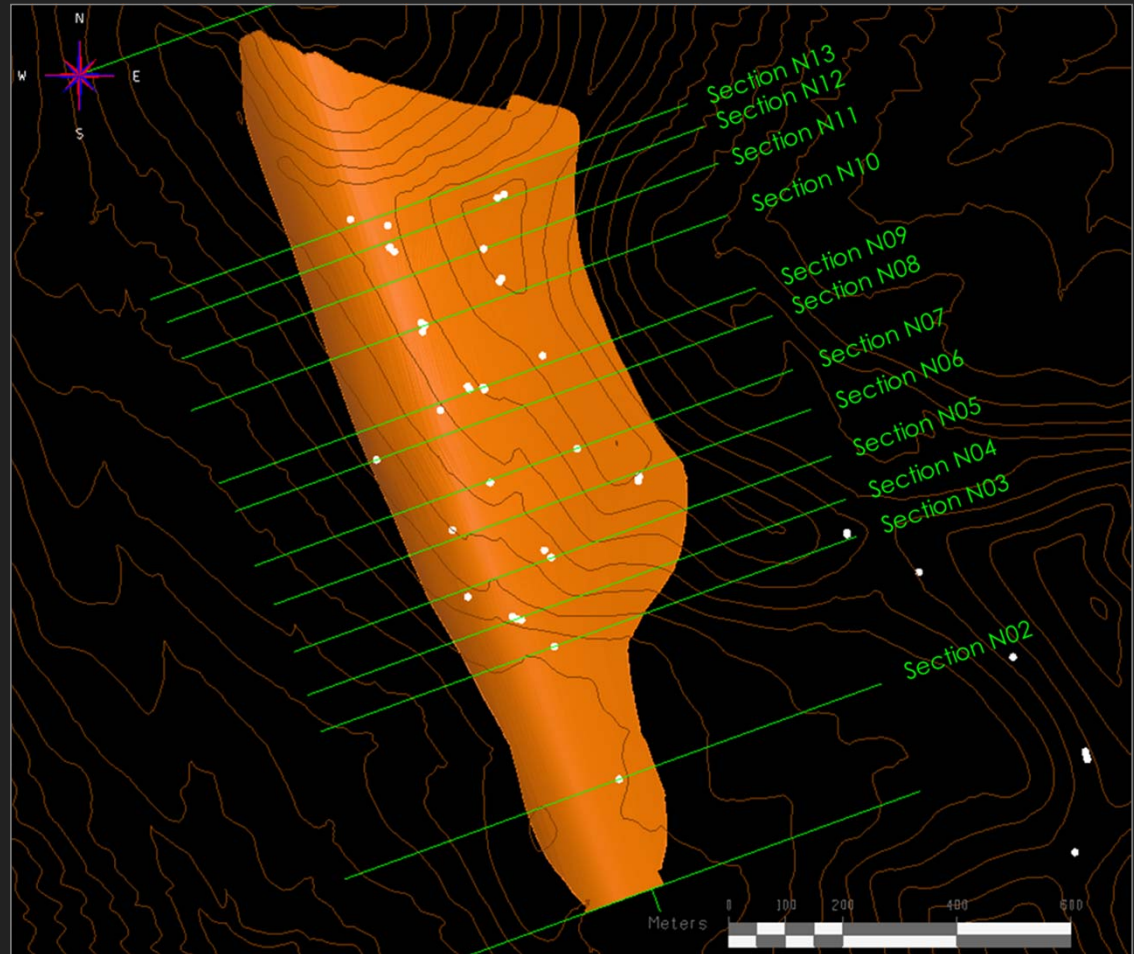
Kids on the road...





Cross-Sections

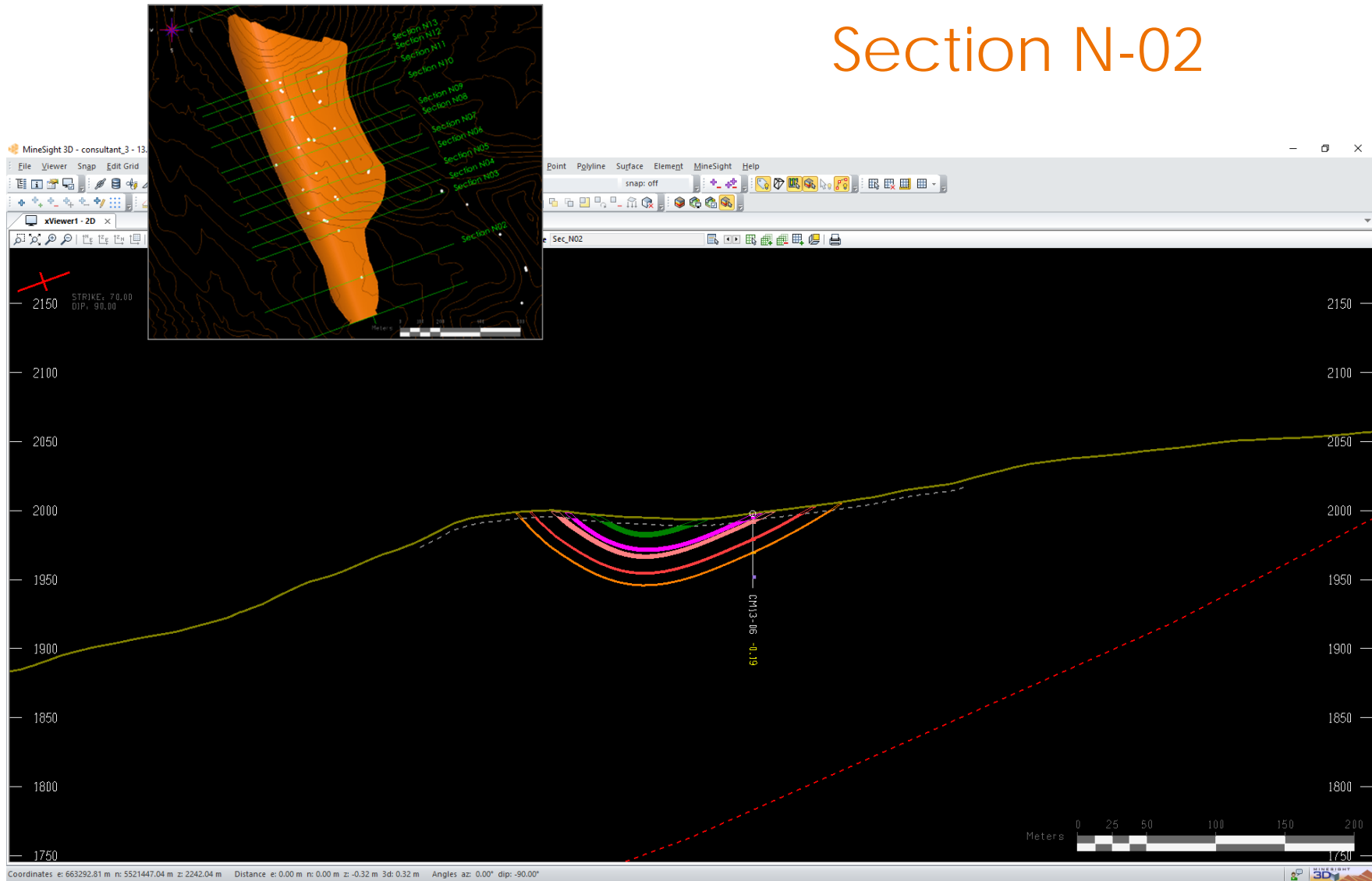
North Block



# North Block

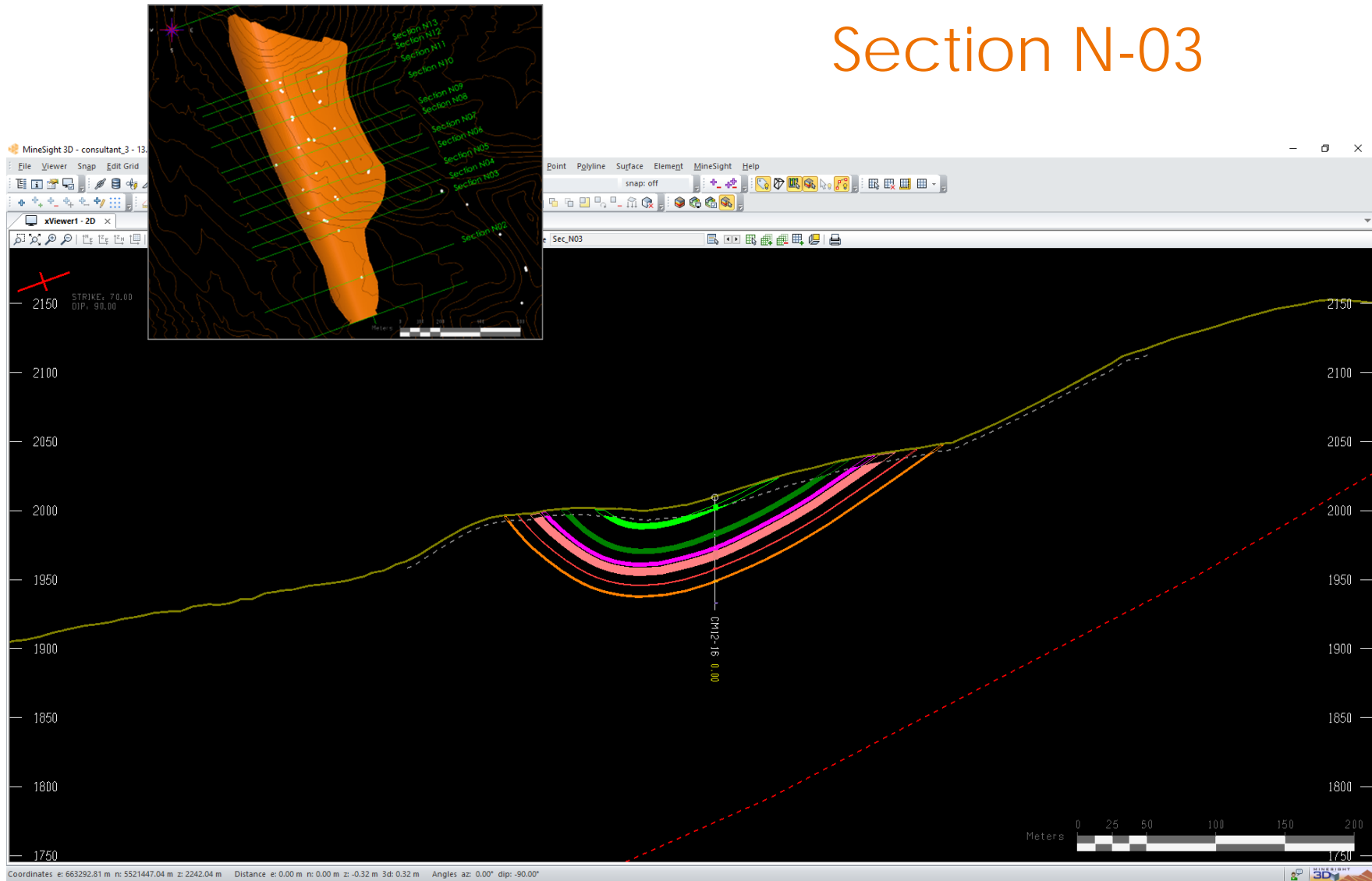
# Section N-02

- 8A
- 8U
- 8M
- 8L
- 84
- 9
- 9R
- 10Uab
- 10Ucd
- 10M
- 10L



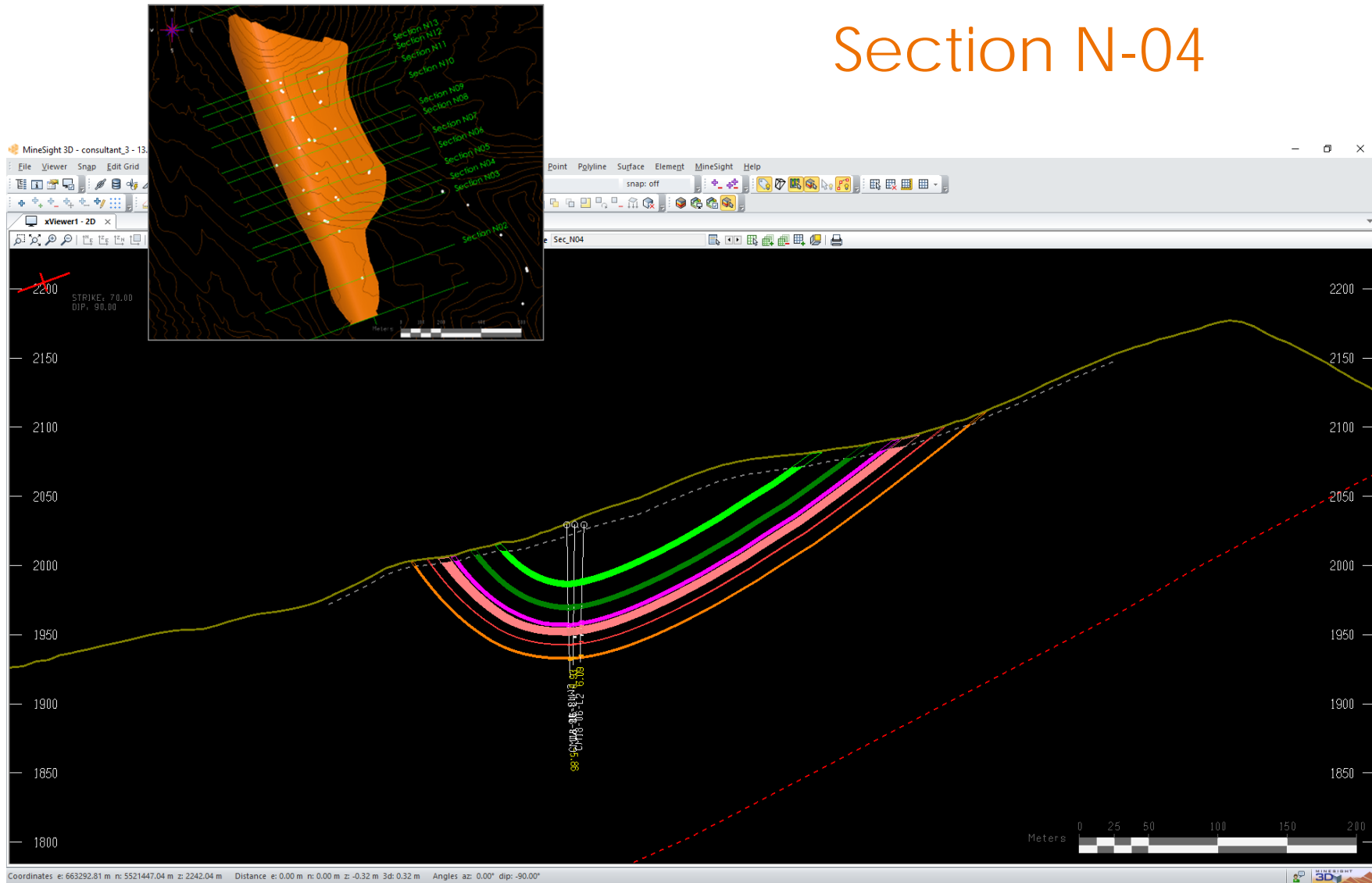
# North Block

# Section N-03



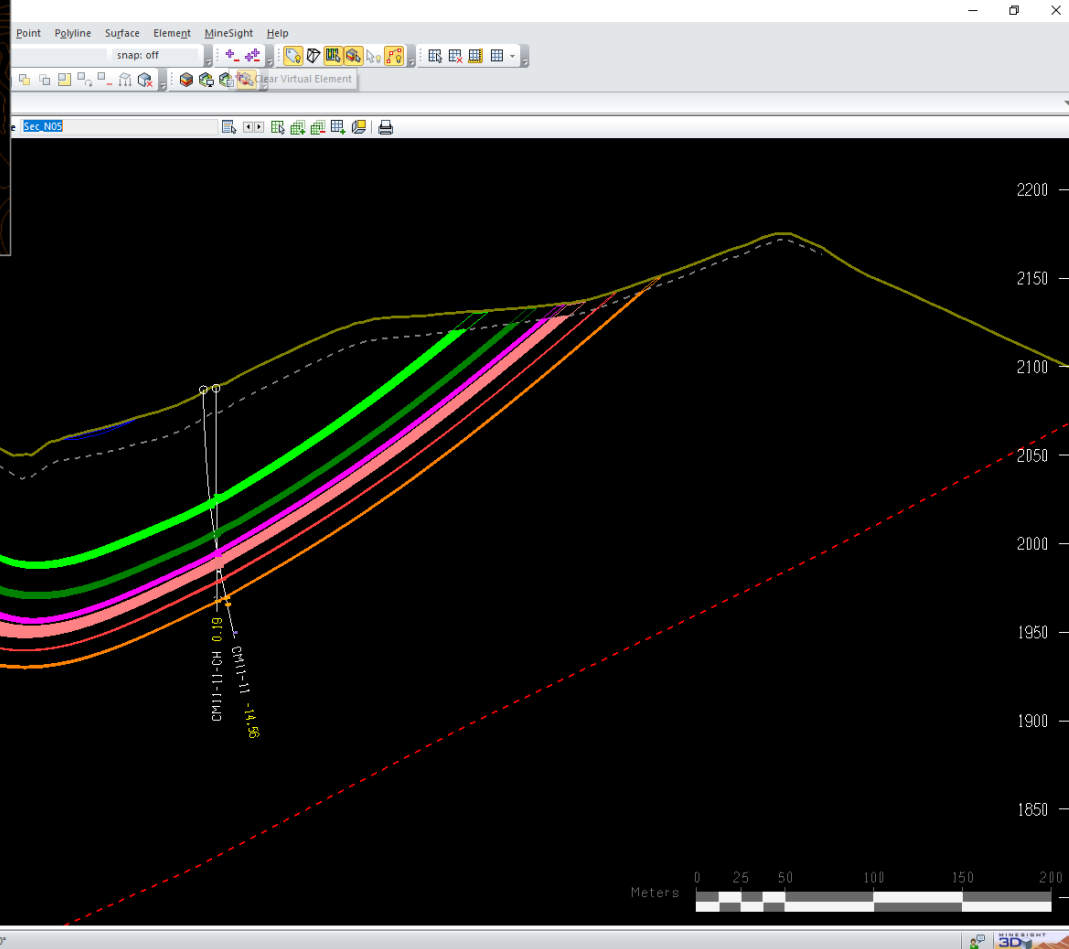
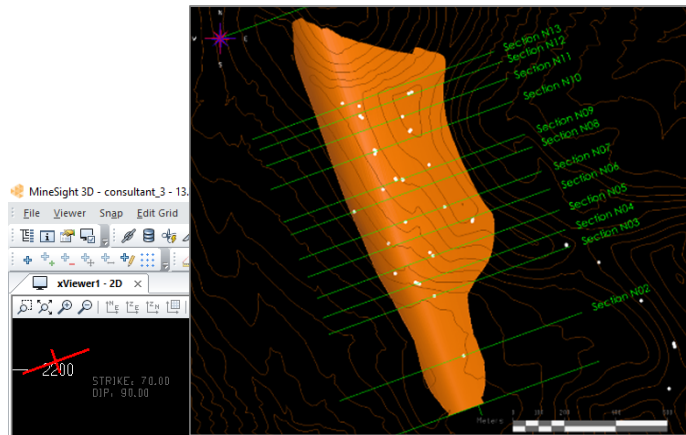
# North Block

