REPORT

2022 Annual Facility Performance Report for 2 Pit and 3 Pit Tailings Storage Area

Teck Coal Limited, Fording River Operations

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Executive Summary

This report presents the 2022 annual facility performance report (AFPR) for the 2 Pit and 3 Pit Tailings Storage Area (2P-3P TSA) at the Teck Coal Limited, Fording River Operations (FRO) mine site, located near Elkford, British Columbia. The reporting period for the data review is from 1 September 2021 through 31 August 2022, unless otherwise noted.

Review of Key Hazards

Based on a screening level assessment, there is no credible catastrophic failure mode for this TSA. The only potential credible failure mode for the 2P-3P TSA is instability (both static and seismic). A stability assessment for the 2P-3P TSA confirmed stability requirements meet the design criteria (Golder 2017b). With no plans to resume deposition of dredged tailings into the 2P-3P TSA, this potential credible failure mode is considered to be minimal.

The hazards and credible failure modes for the 2P-3P TSA are to be reviewed and revised annually or as necessary, considering the mining plans to remove the tailings from the TSA as part of Swift Pit mining.

Consequence of Failure

The 2P-3P TSA consequence of failure is Low, considering the guidelines for consequence classification in Section 3.4 of the Health, Safety and Reclamation Code Guidance Document (Ministry of Energy and Mines 2016). The 2P-3P TSA design has met or exceeded the requirements for such classification.

Summary of Significant Changes

Throughout the reporting period, tailings from 3PN and waste rock in the 3 Pit Causeway were excavated and transported to co-management facilities within the existing Swift South Spoils which was completed in August 2022. The integrity of the TSA and containment of the tailings has not been affected, remains stable and is behaving as expected. FRO is preparing plans to mine out the tailings in 2P and 3PS to facilitate the continued advancement of Swift Pit mining.

Significant Changes in Instrumentation or Visual Monitoring Records

There were no significant changes in instrumentation or visual monitoring records, embankment stability, or surface water control for 2P and 3PS since the 2021 annual inspection for this facility.

Significant Changes in Stability and/or Surface Water Control

Water management in the Swift Pit to support excavation of 3PN tailings and for Swift Pit mining was carried out in 2022. The former Shandley Pit was mined out and is now the Swift Pit with mine water reporting to the pit being managed with existing site procedures.

Operation, Maintenance, and Surveillance Manual and Emergency Preparedness and Response Plan

FRO last completed an update of the operation, maintenance, and surveillance (OMS) manual for the 2P-3P TSA on 27 May 2020 (FRO 2020a). A review of this version of the OMS manual was completed by WSP as part of this AFPR.

FRO last completed an update of the emergency response plan (ERP) for the tailings facilities at FRO in May 2020 (EP.009.R1; FRO 2020b).

The current emergency preparedness plan for tailings facilities is EP.008.R2 dated 25 May 2020 (FRO 2020c).

Teck personnel at FRO carry out regular testing of the ERP, with the most recent internal tabletop exercise carried out on 15 June 2022, as part of the ERP for flood response. The ERP tabletop considered a flood condition on site where the Flood Response Trigger Action Response Plan had been triggered, which has implications for the facilities downstream, including the South Tailings Pond and North Tailings Pond.

Recommendations

There are no outstanding recommendations from the 2021 annual report and no new recommended actions from the 2022 AFPR.

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1.0 INTRODUCTION

1.1 Purpose, Scope of Work, and Method

WSP Canada Inc. (WSP) has completed this annual facility performance report (AFPR) for the 2 Pit and 3 Pit Tailings Storage Area (2P-3P TSA) at the Teck Coal Limited, Fording River Operations (FRO) site, located near Elkford, BC. The reporting period for the data review is from 1 September 2021 through 31 August 2022, unless otherwise noted.

Annual reporting for the 2P-3P TSA was started in 2014 by FRO (2015a) and has continued since 2015 by Golder Associates Ltd (now known as WSP). The 2022 AFPR was prepared based on a site visit carried out by WSP on 8 September 2022, discussions with FRO staff, and a review of data from FRO. This report presents the following and was prepared with consideration of the Teck Resources Limited Guideline for Tailings and Water Retaining Structures (Teck Resources 2019):

- a summary of the site conditions and background information for the facility
- a summary of the construction, operating, and/or maintenance activities for the reporting period
- facility consequence of failure classification and review of required documentation
- site photographs and records of facility inspection
- review of potential hazards and failure modes, design basis, and facility performance
- recommended actions

Photographs of the 2P-3P TSA from the site inspection are presented in Appendix A and a summary of the observations for the 2 Pit (2P) and 3 Pit South (3PS) embankment is included in the inspection report in Appendix B.

FRO switched coordinate systems on 25 October 2016 from FRO Mine Grid to Universal Transverse Mercator (UTM) with elevations referenced to the Elk Valley Elevation Datum. All coordinates presented in this report are in UTM with elevations referenced to the Elk Valley Elevation Datum unless otherwise noted.

The previous annual inspection for this facility was carried out in May 2021 and is reported in the 2021 annual report (Golder 2022).

This report is to be read in conjunction with the Study Limitations provided at the end of the report.

1.2 Regulatory Requirements

1.2.1 BC Health, Safety and Reclamation Code

This AFPR was prepared in accordance with Part 10.5.3 of the Health, Safety and Reclamation Code (HSRC) for Mines in British Columbia (EMLI 2022), which sets out the frequency for inspection of tailings storage facilities and associated dams. It is understood that this report will be submitted by FRO to the Chief Inspector of Mines.

The guidelines for annual reports provided in the HSRC Guidance Document (Ministry of Energy and Mines 2016, Section 4.2) were followed where applicable during the preparation of this report.

1.2.2 Permits and Licences

Specific sections and amendments to the permits concerning the 2P-3P TSA are as follows:

- Permit C-3 Amendment to permit approving work system – South Tailings Pond Tailings Dredging Project. Issued by the Ministry of Energy, Mines and Petroleum Resources. 27 April 1995.

2.0 BACKGROUND

2.1 Fording River Operations Tailings Storage Facility

The FRO site is an open pit coal mine located near Elkford, BC, which currently has two tailings pond facilities on site along the Fording River: the North Tailings Pond (NTP) and South Tailings Pond (STP). FRO currently has two permitted destinations for in-pit tailings storage: the 2P-3P TSA and the Turnbull Tailings Storage Facility. These pits, combined with their associated ponds, pumps, and pipeline infrastructure, constitute the in-pit tailings management systems that are in place at FRO. The Turnbull Tailings Storage Facility is the only active in-pit tailings facility at this time; dredging operations to the 2P-3P TSA ceased in October 2015. FRO continues to deposit tailings into the STP and since 2016 has transferred tailings from the STP to the Turnbull Tailings Storage Facility via dredging operations.

There are currently no plans to return to discharging dredged tailings to the inactive 2P-3P TSA.

2.2 Overview of Design, Construction, and Previous Operation

2.2.1 2-Pit and 3-Pit Tailings Storage Area

The three pits and surrounding spoils that form the 2P-3P TSA are part of previous mining developments located on the west side of the Fording River, in an area now known as Swift. Starting in 2020, as part of the current Swift Pit mine plan, FRO removed waste rock from the 3 Pit North (3PN) area and in 2021 began removing tailings (sub-aerial tailings) and in situ blended waste rock and tailings (sub-terrestrial tailings) from the 3PN area, which was completed in 2022. This included mining below the former Shandley Pit which is now part of the Swift Pit. The sub-aerial tailings and sub-terrestrial tailings were transported to co-management facilities within the existing Swift South Spoils. The site plan is shown in Figure 1 and the general arrangement of the pits is shown in Figure 2 and Figure 3.

Shandley Pit was located at the north end of the 2P-3P TSA and was hydraulically connected to the 2P-3P TSA prior to recent Swift Pit mining activities.

The 2P-3P TSA is composed of tailings that have been deposited into mined-out pits surrounded by waste rock spoils on the east and highwalls and in-pit spoils on the west.

The 2P-3P TSA included the tailings storage portion and an in-pit pond (Shandley Pit) within the previously mined-out area on the west side of the FRO site. The mined-out area includes 2 Pit, 3 Pit, and Shandley Pit. The 2P-3P TSA currently includes a tailings storage portion around 2 Pit and 3 Pit South.

Prior to about 1995, mining of the north–south striking coal seams in the 2 Pit and 3 Pit areas resulted in a bedrock highwall on the west side and waste rock spoils around the mined-out pits on the east side. An access road constructed of waste rock spoil, the 3 Pit causeway, was advanced through 3 Pit and separated the area into 3PS and 3PN. Tailings and water flowed through the voids of the waste rock in the 3 Pit causeway from 3PS to 3PN. Mining of pits higher in elevation above the 2 Pit, 3 Pit, and Shandley Pit areas resulted in some waste rock spoils being placed over the west highwall of these pits. As part of Swift Phase 1 mining, tailings within 3PN and part of the 3 Pit causeway adjacent to 3PN were excavated. All tailings have since been removed from 3PN as part of Swift Phase 1 mining activities.

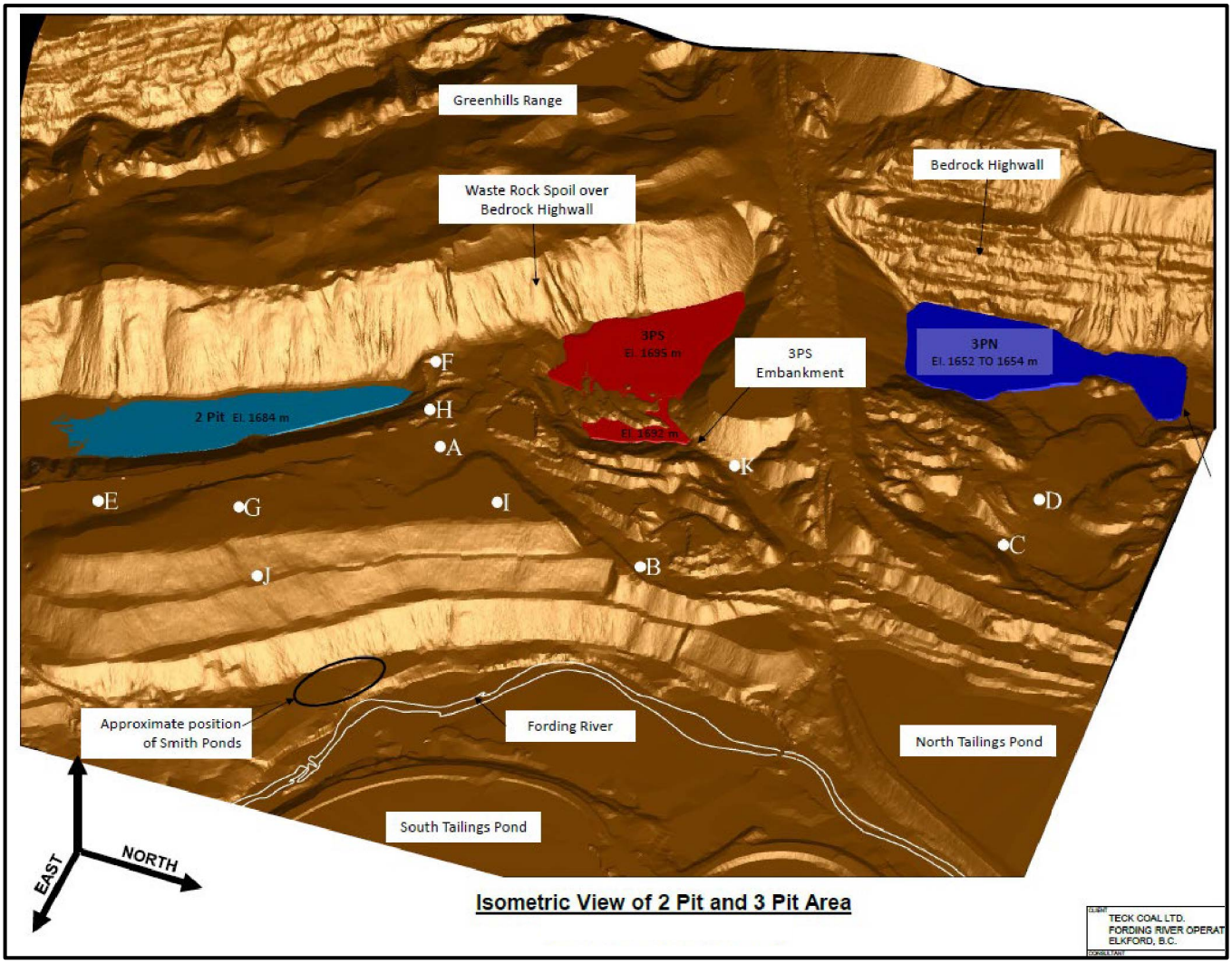
Dredged tailings were deposited into either 2 Pit or 3PS seasonally over a number of years between 1995 and 2015. During active dredging discharge, the excess dredge tailings slurry water flowed south to north from the discharge location and reported to Shandley Pit. In 2005, dredging to 2 Pit was discontinued due to tailings migration from 2 Pit to the Smith Ponds. Dredging discharge continued to 3PS until 2015. The tailings deposit in 3PN was due to tailings migration from dredging discharge to 3PS, as planned.

