Klohn Crippen Berger

Teck Coal Limited

Elkview Operations

Coarse Coal Refuse Dump

2020 Annual Summary of Facility Performance Report

M09963A14.730

March 2020

March 31, 2020

Teck Coal Limited
R.R. #1, Highway #3
Sparwood, British Columbia
V0B 2G1

Ms. Meghan Barton, E.I.T,
Tailings Engineer

Dear Ms. Barton:

Coarse Coal Refuse Dump
2020 Annual Summary of Facility Performance

We are pleased to submit the 2020 Annual Summary of Facility Performance report for the Teck Elkview Operations Coarse Coal Refuse Dump.

Please contact us if you have any questions regarding this report.

Yours truly,

KLOHN CRIPPEN BERGER LTD.

Michael Cyr, P.Eng.
Senior Geotechnical Engineer / Project Manager

AS/MT:jc

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Teck Coal Limited

Elkview Operations

Coarse Coal Refuse Dump

2020 Annual Summary of Facility Performance Report

EXECUTIVE SUMMARY

This report presents the 2020 annual summary of facility performance review of the Teck Elkview Operations (EVO) Coarse Coal Refuse (CCR) and Mixed Coal Refuse (MCR) Dump facility (herein referred to as the CCR Dump), between December 2019 to October 2020.

This report has been prepared in accordance with the requirements of:

- British Columbia Ministry of Energy, Mines and Petroleum Resources (MEMPR[1]) Health, Safety, and Reclamation Code (HSRC) for Mines in British Columbia ("the Code") (MEM 2017) and Guidance Document – Health Safety and Reclamation Code for Mines in British Columbia (MEM 2016), and
- Teck's 2019 Guideline for Tailings and Water Retaining Structures (TWRS).

Based on the Code, the CCR Dump is classified as a Tailings Storage Facility (TSF) and requires an annual inspection by an independent engineer.

The 2020 inspection of the CCR Dump, was completed on September 22, 2020 by Mr. Andy Small, P.Eng. and Mr. Michael Tin, E.I.T. of Klohn Crippen Berger (KCB). The Tailings Storage Facility (TSF) Qualified Person (as defined by the Code) at the time of the inspection was Mr. Jason Garwood, P.Geo., who was also on site during the inspection. The Engineer of Record (EoR) for the CCR Dump is Mr. Andy Small, P. Eng., of KCB, who was part of the inspection team and was involved in the preparation of this report.

Summary of Facility Description

The CCR Dump is constructed against a natural hillside located north of the processing plant. Current operations involve the placement of MCR material, comprising a mix of fine and coarse refuse from the coal washing process, and is typically placed on the crest of the CCR Dump and compacted in 1.5 m thick lifts by routine trafficking of loaded 830E haul trucks and dozers.

Summary of Key Hazards

The key external hazards for the CCR Dump are seismic and meteorological hazards, including erosion of the toe of the dump due to flooding in the Elk River. The CCR Dump meets contemporary guidelines with respect to withstanding seismic load conditions, based on "Guidelines for Mine Waste Dump and Stockpile Design" (Hawley and Cunning 2017).

Toe erosion due to flooding of the Elk River is also a key hazard for the southern portion of the CCR Dump and this is addressed by riprap that has been placed at the toe of the dump.

[1] The current British Columbia Ministry of Energy, Mines and Low Carbon Innovation (MEMLI) was previously known under the names British Columbia Ministry of Energy, Mines and Petroleum Resources (MEMPR) and British Columbia Ministry of Energy and Mines (MEM).

Consequence Classification

The CCR Dump is a TSF that does not include a dam and has therefore not been subject to the consequence classification system for dams.

The consequence classification for the CCR Dump has not been established and this will be completed during 2021, based on the outcomes of a CCR Dump failure run-out analysis.

Summary of Significant Changes in 2020

No significant physical changes have occurred at the CCR Dump during 2020. The following studies were started in 2020, and are currently in progress:

- A preliminary CCR runout failure assessment is in progress to inform design criteria and Teck's ongoing dump management program.
- A gap analysis study is being progressed to provide a review of the stability, operations, and failure modes of the CCR Dump, to assess the current level of safety of the CCR Dump and inform detailed raise design of the CCR Dump from its permitted elevation of 1,395 m to a planned elevation of 1,477 m. This analysis will include additional investigation to be conducted at the CCR Dump.
- Preliminary design of an Interceptor Ditch that will be located further upstream slope and will support the CCR Dump raise.

Significant Changes in Instrumentation and/or Visual Monitoring Records

There were no significant changes in the instrumentation or visual monitoring records during 2020. It is noted however, that some GPS survey measurements were erroneous, and therefore not included in the assessment. Available monitoring data indicated that the CCR Dump has performed within the same general trend as the 2018 to 2019 period. No additional instruments were installed in the CCR Dump during the January 2020 to December 2020 period, however, shape arrays (SAA) were installed in the CCR-South and CCR-North inclinometers.

Significant Changes to Stability and / or Surface Water Control

During the annual inspection minor bench erosion was observed in several locations, with no significant change since the 2019 inspection. The erosion has been caused by surface water runoff on the external slope where vegetation is sparse. The surface of the CCR Dump is rough, and additional maintenance is required to establish vegetation on the surface. The Lindsay Drain was inspected and the outlet was wet at the time of inspection.

There were no significant changes to the stability of the existing CCR Dump in 2020. The overall global slope has been maintained in accordance with the design.

No obvious signs of significant cracking, wet spots, or deformations were observed during the annual inspection.

Summary of Review of OMS Manual

An Operation, Maintenance, and Surveillance Manual (OMS) has been prepared for the CCR Dump and was updated in March 2021.

Summary of Review of ERP

There is no specific Emergency Response Plan (ERP) for the CCR Dump. The Code requires that all TSFs have an ERP. The ERP for the CCR Dump will be developed following completion of the dump failure run-out analysis.

Periodic Safety Review of the Structure

As per the HSRC Guidance Document (MEM 2016), Periodic Safety Reviews are required for tailings storage facilities that do not impound water at a minimum frequency of five years. There have been no previous Periodic Safety Reviews completed for the CCR Dump. It is recommended that Teck engage an independent, third-party Professional Engineer to complete the first Periodic Safety Review of the structure in 2022.

Summary of Recommendations

There are no Priority[2] 1 or 2 recommendations outstanding for the CCR Dump. Other than following the procedures in the OMS Manual, there are two Priority 3 recommendations arising from the 2020 annual summary of facility performance review. These recommendations are described in Section 9.

[2] Recommendation priority guidelines specified in the HSRC Guidance Document (BCMEM, 2016), and assigned by KCB.

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CLARIFICATIONS REGARDING THIS REPORT

This report is an instrument of service of Klohn Crippen Berger (KCB). The report has been prepared for the exclusive use of Teck Coal Limited (Client) for the specific application to the Coarse Coal Refuse Dump, and it may not be relied upon by any other party without KCB's written consent. KCB has prepared this report in a manner consistent with the level of care, skill and diligence ordinarily provided by members of the same profession for projects of a similar nature at the time and place the services were rendered. KCB makes no warranty, express or implied.

This report is an instrument of service of Klohn Crippen Berger (KCB). The report has been prepared for the exclusive use of Teck Coal Limited (Client) for the specific application to the Elkview Operations, and it may not be relied upon by any other party without KCB's written consent.

KCB has prepared this report in a manner consistent with the level of care, skill and diligence ordinarily provided by members of the same profession for projects of a similar nature at the time and place the services were rendered. KCB makes no warranty, express or implied.

Use of or reliance upon this instrument of service by the Client is subject to the following conditions:

1. The report is to be read in full, with sections or parts of the report relied upon in the context of the whole report.
2. The Executive Summary is a selection of key elements of the report. It does not include details needed for the proper application of the findings and recommendations in the report.
3. The observations, findings and conclusions in this report are based on observed factual data and conditions that existed at the time of the work and should not be relied upon to precisely represent conditions at any other time.
4. The report is based on information provided to KCB by the Client or by other parties on behalf of the client (Client-supplied information). KCB has not verified the correctness or accuracy of such information and makes no representations regarding its correctness or accuracy. KCB shall not be responsible to the Client for the consequences of any error or omission contained in Client-supplied information.
5. KCB should be consulted regarding the interpretation or application of the findings and recommendations in the report.

1 INTRODUCTION

1.1 General

Klohn Crippen Berger Ltd. (KCB) was engaged by Teck Coal Limited to complete the 2020 Annual Summary of Facility Performance review of the Coarse Coal Refuse (CCR) Dump. This report presents the results of the 2020 annual inspection and a review of available monitoring data from December 2019 to October 2020.

This report was prepared in accordance with:

- British Columbia Ministry of Energy, Mines and Petroleum Resources (MEMPR[3]) Health, Safety, and Reclamation Code (HSRC) for Mines in British Columbia ("the Code") (MEM 2017) and Guidance Document – Health Safety and Reclamation Code for Mines in British Columbia (MEM 2016), and
- Teck's 2019 Guideline for Tailings and Water Retaining Structures (TWRS).

The site inspection for the CCR Dump was conducted on September 22, 2020, by Mr. Andy Small, P.Eng. and Mr. Michael Tin, E.I.T. of KCB. The previous site inspection for the CCR Dump was conducted from July 9, 2020, by Mr. Michael Cyr, P.Eng. and Mr. David Willms, P.Eng. of KCB.

This report is organized as follows:

- Section 2: overview of the project background and facility description as it relates to the annual summary of facility performance;
- Section 3: summary of activities in 2020 related to the safety of the structure;
- Section 4: review of 2020 inspection observations;
- Section 5: review of monitoring records;
- Section 6: summary of 2020 climate aspects;
- Section 7: summary of water management aspects;
- Section 8: review of documentation and relevant failure modes to support the structure safety assessment; and
- Section 9: recommendations for ongoing operations, maintenance, and surveillance of the facility.

[3] The current British Columbia Ministry of Energy, Mines and Low Carbon Innovation (MEMLI) was previously known under the names British Columbia Ministry of Energy, Mines and Petroleum Resources (MEMPR) and British Columbia Ministry of Energy and Mines (MEM).

1.2 Engineer of Record and Tailings Storage Facility Qualified Person

Mr. Andy Small, P.Eng. has filled the role of EoR for the EVO tailings storage facilities (TSFs), including the CCR Dump, since 2014 while working with Wood Environment and Infrastructure (Wood, previously Amec Foster Wheeler). Mr. Small joined KCB in August 2018 and on November 8, 2018, submitted a letter to EVO confirming that KCB will support Mr. Small in continuing as the EoR for the EVO TSFs. He visited the site once in 2020 and was involved in the preparation of this report.

Jason Garwood, P.Geo., was the TSF qualified person in 2020, as defined by the Code.

1.3 Regulatory Requirements

This report reviews the operation and performance of the CCR Dump relative to the following, and in the context that the CCR Dump is a TSF that does not include a dam:

- "Health, Safety and Reclamation Code for Mines in British Columbia", by the Ministry of Energy, Mines, & Petroleum Resources (MEM 2017);
- "Guidance Document – Health, Safety and Reclamation Code for Mines in British Columbia", Version 1.0, Updated in July 2016 by the BC Ministry of Energy and Mines (MEM 2016);
- "Dam Safety Guidelines 2007 (revised in 2013)" Canadian Dam Association (CDA 2007 and 2013);
- "Technical Bulletin: Application of Dam Safety Guidelines to Mining Dams" Canadian Dam Association (CDA 2019); and
- "Developing an Operation, Maintenance, and Surveillance Manual for Tailings and Water Management Facilities" 3rd Edition Mining Association of Canada (MAC 2020).

Section 3.3 of the HSRC Guidance Document (MEM, 2016) states that for non-dam TSFs, other standards and guidelines may be applicable. "Guidelines for Mine Waste Dump and Stockpile Design" (Hawley and Cunning 2017) is applicable to the CCR Dump as it is considered the current state of practice for design, operation and monitoring of waste dumps. Older publications referenced in the Code such as the "Mined Rock and Overburden Piles – Investigation and Design Manual – Interim Guidelines", by the British Columbia Mine Waste Rock Pile Research Committee (BCMWRPRC, 1991) were also considered.

2 BACKGROUND

2.1 General

The EVO coal mine is approximately 3 km east of Sparwood, in southeastern British Columbia. Underground coal mining at the site began in the late 1890's, and open pit mining has operated since 1969. The site has a remaining life of mine (LOM) of approximately 30 years. The site comprises the following key tailings management and processing facilities:

- Coarse Coal Refuse (CCR) Dump;
- Lagoon Tailings Area (Lagoons A, B, C, and D);
- West Fork Tailings Facility (WFTF); and
- Wash Plant.

The focus of this report is on the CCR Dump. The annual summary of facility performance review for other TSFs have been reported separately. An overview of the CCR Dump is presented in the following section.

2.2 Facility Description

2.2.1 CCR Dump

The CCR Dump is constructed against a natural hillside approximately 400 m north of the wash plant. Waste materials from the coal washing process are separated into coarse and fine refuse materials. Fine refuse materials were historically stored in the Lagoon Tailings Area (Lagoons A, B, C, and D) which are located immediately south of the wash plant. The WFTF was commissioned in 2006 as the primary storage for fine refuse materials and to enable improved management of the Lagoon Tailings Area.

The CCR Dump was historically segregated into several smaller dumps, named the South Dump, North Dump, Goddard Dump, and Lindsay Dump. The four dumps were combined in 2000 to form the present CCR Dump. The CCR Dump is classified as a "Tailings Storage Facility" under the Code. The key components of the CCR Dump are described below.

CCR Dump

The CCR dump geometry varies, with the local bench width ranging from 4 m to 25 m. Local bench slopes are typically constructed at the angle of repose for the material (37 degrees), with an overall global slope ranging from 2.3H:1V at the northern portion of the dump to 3H:1V at the southern portion of the dump. The downstream slope of the CCR Dump is progressively vegetated as the CCR Dump is raised.

Interceptor Ditch

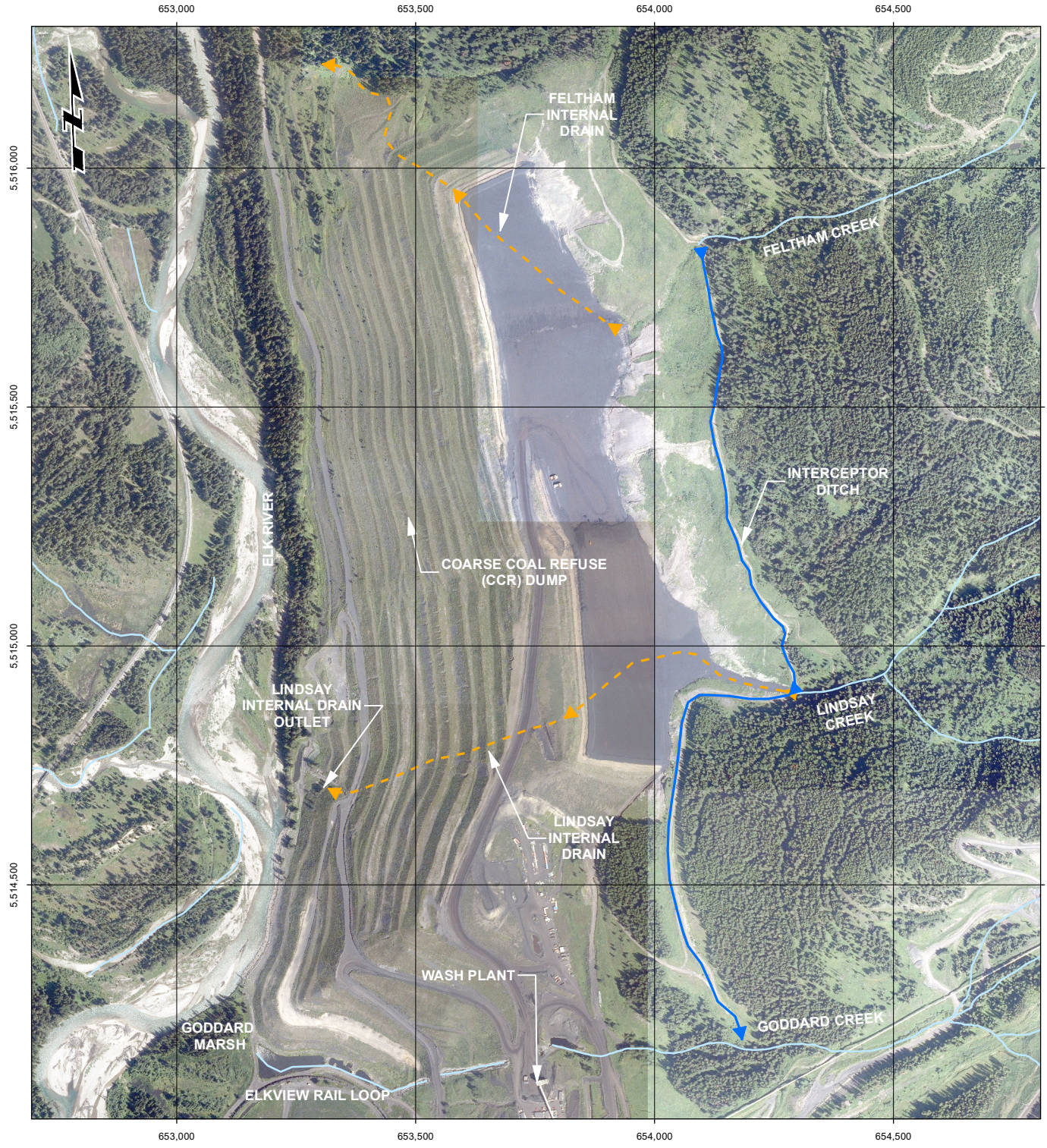
The Interceptor Ditch was constructed on the eastern perimeter of the CCR Dump, and its purpose is to collect upslope runoff from the natural hillside and divert the flow south into Goddard Creek.

Internal Drains

The CCR dump incorporates two internal drains, the Feltham and Lindsay drains which are constructed of coarse rock fill material placed along natural creek channels within the dump footprint, and buried within the CCR Dump.

The Feltham drain is located on the northern portion of the CCR Dump and runs to the northern perimeter before draining through the dump and discharging to the natural ground surface at the northwest corner. The Lindsay drain is located on the southern portion of the CCR Dump and outlets to a corrugated metal pipe at the western toe. Flows from the Lindsay drain discharges into the Lindsay pond, where the flow is measured via a v-notch weir before discharging to the Elk River.

The general plan layout for the CCR Dump is shown on Figure 2.1.



LEGEND

- DITCH
- CREEK
- INTERNAL DRAIN

NOTES

1. DATUM, PROJECTION: NAD83, UTM ZONE 11 (WKID 26911)
2. IMAGERY FROM TECK ELKVIEW OPERATIONS (COLLECTED IN 2019).

NOT FOR CONSTRUCTION

SCALE 0 250 m

CLIENT: Teck

Klohn Crippen Berger

PROJECT: TECK ELKVIEW OPERATIONS
2020 ANNUAL SUMMARY OF FACILITY PERFORMANCE

TITLE: COARSE COAL REFUSE DUMP – PLAN LAYOUT

SCALE	PROJECT No.	FIG. No.
1:12,000	M09963A14	2.1

ANSI A

SAVE DATE: 2021-03-24(12:48 PM)
FILE PATH: \\INT.KLOHN.COM\PROJDATA\M\FRE\M09963A14-TCL-EVO-2020 DSI\400 DRAWINGS\GIS\REPORTS\DSI\FIG2_1_CCR.MXD (DMASE)

2.3 Design Basis

As per the HSRC Guidance Document (MEM, 2016), other design standards and guidelines may be applicable where TSFs do not require dams, such as in the case of dry-stack TSFs. Considering the CCR Dump is a TSF that does not have a dam and does not impound water, "Guidelines for Mine Waste Dump and Stockpile Design" (Hawley and Cunning 2017) has been used as the primary guideline to select applicable stability criteria.

The CCR Dump Earthquake Design Ground Motion (EDGM) achieves the minimum requirements, however, the design basis will be reviewed again in 2021. The current design basis criteria is presented in Table 2.1 and Table 2.2.

Table 2.1 Design Basis Summary

Structure	Purpose	IDF	EDGM
CCR Dump	Stockpile for coarse coal rejects	N/A	1/475[1,2] (PGA: 0.044 g)

Note:
1. As per the HSRC Guidance Document (MEM, 2016), the minimum EDGM has been selected based on Hawley and Cunning (2017) being an alternative and appropriate standard for mine waste dumps.
2. The CCR Dump was permitted before the 2016 and 2017 HSRC updates, and therefore it is grandfathered under HSRC 10.1.19(2), and the current minimum EDGM of 1/975 does not apply to the facility.

Table 2.2 Design Basis – Factor of Safety for Slope Stability During Operations

Loading Condition	Design Factor of Safety [1,2]
Static – Long Term Steady State	1.3 lower slope (< EL. 1,395 m) 1.5 upper slope (> EL. 1,395 m)
Seismic – Pseudo-static	1.0

Note:
1. A target FoS of 1.3 for the CCR Dump slope below El. 1,395 m was accepted provided that additional inclinometers were installed to monitor potential movement (SNC-Lavalin, 2015).
2. The CCR Dump was permitted before the 2016 and 2017 HSRC updates, and therefore it is grandfathered under HSRC 10.1.19(2), and the current minimum EDGM of 1/975 does not apply to the facility.

3 ACTIVITIES IN 2020 RELATED TO SAFETY OF THE STRUCTURE

3.1 Construction Activities

EVO are constructing to the permitted CCR Dump design elevation of 1,395 m. The following construction activities were undertaken at the CCR Dump over the period from December 2019 to October 2020:

- The CCR Dump crest elevation was approximately El. 1,336 m at the end of October 2020, and the facility stores approximately 55,600,000 m^3.
- Typically the CCR Dump has been raised at an average rate of 6 m per year (based on annual LiDAR), comprising 1.5 m thick lifts of MCR material. The CCR Dump was only raised 3 m during the 2019 and 2020 period.
- The slopes and the benches of the CCR Dump have been progressively vegetated as more material has been compacted on the crest.
- Routine maintenance to remedy local dump slope erosion gullies was undertaken throughout the 2019/2020 period using tackifier to revegetate areas prone to erosion.
- A site-wide LiDAR survey was completed by EVO in October 2020.

Updated representative cross sections and a plan layout are presented in Appendix III and IV respectively.

3.2 Compaction Test Results

Compaction control of MCR material at the CCR Dump is implemented using a method specification, which requires the compacted lift thickness to not exceed 1.5 m and a minimum of four passes by a loaded 830E haul truck. Generally, the operator makes a decision on quality of compaction, noting that if trafficability for loaded haul trucks is maintained, sufficient density will typically be achieved.

Operators at the CCR Dump have been made familiar with the method specification and desired performance of the MCR material. Lift thickness and as-built surveys are reviewed by the EVO Geotechnical Engineering Team to assess the CCR Dump construction against the specification. The EVO Geotechnical Engineering Team also conducts periodic inspections of the CCR Dump construction area to observe MCR dumping, placement, and compaction practices.

Compaction testing of MCR fill is completed by Wood with the test results being reviewed by the EVO Geotechnical Engineering Team as part of the quality control process. EVO provided the compaction test results in an Excel spreadsheet to KCB on February 16, 2020. The 2020 compaction test results were reviewed by KCB in preparation of the annual summary of facility performance report, and for quality assurance.

During the 2019 to 2020 period, 41 compaction tests were completed by Wood on the placed MCR material. Standard Proctor tests were conducted in June, August, and October of 2020 (3 tests in total), in accordance with ASTM D698. The tests indicated Standard Proctor maximum dry densities

(SPMDD) of 1,650 kg/m^3, 1,532 kg/m^3 and 1,640 kg/m^3, with optimum moisture contents of 8.6%, 13.5% and 6.7% respectively.

Of the 41 compaction tests, one nuclear density gauge test indicated a density lower than 90% of the respective SPMDD value. A balloon density test performed in the same test location resulted in compaction value of 94.5%of the SPMDD value. Therefore, all compaction tests were in compliance with the 90% SPMDD target value stated in the OMS Manual.

Based on the above, the current method specification and field practices appear adequate and the compaction results indicate the specification requirements have been achieved. The compaction test results are presented in Appendix V.

3.3 Design Activities

The following studies were started in 2020, and are currently in progress at the time of writing:

- A preliminary CCR run-out failure assessment is in progress to inform design criteria and Teck's ongoing dump management program.
- A gap analysis study is being progressed to provide a review of the stability, operations, and failure modes of the CCR Dump, to assess the current level of safety of the CCR Dump and inform detailed raise design of the CCR Dump from its permitted elevation of 1,395 m to a planned elevation of 1,477 m. This analysis will include additional investigation to be conducted at the CCR Dump.
- Preliminary design of an Interceptor Ditch that will be located further upslope in support the of the CCR Dump raise.

4 SITE OBSERVATIONS / RESULTS OF SITE INSPECTION

The visual inspections conducted by Mr. Small and Mr. Tin included observing the condition of the CCR Dump to identify deficiencies and other potential concerns regarding the geotechnical stability of the dump. There were no concerns related to water management. No signs of structural distress were observed during the inspections of the crest, downstream slope, and toe area. Structural distress that would be of concern includes tension cracks, settlement, sloughs, slumps or excessive erosion.

Inspection forms and selected photographs of the facilities are presented in Appendix I and II, and summary of (anomalous) observations are included in Table 4.1.

Table 4.1 presents (anomalous) observations that were noted during the site visit. Only observations that are different than expected are noted. This avoids the need to be stating items such as “slopes appear in good condition.” Table 4.1 also includes note, on whether the observations are new, and if there is an associated facility safety concern that should be addressed.

Table 4.1 Summary of (Anomalous) Observations

No.	(Anomalous) Observations	Change from 2019 Inspection?	Facility Safety Concern?	Photo Reference
CCR-1	Minor erosion was observed on some sections of the interbench slopes.	No	No	I-13, I1-14
CCR-2	The top of the Lindsay Drain was observed to be covered by CCR material at the crest of the facility.	No	No	I-4
CCR-3	Orange stained seepage was observed at some CCR Dump interbench ditches.	No	No	I-6
CCR-4	The Lindsay drain outlet was wet, but not flowing at the time of the inspection. The drain outlet appeared to be in good condition.	No	No	I-10

5 MONITORING AND INSTRUMENTATION REVIEW

A review of monitoring and instrumentation data was completed for the CCR Dump by KCB. Monitoring instrumentation measurements are collected by the Elkview Geotechnical Engineering Team, with the data evaluated against the Quantifiable Performance Objectives (QPOs) for the CCR Dump. The data review is escalated to the EoR where there is an exceedance of an instrument trigger level for any of the monitoring instruments. A review of the monitoring and instrumentation data and procedures at site is presented below, with the location of each monitoring instrument shown in Appendix IV.

5.1 Piezometric Data and Phreatic Surfaces

Piezometer data for the 2019 to 2020 period and historical trends indicate that the phreatic surface within the CCR Dump is near steady state, with the elevation remaining relatively unchanged from the previous annual inspection.

The piezometers typically show the phreatic surface elevation is at the level of the foundation Glacial Till, or slightly below. As mentioned in previous annual inspection reports, this may be an effect of drainage through the till foundations. The current phreatic surface for all instruments is below the trigger levels (as defined in the OMS Manual). This is consistent with the expected performance of the CCR Dump, with the water table elevation typically ranging from within 0 m to 3 m above the glacial till foundation level. Based on the above there are no structural concerns for the CCR Dump and the structure is achieving the defined QPOs at this time.

Some changes to the phreatic surface elevation within the CCR Dump were observed on instrument Sections J and K, with the measurements presented in Appendix IV. The following observations and interpretation of the measurements from Sections J and K were made:

Section J

- **Piezometer VW30210 (VWP):** This VWP is installed in CCR fill. Although the temperature has been relatively consistent and slightly declining since 2014, the measured temperature remains at approximately 34° C. This is higher than the typical temperature range of 8° C to 16° C measured by other VWPs in the CCR Dump. This result is not a concern for the safety or stability of the CCR Dump at this time, however, this area should be assessed further as part of future works.

Section K

- **Piezometer SP-13-01 (standpipe):** 1.86 m increase from previous annual inspection measurement. This piezometer fluctuates with the Elk River elevation, and may also be affected by a known blockage in the standpipe. There is typically a lag in the response from SP-13-01 and based on previous trends, this phreatic surface level is expected to decrease over time, as the Elk River level falls. This result is not a concern to the safety or stability of the CCR Dump.

5.2 Deformations

Survey monument and inclinometer data was reviewed by KCB. There are currently five inclinometers installed in the CCR Dump, of which three are active (CCR-South, CCR-North, and SI16-2). The remaining inclinometers (CCR-3 West and SI16-3) are no longer active due to the following reasons:

- CCR-3 West: inclinometer was destroyed in late 2015.
- SI16-3: installation was unsuccessful and readings are considered to be unreliable due to technical issues with the installation.

The locations of the inclinometers and their measurements is presented in Appendix IV. A positive A-Axis (or X-axis for shape array) reading is assigned for the downslope movement. A review of the status of the current inclinometers and the need for additional coverage is in progress. A summary of the readings from the three active inclinometers is presented below.

CCR North (Section E-E)

CCR-North is installed to a depth of 22.35 m below ground level and monitors the glacial till foundation at the toe of the CCR Dump at section E-E. The inclinometer was previously unusable due to damage, however a shape array (SAA) was installed during 2020, with the first two measurements taking place on January 3 and December 26, 2020. The latest measurements indicate up to 3 mm of cumulative displacement in the downstream direction, at approximately 6 m below the top of casing. The current trend and magnitude of movement for the CCR-North inclinometer is within the expected performance of the CCR Dump and does not raise any structural concerns for the facility.

CCR-2 South (Section D-D)

CCR-2 South is installed at a depth of 29 m below ground level and monitors the glacial till foundation and downstream slope of the CCR Dump at section D-D. An SAA was installed during 2020.

The January 14, 2020 measurements indicated <1 mm of cumulative displacement over the depth of the inclinometer. The December 28, 2020 incremental measurements indicated up to 2 mm of displacement, oscillating between the upslope and downslope directions in an incremental depth of approximately 1 m. KCB suspects that this data is erroneous, and additional data is required to assess the validity of the December measurement. Notwithstanding the above, the current trend and magnitude of movement for the CCR-2 South inclinometer is within the expected performance of the CCR Dump and does not raise any structural concerns for the facility.

SI16-2 (Section L-L)

SI16-2 is installed at a depth of 21 m below ground level and monitors the glacial till foundation and downstream slope of the CCR Dump at section L-L. The purpose for this instrument is to measure the displacement occurring at the lower slope of the CCR Dump at the Elk River bank erosion area. The baseline reading for the instrument was measured on November 27, 2017.

Both the cumulative and incremental measurements as of June 11, 2020 indicate displacements of less than 1 mm below the upper-most portion of the casing, which is subject to surface disturbance.

The current trend and magnitude of movement for the SI16-2 inclinometer is within the expected performance of the CCR Dump and does not raise any structural concerns for the facility.

GPS Monitoring Units

Three GPS survey pins are monitored at the toe of the CCR Dump, between section D-D and E-E. The pins are surveyed periodically by Teck staff using a hand-held GPS survey unit. KCB notes that some data was removed from the 2019 to 2020 records. The data in question was not consistent with previous trends or observed performance of the dam via inspections. EVO have clarified that the removed readings were considered to be erroneous, potentially due to factors such as satellite signal blockage and adverse atmospheric conditions. KCB agrees with this assessment and does not consider the inconsistent readings to be a dam safety concern.

Five surface differential GPS survey stations were installed during the erosion protection repairs along the bank of the Elk River in 2013 and 2014. GPS units 7 and 8 are located at the southwest corner of the CCR Dump, and units 275, 279 and 280 are located on the lower dump slope. The predicted horizontal and vertical accuracy of the GPS units is approximately ±0.02 m and ±0.03 m respectively. A summary of the monitoring results from the differential GPS units is as follows:

- CCR_7: horizontal differences typically ranging from 0 mm to 50 mm, and vertical differences ranging from -100 mm to +100 mm.
- CCR_8: horizontal differences typically ranging from 0 mm to 50 mm, and vertical differences ranging from -30 mm to +30 mm. Note, some horizontal differences up to 325 mm were recorded, but these discrete instances are considered to be erroneous, because subsequent data falls within the range noted above.
- CCR_280: horizontal differences typically ranging from 50 mm to 100mm, and vertical differences ranging from -50 mm to +50 mm. Note, some larger horizontal and vertical differences were recorded, but these discrete instances are considered to be erroneous, because subsequent data falls within the range noted above.
- CCR_279: horizontal differences typically ranging from 50 mm to 100mm, and vertical differences ranging from 0 mm to +50 mm.
- CCR_275: horizontal differences typically ranging from 15 mm to 80mm, and vertical differences ranging from -80 mm to +40 mm.

The horizontal and vertical trends for all GPS survey stations generally appeared to hold stationary on average throughout the 2019 to 2020 period. The oscillation in readings for both horizontal and vertical differences within the typical ranges described above is potentially due to factors related to the method of measurement such as GPS signal blockage or interference. Based on the readings above and the QPOs for the CCR Dump, there is no concern with respect to the safety of the structure at this time.

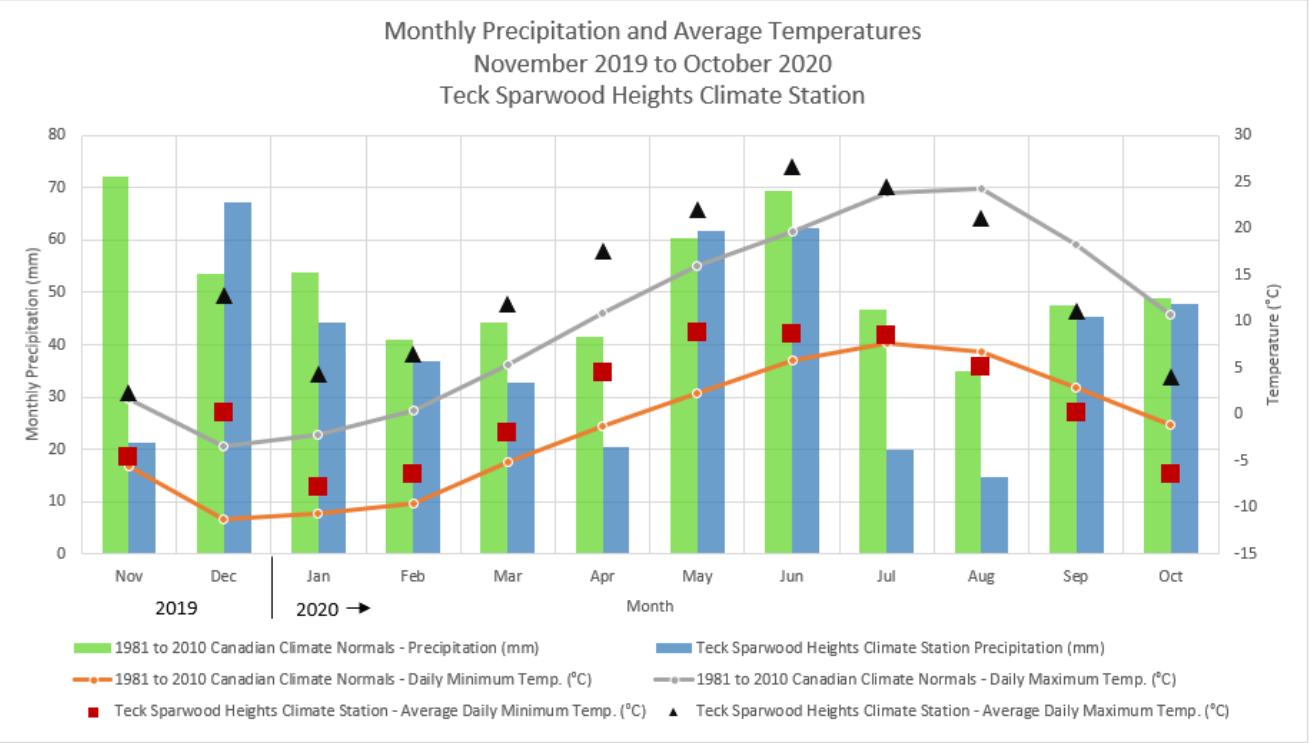
6 CLIMATE

The Elk Valley is semi-arid due to the lack of moisture that reaches eastern British Columbia. Both the amount of precipitation and the temperature are highly influenced by elevation in this area, causing more accumulation of snowpack at higher elevations.

Figure 6.1 presents the climate averages for Sparwood based on the Teck Sparwood Heights climate station. The Teck Sparwood Heights climate station data was used for this reporting period because Environment Canada Sparwood Station (ID 1157630) was missing several months of data. The total recorded precipitation from the November 2019 to end of October 2020 period was approximately 474 mm, compared to the average at Sparwood of 614 mm (based on Environment Canada Sparwood climate normal from 1981 to 2010).

Precipitation during December 2019 and from May of 2020 was higher than the 2010 Canadian climate normal for Sparwood. The precipitation for the 2019 to 2020 period has generally been lower in comparison the 2010 Canadian climate normal for Sparwood.

Figure 6.1 Climate Averages for Sparwood



Note:

1. Source: Environment Canada Sparwood Climate Normals (1981 to 2010) (Climate ID 1157630; El. 1138 m), and EVO Sparwood Heights Climate Station (El. 1138 m).

7 WATER MANAGEMENT

7.1 General Overview

As described in Section 2.2, surface water management at the CCR Dump comprises an upstream diversion ditch, two internal drains and several ditches along access roads. Runoff from the natural hillside east of the CCR Dump is captured by the Interceptor Ditch. The Interceptor Ditch diverts flow from the Feltham Creek and adjacent hillside to the south, with the diverted runoff discharging into Goddard Creek.

The Lindsay drain captures infiltration within the southern portion of the CCR Dump and drains towards the western toe of the dump where a series of corrugated metal pipe culverts discharges flow downslope to a rock armoured energy dissipation area before flowing overland into the Elk River.