# Section N-04



# North Block

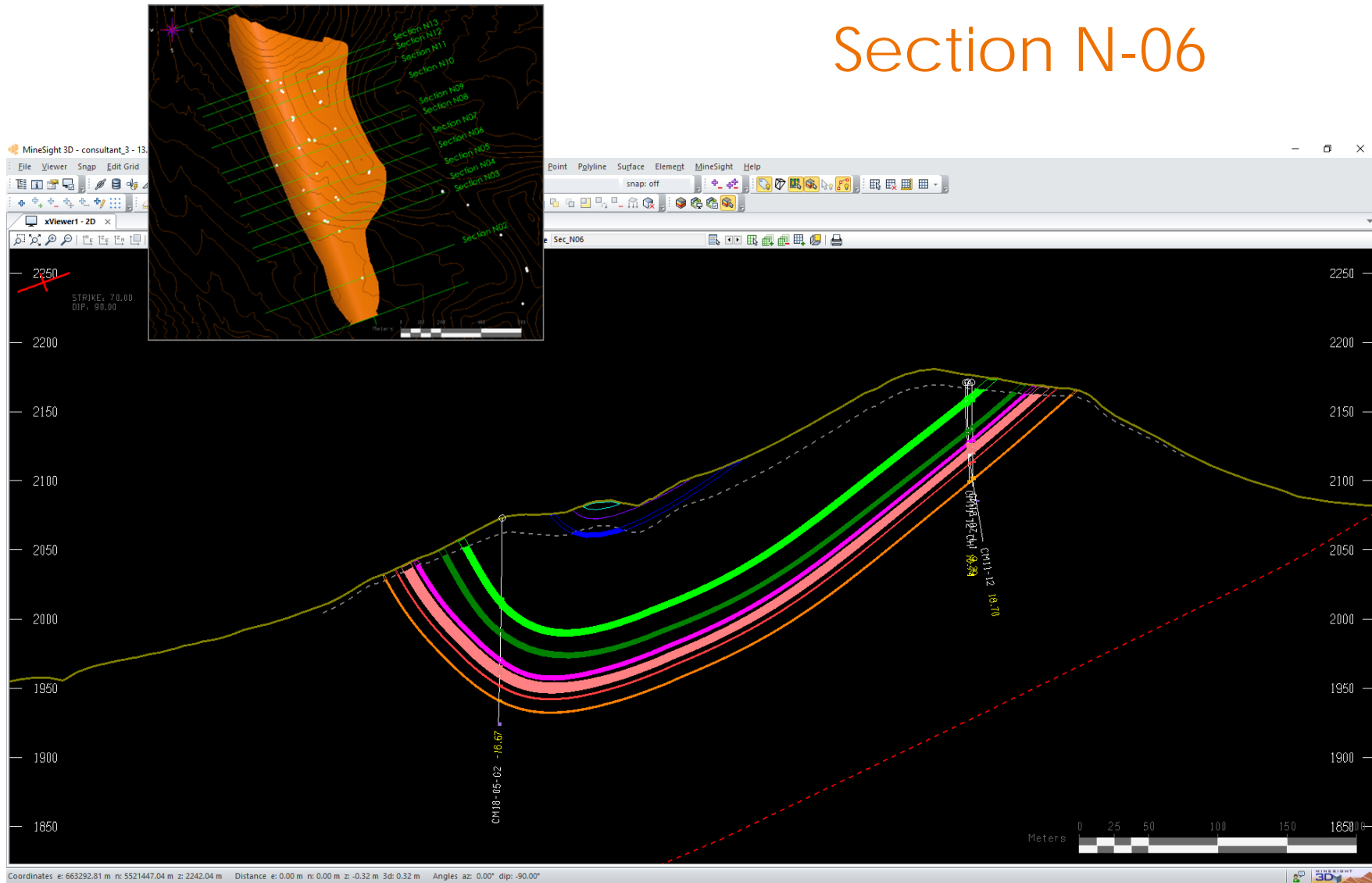
# Section N-05





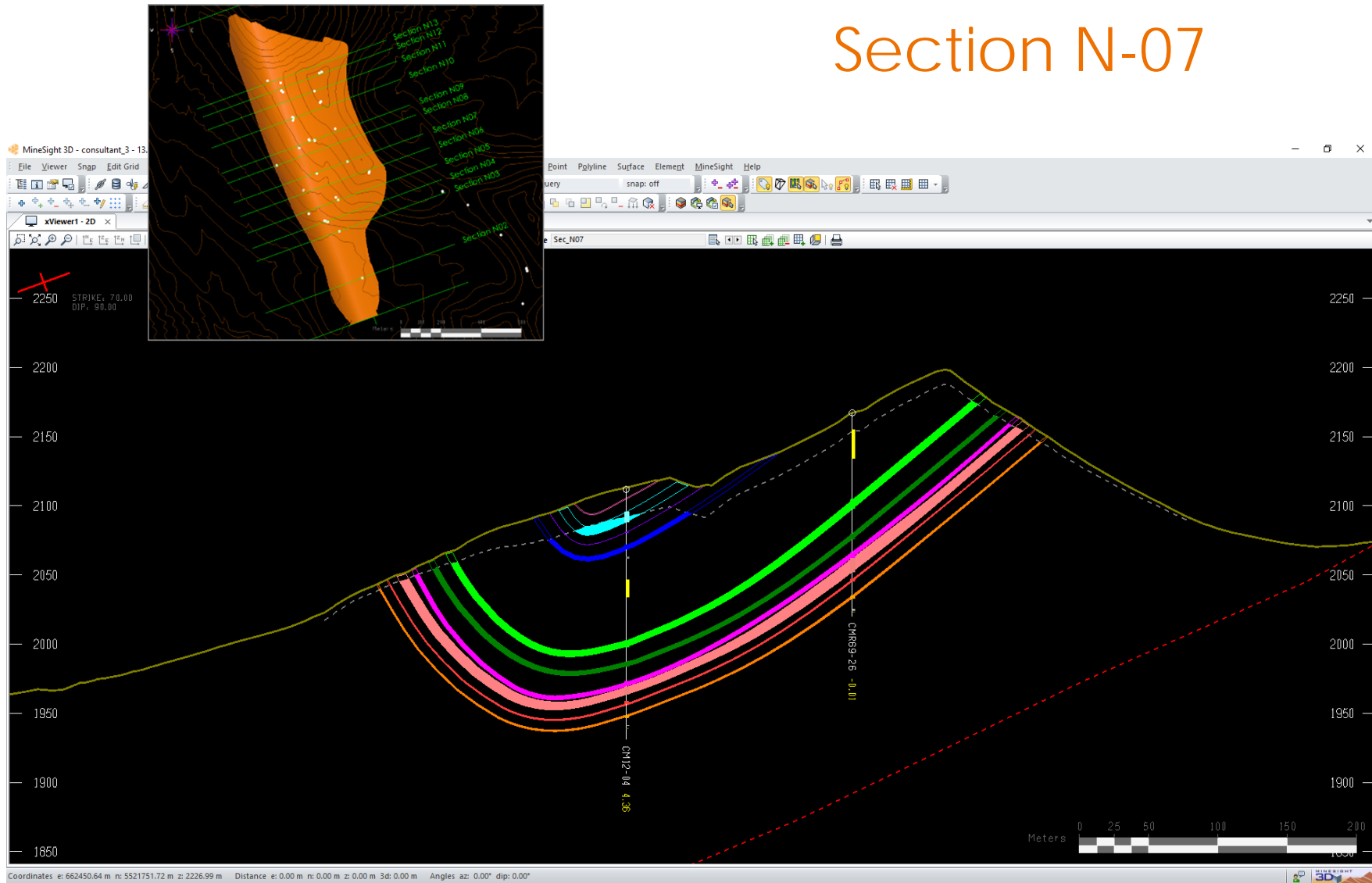
# North Block

# Section N-06



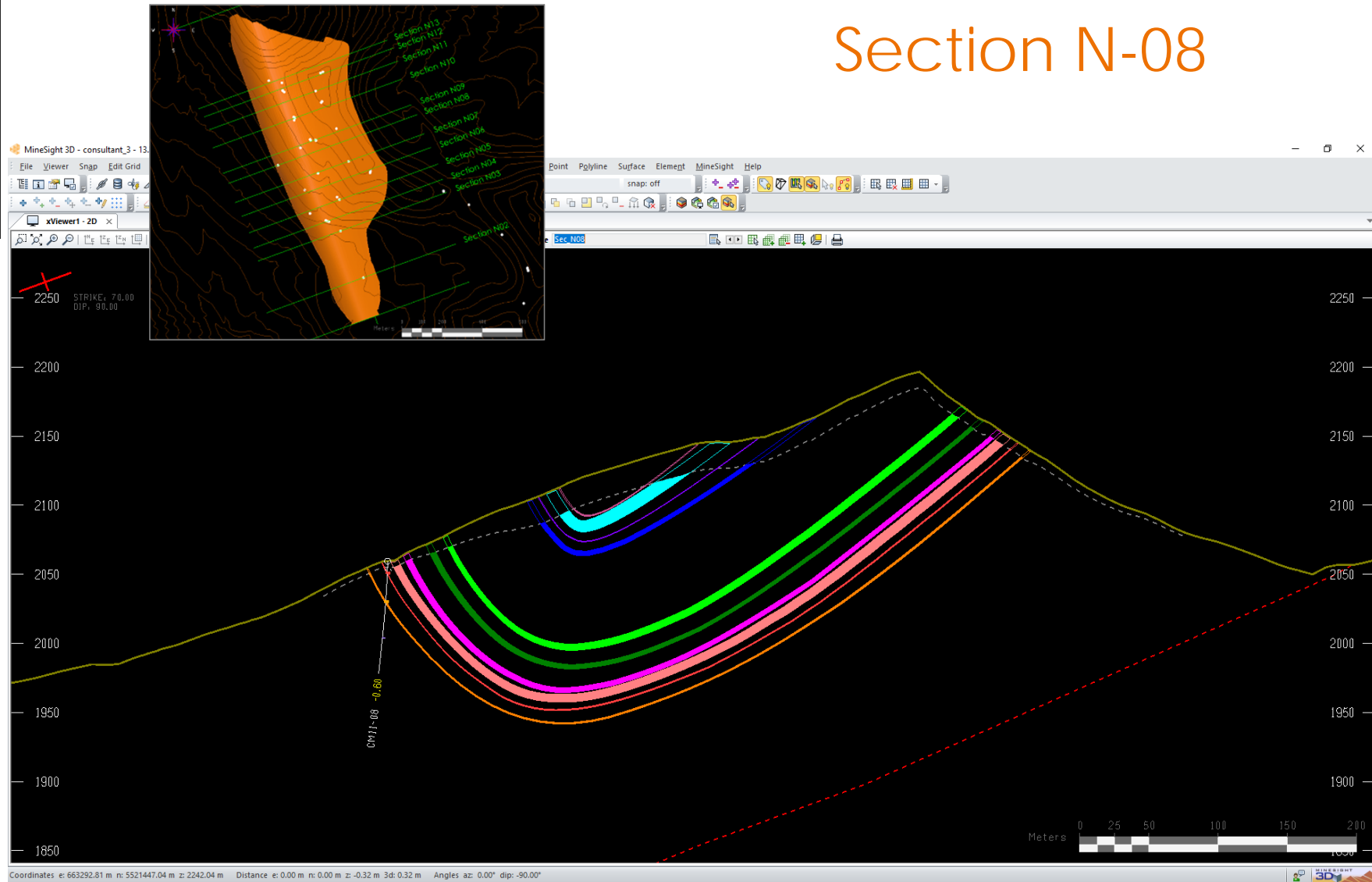
# North Block

# Section N-07



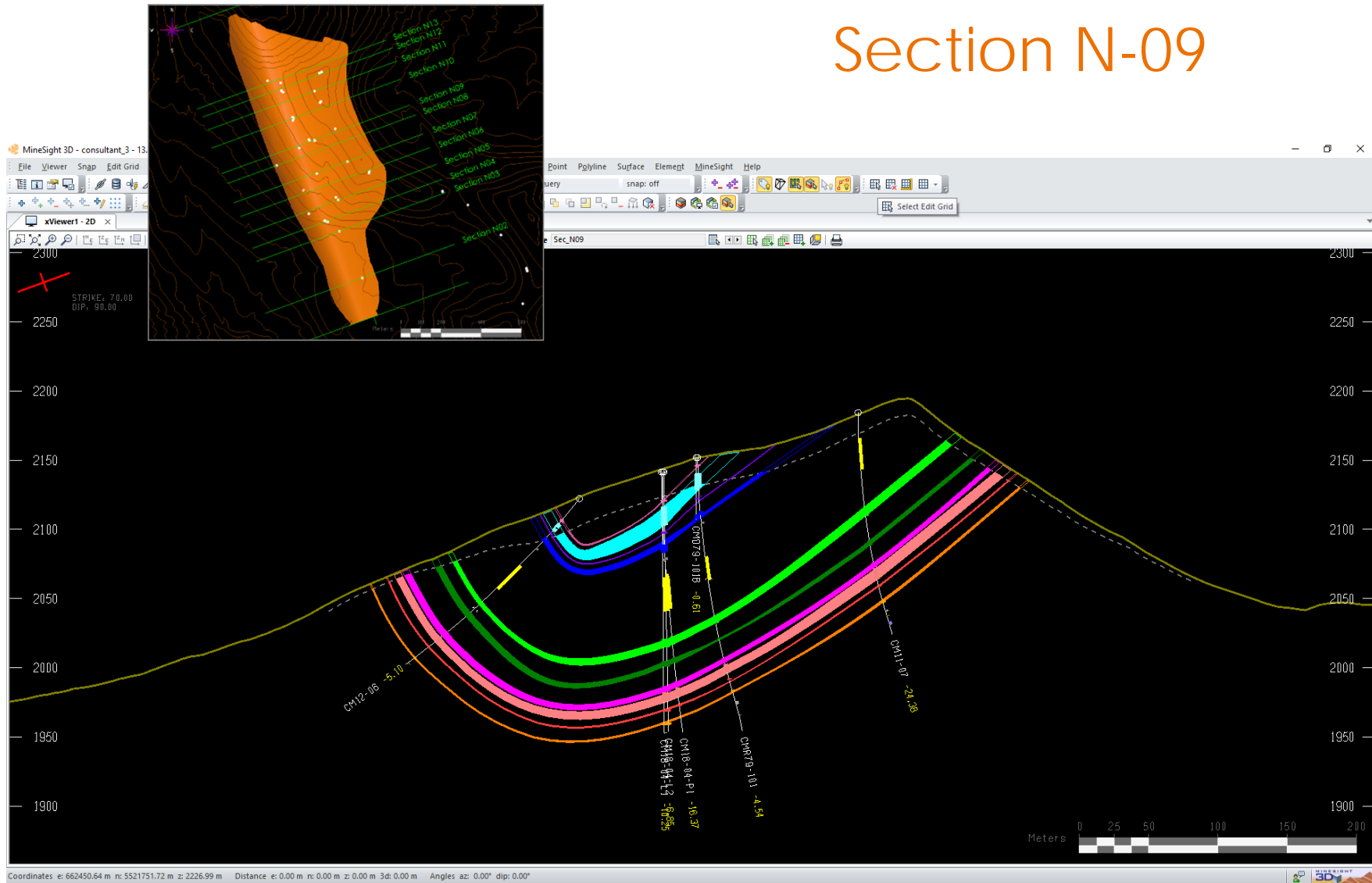
# North Block

# Section N-08



# North Block

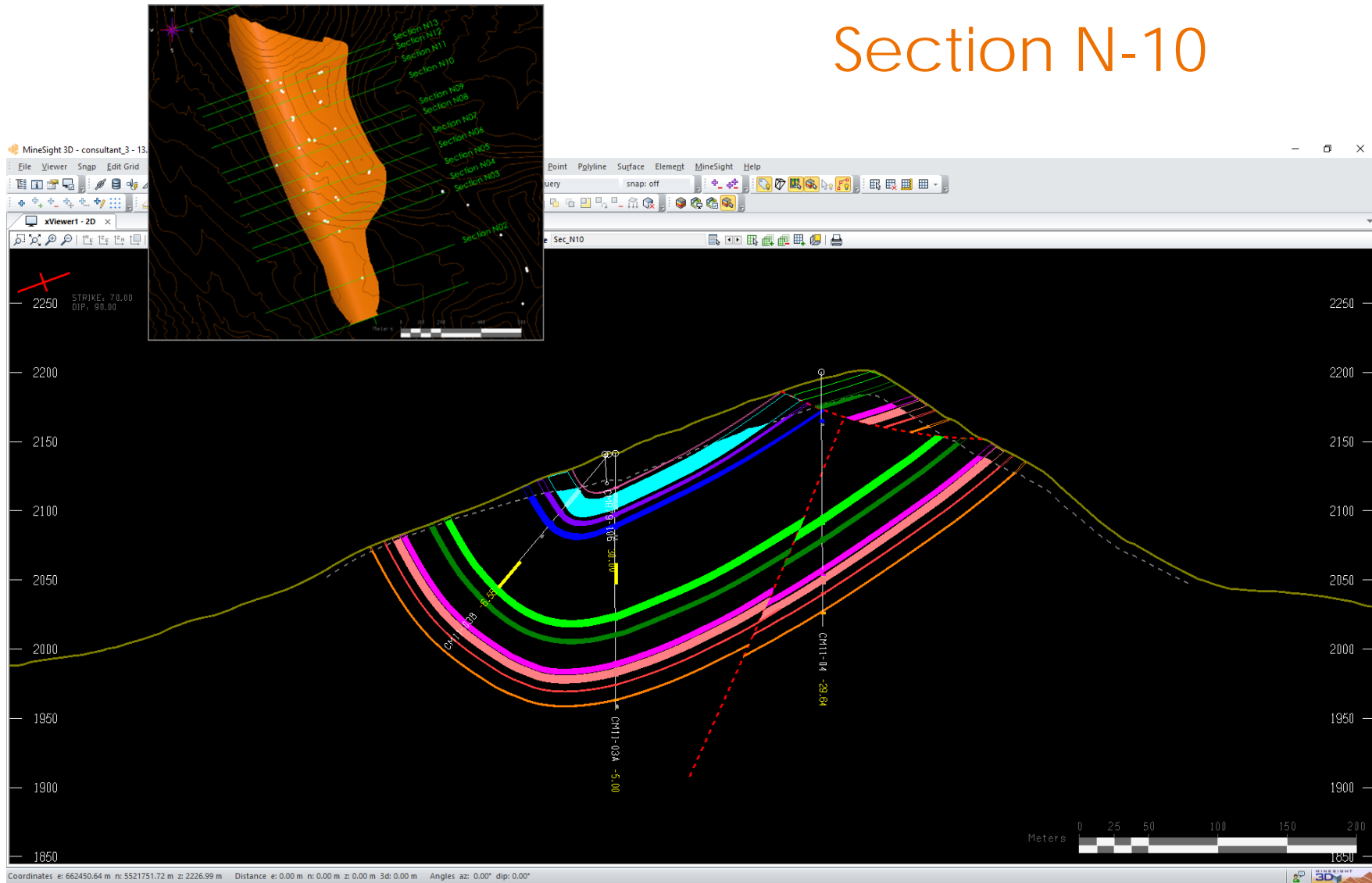
# Section N-09



- 8A
- 8U
- 8M
- 8L
- 84
- 9
- 9R
- 10Uab
- 10Ucd
- 10M
- 10L

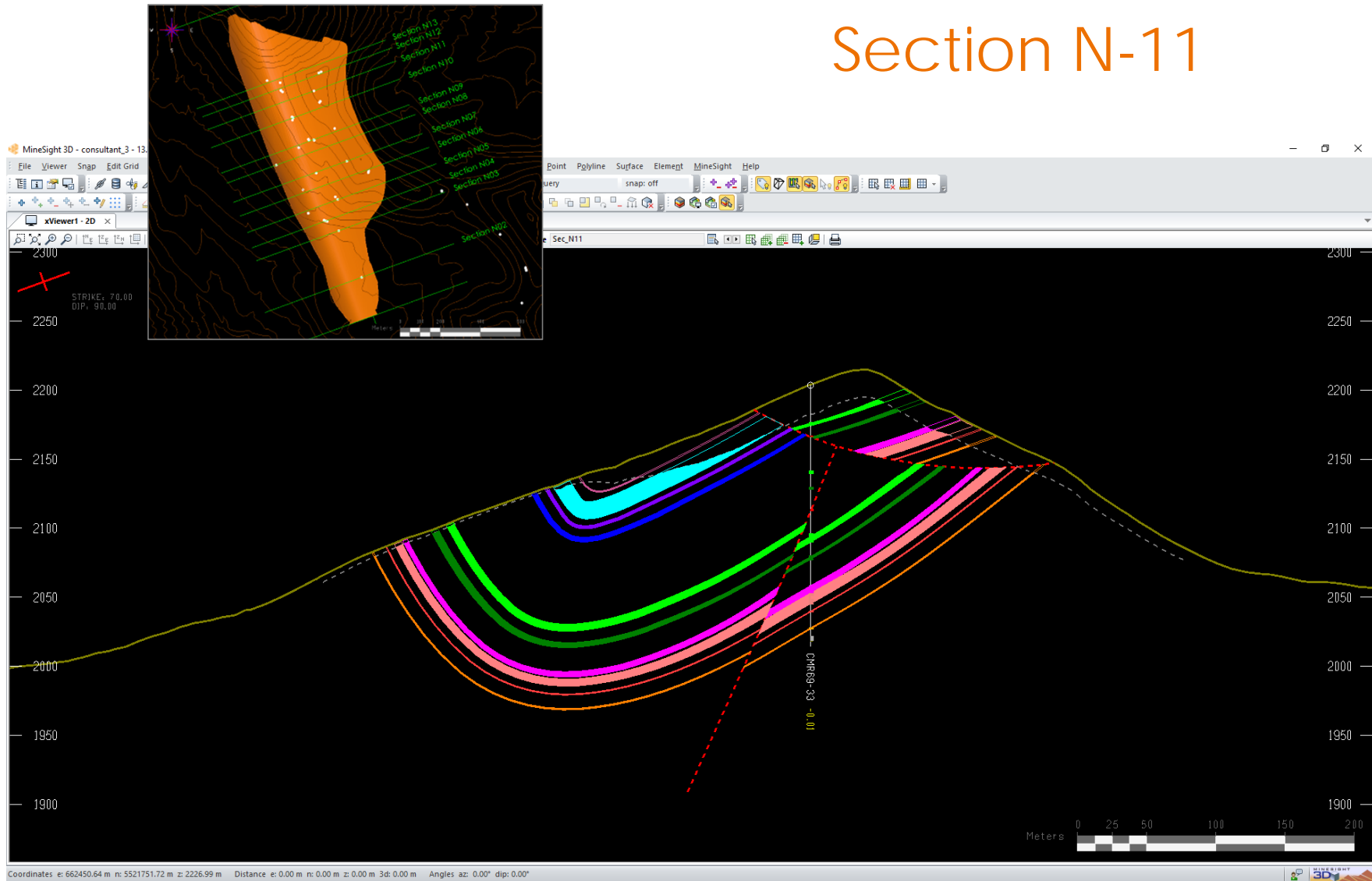
# North Block

# Section N-10



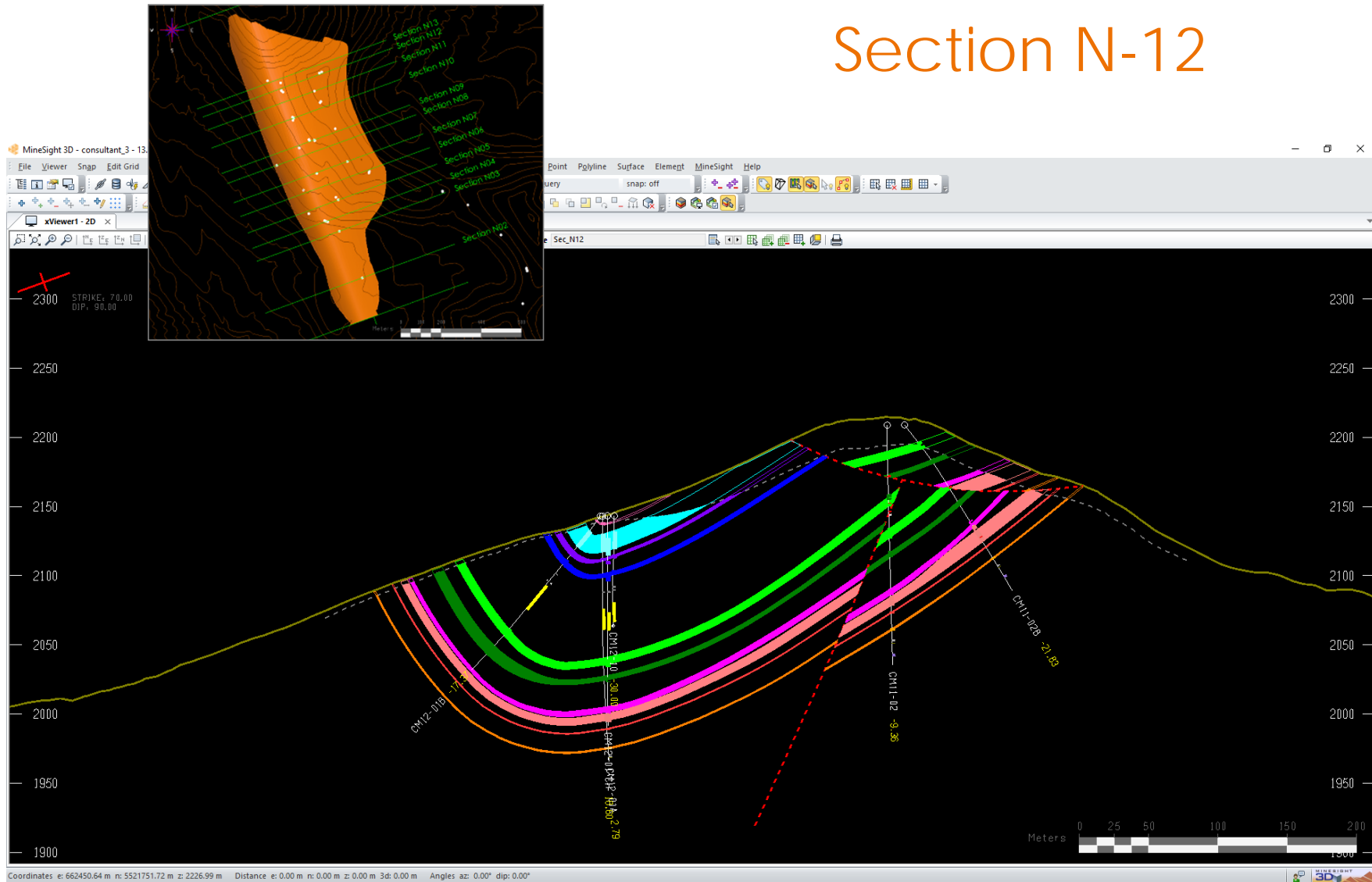
# North Block

# Section N-11



# North Block

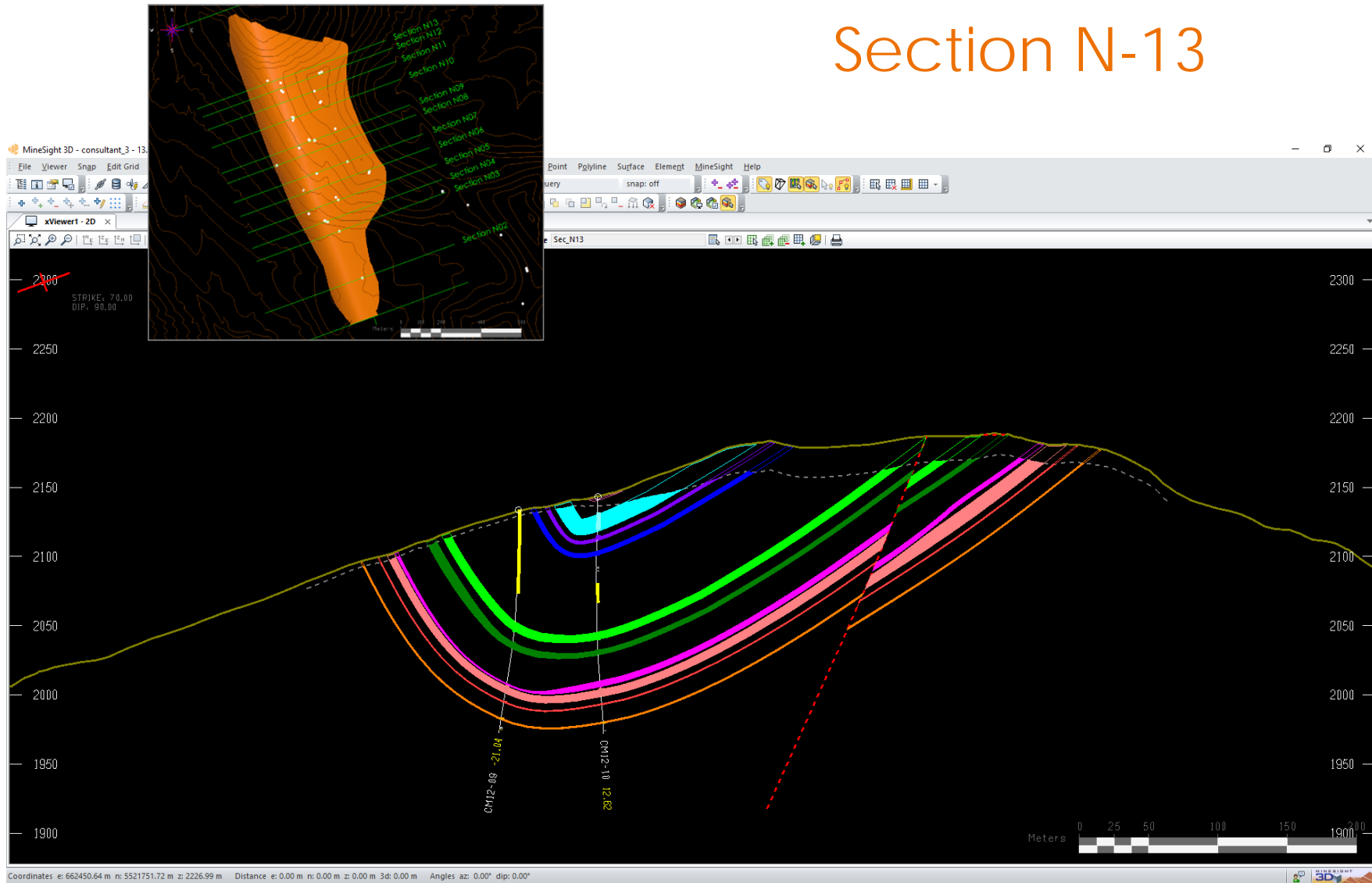
# Section N-12





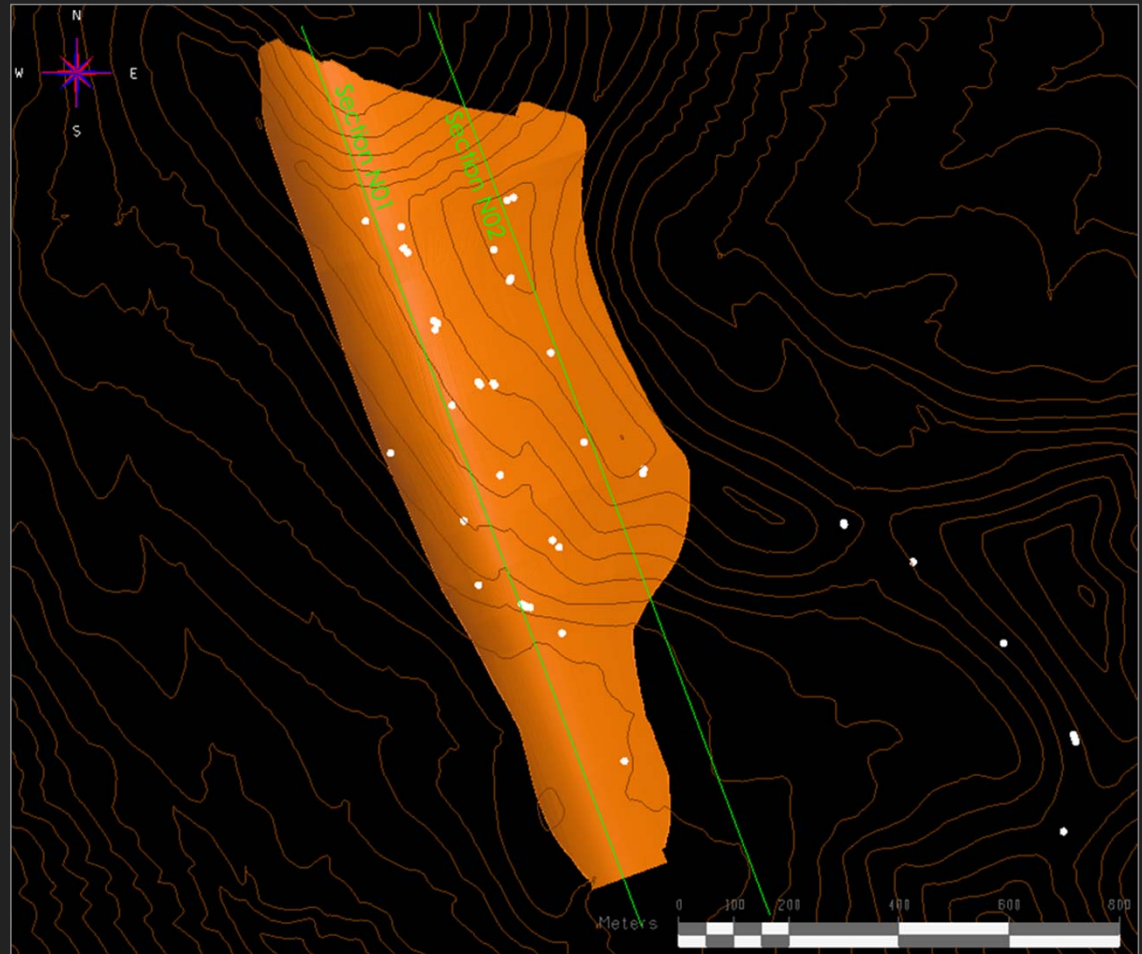
# North Block

# Section N-13



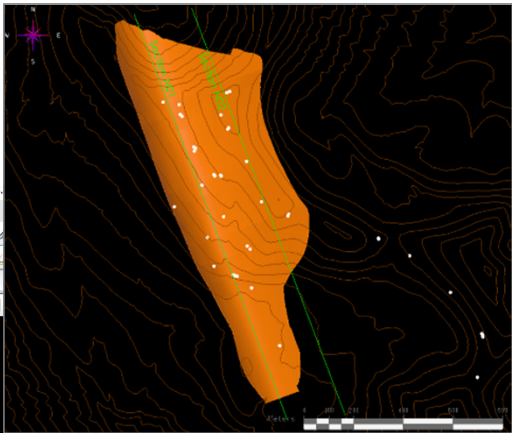
Cross-Sections (S-N)

