

REPORT

Water Management Plan

Coffee Gold Mine

Submitted By:

Goldcorp Kaminak Ltd.
3260-666 Burrard Street
Vancouver, BC V6C 2X8

July 4, 2025

REVISION TRACKING LOG

Revision Tracking Log			
Version	Date	Section Updated	Description of Update
0	November 2023	-	First submission of the Water Management Plan
1	July 2025	Section 4.3.8.1	Minor editorial corrections
		Section 1.2.1	Updated definitions for contact and non-contact water
2			

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Appendix A	Contingency Water Management Memo (SRK 2022)
Appendix B	Water Management Process Flow Diagrams
Appendix C	Water Management Plan Table of Concordance

LIST OF ACRONYMS AND ABBREVIATIONS

Acronym / Abbreviation	Definition
CCME	Canadian Council of Ministers of the Environment
CSP	Corrugated Steel Pipes
EBR	Electrochemical Bioreactor
ECCC	Environment and Climate Change Canada
EEM	Environmental Effects Monitoring
EOM	End of Mine
EQS	Effluent Quality Standards
ESR	Event Storage Requirement
FNNND	First Nation Na-cho Nyäk Dun
FS	Feasibility Study
GCL	geosynthetic clay liner
GISTM	Global Industry Standard on Tailings Management
HLF	Heap Leach Facility
IDF	Inflow Design Flood
LOM	life of mine
MAP	Mean annual precipitation
MDMER	Metal Mine Effluent Regulations
NAR	Northern Access Route
Newmont	Goldcorp Kaminak Ltd., a wholly owned subsidiary of Newmont Corporation
NOWL	Normal Operating Water Level
NRCS	National Resource Conservation Service
ROM	Run of mine
SCS	Soil Conservation Service
SFN	Selkirk First Nation
TH	Tr'ondëk Hwëch'in
TSS	total Suspended Solids
WBWQM	water balance and water quality model
WRFN	White River First Nation
WRSF	Waste Rock Storage Facility

LIST OF SYMBOLS AND UNITES OF MEASURE

Symbol / Unit of Measure	Definition
km	Kilometres
km ²	Square Kilometres
L	Litre
L/s	Litres per Second
m	Metres
m ³	Cubic Metres
masl	Metres above Sea Level
m ³ /s	Cubic Metres per Second
Mg	Milligram
mm	Millimetre

INFORMATION REQUIREMENTS FOR QUARTZ MINE LICENSE AND WATER LICENSE

Information Requirement	Location in this Plan	
Master Table of Concordance	Appendix C	
Revision Log	Page i	
YWB EMR Plan Requirements Applicable to the Water Management Plan		
Information Requirement	Location in this Plan	Referenced From
Provide designs for sediment control ponds including layout, sizing, material and construction specifications, and erosion control. Designs for both permanent and temporary facilities must be included. Provide designs for sediment control and removal facilities for both construction and operation phases, including retention times and removal efficiencies.	Section 4.2 Design Criteria Section 4.3.9 Alpha Pond 4.3.10 Facility Pond	Erosion and Sediment Control Plan
Surface water management of waste rock and stockpiles is to include surface water management and erosion control.	Section 3.2 Mine Infrastructure Water Management	Erosion and Sediment Control Plan
Provide an overview of the design for all rock and overburden storage facilities, including facilities for waste rock, overburden, ore and low-grade ore. Also describe the associated water management infrastructure and the proposed operational plan for handling and storing rock and overburden materials.	Section 3.2.1 Alpha Waste Rock Storage Facility and Alpha Pond	Waste Rock and Overburden Management Plan
Provide flood design events, inflow hydrographs, erosion control, sediment removal.	Section 4.2.2 Hydrotechnical Design Criteria 4.3.2 Hydrologic Model 4.3.3 Conveyance Channel Design 4.3.9 Alpha Pond 4.3.10 Facility Pond	Waste Rock and Overburden Management Plan
Identify contaminants of concern and proposed water treatment, discharge and receiving water quality criteria.	Section 3.5 Discharge Criteria	Waste Rock and Overburden Management Plan
Provide specific designs for each dump that will be operated on site, including all facilities for contaminated and non-contact water management. Designs and construction plans must account for site-specific conditions including adverse geotechnical conditions and extreme climatic events. Designs must demonstrate how the proposed facilities will meet the design criteria, and that they will be stable both during construction and in the long term.	Section 4.3 Preliminary Design	Waste Rock and Overburden Management Plan

Information Requirement	Location in this Plan	Original Plan Location
Describe in detail the construction of the dump, the materials that will be used to create drainage systems below the dump, any liners that will be place, whether a toe berm is required, any specific material sorting procedures, and any water diversion structures that are required. Include lift heights, bench widths, internal and overall slopes, and specific measures to address site or material conditions. Describe material and construction specifications.	Describe the results Section 4.3.3 Conveyance Channel Design for proposed facilities. Section 4.3.8 Alpha Rock Drain	Waste Rock and Overburden Management Plan
Provide designs for surface water management facilities and infrastructure (e.g., temporary diversions, permanent diversions, intercept ditches, sediment control ponds) including hydraulic analyses, layout, sizing, material and construction specifications, and erosion control. Designs should demonstrate how the facilities will route design events and effectively manage segregation of non-contact water from contact water. Operations in low flow and freezing conditions should be addressed. Designs for both permanent and temporary facilities must be included. Provide designs for sediment control and removal facilities for both construction and operation phases, including retention times and removal efficiencies.	Section 4.3 Preliminary Design	Waste Rock and Overburden Management Plan

1.0 INTRODUCTION

1.1 Project Overview

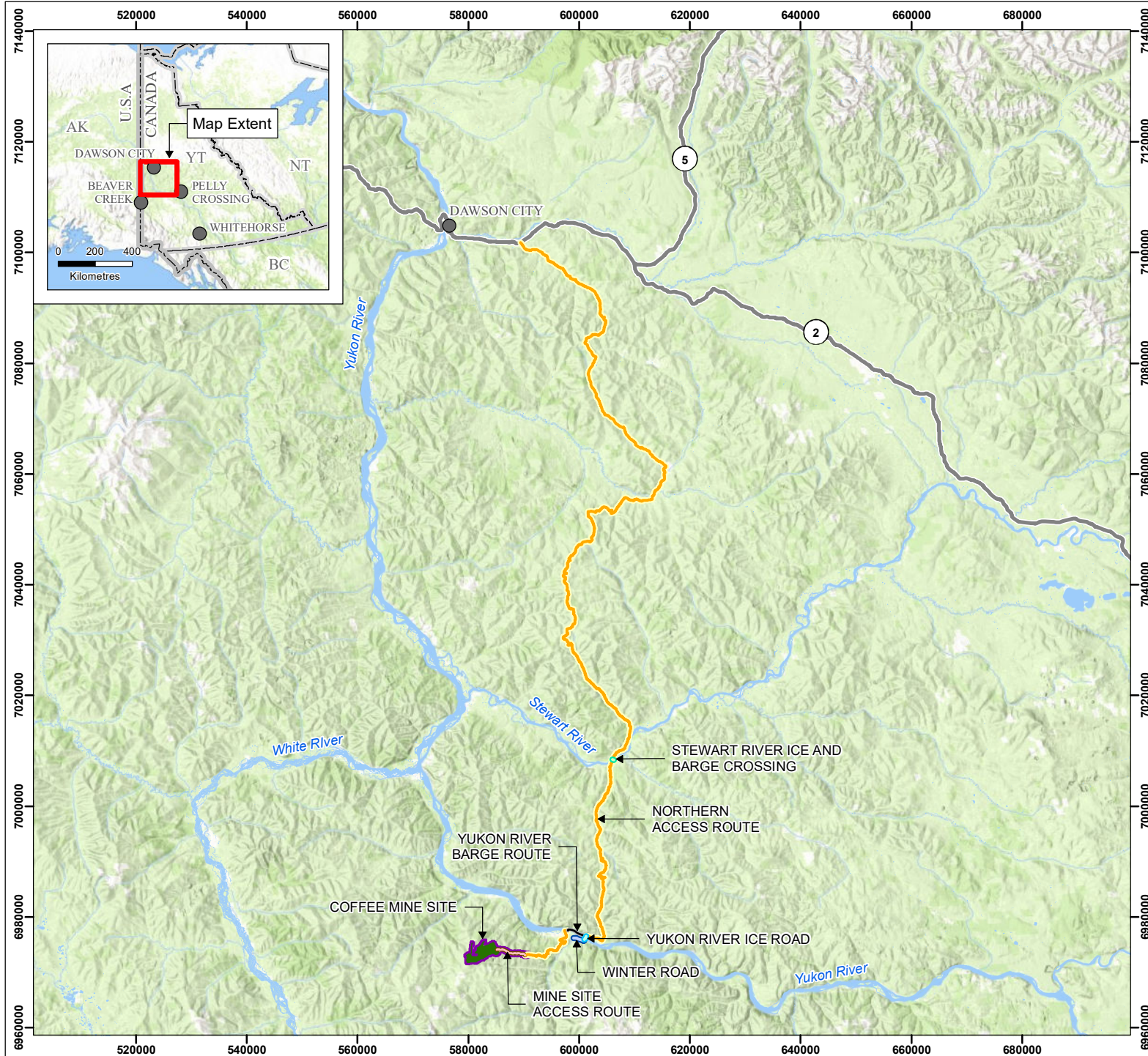
The proposed Coffee Gold Mine (the Project) is an open-pit gold mine owned by Goldcorp Kaminak Ltd., a wholly owned subsidiary of Newmont Corporation (Newmont), located on the south side of the Yukon River in the White Gold District of west-central Yukon. The Project site is approximately 130 km south of the City of Dawson, 140 km west of Pelly Crossing, 95 km north-east of Beaver Creek, and 340 km northwest of Whitehorse. The Project is located wholly within the traditional territory of Tr'ondëk Hwëch'in, partially within the traditional territory of Selkirk First Nation and First Nation of Na-cho Nyäk Dun, and partially within the asserted territory of White River First Nation. The Project contains several gold occurrences within an exploration concession covering an area of more than 600 km². The Mine Site will be accessed by road from Dawson via a 16-km stretch of Klondike Highway and 192-km all-season road, referred to as the Northern Access Route (NAR) (Figure 1-1). The NAR includes seasonal barge crossings on both the Stewart and Yukon rivers, with ice bridges and a seasonal winter road in the winter months.

The Project is comprised of four open pits: Supremo, Latte, Double Double, and Kona. Waste rock is proposed to be permanently stored in the Alpha Waste Rock Storage Facility (WRSF) (Figure 1-2). The ore production rate is proposed to be up to approximately 9.0 million tonnes (Mt) per year, producing an estimated total of 67 Mt of heap leach feed over the 10-year Operation Phase. The conceptual-level estimate for waste material to be moved over the life of mine (LOM) is up to approximately 330 Mt based on an average strip ratio of 5.0:1. The ore will be crushed and transported to the Heap Leach Facility (HLF) via overland conveyor or trucks for nine months of the year. During the three coldest months of winter, run-of-mine (ROM) ore will be stockpiled in the ROM stockpile. Gold will be extracted from gold-bearing leach solution by a six tonnes per day (t/d) adsorption, desorption, recovery carbon plant with mercury retorting to produce a final gold doré product. A total of 2.6 million ounces of gold is planned to be recovered over a 10-year mine life.

The Project phases are defined as follows:

- Construction Phase: Q2 Year –3 to end of Year –1 (30 months)
- Operation Phase: Year –1 to end of Year 9 (10 years)
- Reclamation and Closure Phase: Year 10 to end of Year 21, including a 6-year Post-Mining Closure Stage and a 5-year Active Closure Stage (11 years)
- Post-Closure Phase: Year 21 onwards as determined to be required.

These phases broadly describe the activities occurring within a particular time period; however, some activities will continue from one phase to another as mine site development advances with operational activities (e.g., Open Pits, WRSF). When areas that support mine operations are no longer required, they will be progressively reclaimed. The overall Project schedule is the general expected scenario for mine construction and operation; detailed activities are subject to change depending on detailed mine planning and the timing of receipt of authorizations.