The Feltham drain captures infiltration within the northern portion of the CCR Dump and discharges to a location approximately at midslope of the CCR Dump on the northern perimeter. The Interceptor Ditch, Lindsay drain and Feltham drain appear to be operating in accordance with the design objectives.

7.2 Seepage

Seepage was observed at several interbench slopes of the CCR Dump in the locations consistent with those observed during the 2019 annual inspection (KCB 2019). Some ditch drains on CCR benches were observed to contain an orange colouration, indicating the presence of seepage from the CCR Dump in the drains. The observed seepage is not considered to be of concern to the stability of the CCR Dump.

7.3 Discharge Quantities and Quality

Rainfall infiltrates through the surface of the CCR Dump and discharges from the Lindsay and Feltham drains. To date, seepage from the CCR Dump has not resulted in water quality exceedances and it is noted that EVO reports water quality data directly to the Ministry of Environment. As noted above, seepage at the toe of the CCR Dump was observed and contained an orange colouration. Surface erosion and Total Suspended Solids (TSS) / turbidity is controlled using tackifier to seed and bond vegetation to the CCR Dump slope.

8 CCR DUMP SAFETY ASSESSMENT

The CCR Dump and the associated drainage structures appeared to be in good physical condition with no signs of structural distress based on observations during the 2020 annual inspection. At the time of inspection, the CCR Dump crest elevation was being raised in accordance with normal operating procedures. The following sections provide additional detail on specific structure safety categories.

8.1 Consequence Classification Review

The CCR Dump consequence classification has not been established. KCB recommends establishing a formal consequence classification based on the outcomes of a detailed CCR Dump failure run-out analysis.

8.2 Failure Modes Review

Formal Failure Mode and Effects Analyses (FMEA) are currently in progress for several tailings dams at the EVO site. A preliminary risk assessment was completed for the CCR Dump in February 2021, which included a review of failure modes, preventative and mitigative controls, and the likelihood and consequences of risk events occurring. A formal risk assessment will be completed for the CCR Dump in 2021. Overtopping failure modes for the CCR Dump are considered to be implausible because the facility does not impound water, and are therefore not included in the failure modes review below.

8.2.1 Definition of failure modes

In undertaking a review of the failure modes, it is appropriate to first define what is meant by a failure mode.

A failure mode commences with an initiating event (trigger) that is the loading or physical condition that starts the failure process. This is followed by the failure progression, which is the mechanism that can lead to a failure (such as overtopping, instability, or internal erosion), but it is important to note that not all failure mechanisms will result in a catastrophic failure. The failure mechanism may become arrested or there may be interventions that prevent the failure mechanism from progressing.

Hence, a failure mode refers to the combination of a triggering event, the failure mechanism, and the actual release of significant amounts of material.

8.2.2 Internal Erosion and Piping

The CCR Dump does not maintain a pond, and therefore failure due to internal erosion and piping is effectively managed. Monitoring instruments typically indicate a downward gradient to the glacial till foundation level, although the phreatic surface has been sustained at 0 m to 5 m above the foundation contact level in some areas.

Monitoring the embankment slopes, toes, and drains for seepage and erosion is part of the scheduled surveillance during routine inspections. No indications of piping erosion of the CCR Dump were observed during routine surveillance or during the 2020 inspection.

8.2.3 Slope Instability

During the site inspection it was noted that some previous bench slopes were constructed with a width of approximately 4 m, which is inconsistent with the current raise design. Despite this observation, the global slope of the CCR Dump has been maintained at approximately 2.3H:1.0V and therefore achieves the overall design geometry. Monitoring instruments indicate that the phreatic surface elevation within the CCR Dump is close to, or lower than, the glacial till foundation level.

The CCR Dump was designed to an EDGM equivalent to a 1 in 475-year return period (PGA = 0.044 g) (Amec 2013), which is less than the current 1 in 975-year criteria that applies to TSFs permitted after 2016. It is noted that because the CCR Dump was permitted before the 2016 and 2017 HSRC updates, it is grandfathered under HSRC 10.1.19(2) and the current EDGM criteria does not apply to the facility. Stability analyses completed to date for the CCR Dump indicates that the facility meets the minimum target Factor of Safety (FoS) for relevant loading conditions as described in Section 2.3. Therefore, failure via slope instability is effectively managed with current controls.

8.2.4 Surface Erosion

EVO personnel conduct routine inspections of the tailings facilities and monitor the slopes for surface erosion caused by snow melt or rainfall runoff.

Erosion protection at the toe of the CCR Dump appears to be in good condition although vegetation is yet to be established across the full width of the erosion protection area. It is noted that the riprap does not extend across the full length of the exposed CCR Dump toe.

Vegetation is sparse in some localized areas of the CCR and minor gully erosion was observed at several locations. However, the magnitude of the observed erosion areas is not a concern to slope stability. EVO has been utilizing a tackifier to effectively control most of the erosion on the downstream face of the structures. Therefore, failure via surface erosion is effectively managed with the current controls.

8.3 OMS Manual and EPRP

The OMS manual for the CCR Dump was updated in March 2021 and is generally adequate for the current operations.

The CCR Dump is considered in the EVO Mine Emergency Response Plan (MERP). If instability resulting in a run-out of CCR material is a credible event, an EPRP will be developed based on the results of the run-out analysis. This work is in progress.

9 SUMMARY OF RECOMMENDATIONS

A summary of previous recommendations and 2020 annual summary of facility performance review recommendations are provided in the following sections. Recommendations are prioritized based on the scheme recommended in MEM (2016), as shown in Table 9.1.

Each recommendation is assigned a number with the prefix based on the year that item was recommended. Recommendations noted as completed or closed in this report are presented in gray and will be removed from the register in subsequent reports.

Each item is defined as a dam safety deficiency or a non-conformance, with the CDA (2016) definitions as follows:

- Deficiency: “an inadequacy, or uncertainty in the adequacy, of the dam system to meet its performance goals in accordance with good dam safety practices”.
- Non-conformance: “an inadequacy in the non-physical controls (procedures, processes and management systems) necessary to maintain the safety of the dam”.

Table 9.1 Prioritization of Action Items

Priority	Description
1	A high probability or actual structure safety issues considered dangerous to life, health or the environment, or a significant risk of regulatory enforcement.
2	If not corrected, could likely result in structure safety issues leading to injury, environmental impact or significant regulatory enforcement; or, a repetitive deficiency that demonstrates a systematic breakdown of procedures.
3	Single occurrences of deficiencies or non-conformances that alone would not be expected to result in structure safety issues.
4	Best Management Practice – further improvements are necessary to meet best practices or reduce potential risks.

9.1 Summary of Previous Recommendations

Outstanding recommendations related to the inspections of the dams and review of performance that were provided in the previous annual inspections for the CCR Dump are presented in Table 9.2. The table also indicates if each recommendation is still appropriate and what actions have been taken. Recommendations from previous reviews that have been addressed have not been included.

Table 9.2 Summary of Previous Recommendations

Action ID	Deficiency or Non-Conformance	Applicable Regulation or OMS Manual Reference	Recommended Action	Priority	Status / Recommended Deadline
2014-06	Deficiency. Review the design capacities for the Interceptor Ditch, Lindsay drain and Feltham drain.	N/A	Review the design capacities for the Interceptor Ditch, Lindsay drain and Feltham drain.	3	In progress, started in Q3 2020. This recommendation should be undertaken in conjunction with the design of the CCR Dump to El. 1,477 m. 2022 (2 years before dump reaches the Interceptor Ditch)
2017-02	Non-Conformance. The CCR Dump does not have an Emergency Preparedness and Response Plan.	HSRC 2017 (Cl. 10.4.2)	Develop Emergency Preparedness and Response Plan for the CCR Dump.	3	Complete. The CCR Dump is part of the EVO MERP.
2019-01	Non-Conformance. The CCR Dump does not have a consequence classification, and does not have a current risk assessment.	HSRC 2017 (Cl. 10.1.7)	Define the consequence classification of the CCR Dump and complete a detailed risk assessment.	3	A preliminary failure runout assessment is in progress, started in Q3 2020. A preliminary risk assessment has been completed.
2019-02	Deficiency. Some standpipe piezometers were observed to have missing caps.	N/A	Caps should be replaced on these instruments, and routine maintenance and repair of monitoring instrumentation should be added to the OMS Manual.	3	Completed 2020
2019-03	Deficiency. The status of existing inclinometers and the need for additional coverage should be reviewed.	N/A	The status of existing inclinometers and the need for additional coverage should be reviewed.	3	Closed. The status of existing inclinometers has been reviewed. The need for additional coverage will be assessed as part of the detailed design being undertaken in 2021.
2019-04	Opportunity for improvement. Inclinometer plots are unclear.	N/A	It is recommended that the stratigraphy be shown on inclinometer plots and the axis azimuth be confirmed to improve clarity for data interpretation.	4	Complete. Azimuths have been added to the inclinometer plots.

Action ID	Deficiency or Non-Conformance	Applicable Regulation or OMS Manual Reference	Recommended Action	Priority	Status / Recommended Deadline
2019-05	Opportunity for improvement. Considering the inclinometers are critical controls, defined Quantifiable Performance Objective (QPO) thresholds for inclinometers should be linked to the Trigger Action Response Plan (TARP) in the OMS Manual.	OMS Manual	Considering the inclinometers are critical controls, defined QPO thresholds for inclinometers should be linked to the TARP in the OMS Manual.	3	Complete. QPO thresholds are defined in the OMS Manual.
2019-06	Opportunity for improvement. Check the CCR Dump Factor of Safety using the 1 in 975-year seismic event for awareness and to inform risk management going forward.	N/A	Check the CCR Dump Factor of Safety using the 1 in 975-year seismic event to inform risk management going forward.	4	This recommendation should be completed in 2021 as part of the gap analysis that is assessing the current conditions in detail.

Notes: Recommendation priority guidelines specified in the HSRC Guidance Document (BCMEM, 2016) and assigned by KCB.

Priority 1: A high probability or actual structure safety issue considered dangerous to life, health or the environment, or a significant risk of regulatory enforcement.

Priority 2: If not corrected could likely result in structure safety issues leading to injury, environmental impact or significant regulatory enforcement; or, a repetitive deficiency that demonstrates a systematic breakdown of procedures.

Priority 3: Single occurrences of deficiencies or non-conformances that alone would not be expected to result in structure safety issues.

Priority 4: Best Management Practice as a suggestion for continuous improvement towards industry best practices that could further reduce potential risks.

9.2 2020 Annual Inspection Recommendations

In addition to following the OMS Manual, the following recommendations in Table 9.3 should be undertaken.

Table 9.3 Summary of Recommendations

Action ID	Deficiency or Non-Conformance	Applicable Regulation or OMS Manual Reference	Recommended Action	Priority	Status / Recommended Deadline
2020-01	Non-Conformance. CCR Dump Periodic Safety Review	HSRC (Cl. 10.4.5)	A Periodic Safety Review should be completed.	3	To be completed in 2022 after the gap analysis study and the CCR Dump geotechnical site investigation have been completed.
2020-02	Non-Conformance. Construction Summary Reports.	HSRC (Cl. 10.5.1)	Construction summary (as-built) reports should be competed on an annual basis to comply with the Code.	3	To be completed in 2021.

Notes: Recommendation priority guidelines specified in the HSRC Guidance Document (BCMEM, 2016) and assigned by KCB.

Priority 1: A high probability or actual structure safety issue considered dangerous to life, health or the environment, or a significant risk of regulatory enforcement.

Priority 2: If not corrected could likely result in structure safety issues leading to injury, environmental impact or significant regulatory enforcement; or, a repetitive deficiency that demonstrates a systematic breakdown of procedures.

Priority 3: Single occurrences of deficiencies or non-conformances that alone would not be expected to result in structure safety issues.

Priority 4: Best Management Practice as a suggestion for continuous improvement towards industry best practices that could further reduce potential risks.

10 CLOSING

Based on the site inspection observations and data reviewed, the CCR Dump is in adequate condition and continues to perform satisfactorily.

If you have any questions, please contact the undersigned.

KLOHN CRIPPEN BERGER LTD.

Michael Tin, E.I.T.
Geotechnical Engineer

C.A (Andy) Small, P.Eng.
Senior Geotechnical Engineer

REFERENCES

AMEC Foster Wheeler. (AMEC). 2004. “Proposed CCR/MCR Dump Expansion”. Issued January 2004.

AMEC Foster Wheeler. (AMEC). 2007. “Proposed CCR/MCR Dump Expansion”. Issued January 2007.

AMEC Foster Wheeler. (AMEC). 2017. “Coarse Coal Refuse / Mixed Coal Refuse Dump – 2017 Site Inspection”. Issued March 2018.

British Columbia Mine Waste Rock Pile Research Committee (BCMWRPRC). 1991. “Mined Rock and Overburden Piles – Investigation and Design Manual – Interim Guidelines”. May.

British Columbia Ministry of Energy and Mines. (MEM). 2016. “Guidance Document: Health, Safety and Reclamation Code for Mines in British Columbia”. Version 1.0. Updated July.

British Columbia Ministry of Energy, Mines, & Petroleum Resources. (MEM). 2017. “Health, Safety and Reclamation Code for Mines in British Columbia”. February.

British Columbia Ministry of Forests, Land and Natural Resource Operations. (FLNRO). 2016. “British Columbia Dam Safety Regulation”. February 29.

Canadian Dam Association. (CDA). 2007. “Technical Bulletin: Geotechnical Considerations for Dam Safety”.

Canadian Dam Association. (CDA). 2013. “Dam Safety Guidelines 2007 (Revised 2013)”.

Canadian Dam Association. (CDA). 2016. “Technical Bulletin: Dam Safety Reviews”.

Canadian Dam Association. (CDA). 2019. “Technical Bulletin: Application of Dam Safety Guidelines to Mining Dams”.

Hawley, M., & Cunning, J., (2017). “Guidelines for Mine Waste Dump and Stockpile Design”. Clayton, Victoria, CSIRO.

Mining Association of Canada. (MAC). 2011. “Developing an Operation, Maintenance and Surveillance Manual for Tailings and Water Management Facilities”.

Mining Association of Canada. (MAC). 2019. “Developing an Operation, Maintenance, and Surveillance Manual for Tailings and Water Management Facilities”. Third Edition.

SNC-Lavalin. 2015. “Final Report – Geotechnical Design - Proposed Coal Refuse Disposal Expansion”. Issued July 30, 2015.

Wood. 2020. “Coarse Coal Refuse / Mixed Coal Refuse Dump – 2018 Annual Tailings Facility Site Inspection”. Issued March 25, 2020.

APPENDIX I

Inspection Photographs

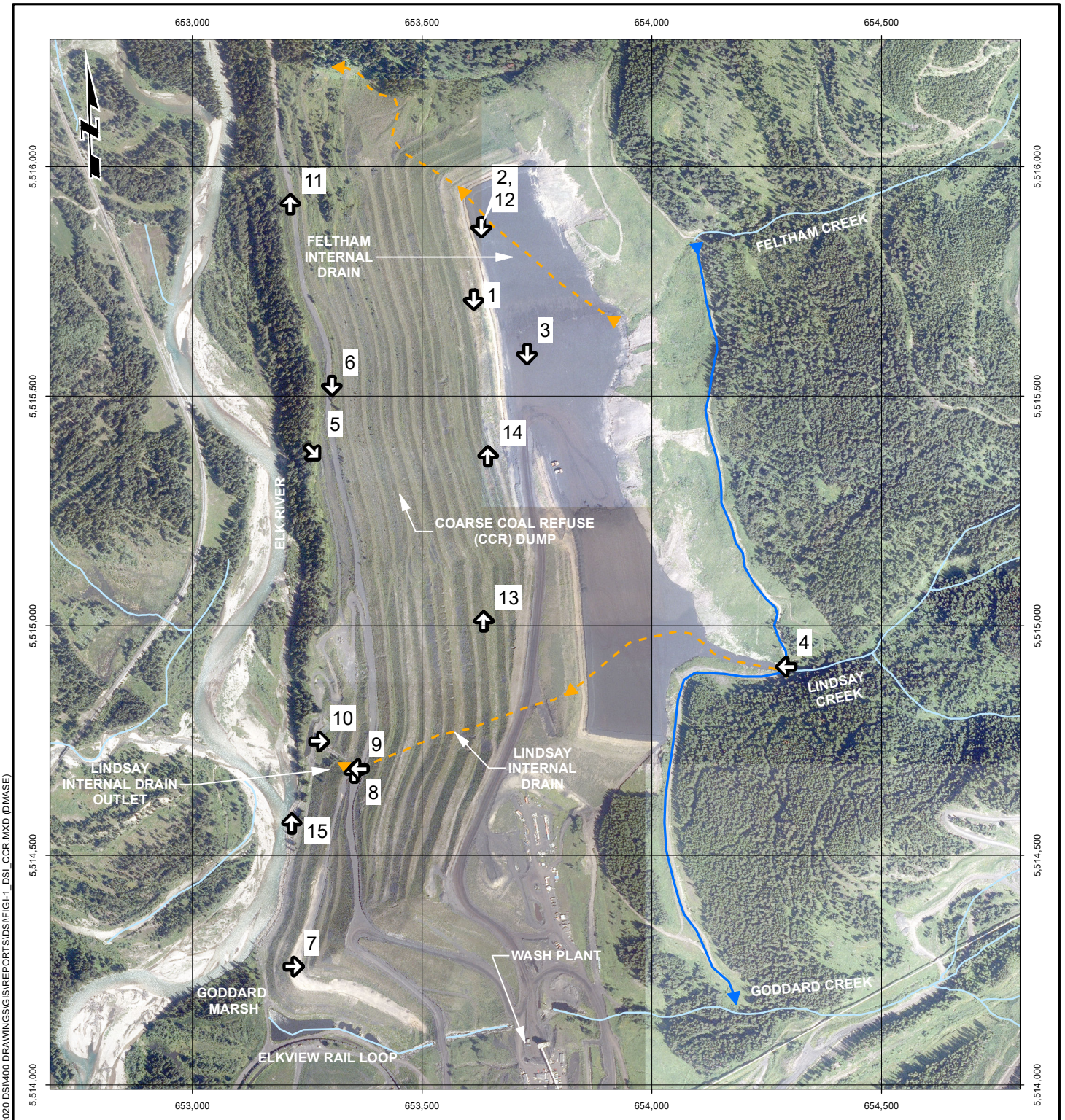
Appendix I
Inspection Photographs
(Taken on September 22, 2020 during annual inspection)

I-1.1 Coarse Coal Refuse (CCR) Dump

The CCR Dump photograph location plan layout is presented on Figure I-1. The following general notes are applicable to the inspection photographs:

Notes:

1. Selected photo locations and direction taken are approximate only.
2. Selected photos are representative of the condition of the facility at the time of inspection, and do not include all photos taken during the inspection. EVO was provided with all photos taken during the inspection.



LEGEND

- ELKVIEW 2020 PHOTO LOCATION
- DITCH
- CREEK
- INTERNAL DRAIN

NOTES

1. DATUM, PROJECTION: NAD83, UTM ZONE 11 (WKID 26911)
2. IMAGERY FROM EVO (COLLECTED IN 2019).

NOT FOR CONSTRUCTION

SCALE 0 250 m

CLIENT: Teck

Klohn Crippen Berger

PROJECT: TECK ELKVIEW OPERATIONS
2020 ANNUAL SUMMARY OF FACILITY PERFORMANCE

TITLE: COARSE COAL REFUSE DUMP
PHOTOGRAPH LOCATIONS
PLAN LAYOUT

SCALE	PROJECT No.	FIG. No.
1:12,000	M09963A14	I-1

ANSI A

SAVE DATE: 2021-03-24(12:54 PM)
FILE PATH: \\INT.KLOHN.COM\PROJDATA\M\FRE\M09963A14-TCL-EVO-2020 DSI\400 DRAWINGS\GIS\REPORTS\DSI\FIGI-1_DSI_CCR.MXD (DMASE)

Photo I-1 CCR upper benches. (looking south, photo taken from drone flight)

Photo I-2 CCR Dump crest typical conditions. (looking south)

Photo I-3 CCR Dump crest construction in progress. (looking south)

Photo I-4 CCR Dump diversion ditch and Lindsay Drain extension. (looking west)

Photo I-5 CCR Dump sparse vegetation at toe benches. (looking southeast)

Photo I-6 CCR Dump seepage at bench ditches. (looking south)

Photo I-7 CCR Dump localised sparse vegetation. (looking east)

Photo I-8 CCR Dump bench typical condition. (looking north)

Photo I-9 CCR Dump Lindsay Drain culvert outlet. (looking west)

Photo I-10 CCR Dump Lindsay Drain outlet. (looking east)

Photo I-11 CCR Dump bench typical conditions. (looking north)

Photo I-12 CCR Dump crest and slope typical conditions. (looking south)

Photo I-13 CCR benches. (looking north, photo taken from drone flight)

Photo I-14 CCR benches. (looking north, photo taken from drone flight)

Photo I-15 CCR Dump toe riprap adjacent to the Elk River (looking north).

APPENDIX II

Inspection Checklist

Annual Summary of Facility Performance Inspection Checklist

Klohn Crippen Berger

Site	Teck Elkview Operations		
Structure	Coarse Coal Refuse Dump		
Inspected by	Andy Small P.Eng / Michael Tin E.I.T	Crest El.	1,336 m
Accompanied by	Jason Garwood P.Geo / Meghan Barton E.I.T	Spillway Invert El.	None.
Date of Inspection	September 22, 2020	Reservoir Level	None.
Walk Over Inspection	Crest/Benches/Toe	Available Freeboard	None.
Weather Conditions	Cloudy / Overcast		

ID	Observed Features	Yes	No	N/A	Comments
1.0	***Crest***				
1.1	Evidence of Shoulder/Erosion		X		
1.2	Evidence of Cracking		X		
1.3	Evidence of Movement		X		
1.4	Other Deformation/Settlement/Sinkholes		X		
1.5	Concerns with Low Areas on the Crest		X		
1.6	Concerns with crest width		X		
1.7	Other Unusual Conditions		X		
1.8	Repairs Required		X		
2.0	***Downstream Slope***				
2.1	Evidence of Erosion	X			Minor erosion on interbench slopes
2.2	Evidence of Sloughing/Sliding		X		
2.3	Evidence of Cracking		X		
2.4	Evidence of Movement		X		
2.5	Any Other Deformation		X		
2.6	Signs of Phreatic Surface/Seepage		X		
2.7	Seepages Observed	X			Minor seepage at road ditch drains
2.8	Is Seepage (if any) Turbid		X		Seepage has orange staining.
2.9	Other Unusual Conditions		X		
2.10	Repairs Required		X		
3.0	***Abutments***				
3.1	Seepages Observed			X	
3.2	Is Seepage (if any) Turbid			X	
3.3	Evidence of Erosion			X	
3.4	Evidence of Cracking			X	
3.5	Evidence of Movement			X	
3.6	Other Deformation/Settlement/Sinkholes			X	
3.7	Other Unusual Conditions			X	
3.8	Repairs Required			X	

Annual Summary of Facility Performance Inspection Checklist

Klohn Crippen Berger

Site	Teck Elkview Operations		
Structure	Coarse Coal Refuse Dump		
Inspected by	Andy Small P.Eng / Michael Tin E.I.T	Crest El.	1,336 m
Accompanied by	Jason Garwood P.Geo / Meghan Barton E.I.T	Spillway Invert El.	None.
Date of Inspection	September 22, 2020	Reservoir Level	None.
Walk Over Inspection	Crest/Benches/Toe	Available Freeboard	None.
Weather Conditions	Cloudy / Overcast		

ID	Observed Features	Yes	No	N/A	Comments
4.0	***Downstream Toe***				
4.1	Seepages Observed	X			Seepage observed at toe of Lindsay Drain
4.2	Is Seepage (if any) Turbid		X		Seepage was clear.
4.3	Evidence of Soft Toe Condition		X		
4.4	Evidence of Sloughing/Sliding		X		
4.5	Evidence of Boils		X		
4.6	Evidence of Contamination/Vegetation Kills		X		
4.7	Excessive Vegetation		X		
4.8	Other Unusual Conditions		X		
4.9	Repairs Required		X		
5.0	***Spillway***				
5.1	Obstruction by debris or vegetation			X	
5.2	Lack of Erosion Protection			X	
5.3	Slope Deterioration (Sloughing, Erosion etc...)			X	
5.4	Other Unusual Conditions			X	
5.5	Repairs Required			X	
6.0	***Other***				
6.1	Other Unusual Conditions			X	
6.2	Sketch (if required):				

APPENDIX III

CCR Dump Cross Sections
(provided by EVO)

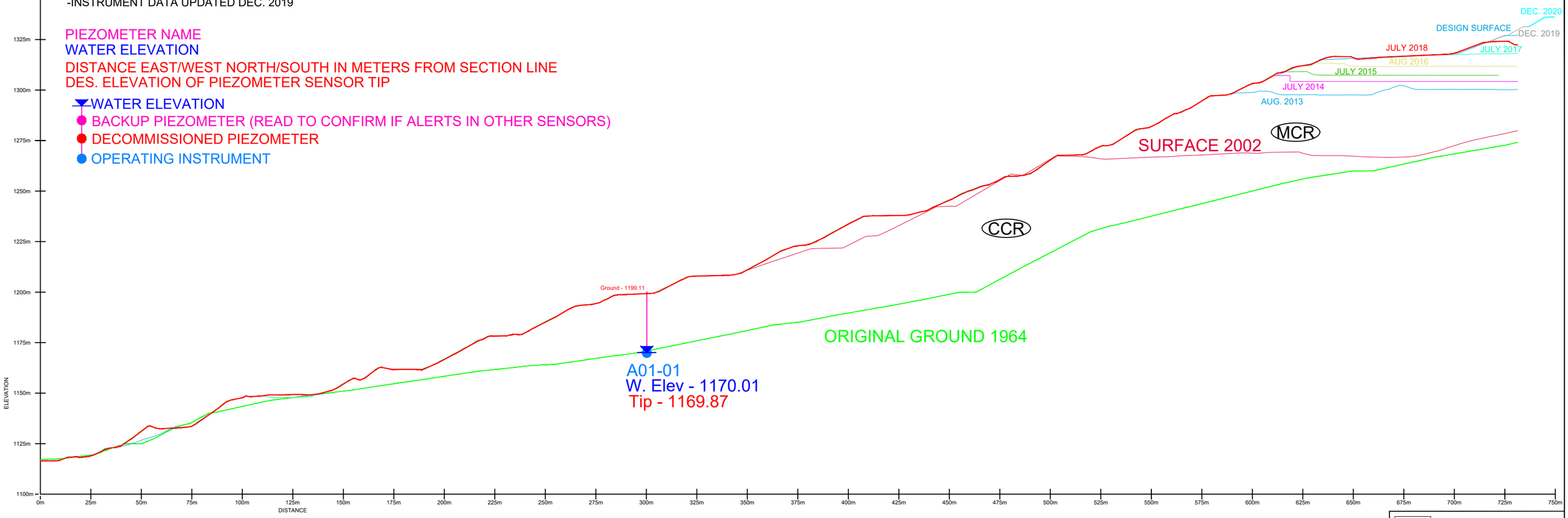
CCR CROSS-SECTION A-A'

CROSS-SECTION
ORIGIN COORD: 15500.00E, 53704.78N
AZIMUTH: 64°39'58"

NOTES:
- AS-BUILT BASED ON SURVEY AND LiDAR DATA
-INSTRUMENT DATA UPDATED DEC. 2019

PIEZOMETER NAME
WATER ELEVATION
DISTANCE EAST/WEST NORTH/SOUTH IN METERS FROM SECTION LINE
DES. ELEVATION OF PIEZOMETER SENSOR TIP

- WATER ELEVATION
- BACKUP PIEZOMETER (READ TO CONFIRM IF ALERTS IN OTHER SENSORS)
- DECOMMISSIONED PIEZOMETER
- OPERATING INSTRUMENT



Teck Elkview Operations

Geotechnical Engineering

CCR CROSS-SECTION A-A'
2020

DATE: Dec. 2020	SCALE:	DWG. NO.:
DWN BY: A. Yeomans	REV BY: M. Barton	

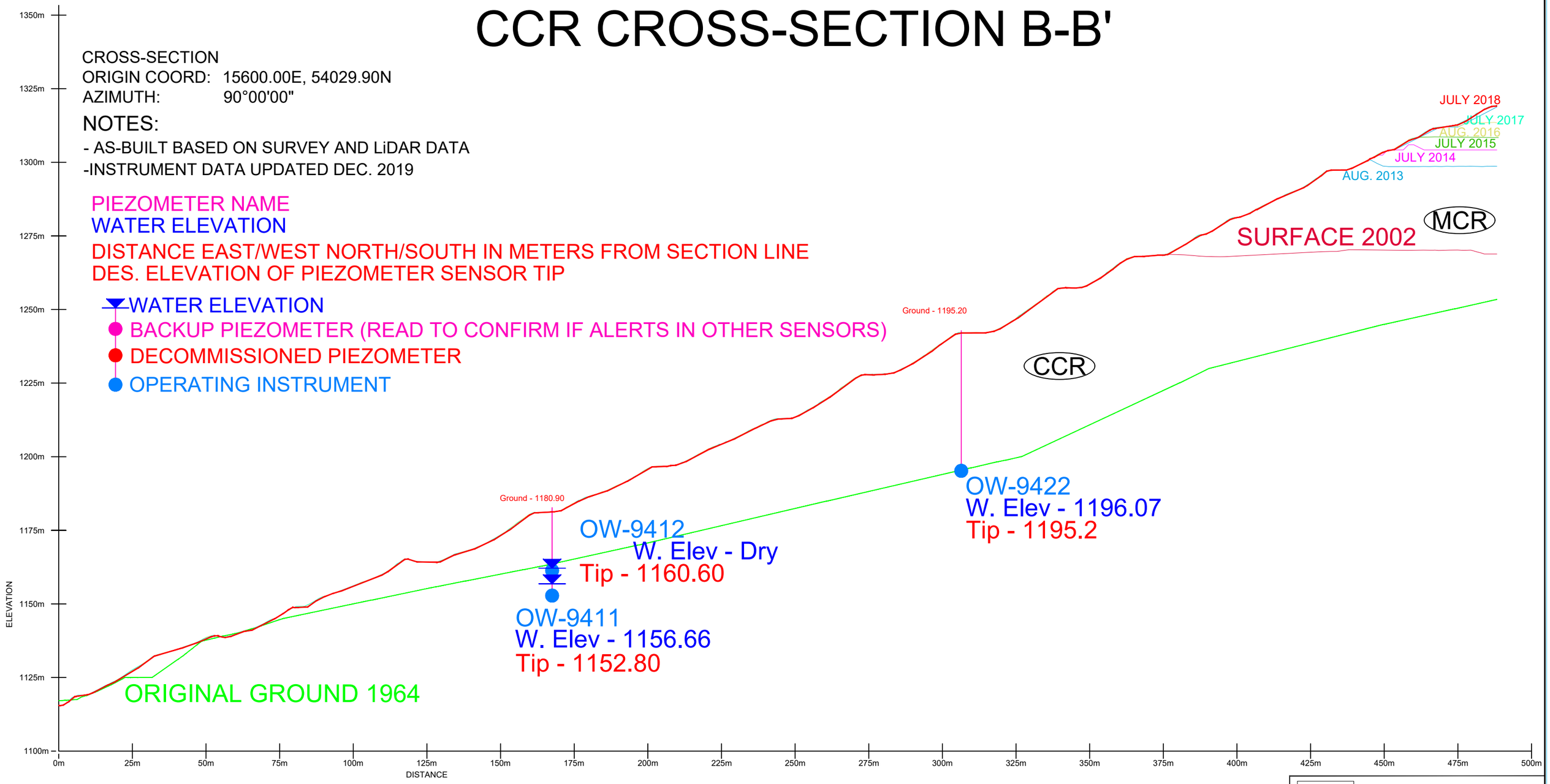
CCR CROSS-SECTION B-B'

CROSS-SECTION
ORIGIN COORD: 15600.00E, 54029.90N
AZIMUTH: 90°00'00"

NOTES:
- AS-BUILT BASED ON SURVEY AND LiDAR DATA
-INSTRUMENT DATA UPDATED DEC. 2019

PIEZOMETER NAME
WATER ELEVATION
DISTANCE EAST/WEST NORTH/SOUTH IN METERS FROM SECTION LINE
DES. ELEVATION OF PIEZOMETER SENSOR TIP

WATER ELEVATION
BACKUP PIEZOMETER (READ TO CONFIRM IF ALERTS IN OTHER SENSORS)
DECOMMISSIONED PIEZOMETER
OPERATING INSTRUMENT



Teck Elkview Operations

Geotechnical Engineering

CCR CROSS-SECTION B-B'
2020

DATE: Dec. 2020	SCALE:	DWG. NO. :
DWN BY: A. Yeomans	REV BY: M. Barton	

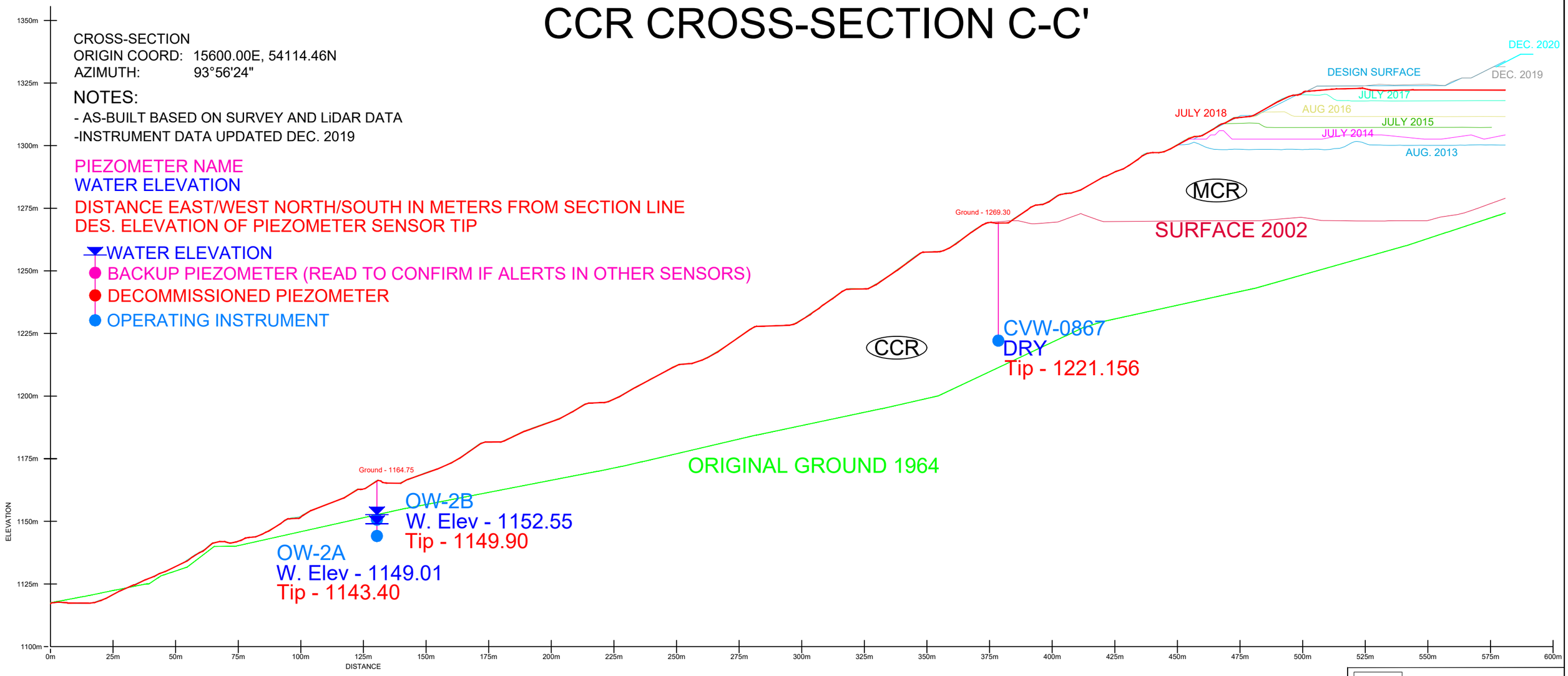
CCR CROSS-SECTION C-C'

CROSS-SECTION
ORIGIN COORD: 15600.00E, 54114.46N
AZIMUTH: 93°56'24"

NOTES:
- AS-BUILT BASED ON SURVEY AND LiDAR DATA
-INSTRUMENT DATA UPDATED DEC. 2019

PIEZOMETER NAME
WATER ELEVATION
DISTANCE EAST/WEST NORTH/SOUTH IN METERS FROM SECTION LINE
DES. ELEVATION OF PIEZOMETER SENSOR TIP

- WATER ELEVATION
- BACKUP PIEZOMETER (READ TO CONFIRM IF ALERTS IN OTHER SENSORS)
- DECOMMISSIONED PIEZOMETER
- OPERATING INSTRUMENT