# North Block



North Block

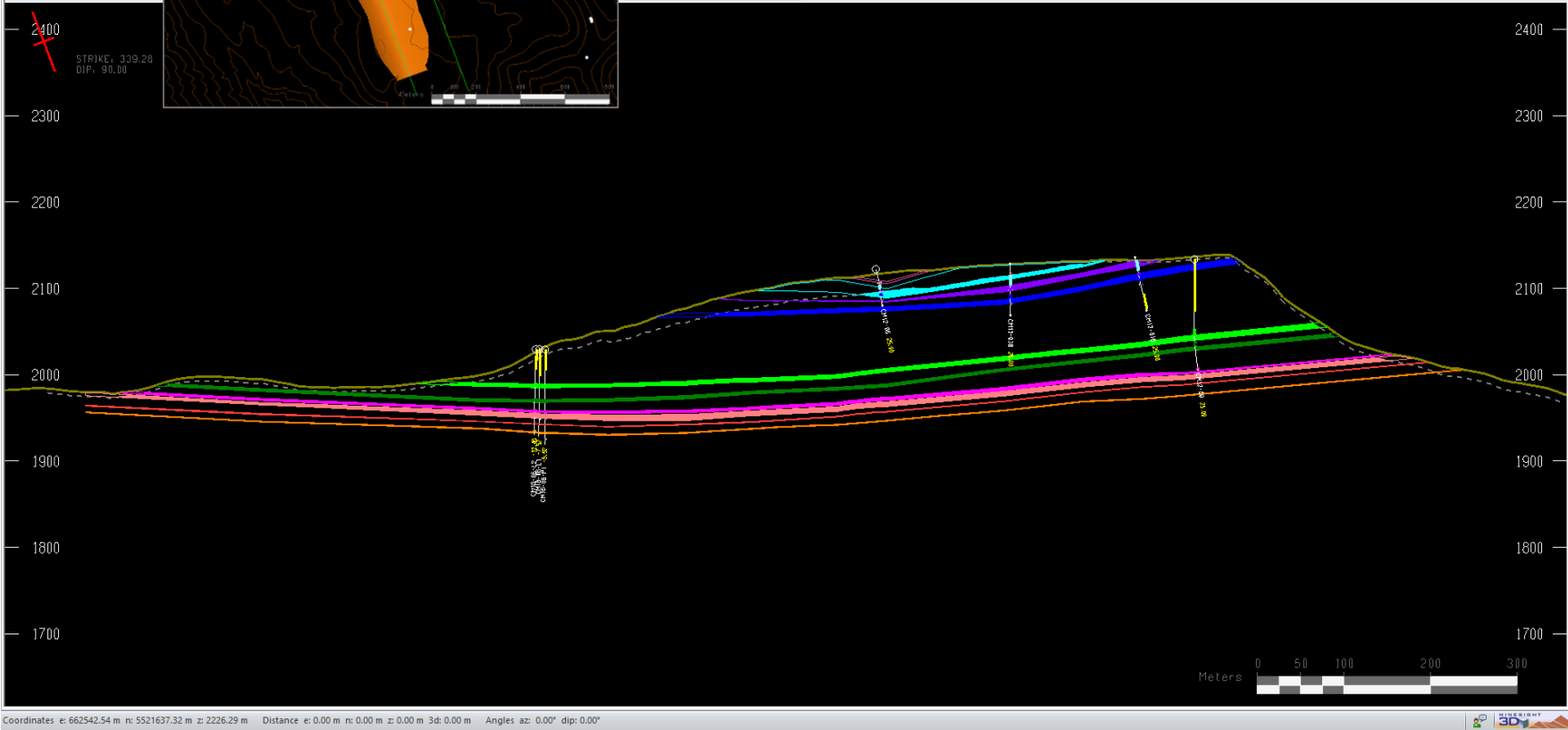
# Section N01\_S-N Along the syncline axis



MineSight 3D - consultant\_3 - 13.  
File Viewer Snap Edit Grid

Point Polyline Surface Element MineSight Help  
snap: off

- 8A
- 8U
- 8M
- 8L
- 84
- 9
- 9R
- 10Uab
- 10Ucd
- 10M
- 10L

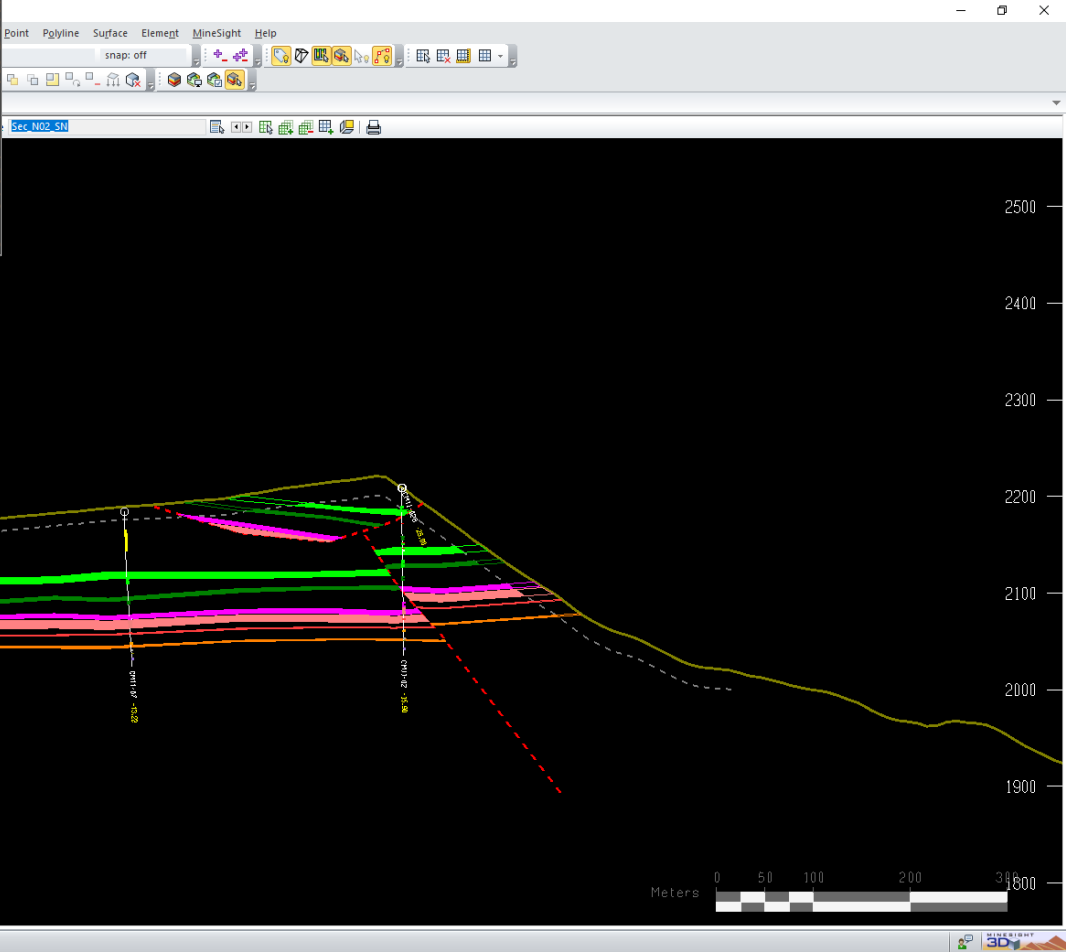
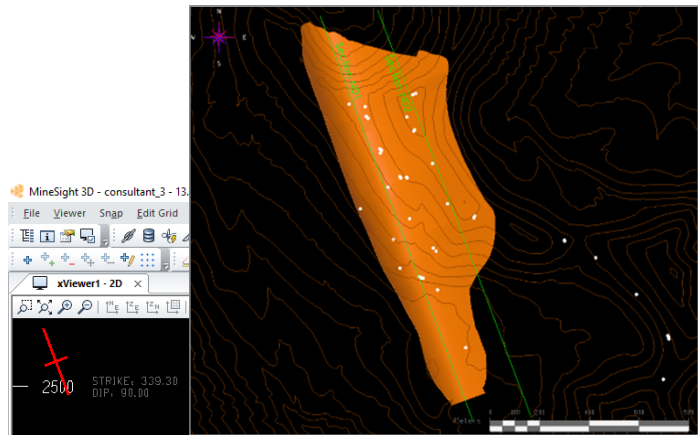


Coordinates: e: 662542.54 m n: 5521637.32 m z: 2226.29 m Distance: e: 0.00 m n: 0.00 m z: 0.00 m Angles: az: 0.00° dip: 0.00°



North Block

# Section N02\_S-N

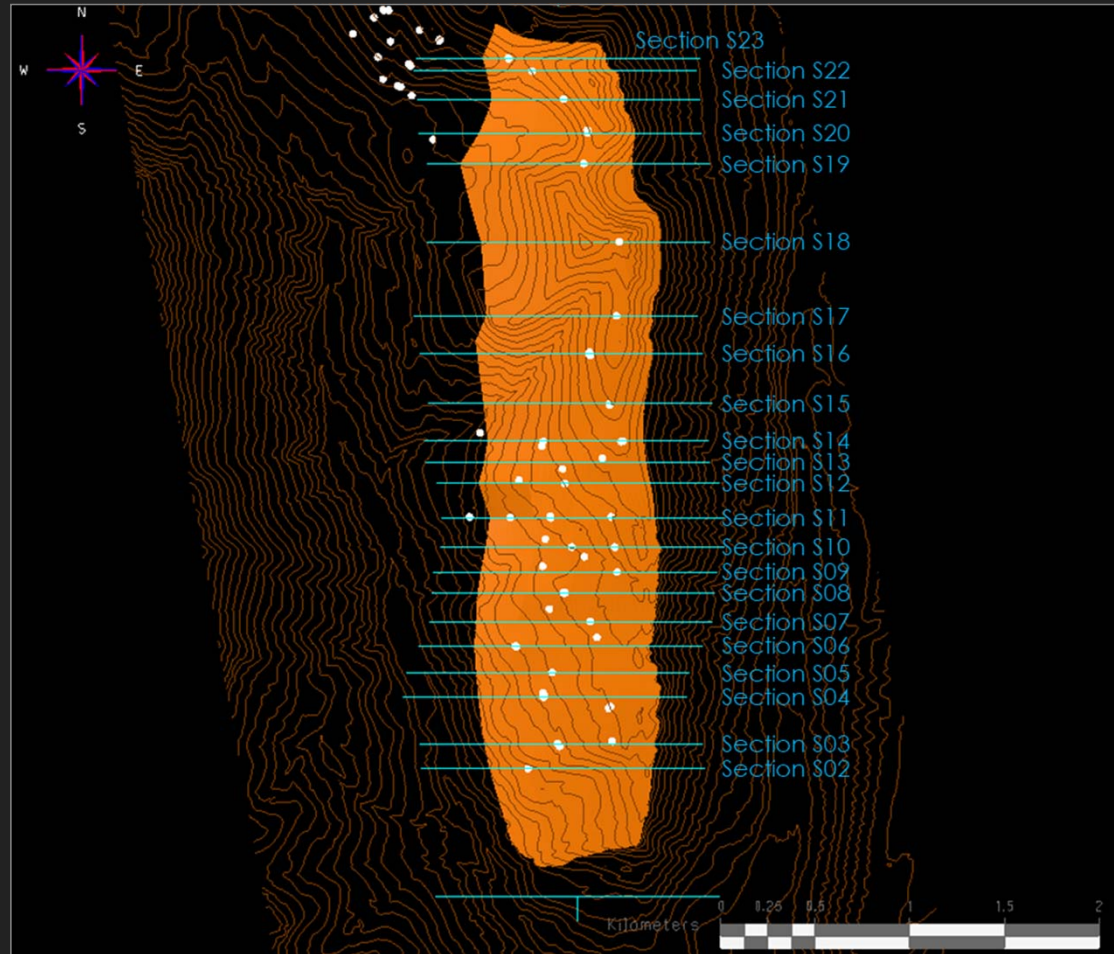


- 8A
- 8U
- 8M
- 8L
- 84
- 9
- 9R
- 10Uab
- 10Ucd
- 10M
- 10L

Coordinates: e: 662542.54 m n: 5521637.32 m z: 2226.29 m Distance: e: 0.00 m n: 0.00 m z: 0.00 m 3d: 0.00 m Angles: az: 0.00° dip: 0.00°