COFFEE GOLD MINE

Coffee Project Location and Northern Access Route

Legend

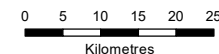
- Stewart River Ice and Barge Crossing
- Yukon River Barge Route
- Yukon River Ice Road
- Winter Road
- Mine Site Access Route
- Northern Access Route
- Project Area
- Project Footprint
- Highway
- Waterbody

Notes

1. This map is not intended to be a "stand-alone" document, but a visual aid of the information contained within the referenced Report. It is intended to be used in conjunction with the scope of services and limitations described therein.
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3. Basemap: ESRI World Topographic Map
4. Inset Basemap: ESRI World Topographic Map



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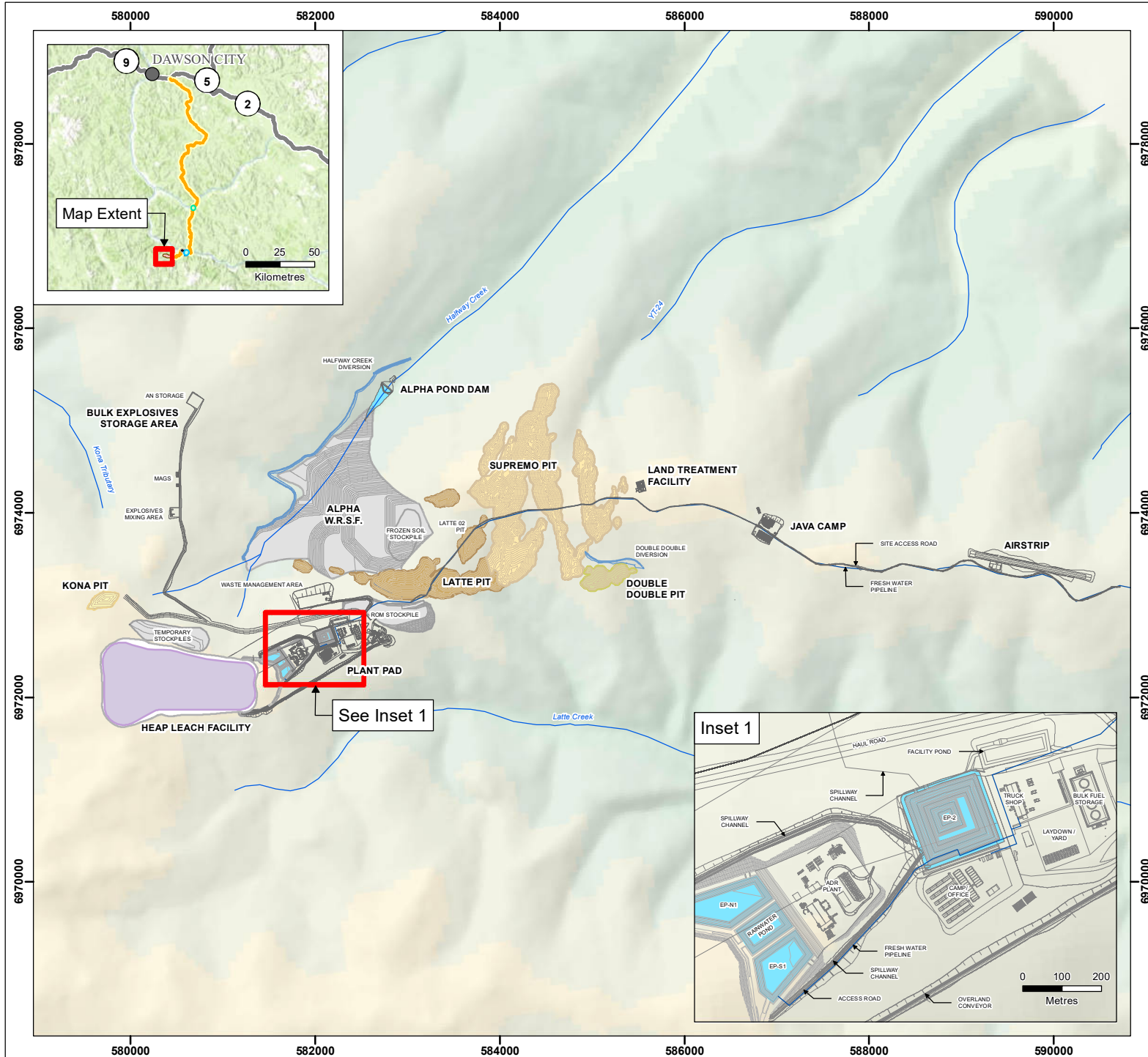
Figure 1.1

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COFFEE GOLD MINE

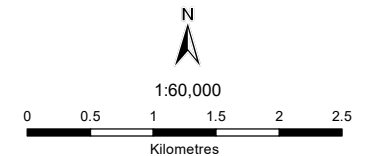
General Arrangement - Mine Site

Legend

- Double Double Pit
- Kona Pit
- Latte Pit
- Supremo Pit

Notes

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Figure 1.2

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1.2 Scope and Objectives

This Water Management Plan (Plan) is intended to describe water management practices and procedures to minimize adverse effects on water resources resulting from mining operations and activities. This Plan describes mine affected water management and presents preliminary engineering design for the water management infrastructure. A description of the water management strategy throughout the various mine phases is also provided.

The Project will utilize sodium cyanide heap leaching technology for gold extraction. Makeup water for irrigation leaching will be pumped to the process plant, as needed, from the following sources, in order of priority:

1. Contact water collected in the Event Ponds.
2. Non-contact water collected in the Rainwater Pond.
3. Contact water collected in the Facility Pond.
4. Contact water from open pit sumps or pit lakes.
5. Non-contact water from groundwater wells near the existing camp.

Precipitation that comes into contact with infrastructure across the Project will be collected and retained in sedimentation ponds to minimize the concentration of total suspended solids (TSS) before water is discharged to the receiving environment. The primary discharge point will be from the Alpha Pond, a sedimentation pond located below the Alpha WRSF, into Halfway Creek. The Facility Pond will also provide sediment control for runoff collected in the plant site area and will convey excess water towards the Alpha Pond.

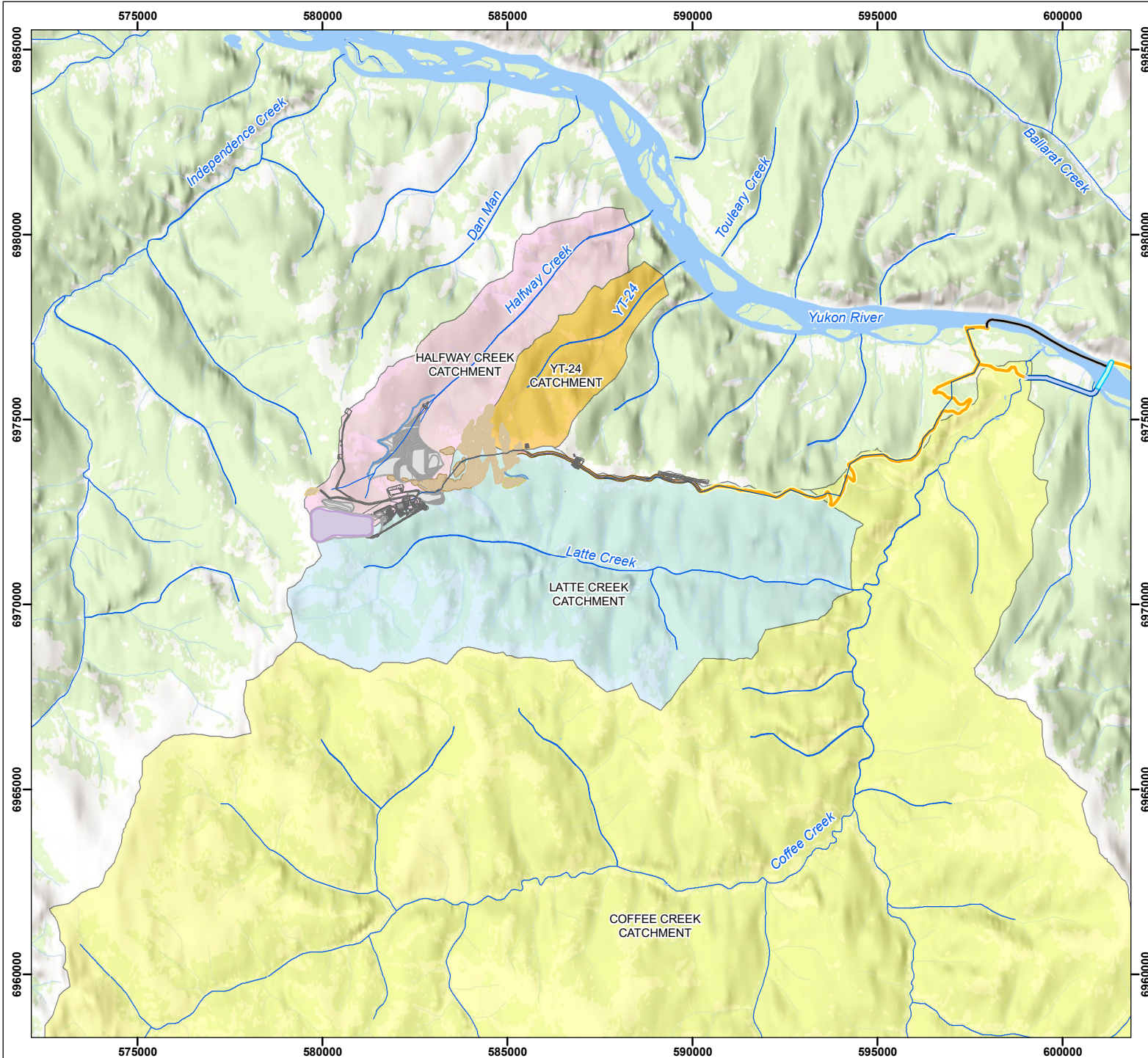
A water treatment plant will be constructed during the Operation Phase to treat excess process water that needs to be removed from the system in order to maintain adequate available storage in the event ponds. Treated water will be conveyed to the Alpha Pond via the Alpha rock drain and ultimately discharged into Halfway Creek. Water treatment is expected to continue through Active Closure as needed. At closure, the HLF will be covered to reduce precipitation infiltration and the residual HLF seepage water may require some additional treatment prior to release to Halfway Creek.

The Project is situated along a ridge top, from which water flows into the headwaters of three separate catchments (Figure 1-3):

- Halfway Creek
- Latte Creek
- YT-24.

As illustrated in Figure 1-3, Latte Creek flows into Coffee Creek, while Halfway Creek and YT-24 flow directly into the Yukon River.

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COFFEE GOLD MINE

Coffee Mine Key Catchments

Legend

- Yukon River Barge Route
- Yukon River Ice Road
- Winter Road
- Mine Site Access Route
- Northern Access Route
- Double Double Pit
- Kona Pit
- Latte Pit
- Supremo Pit
- Watercourse
- Waterbody

Pre-Mine Catchment Area

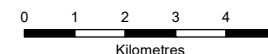
- Halfway Creek Catchment
- Latte Creek Catchment
- YT-24 Catchment
- Coffee Creek Catchment

Notes

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Figure 1-3

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1.2.1 Definitions

Water is described herein in terms of three categories based on the material that water is in contact with:

- *Contact water* is used to describe water that comes into contact with waste rock in the Alpha WRSF, ore on the ROM pad, open pit walls and floor, and construction waste rock (excluding any selective rock material used on roads upgradient of the Halfway Creek Diversion or for construction of diversion channel). Current geochemical characterization studies show that the water treatment requirement for contact water will be limited to the removal of suspended sediment in some areas prior to release to the receiving environment.
- *HLF Solution for removal* is used to describe water that contains residual heap leach solution contaminants and will require active treatment in the water treatment plant.
- *Non-contact water* is used to describe water that has not come into contact with any Project components (other than diversion infrastructure and roads upgradient of the Halfway Creek Diversion that are constructed with low As and low U leaching potential waste material). Non-contact water is diverted around Project structures and discharged to the receiving environment. Non-contact water may also be used as a source of water to the process plant as-needed.
- *Treated sewage effluent* describes water that is treated in the sewage water treatment plant.

In addition, the term *makeup water* refers to supplemental water demand for the HLF which is sourced from the Project contact water stores or from groundwater monitoring wells near the current camp along the Yukon River.

1.2.2 Objectives and Purpose

The purpose of the Water Management Plan is to describe how water will be managed at the Project throughout the life of mine.

The objectives of this plan are to provide guidance, and to summarize information, relevant for water management for the Project. The Plan is intended to be used as a guide and reference document to achieve specific performance objectives. It is anticipated that this Plan will be updated from time to time, as project-specific regulatory requirements are confirmed, and water management systems for Project are refined. The performance objectives for water management at the Project are to:

1. Ensure adequate flexibility in water management to meet the operational needs of the Project while remaining protective of the receiving environments downstream of the Project.
2. Maintain the physical integrity and stability of the Project through controlled water management.
3. Manage water that could potentially be affected by the Project (e.g., contact water, excess HLF water) in accordance with industry best management practices.
4. Ensure that the quantity and quality of water discharged from the mine complies with applicable regulatory requirements.
5. Minimize alteration to the pre-development drainage network, and the volume of contact water to be managed.
6. Maintain the physical integrity and stability of slopes and watercourses downstream of the Project.
7. Minimize any potential effects to surface water and groundwater quantity and quality in the receiving environment by minimizing transport of parameters of potential concern from the Project.

1.3 Guiding Principles for Site Water Management

In addition to the high-level summary of best practices provided in the preceding section, several specific water management strategies for the Project have been developed through ongoing consultation with Newmont's First Nation's partners. Specifically, the cultural importance of Coffee Creek (and Latte Creek by extension) has been clearly articulated. As a result, the water management plan for the Project seeks to limit effluent discharges to the Latte Creek and YT-24 catchments, instead directing the majority of site contact water to a central release point in the Halfway Creek catchment throughout the Operations phase. First Nation engagement and consultation is ongoing, and any feedback that is received or concerns that are heard during consultation will be incorporated into this plan, where applicable.

Specific water management practices related to this objective are as follows:

- Open pit dewatering during active mining will be routed to a sediment pond for settling of solids (if required), used for dust control on site roads or used as make up process water. The remainder will be directed towards the Alpha Pond and subsequently discharged to Halfway Creek
- The HLF is predicted to have a positive water balance and will require solution removal and treatment in a multi-stage water treatment system. Treated water will be directed to the Alpha Pond via the Alpha rock drain for discharge to Halfway Creek
- The ROM Stockpile is sloped to route surface runoff towards the Halfway Creek catchment
- The Facility Pond will discharge to the Alpha rock drain, upgradient of the Alpha Pond.

1.4 Regulatory Considerations

The discharge of contact water from the Project is anticipated to be subject to the Metal and Diamond Mining Effluent Regulations (MDMER), a regulation issued pursuant to the Federal *Fisheries Act*, RSC 1985, c.F-14, as well as the conditions established in the Quartz Mining License and Water Use Licence that will be required for the Project under the provisions of the *Quartz Mining Act*, SY 2003, c. 14, and *Waters Act* SY 2003, c. 19. The requirements associated with these regulations and licenses that are relevant to water management are outlined below.

1.4.1 Federal Regulations

MDMER prescribes authorized limits for monthly mean concentrations, maximum concentration in a composite sample, and maximum concentration in a grab sample, for a total of eight water quality parameters. These limits apply at designated final discharge points. These maximum authorized concentrations are shown in Table 1-1.