Tailings discharged into the 2 Pit and 3 Pit areas have filled the remaining open space of 2 Pit and 3 Pit, as well as voids in the waste rock spoils both within the pits and to the east of the 2 Pit and 3 Pit areas. The lower portions of the tailings are contained within the pits, while the upper portions of the tailings are contained on the west by the highwall and on the east, south, and north by waste rock within the waste rock spoils. While the majority of the tailings are impounded by the waste rock spoils, a portion of the tailings has migrated conically within the voids of the waste rock (also referred to as sub-terrestrial tailings). Within the waste rock spoils, the in situ blended waste rock and tailings are less hydraulically conductive than the waste rock with open void space.

The 2 Pit and 3 Pit portion of the facility can be described in two parts, based on elevation and confinement of tailings:

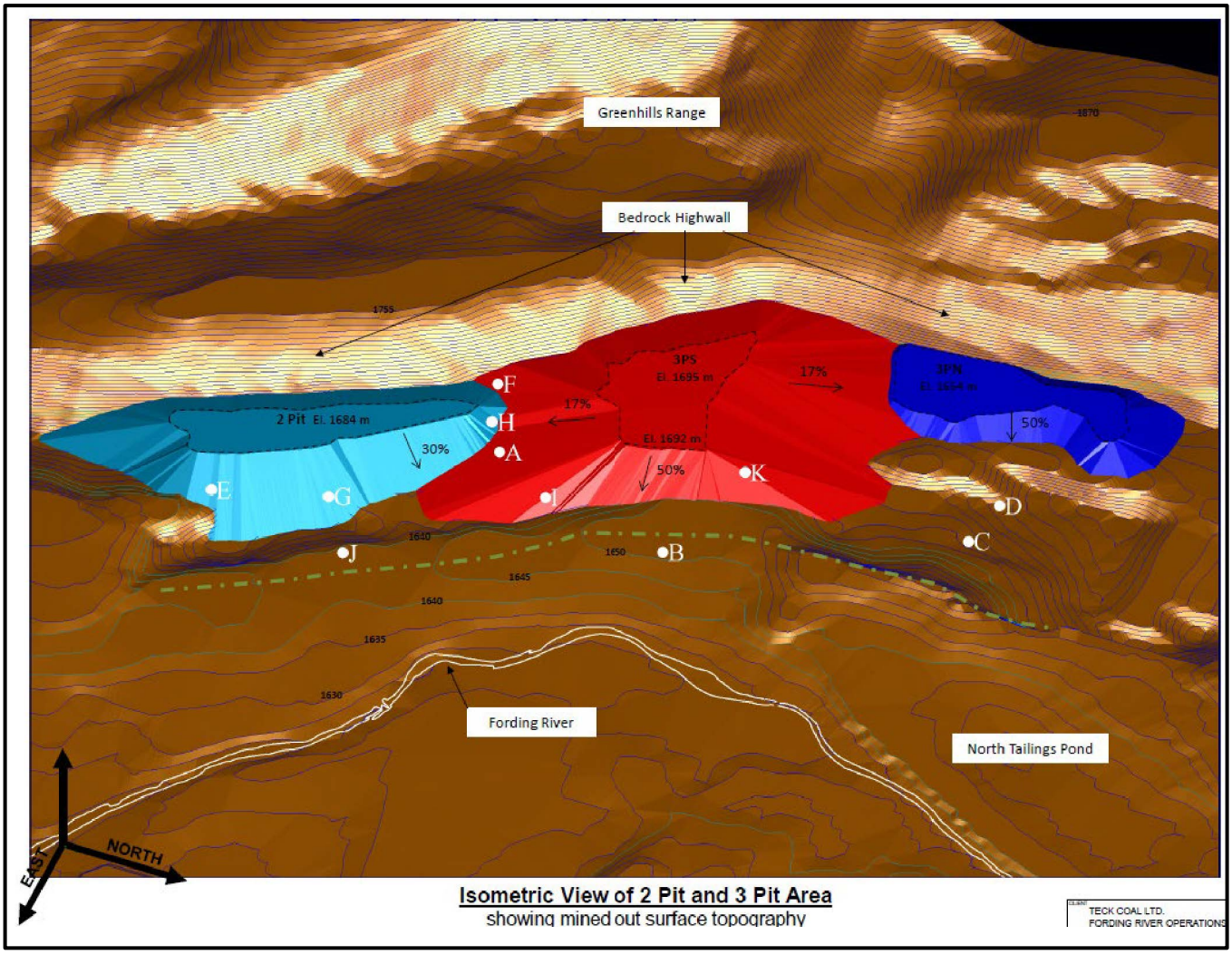
- The lower portion is an in-pit tailings facility. The walls of the mined-out pits act as in situ pillars that contain tailings, waste rock, in situ blended waste rock and tailings, and water within the tailings void spaces. Tailings within the lower portion are assumed to be saturated. The lower portion is located below the low point elevation in the bedrock ridge to the east of the facility (approximate elev. 1,645 m; low point near 2 Pit).
- The upper portion of the facility is composed of stacked tailings (referred to as “dry stack” in the HSRC). Tailings within the upper portion are expected to be unsaturated; however, recent sampling of these materials has indicated zones of tailings with high moisture content (Golder 2020a,b). The spread of the stacked tailings to the west is prevented by the highwall of the mined-out pits and limited to the east, north, and south by waste rock spoils, where the spoils along the east side act as retention embankments. During active dredging, tailings can migrate through the waste rock voids, but the spread of the tailings is slowed by the conductivity of the waste rock, resulting in a truncated cone deposit of tailings within the waste rock voids (i.e., in situ blended waste rock and tailings). When active dredging deposition is not occurring, the tailings migration through the voids stops.

Illustrations 1 and 2 show the tailings deposition with and without the waste rock to demonstrate the truncated cone deposition and interaction with the mined-out surface. Note that the tailings elevations shown reflect the understood conditions in 2014, prior to additional dredging to 3PS in 2015 and removal of tailings and waste rock from 3PN which began in 2021.



Note: Dated 2014; elevations are in FRO (Fording River Operations) Mine Grid.

Illustration 1: Isometric View of 2 Pit and 3 Pit Area Showing Tailings (in light blue, red, and blue), Topography (in brown), and Monitoring Wells A to K (not monitored since 2015 due to cease in 2P-3P dredging operations), Prior to Swift Phase 1 Mining Activities



Note: Dated 2014; elevations are in FRO Mine Grid. Approximate bedrock ridge crest is shown in green dashed line. The waste rock dumps shown in Illustration 1 have been removed from this illustration to show the mined-out surface.

Illustration 2: Isometric View of 2 Pit and 3 Pit Showing Tailings (in light blue, red, and blue) and Monitoring Wells A to K (not monitored since 2015) over Mined-Out Surface, Prior to Swift Phase 1 Mining Activities

2.2.1.1 Description of Water Flow

During active dredging, subsurface water flow through the 2P-3P TSA is understood to be from south to north but is expected to be controlled and altered by the in situ blended waste rock and tailings surfaces within the waste rock.

When active dredging is not occurring, water drains through the tailings deposit down to an elevation controlled by the local groundwater table. Surface water is observed to rapidly infiltrate both the waste rock and tailings surface. Surface water is not observed to collect in either 2 Pit or 3 Pit under non-dredging conditions.

Shandley Pit has the lowest mined-out elevation in the TSA and formerly contained an in-pit pond. As part of dewatering for mining of the Swift project, FRO pumps water from the Shandley Pit pond to the Liverpool Water Management Facility and to the STP as makeup water for the plant when needed. Lowering the Shandley Pit pond elevation will have a drawdown effect on the groundwater table in the area. Swift Pit mining is currently lower than Shandley Pit, with groundwater inflows managed as part of Swift Pit mining operations.

2.2.1.2 Historical Operations

The history of dredging from the STP and NTP to the 2P-3P TSA is summarized in Table 1.

Table 1: History of Dredging to 2 Pit and 3 Pit

Year	Dry Metric Tonnes	From	To	Reference
1995	226,484	STP	2 Pit	FCL 1995
1996	567,241	STP	2 Pit	FCL 1997
1997	725,135	STP	2 Pit	FCL 1998
1998	964,994	STP	2 Pit	FCL 1999
1999	0	n/a	n/a	n/a
2000	691,552	STP	3PS	FCL 2001
2001	893,119	NTP	3PS	FCL 2002
2002	827,068	NTP	2 Pit	FCL 2003
2003	994,748	STP	2 Pit	Muller 2011, pers. comm.
2004	81,630	STP	2 Pit	FCL 2006a
2005	0	n/a	n/a	FCL 2006b
2006	0	n/a	n/a	n/a
2007	930,082	STP	3PS	FCL 2008
2008	934,405	STP	3PS	Muller 2011, pers. comm.
2009	0	n/a	n/a	n/a
2010	0	n/a	n/a	n/a
2011	0	n/a	n/a	n/a
2012	0	n/a	n/a	n/a
2013	0	n/a	n/a	n/a
2014	542,500	STP	3PS	FRO 2015a
2015	451,302	STP	3PS	FRO 2015b
TOTAL Dry Metric Tonnes	**8,830,260**			

STP = South Tailings Pond; NTP = North Tailings Pond; n/a = not applicable; 3PS = 3 Pit South.

2.2.1.3 Pits and Waste Rock Spoils

The development of 2 Pit, 3 Pit, and Shandley Pit is a result of mining the north–south striking coal seams within this area in the 1980s. At the time, the pits were referred to as the Greenhills K seam pit or the Greenhills K-Pit (Golder 1981).

The pits were excavated down into bedrock, which resulted in a bedrock highwall on the west side and a bedrock ridge on the east side separating the mined-out pits from the Fording River. The approximate crest of the bedrock ridge from the mined-out surface is shown in Figure 2 and Figure 3. Waste rock spoils are located within and along the east side of the pits and cover some areas of the highwall. The spoils along the east side provide partial containment of the tailings above the bedrock ridge, although tailings migration into the void space of the waste rock occurred. The waste rock spoils were not designed and constructed for the containment of tailings.
The footwalls of the pits are located beneath the waste rock spoils and provide containment for a large portion of the in situ blended waste rock and tailings within the pit.

The mined-out surface was surveyed and is assumed to represent the approximate bedrock surface. In 2008, FRO provided the mined-out surface in the file “Mout contours GH.dxf,” which is shown in Figure 4.

The 3 Pit causeway is constructed of waste rock spoil; water and tailings were known to flow through the structure from 3PS to 3PN. This was acceptable and consistent with expectations for the facility. Excavation of the 3 Pit Causeway began in 2020 as part of Swift Phase 1 mining activities. FRO completed a geotechnical stability assessment of the Causeway to confirm geotechnical stability throughout and at the end of excavation (FRO 2021). To support this stability analysis, three reverse circulation drillholes (PZF21-01, PZF21-09, and PZF21-10) were completed on the 3 Pit Causeway with two sets of nested VW piezometers installed in drillholes PZF21-01 and PZF21-10. The piezometer at PZF21-09 was damaged during installation and rendered inoperable. The 2021 borehole locations are shown in Figure 3. The FRO geotechnical team has a monitoring plan in place for 3 Pit Causeway to support Swift Pit mining activities in this area.

2.2.1.4 3 Pit North Embankment

The 3PN embankment was removed as part of the 2021 Swift Pit mining and 3PN tailings removal. As a result of mining activities within the Swift Pit, the former 3PN embankment is no longer a part of this inspection.
The 3PN Embankment was an internal filtering berm (Golder 2008, 2014), not a retention embankment.
It separated 3PN on its upstream side from Shandley Pit on its downstream side.

2.2.1.5 3 Pit South Embankment

The 3PS Embankment was constructed in 2008 to a height of approximately 4 m (elev. 1,695.7 m) and a length of about 30 m across a low point between two areas of waste rock spoils located on the northeast corner of 3PS. The 2008 construction was completed by FRO personnel (FRO 2014a).

The foundation under the 3PS Embankment consists of in situ blended waste rock and tailings overlying bedrock (Golder 2017b). Based on the 3PS mined-out surface in Figure 4, the top of bedrock is at elev. 1,610 to 1,625 m in the area of the embankment.

Seepage through the existing waste rock spoils around and below the 3PS Embankment as a result of the discharge of dredged tailings to 3PS was expected to continue to occur due to the expected high hydraulic conductivity of the adjacent waste spoils. Material for the construction of the 3PS Embankment was therefore not required to meet any low permeability requirements (Golder 2008). Potential seepage from the 3PS Embankment is directed to the NTP.