Teck Elkview Operations

Geotechnical Engineering

CCR CROSS-SECTION C-C'
2020

DATE: Dec. 2020	SCALE:	DWG. NO.:
DWN BY: A. Yeomans	REV BY: M. Barton	

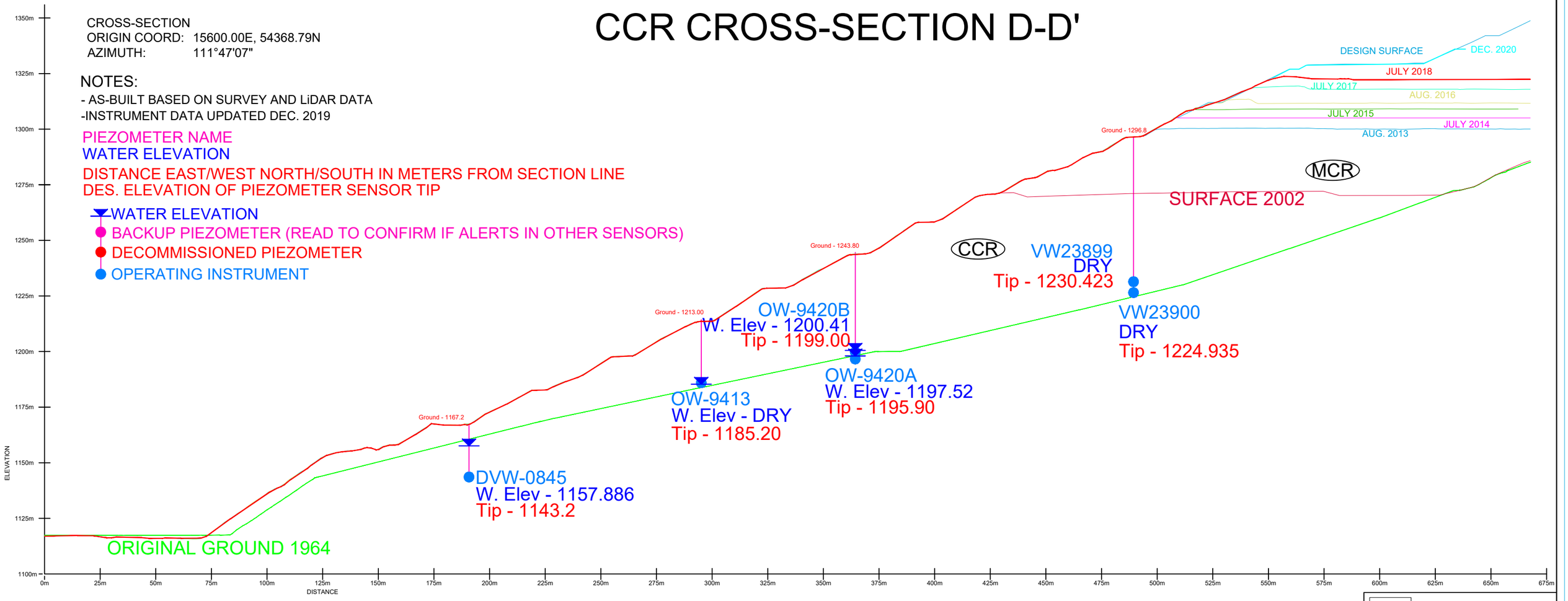
CCR CROSS-SECTION D-D'

CROSS-SECTION
ORIGIN COORD: 15600.00E, 54368.79N
AZIMUTH: 111°47'07"

NOTES:
- AS-BUILT BASED ON SURVEY AND LiDAR DATA
-INSTRUMENT DATA UPDATED DEC. 2019

PIEZOMETER NAME
WATER ELEVATION
DISTANCE EAST/WEST NORTH/SOUTH IN METERS FROM SECTION LINE
DES. ELEVATION OF PIEZOMETER SENSOR TIP

- WATER ELEVATION
- BACKUP PIEZOMETER (READ TO CONFIRM IF ALERTS IN OTHER SENSORS)
- DECOMMISSIONED PIEZOMETER
- OPERATING INSTRUMENT



Teck Elkview Operations

Geotechnical Engineering

CCR CROSS-SECTION D-D'
2020

DATE: Dec. 2020	SCALE:	DWG. NO. :
DWN BY:A. Yeomans	REV BY: M. Barton	

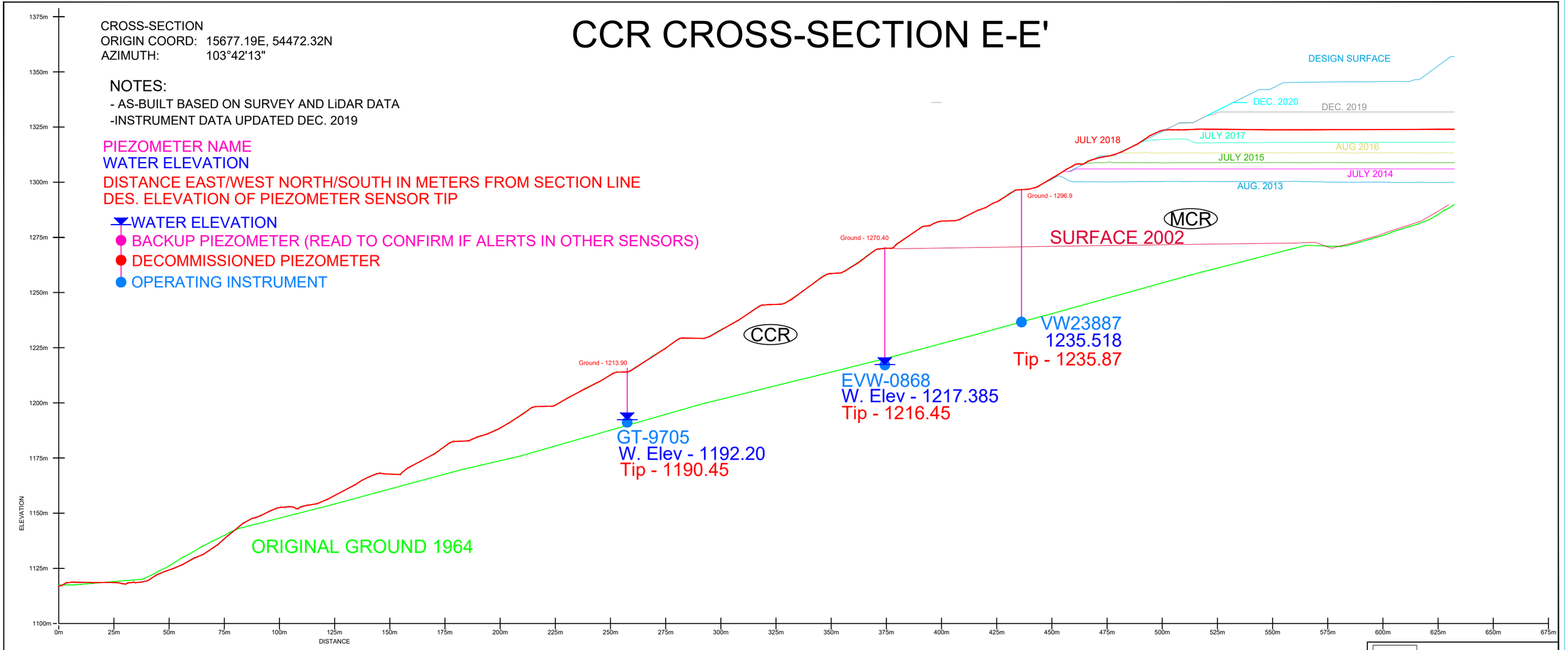
CCR CROSS-SECTION E-E'

CROSS-SECTION
ORIGIN COORD: 15677.19E, 54472.32N
AZIMUTH: 103°42'13"

NOTES:
- AS-BUILT BASED ON SURVEY AND LiDAR DATA
-INSTRUMENT DATA UPDATED DEC. 2019

PIEZOMETER NAME
WATER ELEVATION
DISTANCE EAST/WEST NORTH/SOUTH IN METERS FROM SECTION LINE
DES. ELEVATION OF PIEZOMETER SENSOR TIP

- WATER ELEVATION
- BACKUP PIEZOMETER (READ TO CONFIRM IF ALERTS IN OTHER SENSORS)
- DECOMMISSIONED PIEZOMETER
- OPERATING INSTRUMENT



Teck Elkview Operations

Geotechnical Engineering

CCR CROSS-SECTION E-E'
2020

DATE: Dec. 2020	SCALE:	DWG. NO. :
DWN BY: A.Yeomans	REV BY: M. Barton	

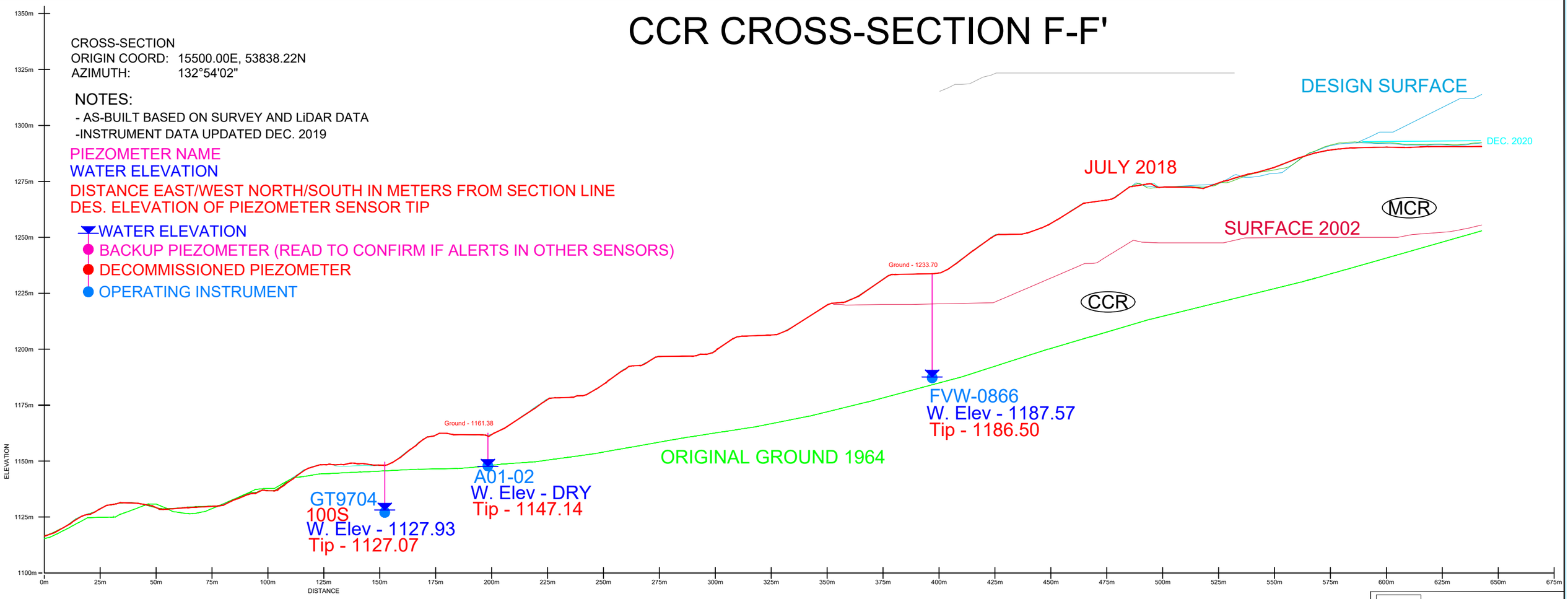
CCR CROSS-SECTION F-F'

CROSS-SECTION
ORIGIN COORD: 15500.00E, 53838.22N
AZIMUTH: 132°54'02"

NOTES:
- AS-BUILT BASED ON SURVEY AND LiDAR DATA
-INSTRUMENT DATA UPDATED DEC. 2019

PIEZOMETER NAME
WATER ELEVATION
DISTANCE EAST/WEST NORTH/SOUTH IN METERS FROM SECTION LINE
DES. ELEVATION OF PIEZOMETER SENSOR TIP

- WATER ELEVATION
- BACKUP PIEZOMETER (READ TO CONFIRM IF ALERTS IN OTHER SENSORS)
- DECOMMISSIONED PIEZOMETER
- OPERATING INSTRUMENT



Teck Elkview Operations

Geotechnical Engineering
CCR CROSS-SECTION F-F'
2020

DATE: Dec. 2020	SCALE:	DWG. NO. :
DWN BY: A. Yeomans	REV BY: M. Barton	

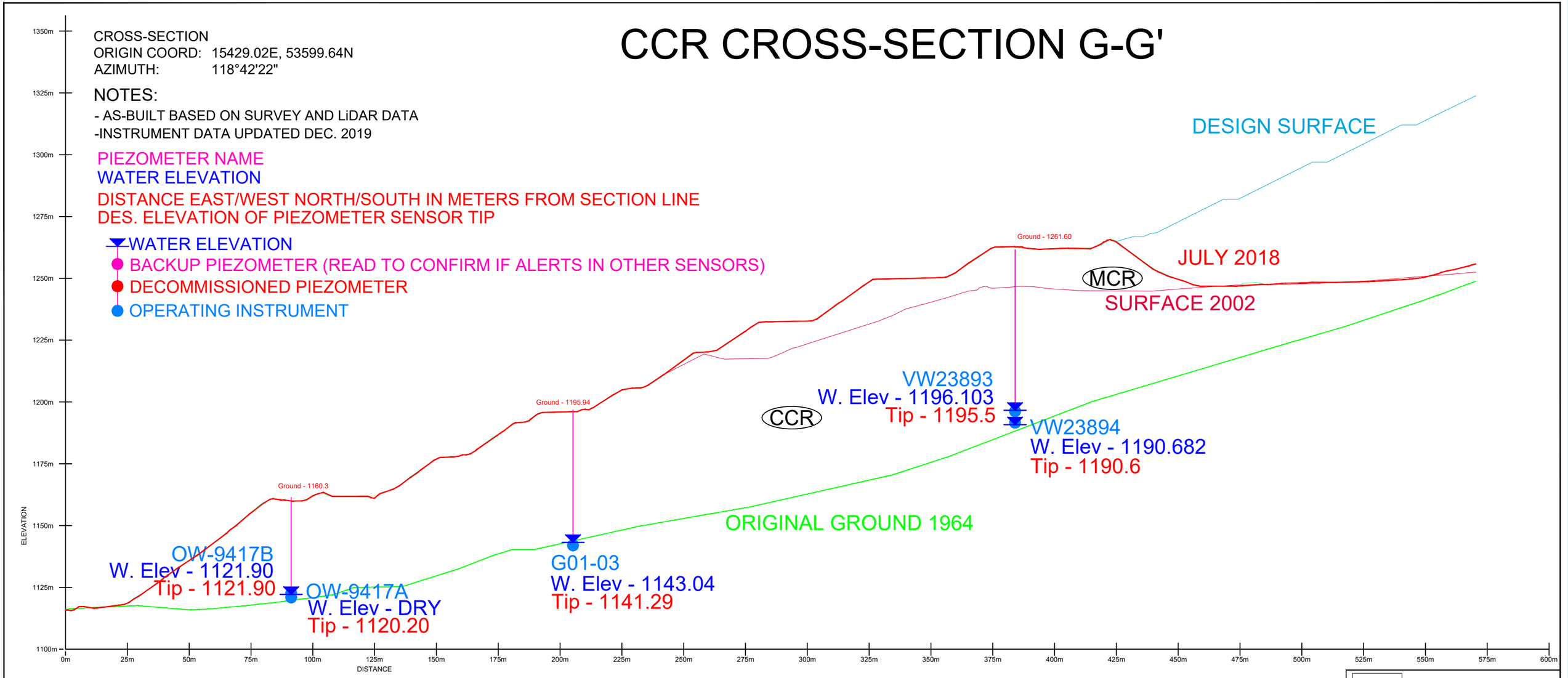
CCR CROSS-SECTION G-G'

CROSS-SECTION
ORIGIN COORD: 15429.02E, 53599.64N
AZIMUTH: 118°42'22"

NOTES:
- AS-BUILT BASED ON SURVEY AND LiDAR DATA
-INSTRUMENT DATA UPDATED DEC. 2019

PIEZOMETER NAME
WATER ELEVATION
DISTANCE EAST/WEST NORTH/SOUTH IN METERS FROM SECTION LINE
DES. ELEVATION OF PIEZOMETER SENSOR TIP

WATER ELEVATION
BACKUP PIEZOMETER (READ TO CONFIRM IF ALERTS IN OTHER SENSORS)
DECOMMISSIONED PIEZOMETER
OPERATING INSTRUMENT



Teck Elkview Operations

Geotechnical Engineering

CCR CROSS-SECTION G-G'
2020

DATE: Dec. 2020	SCALE:	DWG. NO. :
DWN BY: A. Yeomans	REV BY: M. Barton	

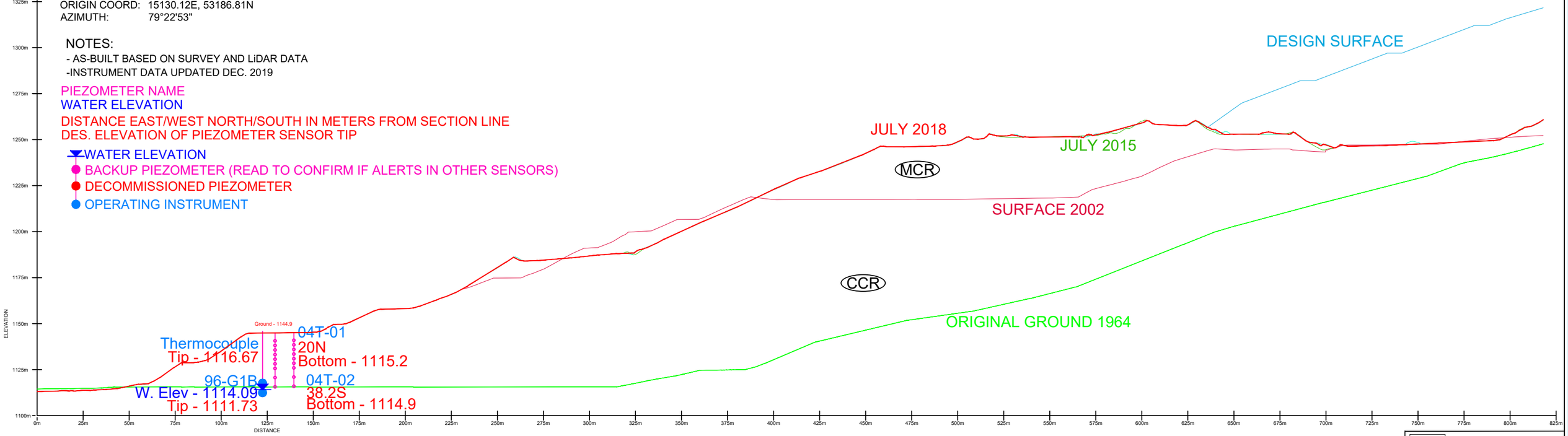
CCR CROSS-SECTION H-H'

CROSS-SECTION
ORIGIN COORD: 15130.12E, 53186.81N
AZIMUTH: 79°22'53"

NOTES:
- AS-BUILT BASED ON SURVEY AND LiDAR DATA
-INSTRUMENT DATA UPDATED DEC. 2019

PIEZOMETER NAME
WATER ELEVATION
DISTANCE EAST/WEST NORTH/SOUTH IN METERS FROM SECTION LINE
DES. ELEVATION OF PIEZOMETER SENSOR TIP

- WATER ELEVATION
- BACKUP PIEZOMETER (READ TO CONFIRM IF ALERTS IN OTHER SENSORS)
- DECOMMISSIONED PIEZOMETER
- OPERATING INSTRUMENT



Teck Elkview Operations

Geotechnical Engineering

CCR CROSS-SECTION H-H'
2019

DATE: Dec. 2019	SCALE:	DWG. NO. :
DWN BY:A. Yeomans	REV BY:	

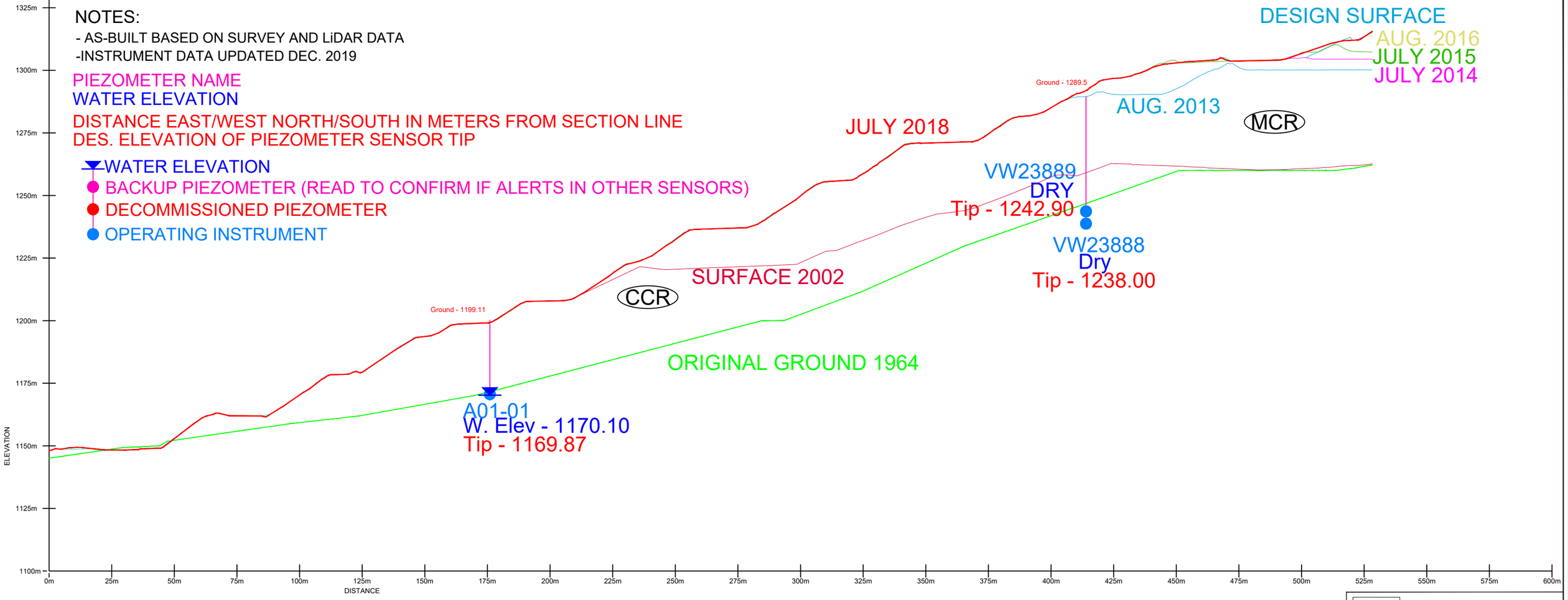
CCR CROSS-SECTION I-I'

CROSS-SECTION
ORIGIN COORD: 15595.05E, 53822.30N
AZIMUTH: 90°00'00"

NOTES:
- AS-BUILT BASED ON SURVEY AND LiDAR DATA
-INSTRUMENT DATA UPDATED DEC. 2019

PIEZOMETER NAME
WATER ELEVATION
DISTANCE EAST/WEST NORTH/SOUTH IN METERS FROM SECTION LINE
DES. ELEVATION OF PIEZOMETER SENSOR TIP

- WATER ELEVATION
- BACKUP PIEZOMETER (READ TO CONFIRM IF ALERTS IN OTHER SENSORS)
- DECOMMISSIONED PIEZOMETER
- OPERATING INSTRUMENT



Teck Elkview Operations

Geotechnical Engineering

CCR CROSS-SECTION I-I
2020

DATE: Dec. 2020	SCALE:	DWG. NO. :
DWN BY: A. Yeomans	REV BY: M. Barton	

CCR CROSS-SECTION J-J'

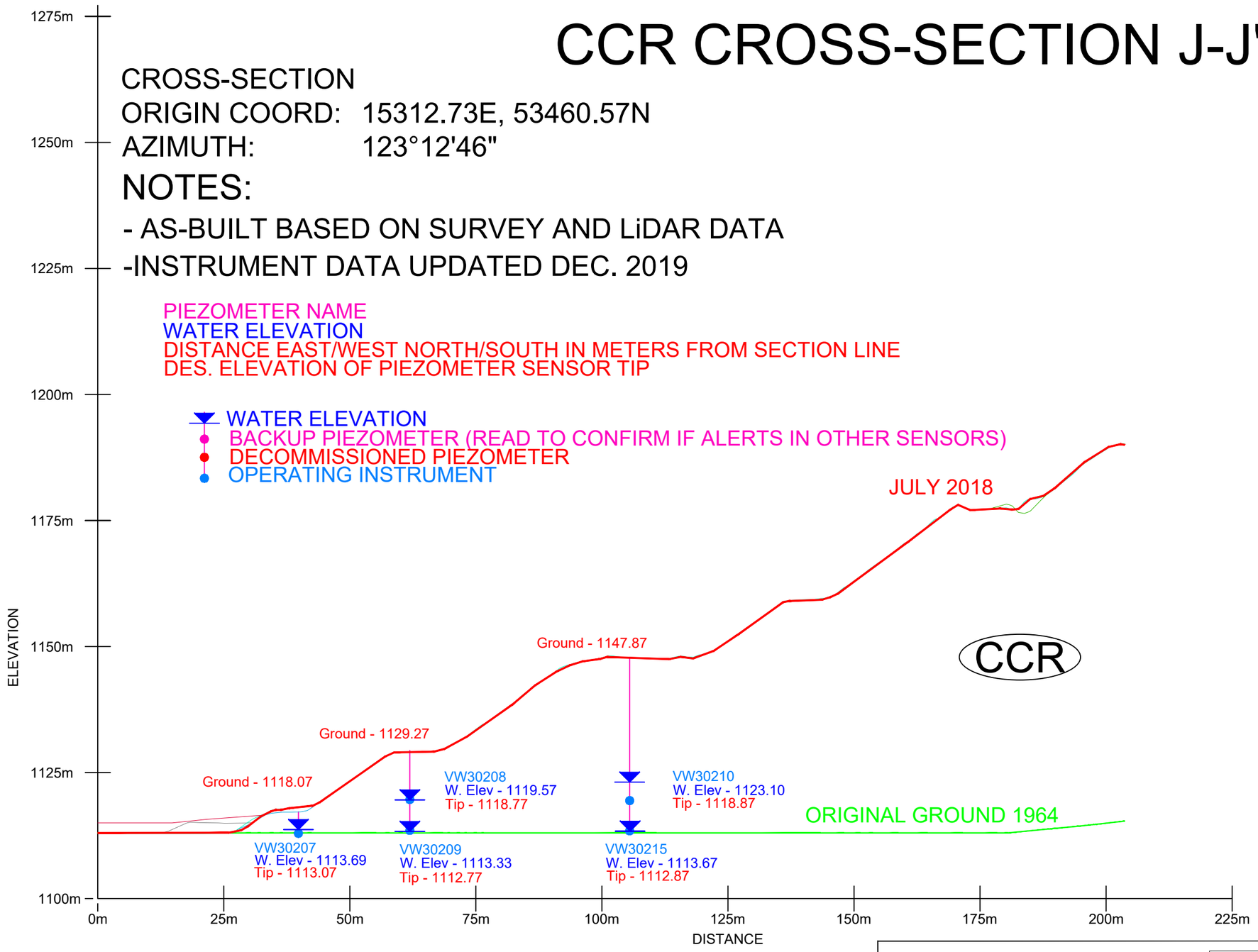
CROSS-SECTION
ORIGIN COORD: 15312.73E, 53460.57N
AZIMUTH: 123°12'46"

NOTES:

- AS-BUILT BASED ON SURVEY AND LiDAR DATA
-INSTRUMENT DATA UPDATED DEC. 2019

PIEZOMETER NAME
WATER ELEVATION
DISTANCE EAST/WEST NORTH/SOUTH IN METERS FROM SECTION LINE
DES. ELEVATION OF PIEZOMETER SENSOR TIP

WATER ELEVATION
BACKUP PIEZOMETER (READ TO CONFIRM IF ALERTS IN OTHER SENSORS)
DECOMMISSIONED PIEZOMETER
OPERATING INSTRUMENT



Elkview Opera Teck

Geotechnical Engineering

CCR CROSS-SECTION J-J
2019

DATE: Dec. 2019	SCALE:	DWG. NO. :
DWN BY: A. Yeomans	REV BY:	

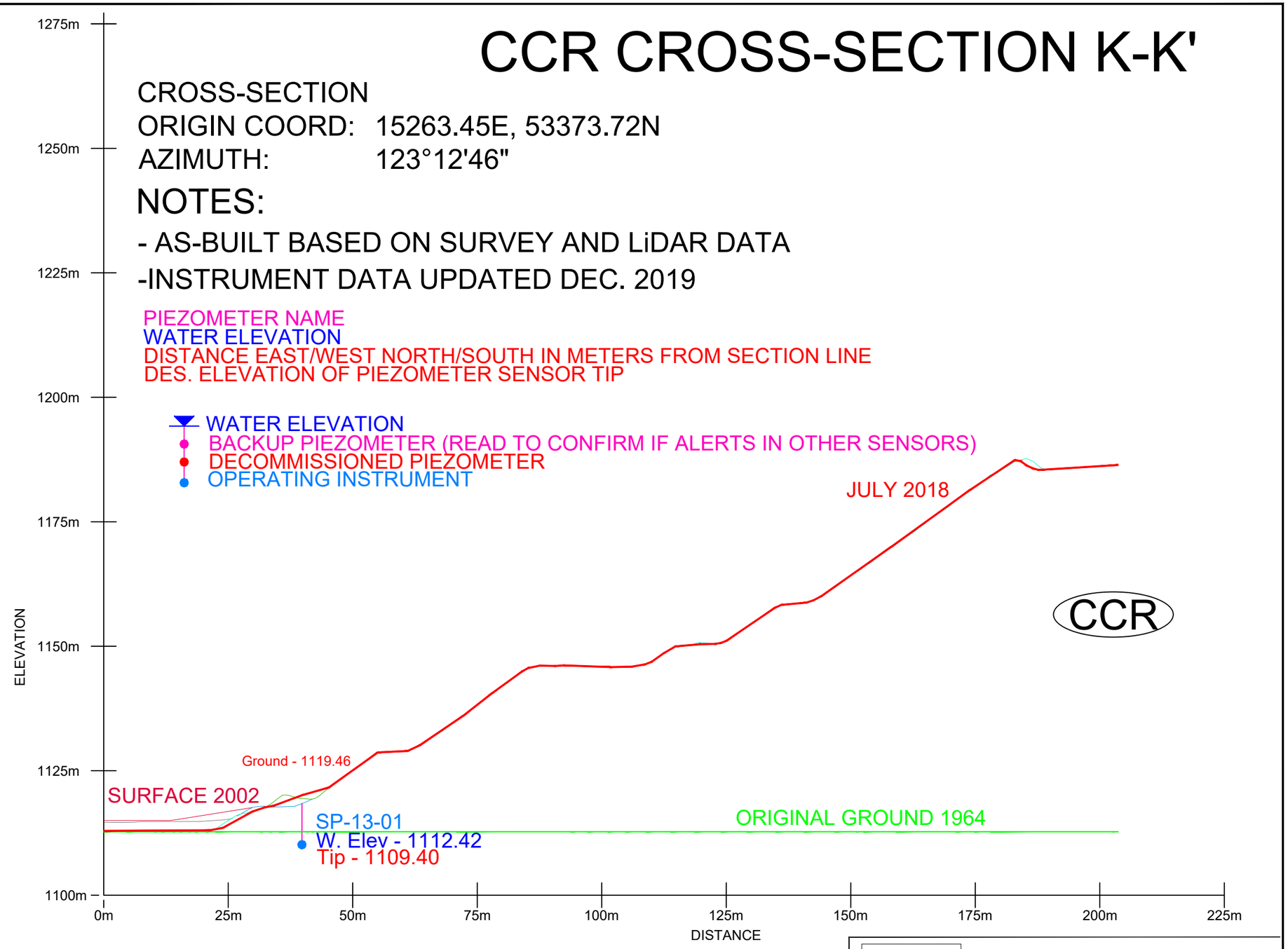
CCR CROSS-SECTION K-K'

CROSS-SECTION
ORIGIN COORD: 15263.45E, 53373.72N
AZIMUTH: 123°12'46"

NOTES:

- AS-BUILT BASED ON SURVEY AND LiDAR DATA
-INSTRUMENT DATA UPDATED DEC. 2019

PIEZOMETER NAME
WATER ELEVATION
DISTANCE EAST/WEST NORTH/SOUTH IN METERS FROM SECTION LINE
DES. ELEVATION OF PIEZOMETER SENSOR TIP



Teck Elkview Operations

Geotechnical Engineering

CCR CROSS-SECTION K-K
2019

DATE: Dec. 2019	SCALE:	DWG. NO. :
DWN BY: A. Yeomans	REV BY:	

CCR CROSS-SECTION L-L'

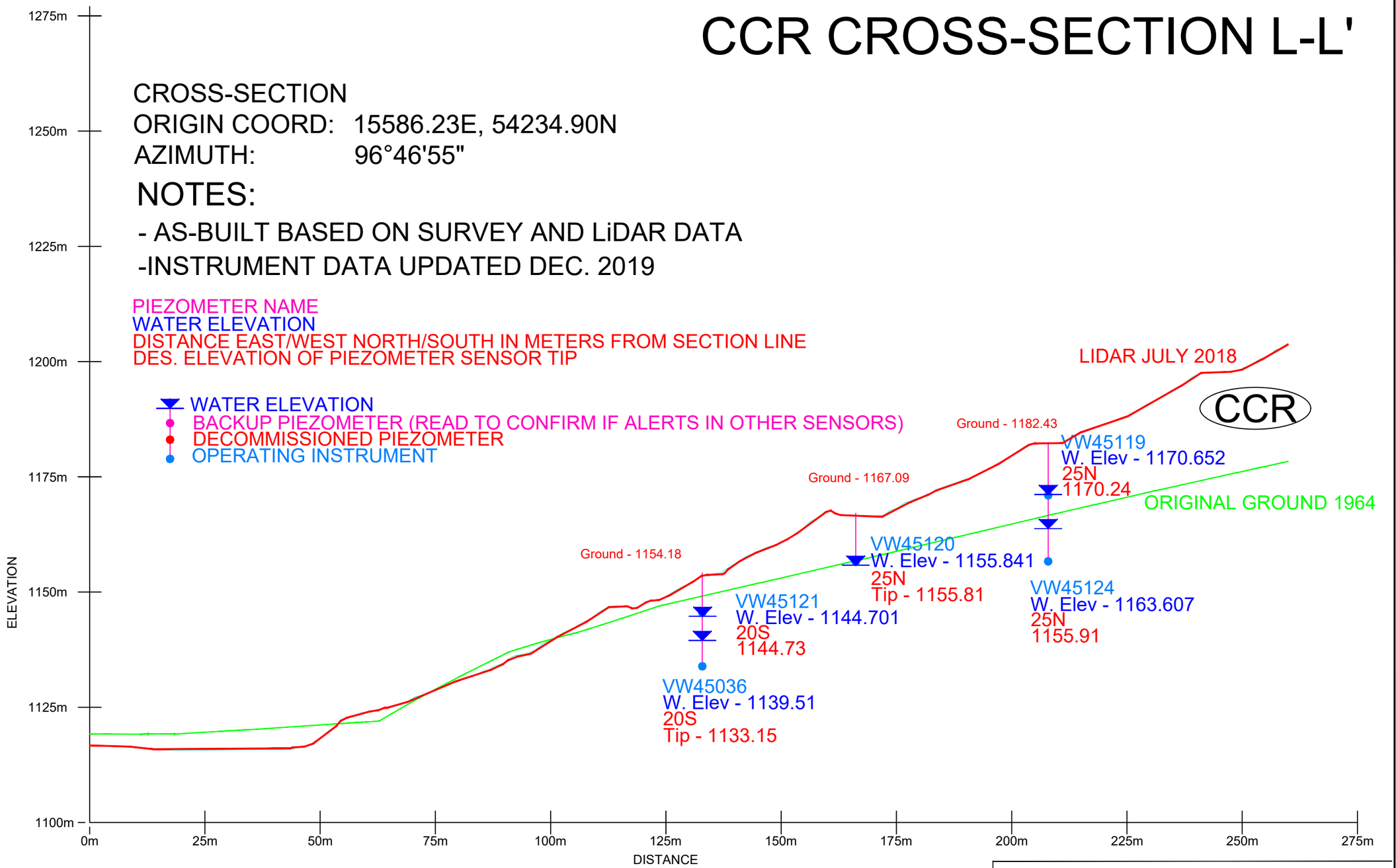
CROSS-SECTION
ORIGIN COORD: 15586.23E, 54234.90N
AZIMUTH: 96°46'55"

NOTES:

- AS-BUILT BASED ON SURVEY AND LiDAR DATA
-INSTRUMENT DATA UPDATED DEC. 2019

PIEZOMETER NAME
WATER ELEVATION
DISTANCE EAST/WEST NORTH/SOUTH IN METERS FROM SECTION LINE
DES. ELEVATION OF PIEZOMETER SENSOR TIP

WATER ELEVATION
BACKUP PIEZOMETER (READ TO CONFIRM IF ALERTS IN OTHER SENSORS)
DECOMMISSIONED PIEZOMETER
OPERATING INSTRUMENT



Teck Elkview Operations

Geotechnical Engineering

CCR CROSS-SECTION L-L
2020

DATE: Dec. 2020	SCALE:	DWG. NO. :
DWN BY: A. Yeomans	REV BY: M. Barton	

APPENDIX IV

Monitoring Instrument Data and Plots (provided by EVO)

Piezometer Plots
Inclinometer Plots
GPS Monitoring Unit Plots

Appendix IV
2020 Piezometric Level Observations

Table IV-1 presents a brief assessment for each piezometer measurement associated with the stability of the CCR Dump, with significant observations shown in bold.