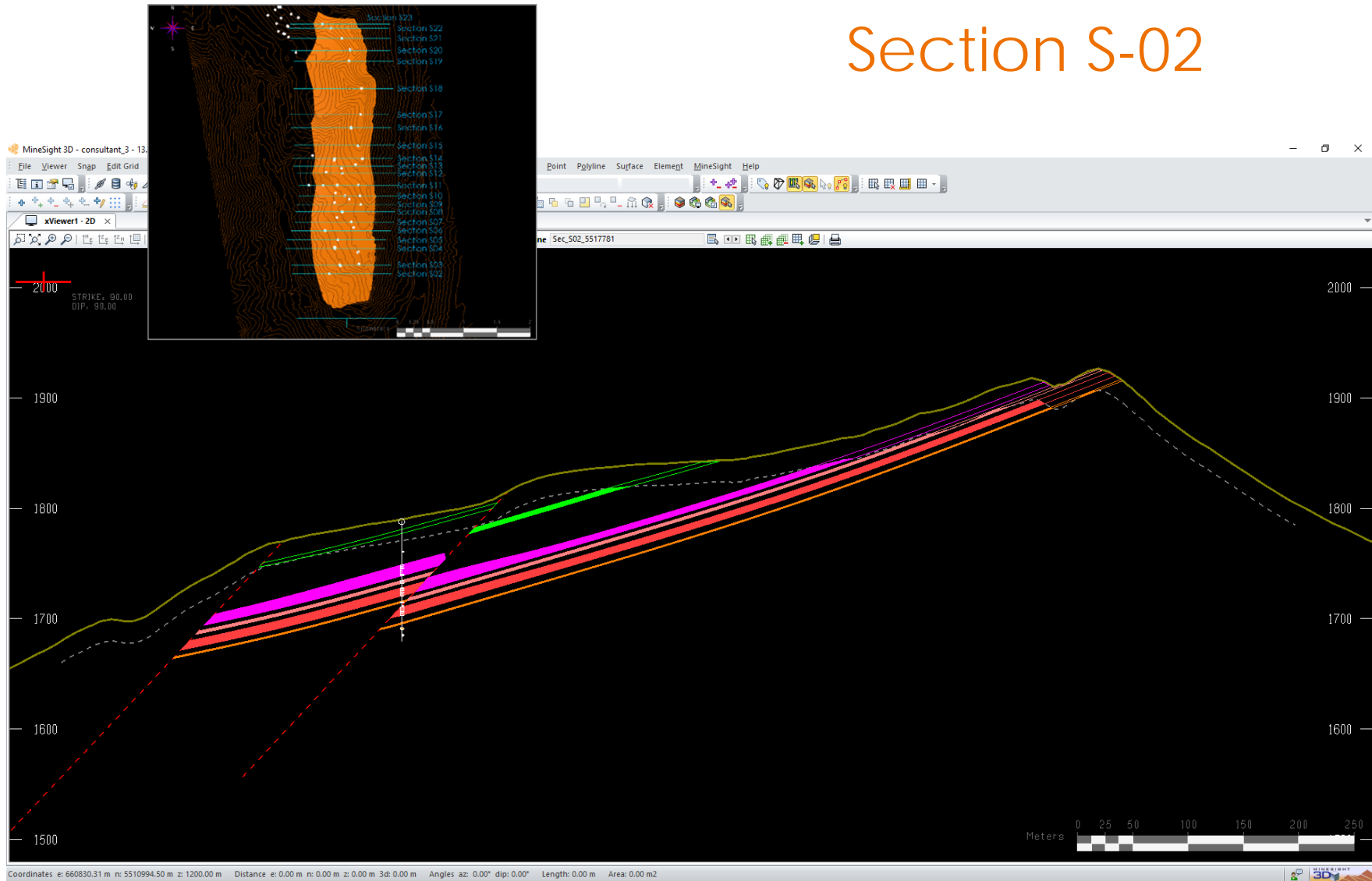
Cross-Sections

# South Block



South Block

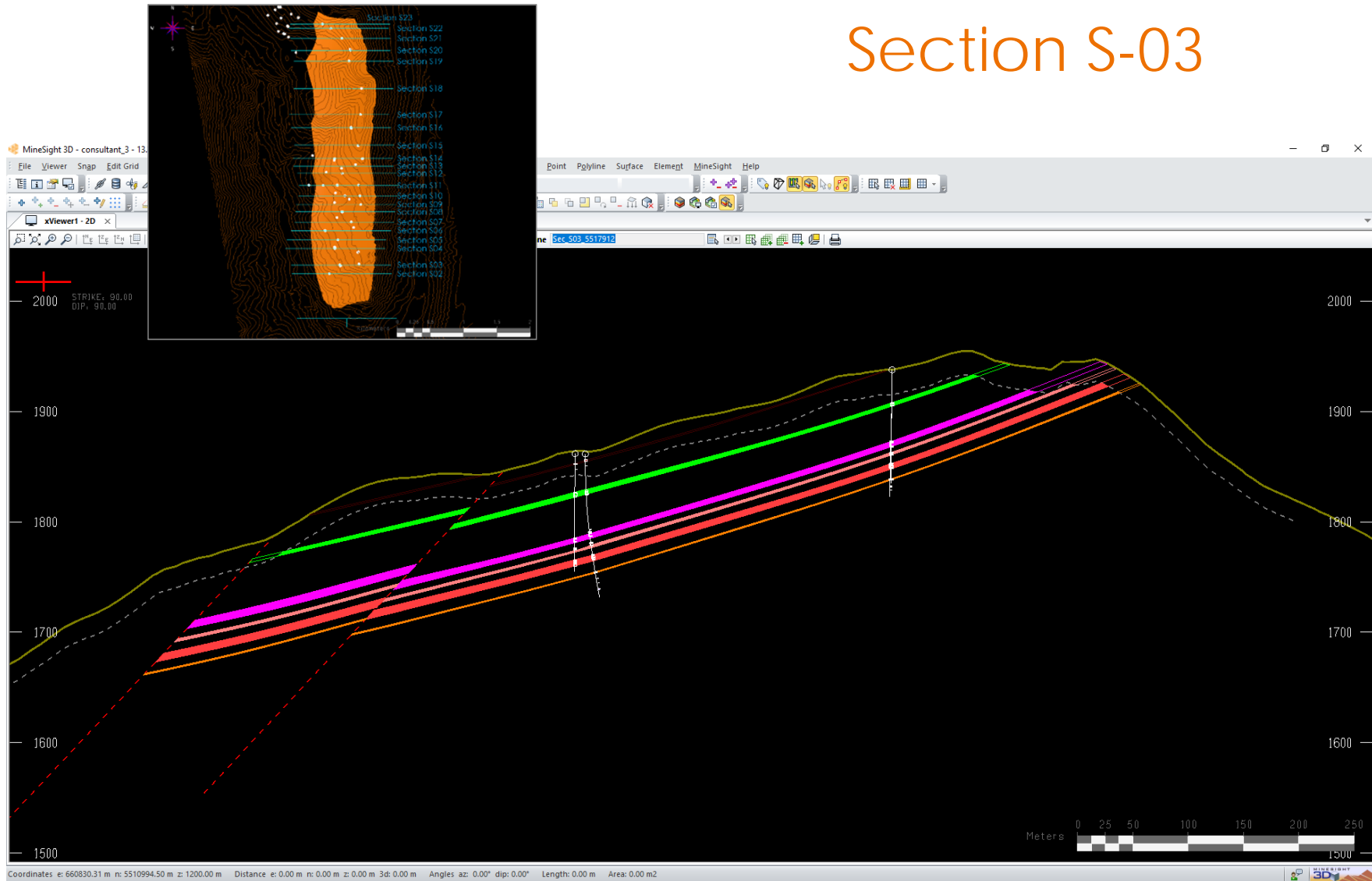
# Section S-02



- 8A
- 8U
- 8M
- 8L
- 84
- 9
- 9R
- 10Uab
- 10Ucd
- 10M
- 10L

South Block

# Section S-03

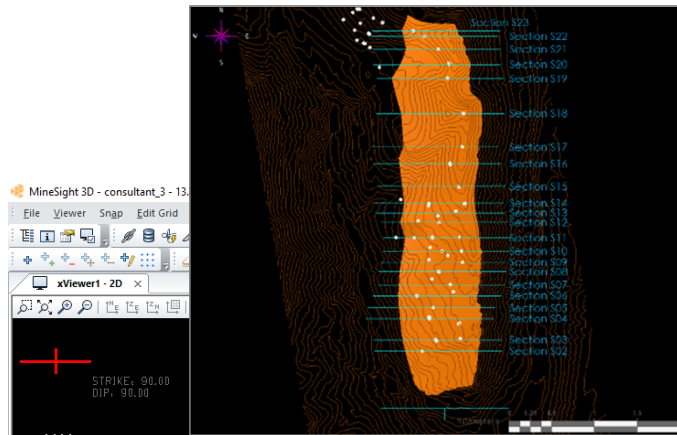




South Block

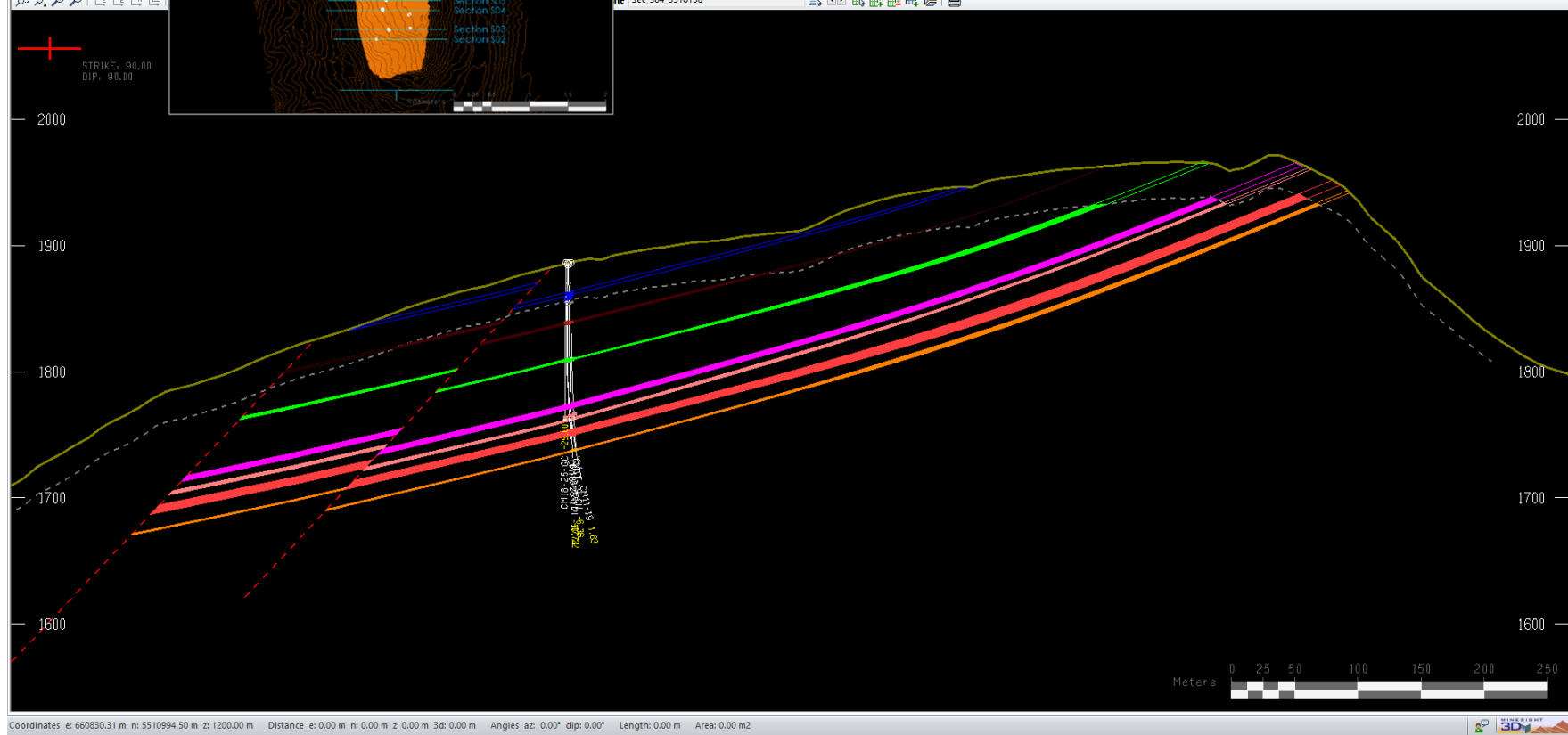
# Section S-04

- 8A
- 8U
- 8M
- 8L
- 84
- 9
- 9R
- 10Uab
- 10Ucd
- 10M
- 10L



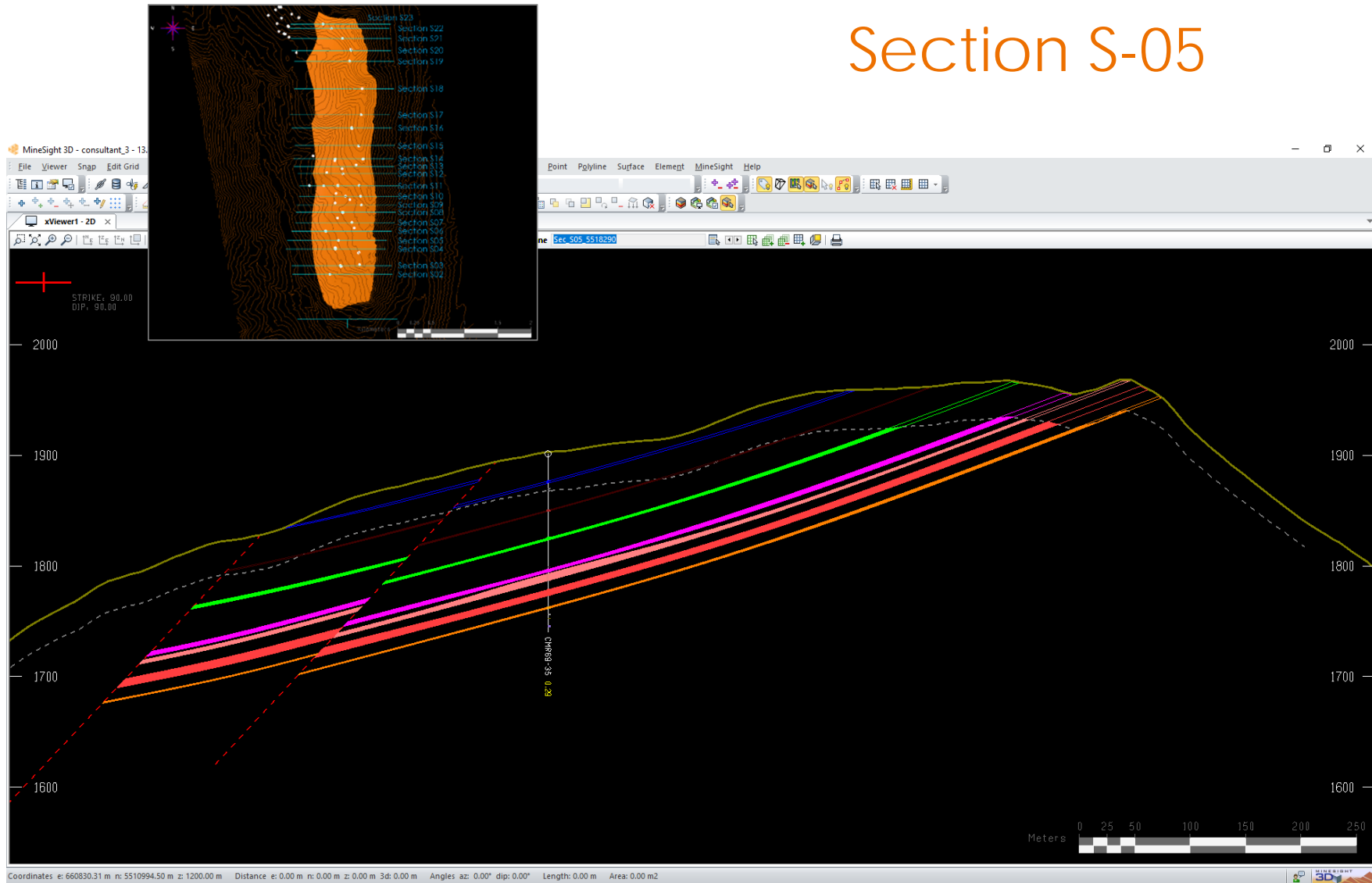
MineSight 3D - consultant\_3 - 13.  
File Viewer Snap Edit Grid

Point Polyline Surface Element MineSight Help



South Block

# Section S-05



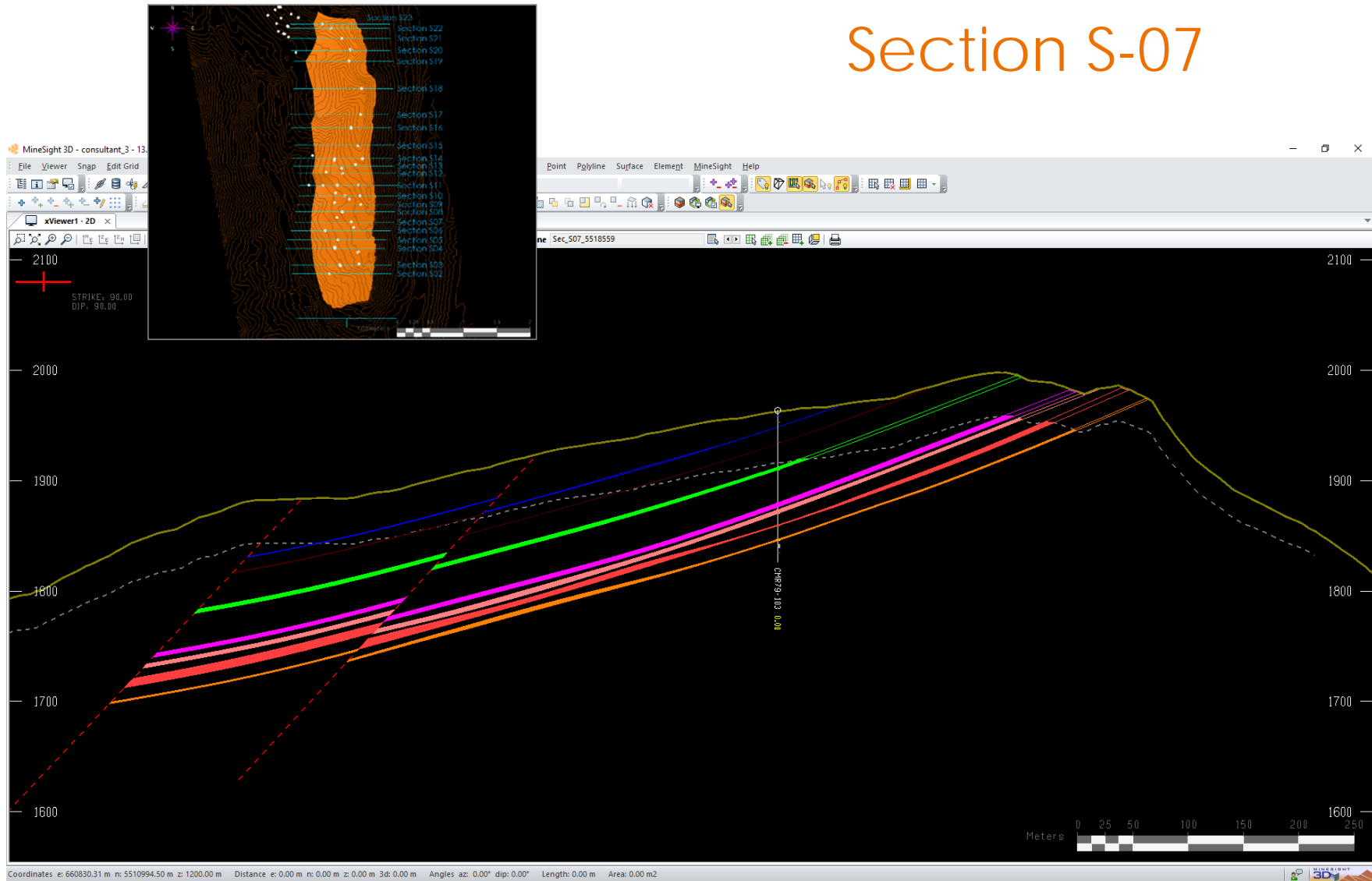
South Block

# Section S-06



# South Block

# Section S-07

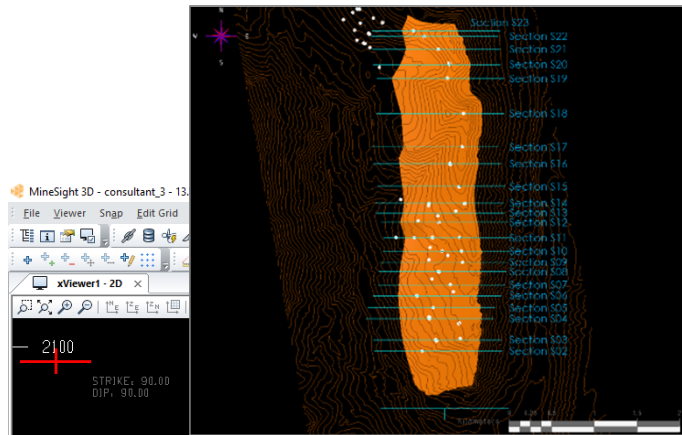


- 8A
- 8U
- 8M
- 8L
- 84
- 9
- 9R
- 10Uab
- 10Ucd
- 10M
- 10L

South Block

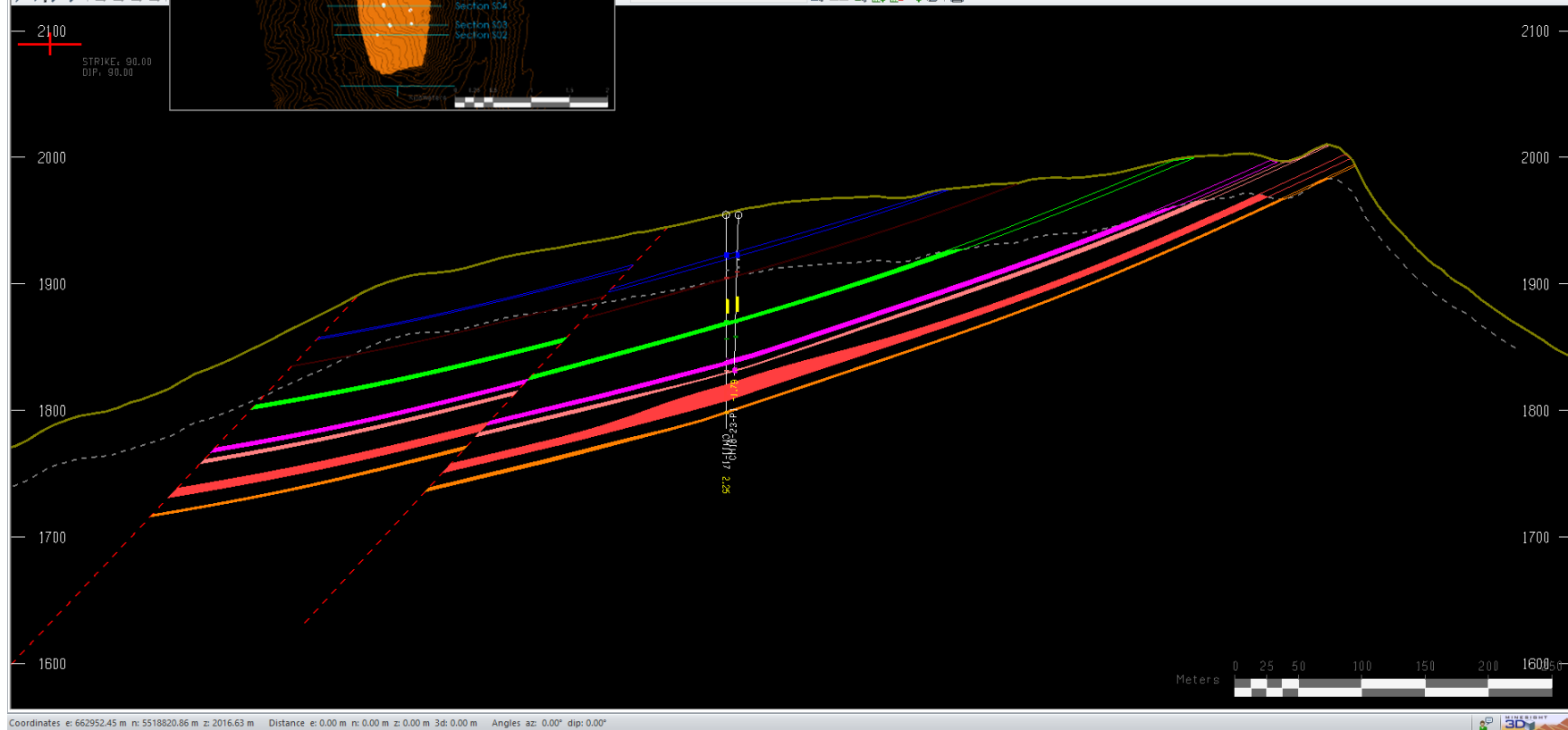
# Section S-08

- 8A
- 8U
- 8M
- 8L
- 84
- 9
- 9R
- 10Uab
- 10Ucd
- 10M
- 10L



MineSight 3D - consultant\_3 - 13.  
File Viewer Snap Edit Grid  
xViewer1 - 2D

Point Polyline Surface Element MineSight Help  
Query snap: off



Coordinates: e: 662952.45 m n: 5518820.86 m z: 2016.63 m Distance: e: 0.00 m n: 0.00 m z: 0.00 m 3d: 0.00 m Angles: az: 0.00° dip: 0.00°