The 3PS Embankment was last raised in 2015 (Golder 2015a,b) to approximately crest elev. 1,697.5 m so that the recommended minimum 0.5 m freeboard would be maintained between the top of the 3PS Embankment and the tailings elevation at the upstream toe of the 3PS Embankment (Golder 2014).

Table 2 summarizes the design geometry for the 3PS Embankment. A section of the 3PS Embankment is shown in Figure 5.

Table 2: 3 Pit South Embankment Geometry

Item	Design Value
Upstream slope	1.5H:1V
Crest width	6 m
Maximum height	5.8 m
Crest elevation (minimum)	1,697.25 m
Downstream slope	1.5H:1V
Length	~30 m

Note: Elevations reported in Elk Valley Elevation Datum.

FRO = Fording River Operations.

2.2.1.6 Historical Instrumentation

The historical instrumentation in the TSA was focused on tracking groundwater elevations and tailings migration through the waste rock during active discharge of dredged tailings into the 2P-3P TSA. The last monitoring well readings were taken in October 2015. No new monitoring well data have been recorded since there has been no active dredging to the 2P-3P TSA since October 2015.

Ten monitoring wells, marked A through J, were installed within the waste rock spoils to the east of the 2P-3P TSA between November 2001 and May 2004, and one additional monitoring well (K) was installed in 2014. Most of the monitoring wells extend into the underlying bedrock. Monitoring well locations are shown in Figure 3.

It was observed during the 2019 site inspection that monitoring well K was buried by materials stockpiled by FRO downstream of the 3PS Embankment. This instrument does not require replacement as no dredging is occurring or planned to occur. The remaining 10 monitoring wells should be protected so they will be available if dredging resumes. However, FRO does not report any proposed future dredging to the 2P-3P TSA.

2.3 Site Seismicity

The site is located in an area of relatively low seismicity in BC. Golder developed a site-specific seismic hazard model for the FRO site based on historical seismicity and a review of geological and paleoseismological features (Golder 2016). The site specific model included four area sources from the 5th Generation Seismic Hazard Model and nine faults and fault segments mapped in northwest Montana. The 5th Generation Seismic Hazard Model was developed by Natural Resources Canada for use in the 2015 National Building Code of Canada.

Probabilistic analysis results from the site-specific hazard model are listed in Table 3. All site-specific peak ground acceleration values were evaluated for a soil Site Class C as described in the 2010 National Building Code of Canada (NRCC 2010) as this represents WSP's understanding of the general foundation conditions at the embankment locations.

Table 3: Fording River Operations Site Seismic Hazard Values

Exceedance Probability	Return Period (years)	Peak Ground Acceleration (g)
40% in 50 years	100	0.020
10% in 50 years	475	0.063
5% in 50 years	1,000	0.097
2% in 50 years	2,475	0.158
1% in 50 years	5,000	0.222
½% in 50 years	10,000	0.300

Note(s): Source Golder 2016. For firm ground site class "C," very dense soil and soft rock foundation, as defined by 2010 National Building Code of Canada (NRCC 2010). Return periods are not exact representations of annual exceedance probabilities; rounding per Canadian Dam Association (CDA 2013, 2019) is shown. FRO site coordinates: 50.202°N, -114.876°W.

HSRC Section 10.1.8 (EMLI 2022) recommends a seismic event with a return period of 1 in 2,475 years as the minimum seismic design criteria.

2.4 Key Operational Components

Key operational components of the 2P-3P TSA are:

- visual inspections
- geotechnical instrumentation within 2P, 3PS, and the 3 Pit Causeway

Visual inspections are carried out monthly by FRO tailings personnel, and observations are recorded and communicated to the EoR team.

Geotechnical instrumentation is routinely monitored and assessed using the NavStar GeoExplorer software. Instruments are transmitted remotely to the software in real time. FRO tailings and geotechnical staff receive email alerts when thresholds are triggered.

2.5 Key Personnel

The Engineer of Record (EoR) for the 2P-3P TSA is John Cunning, P.Eng., an employee of WSP Canada Inc.

The Qualified Person (QP) for the 2P-3P TSA is James Campbell, P.Eng., Senior Tailings Engineer, who is an employee of Teck. Mr. Campbell became the QP for the 2P-3P TSA on 4 May 2021.

The EoR and QP roles are carried out in accordance with the expectations of the Global Industry Standard on Tailings Management (GISTM; GTR 2020).

2.6 Quantifiable Performance Objectives

Quantifiable performance objectives (QPOs) have been established with consideration of the relative risk of the credible failure modes for the facility. Monthly visual inspections are considered adequate to monitor facility conditions, including perimeter slopes and monitoring for any ponded water on tailings surfaces. This is based on the drained condition of the tailings surface and on the flood routing and flood capacity assessment presented in Golder (2017a). FRO has established QPOs for the piezometers installed in the 3 Pit Causeway, which are monitored as part of Swift Pit mining activities as summarized in Table 4.

Table 4: 3 Pit Causeway Vibrating Wire Piezometer Quantifiable Performance Objective Warning Triggers

Vibrating Wire Piezometer	Warning for Swift Pit Mining at Elev. 1,615	Warning for Swift Pit Mining at Elev. 1,600
PZF21-01	1,628.5	1,628.5
PZF21-10	1,628.5	1,620

For the 2P-3P TSA, QPOs are required during active dredging to monitor tailings migration and deposition. The 3 Pit Causeway QPOs were established by FRO (2021) and were only required to be monitored during mine out of tailings from 3PN which was completed in August 2022.

3.0 OPERATIONS AND CONSTRUCTION DURING THE 2021/2022 REPORTING PERIOD

3.1 Operations

3.1.1 Mining Above 2 Pit and 3 Pit

Beginning in January 2022, FRO began Swift Phase 2 mining activities on the ridge above 2 Pit and 3 Pit South where there is potential for waste rock material to run out into 2 Pit and 3 Pit South resulting in the displacement of tailings and the development of an unplanned waste rock pad supported on the tailings. Through discussions with the EoR and Teck, recommendations were developed to ensure safe mining operations including:

- Define TSF boundaries as waste rock or bedrock subaerial contact.
- Require EoR approval for access beyond TSF boundaries above the 1720 bench.
- Require following the dredged tailings relocation management plan for access beyond TSF boundaries below the 1720 bench.
- Limit the amount waste material knocked down in 2P and 3PS during mining activities.
- If a tailings displacement wave (from waste rock running out into 3PS) reaches the displacement limit within 3PS, the FRO tailings engineers should be notified and a waste rock buttress across upstream of the 3PS embankment should be constructed.

The 2P-3P TSA was inspected by qualified FRO tailings personnel once per month during the reporting period. The EoR has reviewed the FRO tailings personnel inspection reports as part of this annual review.

3.1.2 3 Pit Causeway Stability

The FRO geotechnical team has a monitoring plan in place for the 3 Pit Causeway, which supported Swift Pit mining activities below the 3 Pit Causeway. As communicated to WSP by Teck, the 3 Pit Causeway is visually inspected weekly and is included in the tri-annual dormant spoil inspection for the Lake and Swift spoils, which are completed by FRO geotechnical personnel. As part of the monitoring plan, FRO established QPOs for vibrating wire piezometers PZF21-01 and PZF21-10 for mining at the elev. 1,615 m and 1,600 m benches within 3PN as summarized in Section 2.6. Phreatic surfaces were maintained below the QPO elevations throughout the reporting period and no instabilities were noted for the 3 Pit Causeway by FRO geotechnical personnel during the weekly or tri-annual inspections.

3.2 Maintenance

No dredged tailings were deposited in the 2P-3P TSA during the reporting period. There was no required maintenance at the 2P-3P TSA over the reporting period.

3.3 Construction

3.3.1 Excavation of 3 Pit North Tailings

Beginning in April 2021, FRO began mining excavations to remove tailings and in situ blended waste rock and tailings from 3PN. On 24 August 2022, Teck confirmed with WSP that all the tailings and in situ blended waste rock and tailings had been removed from 3PN. Excavated tailings and in situ blended waste rock and tailings were transported to co-management facilities within the existing Swift South Spoils (Golder 2021).

4.0 REVIEW OF CLIMATE DATA AND WATER BALANCE

4.1 Climatic Review

Three local climate monitoring stations exist at FRO: waste water treatment plant, A Spoil, and Brownie Spoil. Records were available from the waste treatment plant and Brownie Spoil weather stations during the reporting period of 1 September 2021 to 31 August 2022. Only limited precipitation data were available for the A Spoil station; it has therefore been excluded from the climate data review.

The Fording River Cominco station is the closest regional Environment and Climate Change Canada station to the FRO site; however, the station has not published precipitation data since 2017. The waste water treatment plant station has been used as the main precipitation station for the Fording River Cominco infilling gap process since December 2013 and now makes up the majority of the dataset. As a result, a new combined dataset, hereafter referred to as the Fording River (infilled) dataset, has been used for the climate review. The waste water treatment plant station precipitation data were used over the entire the reporting period.

The total precipitation recorded at the Fording River (infilled) and Brownie Spoil stations over the reporting period is shown in Table 5 with their monthly total precipitation presented in Chart 1. For comparison purposes, the long-term (1970 to 2021) average monthly precipitation at FRO (from the Fording River Cominco infilled dataset) is also presented in Chart 1. The long-term (1970 to 2021) average annual precipitation at the mine site is estimated to be 631 mm.

Note that data presented in Table 5 and Chart 1 for the Fording River (infilled) and Brownie Spoil stations are raw data; no adjustments for station elevation or undercatch were made.

Table 5: Total Precipitation from 1 September 2021 to 31 August 2022

Weather Station	Total Precipitation (mm)
Fording River (infilled)	669
Brownie Spoil	617

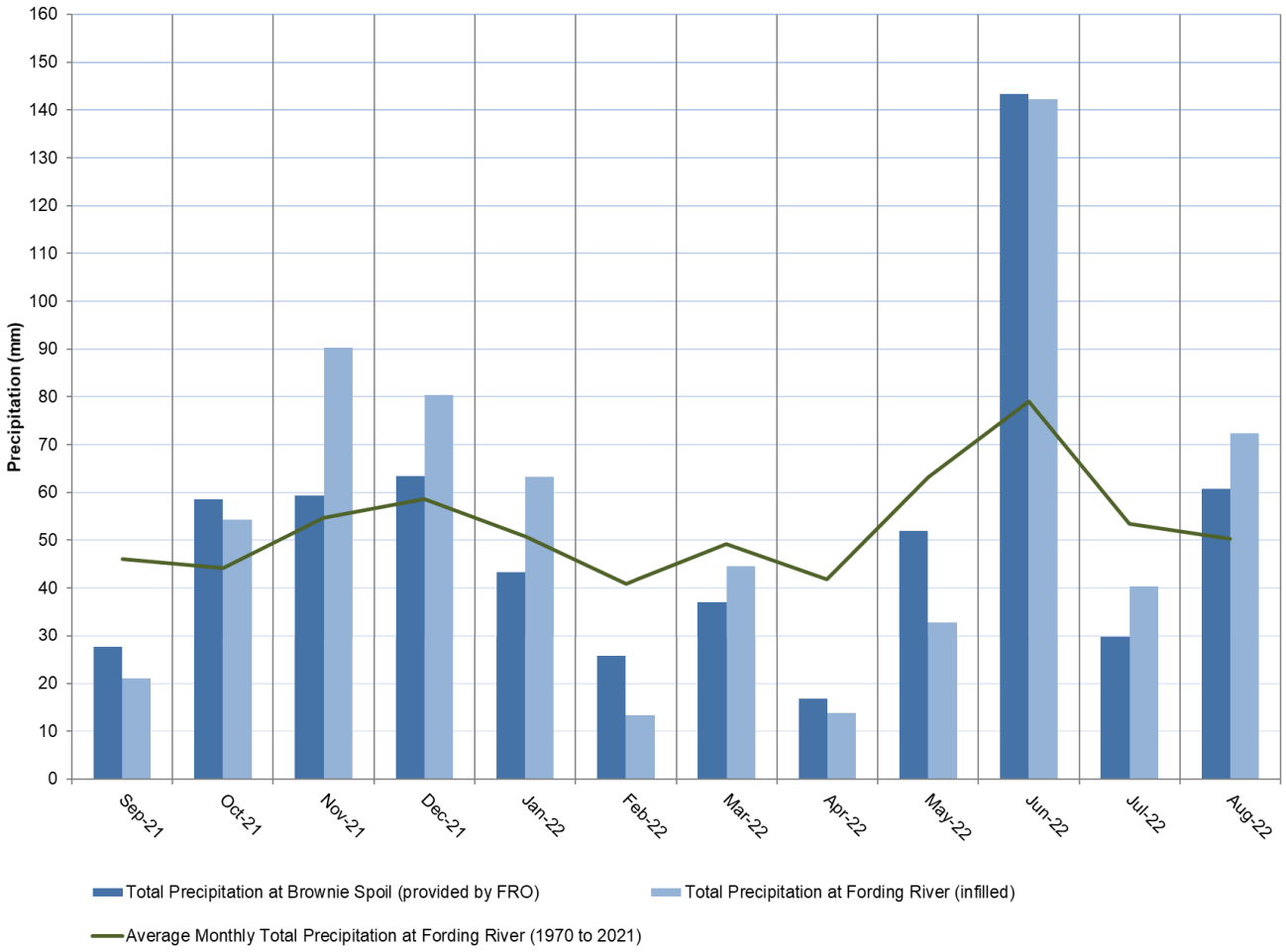


Chart 1: Monthly Precipitation Data from 1 September 2021 to 31 August 2022

The precipitation data in Table 5 indicate the annual precipitation at FRO was approximately average, with the Fording River (infilled) dataset from 1 September 2021 to 31 August 2022 being a little higher than the long-term annual average of 631 mm and the Brownie Spoil weather station dataset being slightly lower than the long-term annual average. A similar observation could be made from Chart 1.