Table IV-1 2020 Piezometric Level Observation

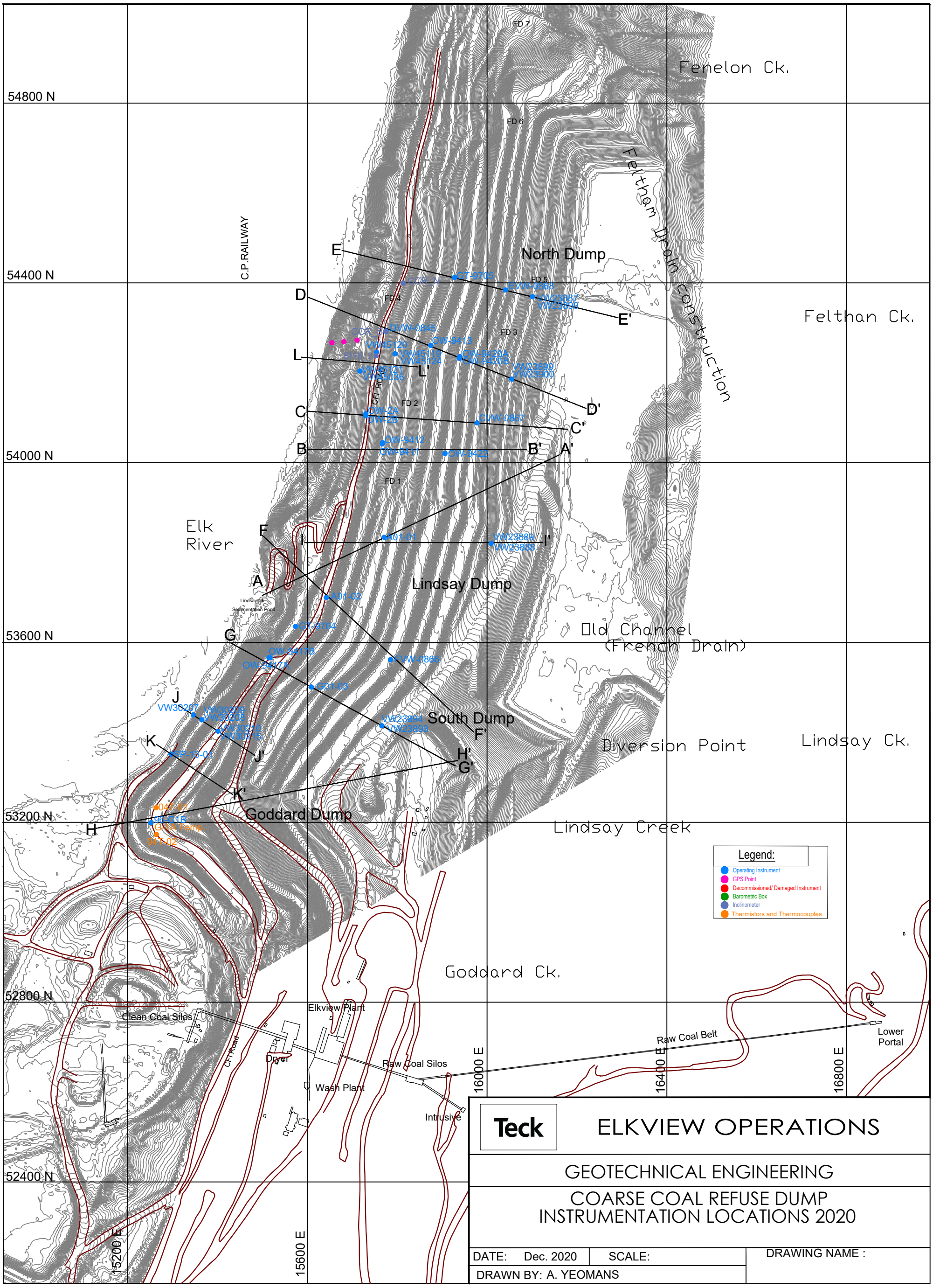
Piezometer ID	Stability Section	Zone of Installation	VWP Tip or Screen Center Elevation (El.m)	Till Contact Elevation (El.m)	Maximum Measured Water Table Elevation[(1)] (El.m)	Yellow TARP Trigger Level Elevation (El.m)	Red TARP Trigger Level Elevation (El.m)	2020 Observations
VWP 23887	E-E	CCR	1235.90	1231.40	N/A	N/A	N/A	Not read in 2020.
VWP 23890	E-E	N/A	N/A	N/A	N/A	N/A	N/A	Scheduled to be decommissioned (not read).
VWP EVW-0868	E-E	CCR	1216.40	1214.40	1217.39	N/A	N/A	Steady trend. 0.04 m increase from 2019.
Standpipe GT-9705	E-E	CCR	1190.45	1188.00	1192.20	1193.00	1198.00	Steady trend. 0.21 m decrease from 2019.
VWP 23899	D-D	CCR	1230.70	1225.80	N/A	N/A	N/A	Not read in 2020.
VWP 23900	D-D	CCR	1224.94	1225.80	N/A	N/A	N/A	Not read in 2020.
Standpipe OW-9420A	D-D	Glacial Till	1195.90	1198.00	1197.52	1203.00	1208.00	Steady trend. 0.48 m decrease from 2019.
Standpipe OW-9420B	D-D	CCR	1199.00	1198.00	1200.44	1203.00	1208.00	Steady trend. 0.12 m decrease from 2019.
Standpipe OW-9413	D-D	CCR	1185.20	1185.00	1185.34	1190.00	1195.00	Steady trend. 0.03 m increase from 2019.
VWP DVW-0845	D-D	Glacial Till	1143.20	1161.7	1157.72	N/A	N/A	Steady trend. 0.51 m decrease from 2019.
VWP 45119	L-L	CCR	1170.24	~1165	1170.65	N/A	N/A	Steady trend. 0.53 m decrease from 2019.
VWP 45124	L-L	Glacial Till	1155.91	~1165	1163.63	N/A	N/A	Steady trend. 0.14 m decrease from 2019.

Piezometer ID	Stability Section	Zone of Installation	VWP Tip or Screen Center Elevation (El.m)	Till Contact Elevation (El.m)	Maximum Measured Water Table Elevation[(1)] (El.m)	Yellow TARP Trigger Level Elevation (El.m)	Red TARP Trigger Level Elevation (El.m)	2020 Observations
VWP 45120	L-L	CCR	1155.81	~1155	1155.84	N/A	N/A	Steady trend. 0.01 m decrease from 2019.
VWP 45121	L-L	Glacial Till	1144.73	~1150	1144.69	N/A	N/A	Steady trend. 0.31 m decrease from 2019.
VWP 45036	L-L	Glacial Till	1133.15	~1150	1139.49	N/A	N/A	Steady trend. 0.05 m decrease from 2019.
VWP CVW-0867	C-C	CCR	1221.40	1219.40	N/A	N/A	N/A	Not read in 2020.
Standpipe OW2A	C-C	Glacial Till	1143.40	1158.00	1149.07	1163.00	1168.00	Steady trend. 0.04 m decrease from 2019.
Standpipe OW2B	C-C	Glacial Till	1149.90	1158.00	1152.70	1163.00	1168.00	Steady trend. 0.02 m decrease from 2019.
Standpipe OW-9422	B-B	CCR	1195.20	1195.00	1196.07	1200.00	1205.00	Steady trend. 0.21 m decrease from 2019.
Standpipe OW-9411	B-B	CCR	1152.80	1160.00	1156.78	1165.00	1170.00	Steady trend. 0.04 m decrease from 2019.
Standpipe OW-9412	B-B	CCR	1160.60	1160.00	1162.02	1165.00	1170.00	Steady trend. 0.12 m decrease from 2019.
Standpipe A01-01	A-A, I-I	Glacial Till	1169.87	1170.00	1170.01	1175.00	1180.00	Steady trend. 0.06 m decrease from 2019.
VWP 23888	I-I	Glacial Till	1238.00	~1246	N/A	N/A	N/A	Readings were erroneous.
VWP 23889	I-I	Glacial Till	1242.90	~1246	Dry	N/A	N/A	Steady trend. Dry.
VWP FVW-0866	F-F	CCR	1186.50	1184.50	N/A	N/A	N/A	Not read in 2020.
Standpipe A01-02	F-F	Glacial Till	1147.14	1147.50	1147.65	1152.50	1157.14	Steady trend. 0.01 m increase from 2019.

Piezometer ID	Stability Section	Zone of Installation	VWP Tip or Screen Center Elevation (El.m)	Till Contact Elevation (El.m)	Maximum Measured Water Table Elevation[(1)] (El.m)	Yellow TARP Trigger Level Elevation (El.m)	Red TARP Trigger Level Elevation (El.m)	2020 Observations
Standpipe GT-9704	Lindsay	CCR	1127.07	1127.00	1127.93	1132.00	1137.00	Steady trend. 0.18 m decrease from 2019.
VWP 23893	G-G	CCR	1195.5	1190.60	1196.09	N/A	N/A	Steady trend. 0.55 m decrease from 2019.
VWP 23894	G-G	CCR	1190.60	1190.60	1190.68	N/A	N/A	Steady trend. 0.11 m decrease from 2019.
Standpipe G01-03	G-G	Glacial Till	1141.29	1141.50	1143.32	1146.50	1151.50	Steady trend. 0.13 m increase from 2019 DSI.
Standpipe 94-17A	G-G	CCR	1120.2	1121.00	Dry	1126.00	1131.00	Steady trend. Dry.
Standpipe 94-17B	G-G	Glacial Till	1121.9	1121.00	Dry	1126.00	1131.00	Steady trend. 0.25 m decrease from 2019.
VWP 30210 (VW-13-01A)	J-J	CCR	1118.87	~1113	1122.58	N/A	N/A	Steady trend. 0.61 m decrease from 2019.
VWP 30215 (VW-13-01B)	J-J	Glacial Till	1112.87	~1113	1114.06	N/A	N/A	Steady trend. 0.3 m increase from 2019.
VWP 30208 (VW-13-02A)	J-J	CCR	1118.77	~1113	1119.73	N/A	N/A	0.13 m increase from 2019.
VWP 30209 (VW-13-02B)	J-J	Glacial Till	1112.77	~1113	1112.83	N/A	N/A	0.1 m decrease from 2019. Readings fluctuate with Elk River level.
VWP 30207 (VW-13-03)	J-J	CCR	1113.07	~1113	1113.42	N/A	N/A	Steady trend. 0.25 m decrease from 2019.
Standpipe SP-13-01	**K-K**	**Glacial Till**	**1110.46**	**N/A**	**1114.98**	N/A	N/A	**1.86 m increase from 2019. Potentially due to blocked standpipe.**

Piezometer ID	Stability Section	Zone of Installation	VWP Tip or Screen Center Elevation (El.m)	Till Contact Elevation (El.m)	Maximum Measured Water Table Elevation[1] (El.m)	Yellow TARP Trigger Level Elevation (El.m)	Red TARP Trigger Level Elevation (El.m)	2020 Observations
Standpipe 96-G1B	H-H	Glacial Till	1111.80	1114.30	1114.10	1119.30	1124.30	Steady trend. 0.01 m increase from 2019.

Note: 1. Max measured water table elevation refers to the maximum recorded level for the 2019/2020 period since the previous annual inspection (October 2019). This level may vary from the drawing cross-sections which shows the last recorded measurement for each instrument.



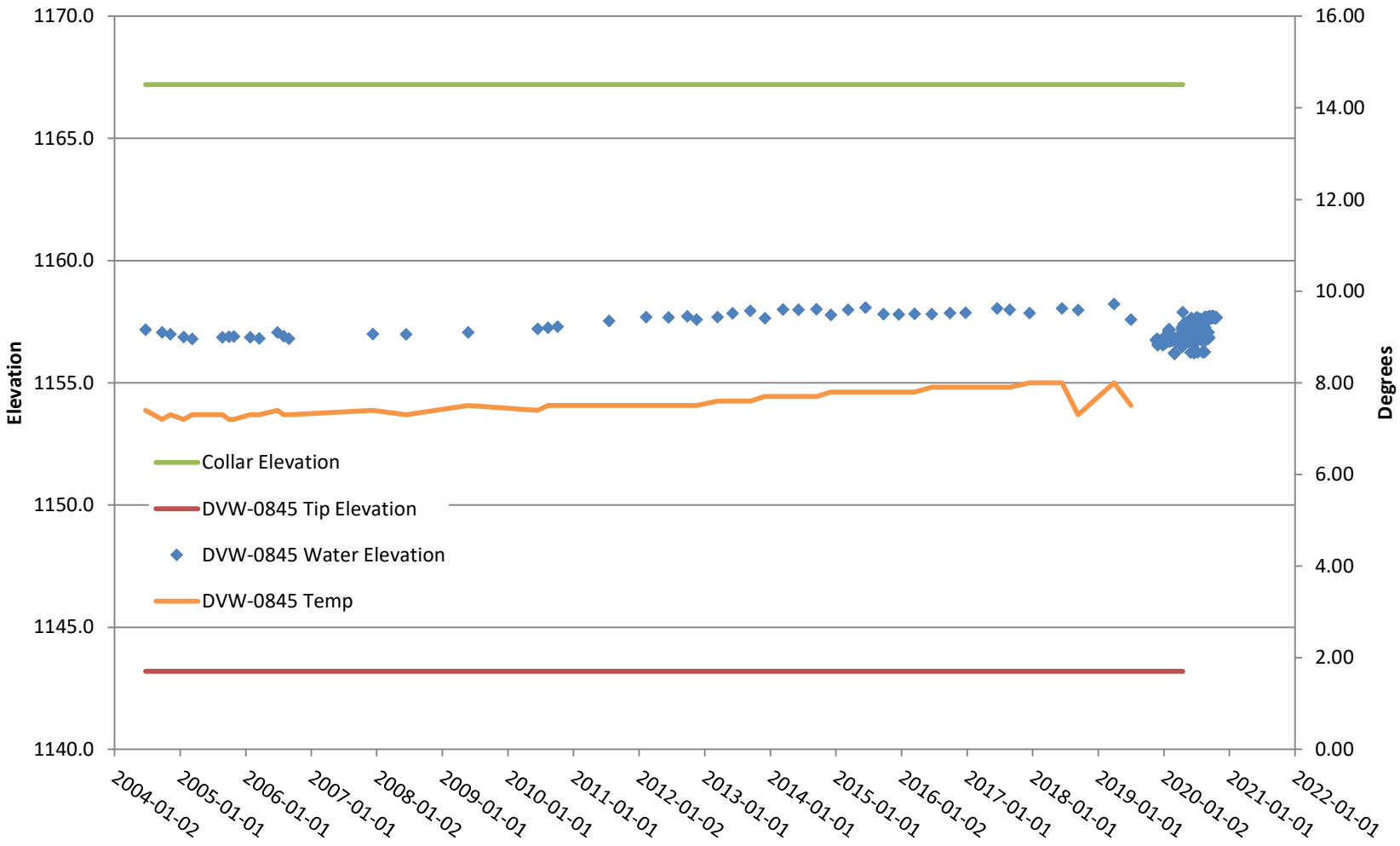
Teck

ELKVIEW OPERATIONS

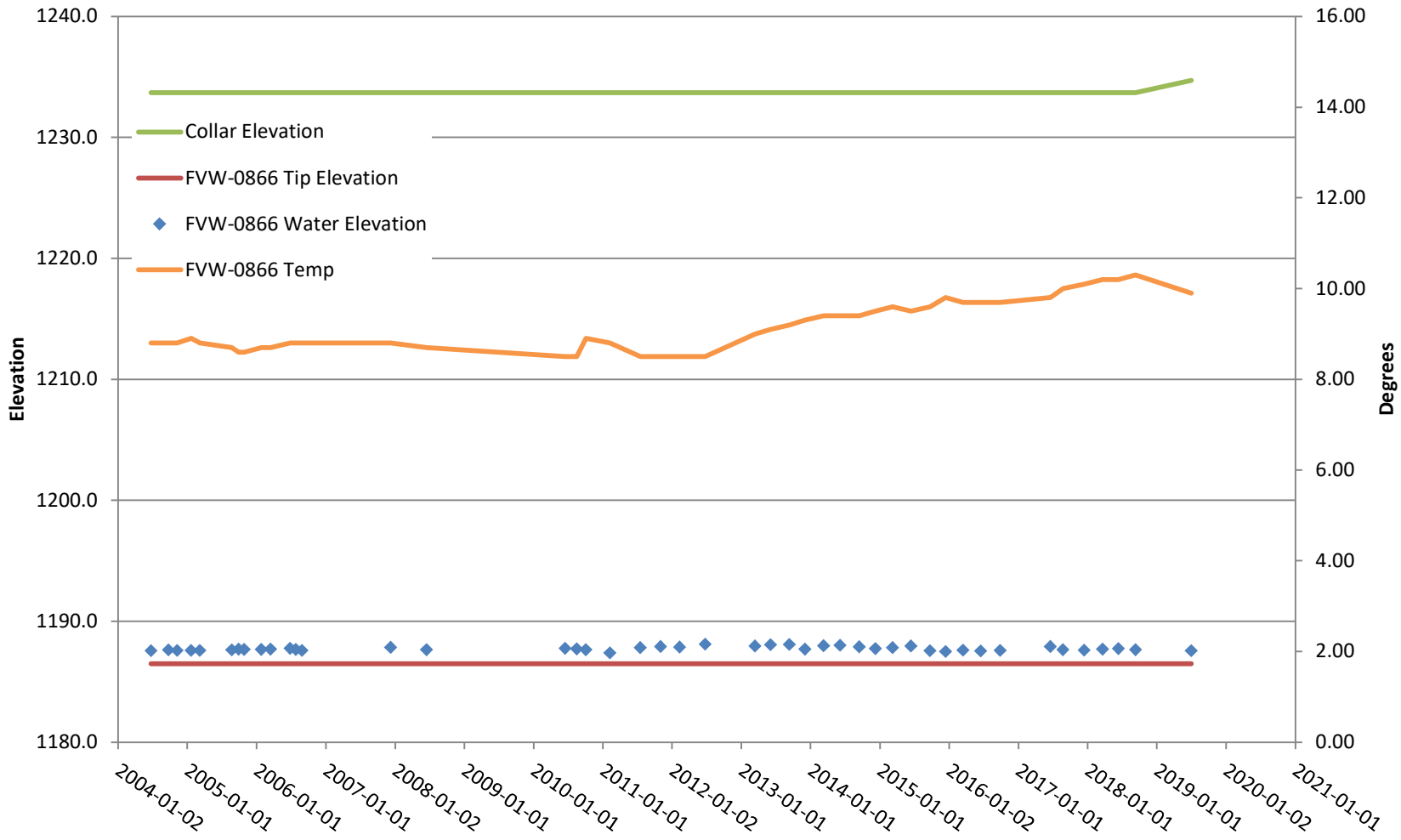
GEOTECHNICAL ENGINEERING

COARSE COAL REFUSE DUMP INSTRUMENTATION LOCATIONS 2020

DATE: Dec. 2020	SCALE:	DRAWING NAME :
DRAWN BY: A. YEOMANS		

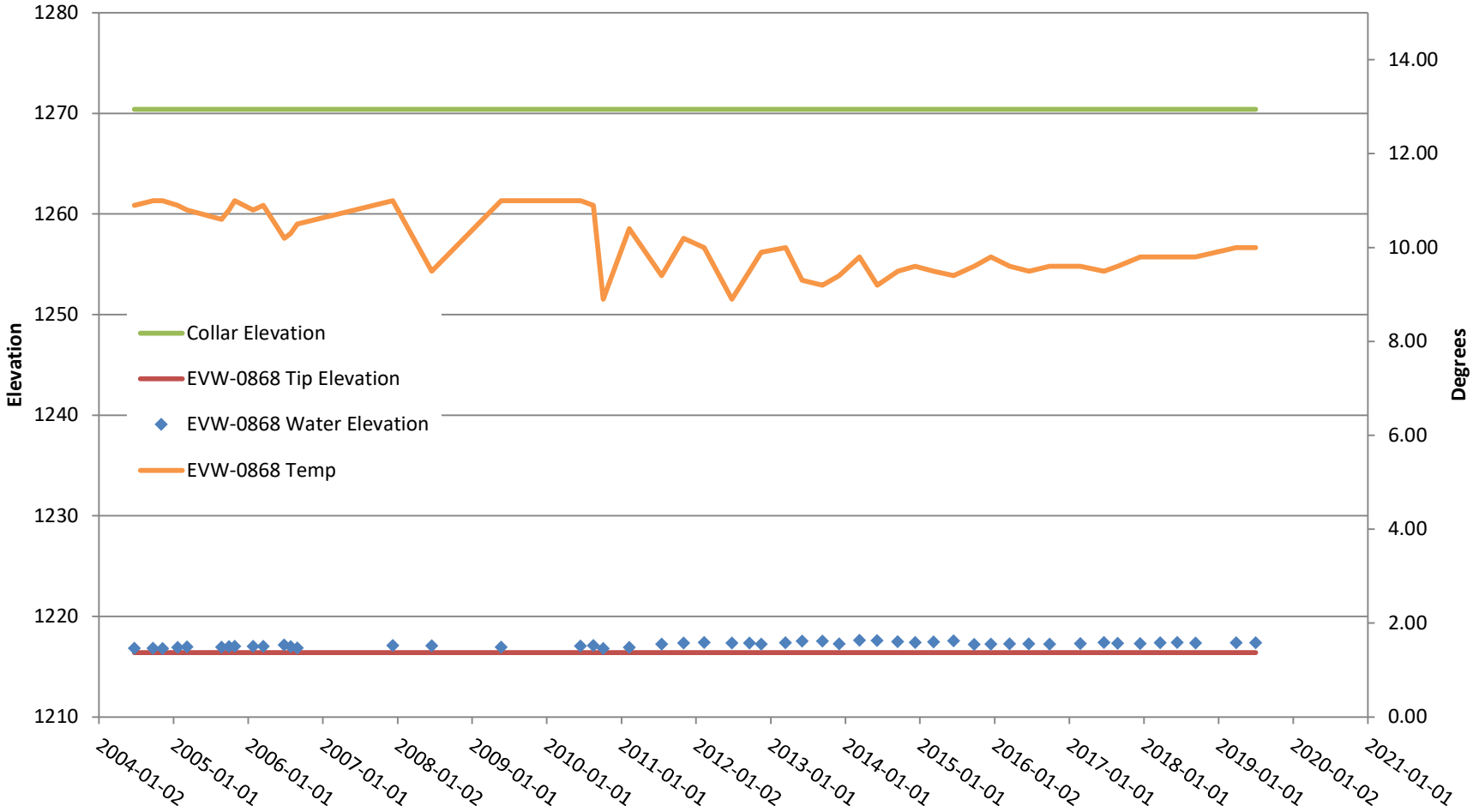


Teck Coal - Elkview Operations		
CCR Dump Piezometers	Date:	Revision
Vibrating Wire Piezometer DVW-0845		

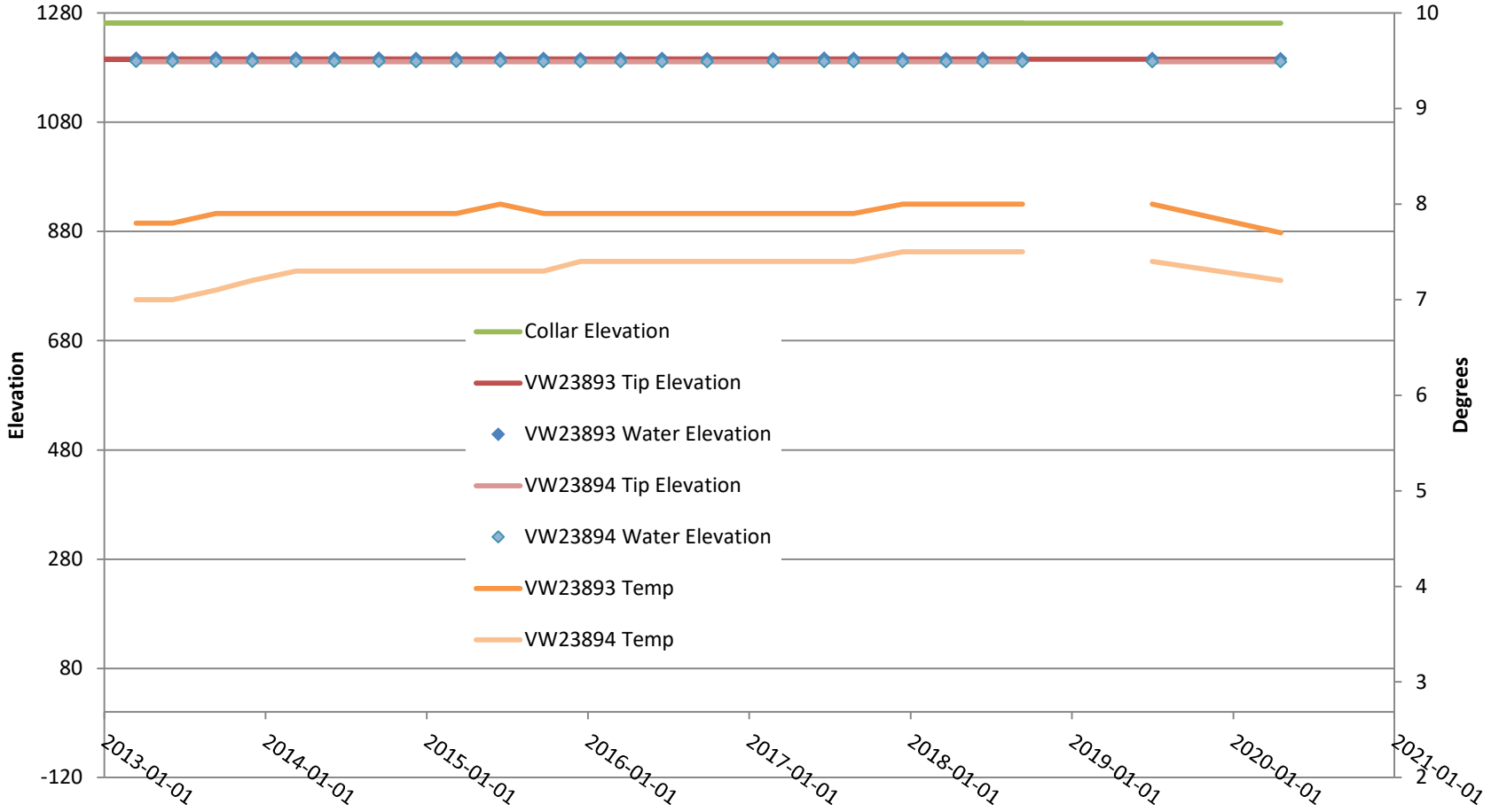


Teck Coal - Elkview Operations		
CCR Dump Piezometers	Date:	Revision
Vibrating Wire Piezometer FVW-0866		

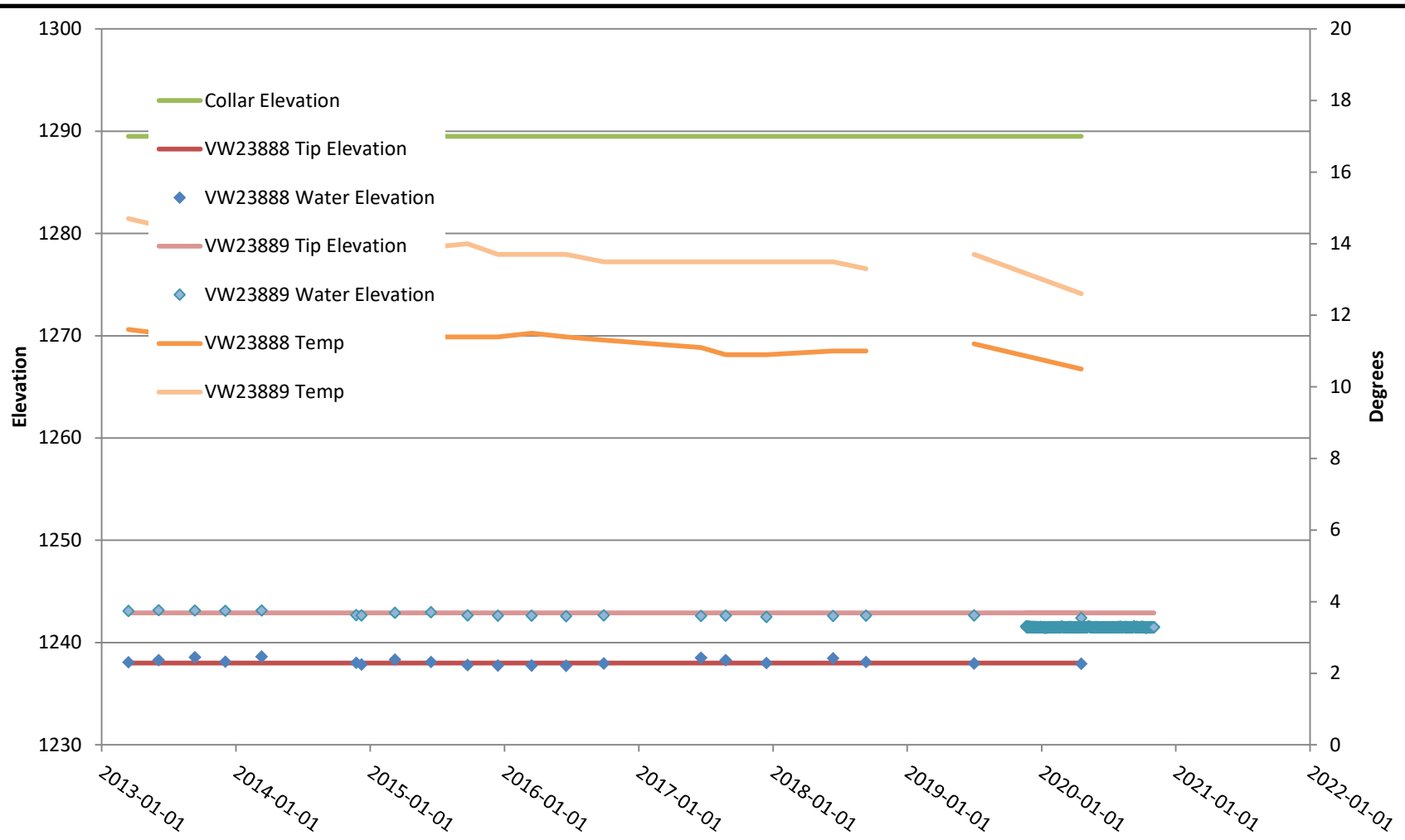
Teck Coal - Elkview Operations		
CCR Dump Piezometers	Date:	Revision
Vibrating Wire Piezometer CVW-0867		



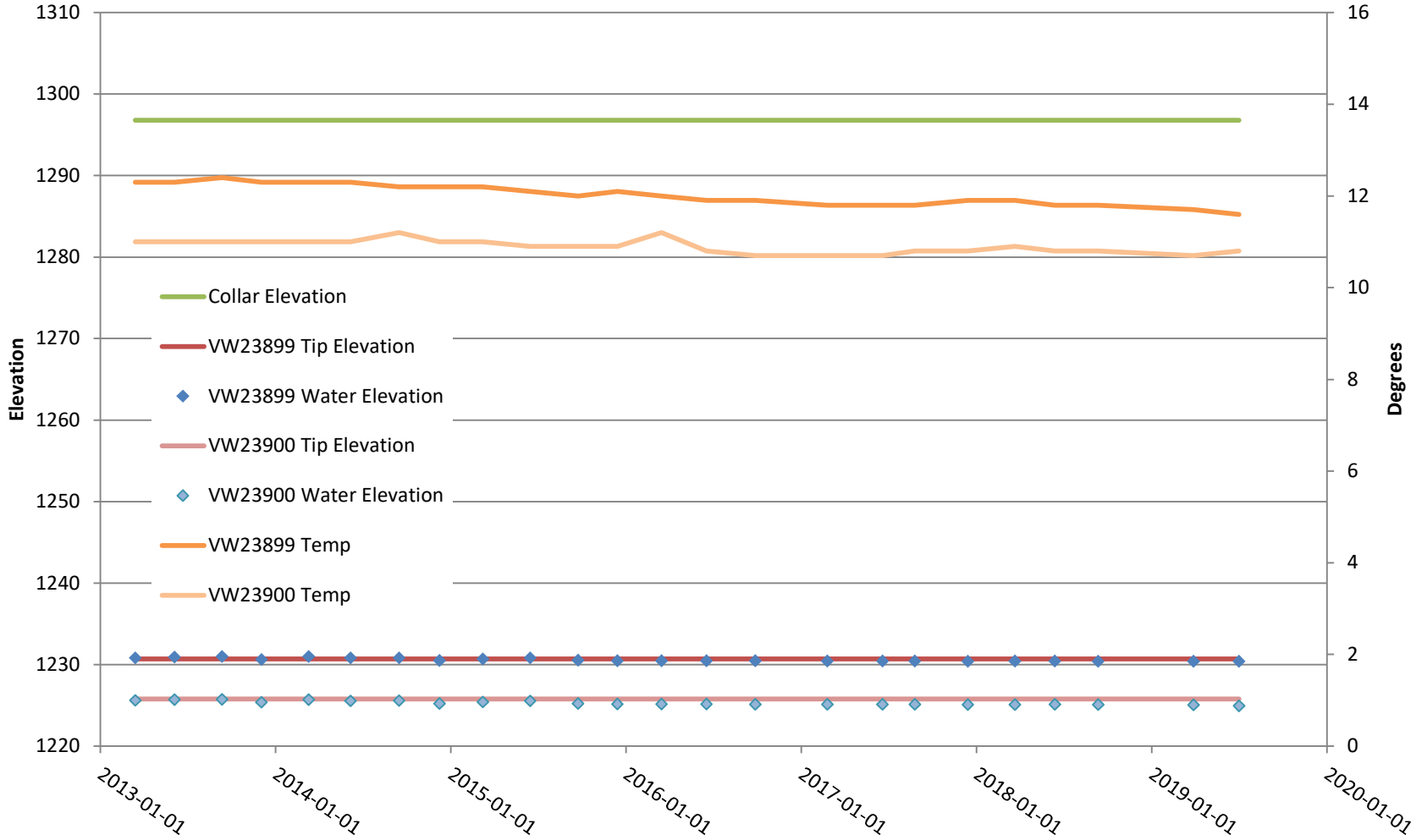
Teck Coal - Elkview Operations		
CCR Dump Piezometers	Date:	Revision
Vibrating Wire Piezometer EVW-0868		



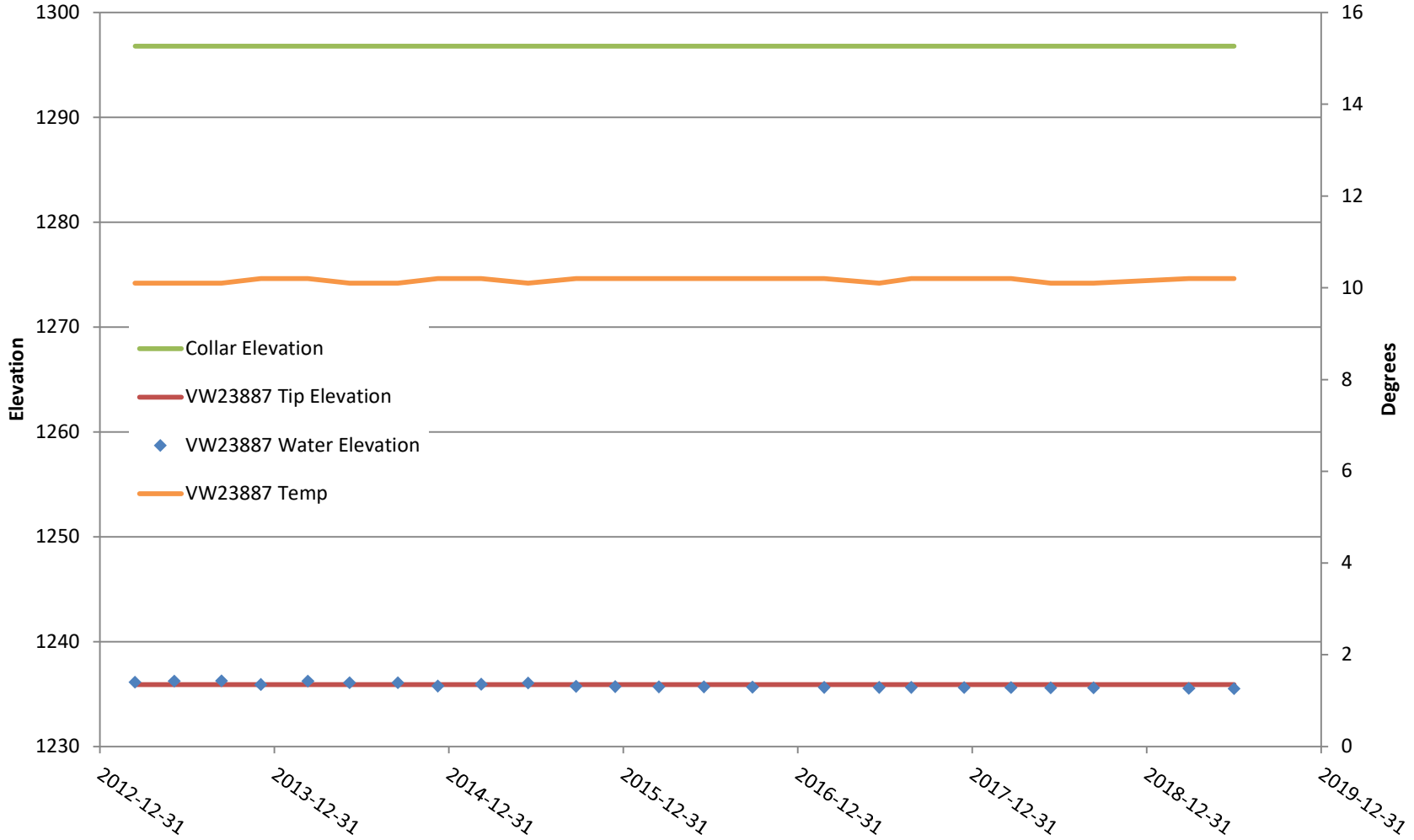
Teck Coal - Elkview Operations		
CCR Dump Piezometers	Date:	Revision
Vibrating Wire Piezometer VW23893 **Vibrating Wire Piezometer VW23894**		