Table 1-1 Maximum Authorized Concentrations of Deleterious Substances as Specified in Schedule 4 of Metal and Diamond Mining Effluent Regulations

Deleterious Substance	Maximum Authorized Monthly Mean Concentration (mg/L except Bq/L for Radium 226)	Maximum Authorized Concentration in a Composite Sample (mg/L except Bq/L for Radium 226))	Maximum Authorized Concentration in a Grab Sample (mg/L except Bq/L for Radium 226))
Total Arsenic	0.100	0.150	0.200
Total Copper	0.100	0.150	0.200
Total Cyanide	0.500	0.750	1.0
Total Lead	0.080	0.120	0.160
Total Nickel	0.250	0.380	0.500
Total; Zinc	0.400	0.600	0.800
TSS	15.0	22.5	30.0
Un-ionized Ammonia-N	0.500	Not applicable	1.0
Radium 226	0.37	0.37	0.37

The MDMER also stipulates requirements related to effluent monitoring, including toxicity tests, calculation of monthly mean concentrations and loading, and effluent monitoring, as well as biological monitoring. The timing as to when MDMER will apply to the Project will be determined in consultation with Environment and Climate Change Canada (ECCC), which administers the MDMER. However, it is anticipated that it will be triggered once waste rock is placed in the Alpha WRSF and mine effluent discharge from Alpha Pond begins. Final discharge points will be specified during the licensing phase of the Project. In addition, and prior to the Operation phase, detailed monitoring requirements in support of Environmental Effects Monitoring (EEM) will be confirmed, also in consultation with ECCC.

1.4.2 Territorial Regulations

Quartz Mining and Water Use Licenses will be required for the Project. This Plan is intended to meet the application guidance for a Water Management Plan that outlines the objectives, strategies, activities, and methods to manage water produced or affected by the Project.

The Water Use License will specify mine effluent quality standards (EQS) that must be met for the Project and are expected to be tied to Use Protection water quality objectives for the receiving environment. Proposed EQS for the project are described in Section 3.5 and will be finalized as part of Project licensing through continued consultation and engagement with First Nations, the Yukon Government and Yukon Water Board. Development of the EQS have been informed by project water quality objectives. Table 1-2 summarizes the water quality objectives for the Coffee Mine Project for Use Protection receiving catchments of Halfway Creek, Latte Creek and YT-24. These objectives have been developed over the period of 2016 to 2021 through baseline characterization of each receiving stream, site specific toxicity testing and extensive consultation with First Nations. Non-degradation water quality objectives are proposed for Coffee Creek and the Yukon River immediately downstream of each of the confluences of Coffee Creek, YT-24 and Halfway Creek.

Table 1-2 Summary of Proposed Water Quality Objectives for Primary Receiving Environments of Halfway Creek, Latte Creek, and YT-24

Parameter List		Units	Halfway Creek	Latte Creek	YT-24	Regulatory Source
General Chemistry	SO ₄	mg/L	218	309	218	BC-MOE
	Nitrate-N	mg/L	8	8	8	SSWQO
	Nitrite-N	mg/L	0.02	0.02	0.02	BC-MOE
	NH ₃ -N	mg/L	1.5	1.3	1.8	BC-MOE
	CN _{WAD}	µg/L	5	5	5	BC-MOE
Metals	D-Al ¹	µg/L	445	367	274	SSWQO
	T-Sb	µg/L	9	9	9	BC-MOE (I)
	D-As	µg/L	5	5	5	SSWQO
	D-Cd	µg/L	0.2	0.2	0.10	CCME
	D-Cu	µg/L	4.3	4.7	5.3	SSWQO
	T-Fe	µg/L	1,000	1,000	1,000	BC-MOE
	D-Fe	µg/L	350	350	350	BC-MOE
	T-Pb	µg/L	2	3	1	CCME
	T-Hg	µg/L	0.026	0.026	0.026	CCME
	T-Mo	µg/L	73	73	73	CCME (I)
	T-Ni ²	µg/L	72	96	25	CCME
	T-Se	µg/L	2	2	2	BC-MOE
	Ag	µg/L	0.25	0.25	0.25	CCME
	U	µg/L	86	31	15	SSWQO/CCME
	D-Zn	µg/L	24	31	26	CCME

Notes: ¹: Al-D values for open water period of April to October. For winter period of November to March value is 50 µg/L

²: Interim Ni water quality objectives proposed for Coffee

T – Total and D – Dissolved forms

BC MOE – British Columbia Ministry of Environment;

I – Interim/Working Guideline;

CCME - Canadian Council of Ministers of the Environment;

SSWQO – Site Specific Water Quality Objective.

1.5 Synergies with Other Project Documents

The Water Management Plan is an integral part of the overall environmental management that will be undertaken for the Project. This plan should be viewed in concert with the following management plans and reporting (inclusive of any updates to):

- Coffee Gold - Surface Water Quality and Aquatic Life Adaptive Management Plan
- Waste Rock and Overburden Management Plan
- Erosion and Sediment Control Plan
- Water Balance and Water Quality Model Report
- Reclamation and Closure Plan.

Commitments that were made during the YESAB screening process related to the Water Management Plan as well as mitigations and monitoring requirements set out by the Decision Document terms are incorporated into the plan where possible and are summarized in the Water Management Plan Table of Concordance (Appendix C).

2.0 PROJECT SETTING CHARACTERISTICS

The Project is situated in the Dawson Range, just south of the Yukon River, approximately 130 km south of the City of Dawson, YT. A brief overview of the Project setting follows.

2.1 Topography

Topography in the area is characterized by gently rounded hills that rise above treeline to more than 1,500 metres above sea level (masl), with tightly incised valleys descending to the Yukon River, which lies at an elevation of approximately 400 m in the vicinity of the Project. The Project is situated along a high, undulating ridge that ascends to more than 1,300 masl. The incised valleys in the area were not affected by Quaternary glaciation.

2.2 Soils and Vegetation

Soils at the Project consist of a thin layer of colluvium, silts, and clays with intermittent rock outcrops. Discontinuous permafrost of varying depth is present on site. Frozen soils are predominately on the north and west-facing slopes, and valley floors; however, isolated areas of frozen soils may be present in other areas. Vegetation at higher elevations is dominated by sparse, deciduous shrubs. Mature pine forests dominate the steeply incised valleys and the Yukon River valley.

2.3 Watercourses and Hydrology

A number of small watercourses originate on the Project ridge and flow into the Yukon River. Latte Creek drains the south face of this ridge and has a catchment area of approximately 70 km². Latte Creek flows eastward to its confluence with Coffee Creek. Coffee Creek has a total catchment area of approximately 487 km² and drains an area to the south and east of the Project, generally flowing from south to north to the Yukon River. The north face of the ridge is drained by Yukon Tributary 24 (YT-24), on the eastern side of the Mine Site. YT-24 has a total catchment area of approximately 12 km². Halfway Creek drains the western side and has a total catchment area of approximately 27 km². Both YT-24 and Halfway Creek flow northeast to their confluences with the Yukon River. Figure 1-1 presents the watercourses and catchments.

These creeks experience peak flows in May due to melting snowpack and following rainfall events in summer and early fall. The creeks are frozen in winter, with the exception of Coffee Creek. Baseflow and groundwater discharge freeze in winter, resulting in accumulation of aufeis in stream channels. Surface water at the Project is typically expected frozen, and a snowpack accumulates, from October to April each year (Lorax 2022a).

2.4 Aquatic Habitat

Slimy Sculpin (*Cottus cognatus*), Arctic Grayling (*Thymallus arcticus*) and juvenile Chinook Salmon (*Oncorhynchus tshawytscha*) are present in Coffee Creek and the Yukon River year-round (see Figure 4-1 in Appendix F of the Environmental Monitoring and Adaptive Management Plan). The reaches of the Yukon River into which these streams discharge (reaches upstream of the White River confluence) provide habitat for 14 species of fish, including Chum Salmon (*Oncorhynchus keta*). This part of the Yukon River supports subsistence, commercial and recreational fisheries.

All of the local watercourses provide feeding and rearing habitat for fish in summer. Slimy Sculpin occur in all of these watercourses in summer, although only the lower and middle reaches of Latte Creek, mouth of

YT-24, and lower reaches of Halfway Creek are fish-accessible. Arctic Grayling also occur in lower Latte Creek and the mouth of Halfway Creek in summer. Juvenile Chinook Salmon have been observed, albeit in low numbers, in the lower reach of Halfway Creek near the mouth; no fish have been observed in Halfway Creek beyond 600 m upstream from the mouth. In general, fish access to upper reaches of all Halfway Creek and Latte Creek are limited by steep gradients, fish barriers, and seasonal low flows. The mouth of YT-24 is accessible to fish (Slimy Sculpin), only when backwatered by the Yukon River.

2.5 Traditional Use

All watercourses in the area are valued by First Nations and Project stakeholders and support aquatic habitat. First Nations consulted as part of the environmental assessment process emphasized the importance of the Coffee Creek corridor, including the salmon runs, wildlife and vegetation it supports, as well as its traditional usage for travel. Traditional use of the area is well-documented, and fish camps were set up near the mouth of Coffee Creek by several First Nations groups.

2.6 Local Climate

The Project is situated along a ridge with an average elevation of roughly 1,300 masl. Consequently, precipitation is the only significant source of water at the Project. A synthetic a synthetic time-series of air temperature and precipitation was derived from statistical relationships between measurements obtained at the Mine Site climate station and the regional climate stations and snow courses. It is based on measurements obtained from two climate stations at the Project since July 2012, supplemented by measured values from a nearby climate station with a longer record, to better characterize long-term variability.

2.6.1 Precipitation

Mean annual precipitation (MAP) at the Mine Site measured through gauge and snow course data gathered during the baseline study was 331 mm at 975 m and 398 mm at 1,340 m, with approximately 30% of this amount falling as snow between October and April, and 70% falling as rain from May to September. Based on the synthetic climate record, MAP is estimated to be 504 mm at the Project.

A subset (1991-2020) of the full synthetic record was used as input to the site-wide and heap leach facility water balance models. This record was derived from statistical relationships between the data from site and the elevation-adjusted record from the Dawson A climate station, which was selected as the best regional proxy for the Project. The Dawson A precipitation record was adjusted to reflect the increases in rainfall (4%/100 m) and snowfall (7%/100 m) with elevation, due to orographic effects (Lorax 2022a).

Precipitation occurs as snowfall in winter months and comprises approximately 33% of the annual total. The mean air temperature is below 0°C from October through April, and most of the precipitation that occurs during this period falls as snow, and accumulates, until the snowpack melts in spring (typically occurs over a one- to two-week period between late March and Late April). Precipitation occurs as rainfall in summer months, from May through September, and comprises approximately 67% of the annual total. This ratio shifts toward the valley bottoms, with a higher proportion of MAP falling as rain. The largest daily precipitation events have been attributed to over-land convective events that occur frequently in summer. On average, there are 20 to 30 days of appreciable precipitation (>5mm/day) in summer (Figure 2-1, Figure 2-2 and Table 2-1; Lorax 2022a).

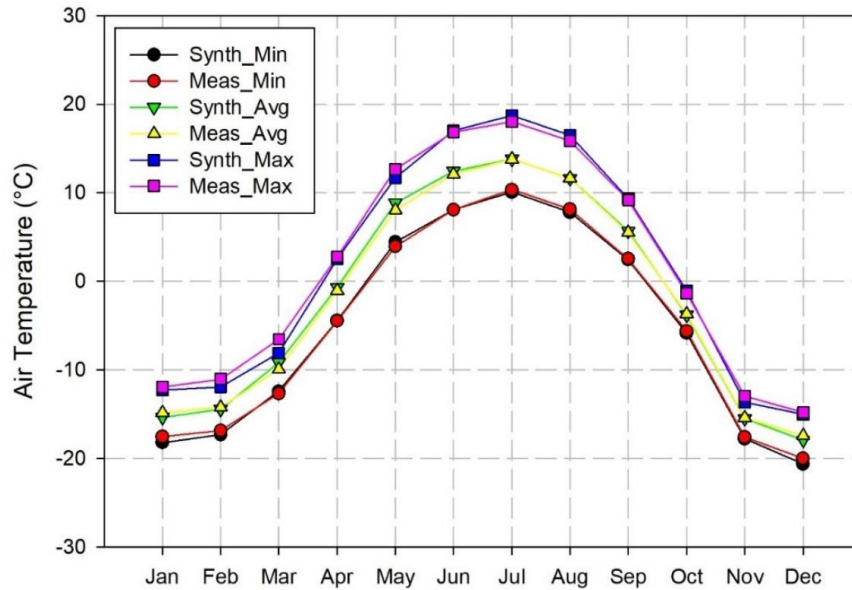


Figure 2-1 Average monthly mean air temperatures as measured by the Project climate stations, and from the synthetic record.

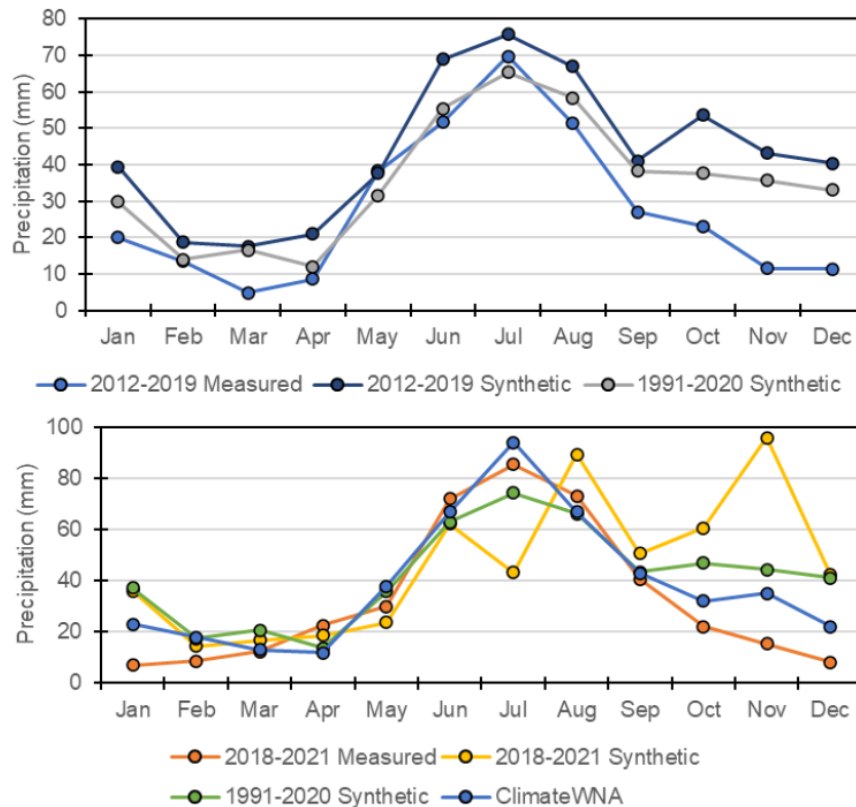


Figure 2-2 Measured and synthetic monthly average precipitation for the overlapping periods of record for the Km 11 (top) and Kona (bottom) climate stations

Table 2-1 Monthly Measured and Synthetic Climate Records for the Coffee Gold Project at 1,300 masl

Month	Precipitation (mm)		Air Temperature (°C)	
	Synthetic (1991-2020)	Measured (2018-2021)	Synthetic (1991-2020)	Measured (2018-2021)
Jan	37	7	-15.4	-16.1
Feb	18	9	-14.4	-15.8
Mar	21	12	-9.2	-9.9
Apr	14	23	-0.7	-1.2
May	36	30	8.8	8.1
Jun	63	72	12.4	12.2
Jul	74	85	13.8	13.9
Aug	66	73	11.6	11.1
Sep	43	41	5.7	5.8
Oct	47	22	-3.8	-3.4
Nov	44	15	-15.5	-14.8
Dec	41	8	-17.9	-16.8
Annual	504	397	-2.0	-2.2
May-Sep	282	301	10.5	10.2
Oct-Apr	222	96	-11.0	-11.1

2.6.2 Extreme Events

Extreme precipitation events typically occur in summer and are attributable to overland convective events. Rainfall monitoring conducted at the main climate station (Km 11) presents variability in terms of timing and magnitude of storms when compared to tipping buckets located at different elevations across the Project site. These observations along with regional analysis of long-term precipitation records indicate variation in precipitation with elevation and in the distribution of storm events across the Project area.