South Block

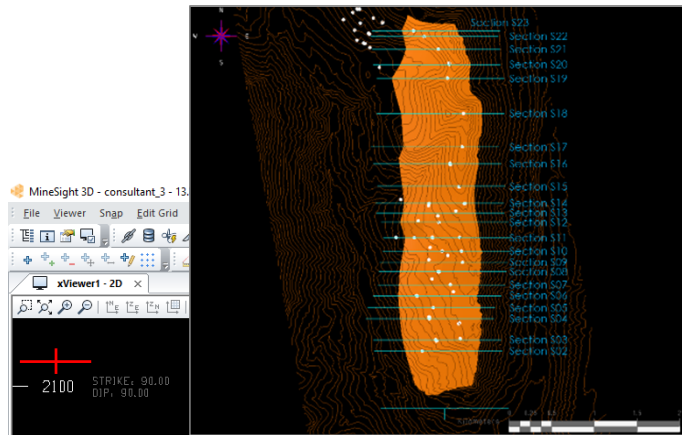
# Section S-09



South Block

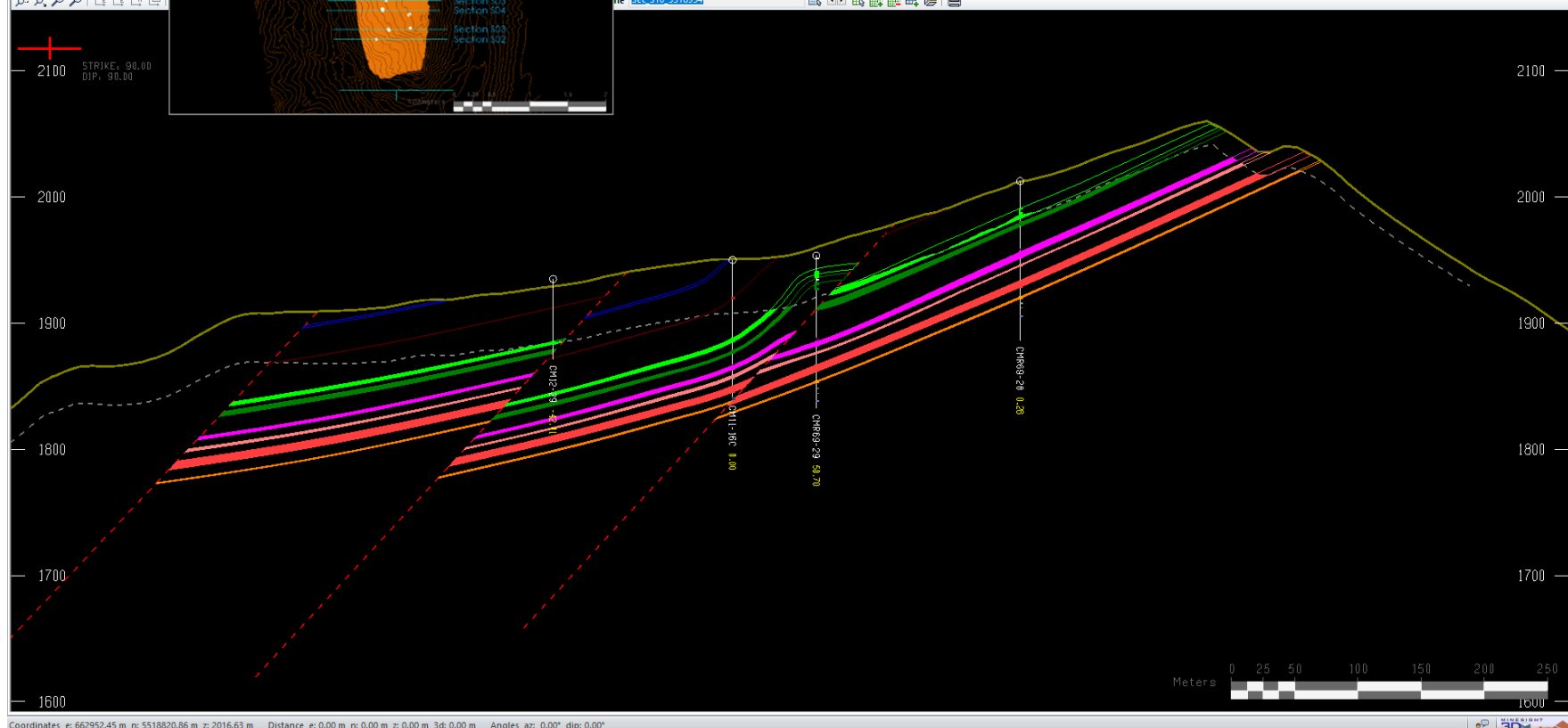
# Section S-10

- 8A
- 8U
- 8M
- 8L
- 84
- 9
- 9R
- 10Uab
- 10Ucd
- 10M
- 10L



MineSight 3D - consultant\_3 - 13.  
File Viewer Snap Edit Grid

Point Polyline Surface Element MineSight Help  
snap: off

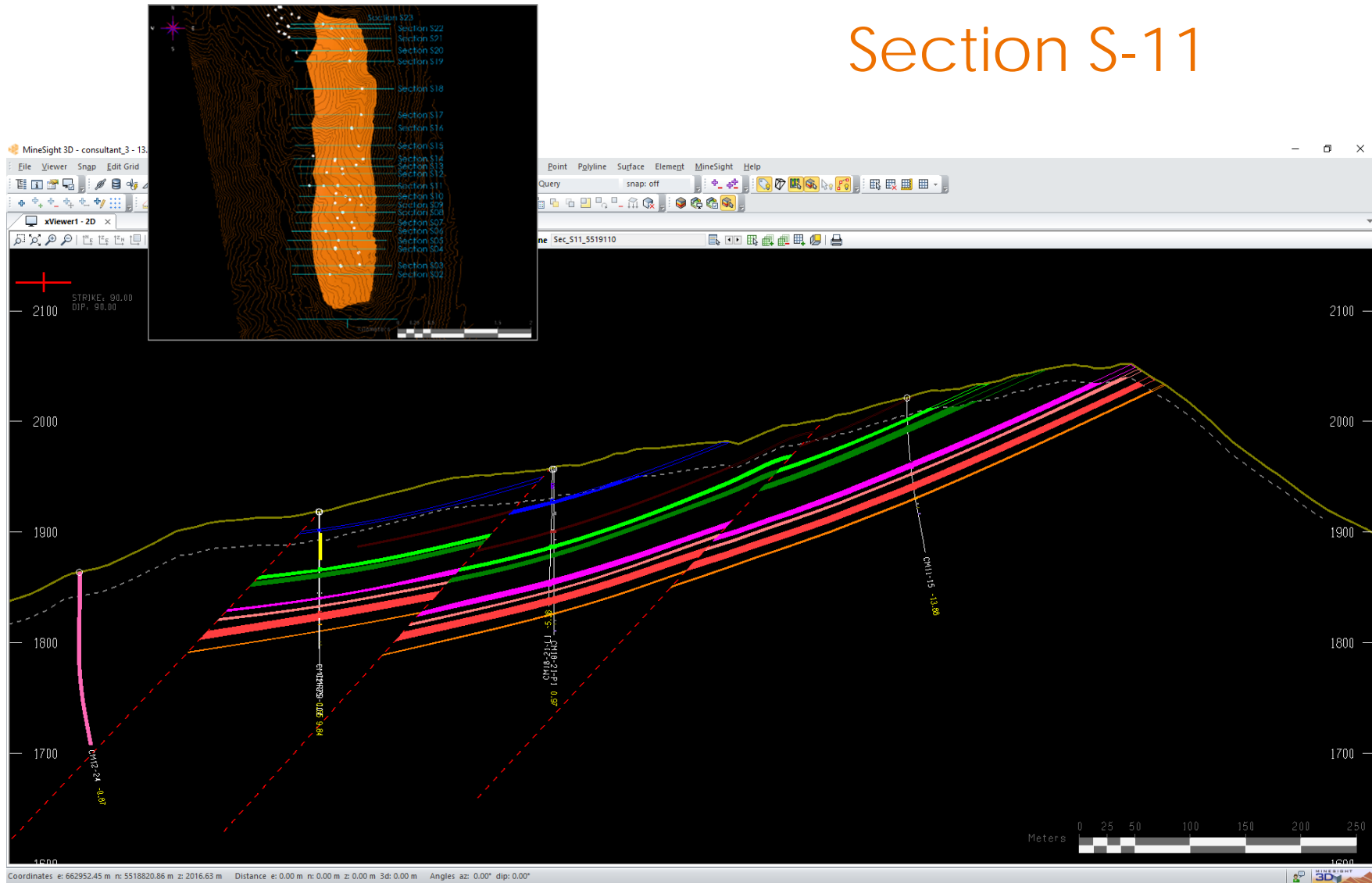


Coordinates: e: 662952.45 m n: 5518820.86 m z: 2016.63 m Distance: e: 0.00 m n: 0.00 m z: 0.00 m 3d: 0.00 m Angles: az: 0.00° dip: 0.00°

South Block

# Section S-11

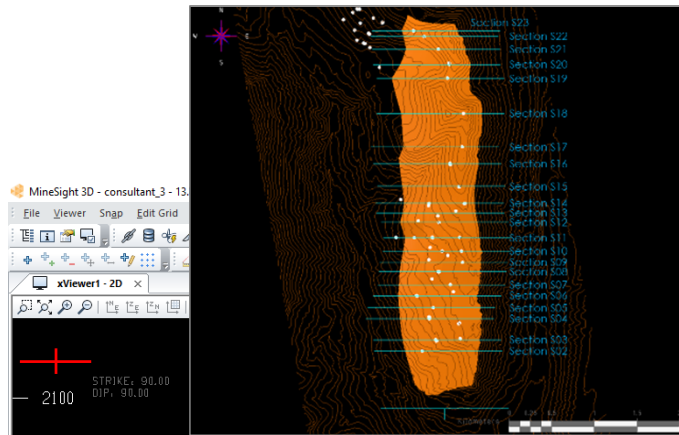
- 8A
- 8U
- 8M
- 8L
- 84
- 9
- 9R
- 10Uab
- 10Ucd
- 10M
- 10L



South Block

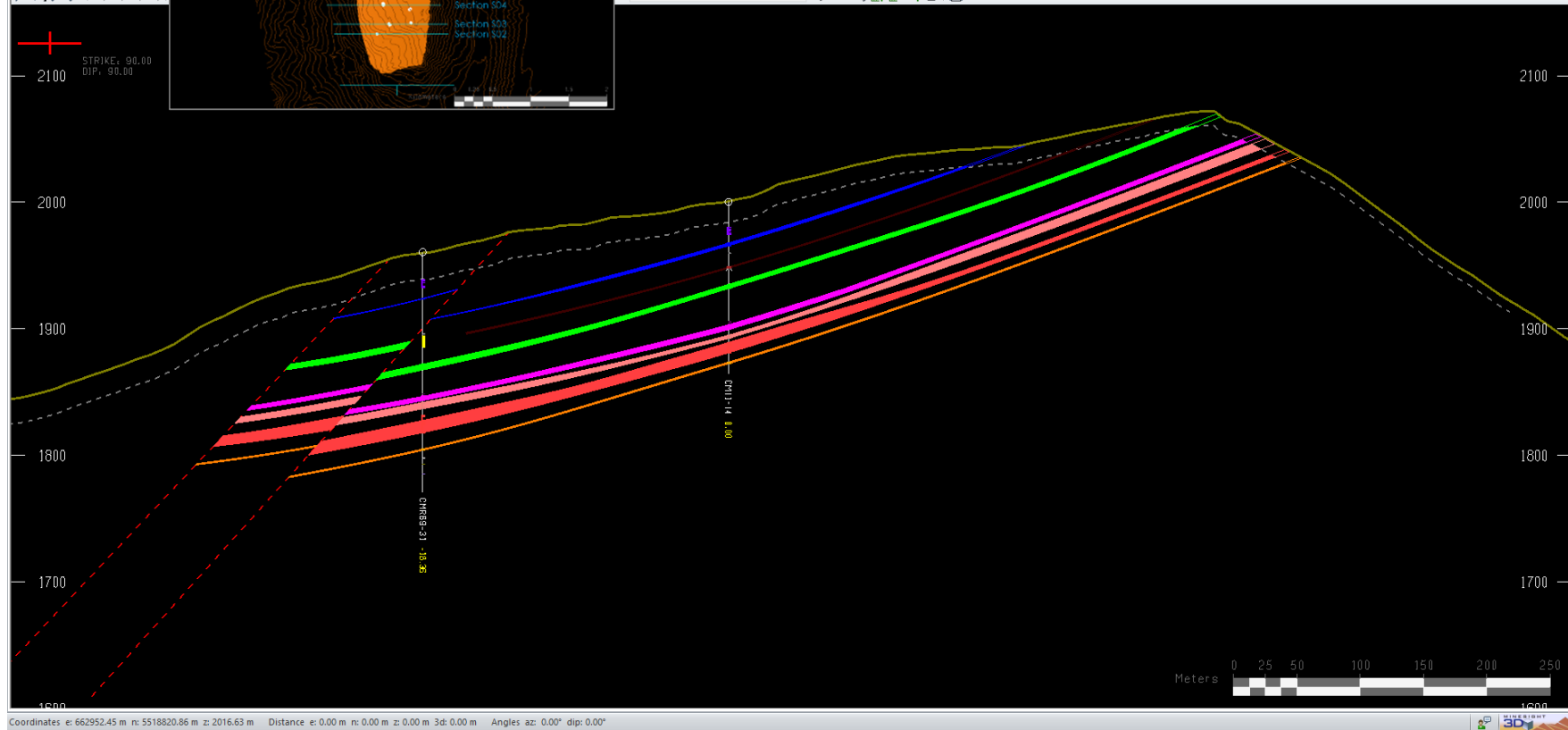
# Section S-12

- 8A
- 8U
- 8M
- 8L
- 84
- 9
- 9R
- 10Uab
- 10Ucd
- 10M
- 10L



MineSight 3D - consultant\_3 - 13.  
File Viewer Snap Edit Grid  
xViewer1 - 2D

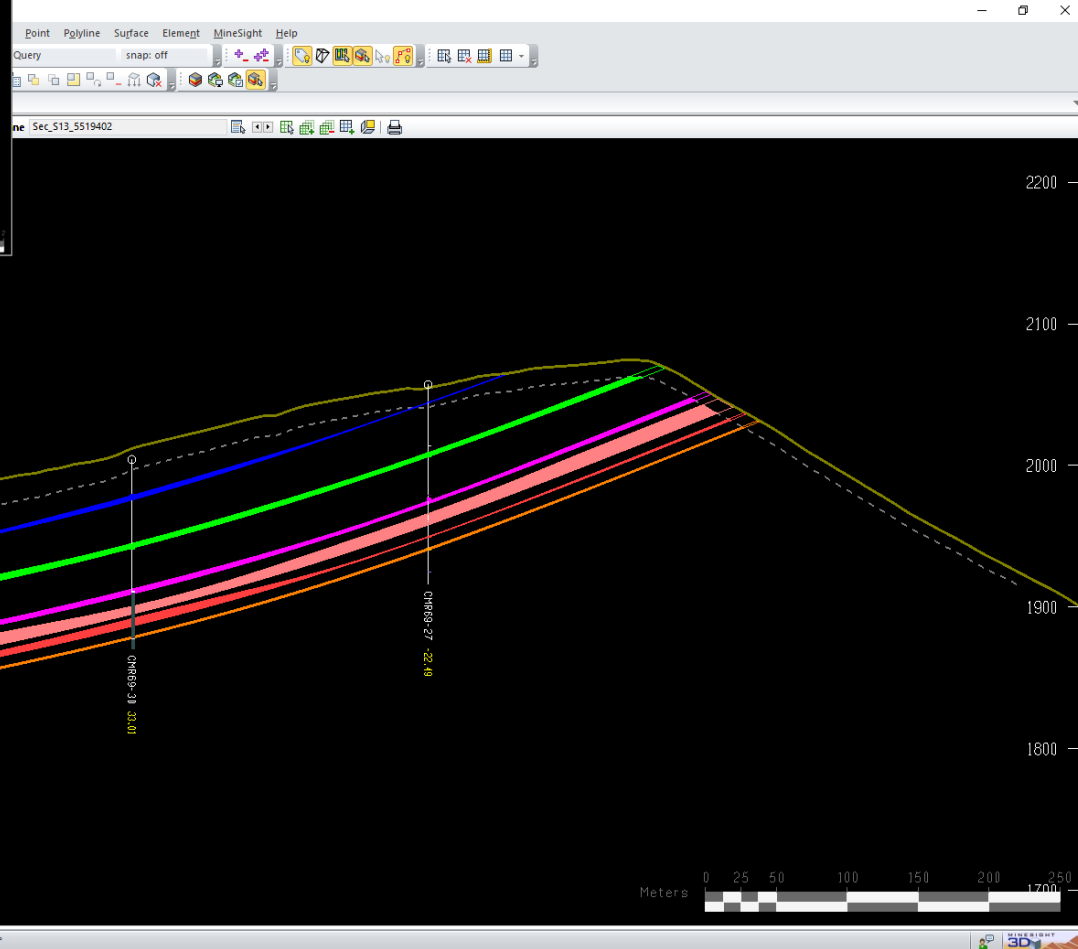
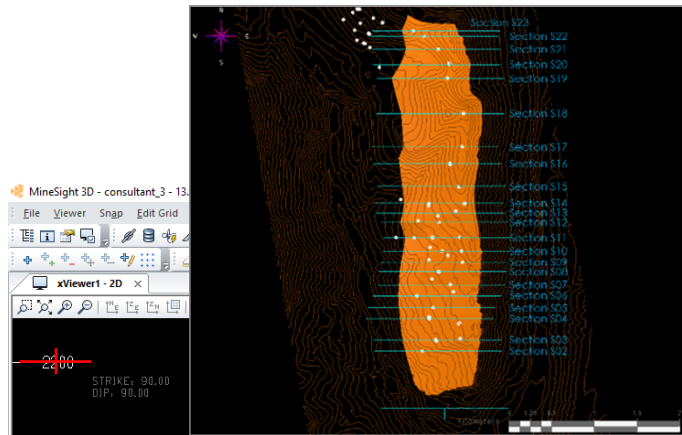
Point Polyline Surface Element MineSight Help  
Query snap: off



Coordinates: e: 662952.45 m n: 5518820.86 m z: 2016.63 m Distance: e: 0.00 m n: 0.00 m z: 0.00 m 3d: 0.00 m Angles: az: 0.00° dip: 0.00°

South Block

# Section S-13



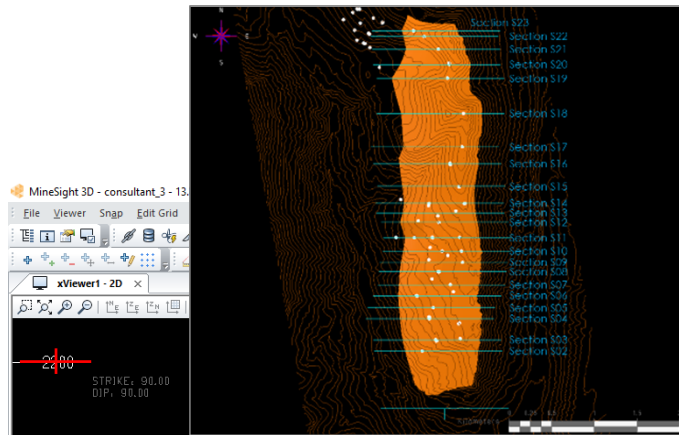
- 8A
- 8U
- 8M
- 8L
- 84
- 9
- 9R
- 10Uab
- 10Ucd
- 10M
- 10L