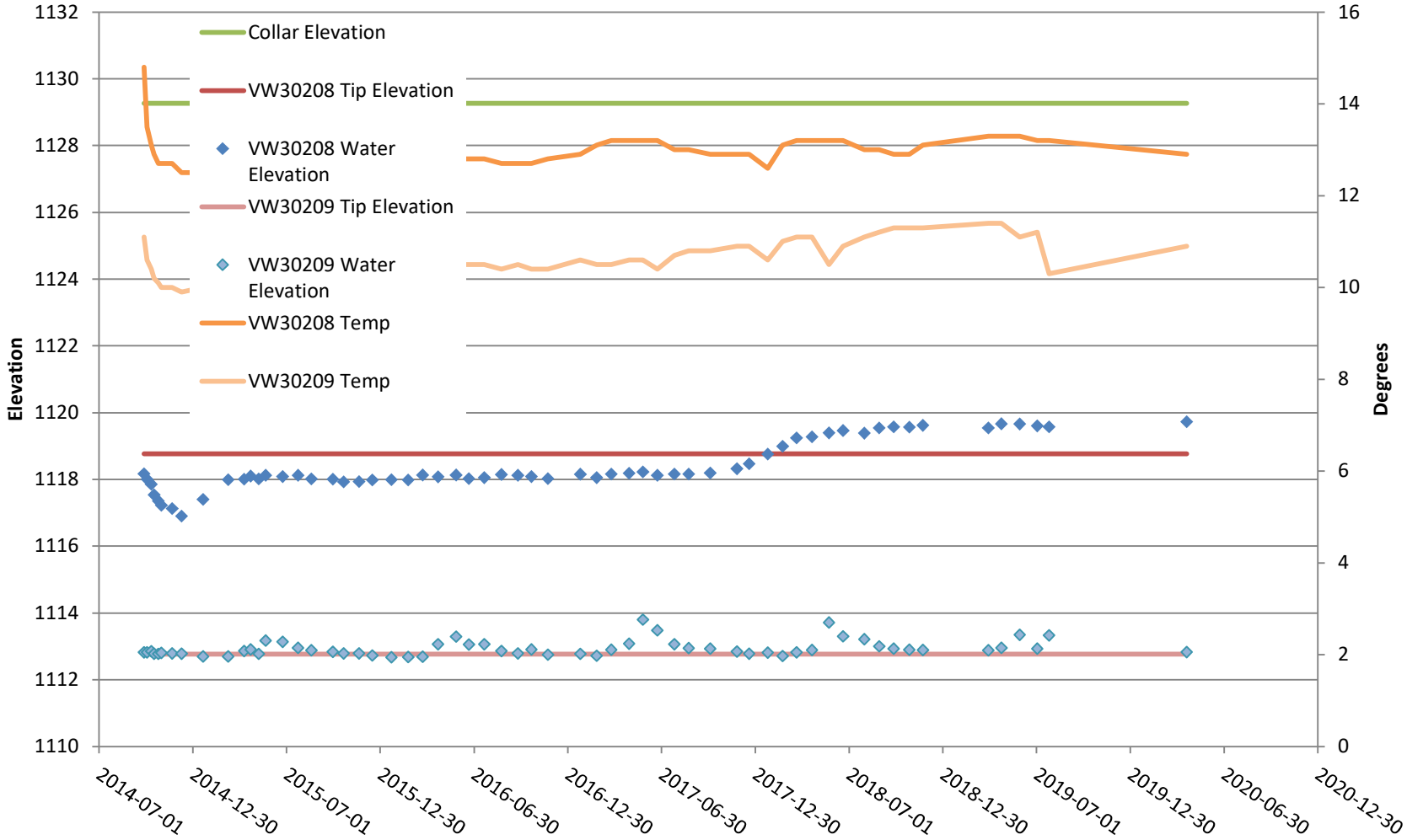
Teck Coal - Elkview Operations		
CCR Dump Piezometers	Date:	Revision
Vibrating Wire Piezometer VW23888 **Vibrating Wire Piezometer VW23889**		



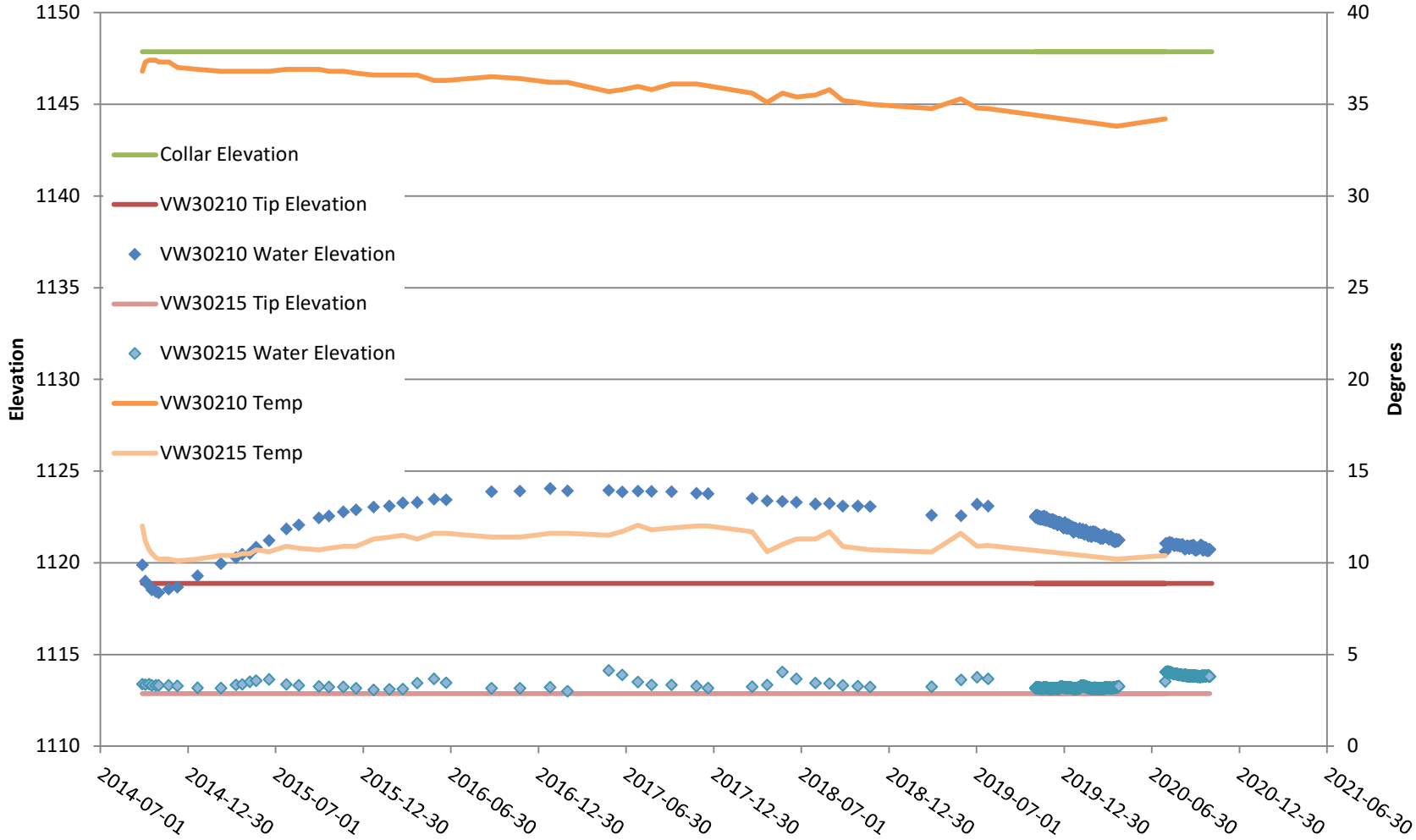
Teck Coal - Elkview Operations		
CCR Dump Piezometers	Date:	Revision
Vibrating Wire Piezometer VW23899 **Vibrating Wire Piezometer VW23900**		



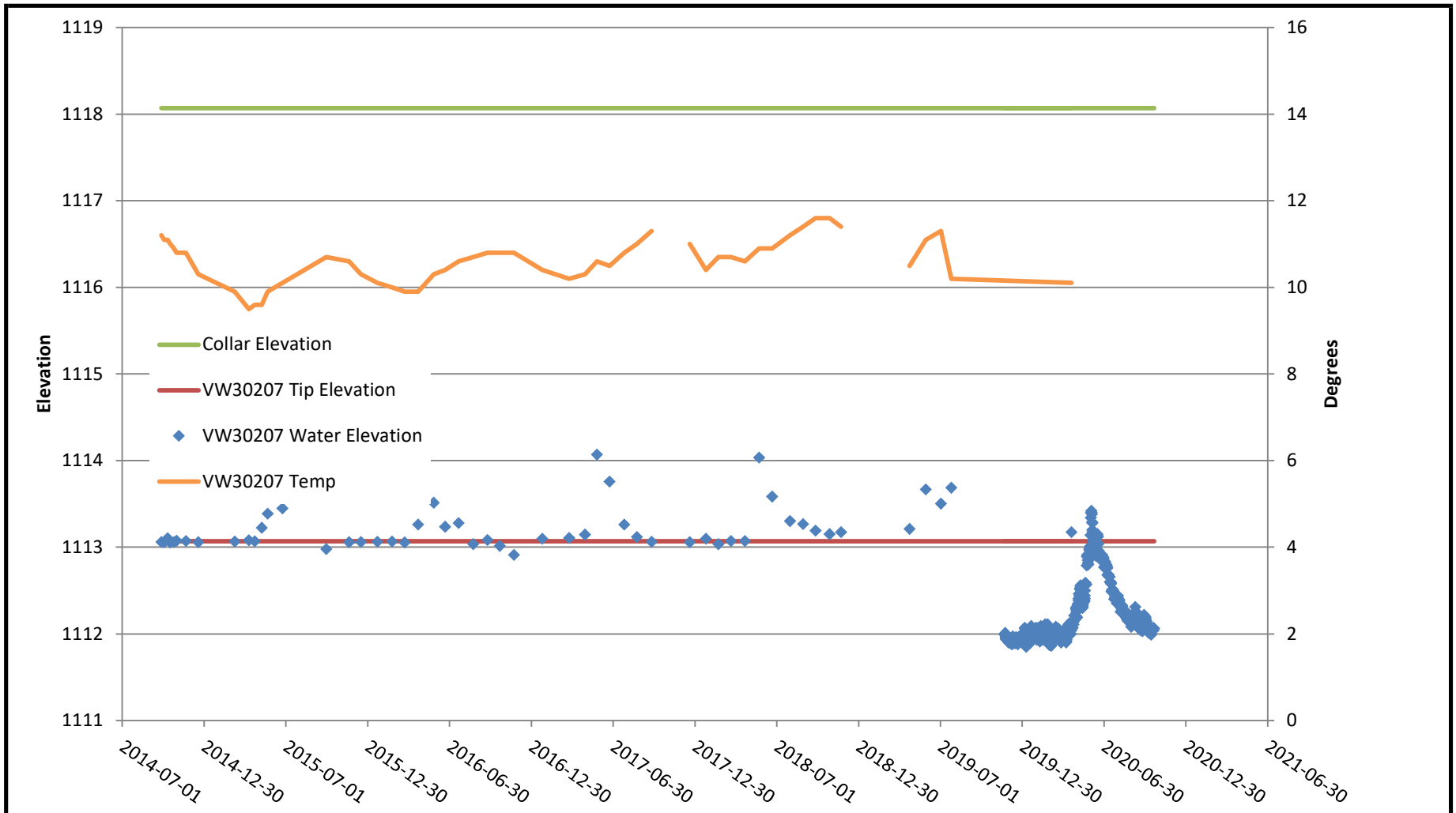
Teck Coal - Elkview Operations		
CCR Dump Piezometers	Date:	Revision
Vibrating Wire Piezometer VW23887		



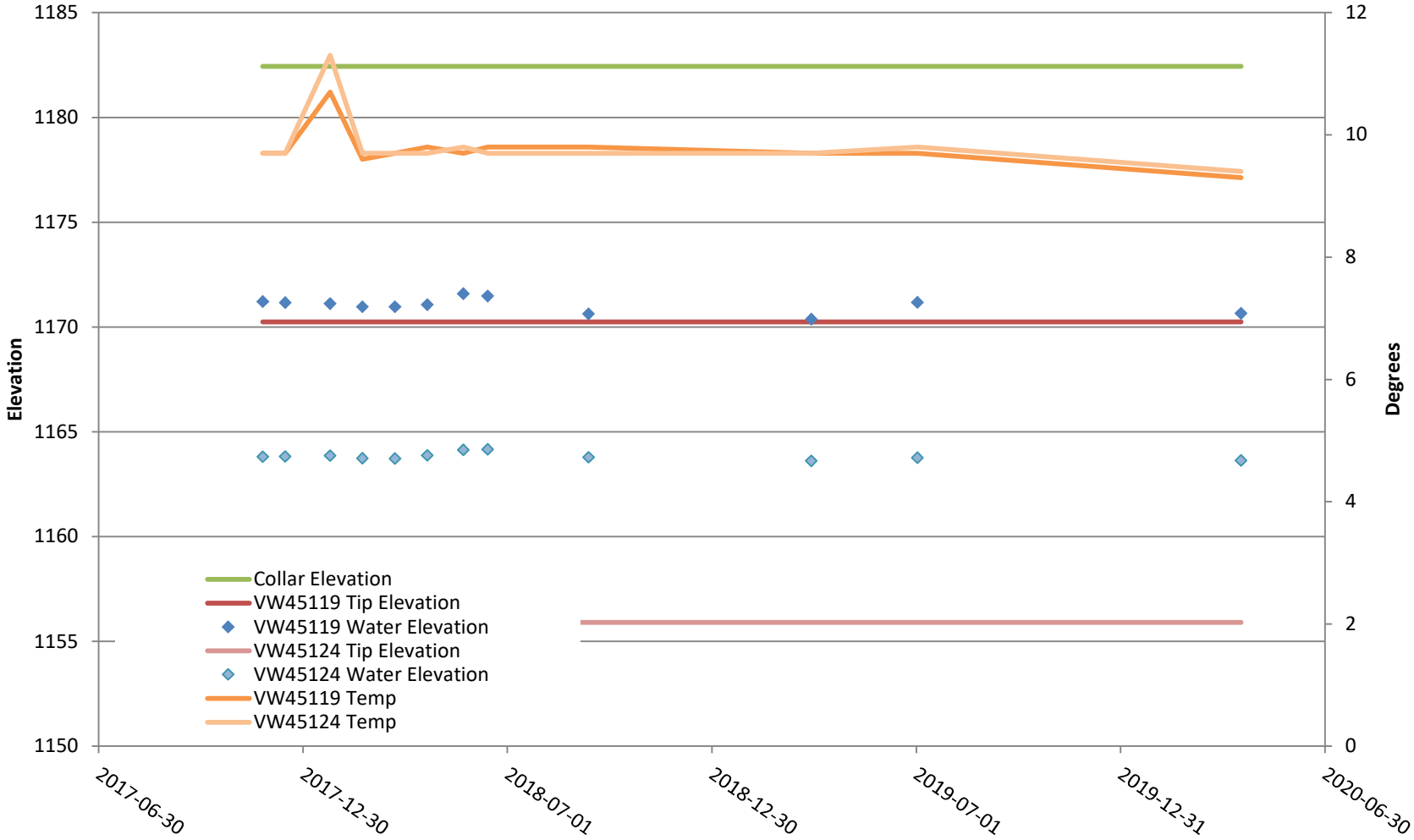
Teck Coal - Elkview Operations		
CCR Dump Piezometers	Date:	Revision
Vibrating Wire Piezometer VW30208 **Vibrating Wire Piezometer VW30209**		



Teck Coal - Elkview Operations		
CCR Dump Piezometers	Date:	Revision
Vibrating Wire Piezometer VW30210 **Vibrating Wire Piezometer VW30215**		

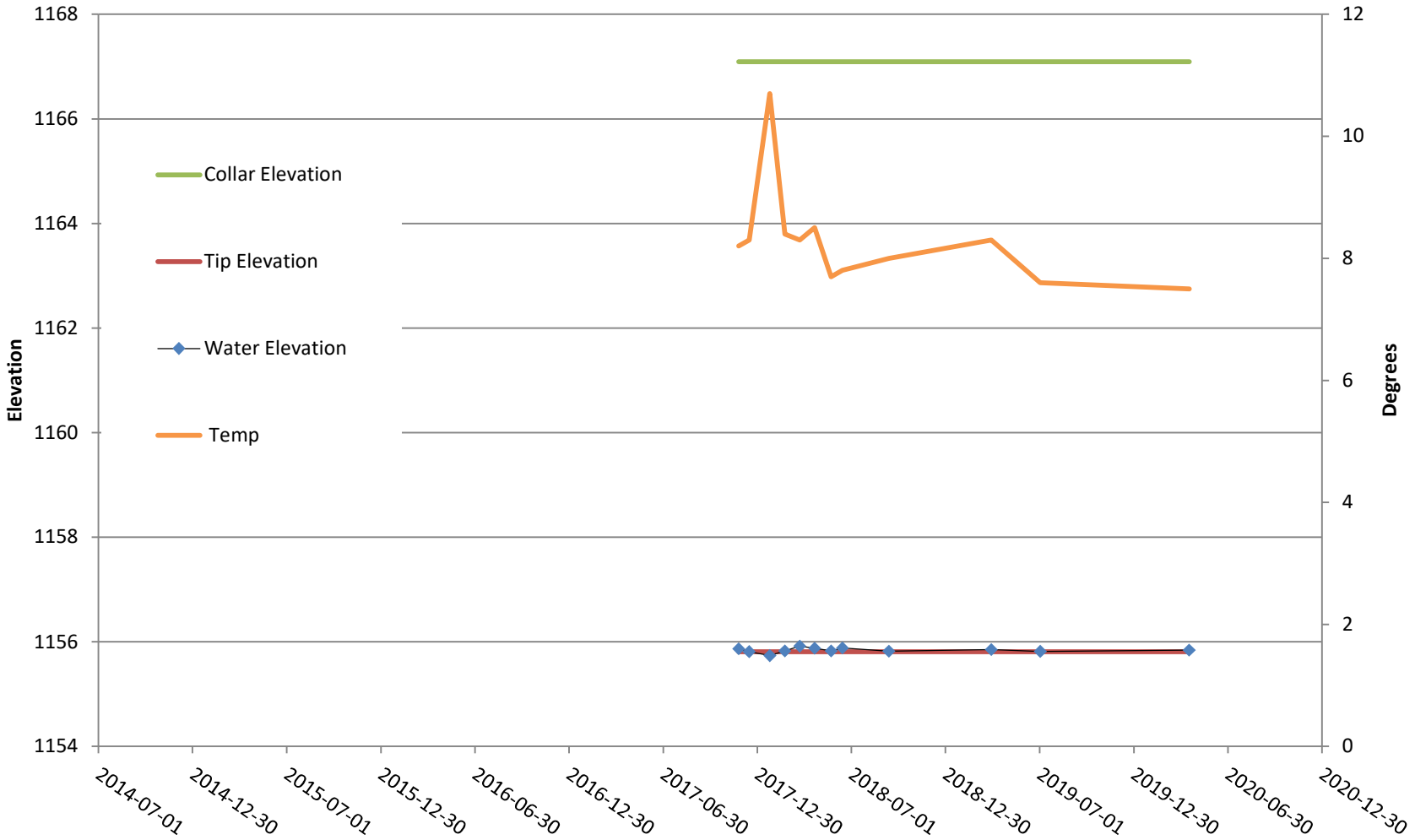


Teck Coal - Elkview Operations		
CCR Dump Piezometers	Date:	Revision
Vibrating Wire Piezometer VW30207		

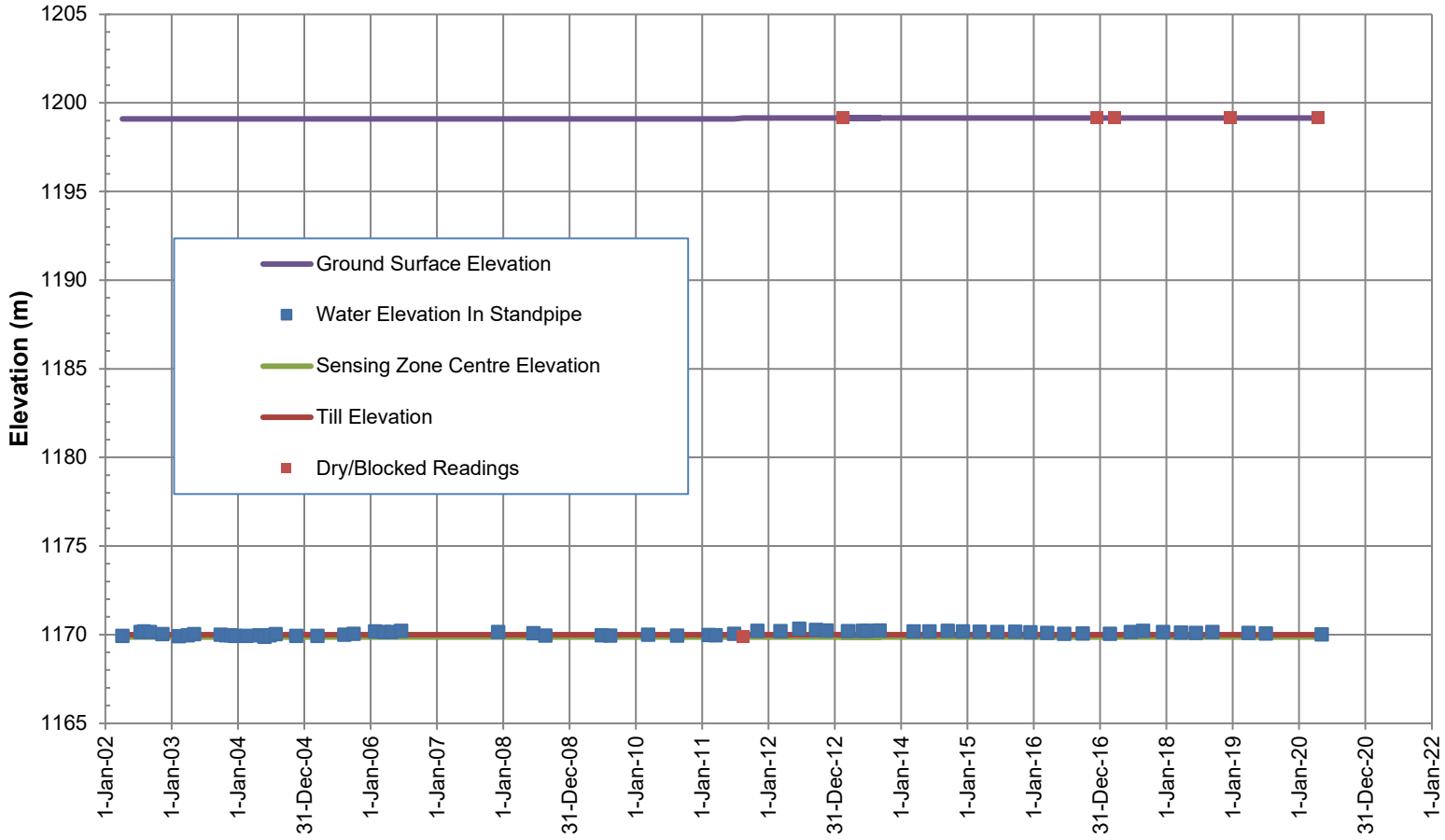


Teck Coal - Elkview Operations		
CCR Dump Piezometers	Date:	Revision
Vibrating Wire Piezometer VW45119 **Vibrating Wire Piezometer VW45124**		

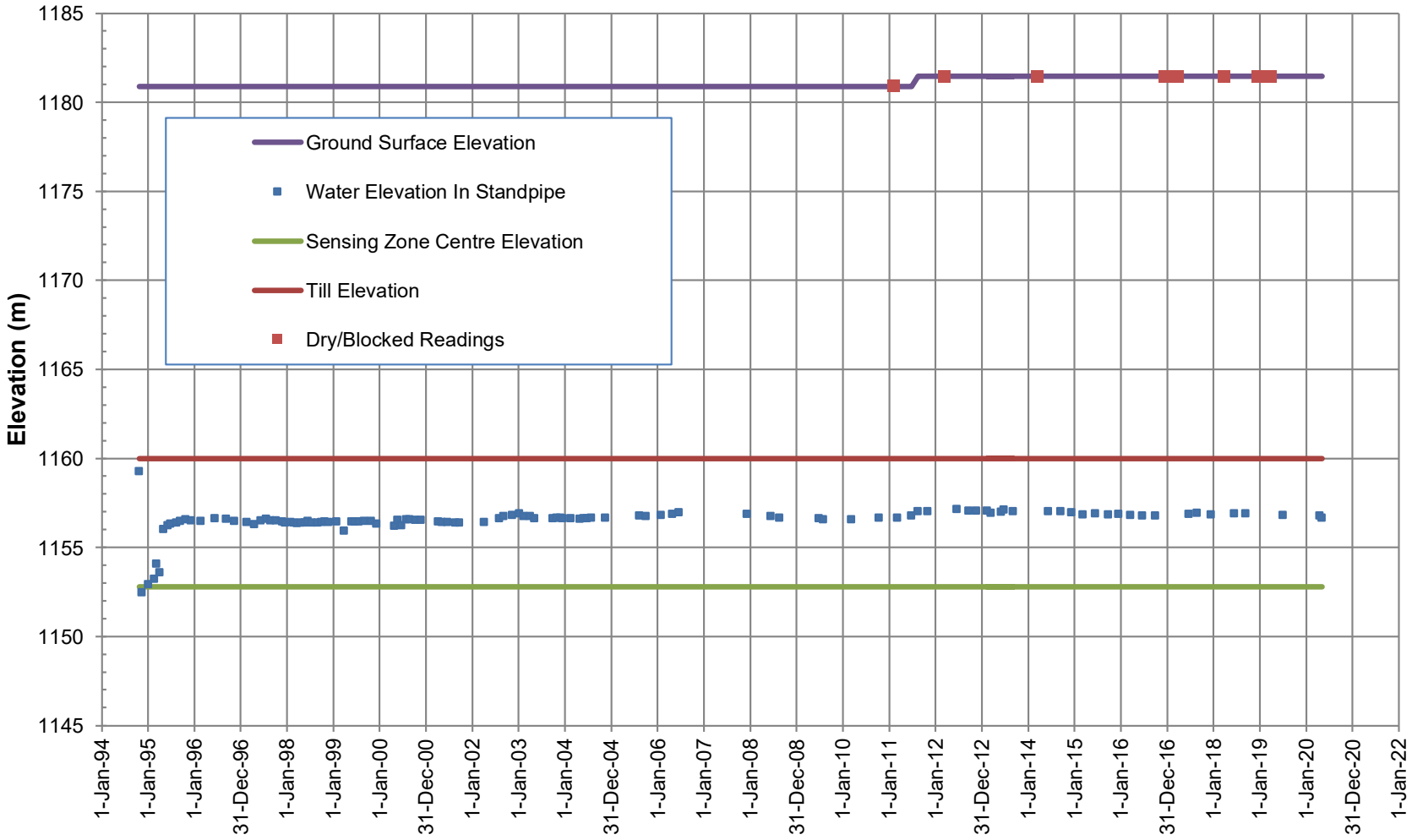
Teck Coal - Elkview Operations		
CCR Dump Piezometers	Date:	Revision
Vibrating Wire Piezometer VW45036 **Vibrating Wire Piezometer VW45121**		



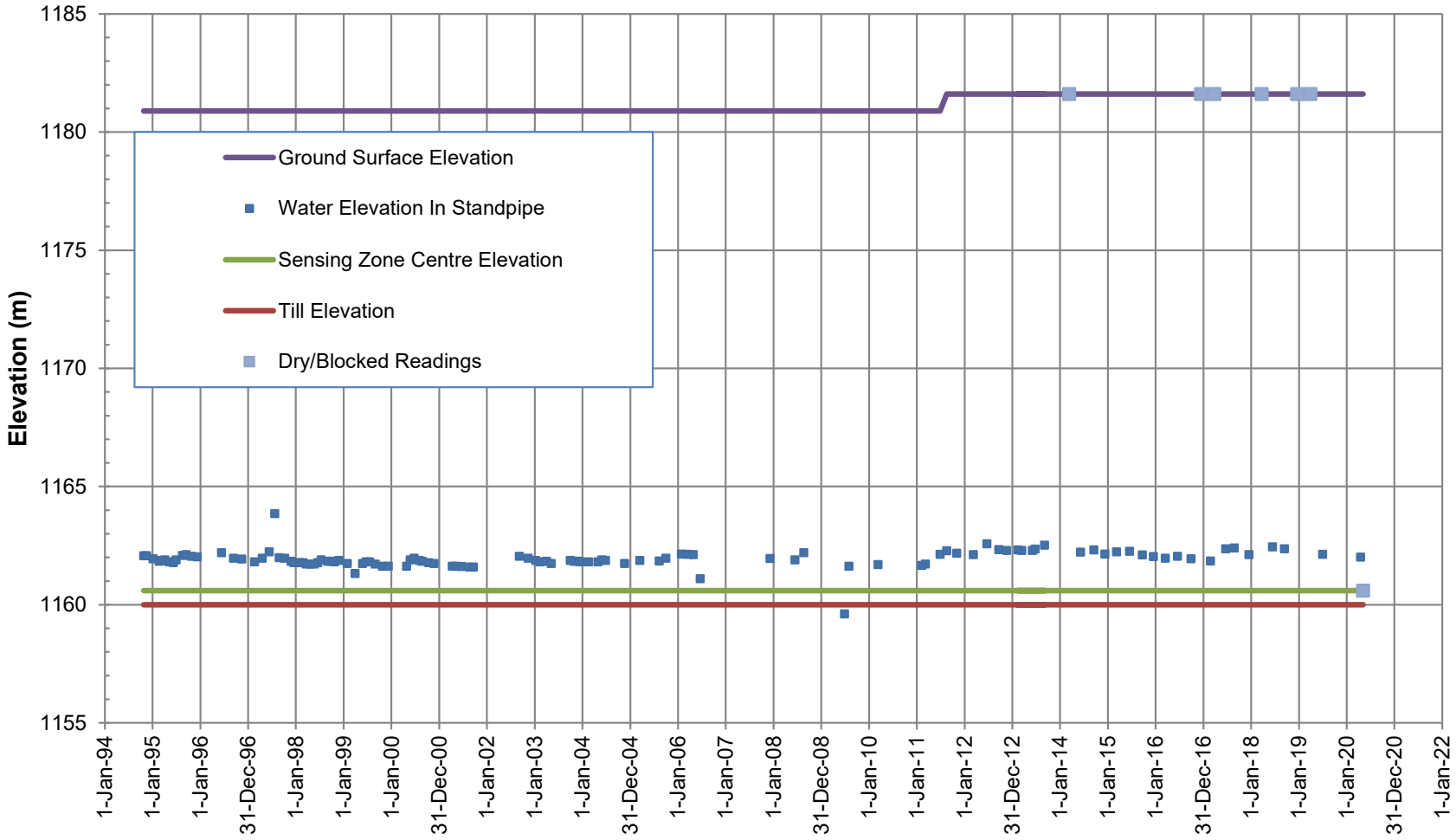
Teck Coal - Elkview Operations		
CCR Dump Piezometers	Date:	Revision
Vibrating Wire Piezometer VW45120		



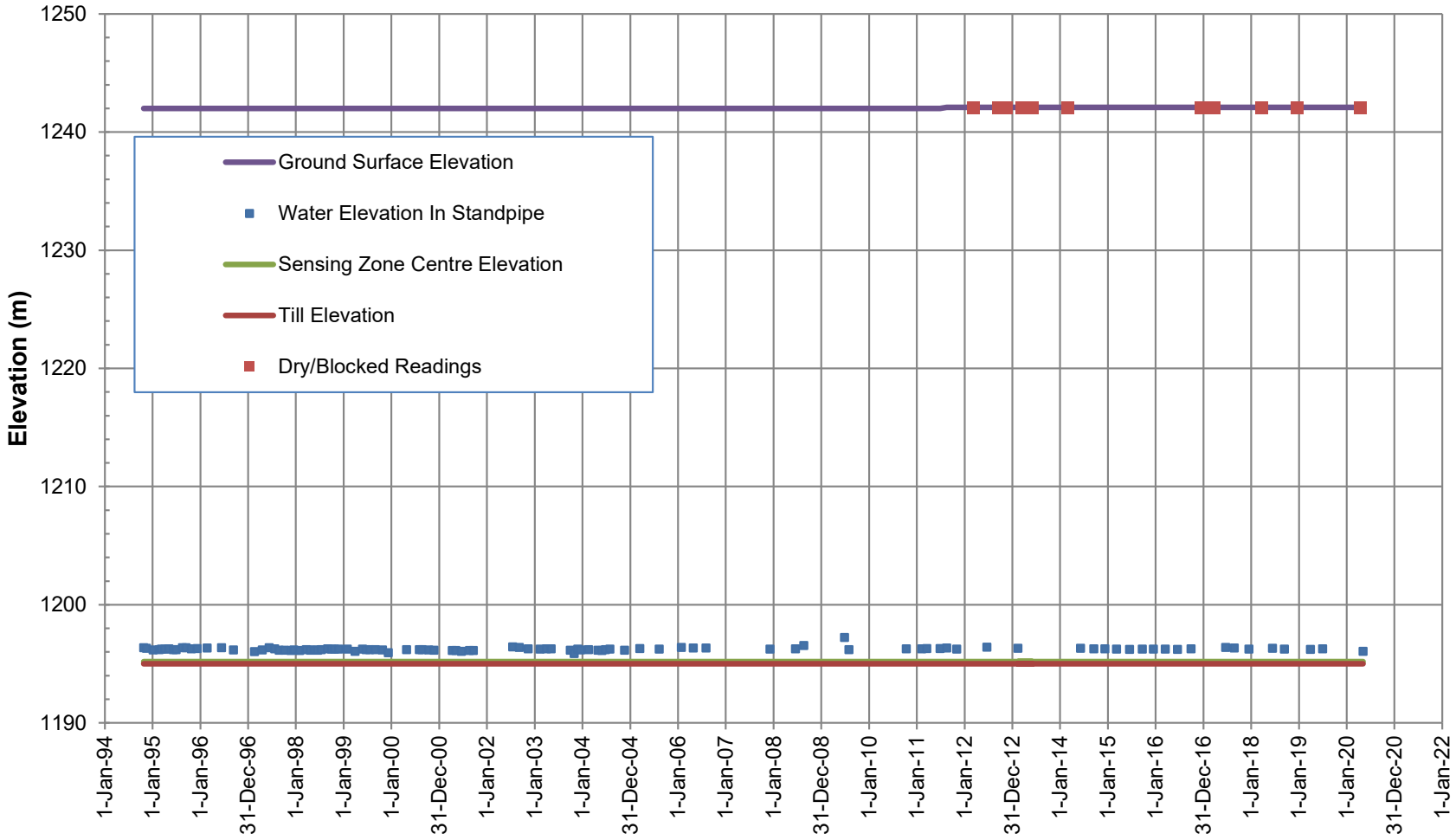
Teck Coal - Elkview Operations		
CCR Piezometers	Date:	Revision
Standpipe A01-01		



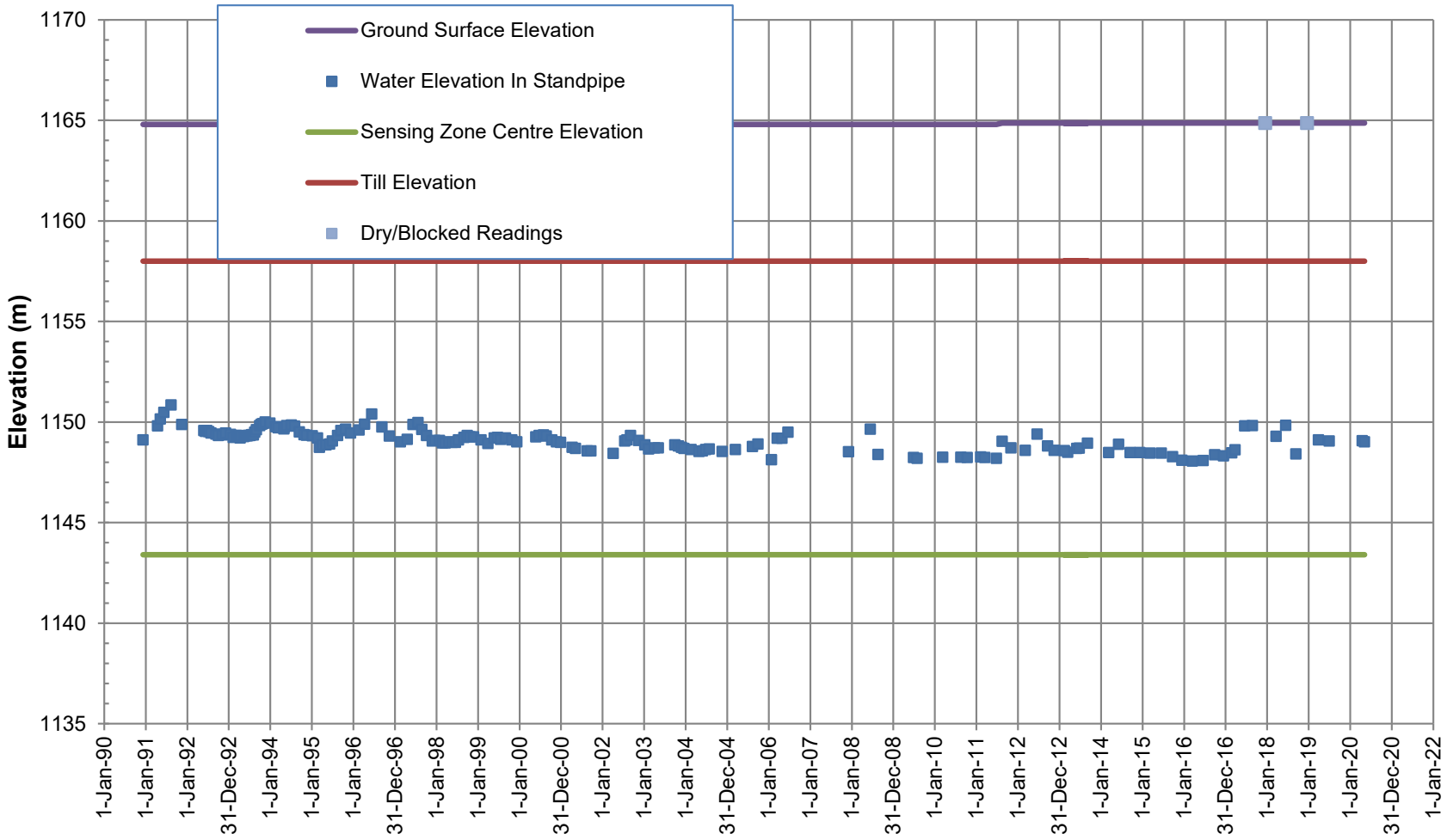
Teck Coal - Elkview Operations		
CCR Piezometers	Date:	Revision
Standpipe OW-9411		