Freshet typically starts in April to May at FRO with higher runoff flow events expected during those months as a result of combined rainfall and snowmelt.

4.2 Water Balance

The water balance for the 2P-3P TSA from 1 September 2021 to 31 August 2022 is summarized in Table 6 using climate inputs from the Fording River (infilled) dataset.

Table 6: 2 Pit and 3 Pit South Tailings Storage Area Water Balance – 1 September 2021 to 31 August 2022

IN	Annual Volume (m3)	OUT	Annual Volume (m3)	Total Inventory Change (m3)
Surface water runoff and precipitation	485,825	Evaporation and seepage loss	485,825	
Sum	**485,825**	**Sum**	**485,825**	**0**

There was no dredging to the 2P-3P TSA during the reporting period. The water balance assumes inflows from surface runoff and direct precipitation are equal to the outflows from evaporation and seepage losses, as the facility does not store any free water. This is consistent with the observed dry surface conditions during each monthly inspection through the reporting period. The water balance for the 2P-3P TSA does not raise any concerns and appears to reflect the observed conditions.

No facility performance issues were noted associated with the precipitation observed on site or considering the water balance during the reporting period.

4.3 Water Quality

Water quality monitoring is not a requirement for the 2P-3P TSA.

5.0 2 PIT AND 3 PIT TAILINGS STORAGE AREA SAFETY ASSESSMENT

This section presents the facility safety assessment for the 2P-3P TSA based on the observations and data review for each of the failure modes that are most relevant to this facility.

5.1 Site Visit

A site inspection was carried out on 8 September 2022 by John Cunning, P.Eng., and Colin McGrath, P.Eng., of WSP Mr. Cunning and Mr. McGrath were accompanied by FRO staff Spencer Costigan, EIT, tailings engineer. The temperature during the visit was approximately 10°C and the weather was overcast.

Appendix A presents a summary of photographs of the 2P-3P TSA from the site inspection. The location, direction, and number for each photograph are noted in Figure 2.

The following are items of note from the site visit:

- All tailings from 3PN had been removed as part of Swift Phase 1 mining.
- FRO has begun Swift Phase 2 mining activities, which includes mining above 2P and 3PS; however, no activities were observed during the site visit.

A summary of the observations from the site visit is included in the inspection report in Appendix B.

There was no dredging to the 2P-3P TSA over the reporting period. No data were collected from the monitoring wells, which are only monitored during dredging, as discussed in Section 2.6.

5.2 Review of Background Information

FRO provided the following information for this inspection:

- FRO site 2021 LiDAR topographic data and orthophoto
- records of routine visual inspections by FRO tailings engineers
- site climate data from 1 September 2021 to 31 August 2022
- vibrating wire piezometer data

5.3 Consequence of Failure

Teck has advised that they are aligned with the Global Industry Standard on Tailings Management (GISTM; GTR 2020), which, in turn, is consistent with their safety culture. Teck has further advised that they will adopt extreme consequence case design loading for any facility with a credible catastrophic flow-type failure mode. For facilities without a credible catastrophic flow-type failure mode, Teck will reduce credible risks based on the As Low As Reasonably Practicable (ALARP) principle. Adopting this approach meets or exceeds regulatory requirements, aligns with Teck's goal to eliminate any risk for loss of life, and is consistent with the GISTM (GTR 2020).

Considering the guidelines for consequence classification in Section 3.4 of the HSRC Guidance Document (Ministry of Energy and Mines 2016), the 2P-3P TSA consequence of failure is Low and the 2P-3P TSA has met or exceeded the requirements for such classification.

5.4 Review of Operational Documents

5.4.1 Operation, Maintenance, and Surveillance Manual

The OMS manual for the 2P-3P TSA is Version 2020-04, dated 27 May 2020 (FRO 2020a). A review of this version of the OMS manual was completed by WSP as part of this AFPR.

5.4.2 Emergency Preparedness and Response Plans

FRO last completed an update to the emergency response plan (ERP) for the tailings facilities at FRO in May 2020 (EP.009.R1; FRO 2020b).

The current emergency preparedness plan for tailings facilities is dated 25 May 2020 (EP.008.R2; FRO 2020c).

Teck personnel at FRO carry out regular testing of the ERP, with the most recent internal tabletop exercise carried out on 15 June 2022, as part of the ERP for flood response. The ERP tabletop considered a flood condition on site where the Flood Response Trigger Action Response Plan had been triggered, which has implications for the facilities downstream, including the South Tailings Pond and North Tailings Pond. The ERP should continue to be tested every year.

5.4.3 Dam Safety Review

A dam safety review (DSR), as defined in Section 10.5.4 of the HSRC (EMLI 2022), was completed in 2019 by a third-party consultant (SNC-Lavalin 2020). The DSR did not identify any issues associated with the 2P-3P TSA, which aligns with WSP's evaluations included in this version of the AFPR.

Assuming the facility remains a regulated tailings facility, the next DSR should be initiated in 2024 based on the current regulatory requirements.

5.5 Assessment of 2 Pit and 3 Pit Tailings Storage Area Safety Relative to Failure Modes and Facility Performance

Potential hazards and failure modes were reviewed as part of this AFPR and are summarized in Table 7. The performance of the 2P-3P TSA relative to each failure mode is discussed in the following sections.

Table 7: Assessment of Facility Safety Relative to Potential Failure Modes

Potential Failure Mode	Observations/Data	Comments
Internal erosion (suffusion and piping)	Impounding layer that defines the lower (in-pit) portion of the TSA is bedrock, and facility does not store water.	This failure mode is non-credible.
Overtopping	No stored water observed.	The inflow design flood can be contained within the TSA (Golder 2017a). This failure mode is non-credible.
Instability	No evidence of 3PS embankment or 3 Pit causeway instability.	A stability assessment was completed considering the 3PS embankment and adjacent waste rock spoils of the 2P-3P TSA (Golder 2017b) indicating stability meets design criteria. A stability assessment was completed for the 3 Pit Causeway (FRO 2021) as part of removal of tailings from 3PN and tailings impounded in 3PS to the south by the 3 Pit Causeway which met the minimum design criteria.

TSA = tailings storage area; 3PS = 3 Pit South.

The hazards and credible failure modes for the TSA are to be reviewed and revised as necessary, considering the mining plans to remove the tailings and tailings mixed with waste rock from the TSA as part of Swift Pit mining.

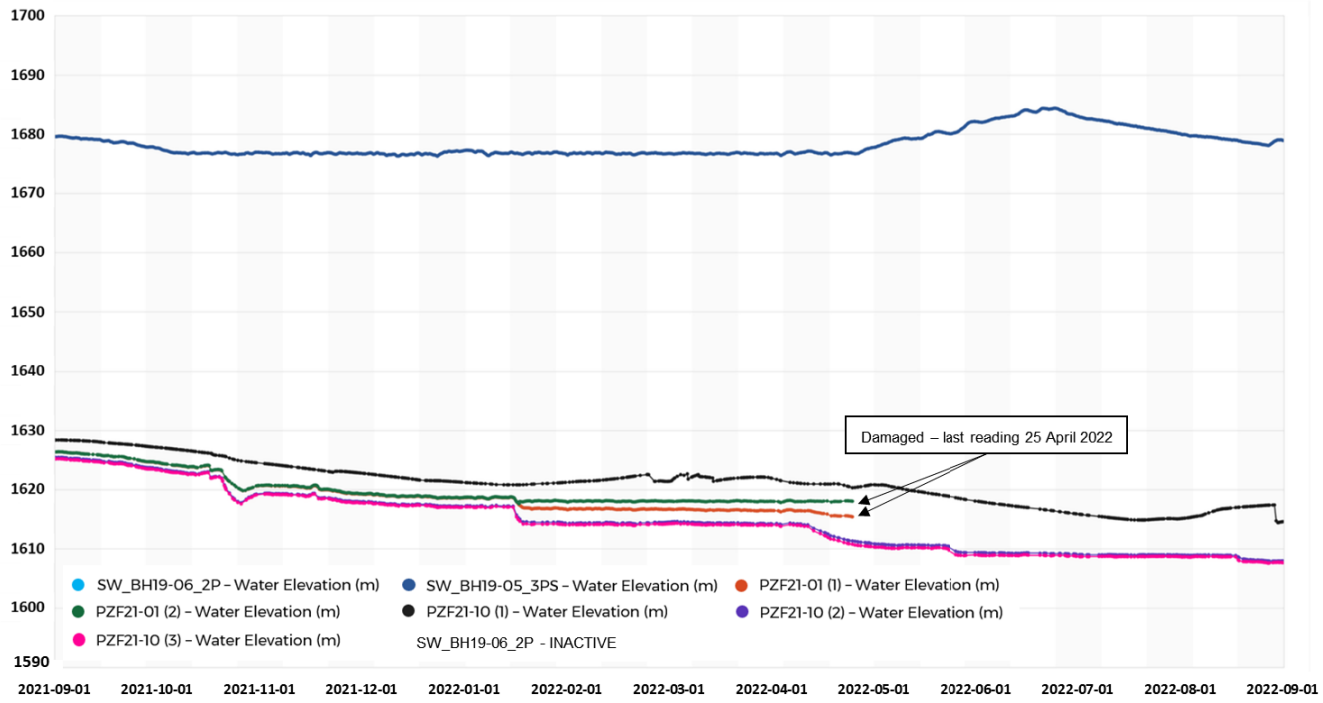
5.5.1 Internal Erosion (Suffusion and Piping)/Tailings Migration

Internal instability of an embankment can be caused by materials migrating out of the embankment, leaving voids. This generally happens with materials that do not have filter compatibility; that is, the fines fraction of one material can migrate into or through the voids of the adjacent material under a sufficient hydraulic gradient. Piping is induced by regressive erosion of particles toward an outside environment until a continuous pipe is formed. Suffusion is the migration of soil particles through the soil matrix.

5.5.1.1 Design Basis and Existing Controls

The impounding layer that defines the lower (in-pit) portion of the 2P-3P TSA is bedrock, and failure by internal erosion or tailings migration is not a credible failure mode.

The upper (stacked tailings) portion of the 2P-3P TSA was not intended to contain surface water or achieve filter compatibility. Data collected during the 2019 investigation (Golder 2020b) indicated drained conditions (no local groundwater table) in 2P and 3PS. Piezometric data from the vibrating wire piezometer installed during the 2019 investigation in 3PS have indicated a local groundwater table based on readings starting in March 2021. This may be a result of surface runoff and groundwater from the area. FRO should continue to monitor data collected from VW19-05 (shown as SW_BH19-05_3PS) in 3PS.



Note: Elevations reported in Elk Valley Elevation Datum.

Chart 2: 3PS and 3 Pit Causeway Vibrating Wire Piezometer Groundwater Elevations from 1 September 2021 to 31 August 2022

Migration of tailings into the waste rock is known to occur during active dredging. This is not a stability concern, as the tailings fill the voids in the waste rock and increase grain-to-grain contact in the material. During dredging, migration of tailings to unintended receptors is a failure mode due to the environmental impact.

Tailings migration during dredging was monitored in wells A through K. The wells were used to monitor groundwater elevations and, in some wells, the rise of tailings solids in waste spoils during dredging discharge. Critical tailings elevations are included in the current 2P-3P OMS manual (FRO 2020a) as per WSP recommendations (Golder 2008, 2014).

5.5.1.2 Observed Performance

In 2004, while tailings were being deposited to 2 Pit, tailings began reporting to the Smith Ponds, which are located above the Fording River (FCL 2006a). In response, dredging to 2 Pit was suspended indefinitely.