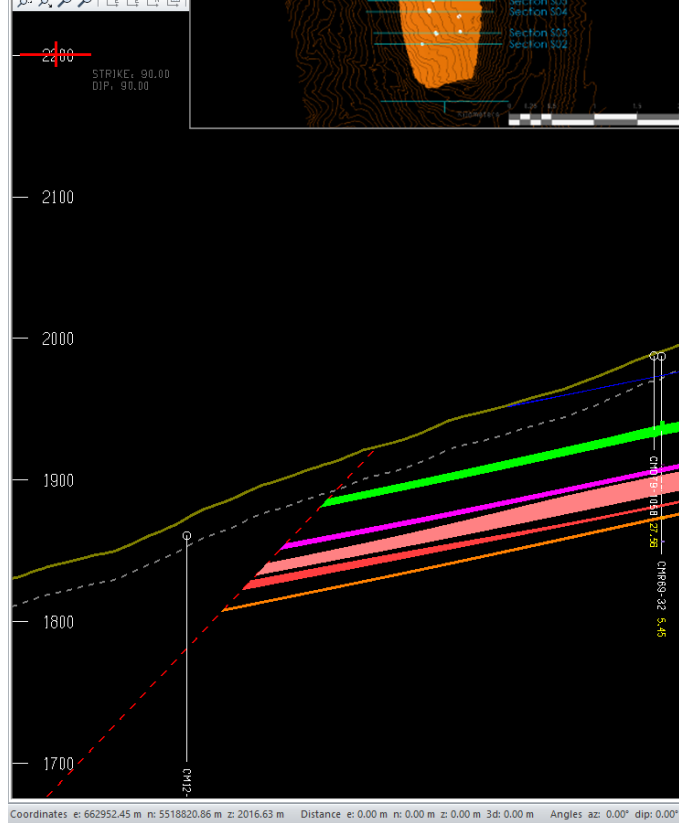
South Block

# Section S-14

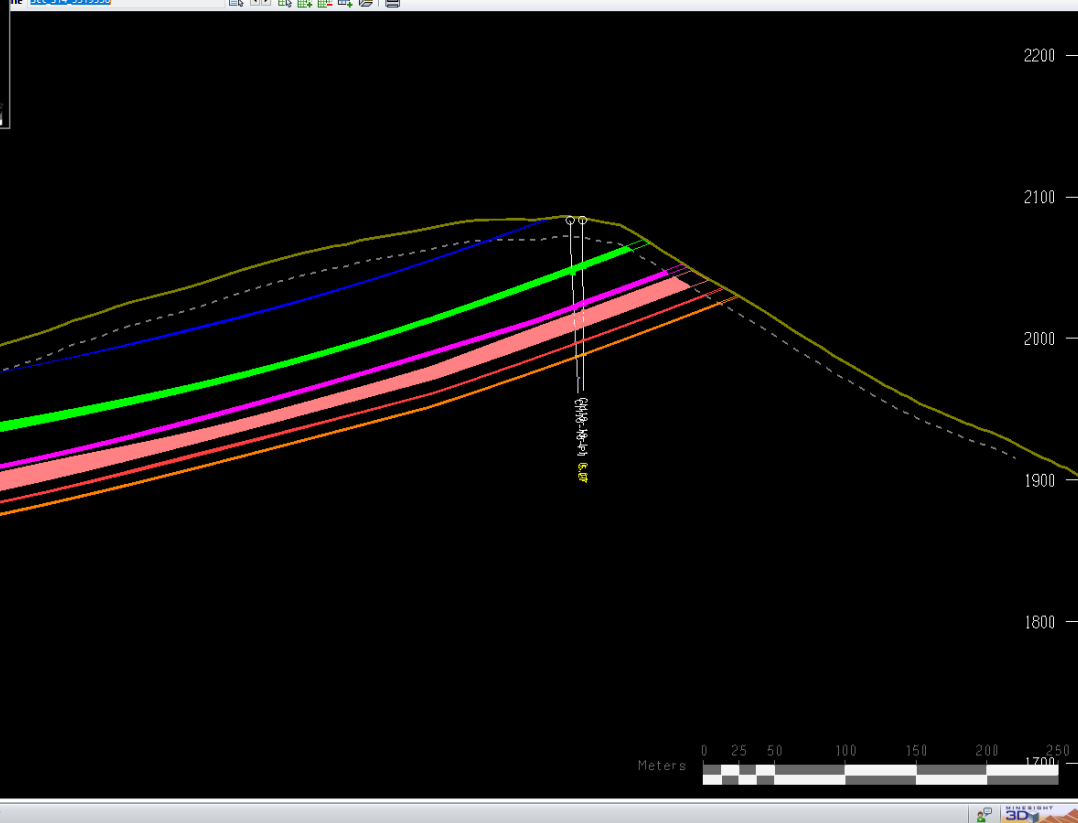
- 8A
- 8U
- 8M
- 8L
- 84
- 9
- 9R
- 10Uab
- 10Ucd
- 10M
- 10L



MineSight 3D - consultant\_3 - 13.  
File Viewer Snap Edit Grid  
xViewer1 - 2D



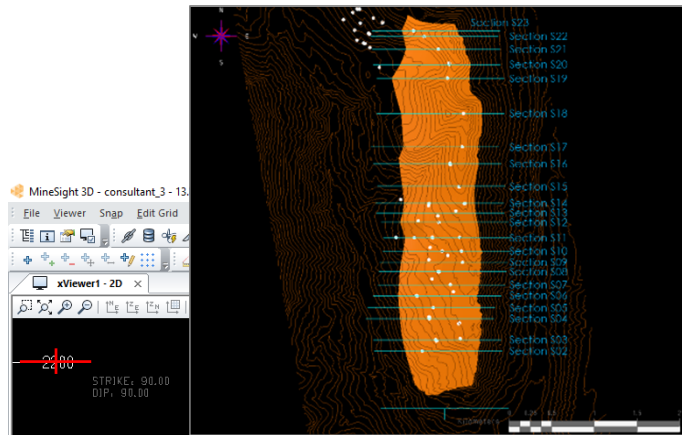
Point Polyline Surface Element MineSight Help  
Query snap: off



South Block

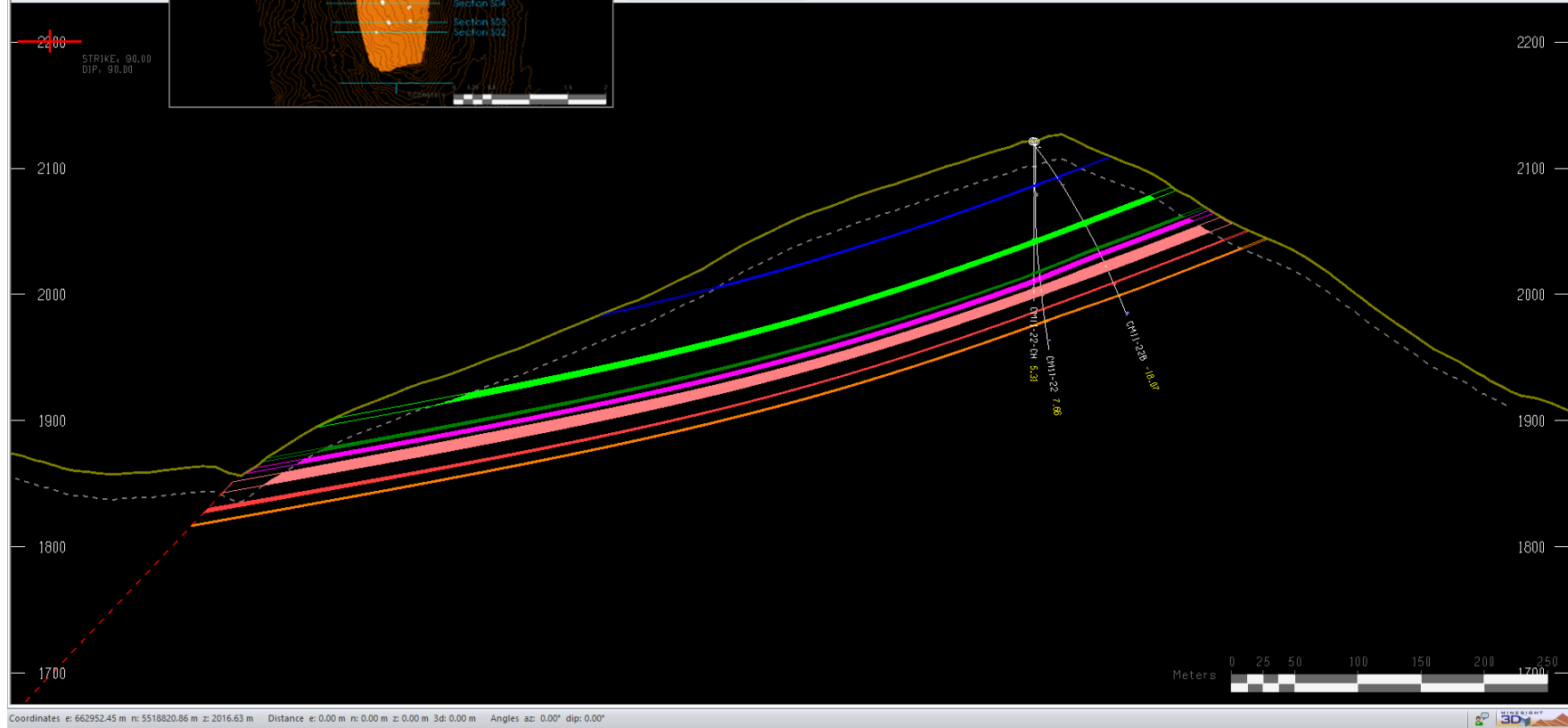
# Section S-15

- 8A
- 8U
- 8M
- 8L
- 84
- 9
- 9R
- 10Uab
- 10Ucd
- 10M
- 10L



MineSight 3D - consultant\_3 - 13.  
File Viewer Snap Edit Grid  
xViewer1 - 2D

Point Polyline Surface Element MineSight Help  
Query snap: off

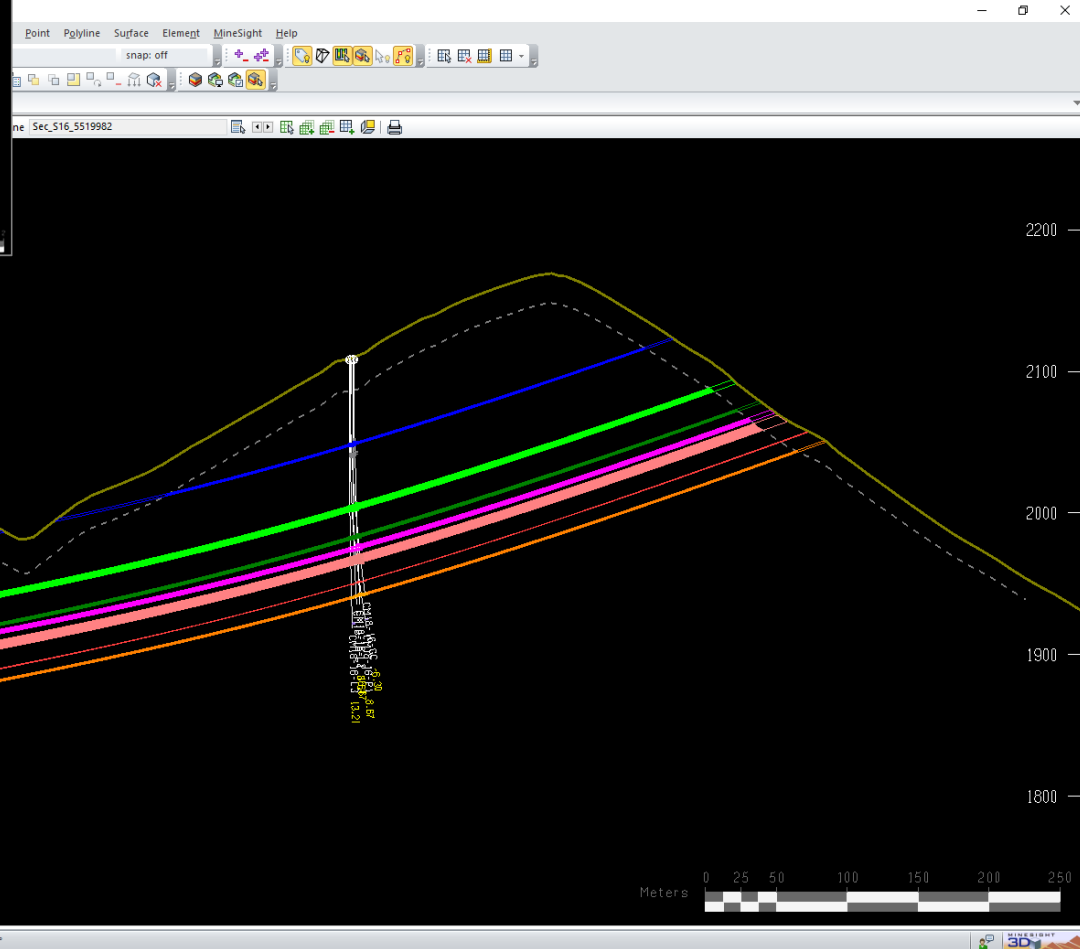
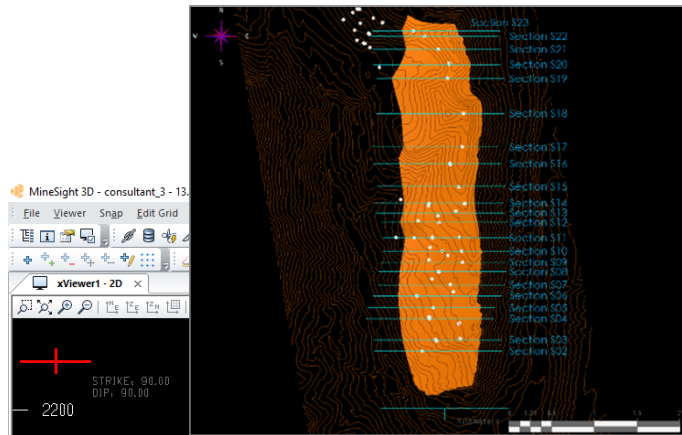


Coordinates: e: 662952.45 m n: 5518820.86 m z: 2016.63 m Distance: e: 0.00 m n: 0.00 m z: 0.00 m 3d: 0.00 m Angles: az: 0.00° dip: 0.00°



South Block

# Section S-16



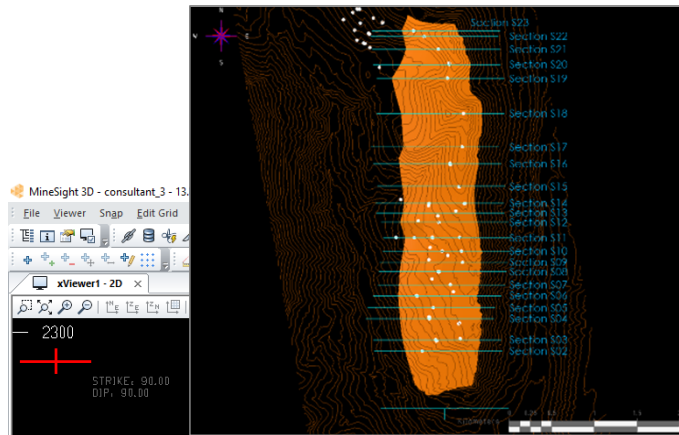
- 8A
- 8U
- 8M
- 8L
- 84
- 9
- 9R
- 10Uab
- 10Ucd
- 10M
- 10L

Coordinates: e: 662952.45 m n: 5518820.86 m z: 2016.63 m Distance: e: 0.00 m n: 0.00 m z: 0.00 m 3d: 0.00 m Angles: az: 0.00° dip: 0.00°

South Block

# Section S-17

- 8A
- 8U
- 8M
- 8L
- 84
- 9
- 9R
- 10Uab
- 10Ucd
- 10M
- 10L



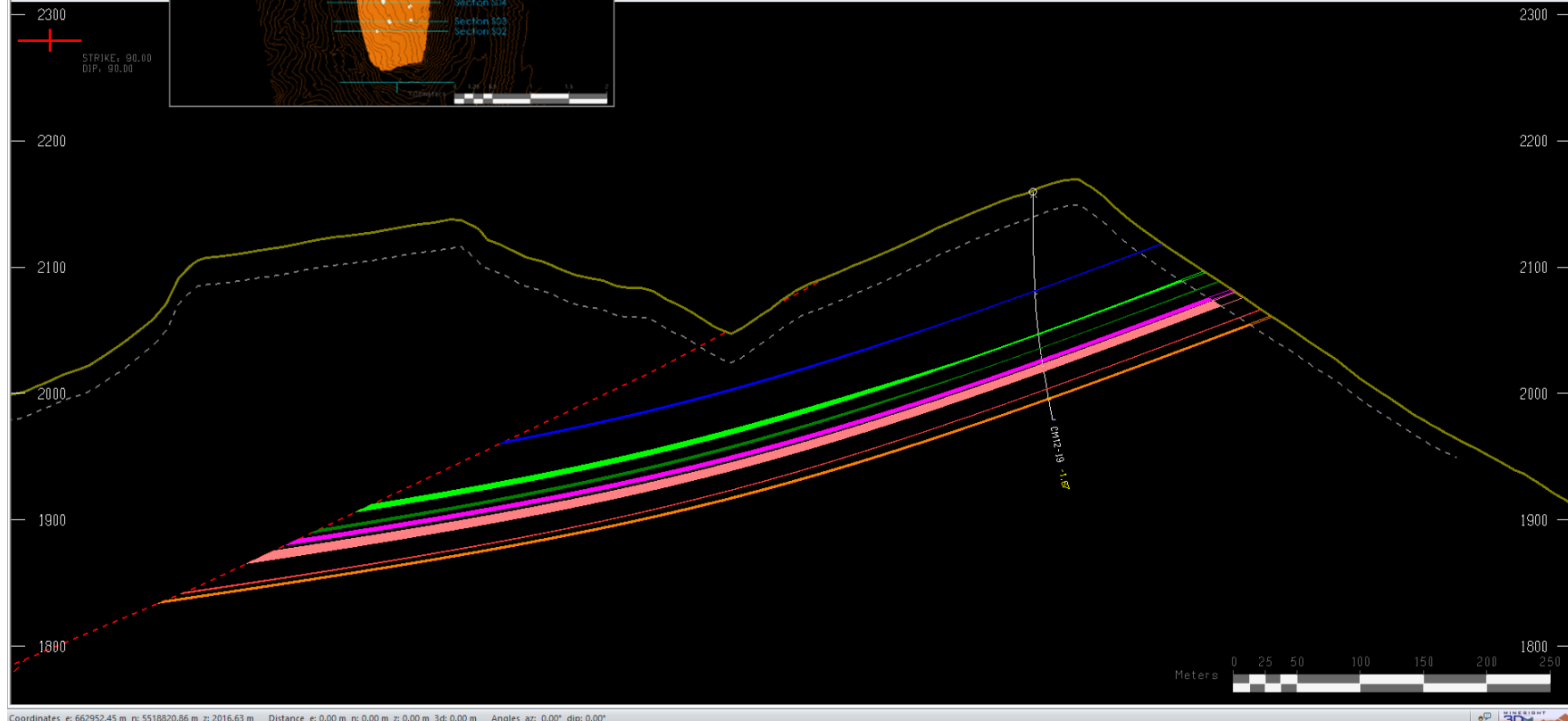
MineSight 3D - consultant\_3 - 133

xViewer1 - 2D

2300  
STRIKE: 90.00  
DIP: 90.00

Point Polyline Surface Element MineSight Help

Sec\_517\_5520179

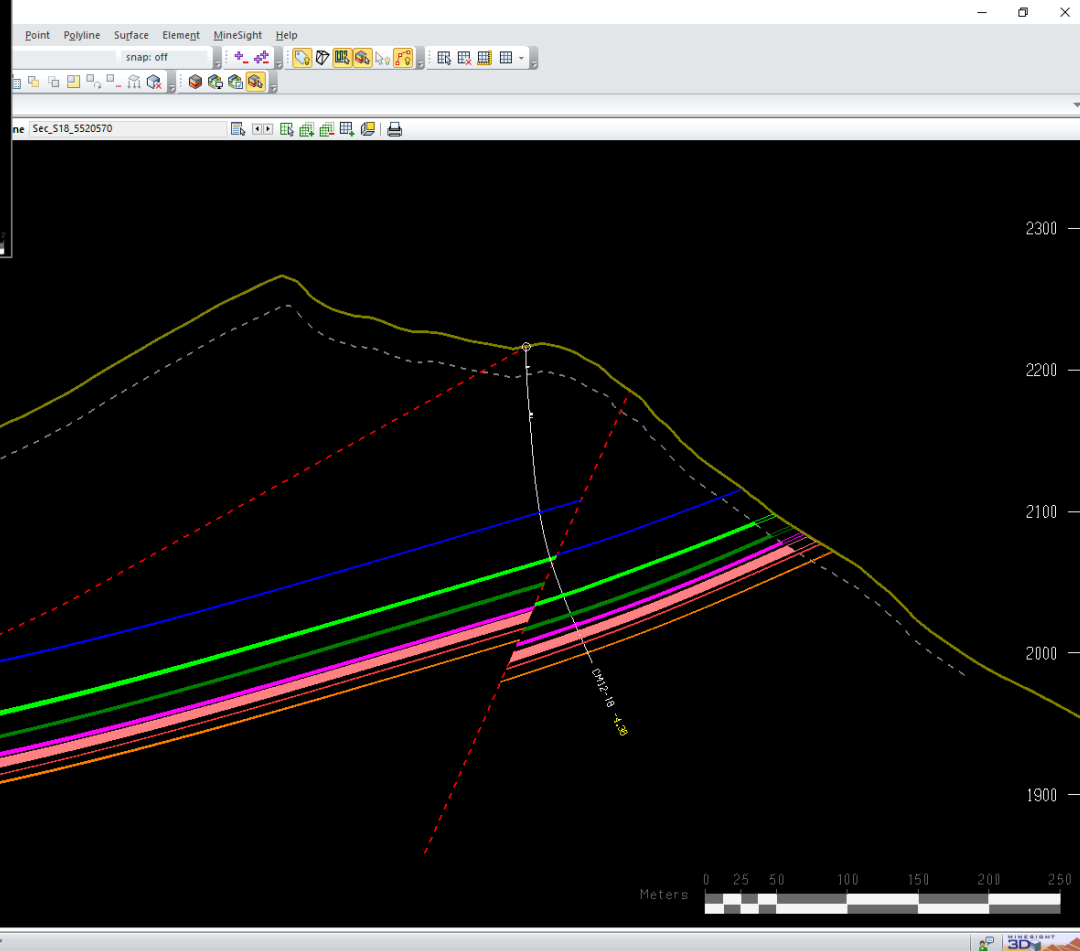
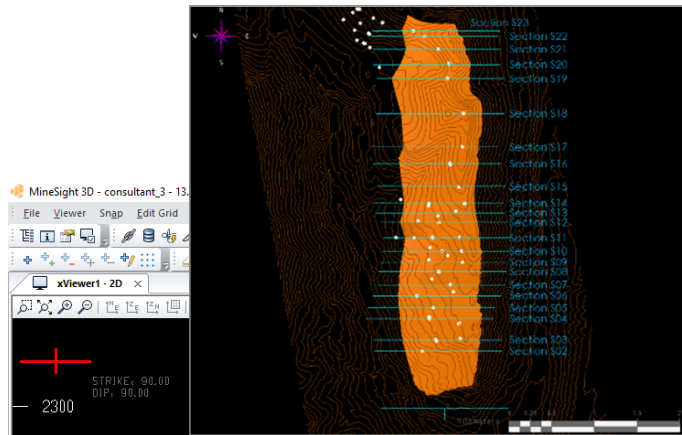