The hydrometeorology baseline report presented summer rainfall events for seven return periods (1:2 year, 1:5 year, 1:10 year, 1:25 year, 1:50 year, 1:100 year and 1:200 year) for varying elevations (600 masl to 1,300 masl). The Project elevations range from 799 to 1236 masl and an average elevation of 1,300 masl was selected for design purposes. The precipitation depths at 1,300 masl for each return period and a 24-hour duration are presented in Table 2-2.

Table 2-2 Estimated Summer Rainfall Depths at 1,300 m Elevation for Various Intervals and Return Periods based on Historical Conditions

Interval	Rainfall (mm) for Various Return Periods						
	1:2	1:5	1:10	1:25	1:50	1:100	1:200
24-hour	38	56	67	80	89	98	106

2.6.3 Snow Pack and Melt

The maximum snow pack that is estimated to occur at the Mine Site in a typical year is approximately 159 mm (snow water equivalent or SWE), and it is expected to reach its maximum depth by approximately April 1. The snow pack is predicted to range from 79 mm to 319 mm in the 1:200 year dry and wet years, respectively. The estimated maximum accumulated snow water equivalents for various return periods are shown in Table 2-3.

Table 2-3 Estimated Maximum Snow Pack (Snow Water Equivalent, or SWE) at 1,300 m Elevation for Various Return Periods

	Dry Year						Mean	Wet Year					
Return Period	1:200	1:100	1:50	1:25	1:10	1:5	1:2	1:5	1:10	1:25	1:50	1:100	1:200
SWE (mm)	79	84	91	100	114	128	159	200	225	256	277	298	319

To produce a long-term, daily melt record for Coffee Mine, period of record snow pillow data were assembled from six snow pillow stations in Alaska and the Yukon. Period of record snow pillow data for the six stations indicate peak melt rates of 10-20 mm/day for accumulated snowpack in a typical year. The highest rates calculated from regional data range from 30 to >50 mm/day, which is associated with persisting snowpacks throughout the spring season that are subject to greater solar radiation inputs. This suggests that in a very dry year, the snow pack may melt within a week or so in mid- to late-April, while in a very wet year, the snow pack may melt over a period of 25 days or more, ending in early June.

As part of the baseline characterization, spring storm events were reviewed to evaluate whether large rainfall events as presented above could be expected to occur during the critical snowmelt period (May). The analysis found that estimates for spring rainfall events are lower than summer events. For this reason, summer rainfall and spring snowmelt flood events were considered separately for pond and conveyance structure designs.

2.6.4 Climate Change

The information noted above does not reflect the influence of potential climate change. The predicted temperature and precipitation noted above are not expected to be significantly altered from current conditions within the mine life.

Climate change has been estimated and accounted for in the water balance that has been developed for the Project. This was done by extending the synthetic 30-year record through three cycles to the year 2100, and incorporating projected changes in temperature and precipitation that are predicted using published

climate models for that time frame (*i.e.*, CMIP5 ensemble model output for the RCP6.0 scenario). Scenarios that were evaluated for the Mine Site indicate that by the year 2100, average temperatures are expected to rise by 3°C to 5°C, and this change is expected to be most pronounced in summer. Average annual precipitation is not expected to change significantly. Summer and winter are expected to be slightly wetter, while little net change in precipitation is expected in spring or autumn. The net result of climate change will be earlier spring thaw, and delayed freeze-up in autumn, relative to current conditions. The warming trend is also expected to lead to minor degradation of permafrost. The methods and predicted climate variability for the Mine Site are described in Appendix B2 (PCIC Climate Change Assessment for Coffee Gold Project) of Lorax (2022a).

The effects of climate change to extreme precipitation events was also evaluated for design purposes. A web-based tool was used, which provides depth-duration-frequency datasets across Canada using compilations of global circulation models and emission scenarios (Western University, 2022). The most recent Intergovernmental Panel on Climate Change (IPCC, 2014) Assessment Report datasets were used – the Coupled Model Intercomparison Project 6 – along with the upper range emissions scenario (SSP 5.85). Modified rainfall depths for 1,300 masl using the climate change adjustments are presented in Table 2-4.

Table 2-4 Estimated Summer Rainfall at 1,300 m elevation for Various Intervals and Return Periods with Climate Change

Interval	Rainfall (mm) for Various Return Periods ¹							
	1:2	1:5	1:10	1:25	1:50	1:100	1:200	1:1000 ²
24-hour	42	64	77	92	102	115	124	154

Notes:

1. Based on the rate of change over baseline conditions from the IDF-CC Tool (Western University, 2022), using PCIC CMIP6 bias-corrected climate models and the SSP5.85 emissions scenario.
2. 1,000 return period rainfall depth was extrapolated from smaller return periods using a logarithmic regression equation.

2.6.5 Permafrost

There is extensive, discontinuous permafrost at the Project. It extends to depth on the ridge, and is thickest on higher elevation, north-facing slopes. It is estimated to be 165 m deep on the north side of the ridge at the top of the YT-24 catchment, for example. It is generally thinner on south-facing slopes, and appears to become thinner at lower elevations, based on the hydrogeological assessment completed to date. The hydrogeologic assessment is described in detail in the 2021 Hydro-Meteorology Baseline Report (Lorax 2022a).

Permafrost reduces hydraulic conductivity, as groundwater freezes, and pores and cracks in bedrock fill with ice. Consequently, it generally behaves as an aquiclude or aquitard, confining groundwater to the thin seasonal active layer above it, or the bedrock beneath it. The effects of permafrost have been taken into account in the water balance that has been developed for the Project, as described in the *Coffee Mine Project Water Balance-Water Quality Model Report* (Lorax, 2022d).

The implications of permafrost for water management at the Project are that no infiltration is assumed from ditches or ponds and low rates of infiltration to ground are assumed for Open Pits, as the maximum depth of all pits is expected to remain within the permafrost layer. Overtime, in pits that are flooded with water, degradation of permafrost and the formation of taliks are assumed in the hydrogeology and water balance models. Note that seepage is expected to occur through the base of the Alpha Pond, which is located in the Halfway Creek drainage area that does not have underlying permafrost.

The upper reaches of Latte Creek are predominantly permafrost, resulting in generally higher runoff rates than in Halfway Creek or other areas.

3.0 MINE AFFECTED WATER

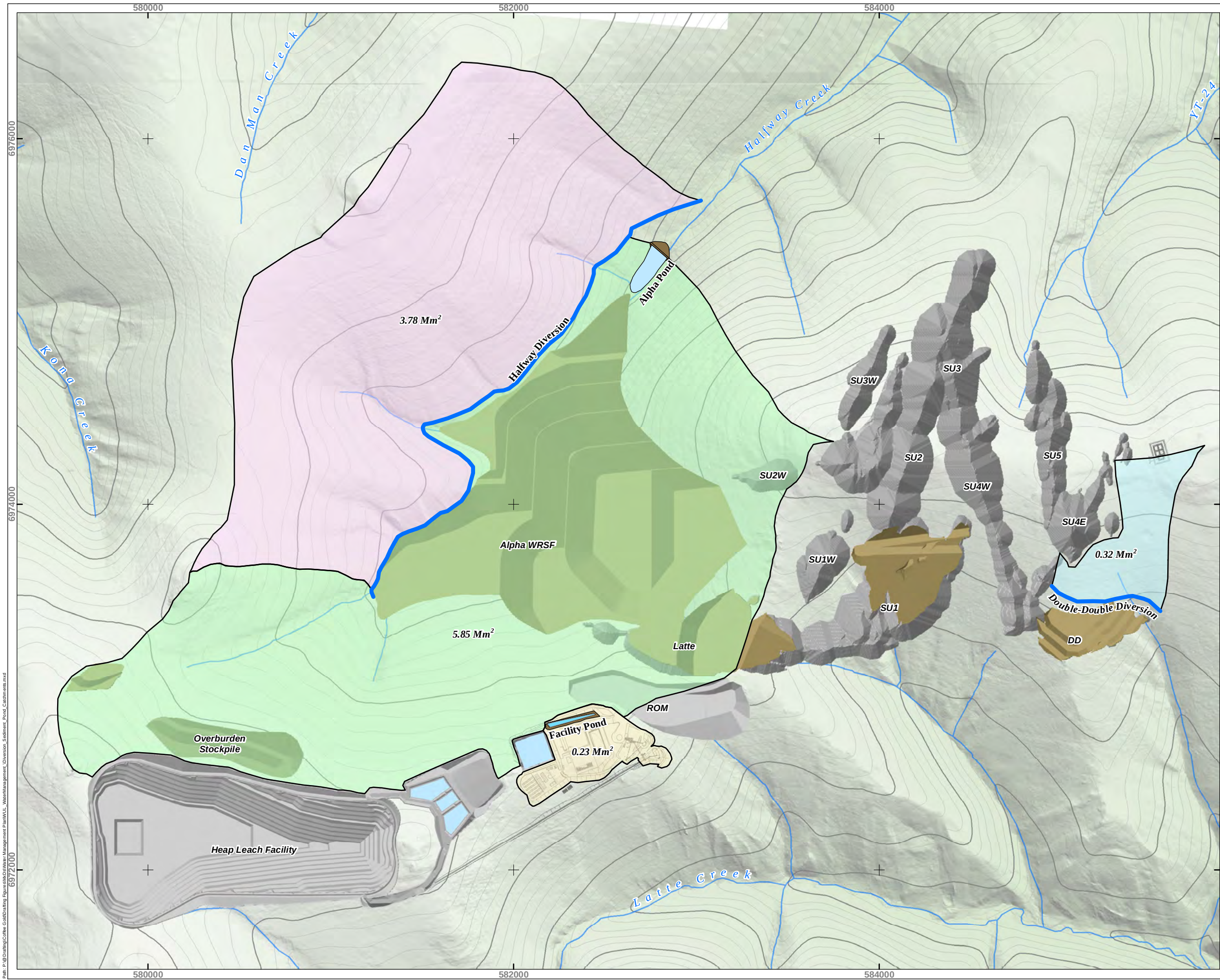
3.1 Water Management Overview

As previously discussed, the Project is located near the headwaters of three watersheds: Halfway Creek, YT-24, and Latte Creek (Figure 1-1). The water management system configuration within the Project includes conveyance structures (e.g., diversion channels, diversion berms, pipelines), in-pit sumps and sedimentation ponds. Contact water will be collected in pits and in two sedimentation ponds. The main sedimentation pond (Alpha Pond) will be constructed down-gradient of the Alpha WRSF and will receive the majority of mine contact water. The other sedimentation pond (Facility Pond) will serve the Camp Site and Plant Site. Figure 3-1 shows the extent of the catchment areas and location of mine facilities that are situated up-gradient of the ponds as well as the two non-contact water diversions.

The sedimentation ponds will generally receive contact water from April through October, during the months of snow ablation and rainfall. Peak contact water flows and sedimentation pond discharge are expected to occur in the months of May and early June coinciding with freshet, with a decline in discharge rates, punctuated by episodic rainfall driven events, to near zero over the winter months. These flows are accounted for in the water balance and water quality model. The Facility and Alpha ponds will be managed to minimum levels prior to the onset of winter to increase storage capacity for the following spring freshet. HLF pond volume will be informed by the HLF water balance.

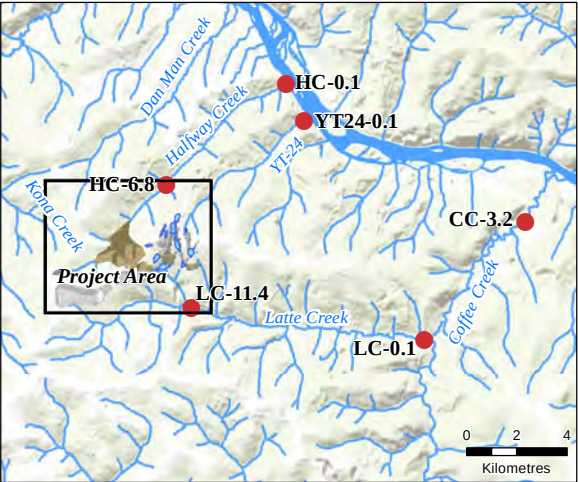
During the Construction and Operations phases, meteoric water collected in the open pits will be collected in sumps and utilised for dust suppression by water truck, make up water or directed towards a discharge location. Water is most commonly expected to be pumped to the Facility Pond for further distribution or towards the Alpha Pond. Dewatering from active mining areas will be done using in-pit sumps, pumps and HDPE pipelines, or with water trucks. Excess water collected in the Facility Pond not utilised for dust suppression or process make up water will be pumped towards Alpha WRSF and the downstream Alpha Pond, where it will be controlled for sedimentation purposes and discharged to Halfway Creek. As the mine life progresses and the development in sections of the open pits are completed, pits will be backfilled with waste rock and flooded with meteoric water. At this time, meteoric inflows to active areas may be pumped to inactive pit voids/lakes, which will provide sufficient settling time for sediment removal. Water levels in each pit lake will rise until they reach spill points, where water will passively discharge to the receiving environment. Active monitoring of water quality as pit lakes develop will be an integral part of the pit water management strategy and decision-making.