Migration of tailings to unintended receptors while not actively discharging dredged tailings to the TSA is not a concern; therefore, well monitoring was not required during the reporting period. Comparison of well monitoring against QPOs was not required for 2022. Well monitoring last occurred in October 2015 during dredging to the 2P-3P TSA.

Surface water reporting to the 2P-3P TSA is observed to rapidly infiltrate both the waste rock and tailings surface, and the migration of tailings as a result of runoff or significant flood event is considered a low risk.

During the 8 September 2022 inspection, dry tailings were noted (Photograph 3 in Appendix A) in the 3PS observation pit, which was dug in 2016. The 3PS water elevation was noted as having no water or being dry on the FRO monthly inspection sheets throughout the reporting period.

No zones of subsidence or sinkholes were identified or observed during the reporting period that would indicate voids due to either suffusion or piping.

5.5.2 Overtopping

5.5.2.1 Design Basis and Existing Controls

A technical memorandum evaluating disposal of tailings into 3PS (Golder 2014) recommended that 0.5 m of freeboard for the tailings elevation be maintained at the 3PS Embankment to allow for potential settlement of the embankment. This was used during active dredging operations.

An assessment of flood routing and flood storage capacity for the 2P-3P TSA was completed (Golder 2017a). The results of the assessment indicated that the facility can manage an inflow design flood (IDF) event for a High consequence tailings facility considering a 72-hour duration IDF equal to 1/3 between the 1-in-1,000-year event and the probable maximum flood event. For the 2 Pit and 3 Pit South areas, the net inflow from the IDF would be either contained in the pit or report as seepage into the surrounding waste rock. Therefore, overtopping is not a credible failure mode.

5.5.2.2 Observed Performance

The 2P-3P TSA is not intended to store water because it is expected that water will migrate through the subsurface north to Swift Pit or east toward the Fording River. The 3PN water level is no longer being monitored due to removal of tailings and in situ blended waste rock and tailings as per active mining operations from the Swift Pit. Overtopping was not a concern during the reporting period and the facility managed inflows as intended.

Monthly visual inspections of the 2P-3P TSA confirmed a dry tailings surface at 2 Pit and 3PS, and the minimum 0.5 m of freeboard at the 3PS Embankment was maintained. These visual inspections are considered adequate to monitor for overtopping, based on the typical drained condition of the tailings surface and on the flood routing and flood capacity assessment (Golder 2017a). More frequent monitoring and quantitative measurements of water would be necessary if ponding is noted on the tailings surface.

5.5.3 Instability

5.5.3.1 Design Basis and Existing Controls

Instability of the 3PS Embankment and the waste rock spoils, which provide partial containment of tailings throughout the 2P-3P TSA, is a credible failure mode. A stability assessment of the 2P-3P TSA to confirm the 3PS Embankment and the adjacent waste rock spoils met the design criteria was completed by Golder (2017b).

FRO completed a stability analysis of the 3 Pit Causeway to support the 3PN tailings removal project (FRO 2021). The results were reviewed with the EoR and indicated that mining the 3 Pit Causeway and adjacent 3PN tailings meet the minimum requirements with adequate management of the subsurface water conditions.

5.5.3.2 Observed Performance

No evidence of embankment or 3 Pit Causeway instability, such as excessive erosion, cracking, or deformation, was observed during the annual inspection or in the FRO inspection reports.

Regular inspections of the 3 Pit Causeway and review of piezometric conditions relative to triggers established in the analyses carried out by FRO (FRO 2021) should continue to support Swift Pit mining operations in this area and be documented for the 2P-3P TSA.

6.0 SUMMARY AND RECOMMENTDATIONS FOR THE 2022 ANNUAL FACILITY PERFORMANCE REPORT

6.1 Summary of Activities During Reporting Period

No maintenance was required at the facility. The 2P-3P TSA was inspected once per month by qualified FRO tailings personnel.

A few notable activities were observed during the reporting period:

- Removal of tailings and in situ blended waste rock and tailings was completed from 3PN.
- Swift Phase 2 mining activities have begun above 2P and 3PS.
- No data have been received for piezometer VW19-06 in 2 Pit because the datalogger wire was destroyed by wildlife.

6.2 Summary of Climate and Water Balance

The precipitation data during the reporting period indicate the annual precipitation at FRO was approximately average, with the Fording River (infilled) dataset from 1 September 2021 to 31 August 2022 being a little higher that the long-term annual average of 631 mm and the Brownie Spoil weather station dataset being slightly lower than the long-term annual average. No facility performance issues associated with the precipitation observed on site or considering the water balance were noted during the reporting period.

6.3 Summary of Performance and Changes

No significant changes in condition were noted in 2P and 3PS based on visual monitoring records, embankment stability, and surface water control. FRO completed mining out the tailings and in situ blended waste rock and tailings in 3PN as part of the Swift project in August 2022.

6.4 Consequence of Failure

The 2P-3P TSA consequence of failure is Low, considering the guidelines for consequence classification in Section 3.4 of the HSRC Guidance Document (Ministry of Energy and Mines 2016). The 2P-3P TSA design has met or exceeded the requirements for such classification.

6.5 Recommendations

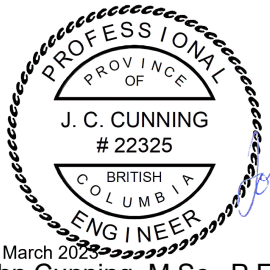
There are no outstanding recommendations from 2021 and no new recommended actions from the 2022 AFPR.

7.0 CLOSURE

The reader is referred to the Study Limitations section, which follows the text and forms an integral part of this report.

We trust that this report meets your present requirements. If you have any questions or additional requirements, please contact the undersigned.

WSP Canada Inc.



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Fellow Geotechnical Engineer

CM/JCC/sd

https://golderassociates.sharepoint.com/sites/158990/project files/6 deliverables/issued/2022-120-r-rev0-1500- 2p-3p tsa afpr/22516328-2022-120-r-rev0-1000-2p-3p tsa afpr 16mar_23.docx

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REFERENCES

CDA. 2013. Dam Safety Guidelines, 2007. Original 2007, revised 2013.

CDA. 2019. Technical Bulletin: Application of Dam Safety Guidelines to Mining Dams.

EMLI (Ministry of Energy, Mines and Low Carbon Innovation). 2022. Health, Safety and Reclamation Code for Mines in British Columbia. Revised November 2022. Under the Mines Act. Victoria, BC: Ministry of Energy, Mines and Low Carbon Innovation. https://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/mineral-exploration-mining/documents/health-and-safety/code-review/health_safety_and_reclamation_code_nov2022.pdf.

FCL (Fording Coal Limited). 1995. South Tails Pond Dredging – 1995 Year-end Summary. Internal correspondence. 20 December 1995.

FCL. 1997. South Tailings Pond Dredging – 1996 Summary. Internal correspondence. 29 January 1997.

FCL. 1998. South Tailings Pond Dredging – 1997 Summary. Internal correspondence. 18 February 1998.

FCL. 1999. South Tailings Pond Dredging – 1998 Summary. Internal correspondence. 17 February 1999.

FCL. 2001. 2000 Dredging Summary. Internal correspondence. 5 February 2001.

FCL. 2002. 2001 Dredging Summary. Internal correspondence. 6 February 2002.

FCL. 2003. 2002 Dredging Summary. Internal correspondence. 22 January 2003.

FCL. 2006a. 2004 Dredging Summary. Internal correspondence. 27 January 2006.

FCL. 2006b. 2005 Dredging Summary. Internal correspondence. 30 January 2006.

FCL. 2008. 2007 Dredge Report Year End Summary. Internal Correspondence. 15 February 2008.

FRO (Teck Coal Limited, Fording River Operations). 2014a. 3 Pit North/Shandley Embankment Construction Report. 12 August 2014.

FRO. 2014b. Summary of 2008 Embankment Construction in 3 Pit South and 3 Pit North. 15 October 2014.

FRO. 2015a. 3 Pit Tailings Storage Facility 2014 Dam Safety Inspection. 10 April 2015.

FRO. 2015b. 2015 STP Deposition Analysis. 18 November 2015.

FRO. 2020a. 2 Pit – 3 Pit Tailings Storage Area Operation, Maintenance and Surveillance Manual. Version R4. 27 May 2020.

FRO. 2020b. FRO Tailings Facility Emergency Response Plan. EP.009.R1. 25 May 2020.

FRO. 2020c. Tailings Pond Dam Breach Emergency Preparedness Plan. EP.008.R2. 25 May 2020.

FRO. 2021. Swift Causeway Spoil – Geotechnical Stability Assessment. 21 September 2021.

Golder (Golder Associates Ltd.). 1981. Slope Design Parameters for the Greenhills K-Pit. Elkford.

Golder. 2008. Tailings Disposal into 3 Pit South. Technical memorandum prepared for Elk Valley Coal Corporation, Fording River Operations. Golder Doc. No. 08-1427-0098/2000. 11 September 2008.

Golder. 2014. Tailings Disposal into 3 Pit South. Technical memorandum prepared for Teck Coal Limited, Fording River Operations. Golder Doc. No. 1414270098-2014-529-TM-Rev1-5000. 5 June 2014.

Golder. 2015a. 3 Pit South Berm Plan and Sections. Issued for Construction Drawings. Golder Project No. 1522825/14000. Drawing FC1-C-1946 Revision 0. 2 October 2015.

Golder. 2015b. 3 Pit South Berm Raise Construction Summary. Report prepared for Teck Coal Limited, Fording River Operations. Golder Doc. No. 1522835-2015-168-R-Rev0-14000. 4 December 2015.

Golder. 2016. Site Specific Probabilistic Seismic Hazard Assessment. Report prepared for Teck Coal Limited, Fording River Operations, Greenhills Operations, and Coal Mountain Operations. Golder Doc. No. 1522835-2015-149-R-Rev0-4000. 19 February 2016.

Golder. 2017a. Fording River Operations – Assessment of the 2 Pit and 3 Pit Water Balance (Flood Routing and Storage Capacity Analysis). Technical memorandum prepared for Teck Coal Limited, Fording River Operations. Golder Doc. No. 1772225-2017-018-TM-Rev0-2000. 2 October 2017.

Golder. 2017b. 2 Pit-3 Pit Tailings Storage Area Stability Assessment. Technical memorandum prepared for Teck Coal Limited, Fording River Operations. Golder Doc. No. 1785903-2017-122-TM-Rev0-1000. 20 December 2017.

Golder. 2020a. 2 Pit and 3 Pit 2019 Geotechnical Investigation – Bearing Capacity Assessment. Letter prepared for Teck Coal Limited, Fording River Operations. Golder Doc. No. 19116753-2019-151-L-Rev0-1000. 21 January 2020.

Golder. 2020b. 2 Pit and 3 Pit Geotechnical Site Investigation Factual Summary and Bearing Capacity Assessment. Report prepared for Teck Coal Limited, Fording River Operations. Golder Doc. No. 19116753 2019-150-R-Rev0-1000. 3 March 2020.

Golder. 2021. Detailed Design Report South Spoil Co-management Facilities. Report prepared for Teck Coal Limited, Fording River Operations. Golder Reference No. 19127181-2021-041-R-Rev2-8100. 3 June 2021.

Golder. 2022. 2021 Annual Facility Performance Report for Turnbull Tailings Storage Facility. Report prepared for Teck Coal Limited, Fording River Operations. Golder Reference No. 21456080-2021-190-R-Rev0-200. 30 March 2022.

GTR (Global Tailings Review). 2020. Global Industry Standard on Tailings Management. August 2020. https://globaltailingsreview.org/global-industry-standard/.

Ministry of Energy and Mines (British Columbia Ministry of Energy and Mines). 2016. Guidance Document – Health, Safety and Reclamation Code for Mines in British Columbia. Version 1.0. Updated July 2016. Victoria, BC: British Columbia Ministry of Energy and Mines. http://www2.gov.bc.ca/assets/gov/farming-natural-resources-and-industry/mineral-exploration-mining/documents/health-and-safety/part_10_guidance_doc_10_20july_2016.pdf.

Muller, K. 2011. Dredge Summary. Email to Thorne Devon, FRO. 27 June 2011.

NRCC (National Research Council of Canada). 2010. National Building Code of Canada 2010. https://www.nrc-cnrc.gc.ca/eng/publications/codes_centre/2010_national_building_code.html.

SNC-Lavalin (SNC-Lavalin Inc.). 2020. 2019 Dam Safety Review Report – Fording River Operations Tailings Storage Facilities. Report prepared for Teck Coal Limited, Fording River Operations. SNC-Lavalin Ref. No. 666607. 29 May 2020.

Teck Resources (Teck Resources Limited). 2019. Guideline for Tailings and Water Retaining Structures. Edition 2. Effective 31 January 2019.