Coordinates: e: 662952.45 m n: 5518820.86 m z: 2016.63 m Distance: e: 0.00 m n: 0.00 m z: 0.00 m 3d: 0.00 m Angles: az: 0.00° dip: 0.00°

Meters 0 25 50 100 150 200 250

South Block

# Section S-18



- 8A
- 8U
- 8M
- 8L
- 84
- 9
- 9R
- 10Uab
- 10Ucd
- 10M
- 10L

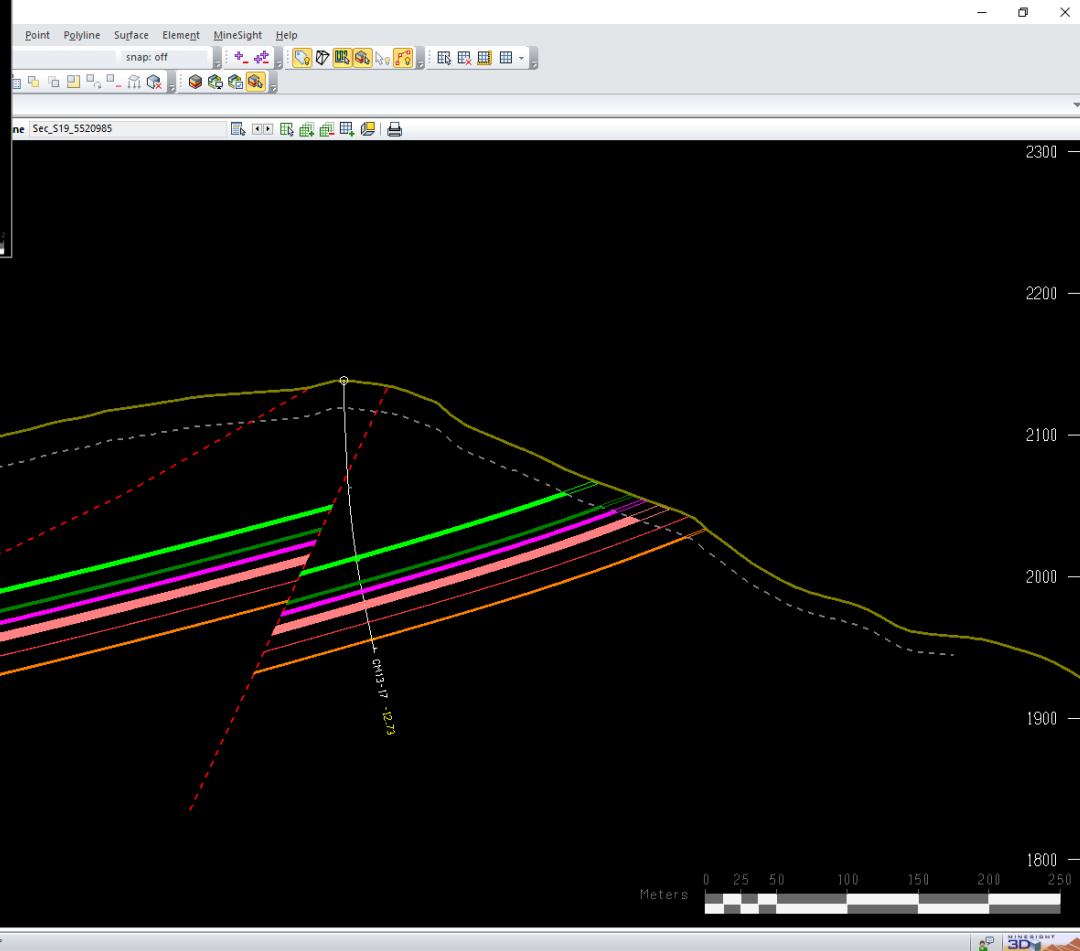
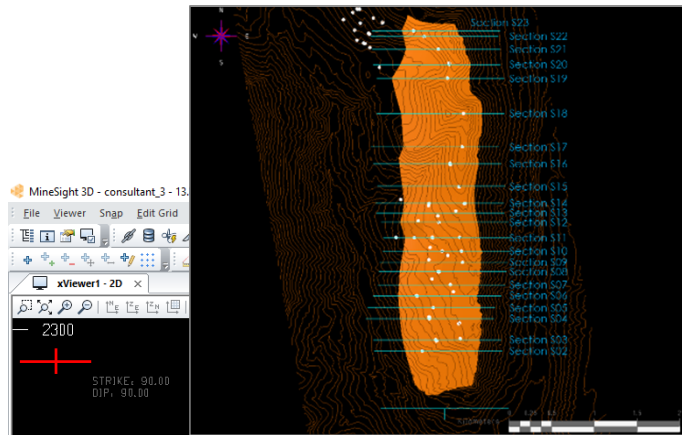
Coordinates: e: 662952.45 m n: 5518820.86 m z: 2016.63 m Distance: e: 0.00 m n: 0.00 m z: 0.00 m 3d: 0.00 m Angles: az: 0.00° dip: 0.00°



South Block

# Section S-19

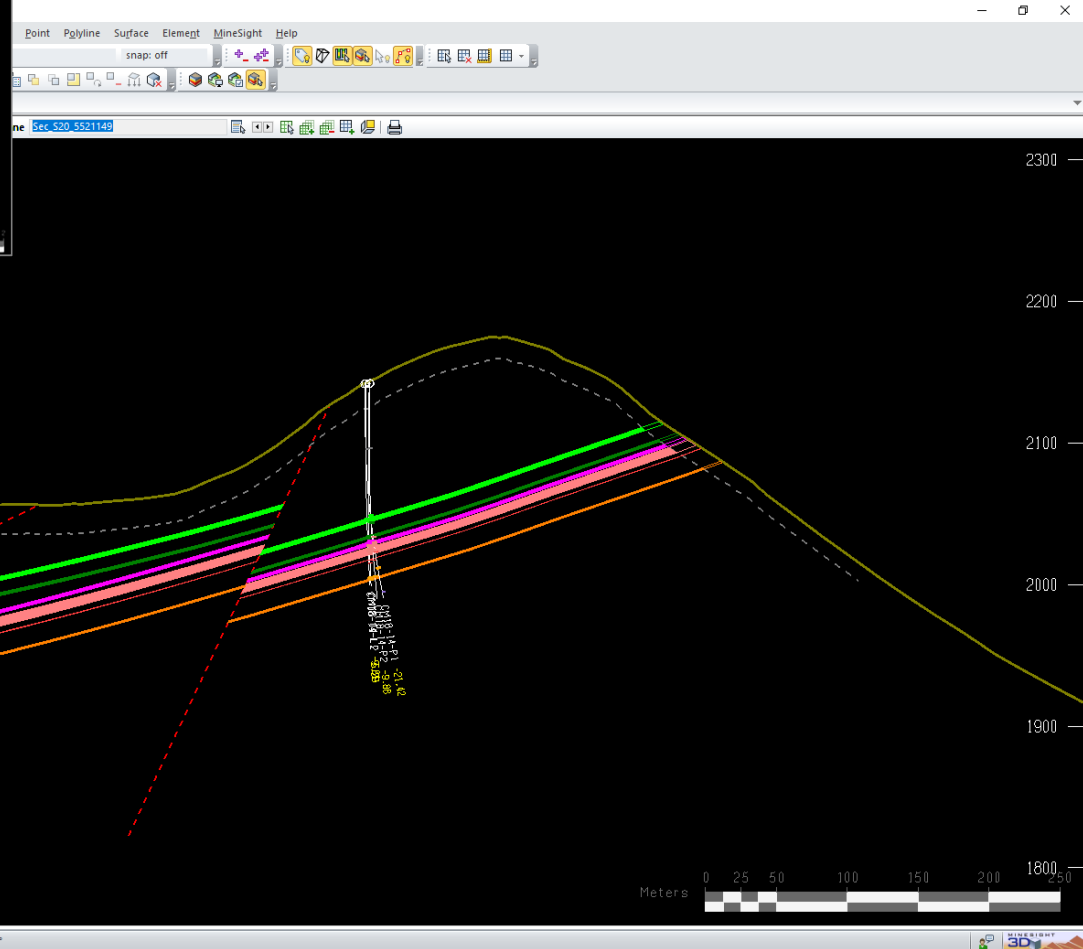
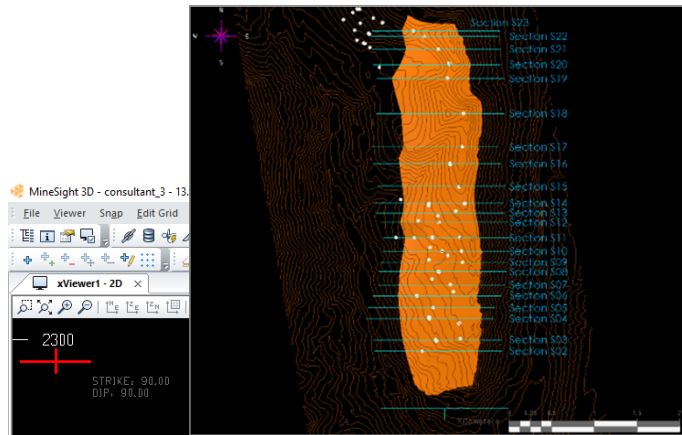
- 8A
- 8U
- 8M
- 8L
- 84
- 9
- 9R
- 10Uab
- 10Ucd
- 10M
- 10L



Coordinates: e: 662952.45 m n: 5518820.86 m z: 2016.63 m Distance: e: 0.00 m n: 0.00 m z: 0.00 m 3d: 0.00 m Angles: az: 0.00° dip: 0.00°

# South Block

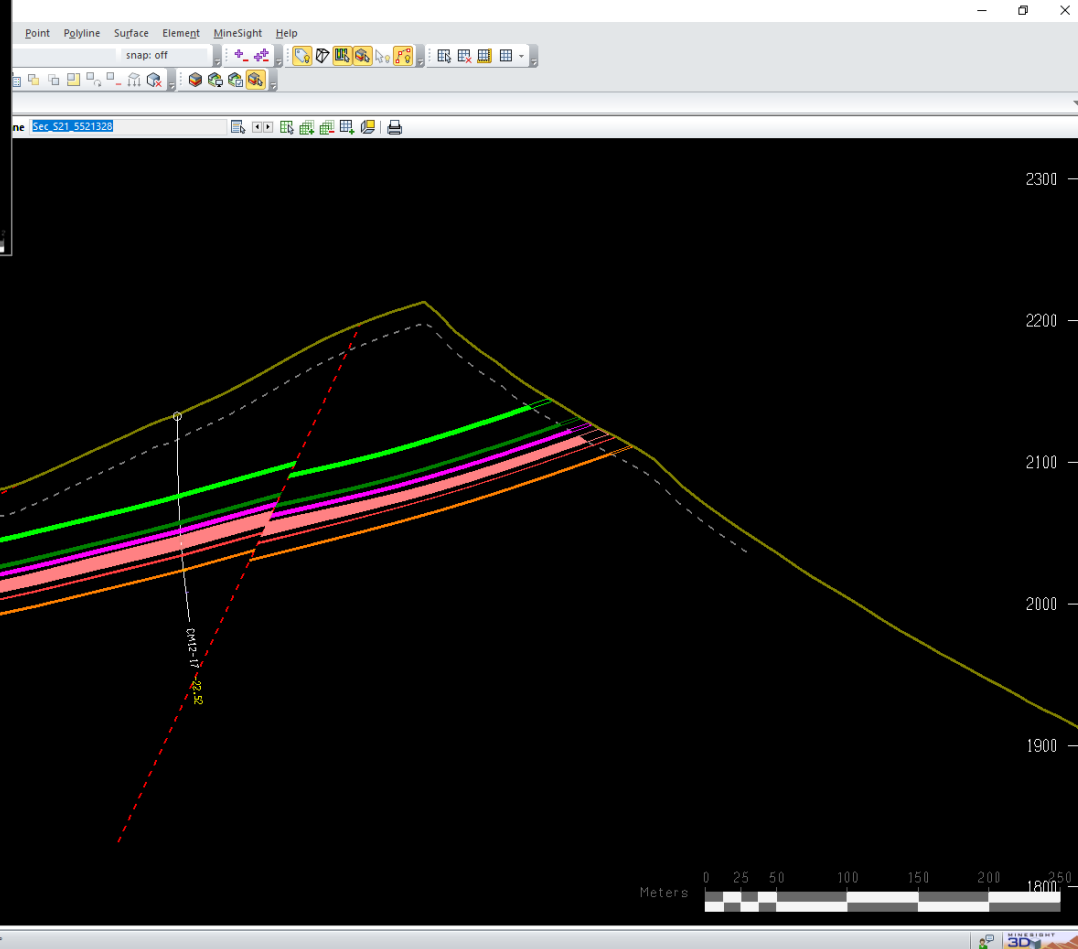
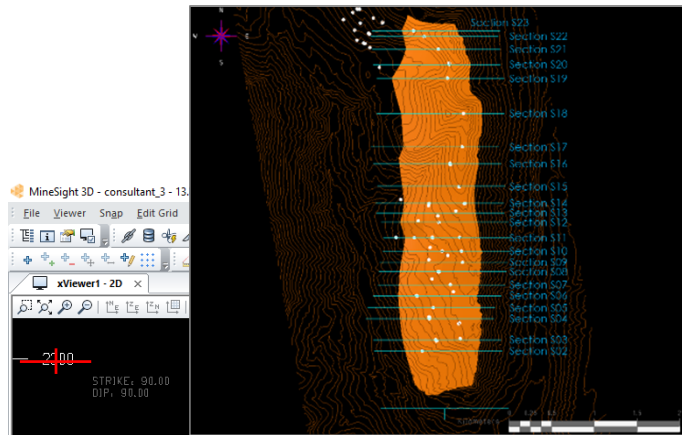
# Section S-20



- 8A
- 8U
- 8M
- 8L
- 84
- 9
- 9R
- 10Uab
- 10Ucd
- 10M
- 10L

South Block

# Section S-21



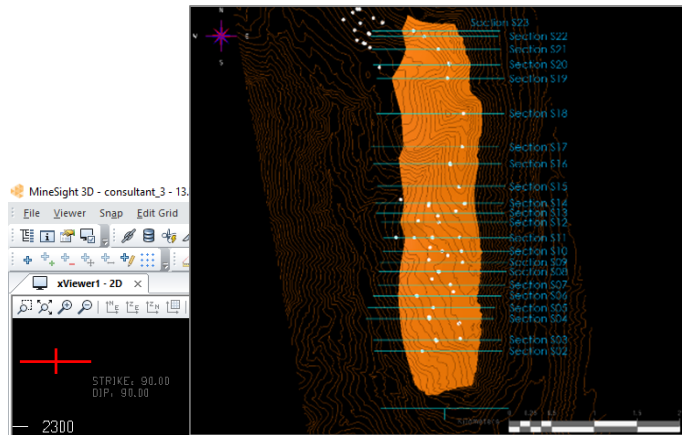
- 8A
- 8U
- 8M
- 8L
- 84
- 9
- 9R
- 10Uab
- 10Ucd
- 10M
- 10L

Coordinates: e: 662952.45 m n: 5518820.86 m z: 2016.63 m Distance: e: 0.00 m n: 0.00 m z: 0.00 m 3d: 0.00 m Angles: az: 0.00° dip: 0.00°

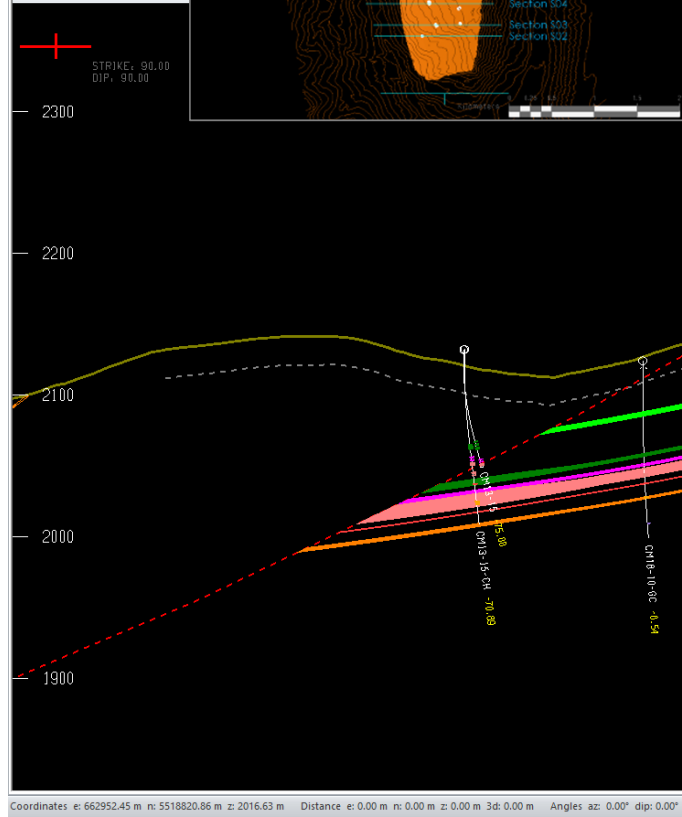
South Block

# Section S-22

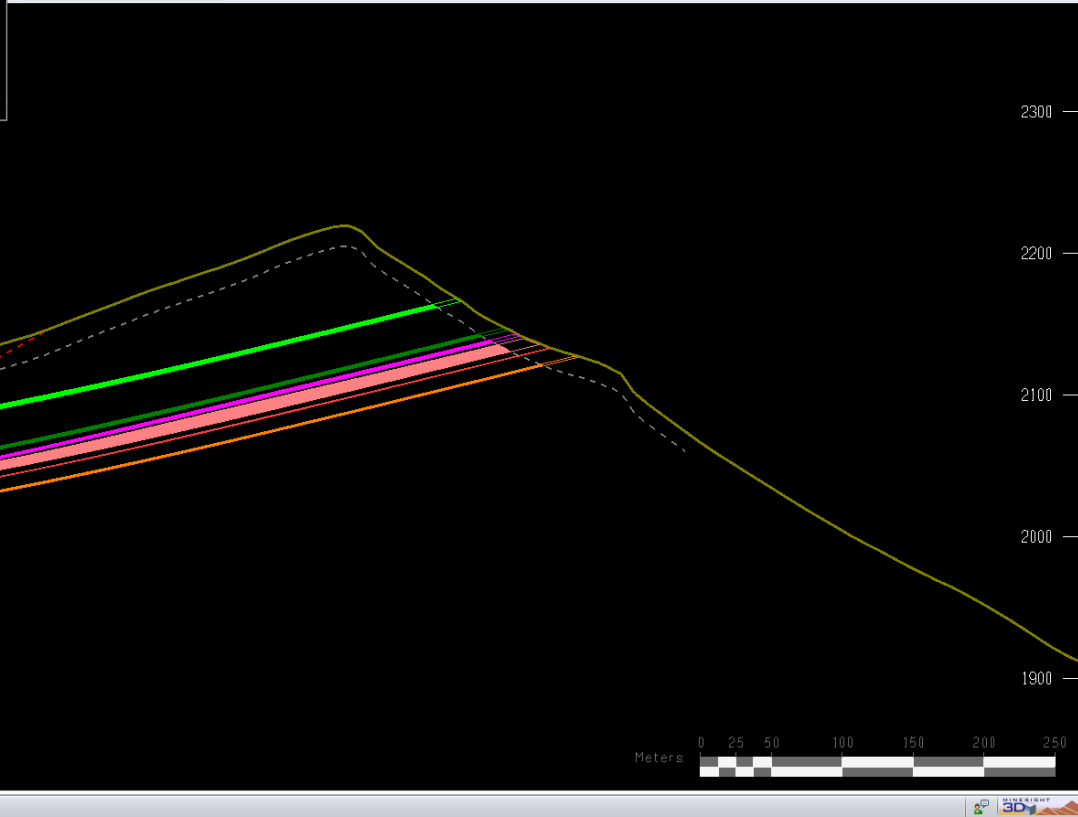
- 8A
- 8U
- 8M
- 8L
- 84
- 9
- 9R
- 10Uab
- 10Ucd
- 10M
- 10L



MineSight 3D - consultant\_3 - 13.  
File Viewer Snap Edit Grid  
xViewer1 - 2D



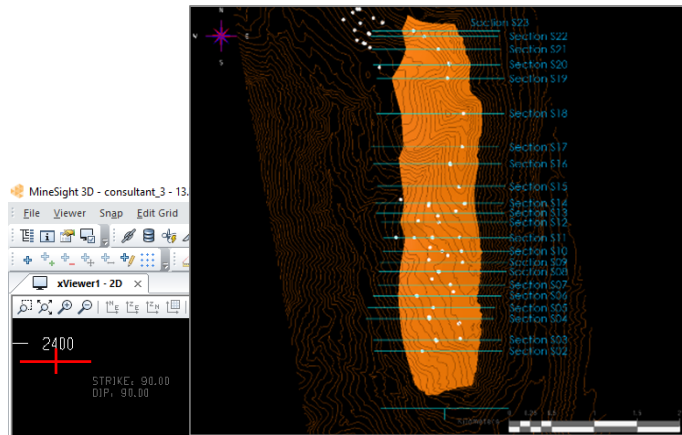
Point Polyline Surface Element MineSight Help  
snap: off