Water management strategies for each infrastructure area are summarized in the following sections.

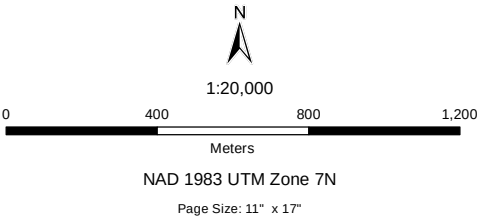


COFFEE GOLD MINE

Diversion and Sediment
Pond Catchments



- Legend
- Alpha Pond Catchment
 - Double-Double Diversion Catchment
 - Facility Pond Catchment
 - Halfway Diversion Catchment



3.2 Mine Infrastructure Water Management

The water management strategies associated with each major component of mine infrastructure are described in the following sections.

3.2.1 Alpha Waste Rock Storage Facility (WRSF) and Alpha Pond

The Alpha WRSF will be the primary storage facility for waste rock generated from the Project (Figure 3-2). The Alpha WRSF will be situated in the upper Halfway Creek catchment and will include a rock drain (Alpha rock drain, Section 4.3.7) to safely convey flow beneath the facility into the Alpha Pond. Alpha Pond will be constructed in Year -2 and operated until decommissioned at the end of the Active Closure Phase in approximately Year 20. Additional details on Alpha Pond are presented in Section 4.3.8. Precipitation and snowmelt that infiltrate the Alpha WRSF will report to the Alpha rock drain and be collected in the Alpha Pond for settling of TSS. Contact water collected in the Alpha Pond will be subject to Alpha Pond EQS, as described in Section 3.5, and discharged to Halfway Creek via a pumping system and an emergency spillway as well as through foundation seepage.

A diversion channel, Halfway Creek Diversion (Section 4.3.3.1), will be developed on the west slope of the Halfway catchment which will divert clean runoff away from the Alpha WRSF and into Halfway Creek, downstream of the Alpha Pond.

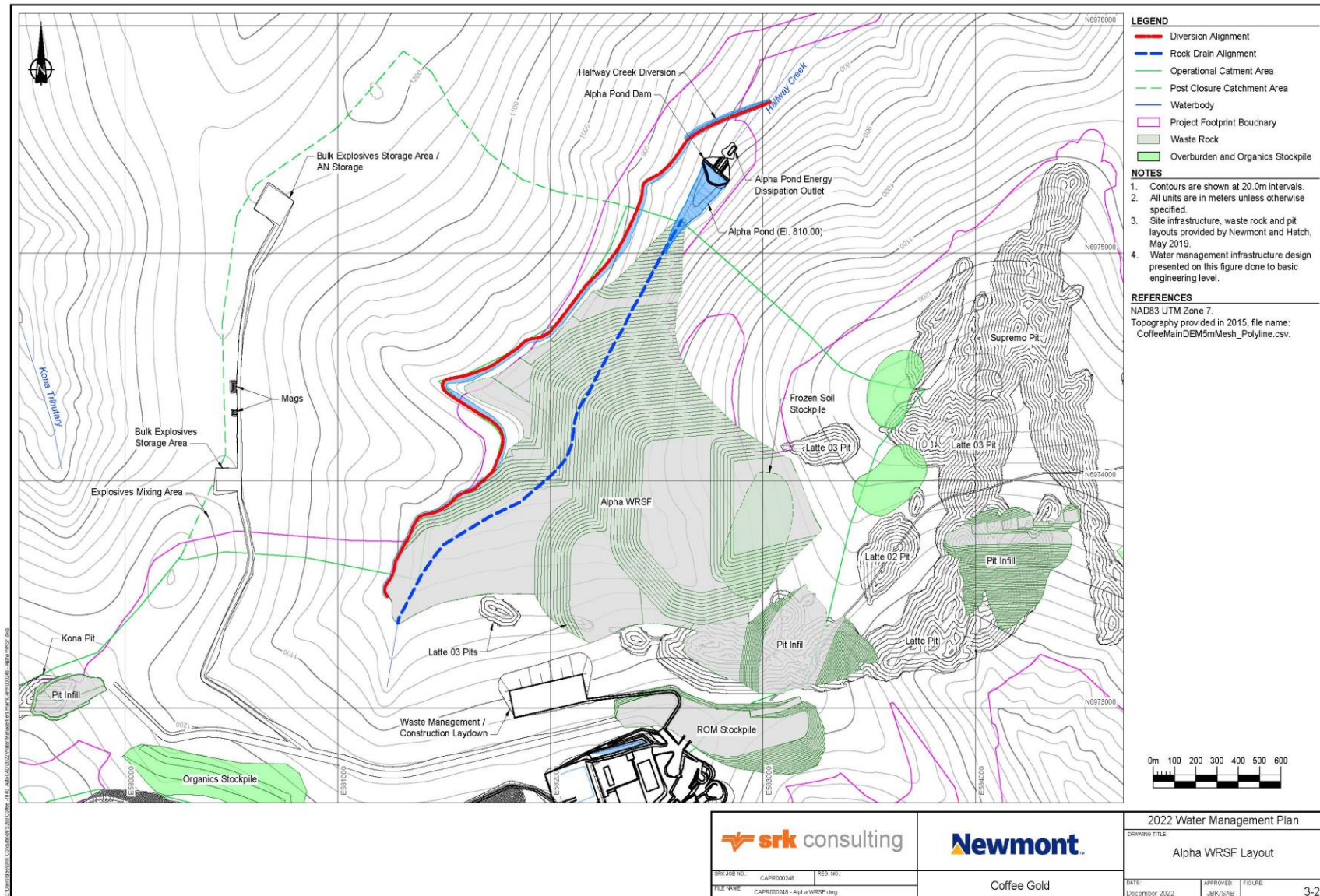


Figure 3-2 Alpha WRSF Layout

3.2.2 Heap Leach Facility (HLF)

The HLF consists of a conventional lined leach pad to support a multi-lift, free-draining heap including the following:

- Solution distribution (for delivery of barren solution to the heap)
- Collection piping (for gold bearing solution and rinse water to the event ponds and process plant)
- Three event ponds (EP-1N, EP-1S, EP-2) and one Rainwater Pond
- Various access roads
- Conventional process plant for gold recovery.

Ore will be stacked with trucks and conveyor/stackers on a lined leach pad in nominal 10 m thick lifts. Barren solution containing sodium cyanide will be irrigated onto the ore using drip irrigation. Barren solution will be heated and pumped at a nominal rate of 1,100 m³/hr (design 1,400 m³/hr) from the process plant to the heap leach pad after adding cyanide (estimated 0.2 kg cyanide per tonne of ore), anti-scalant, and makeup water to the barren tank as needed. Gold bearing solution will be collected into the piping network at the base of the HLF above the liner system and will flow to the process plant by gravity for gold recovery.

Makeup water will be pumped to the process plant, as-needed, from the following sources, in order of priority:

1. Contact water collected in the Event Ponds.
2. Non-contact water collected in the Rainwater Pond.
3. Contact water collected in the Facility Pond.
4. Contact water from open pit sumps or pit lakes.
5. Non-contact water from groundwater wells near the existing camp.

Note that the non-contact water from the groundwater wells is not expected to be a predominant source of makeup water to the plant, due to the expected availability of water from the open pits. However, this water remains as a contingency source for periods during early operations, when the open pit areas are not significantly developed or during extended drought periods.

The process plant will be located to the east of the heap leach pad. Solutions from the heap leach pad will gravity flow to solution tanks at the process plant. During high precipitation events, runoff from the heap is directed via gravity flow through channels to EP-1N and EP-1S with additional solution containment available through gravity flow to the third event pond, EP-2. During upset conditions within the ADR plant, solutions will gravity flow to a process sump within the event pond, EP-2. Any process solution accumulated in EP-2 will be pumped to the process plant and recirculated to the heap or treated in the water treatment plant and discharged to the Alpha Pond via the Alpha rock drain. A secondary option during upset conditions in the ADR plant is to move solution to the event ponds EP-1N and EP-1S by activating control valves. Figure 3-3 presents the HLF system. Additional details are presented in Section 4.3.12 as well as within the Heap Leach and Process Facilities Management Plan.

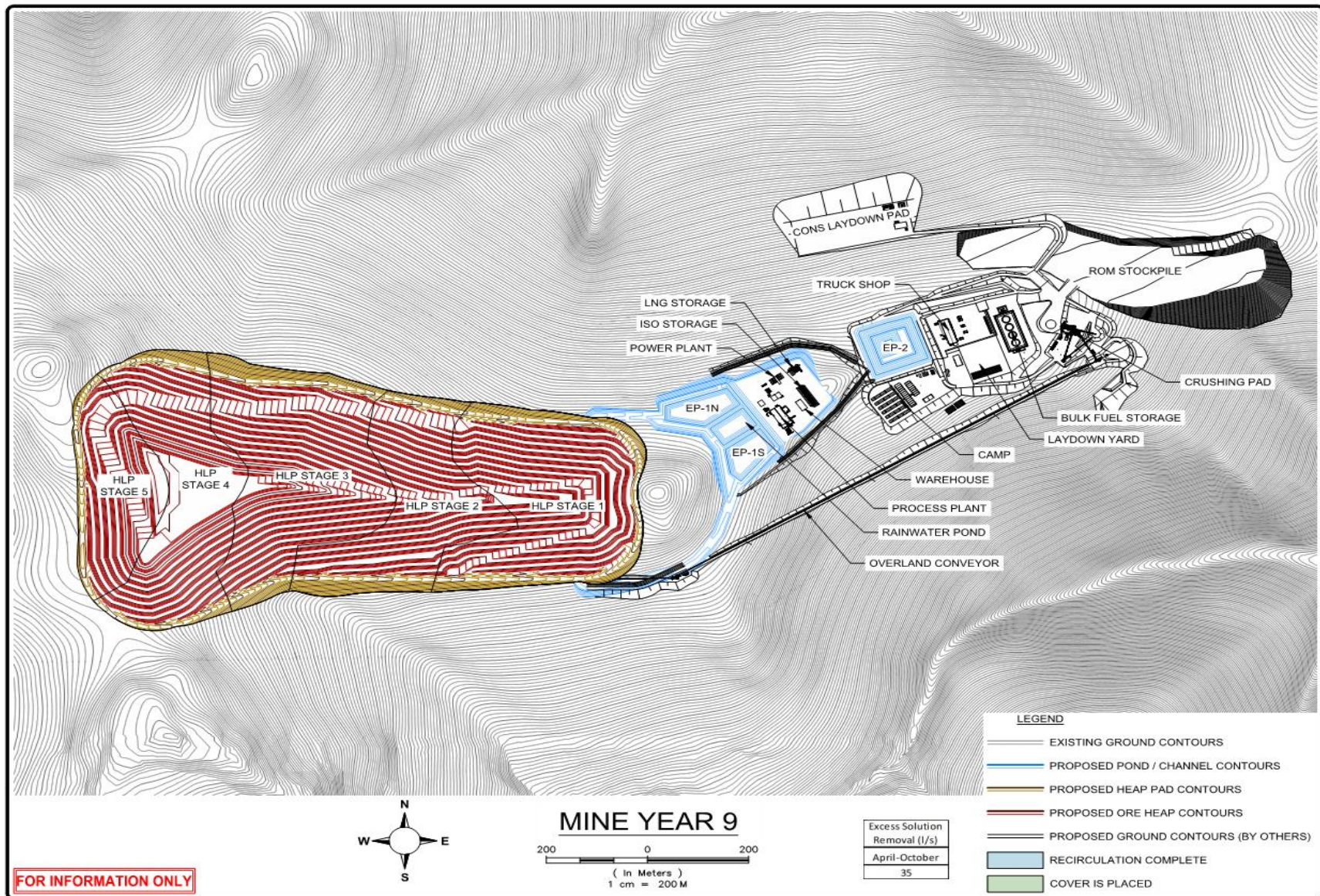


Figure 3-3 Detail of Heap Leach, Event Ponds and Plant Site

3.2.3 Plant Site

The Plant Site collectively includes the process plant, camp, associated facilities, and Run-of-Mine (ROM) ore stockpile (Figure 3-3). The rock pad foundation for the Plant Site area will be graded to convey contact water to a local sedimentation pond, the Facility Pond, which will be excavated below natural ground beneath the pad. A drainage ditch will be constructed along the perimeter of the ROM ore stockpile to facilitate drainage of runoff and stockpile seepage towards Facility Pond. Water collected in the Facility Pond may be used as makeup water for the HLF, used for dust suppression or discharged via pumped pipeline towards Alpha Pond (Section 3.5). The pond will be equipped with an emergency spillway, which will operate under large flood events only, discharging towards Alpha WRSF. Additional details on the Facility Pond are presented in Section 4.3.9.

3.2.4 Open Pits

Water management in the open pits is described for each mining area in the following sections. In general, water collected in active mining areas may be used for dust suppression, pumped to the Facility Pond for makeup water at HLF or discharged towards Alpha Pond. Once active mining is finished, pits will either be backfilled or flooded to form pit lakes. Spill points based on the current open pit configuration have been incorporated into the water balance and quality model. Any future changes to the mine plan and open pit development can be aligned with the closure plan and final spill point configuration.