STUDY LIMITATIONS

WSP Canada Inc. (WSP) has prepared this document in a manner consistent with that level of care and skill ordinarily exercised by members of the engineering and science professions currently practising under similar conditions in the jurisdiction in which the services are provided, subject to the time limits and physical constraints applicable to this document. No warranty, express or implied, is made.

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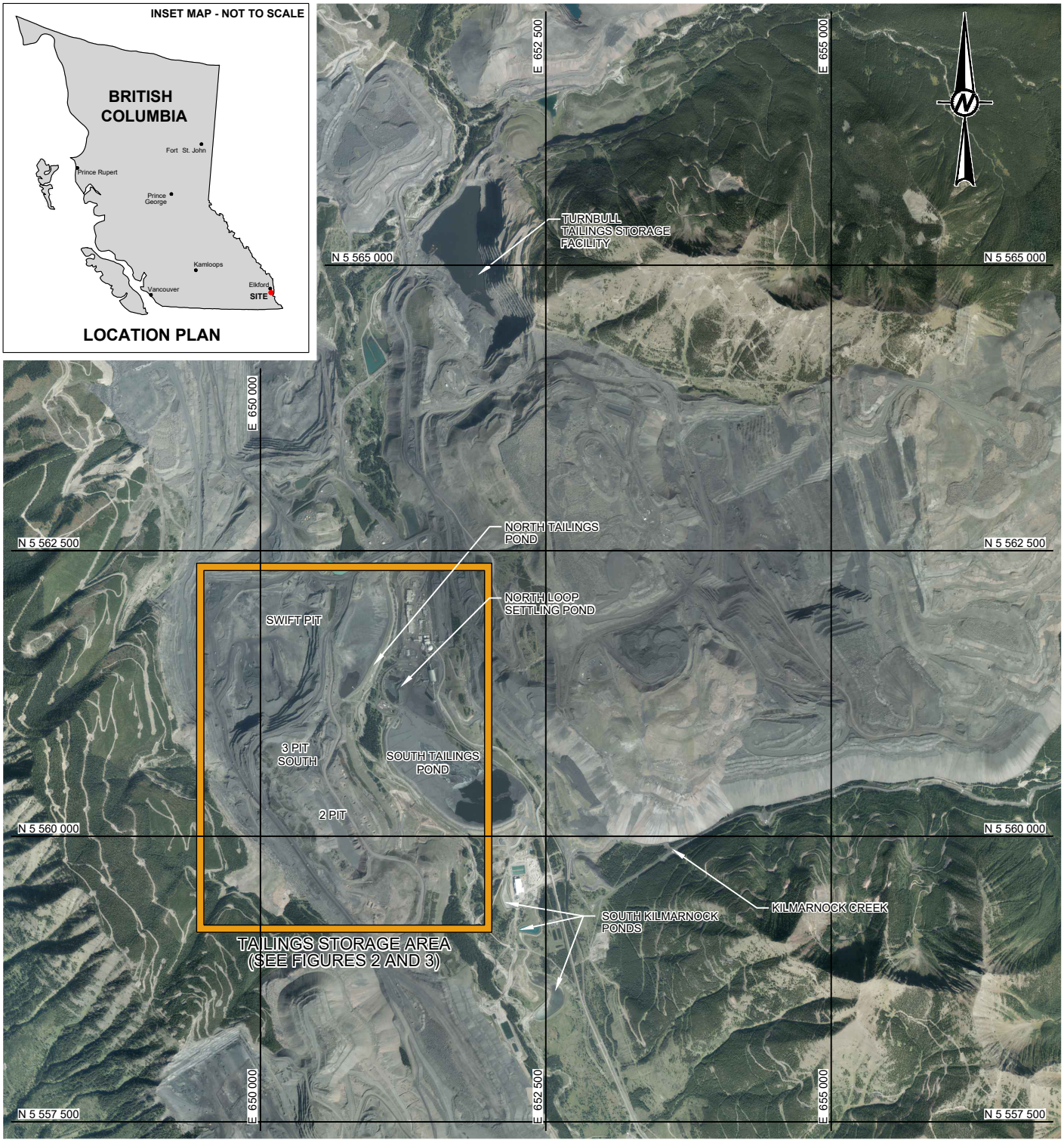
FIGURES



REFERENCE

1. 2021 AERIAL PHOTO PROVIDED BY TECK COAL LIMITED, RECEIVED: 12 OCTOBER 2021, DATES FLOWN: 22 JULY 2021.

NOTES

1. ALL UNITS ARE SHOWN IN METRES UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM ZONE 11, ELEVATIONS ARE REFERENCED TO ELK VALLEY ELEVATION DATUM.

0 1,000 2,000
1:50,000 METRES

CLIENT
TECK COAL LIMITED
FORDING RIVER OPERATIONS
ELKFORD, B.C.

PROJECT
2022 ANNUAL FACILITY PERFORMANCE REPORT FOR 2 PIT AND 3 PIT TAILINGS STORAGE AREA

CONSULTANT
wsp

YYYY-MM-DD	2023-03-03
DESIGNED	P. AMINI-MOTLAGH
PREPARED	A. WANG
REVIEWED	C. MCGRATH
APPROVED	J. CUNNING

TITLE
FORDING RIVER OPERATIONS SITE PLAN

PROJECT NO.	PHASE/TASK/DOC.	REV.	FIGURE
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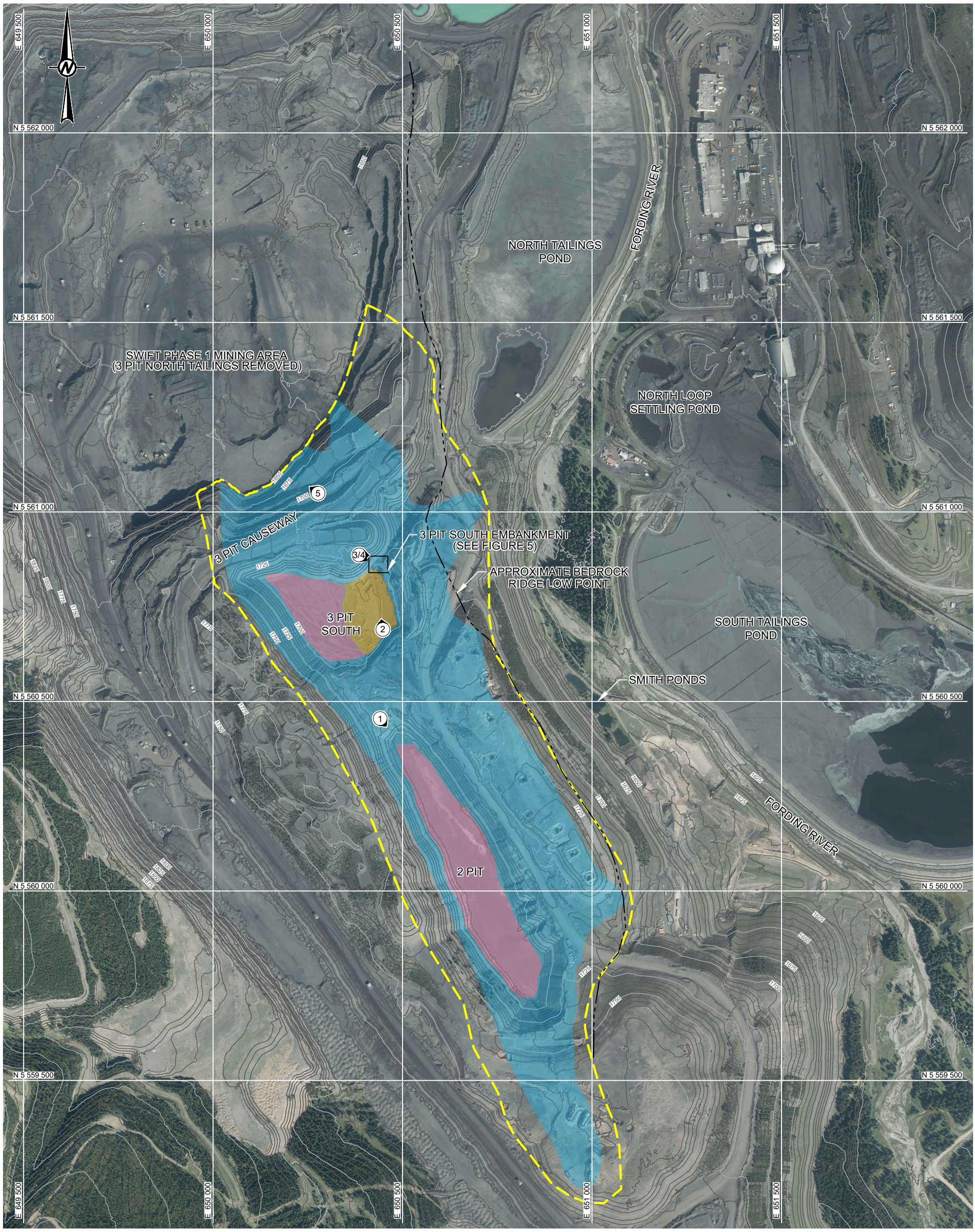

LEGEND

- TOPOGRAPHIC CONTOURS
- APPROXIMATE CREST OF BEDROCK RIDGE FROM MINED OUT SURFACE
- APPROXIMATE TAILINGS STORAGE AREA
- APPROXIMATE BOUNDARY OF IN-PIT COAL TAILINGS AS OF 2011
- APPROXIMATE BOUNDARY OF ADDITIONAL IN-PIT COAL TAILINGS AS OF 2016
- APPROXIMATE BOUNDARY OF THE ESTIMATED EXTEND OF COAL TALINGS MIXED WITH WASTE ROCK AS 2011
- (#) 2022 SITE INSPECTION PHOTOGRAPH LOCATION

NOTES

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2. COORDINATES ARE IN UTM ZONE 11, ELEVATIONS ARE REFERENCED TO ELK VALLEY ELEVATION DATUM.
3. TOPOGRAPHIC CONTOURS SHOWN AT 5 m MINOR AND 25 m MAJOR INTERVAL.

REFERENCES

1. 2021 LIDAR TOPOGRAPHY AND AERIAL PHOTO PROVIDED BY TECK COAL LIMITED, RECEIVED: 12 OCTOBER 2021, DATES FLOWN: 22 JULY 2021.
2. COAL TAILIINGS (Subaerial Tailings.dxf) AND WASTE ROCK MIXED WITH COAL TAILINGS (Subterrestrial Tailings.dxf) PROVIDED BY TECK COAL LIMITED FORDING RIVER OPERATIONS, DATED: FEBRUARY 2011.

0 250 500
1:10,000 METRES

CLIENT
TECK COAL LIMITED
FORDING RIVER OPERATIONS
ELKFORD, B.C.

CONSULTANT
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YYYY-MM-DD	2023-03-03
DESIGNED	P. AMINI-MOTLAGH
PREPARED	A. WANG
REVIEWED	C. MCGRATH
APPROVED	J. CUNNING