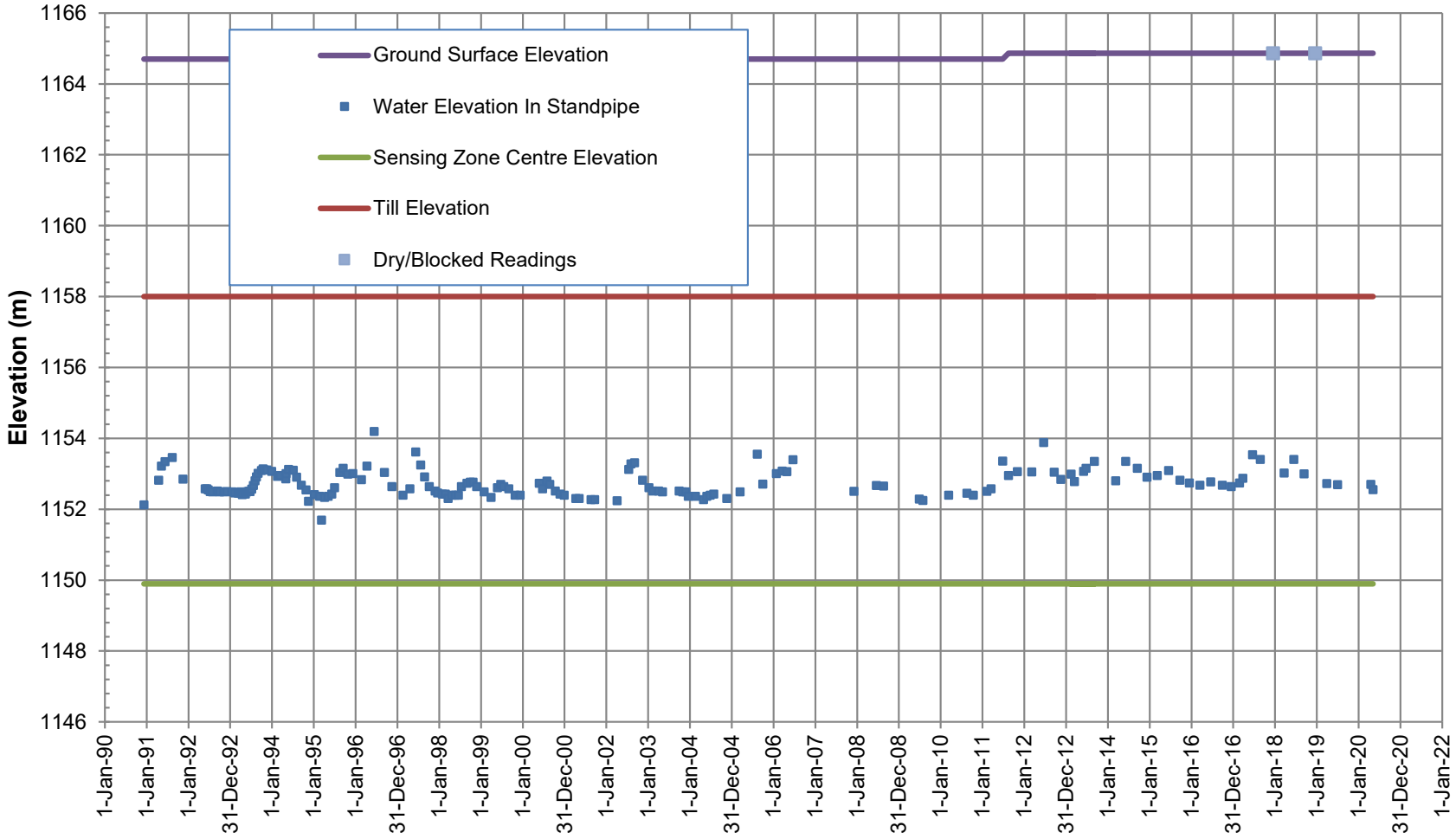
Teck Coal - Elkview Operations		
CCR Piezometers	Date:	Revision
Standpipe OW-9412		



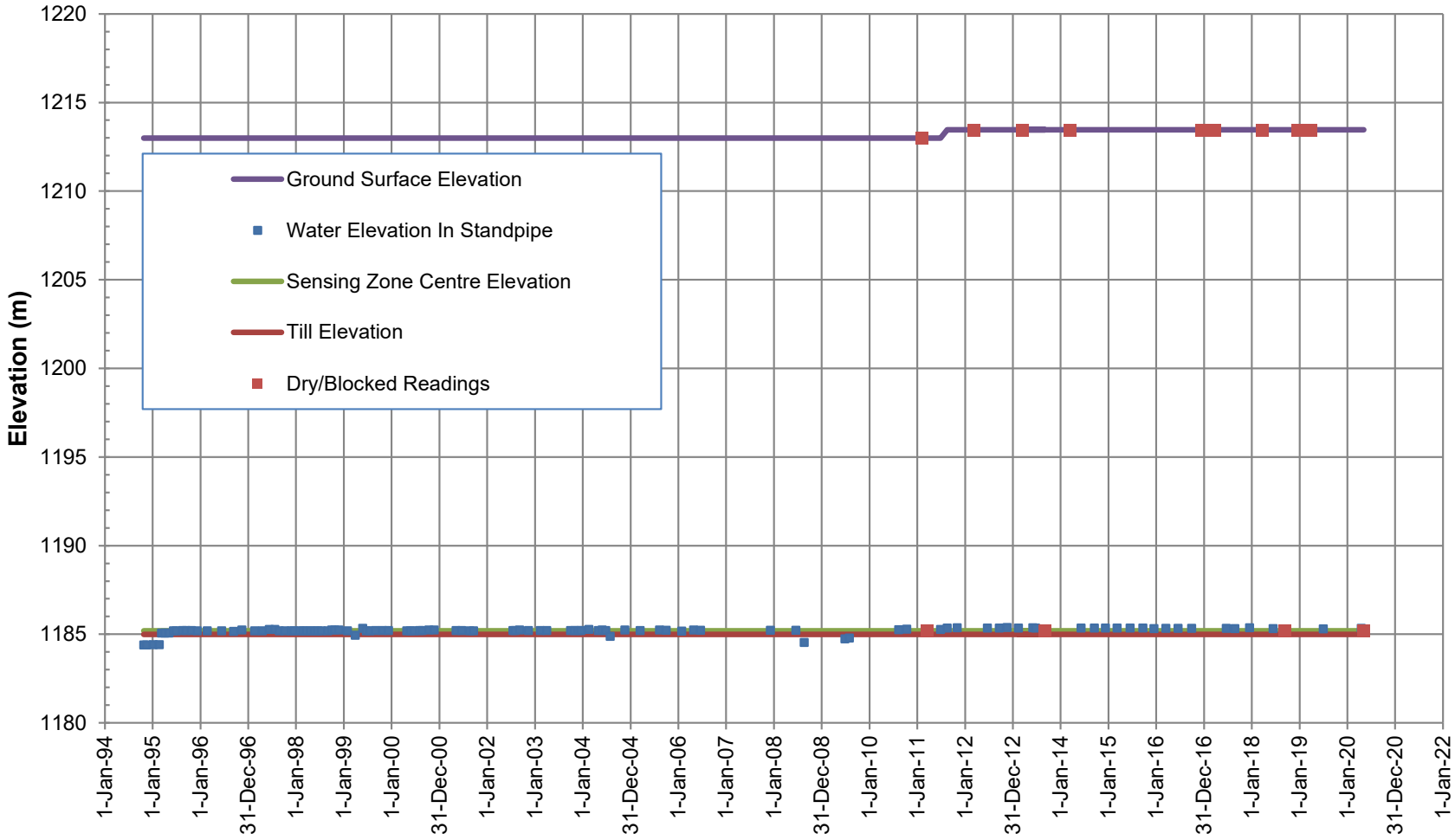
Teck Coal - Elkview Operations		
CCR Piezometers	Date:	Revision
Standpipe OW-9422		



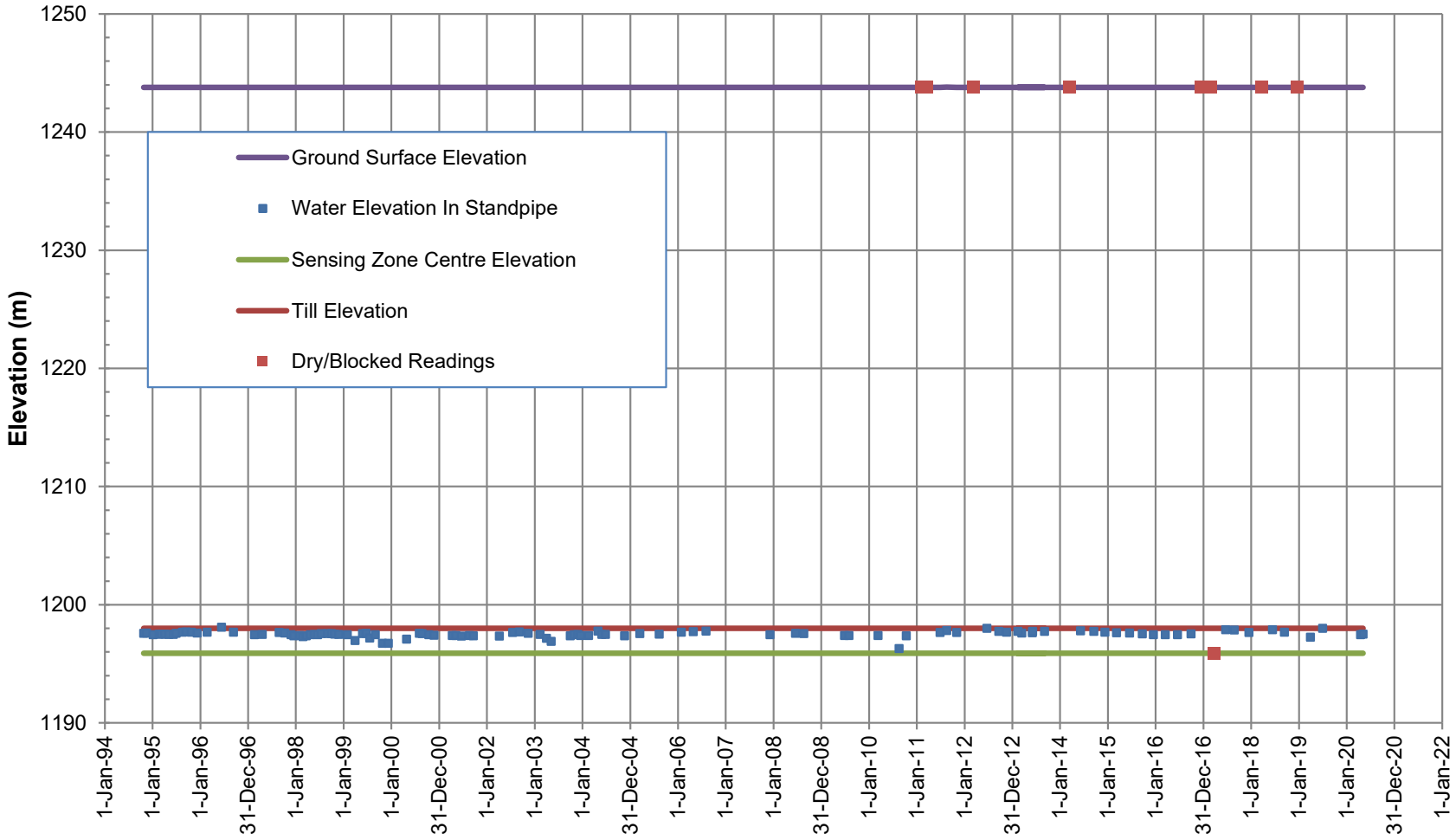
Teck Coal - Elkview Operations		
CCR Piezometers	Date:	Revision
Standpipe OW-2A		



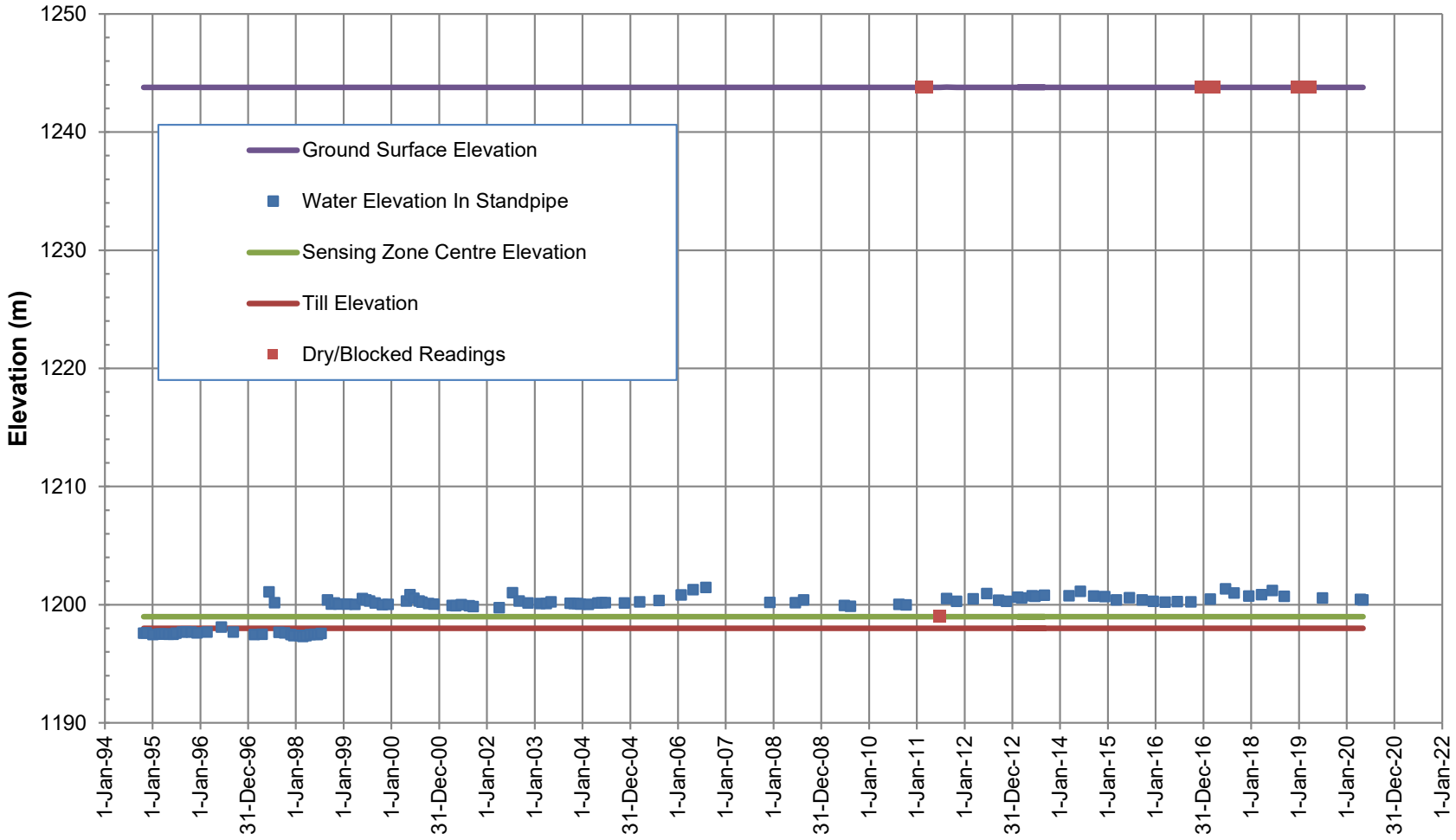
Teck Coal - Elkview Operations		
CCR Piezometers	Date:	Revision
Standpipe OW-2B		



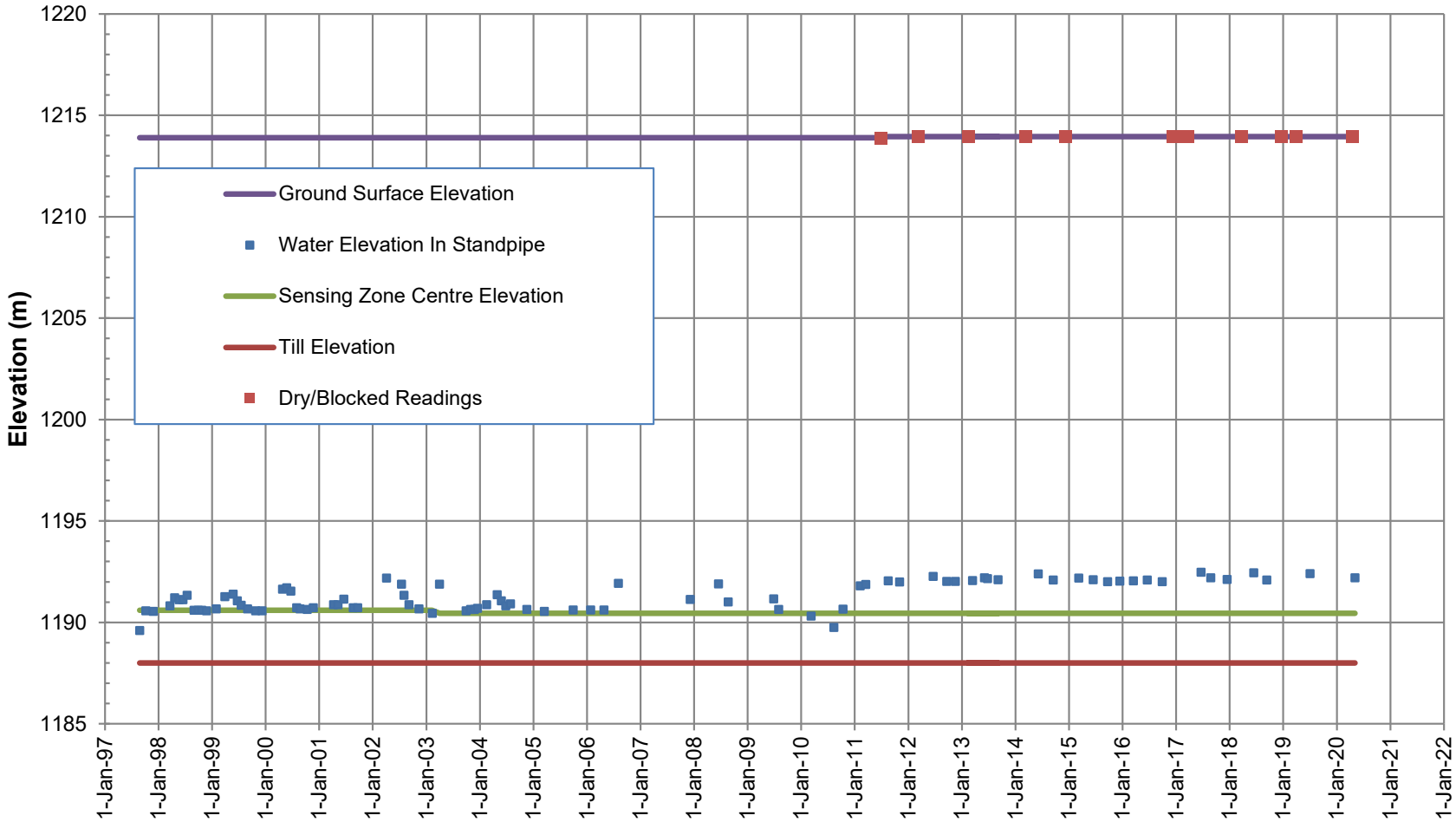
Teck Coal - Elkview Operations		
CCR Piezometers	Date:	Revision
Standpipe OW-9413		



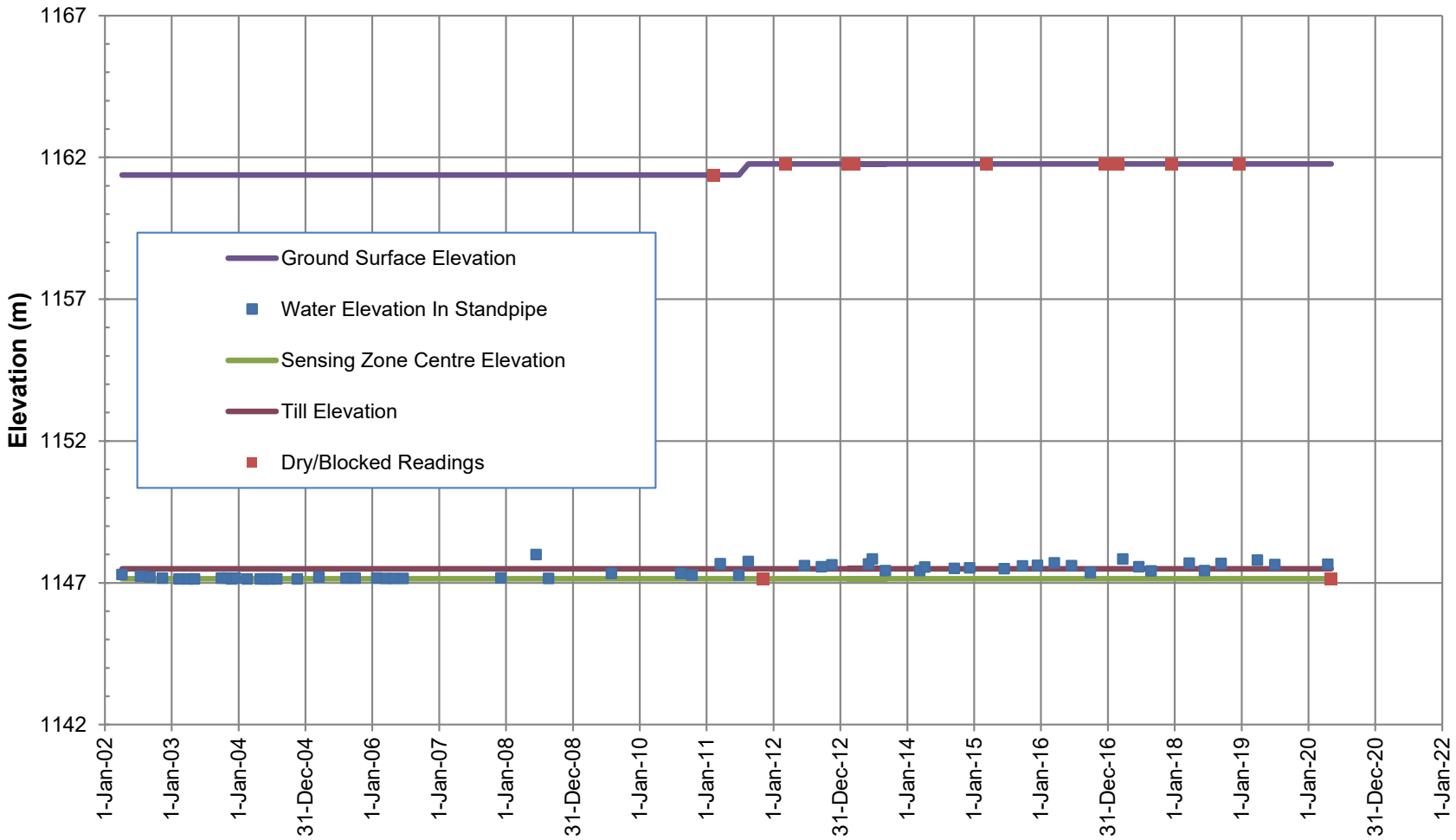
Teck Coal - Elkview Operations		
CCR Piezometers	Date:	Revision
Standpipe OW-9420A		



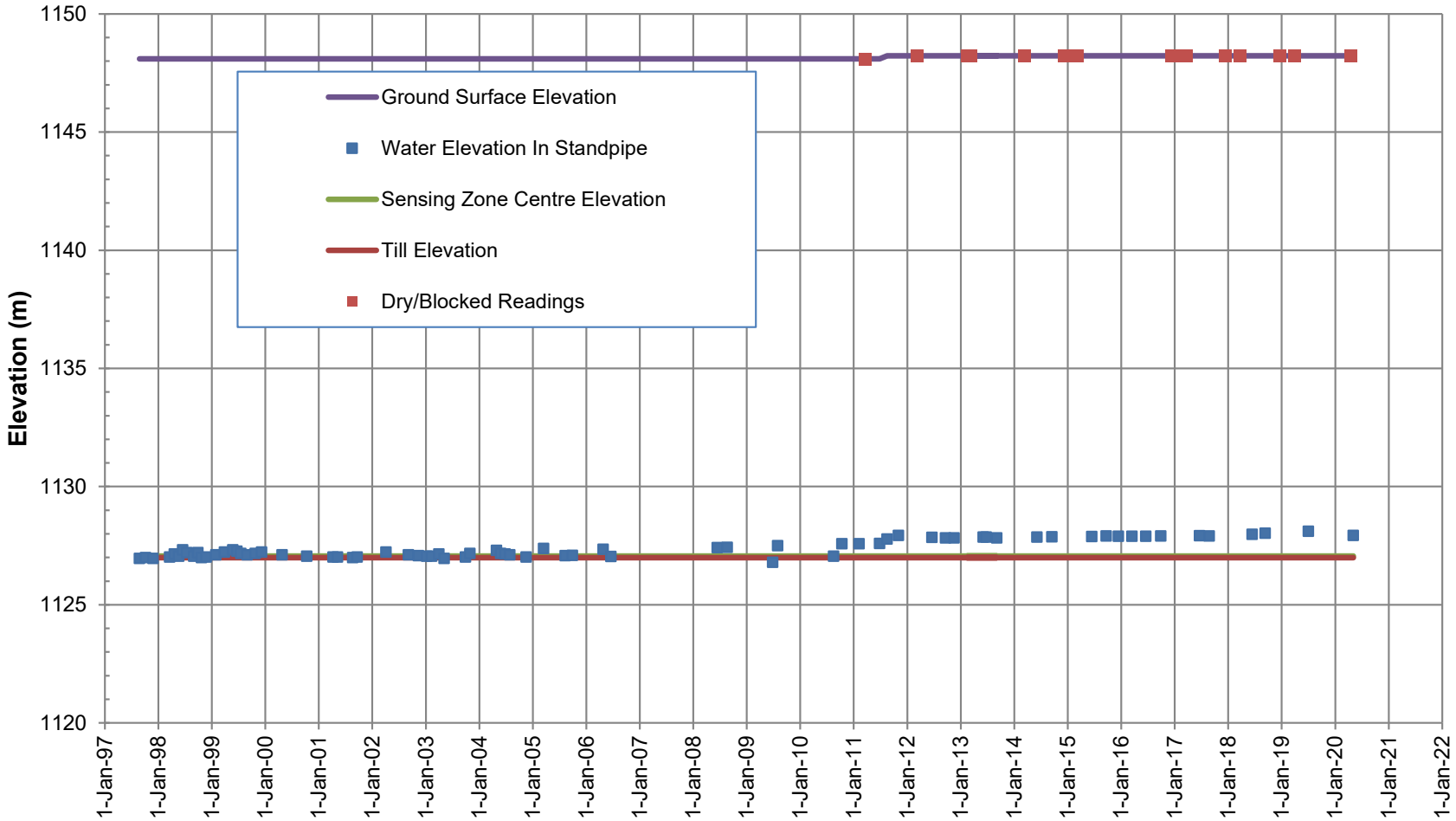
Teck Coal - Elkview Operations		
CCR Piezometers	Date:	Revision
Standpipe OW-9420B		



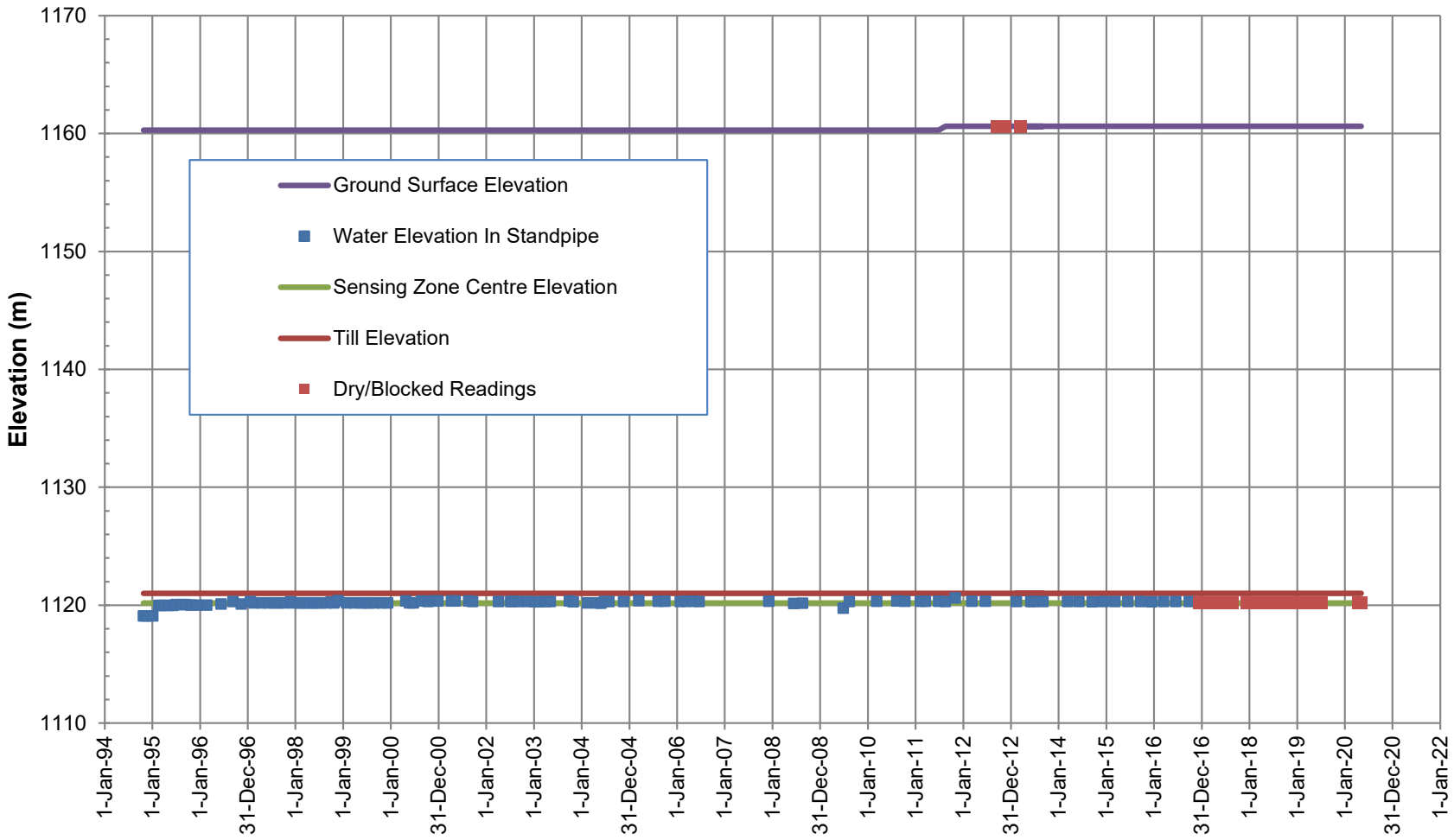
Teck Coal - Elkview Operations		
CCR Piezometers	Date:	Revision
Standpipe GT-9705		



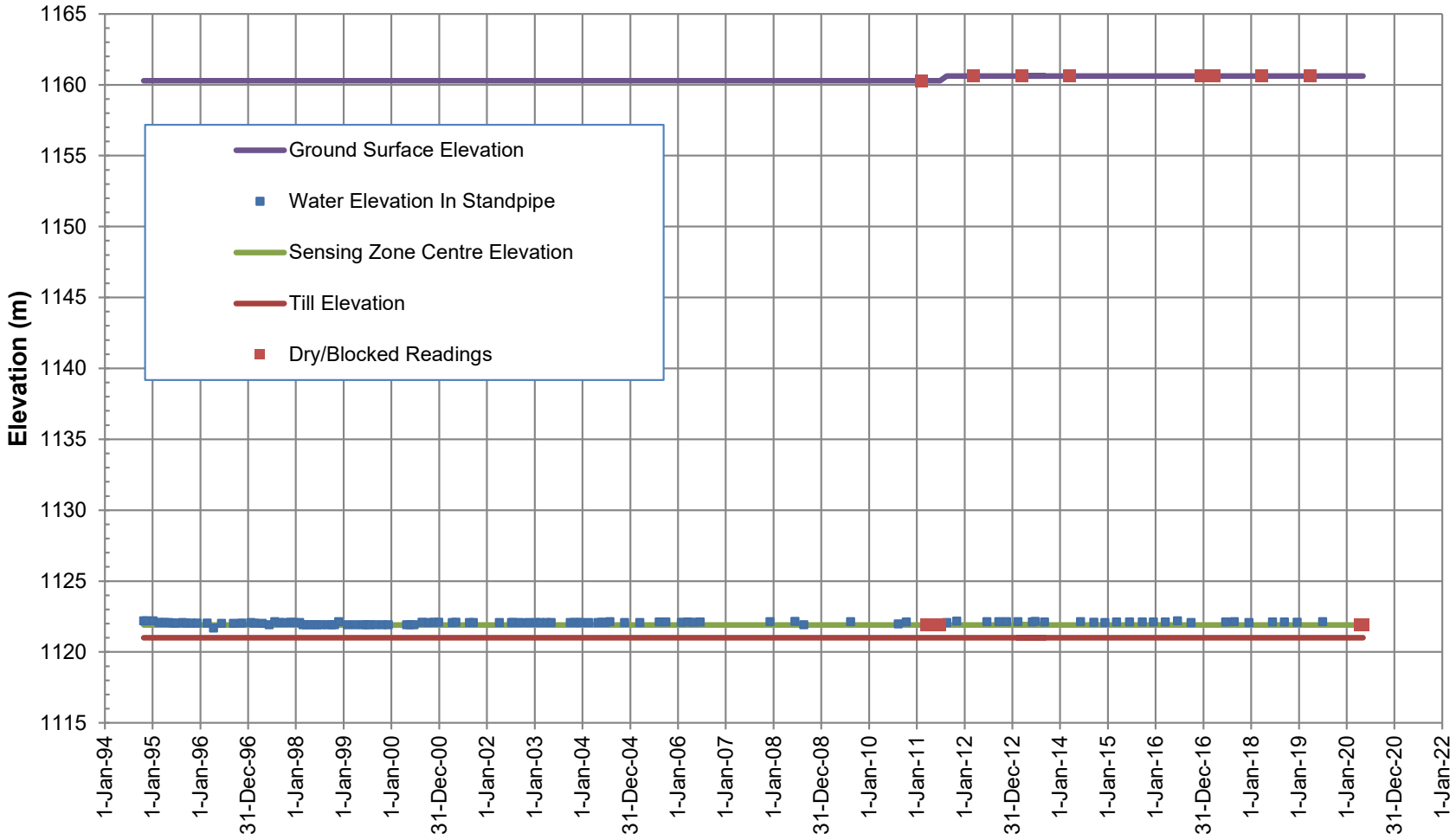
Teck Coal - Elkview Operations		
CCR Piezometers	Date:	Revision
Standpipe A01-02		



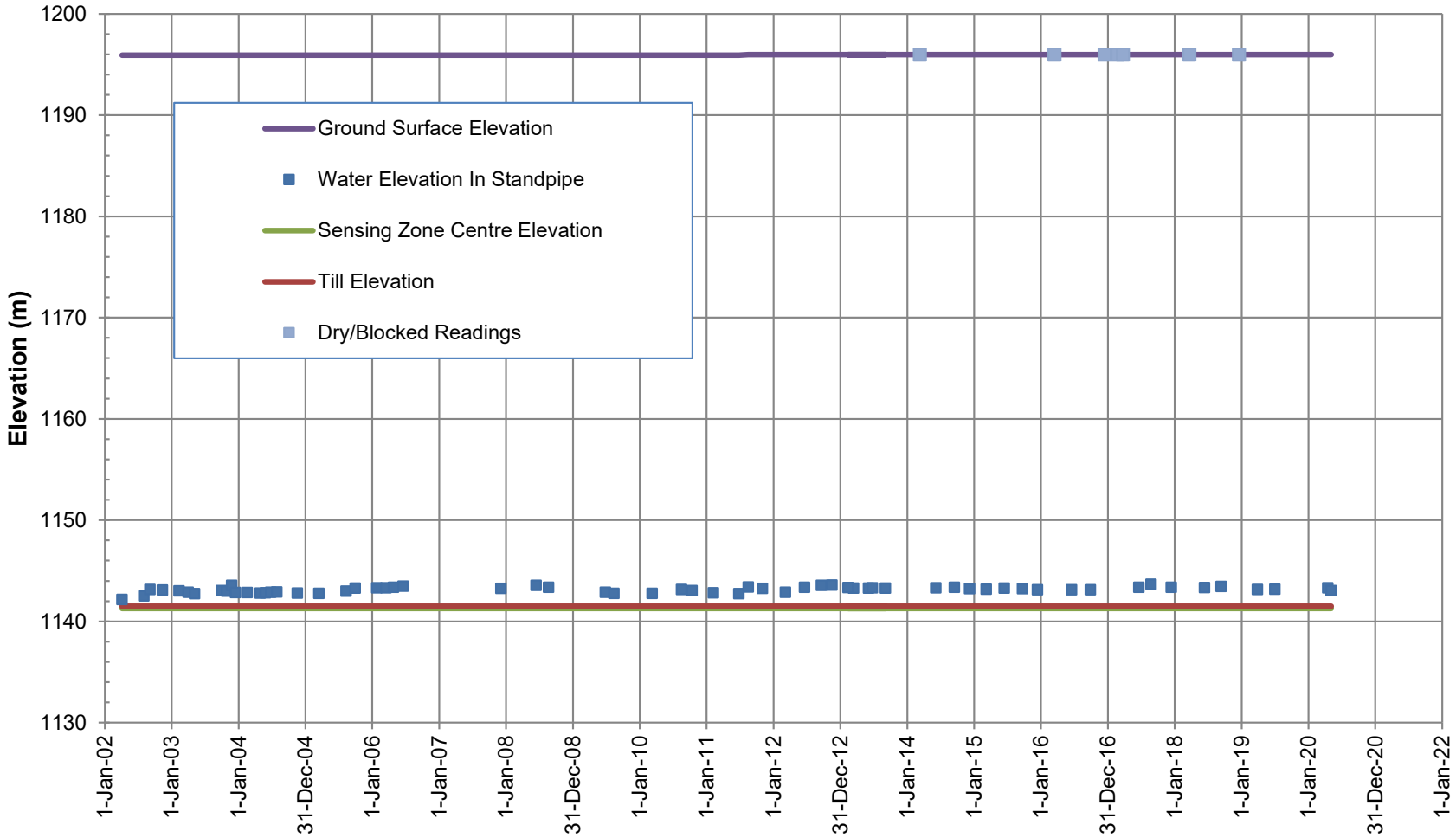
Teck Coal - Elkview Operations		
CCR Piezometers	Date:	Revision
Standpipe GT-9704		