3.2.4.1 Latte Pit

Latte pit is one of first pits developed and begins excavation in year -1. The geometry of Latte Pit is divided into 4 sub-pits, as shown in Figure 3-4. The largest of the sub-pits is located largely within the Halfway Creek catchment. The remaining three sub-pits are located largely within the Latte Creek catchment and are planned for excavation late into operation. The meteoric water that collects in the Latte Pit during mining will be used for dust suppression, pumped to the Facility Pond or used as makeup water to the HLF (by way of the facility pond or pumped to the HLF event ponds), or will be conveyed with excess water from the Facility Pond towards Alpha Pond for sedimentation control and discharge to Halfway Creek. Following the completion of active mining in isolated areas of the Latte Pit, inactive mining areas will be used for storage of water collected in other active mining areas. The temporary pit lake will provide sediment control in advance of pumping water for makeup at the HLF or for use in dust suppression. If active monitoring shows that pit lake water quality meets the discharge criteria for the receiving environment (i.e., Alpha Pond EQS or Latte Creek EQS), water may also be discharged directly to the environment via controlled spill point channels.

As the mine operation phase progresses, the Latte Pit will be partially backfilled with waste rock from other mined pits. Water temporarily stored in Latte Pit will be dewatered to the extent required and pumped to the Facility Pond, and ultimately discharged to Halfway Creek via the Alpha Pond in the years prior to backfilling. Once backfilling is complete, Latte Pit will accumulate meteoric water which will saturate the backfill voids. The main pit will spill towards Latte Creek, while each of the 3 minor pits will spill towards Alpha Pond. Active water quality monitoring during the final pit lake development will determine whether additional water management measures, such as water treatment, will be required to ensure any water that spills towards Latte Creek meets the Latte Creek EQS.

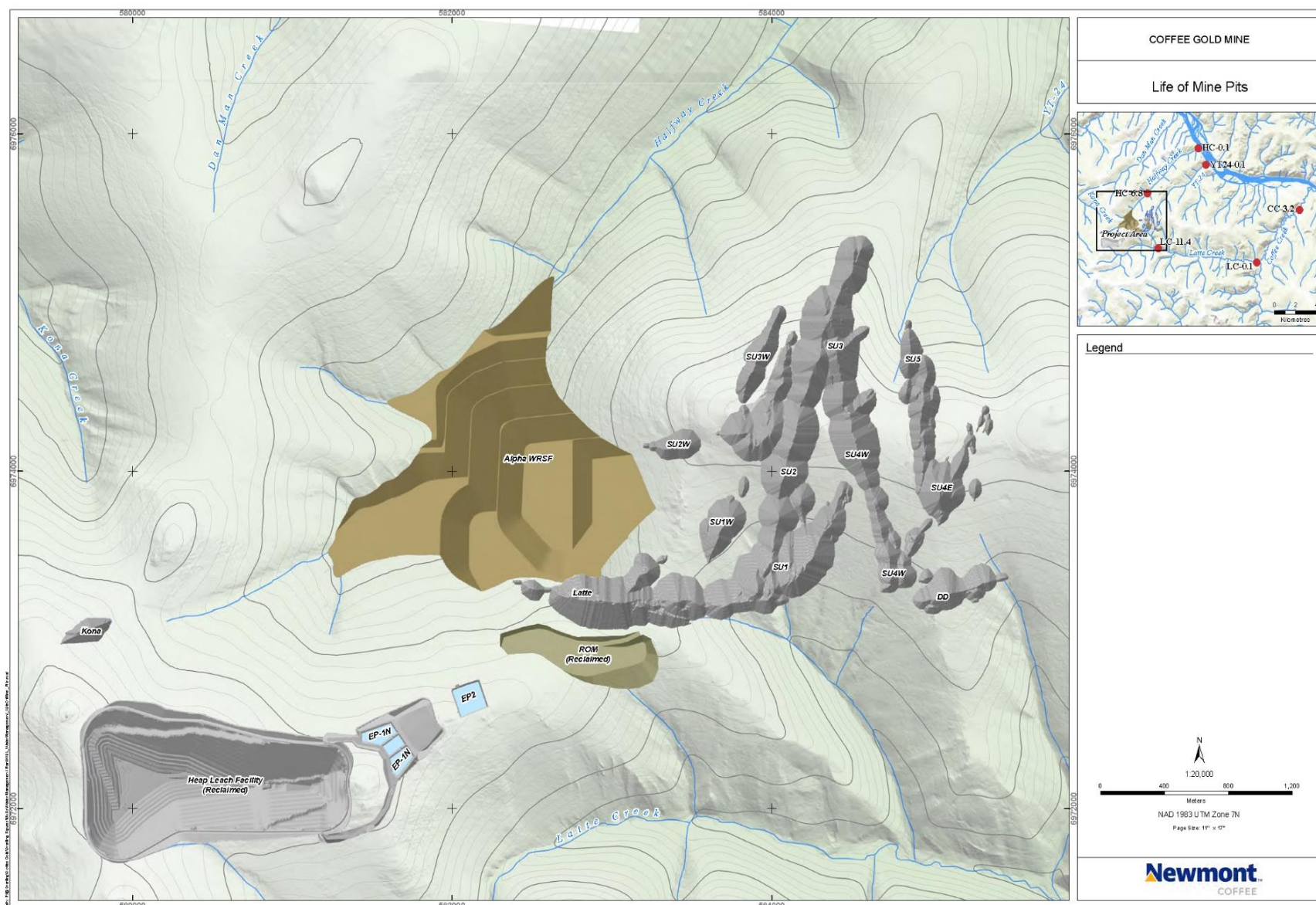


Figure 3-4 Life of Mine Pit Development and Pit Nomenclature

3.2.4.2 *Supremo Pit*

Supremo Pit comprises a series of sub-pits identified as SU1, SU1W, SU2, SU2W, SU3 SU3W, SU4W, SU4E and SU5, as presented in Figure 3-4. During mining, meteoric water that accumulates in active mining areas will be prioritised for use as dust suppression. Additional inflows will be pumped to one of three primary areas:

- While active mining or backfilling is ongoing in Latte Pit, water will be pumped to Facility Pond for use as makeup water or conveyed to Alpha Pond
- Once mining in Double Double Pit is complete and active flooding in this area is ongoing, water may be pumped to Double Double Pit
- During years where active mining in Latte Pit is complete, Supremo Pit water may be pumped to Latte Pit.

Following the completion of active mining in the Supremo pits, the pits will be flooded. Water from pit lakes may continue to be pumped towards Facility Pond and Alpha Pond to discharge into Halfway Creek throughout the operations period. Spill points from the final flooded Supremo Pit will discharge to the natural environment via Latte Creek and YT-24, as well as towards Alpha Pond. Active water quality monitoring during the final pit lake development will determine whether additional water management measures, such as water treatment, will be required to ensure any water that spills towards Halfway Creek, Latte Creek or YT-24 meets the site-specific effluent quality standards (Alpha Pond EQS, Latte Creek EQS and YT-24 EQS, respectively).

3.2.4.3 *Kona Pit*

The Kona Pit is located to the north of the HLF (Figure 3-4). The Kona Pit is planned to be developed in year 8. Waste rock from Kona will be delivered to the Alpha WRSF and meteoric water collected in the pit will be pumped towards the Alpha Pond via the Alpha WRSF rock drain. Water may also be pumped towards Event Ponds for water treatment if it does not meet the Alpha Pond EQS. Upon completion of mining in Kona, Supremo waste rock (gneiss) will be used to backfill the Kona Pit as the mine schedule permits to cover granite ore exposures which are mildly acidic and attenuate metal leaching and arsenic release from the granite pit walls. The remaining basin will then be allowed to flood, and the final spill point will be towards the Alpha WRSF rock drain. Active water quality monitoring during the final pit lake development will determine whether additional water management measures, such as water treatment, will be required to ensure any water that spills towards Halfway Creek meets the Alpha Pond EQS.

3.2.4.4 *Double Double Pit*

Beginning in the Construction Phase, a diversion channel will be built to the north side of the planned Double Double Pit to divert clean runoff (non-contact water) away from the Double-Double Pit into Latte Creek (Figure 3-1).

Active mining in Double Double Pit is planned in year 1 of operation and concludes in year 3 of operation. During active mining, meteoric water will be used for dust suppression, pumped towards the Facility Pond or Event Ponds for makeup water or conveyed towards the Alpha Pond if water quality meets the Alpha Pond EQS.

Following active mining, Double Double Pit may become a temporary pit lake, storing excess pit water collected in surrounding active mining areas. Pending the water quality at this time, water from the flooded Double Double pit lake may be discharged towards Latte Creek if it meets the Latte Creek EQS, or conveyed towards Alpha Pond if it meets the Alpha Pond EQS.

The Double Double pit lake will later be dewatered, to the extent required for full backfilling. All accumulated water will be pumped towards Event Ponds, the Facility Pond and conveyed to Alpha Pond, or discharged to the environment, pending water quality. Once backfilling is complete, Double Double Pit will be flooded a final time. Water in the backfill pore spaces within the Double Double Pit will spill to the natural environment via Latte Creek. Active water quality monitoring during the final pit lake development will determine whether additional water management measures, such as water treatment, will be required to ensure any water that spills towards Latte Creek meets the Latte Creek EQS.

3.2.4.5 Open Pits Summary

The backfilling and flooding schedule for each pit is presented in Table 3-1. Results are shown as a range, based on the 10th and 90th percentile water balance model results. While pits are being actively flooded, streamflow in the receiving environment is expected to present a reduction relative to pre-mining conditions. The rate of streamflow reduction will be linked to the percentage of the total stream catchment that is captured in the open pit.

Table 3-1 Estimated Reduction of Flows in Receiving Streams Post Pit Dewatering

Catchment	Open Pit	Year Dewatering Completed	Mine Year Pit Filling Complete ²
Latte	Double Double	2	24 to 26
	Latte East ²	4	5
	SU1 ²	3	10
	SU1W	7	44
	SU4W	6	8
	SU4E	6	24 to 26
	SU2	6	>75
Halfway	SU3W	3	10 to 12
	Kona	8	25 to 27
	Latte West	1	>75
	SU2W ³	8	NA
YT-24	SU5	6	12
	SU3	5	48 to 51

Notes:

¹ Range of predicted pit filling dates based on the 10th and 90th percentile model outputs

² Latte East and SU1 form a combined pit lake

³ SU2W has no pit void below the spill elevation, therefore a pit lake does not form in this pit

A summary of scheduled pit dewatering and predicted years of pit lake filling and spillover is shown in Figure 3-5. Water volumes that are actively managed around the mine, including in and out of pits (for use, storage or discharge), will be measured, tracked and monitored for water quantity and quality as discussed in sections 5.3 and 6.0. Pit filling and spillway results are based on average meteoric inflow conditions.

Pit lakes relative to receiving catchments are illustrated in Figure 3-6.

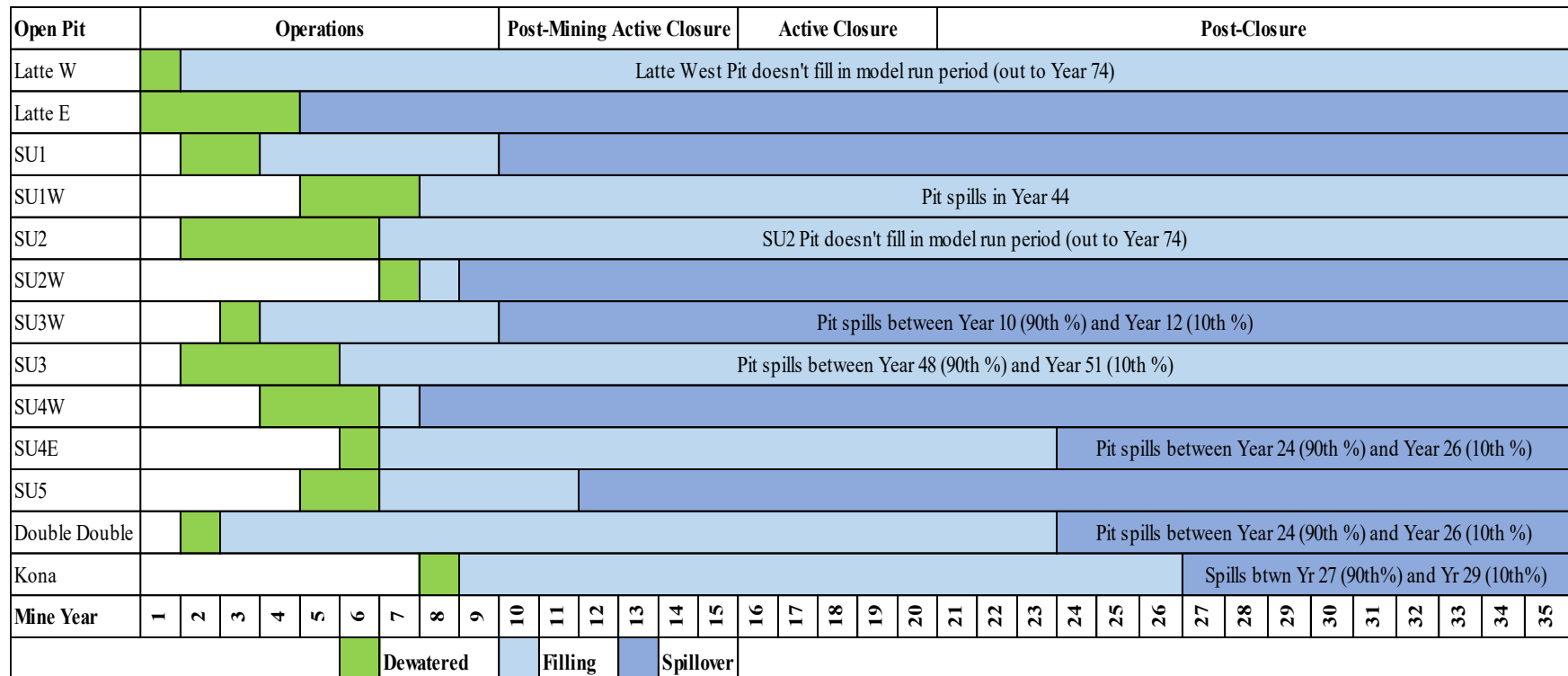


Figure 3-5 Open Pit Dewatering Schedule and Predicted Years of Filling and Spillover