PROJECT
2022 ANNUAL FACILITY PERFORMANCE REPORT FOR 2 PIT AND 3 PIT TAILINGS STORAGE AREA

TITLE
2022 SITE INSPECTION PHOTOGRAPH LOCATIONS

PROJECT NO.	PHASE/TASK/DOC.	REV.	FIGURE
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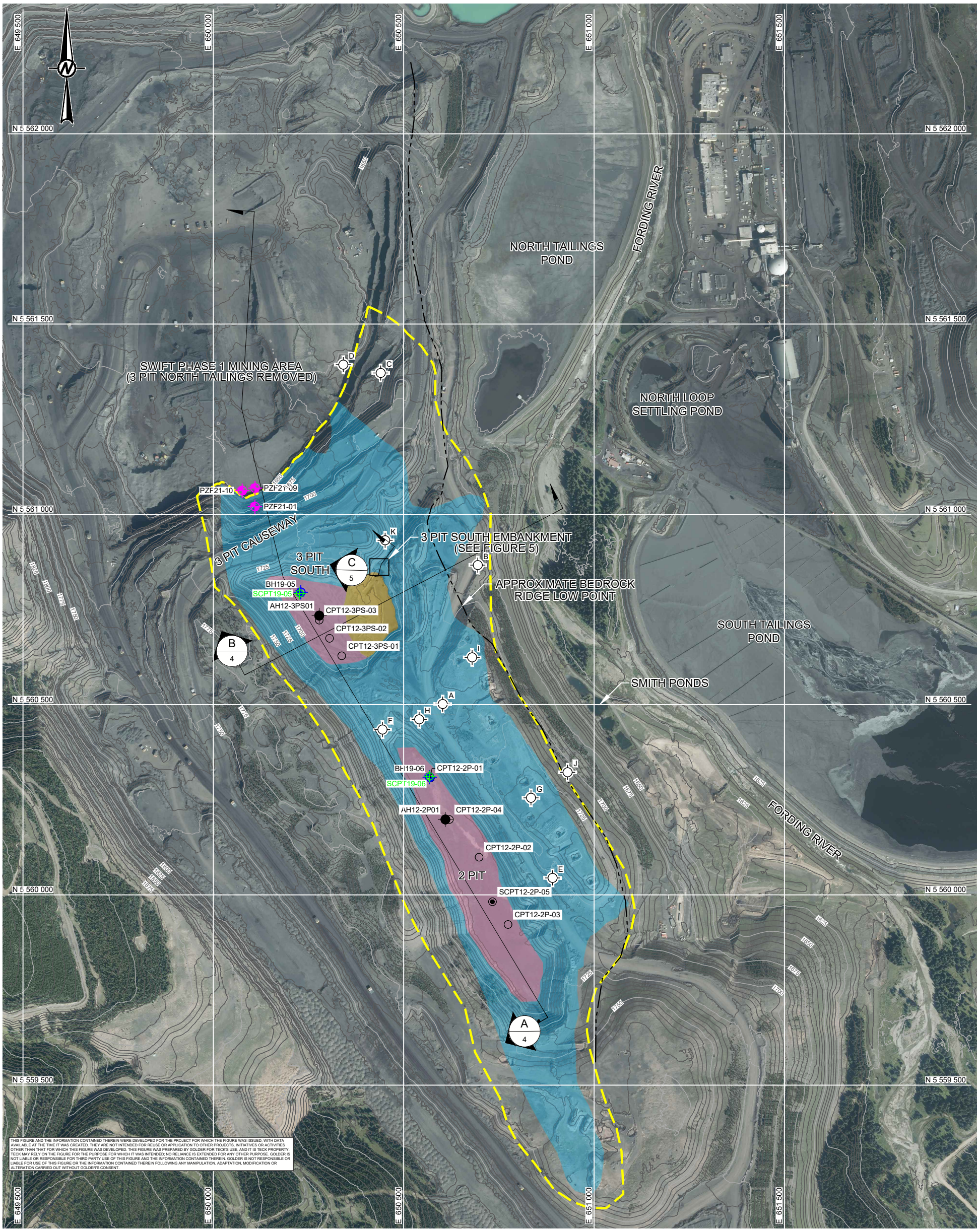

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- APPROXIMATE BOUNDARY OF ADDITIONAL IN-PIT COAL TAILINGS AS OF 2016
- APPROXIMATE BOUNDARY OF THE ESTIMATED EXTEND OF COAL TALINGS MIXED WITH WASTE ROCK AS 2011
- SONIC BOREHOLE (2019)
- REVERSE CIRCULATION DRILLHOLES (2021)
- SEISMIC CONE PENETRATION TEST (2019)
- MONITORING WELL
- AUGER HOLE (2012)
- CONE PENETRATION TEST HOLE (2012)
- SEISMIC CONE PENETRATION TEST HOLE (2012)

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3. TOPOGRAPHIC CONTOURS SHOWN AT 5 m MINOR AND 25 m MAJOR INTERVAL.
4. MONITORING WELL LOCATIONS WERE PROVIDED BY TECK COAL LIMITED FORDING RIVER OPERATIONS IN FRO MINE GRID AND WERE ADJUSTED TO UTM BY GOLDER.

0 250 500
1:10,000 METRES

REFERENCES

1. 2021 LIDAR TOPOGRAPHY AND AERIAL PHOTO PROVIDED BY TECK COAL LIMITED, RECEIVED: 12 OCTOBER 2021, DATES FLOWN: 22 JULY 2021.
2. 2021 REVERSE CIRCULATION DRILL HOLES FROM FORDING RIVER OPERATIONS REPORT "SWIFT CAUSEWAY SPOIL - GEOTECHNICAL STABILITY ASSESSMENT." DATED 21 SEPTEMBER 2021.
3. 2019 SONIC, CPT AND SCPT HOLES PROVIDED BY TECK COAL LIMITED, FORDING RIVER OPERATIONS. SURVEYED ON 1 SEPTEMBER 2019. RECEIVED ON 9 SEPTEMBER 2019.
4. COAL TAILIINGS (Subaerial Tailings.dxf) AND WASTE ROCK MIXED WITH COAL TAILINGS (Subterrestrial Tailings.dxf) PROVIDED BY TECK COAL LIMITED FORDING RIVER OPERATIONS, DATED: FEBRUARY 2011.
5. 2012 AUGER HOLE AND CPT LOCATIONS FROM GOLDER PROJECT NO. 11-1426-0002/8000. GOLDER DOC. NO. 2012-176 REV.0 DATED 7 SEPTEMBER 2012.

CLIENT
TECK COAL LIMITED
FORDING RIVER OPERATIONS
ELKFORD, B.C.

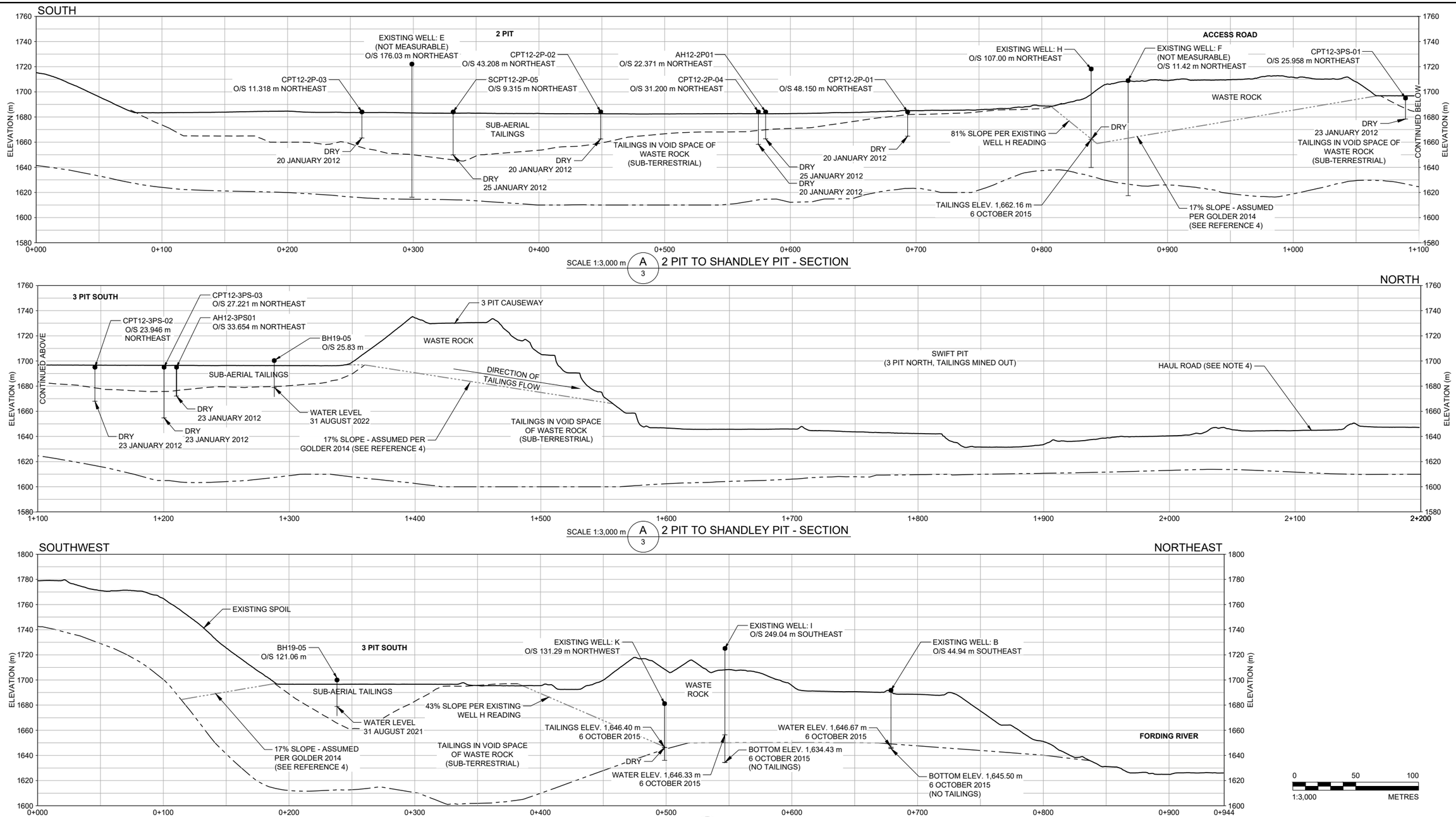
CONSULTANT
wsp

YYYY-MM-DD	2023-03-03
DESIGNED	P. AMINI-MOTLAGH
PREPARED	A. WANG
REVIEWED	C. MCGRATH
APPROVED	J. CUNNING

PROJECT
2022 ANNUAL FACILITY PERFORMANCE REPORT FOR 2 PIT AND 3 PIT TAILINGS STORAGE AREA

TITLE
DETAIL PLAN AND CROSS-SECTION LOCATIONS

PROJECT NO.	PHASE/TASK/DOC.	REV.	FIGURE
22516328	1000/1500/2022-120	0	3



LEGEND

- 2021 GROUND SURFACE (SEE REFERENCE 1)
- 3PS MINED OUT SURFACE (SEE REFERENCE 2)
- SURFACE OF SPOIL BENEATH TAILINGS (SEE REFERENCE 3)
- CPT/AH/WELL LOCATION (SEE REFERENCES 5, 6, 7 AND 8)

NOTES

1. ALL UNITS ARE SHOWN IN METRES UNLESS NOTED OTHERWISE.
2. MONITORING WELL DATA WAS LAST COLLECTED IN 2015 IN FRO MINE GRID ELEVATION AND 2012 TEST HOLE DATA COLLECTED IN FRO MINE GRID ELEVATION WERE ADJUSTED TO THE ELK VALLEY ELEVATION DATUM BY SUBTRACTING 0.454 m AS PER AIRBORNE IMAGING (2017).
3. SURFACE OF SPOIL BENEATH TAILINGS MAY BE LOWER THAN SHOWN IN PROVIDED SURFACE (REFERENCE 3) BASED ON CPT INVESTIGATION LOCATION RESULTS.
4. AS A RESULT OF 3PN MINING (REMOVAL OF SUB-AERIAL AND SUB-TERRESTRIAL TAILINGS) THAT BEGIN IN 2021, THE 3 PIT NORTH EMBANKMENT HAS BEEN REMOVED.

REFERENCES

1. 2021 LIDAR TOPOGRAPHY PROVIDED BY TECK COAL LIMITED, RECEIVED: 12 OCTOBER 2021, DATES FLOWN: 22 JULY 2021.
2. 3PS MINED OUT SURFACE CREATED USING CONTOURS PROVIDED BY TECK COAL LIMITED FORDING RIVER OPERATIONS. FOR ORIGINAL REPORT INFORMATION, REFER TO JOB NUMBER: "08-1427-0098/2000", DATED: 11 SEPTEMBER 2008.
3. SPOIL SURFACE CREATED USING CONTOURS PROVIDED BY TECK COAL LIMITED FORDING RIVER OPERATIONS IN 2008.
4. GOLDER. 2014. *TAILINGS DISPOSAL INTO 3 PIT SOUTH.*
5. CPT AND AUGER HOLE ELEVATIONS TAKEN FROM TECHNICAL MEMORANDUM, REFERENCE NO. 1414270098-2014-529-TM-Rev1-5000 DATED: 5 JUNE 2014
6. AUGER HOLE AND CPT LOCATIONS TAKEN FROM REPORT PREPARED FOR TECK COAL LTD. DOCUMENT NUMBER 2012-176 DATED: 7 SEPTEMBER 2012.
7. COORDINATES FOR MONITORING WELLS A-J PROVIDED BY TECK COAL LIMITED FORDING RIVER OPERATIONS ON 21 JANUARY 2014.
8. COORDINATES FOR MONITORING WELL H PROVIDED BY TECK COAL LIMITED FORDING RIVER OPERATIONS ON 12 MARCH 2014.