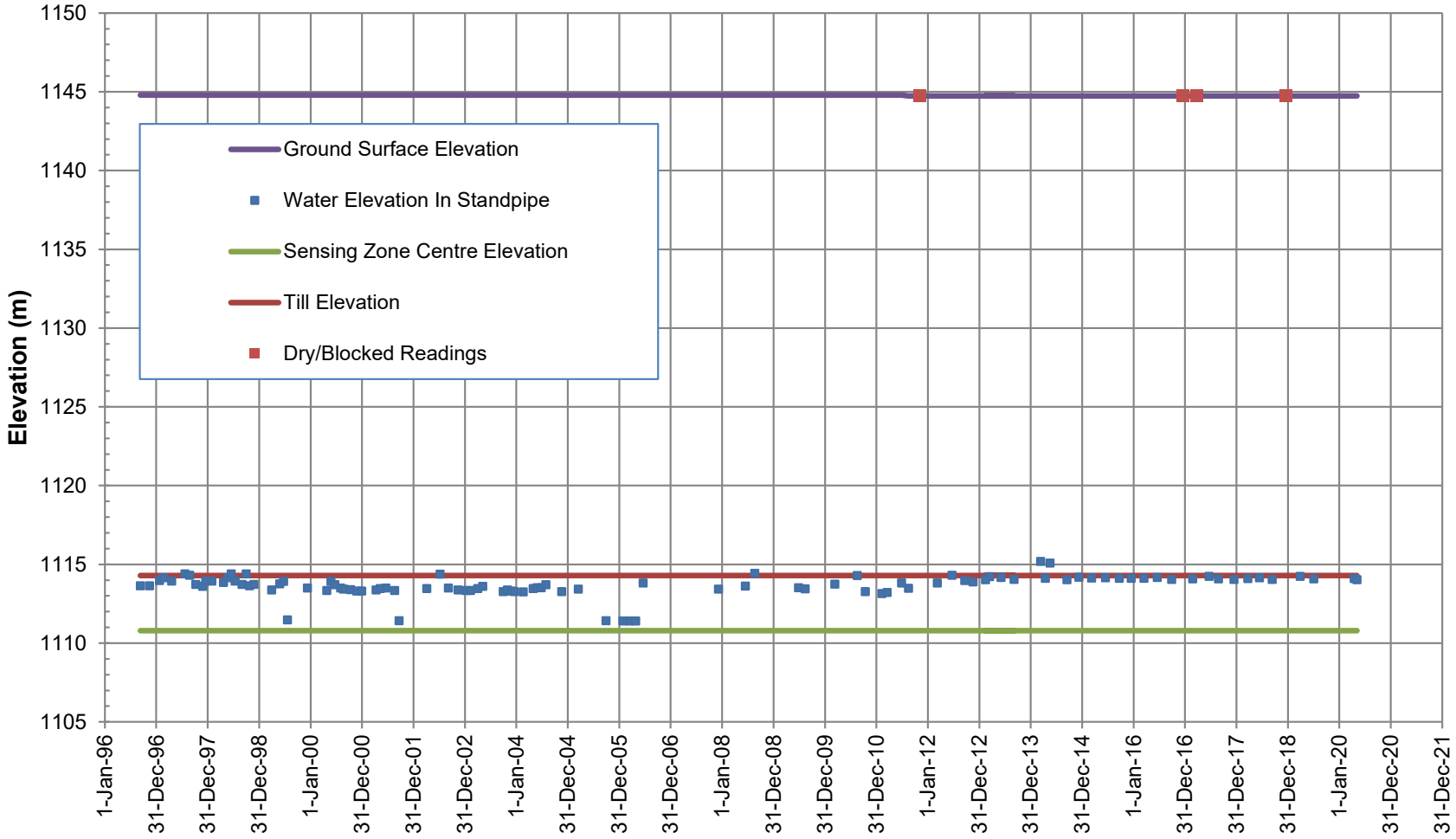
Teck Coal - Elkview Operations		
CCR Piezometers	Date:	Revision
Standpipe OW-9417A		



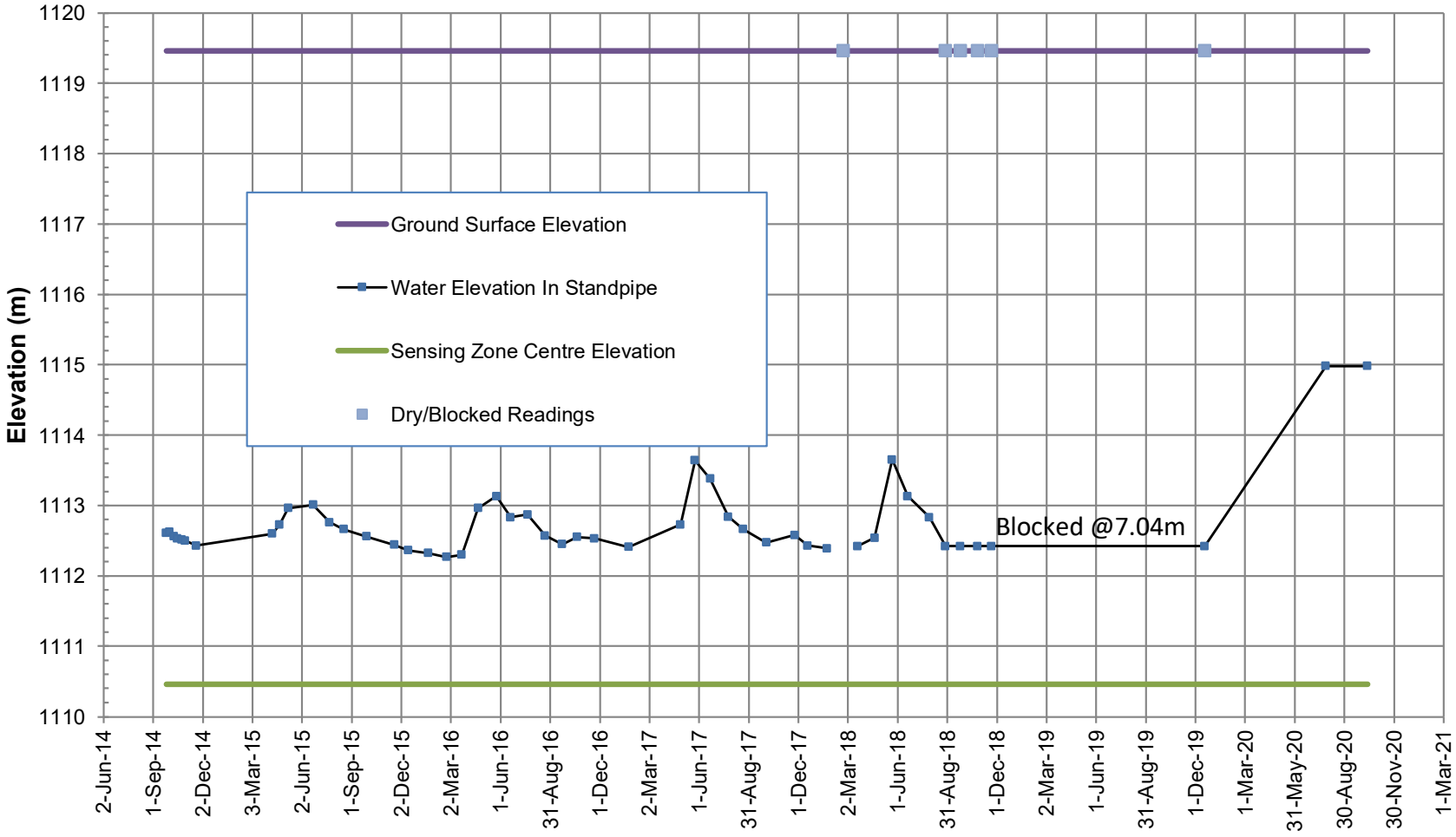
Teck Coal - Elkview Operations		
CCR Piezometers	Date:	Revision
Standpipe OW-9417B		



Teck Coal - Elkview Operations		
CCR Piezometers	Date:	Revision
Standpipe G01-03		

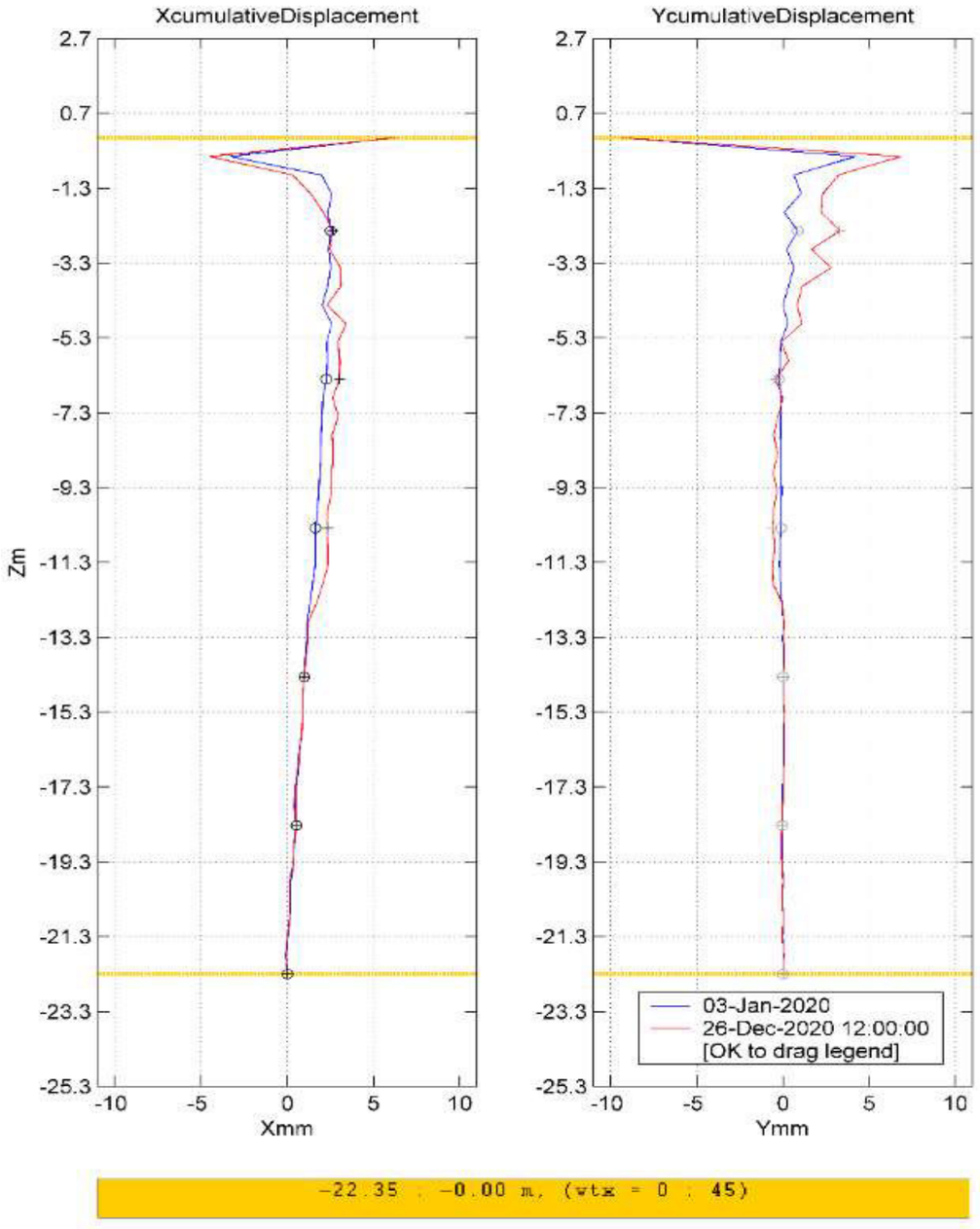


Teck Coal - Elkview Operations		
CCR Piezometers	Date:	Revision
Standpipe 96-G1B		

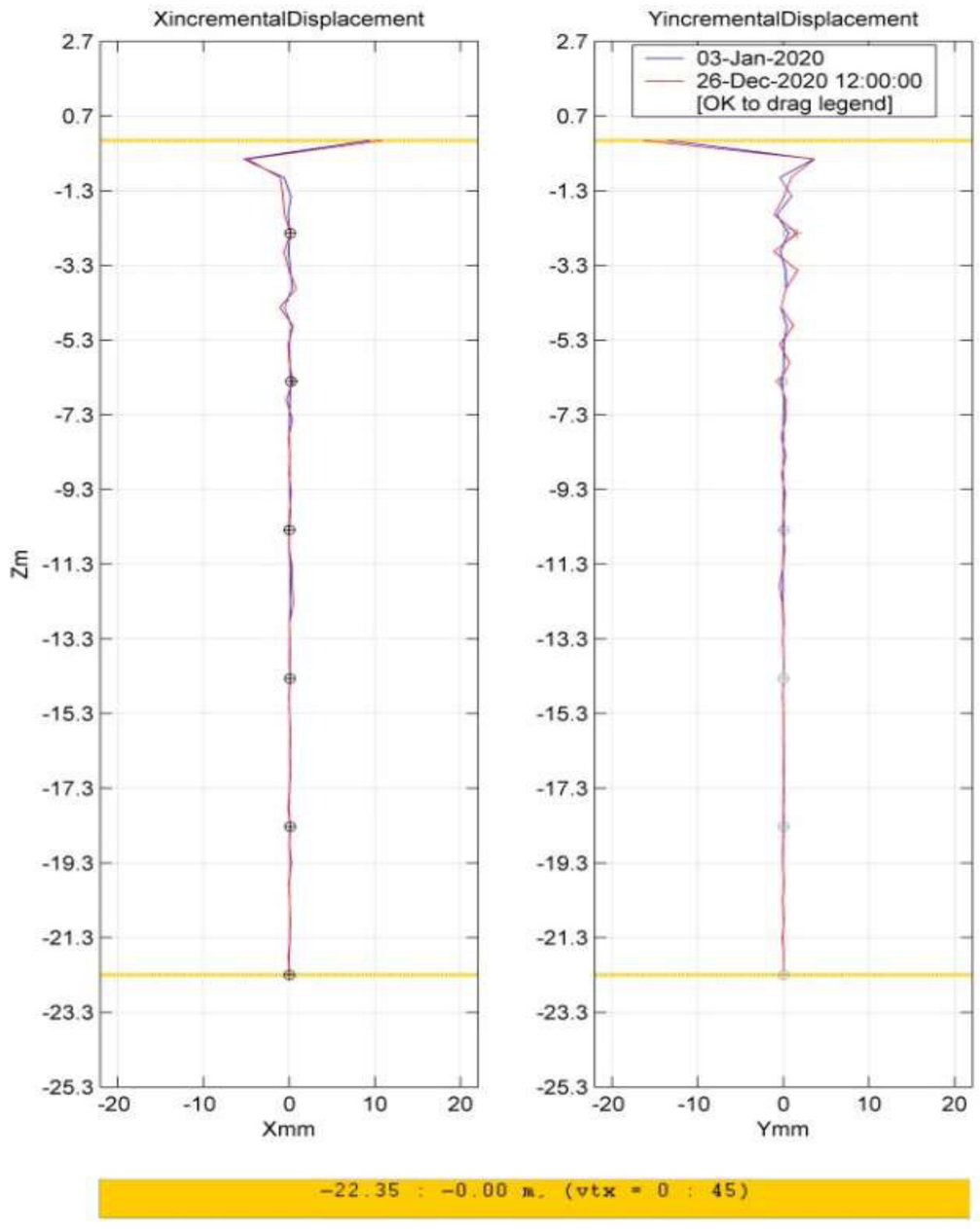


Teck Coal - Elkview Operations		
CCR Piezometers	Date:	Revision
Standpipe SP-13-01		

CUMMULATIVE DISPLACEMENT PLOT



INCREMENTAL DISPLACEMENT PLOT



Notes: 1. Inclinometer plots provided by Teck.

CLIENT
Teck
TECK ELKVIEW OPERATIONS LTD.

Klohn Crippen Berger

PROJECT
TECK ELKVIEW OPERATIONS
2020 ANNUAL SUMMARY OF FACILITY PERFORMANCE

TITLE
CCR DUMP INCLINOMETER MONITORING
INCLINOMETER CCR-NORTH SHAPE ARRAY
DISPLACEMENT (2019 to 2020)

PROJECT No. M09963A14

FIG. No. n/a

Date & Time: 2021-03-30 22:59
Figure File: Z:\M\FREM\09963A14-TCL-EVO-2020 DSI\500 External Data\Instrumentation\20210308_EVO Revised Plots\MT Version for Report\Inclinometers\CCR Dump\[CCR Inclinometer Plots Combined.xlsx]1.0 CCR-S Cumm (historical)

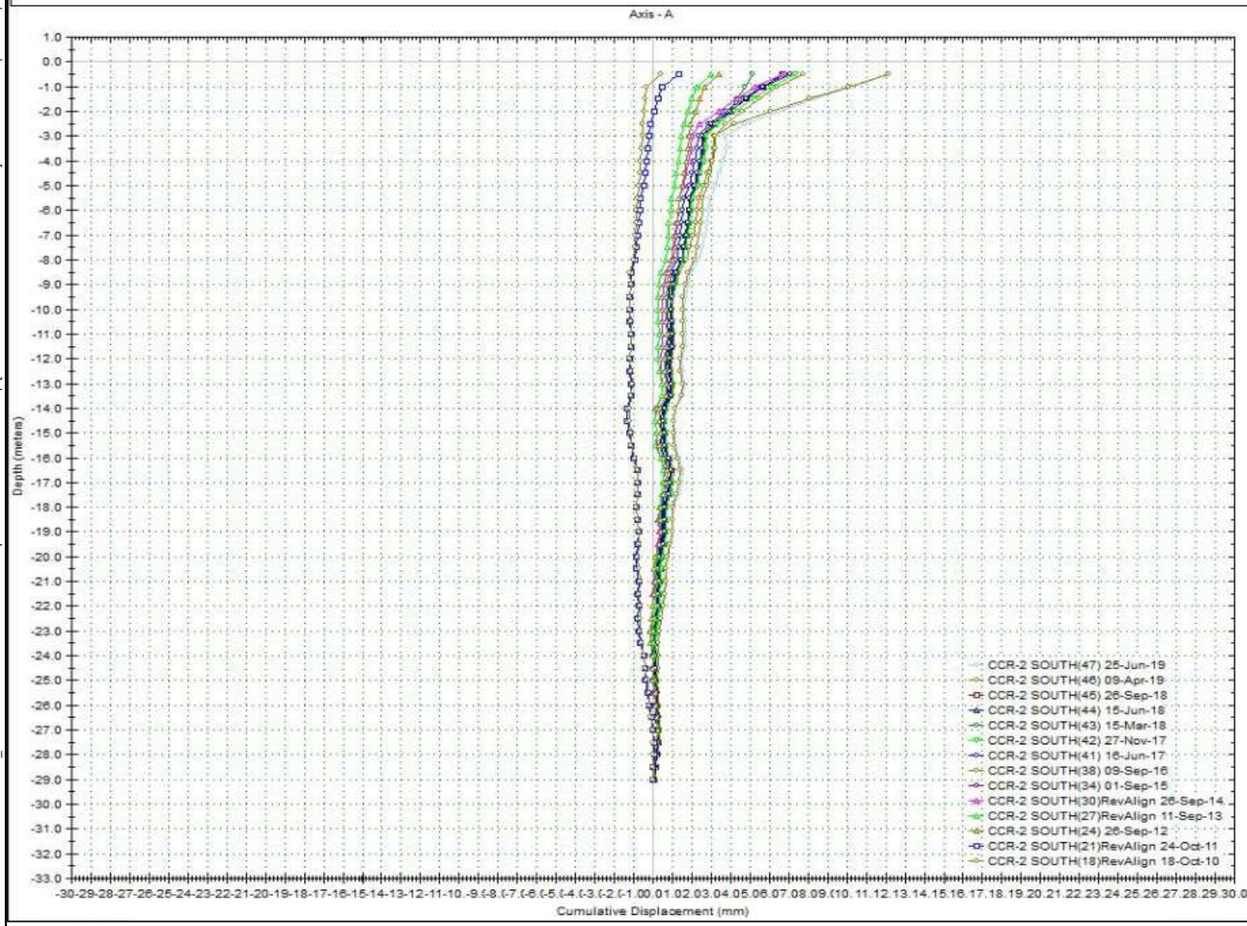
RST Instruments Ltd.

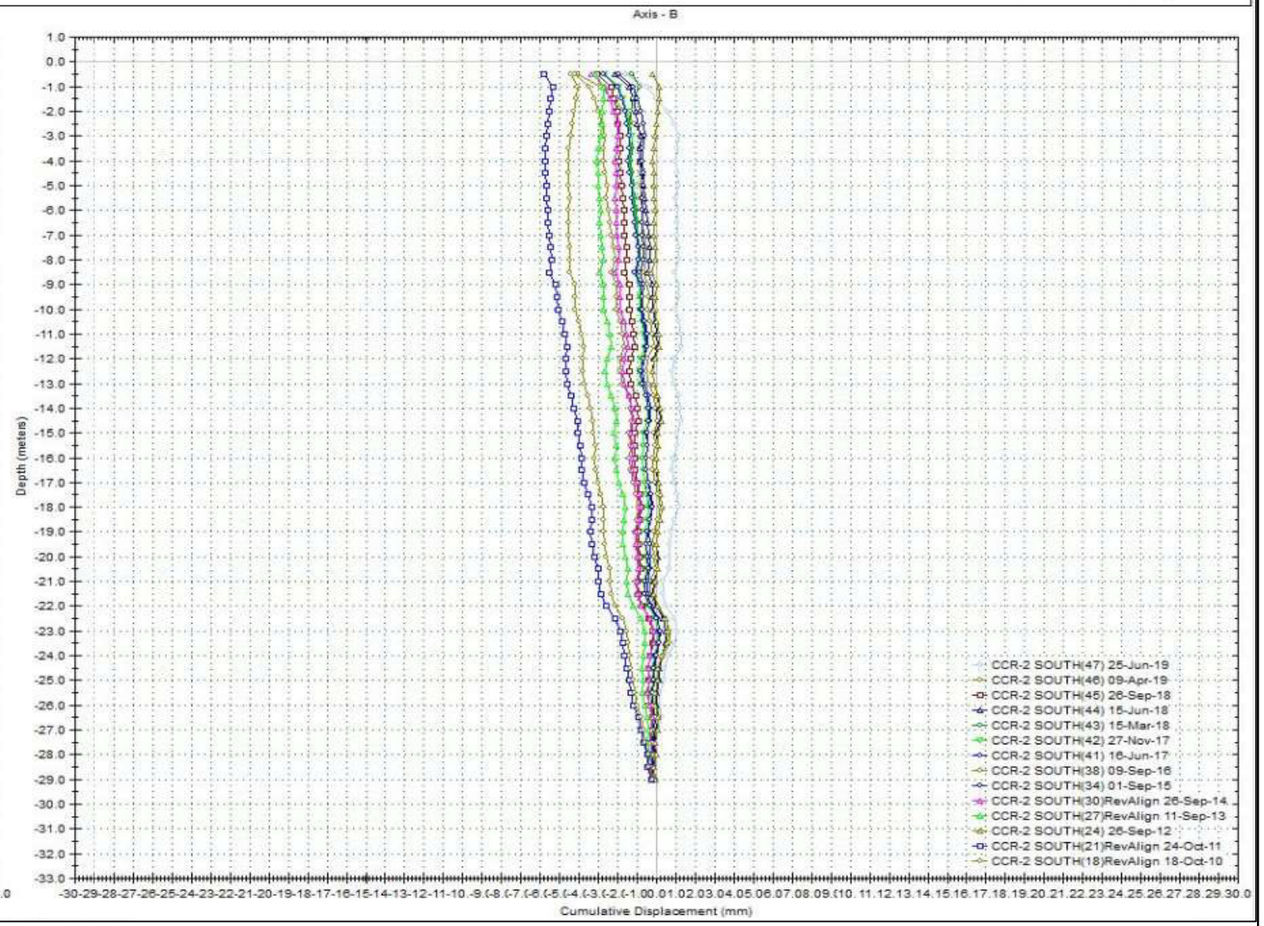
CUMULATIVE DISPLACEMENT

Inclinalysis v.2.27

Borehole : CCR-2 SOUTH
Project : COARSE COAL REJECTS
Location : CFI Road
Northing : 54292.8
Easting : 15775.1
Collar : 1167.2

Spiral Correction : N/A
Collar Elevation : 0.0 meters
Borehole Total Depth : 29.0 meters
North Groove Azimuth :
Base Reading : 2006 Sep 11 13:50
Axis A Azimuth : 0.0 degrees





Notes: 1. Inclinometer plots provided by Teck.

CLIENT
Teck
TECK ELKVIEW OPERATIONS LTD.

Klohn Crippen Berger

PROJECT TECK ELKVIEW OPERATIONS
2020 ANNUAL SUMMARY OF FACILITY PERFORMANCE

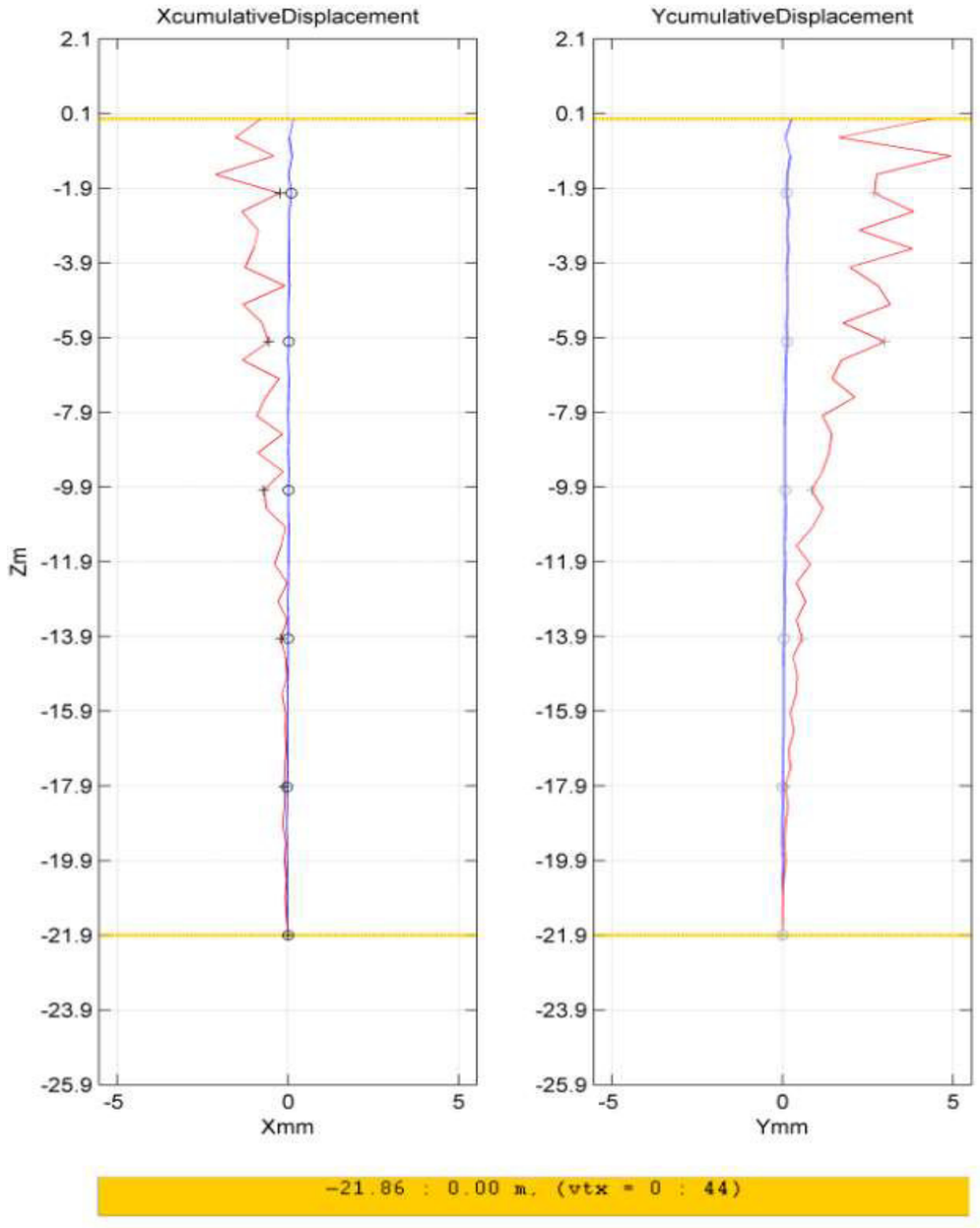
TITLE CCR DUMP INCLINOMETER MONITORING
INCLINOMETER CCR-SOUTH
HISTORICAL CUMMULATIVE DISPLACEMENT
(UP TO 2019)

PROJECT No. M09963A14

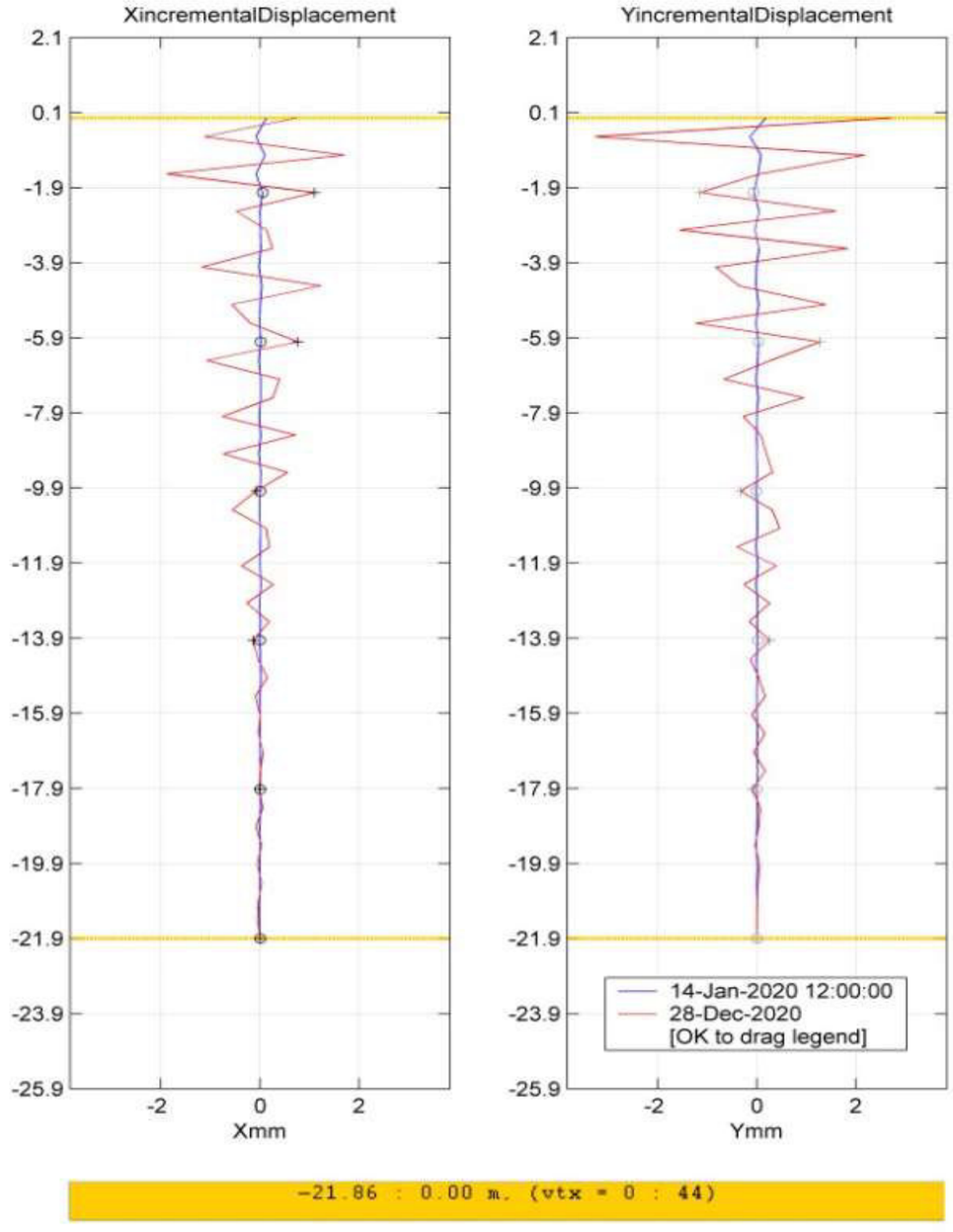
FIG. No. n/a

Date & Time: 2021-03-30 22:59
Figure File: Z:\M\FRE\M09963A14-TCL-EVO-2020 DSI\500 External Data\Instrumentation\20210308_EVO Revised Plots\MT Version for Report\Inclinometers\CCR Dump\[CCR Inclinometer Plots Combined.xlsx]1.0 CCR-S Cumm (historical)

CUMMULATIVE DISPLACEMENT PLOT



INCREMENTAL DISPLACEMENT PLOT



Notes: 1. Inclinometer plots provided by Teck.

CLIENT: Teck — TECK ELKVIEW OPERATIONS LTD.

Klohn Crippen Berger

PROJECT: TECK ELKVIEW OPERATIONS
2020 ANNUAL SUMMARY OF FACILITY PERFORMANCE

TITLE: CCR DUMP INCLINOMETER MONITORING
INCLINOMETER CCR-SOUTH SHAPE ARRAY
DISPLACEMENT (2019 to 2020)

PROJECT No. M09963A14

FIG. No. n/a

Date & Time: 2021-03-30 22:59
Figure File: Z:\M\FRE\M09963A14-TCL-EVO-2020 DSI\500 External Data\Instrumentation\20210308_EVO Revised Plots\MT Version for Report\Inclinometers\CCR Dump\[CCR Inclinometer Plots Combined.xlsx]1.0 CCR-S Cumm (historical)

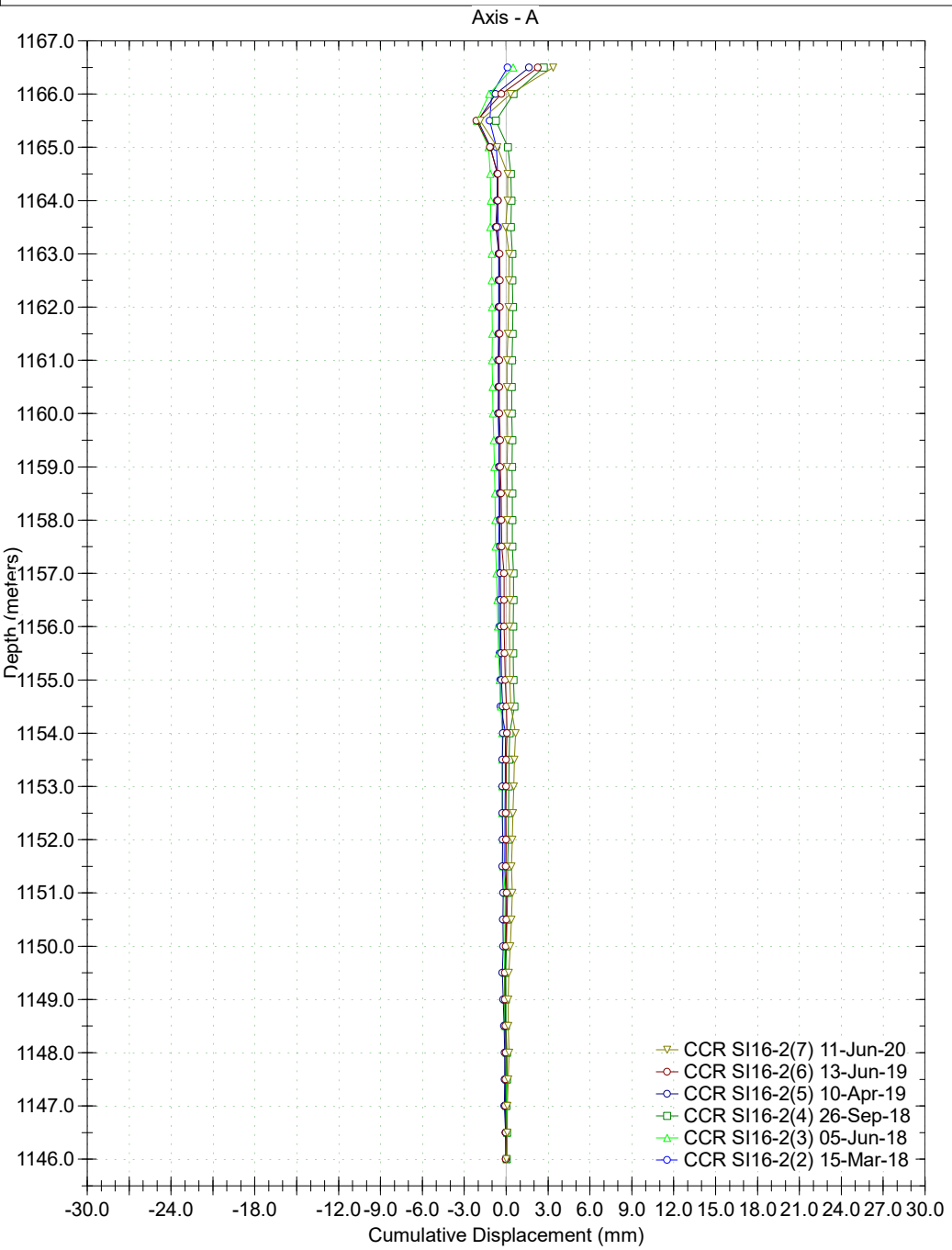
RST Instruments Ltd.