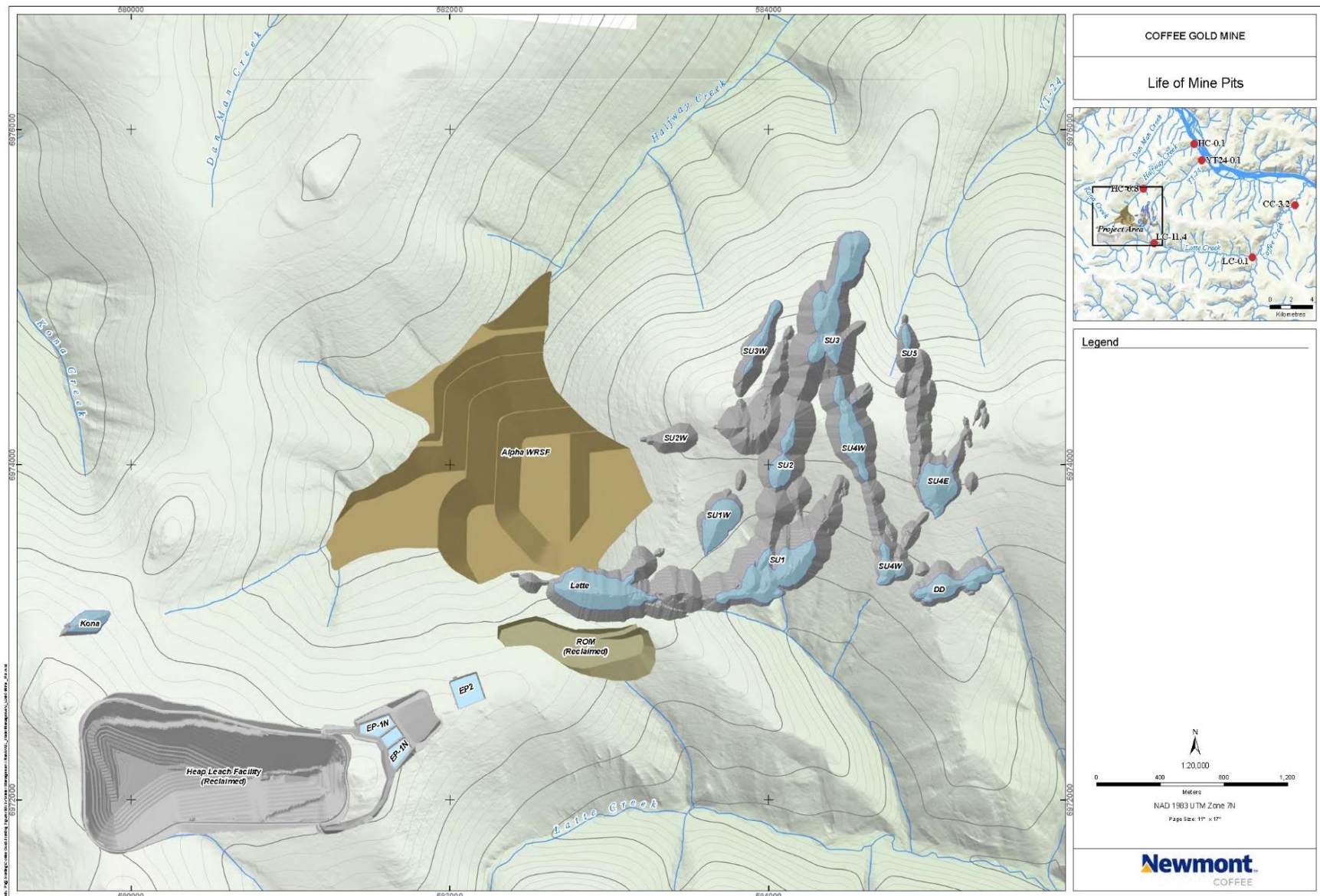


Figure 3-6 Pit Lakes Relative to Receiving Catchments

3.3 Surface Water

Management of surface water is facilitated through diversion channels, sedimentation ponds and pumping systems. Design criteria and objectives of each type of infrastructure are described in Section 4.0.

3.3.1 Summary of Surface Water Storage

Water storage on-site is facilitated through various ponds throughout the life of mine, providing flexibility in management of surface water. Table 3-2 summarizes the available water storage volumes throughout the life of mine. Additional details on pond sizes are provided in Section 4.0.

Table 3-2 Summary of Available Surface Water Storage through Life of Mine

Structure	Operational Period	Available Storage Volume [m ³]
Alpha Pond	Year -1 to Year 20	298,100
Facility Pond	Year 1 to Year 21	20,400
Event Pond 1 (EP-1N)	Year -1 to Year 21	112,000
Event Pond 2 (EP-1S)	Year -1 to Year 21	90,000
Event Pond 3 (EP-2)	Year -1 to Year 21	340,000
Rainwater Pond	Year -1 to Year 21	53,000

3.3.2 Summary of Surface Water Discharge

Discharge to the receiving environment is expected throughout the life of mine. Discharging facilities and their associated receiving waterbody are summarized in Table 3-3 below. Active water quality monitoring at each facility will ensure water discharged meets the appropriate discharge criteria, as denoted in Table 3-3 and described in detail in Section 3.5. Details on water quality monitoring for each facility are presented in the Surface Water Quality Monitoring Plan and details on water levels and flow monitoring are presented in the Hydrology Monitoring Plan.

Table 3-3 Surface Water Discharges from the Project

Receiving Stream	Discharge Criteria	Discharging Facilities	Discharge Approach	Comment
Halfway Creek	Alpha Pond EQS	Alpha Pond	Pumped discharge for normal operations and emergency spillway overflows during larger flood events; foundation seepage	Discharge rates controlled by pond elevation (Figure 3-7)
		Facility Pond	Controlled discharge to Alpha WRSF rock drain	Normal operations will involve discharge to the Plant or other Project water demand sources (including dust control), or pumped discharge towards Alpha Pond (Figure -3-8)
		Water Treatment Plant	Pumped discharge towards Alpha WRSF rock drain	Effluent to be discharged via Alpha Pond into Halfway Creek
		Rainwater Pond	Pumped discharge towards Alpha WRSF rock drain	Non-contact water to be discharged via Alpha Pond into Halfway Creek
		Kona Pit Flooded Backfill	Spillway channel discharge from flooded backfill	Dewatered during active mining; allowed to fill following backfilling and passively spill to Halfway Creek
		SU2W Pit and SU3W Flooded Pit Lake	Runoff from SU2W pit shell and spillway channel discharge from flooded pit lake (SU3W)	Dewatered during active mining; SU2W runoff reports to Alpha rock drain; SU3W allowed to fill passively and spill to Halfway Creek
		Halfway Creek Diversion Channel	Non-contact water diverted around Alpha WRSF and Alpha Pond	Non-contact runoff unaffected by mine operations and suitable for direct discharge to Halfway Creek
Latte Creek	Latte Creek EQS	Latte West Flooded Backfill	Water balance model does not predict Latte West to reach spill elevation	Dewatered during active mining; allowed to fill following backfilling
		SU1, SU4 Flooded Pit Lakes	Spillway channel discharge from flooded pit lake	Dewatered during active mining; allowed to fill following backfilling and passively spill to Latte Creek
		Double Double Flooded Backfill	Spillway channel discharge from flooded backfill	Dewatered during active mining; allowed to fill following backfilling and passively spill
		Double Double Diversion	Non-contact water diverted around Double Double pit	Non-contact runoff unaffected by mine operations and suitable for direct discharge to Latte Creek
YT-24	YT-24 EQS	SU3, SU5 Flooded Pit Lake	Spillway channel discharge from flooded pit lake	Dewatered during active mining; allowed to fill passively and spill to YT-24

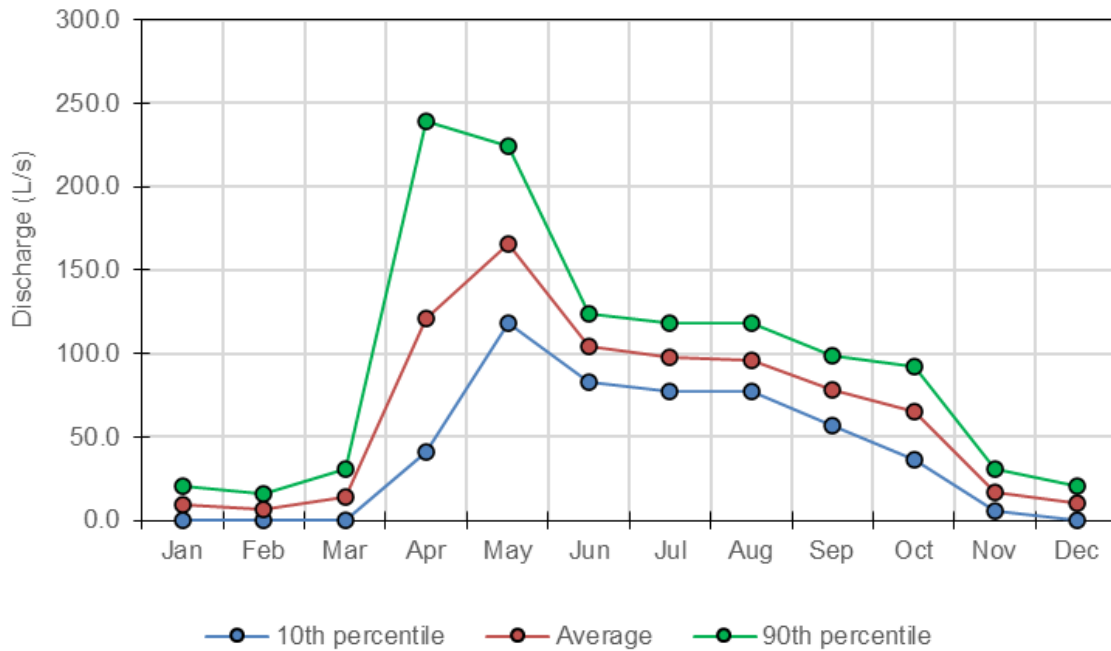


Figure 3-7 Predicted monthly 10th percentile, average and 90th percentile discharge rates for the Alpha Pond

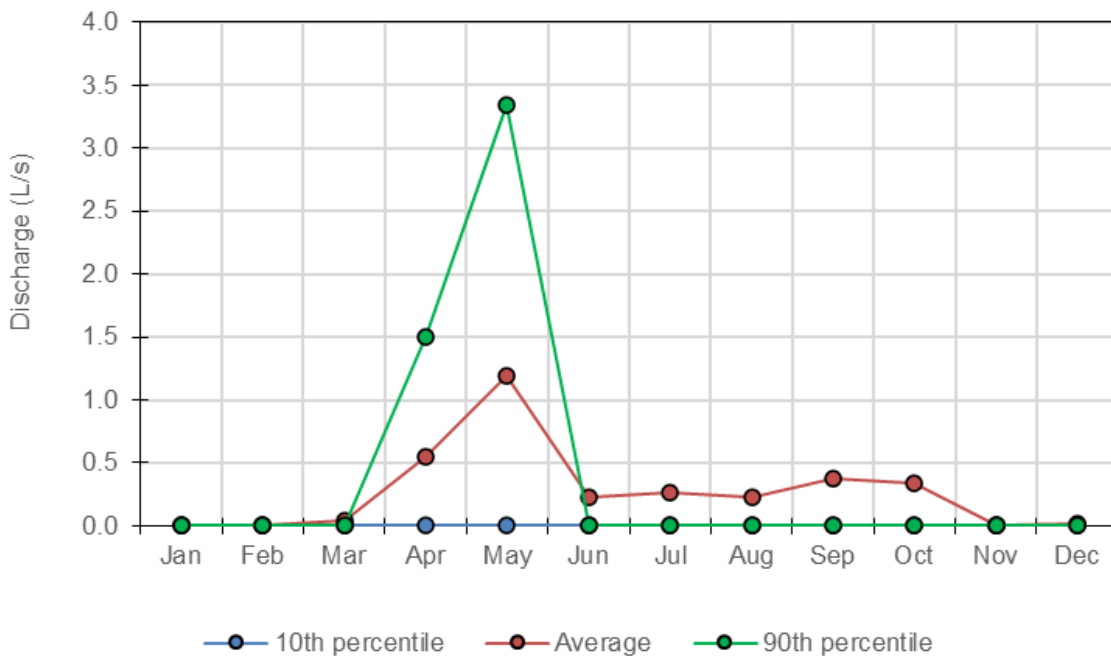


Figure -3-8 Predicted monthly 10th percentile, average and 90th percentile discharge rates for the Facility Pond

3.4 Groundwater

Some groundwater is expected to infiltrate into bedrock from the open pits, however, is expected to be minimal. Water that does infiltrate is expected to constitute a small contribution to surface water flows downstream of mine infrastructure and is incorporated in the water balance and water quality model.

Given the relatively small volume of groundwater infiltration to meteoric water, it is not considered necessary to manage groundwater separately from surface water within the open pits.

Shallow groundwater will continue to flow within the Halfway Creek catchment. Some of this water may be captured in the Alpha Pond. Water quality from seepage of the Alpha WRSF is expected to be suitable for discharge to Halfway Creek. If this condition changes, a monitoring well downstream of Alpha Pond may be converted to a pumping well to capture seepage prior to discharging further into Halfway Creek.

3.5 Discharge Criteria

Any discharge from the Project to the receiving environment will be subject to effluent discharge criteria. Discharge criteria are specified based on the phase of the Project and the stream that is receiving the water. Phases with different discharge criteria include the construction period, before active mining or processing begins, and the remainder of the operational and closure period.

The following sections summarize the discharge criteria for the construction period, which applies to all active working areas, and the operations and closure period, which were developed specifically for each receiving stream.

3.5.1 Construction Period Discharge Criteria

The construction phase, in the context of discharge criteria, starts in Year -3 when active material movement begins. During this period, all surface runoff encountered is non-contact water, however ground disturbance is expected to result in mobilization of sediment. The parameter of concern during this period is turbidity and/or TSS, which must be controlled in order to minimize effects to the surrounding aquatic ecosystem. This is consistent with Best Management Practices outlined in the summary document for Making Changes in and About a Stream in British Columbia (Government of British Columbia, 2022), Best Management Practices for Works Affecting Water in Yukon (Environment Yukon, 2011), and the Runoff, Erosion and Sediment Control Best Management Practices for Yukon Placer Mining Operations (EDI, 2003).