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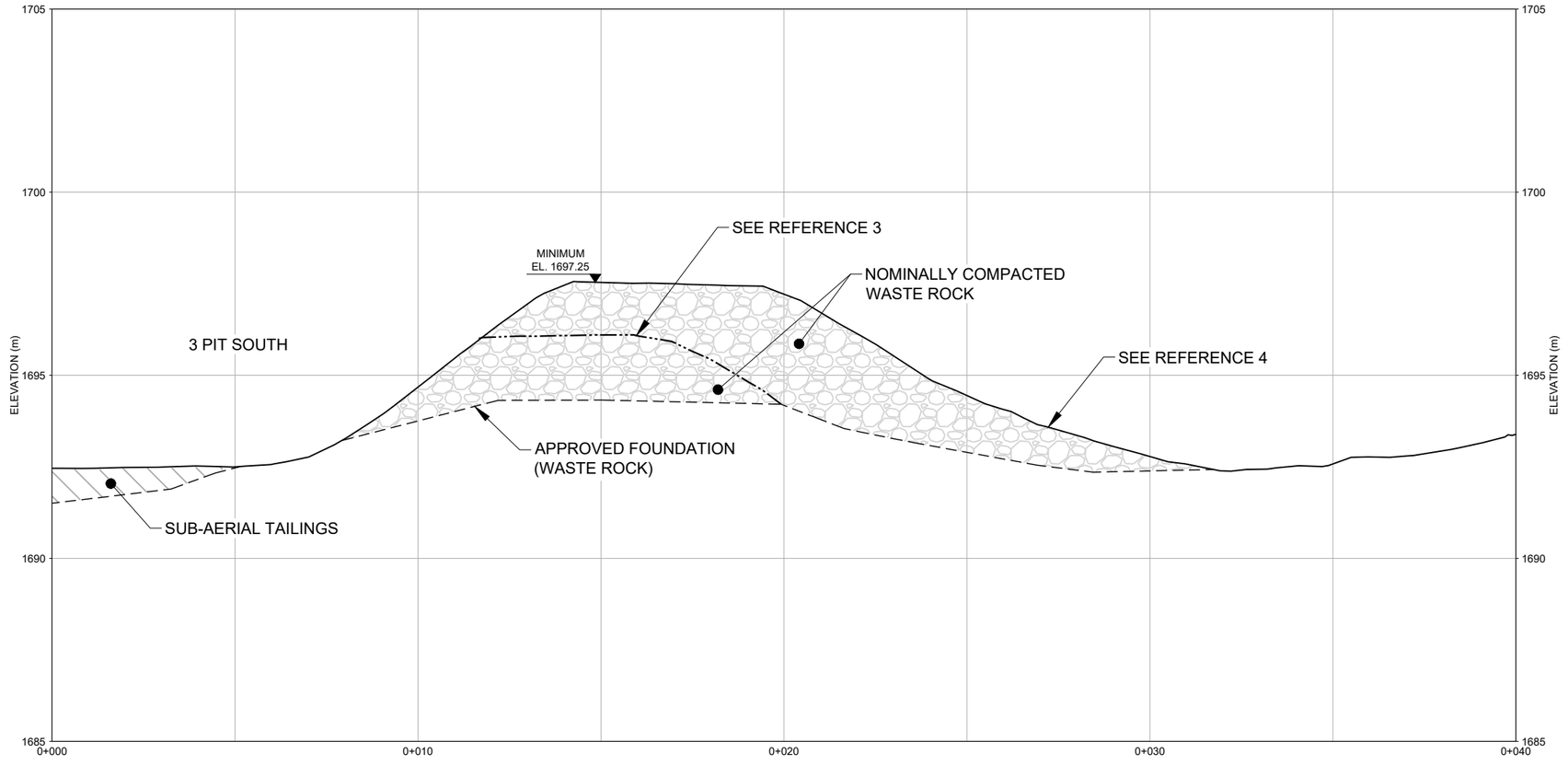
PROJECT
2022 ANNUAL FACILITY PERFORMANCE REPORT FOR 2 PIT AND 3 PIT TAILINGS STORAGE AREA

TITLE
CROSS-SECTIONS A AND B

PROJECT NO.	PHASE/TASK/DOC.	REV.	FIGURE
22516328	1000/1500/2022-120	0	4

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM ANSI B

0 25 mm



SCALE 1:150 m

C
3

3 PIT SOUTH EMBANKMENT

0 2.5 5
1:150 METRES

LEGEND

- 2021 GROUND SURFACE (SEE REFERENCE 1)
- SPOIL SURFACE (SEE REFERENCE 2)
- 2008 EMBANKMENT CONSTRUCTION

NOTE

1. ALL UNITS ARE SHOWN IN METRES UNLESS NOTED OTHERWISE.
2. COORDINATES ARE IN UTM ZONE 11, ELEVATIONS ARE REFERENCED TO THE ELK VALLEY ELEVATION DATUM.

REFERENCES

1. 2021 LIDAR TOPOGRAPHY AND AERIAL PHOTO PROVIDED BY TECK COAL LIMITED, RECEIVED: 12 OCTOBER 2021, DATES FLOWN: 22 JULY 2021.
2. SPOIL SURFACE CREATED USING CONTOURS PROVIDED BY TECK COAL LIMITED FORDING RIVER OPERATIONS IN 2008.
3. FRO 2014b. *SUMMARY OF 2008 CONSTRUCTION IN 3 PIT SOUTH AND 3 PIT NORTH.*
4. GOLDER. 2015b. *3 PIT SOUTH BERM RAISE CONSTRUCTION SUMMARY.*

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YYYY-MM-DD	2023-03-03
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PREPARED	A. WANG
REVIEWED	C. MCGRATH
APPROVED	J. CUNNING

PROJECT
2022 ANNUAL FACILITY PERFORMANCE REPORT FOR 2 PIT AND 3 PIT TAILINGS STORAGE AREA

TITLE
3 PIT SOUTH EMBANKMENT SECTION

PROJECT NO.	PHASE/TASK/DOC.	REV.	FIGURE
22516328	1000/1500/2022-120	0	5

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

0 25 mm

APPENDIX A

Site Photographs

PHOTOGRAPH 1 **8 September 2022**

2 Pit overview, looking southeast.

PHOTOGRAPH 2 **8 September 2022**

3 Pit South overview, looking north.

PHOTOGRAPH 3 **8 September 2022**

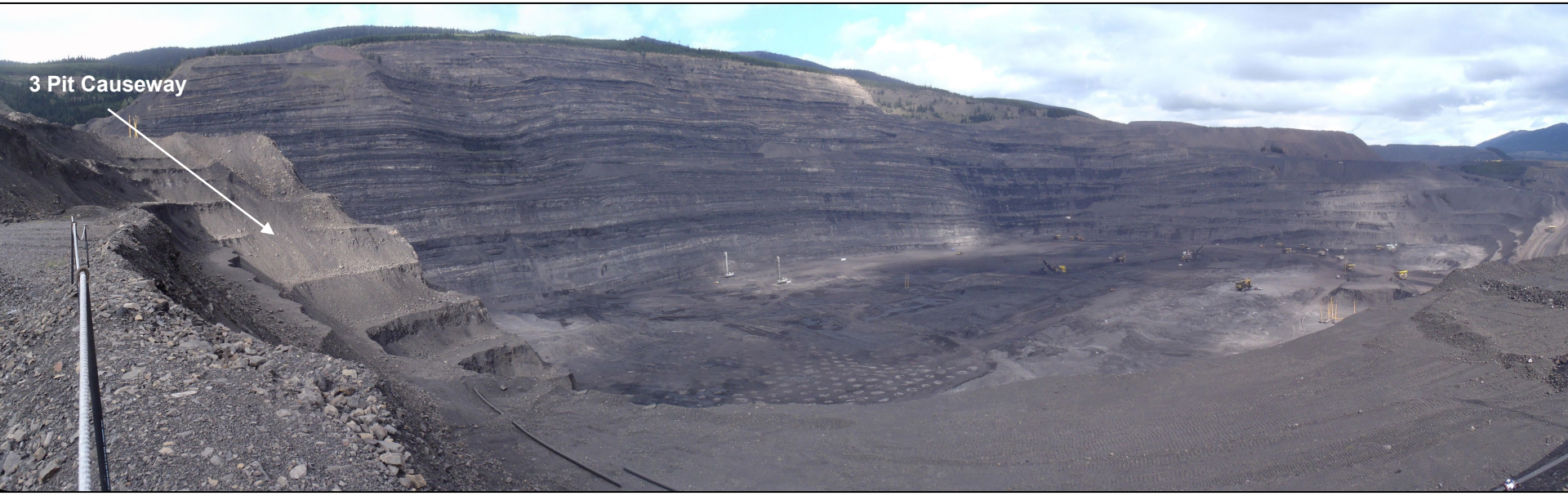
3 Pit South desiccated tailings surface and dry conditions observed in test pit upstream of the 3 Pit South Embankment, 3 Pit South Embankment crest, and upstream slope, looking southeast.

PHOTOGRAPH 4 **8 September 2022**

3 Pit South downstream slope, partially filled with adjacent spoil expansion, looking east.

PHOTOGRAPH 5

8 September 2022



Overview of mining activities in Swift Pit below the 3 Pit Causeway, looking northwest.

APPENDIX B

2P-3P Tailings Storage Area Inspection Report

Client:	**Teck Coal Limited, Fording River Operations**	**By:**	**Colin McGrath, P.Eng.**
Project:	**22516328 – 2022 Annual Facility Performance Report**	**Date:**	**8 September 2022**
Location:	**3 Pit South Embankment, Low Point of 2 Pit and 3 Pit Storage Area**	**Reviewed By:**	**John Cunning, P.Eng.**

GENERAL INFORMATION			
Dam Type:	Waste Rock Fill		
Weather:	Overcast, moderate winds	**Temp:**	10°C

INSPECTION ITEM		OBSERVATIONS/DATA	PHOTO	COMMENTS & OTHER DATA
1.0	**DAM CREST**			
1.1	Crest Elevation	Elev. 1,697.25 m (minimum for 3PS Embankment)	A-3, A-4	Confirmed by 2021 LiDAR survey data, crest has settled to lower than design.
1.2	Reservoir Level/ Freeboard	Dry Tailings Surface **Tailings:** Elev. 1,693 m (against 3PS Embankment)	A-3	Confirmed by 2021 LiDAR survey data.
1.3	Surface Cracking	None		
1.4	Unexpected Settlement	None		
1.5	Lateral Movement	None		
1.6	Other Unusual Conditions	None		
2.0	**UPSTREAM SLOPE**			
2.1	Slope Angle	1.5H:1V	A-3, A-4	
2.2	Signs of Erosion	None		
2.3	Signs of Movement (Deformation)	None		
2.4	Cracks	None		
2.5	Face Liner Condition (if applicable)	Not applicable		
2.6	Other Unusual Conditions	None		
3.0	**DOWNSTREAM SLOPE**			
3.1	Slope Angle	1.0 to 1.5H:1V		
3.2	Signs of Erosion	None	A-4	
3.3	Signs of Movement (Deformation)	None		
3.4	Cracks	None		
3.5	Seepage or Wet Areas	None		
3.6	Vegetation Growth	None		

INSPECTION ITEM		OBSERVATIONS/DATA	PHOTO	COMMENTS & OTHER DATA
3.7	Other Unusual Conditions	Spoils placed in valley downstream of 3PS, downstream slope has been partially buried	A-4	
4.0	**DOWNSTREAM TOE AREA**			
4.1	Seepage from Dam	None		
4.2	Signs of Erosion	None		
4.3	Signs of Turbidity in Seepage Water	None		
4.4	Discoloration/Staining	None		
4.5	Outlet Operating Problem (if applicable)	N/A		
4.6	Other Unusual Conditions	Runaway lane is above parts of the downstream toe		
5.0	**ABUTMENTS**			
5.1	Seepage at Contact Zone (Abutment/ Embankment)	None		
5.2	Signs of Erosion	None		
5.3	Vegetation Growth	None		
5.4	Presence of Rodent Burrows	None		
5.5	Other Unusual Conditions	None		
6.0	**RESERVOIR**			
6.1	Stability of Slopes	Good		
6.2	Distance to Nearest Slide (if applicable)	Waste rock spoils to east, highwall to west		
6.3	Estimate of Slide Volume (if applicable)	Undetermined		
6.4	Floating Debris	None		
6.5	Sediment	None		
6.6	Other Unusual Conditions	Boulders present on 2 Pit tailings from Swift mining activities	A-1	
7.0	**EMERGENCY SPILLWAY/ OUTLET STRUCTURE**	None		
8.0	**INSTRUMENTATION**	Vibrating wire piezometers in 3PS and Causeway		In 3PS: VW19-05. In Causeway: PZF21-01 and PZF21-10

INSPECTION ITEM		OBSERVATIONS/DATA	PHOTO	COMMENTS & OTHER DATA
9.0	**DOCUMENTATION**			
9.1	Operation, Maintenance and Surveillance (OMS) Manual	Yes		
9.1.1	OMS Manual Reflects Current Dam Conditions	Yes		
9.1.2	Date of Last Revision	27 May 2020		
9.2	Emergency Response Plan (ERP)	Yes		
9.2.1	ERP Reflects Current Conditions	Yes		
9.2.2	Date of Last Revision	25 May 2020		
10.0	**NOTES** • No significant changes since the 2021 AFPR. • Teck to confirm with WSP the updated mine plan for Swift Pit, including plans to mine tailings out from 3PS and 2Pit.			
Inspectors:		Colin McGrath, P.Eng., and John Cunning, P.Eng.	**Date:**	8 September 2022

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