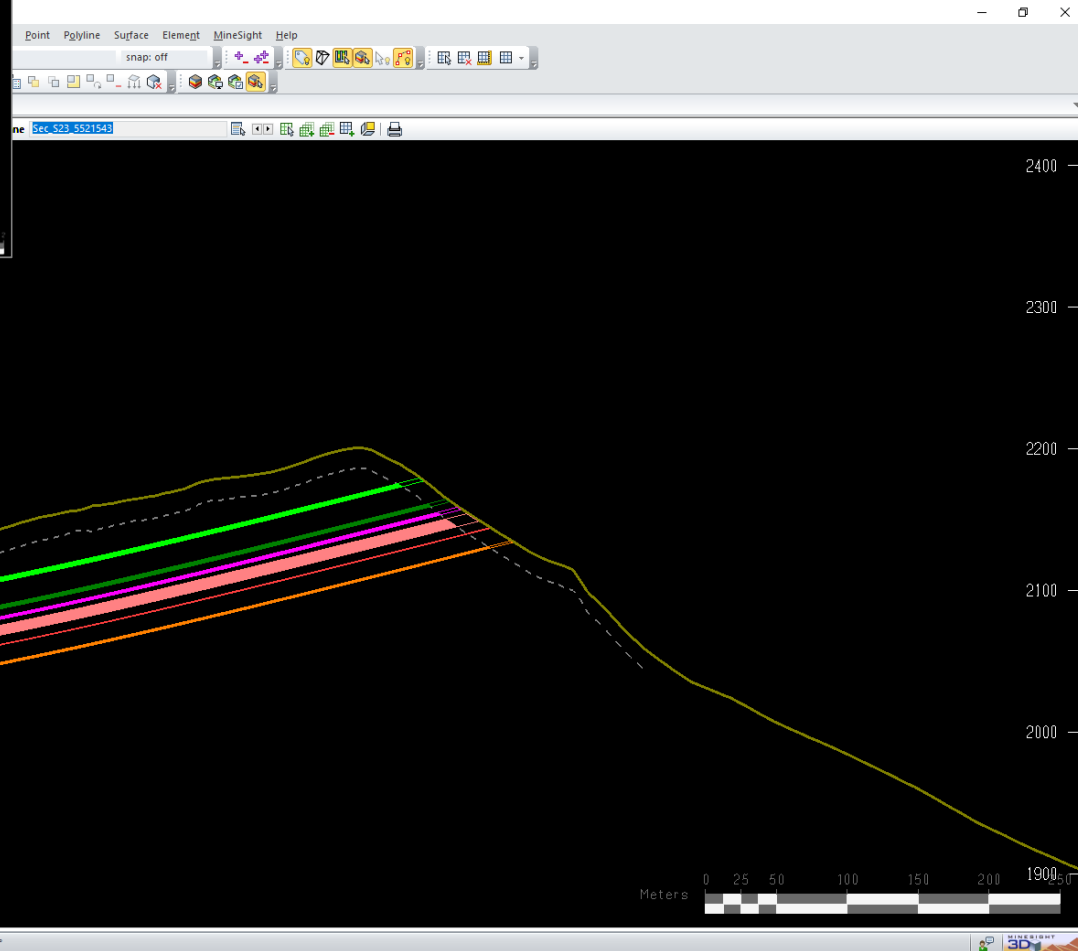
South Block

# Section S-23

- 8A
- 8U
- 8M
- 8L
- 84
- 9
- 9R
- 10Uab
- 10Ucd
- 10M
- 10L



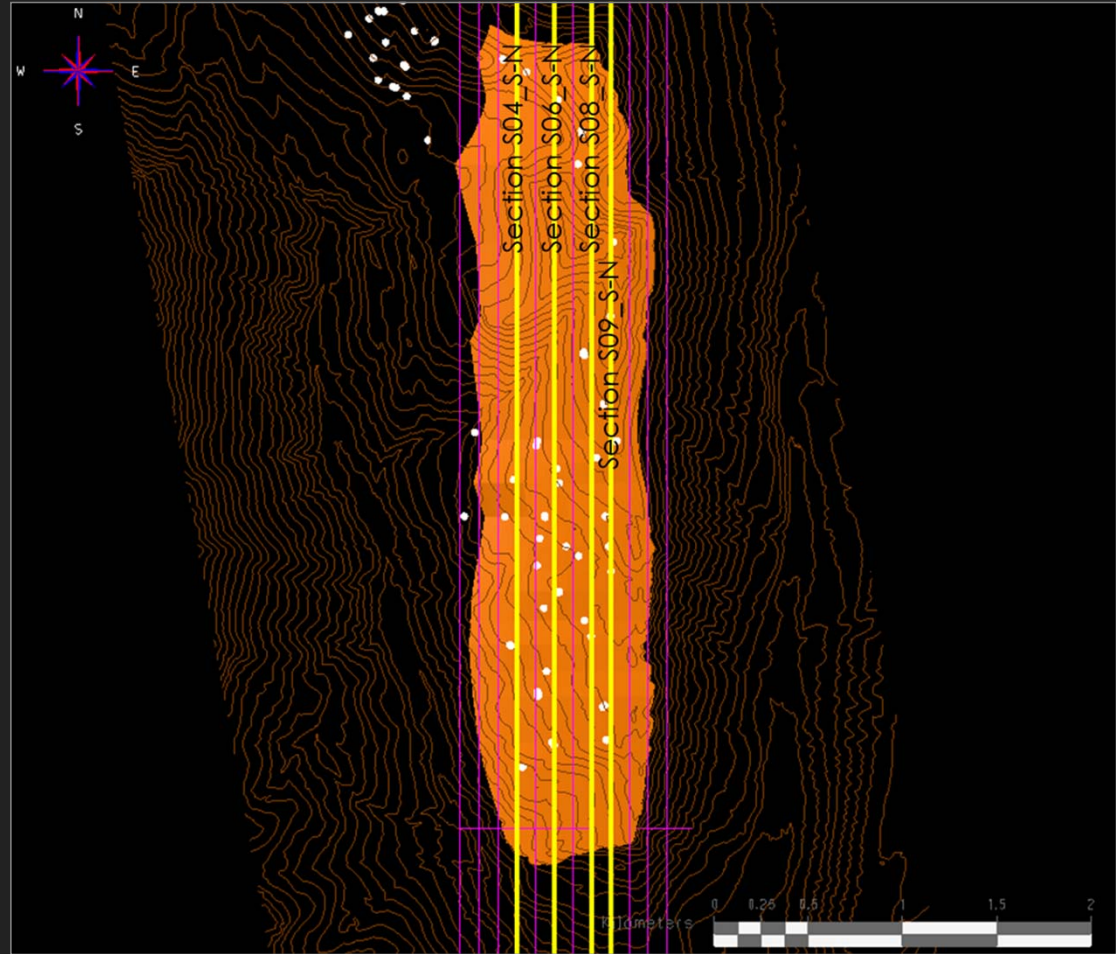
MineSight 3D - consultant\_3 - 133  
File Viewer Snap Edit Grid  
xViewer1 - 2D  
2400  
STRIKE: 90.00  
DIP: 90.00





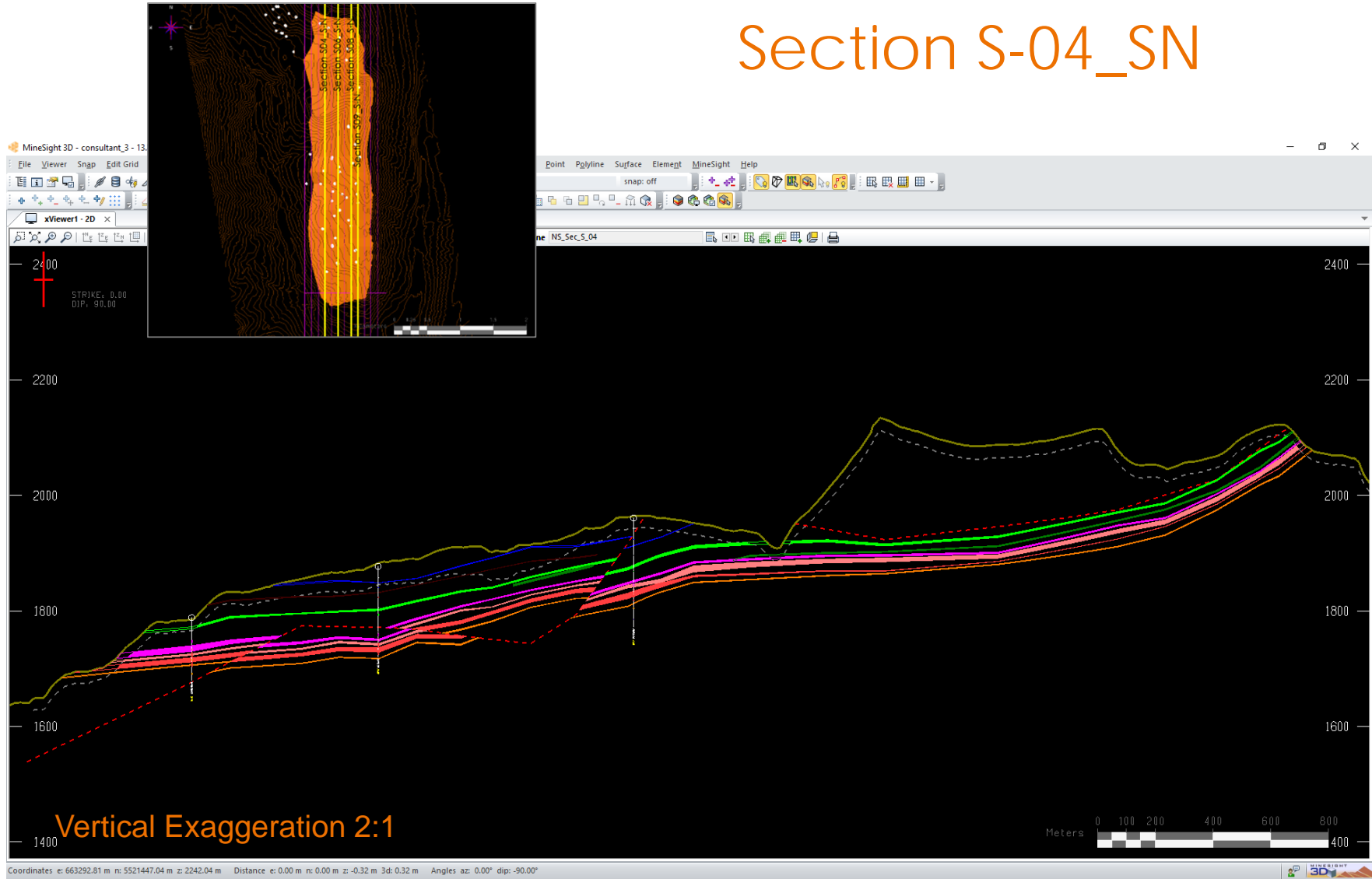
Cross-Sections (S-N)

South Block



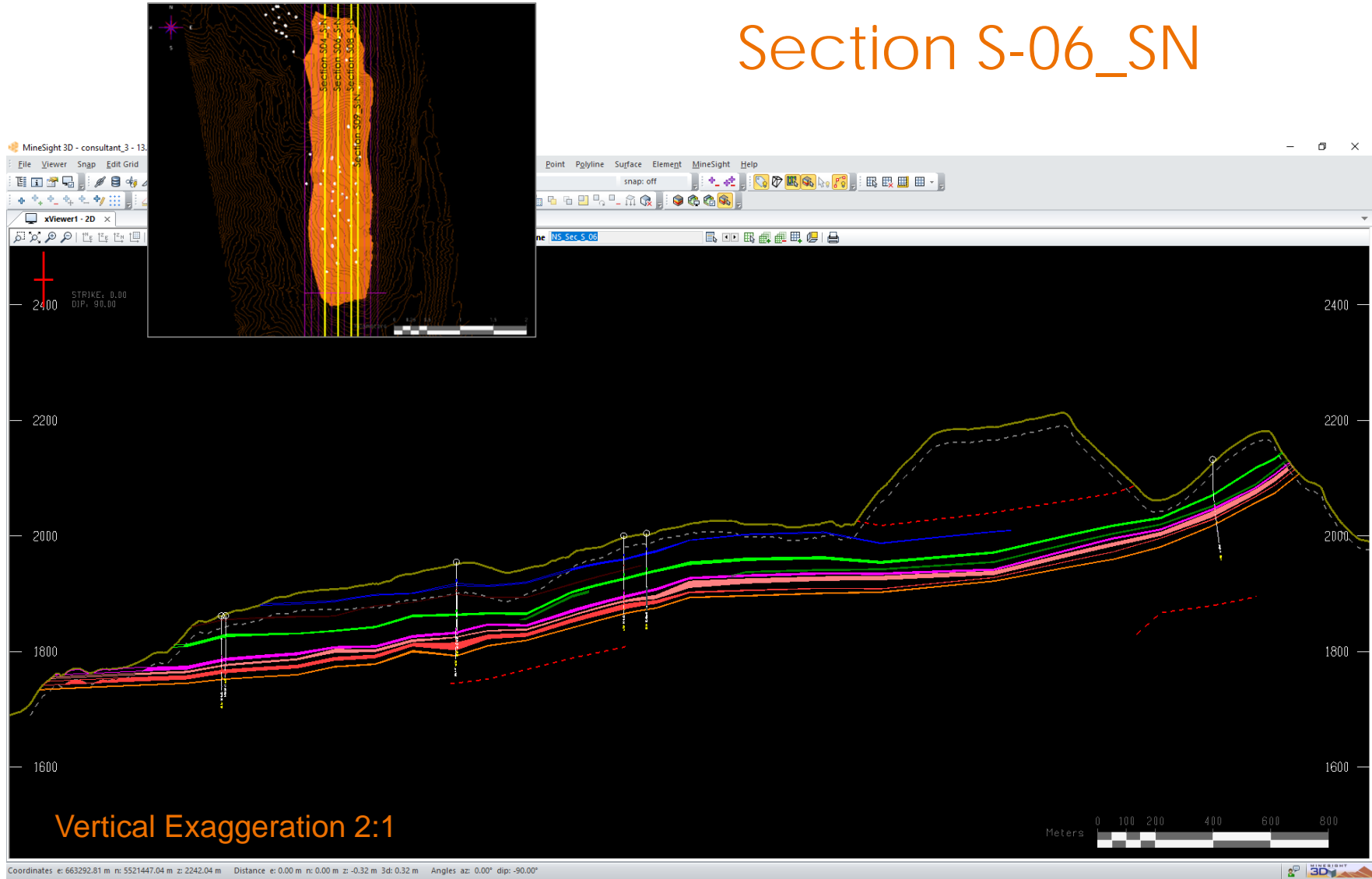
South Block

# Section S-04\_SN



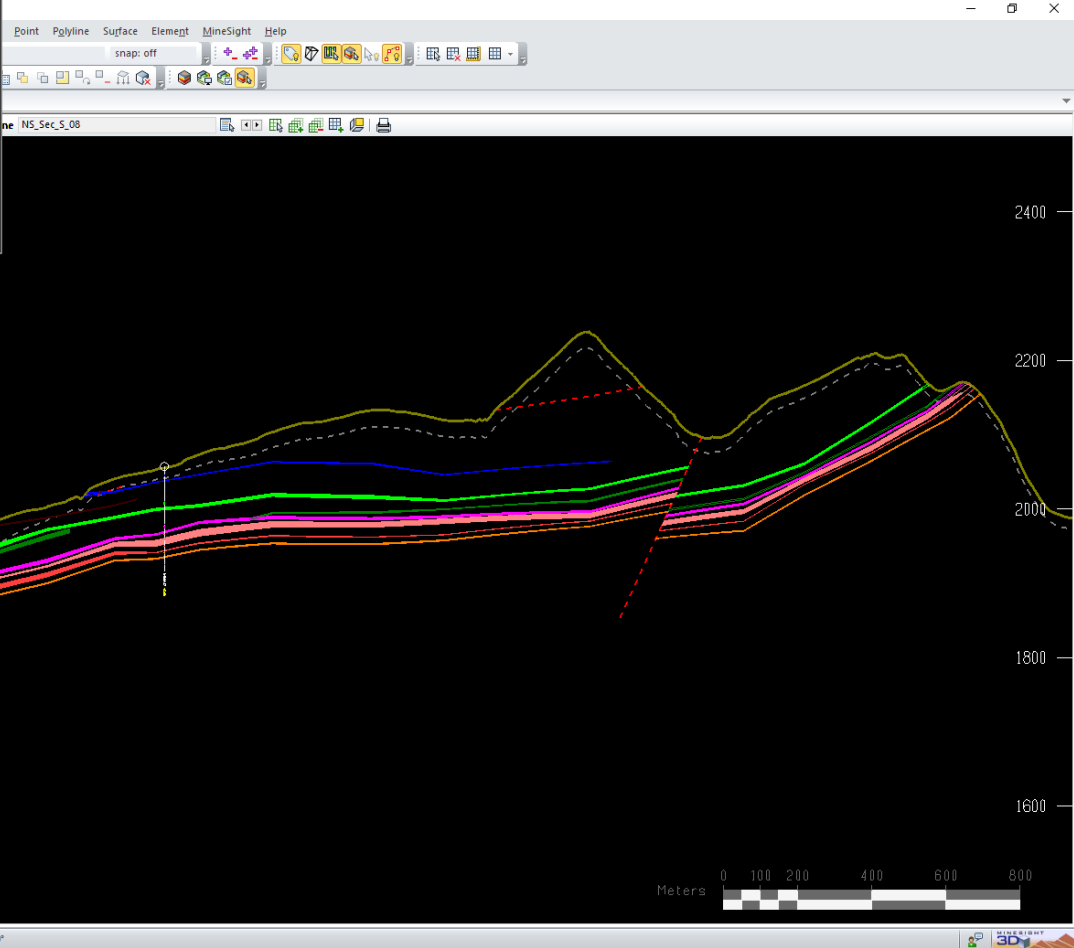
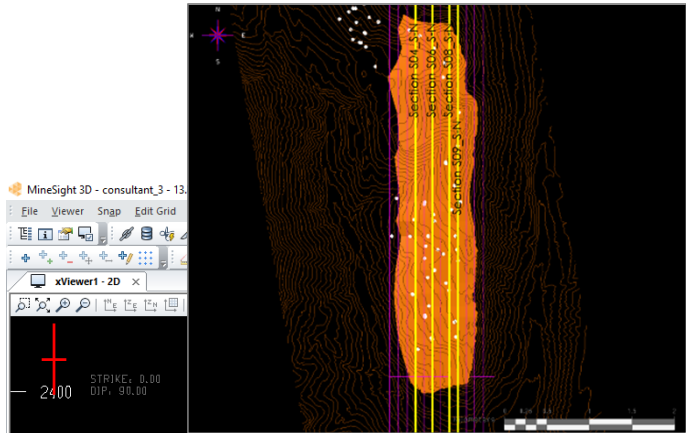
South Block

# Section S-06\_SN



South Block

# Section S-08\_SN

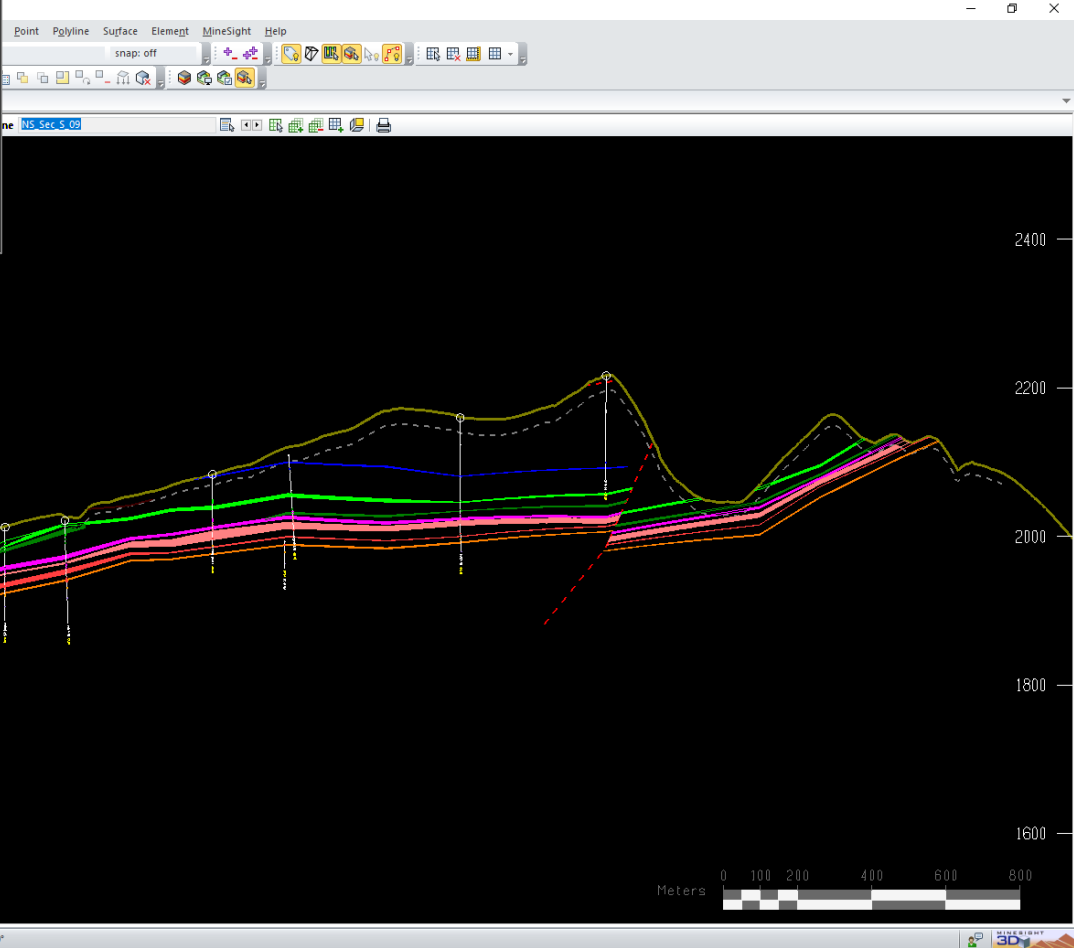
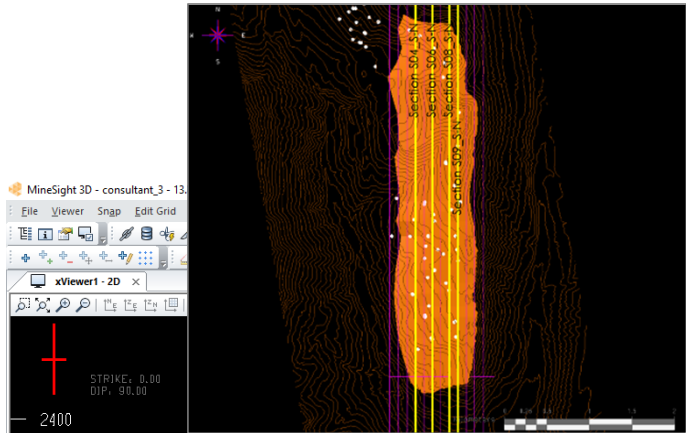


- 8A
- 8U
- 8M
- 8L
- 84
- 9
- 9R
- 10Uab
- 10Ucd
- 10M
- 10L

Coordinates: e: 663292.81 m n: 5521447.04 m z: 2242.04 m Distance: e: 0.00 m n: 0.00 m z: -0.32 m 3d: 0.32 m Angles az: 0.00° dip: -90.00°

South Block

# Section S-09\_SN



- 8A
- 8U
- 8M
- 8L
- 84
- 9
- 9R
- 10Uab
- 10Ucd
- 10M
- 10L

Coordinates: e: 663292.81 m n: 5521447.04 m z: 2242.04 m Distance: e: 0.00 m n: 0.00 m z: -0.32 m 3d: 0.32 m Angles az: 0.00° dip: -90.00°