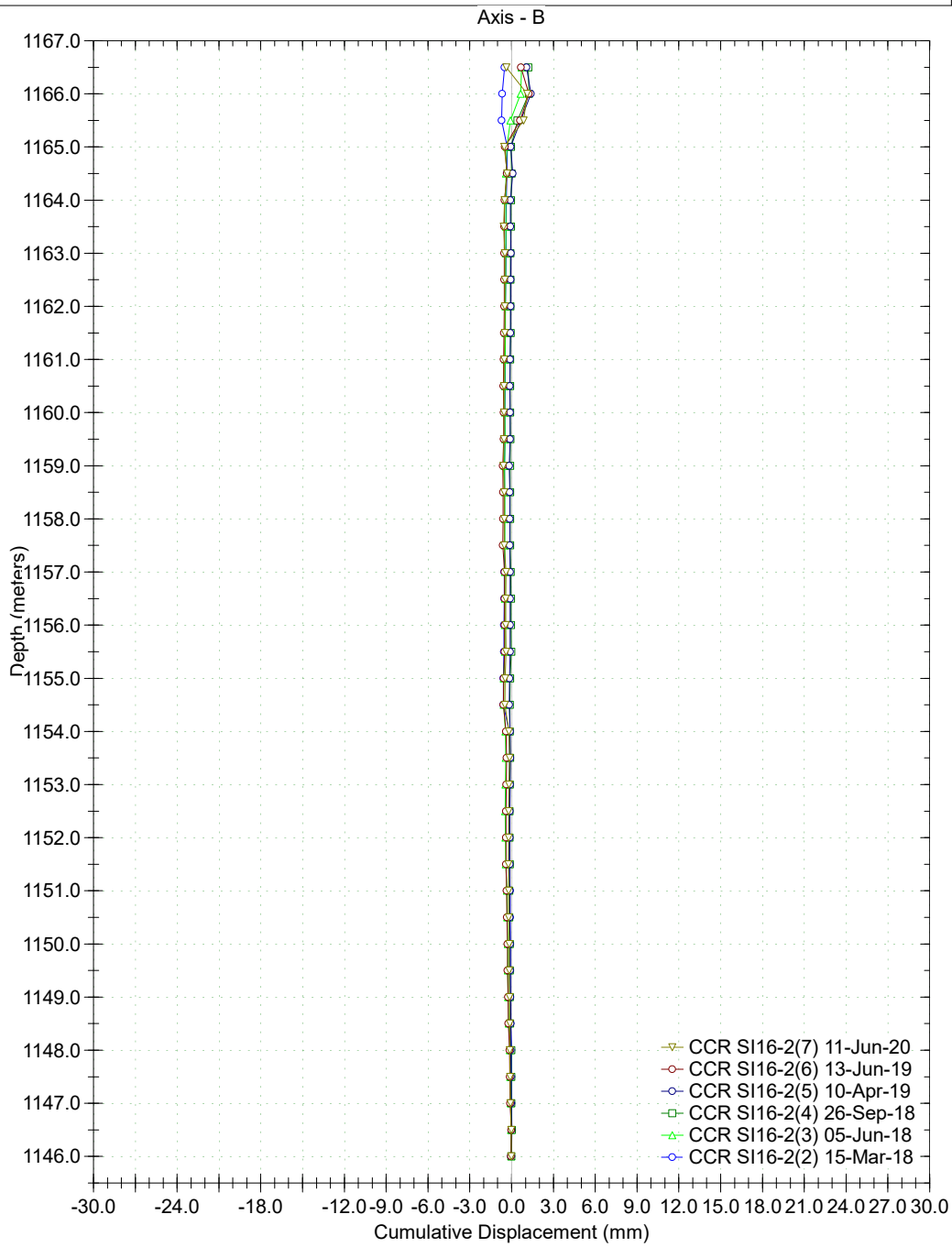
CUMULATIVE DISPLACEMENT

Inclinalysis v. 2.48.7

Borehole : CCR SI16-2
Project : CCR
Location : EVO Coarse Coal Refuse
Northing : 54238.01
Easting : 15753.1
Collar : 1167.022

Spiral Correction : N/A
Collar Elevation : :1167.00 meters
Reading Depth : 21.0 meters
A+ Groove Azimuth : 76
Base Reading : 2017 Nov 27 13:17
Applied Azimuth : 76.0 degrees





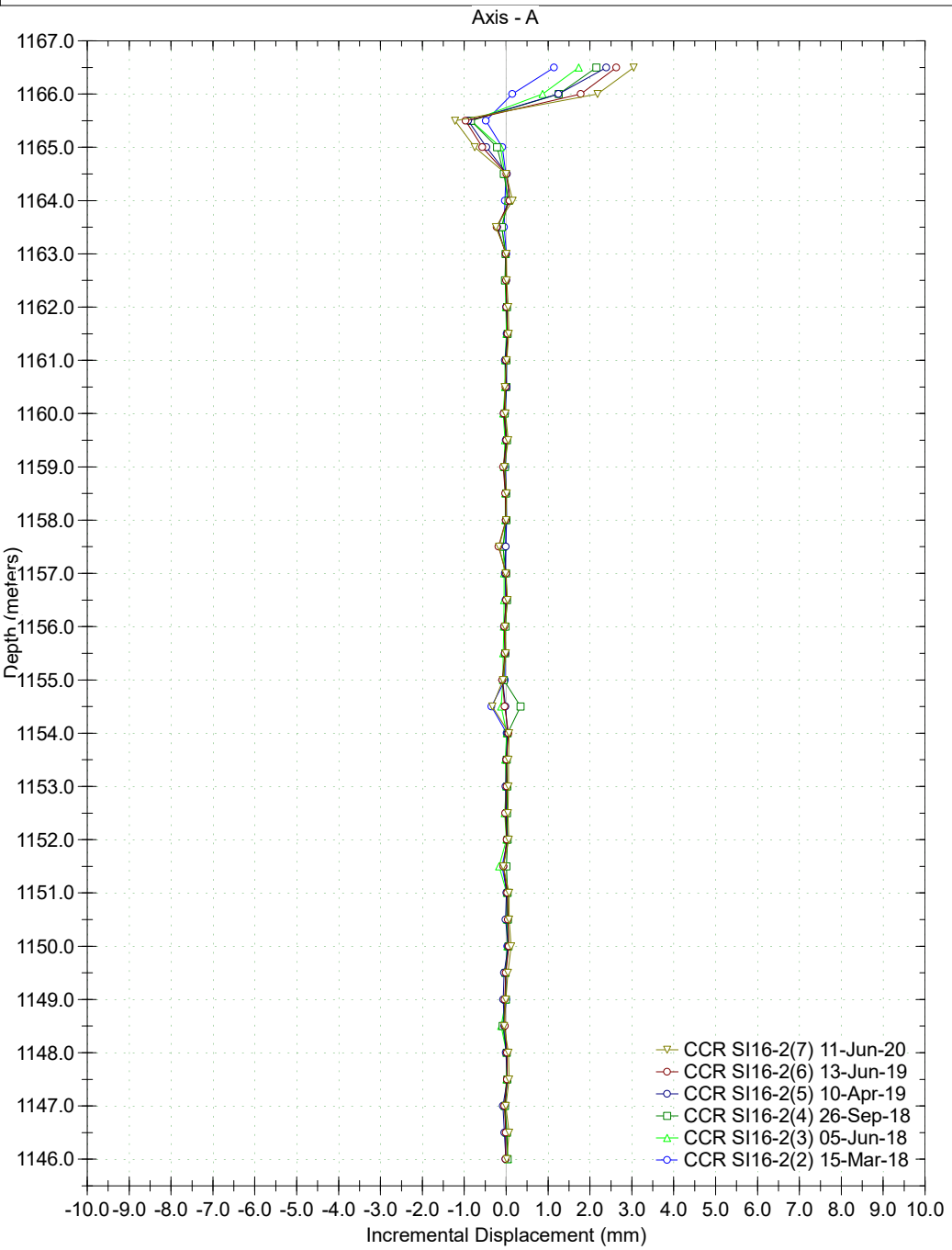
RST Instruments Ltd.

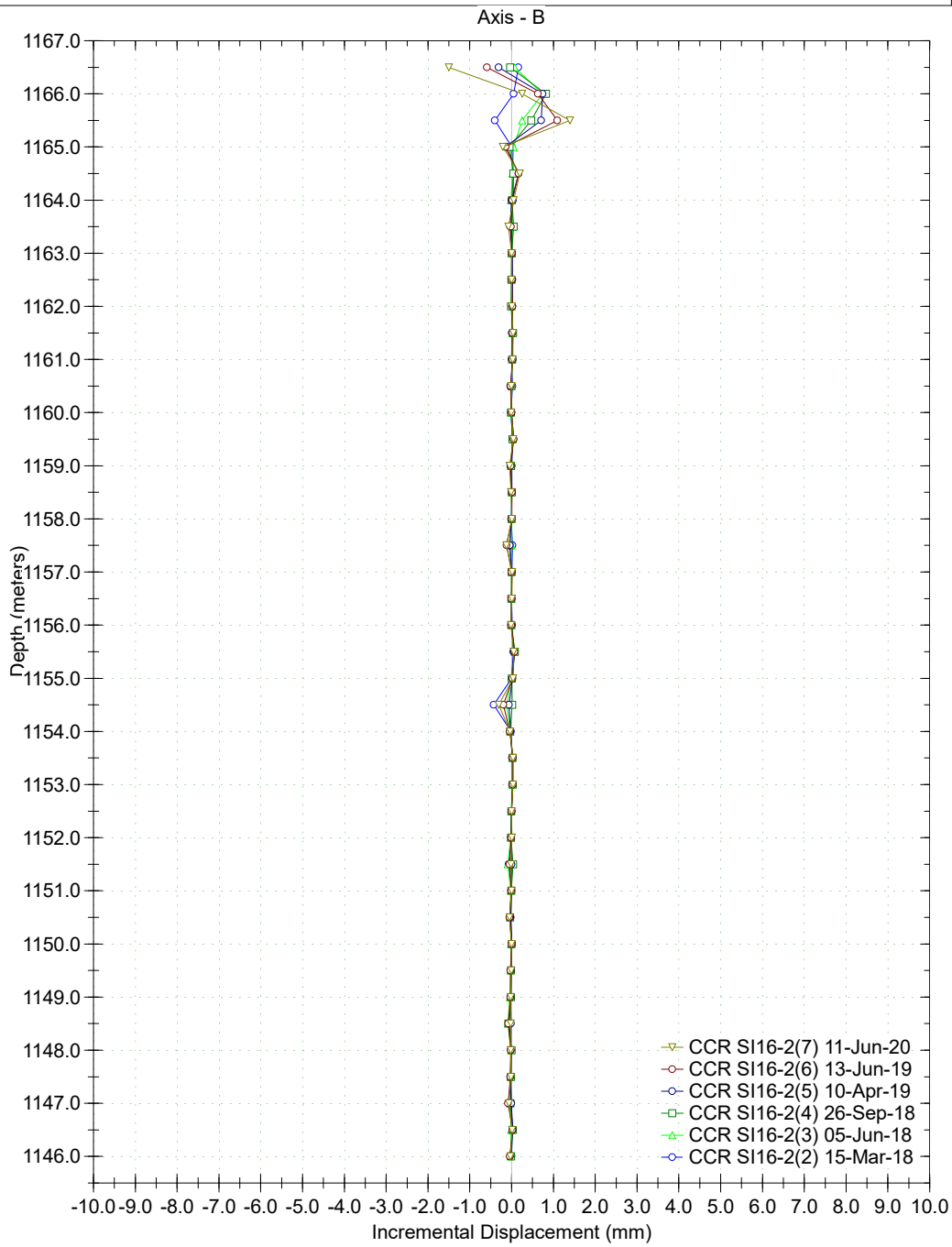
INCREMENTAL DISPLACEMENT

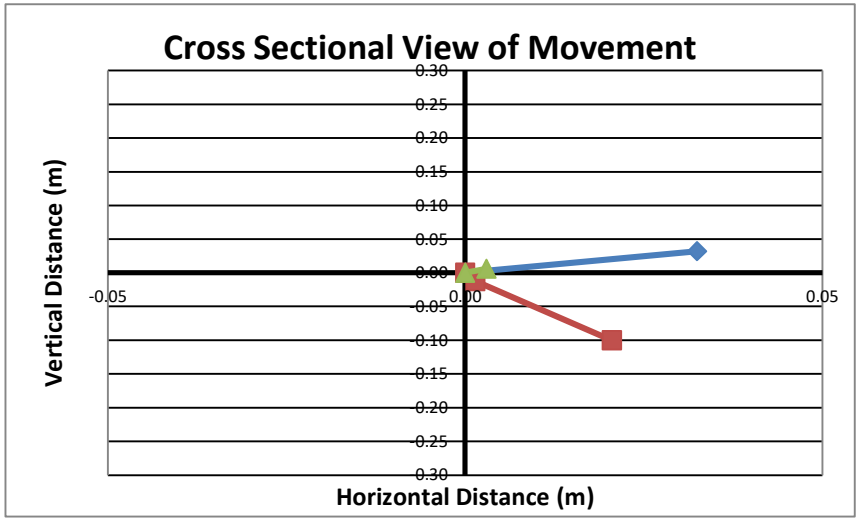
Inclinalysis v. 2.48.7

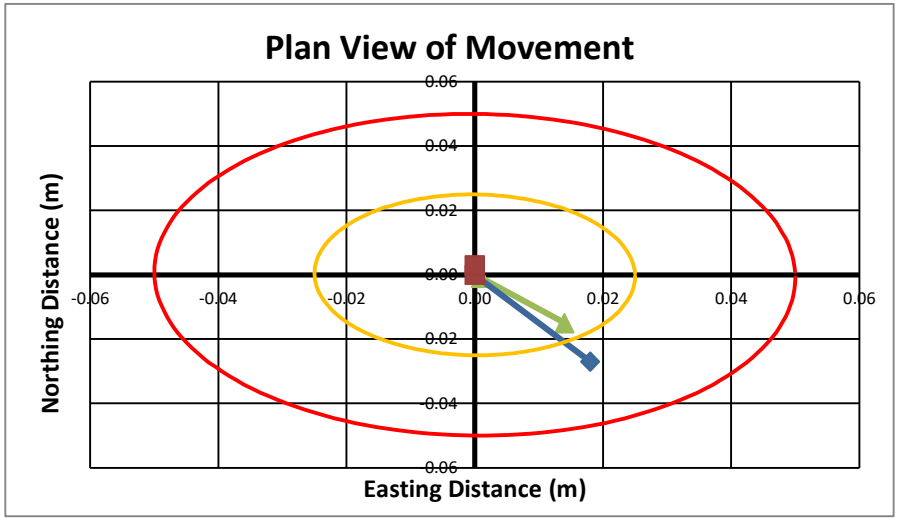
Borehole : CCR SI16-2
Project : CCR
Location : EVO Coarse Coal Refuse
Northing : 54238.01
Easting : 15753.1
Collar : 1167.022

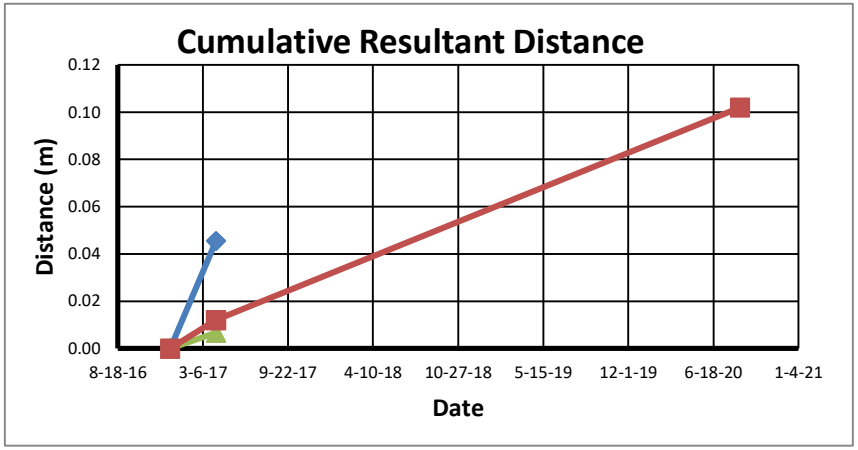
Spiral Correction : N/A
Collar Elevation : :1167.00 meters
Reading Depth : 21.0 meters
A+ Groove Azimuth : 76
Base Reading : 2017 Nov 27 13:17
Applied Azimuth : 76.0 degrees

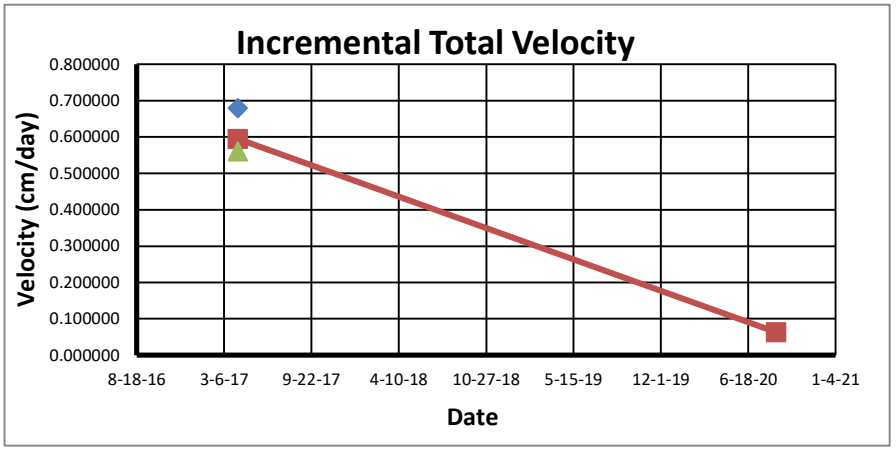










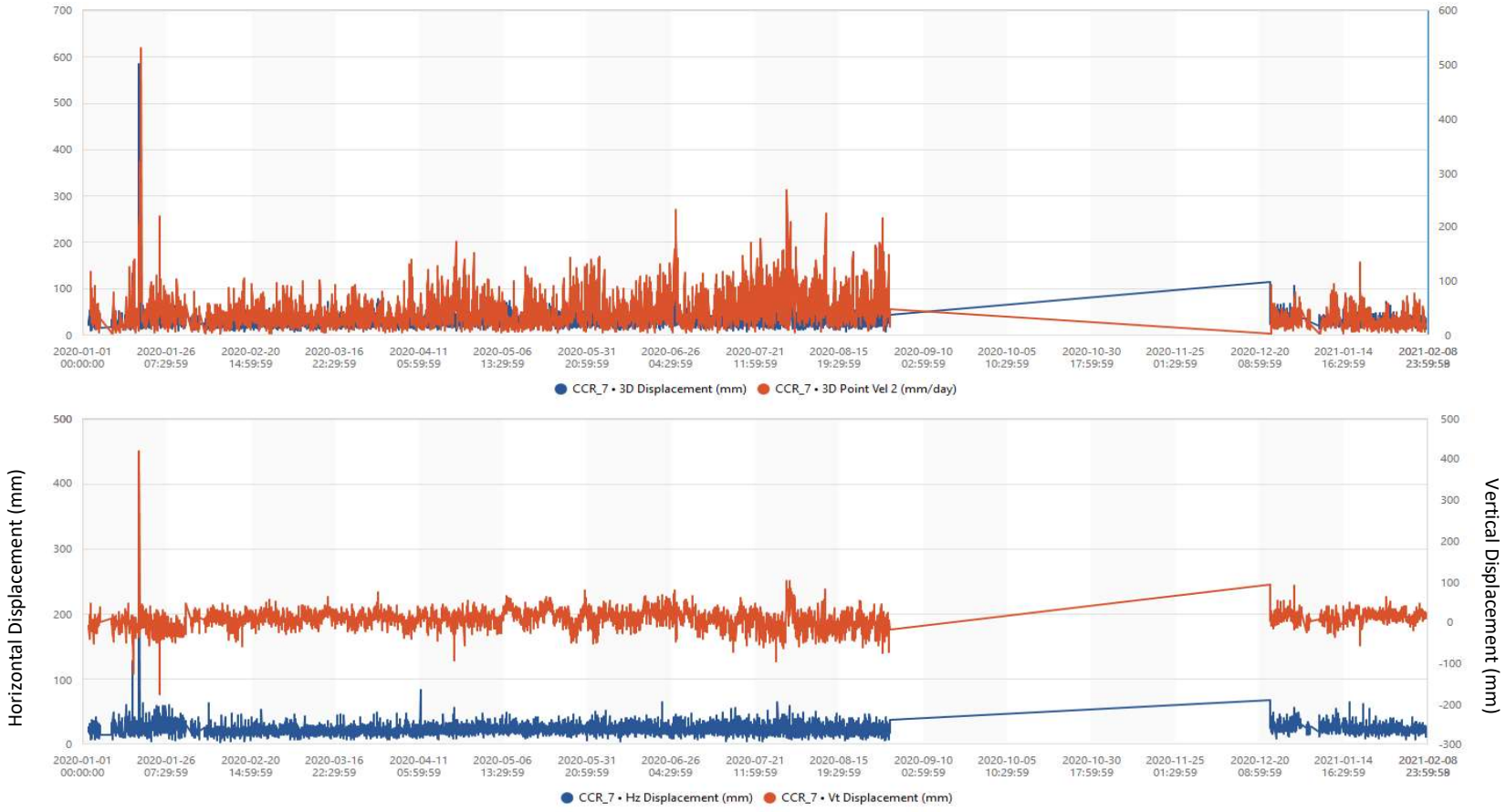


LEGEND

- CCR Upper
- CCR Middle
- CCR Lower

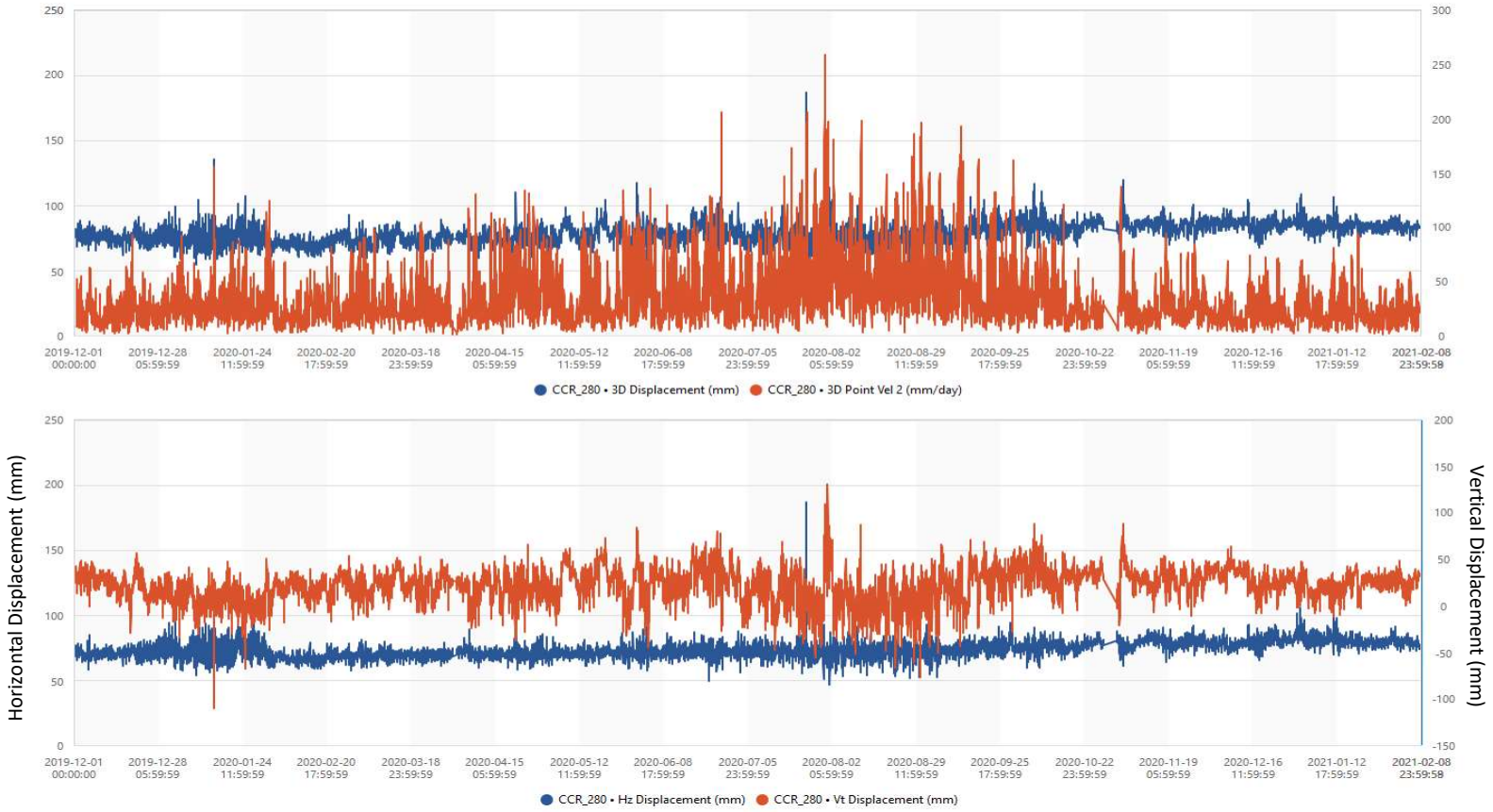
Teck Coal - Elkview Operations		
CCR GPS Survey Pins	Date:	Revision
All GPS Survey Pins		

Teck Coal - Elkview Operations			
CCR Pyramid GPS Unit	Date:	Revision	
CCR Pyramid GPS Unit Map			

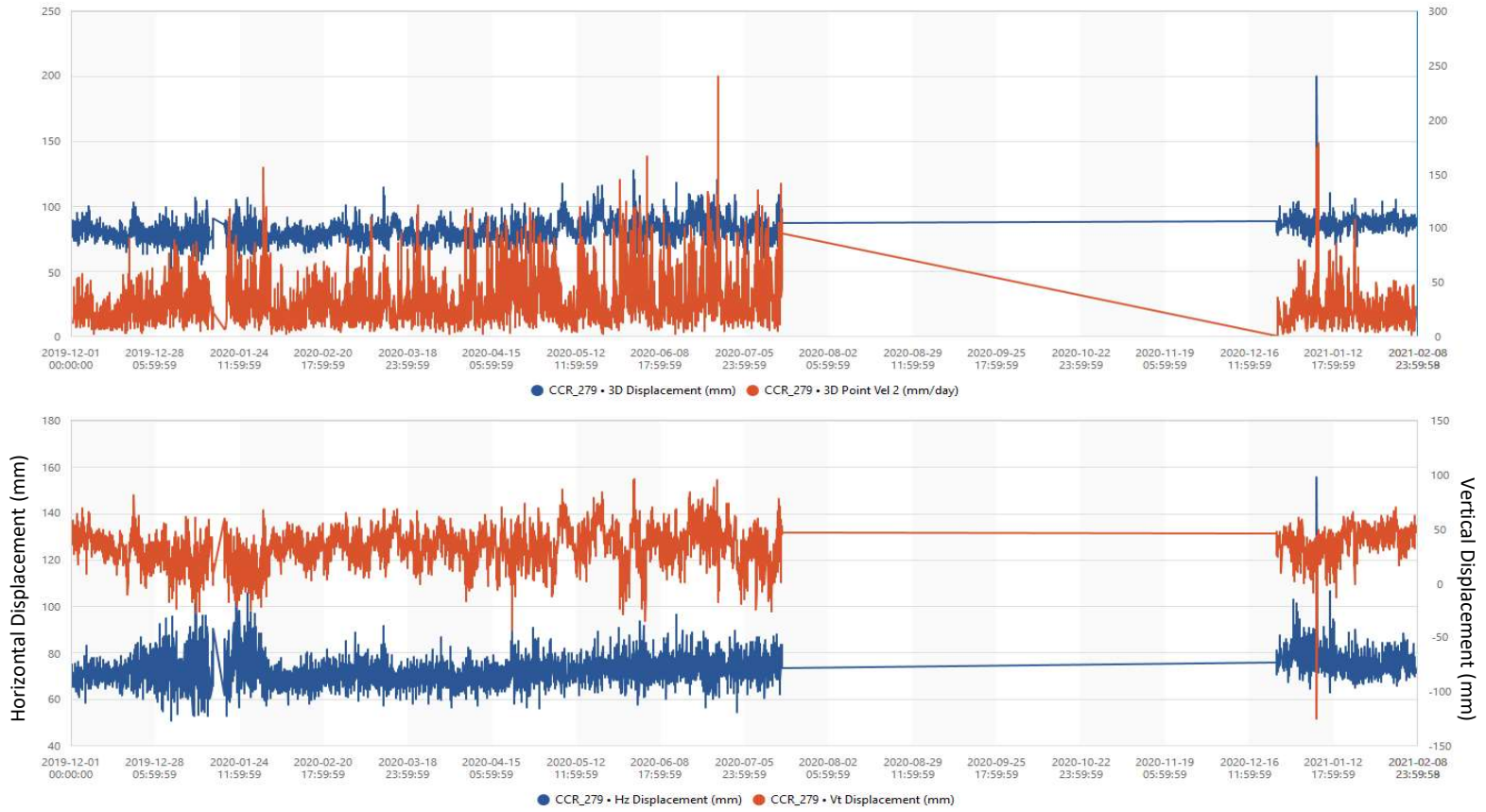


Teck Coal - Elkview Operations		
CCR Pyramid GPS Unit	Date:	Revision
CCR_7 2020 Plot		

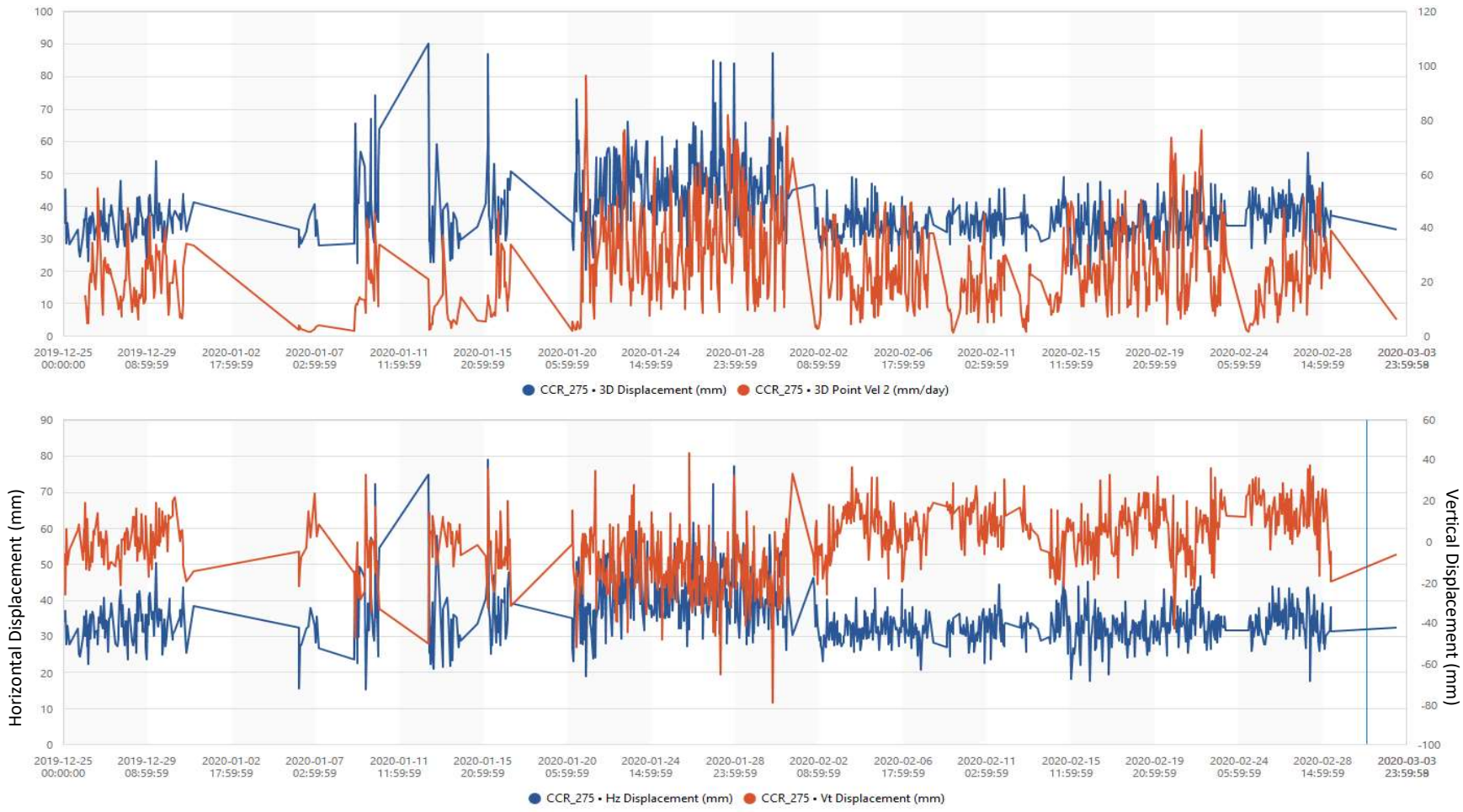
Teck Coal - Elkview Operations		
CCR Pyramid GPS Unit	Date:	Revision
CCR_8 2020 Plot		



Teck Coal - Elkview Operations		
CCR Pyramid GPS Unit	Date:	Revision
CCR_280 2020 Plot		



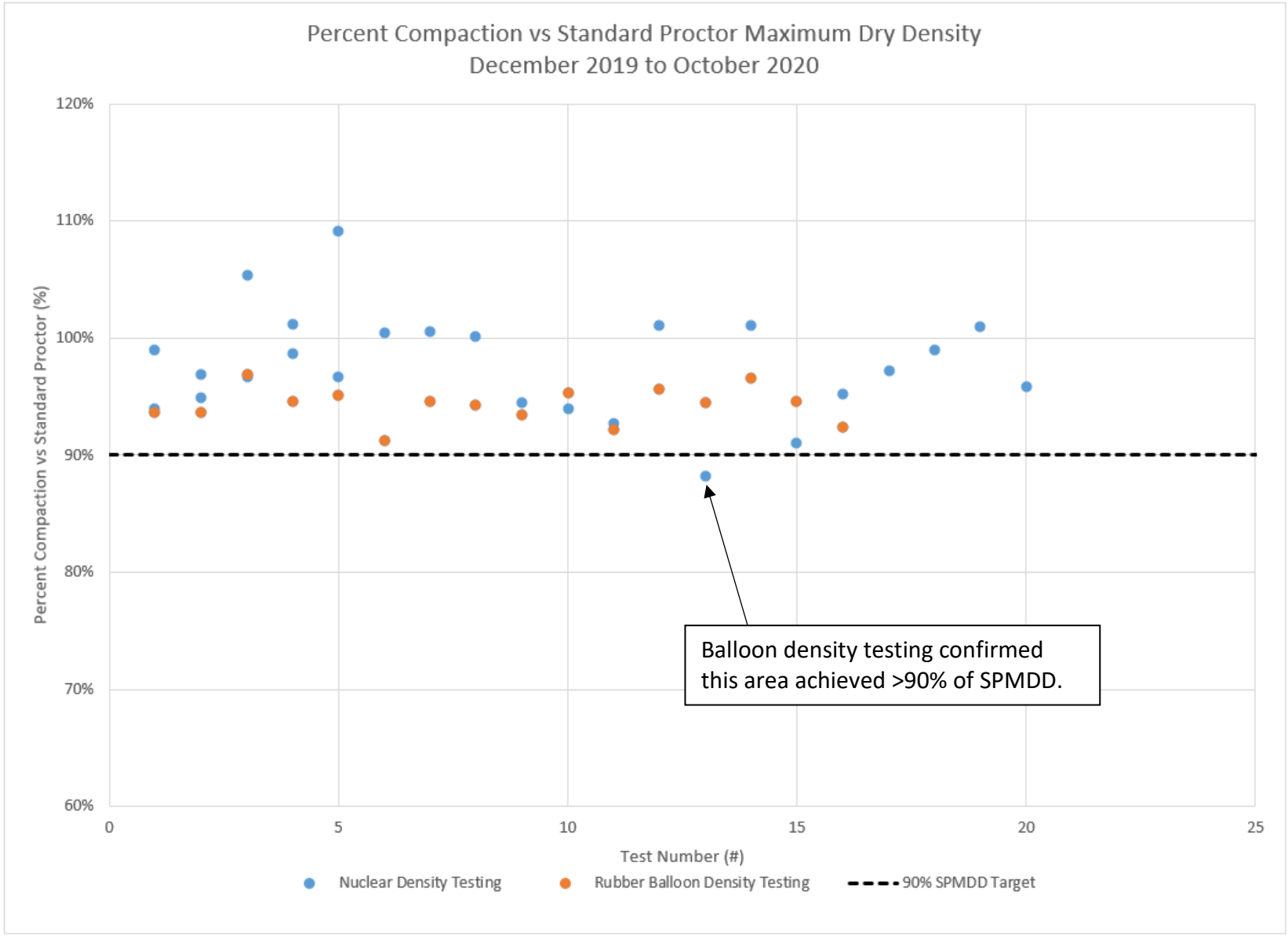
Teck Coal - Elkview Operations		
CCR Pyramid GPS Unit	Date:	Revision
CCR_279 2020 Plot		



Teck Coal - Elkview Operations		
CCR Pyramid GPS Unit	Date:	Revision
CCR_275 2020 Plot		

APPENDIX V

2020 CCR Dump Compaction Results (provided by EVO)



Note: Compaction data provided by EVO on 16th February, 2021, "*MASTER_EVO - Tailings QA Database.xlsx*".