The recommended suspended sediment management approach during construction follows guidance from the Canadian Council of Ministers of the Environment (CCME) for freshwater and the protection of aquatic life, which allows a maximum increase in TSS concentration or turbidity levels relative to background levels. Monitoring stations will be located upstream and downstream of construction activities, and daily measurements will be collected to confirm that TSS concentrations or turbidity levels do not increase by more than the maximum values recommended by CCME and summarized in Table 3-4. Turbidity levels have been included since they are easier to record in the field. A relationship between background turbidity levels and TSS concentrations may also be established.

Table 3-4 Construction Period Discharge Criteria for Suspended Sediment

Flow Condition	Short-Term (1-day) Increase over Background Levels	Long-Term (30-day) Increase over Background Levels
Clear Flow (normal flow conditions)	Maximum increase of 25 mg/l from background TSS concentration OR Maximum increase of 8 NTUs from background turbidity levels	Maximum increase of 5 mg/l from background TSS concentration OR Maximum increase of 2 NTUs from background turbidity levels
High Flow (during spring freshet or after rainfall events)	Maximum increase of 25 mg/l from background when background TSS levels are between 25 and 250 mg/l. Should not increase more than 10% of background when TSS levels are > 250 mg/l OR Maximum increase of 8 NTUs from background turbidity levels at any one time when background levels are between 8 and 80 NTUs. Should not increase more than 10% of background turbidity levels when background is >80 NTU	n.a.

Details on sediment and erosion control measures during the construction phase are presented in the Erosion and Sediment Control Plan.

3.5.2 Mining and Post-Mining Period Discharge Criteria

The operations period, in the context of discharge criteria, starts in Year -1 when active mining begins in the open pits and ore processing begins at the heap leach facility. During this period, there is potential for additional parameters of concern to be mobilized from mining activities.

Effluent Quality Standards (EQS) have been developed for mine discharges for operations and early closure for the primary mine discharge location at the Alpha Pond in Halfway Creek; EQS for Latte Creek and YT-24 have similarly been developed recognizing that passive pit overflow occurs into these catchments in late operations and into closure and that there may be a need to discharge from pit dewatering into these catchments should water quality be acceptable. Development of EQS follows the approach outlined in Yukon Guide for Developing Water Quality Objectives and Effluent Quality Standards for Quartz Mining Projects.

The proposed EQS for each location is presented in the following sections.

3.5.2.1 Alpha Pond – Halfway Creek EQS

The water balance water quality model (WBWQM) was used to assist in the development of the EQS for the Alpha Pond discharge into Halfway Creek. The WBWQM was employed to back-calculate allowable dissolved concentrations for each parameter that ensures Use Protection water quality objectives are maintained in Halfway Creek at the attainment station HC-1.0 (Table 1-2). The approach involved fixing water quality at HC-1.0 at the respective Use Protection water quality objective and allowing discharge concentrations in the Alpha Pond to vary based on available assimilative capacity in Halfway Creek. The WBWQM was run through 30 multi-realizations using the climate data series to generate monthly mean allowable concentrations for specific parameters for operations and early closure period (e.g., prior to decommissioning the Alpha Pond). Based on these generated monthly allowable concentrations, the EQS for each individual parameter was selected as the 5th percentile value of the entire back-calculated data set. It is important to note that the EQS is for each parameter *individually* and is not meant to represent a potential solution of calculated values.

Further details on the EQS derivation approach is provided in *Coffee Mine Project – Water Balance and Water Quality Model* (Lorax 2022d). Table 3-5 provides a summary of the proposed EQS for the Alpha Pond discharge.

Table 3-5 Proposed EQS for Alpha Pond Discharge to Halfway Creek

Parameter (dissolved)	Units	Proposed EQS
TSS	mg/L	15
N-NH ₃	mg/L	3.8
N-NO ₃	mg/L	20
N-NO ₂	mg/L	0.047
Cl	mg/L	250
Sulphate	mg/L	570
WAD-CN	mg/L	0.01
Al-D	mg/L	0.8
Ag-D	mg/L	0.0005
As-D	mg/L	0.011
Cd-D	mg/L	0.0005
Co-D	mg/L	0.008
Cu-D	mg/L	0.0075
Fe-D	mg/L	2.3
Hg-D	mg/L	0.00005
Mo-D	mg/L	0.17
Ni-D	mg/L	0.17
Pb-D	mg/L	0.005
Sb-D	mg/L	0.02
Se-D	mg/L	0.005
U-D	mg/L	0.2
Zn-D	mg/L	0.06

3.5.2.2 Latte Creek EQS

The water balance water quality model (WBWQM) was similarly used to develop EQS for Latte Creek. The water management strategy seeks to limit discharges to Latte Creek which drains into Coffee Creek. However, later in operations and into closure, pits SU1, SU4W and Double Double are predicted to fill and passively spill into Latte Creek. Application of the Latte Creek EQS results are further described in Section 3.5.

The back-calculation approach for determining allowable concentrations in discharge(s) that maintain proposed Use Protection water quality objectives (Table 1-2) at LC-11.4 used a *daily* timestep that estimated passive spill rates from the pits located in the Latte Creek catchment. A monthly timestep, as used for the Alpha Pond, was deemed inappropriate as the averaging process for the intermittent pit spilling necessarily included periods of essentially no discharge and therefore very high assimilative capacity, which biased the calculated monthly allowable EQS to much higher concentrations. Instead, daily allowable concentrations were generated for all discharge times from late operations into closure. The Latte EQS was then selected as the 5th percentile value of the entire back-calculated daily data set. Table 3-6 provides a summary of the proposed EQS for any discharge to Latte Creek. As indicated previously, the EQS is for each parameter *individually* and is not meant to represent a potential solution of calculated values.

Table 3-6 Proposed EQS for Latte Creek Discharges

Parameter (dissolved)	Units	Proposed EQS
TSS	mg/L	15
N-NH ₃	mg/L	12
N-NO ₃	mg/L	75
N-NO ₂	mg/L	0.1
Cl	mg/L	720
Sulphate	mg/L	2500
WAD-CN	mg/L	0.03
Al-D	mg/L	0.5
Ag-D	mg/L	0.002
As-D	mg/L	0.045
Cd-D	mg/L	0.0006
Co-D	mg/L	0.032
Cu-D	mg/L	0.020
Fe-D	mg/L	8
Hg-D	mg/L	0.00018
Mo-D	mg/L	0.15
Ni-D	mg/L	0.05 ^a
Pb-D	mg/L	0.029
Sb-D	mg/L	0.07
Se-D	mg/L	0.019
U-D	mg/L	0.4
Zn-D	mg/L	0.29

a: adjusted to be at the MDMER limit

3.5.2.3 YT-24 EQS

Discharge to YT-24 in the current water management strategy is limited to passive spilling of pits SU3 and SU5 later in the mine life and into the closure phase. Application of the Latte Creek EQS results are further described in Section 3.5.

The back-calculation approach for determining allowable concentrations in discharge(s) that maintain proposed Use Protection water quality objectives at YT-24.1 used a *daily* timestep that estimated passive spill rates from the pits located in the YT-24 catchment. As noted for Latte, a monthly timestep was deemed inappropriate as the averaging process for the intermittent pit spilling necessarily included periods of essentially no discharge and therefore high assimilative capacity, which biased the calculated monthly allowable EQS to much higher concentrations. Instead, daily allowable concentrations were generated for all discharge times from late operations into closure. The YT-24 EQS was then selected as the 15th percentile value of the entire back-calculated daily data set. Table 3-7 provides a summary of the proposed EQS for any discharge to YT-24. As indicated previously, the EQS is for each parameter *individually* and is not meant to represent a potential solution of calculated values.

Table 3-7 Proposed EQS for Discharge to YT-24

Parameter (dissolved)	Units	Proposed EQS
TSS	mg/L	15
N-NH ₃	mg/L	12
N-NO ₃	mg/L	90
N-NO ₂	mg/L	0.1
Cl	mg/L	720
Sulphate	mg/L	2500
WAD-CN	mg/L	0.04
Al-D	mg/L	0.5
Ag-D	mg/L	0.003
As-D	mg/L	0.047
Cd-D	mg/L	0.0009
Co-D	mg/L	0.032
Cu-D	mg/L	0.02
Fe-D	mg/L	9
Hg-D	mg/L	0.00015
Mo-D	mg/L	0.8
Ni-D	mg/L	0.25 ^a
Pb-D	mg/L	0.01
Sb-D	mg/L	0.08
Se-D	mg/L	0.02
U-D	mg/L	0.17
Zn-D	mg/L	0.3

a: adjusted to be at the MDMER limit

3.5.2.4 Post-Closure HLF Seepage EQS

Following completion of reclamation of the HLF and final cover placement, net infiltration into the facility will produce residual seepage from the HLF. Long-term closure will require that seepage from the HLF be passively discharged to Halfway Creek. Water balance estimates of the post closure HLF seepage flows following cover placement are available and were used to develop EQS for the seepage discharges from this facility. The same back-calculation approach was used to develop EQS for the post closure HLF seepage waters as was performed for the Alpha Pond. As discussed in Section 4.4, estimates of Late Phase HLF porewater solutions have been developed and are considered representative of post-closure HLF seepage water quality. Table 3-8 provides a comparison of proposed EQS to Late Phase HLF solution water quality. As illustrated, only nitrite and arsenic appear to be likely treatment candidates for post closure given the existing estimates for late phase HLF seepage chemistry and estimated HLF cover performance of net infiltration of <24% of mean annual precipitation (MAP).

Table 3-8 Proposed EQS for Post Closure HLF Discharge

Parameter (dissolved)	Units	5 th Percentile of Average Monthly Values	Late Phase HLF Solution	Proposed EQS	Treatment
TSS	mg/L	n.a.	n.a.	15	No
N-NH ₃	mg/L	58	0.06	10	No
N-NO ₃	mg/L	308	307	300	Possibly
N-NO ₂	mg/L	0.6	1.9	0.6	Likely
Cl	mg/L	4600	123	2000	No
Sulphate	mg/L	3031	2516	3000	No
WAD-CN	mg/L	0.15	0.2	0.15	Possibly
Al-D	mg/L	9	0.2	1	No
Ag-D	mg/L	0.009	0.00125	0.009	No
As-D	mg/L	0.113	2.0	0.1	Likely
Cd-D	mg/L	0.007	0.00013	0.007	No
Co-D	mg/L	0.147	0.014	0.147	No
Cu-D	mg/L	0.07	0.014	0.07	No
Fe-D	mg/L	31	0.25	10	No
Hg-D	mg/L	0.00065	0.00026	0.00065	No
Mo-D	mg/L	2.7	0.105	2	No
Ni-D	mg/L	2.7	0.006	2	No
Pb-D	mg/L	0.07	0.0013	0.07	No
Sb-D	mg/L	0.31	0.5	0.3	Possibly
Se-D	mg/L	0.07	0.005	0.07	No
U-D	mg/L	2.1	0.685	2	No
Zn-D	mg/L	0.76	0.052	0.7	No

3.5.3 Project Discharge Summary

Table 3-9 summarizes the water management options for each mine source, along with associated discharge criteria.

Table 3-9 Water management and discharge options for mine sources throughout life of mine

Source	Water Management Options	Discharge Criteria
Open Pit		
Latte Pit	Water collected during active mining may be used as follows: -Dust suppression -Pumped to Facility Pond -Pumped to Event Ponds for makeup water at plant -Pump inter-pit or intra-pit for additional settling or to meet operational needs. Post-mining, pit will be partially backfilled with waste rock and flooded. Pit lake water may continue to be pumped to Facility Pond or Event Ponds or discharged to environment. Optional in-situ water treatment as-needed. Final spill points are as follows: -Main Pit spill to Latte Creek -3 minor pits spill to Alpha Pond	No criteria required for Facility Pond or Event Ponds. To discharge towards Latte Creek, water must meet Latte Creek EQS.
Supremo Pit	Water collected during active mining may be used as follows: -Dust suppression -Pumped to Facility Pond -Pumped to Event Ponds for makeup water at plant -Pumped to Double Double Pit Lake, once active mining is complete -Pumped to Latte Pit Lake, once active mining is complete -Pump inter-pit or intra-pit for additional settling or to meet operational needs. Post-mining, pit will be partially backfilled with waste rock and flooded. Pit lake water may continue to be pumped to Facility Pond or Event Ponds or other pit lakes, or to the environment. Optional in-situ water treatment as-needed. Final spill points are as follows: -Pit spill to Latte Creek -Pit spill to YT-24 -Pit spill to Alpha Pond	No criteria required for Facility Pond or Event Ponds. To discharge towards Latte Creek, water must meet Latte Creek EQS. To discharge towards YT-24 Creek, water must meet YT-24 EQS.
Double Double Pit	Water collected during active mining may be used as follows: -Dust suppression -Pumped to Facility Pond -Pumped to Event Ponds for makeup water at plant -Pump inter-pit or intra-pit for additional settling or to meet operational needs. Post-mining, pit will be fully backfilled with waste rock and flooded. Pit lake water may continue to be pumped to Facility Pond or Event Ponds or other pit lakes or to the environment. Optional in-situ water treatment as-needed. Final spill points are as follows: -Pit spill to Latte Creek	No criteria required for Facility Pond or Event Ponds. To discharge towards Latte Creek, water must meet Latte Creek EQS.

Source	Water Management Options	Discharge Criteria
Kona Pit	Water collected during active mining is assumed to require treatment and will be directed to the WTP if necessary. Water quality better than WTP target criteria can be used for: -Dust suppression -Pumped towards Alpha rock drain for subsequent discharge to Halfway Creek via Alpha Pond -Pumped to Event Ponds for makeup water at plant or water treatment -Pump inter-pit or intra-pit for additional settling or to meet operational needs. Post-mining, pit will be partially backfilled with waste rock and flooded. Pit lake water may be pumped to Event Ponds for water treatment as-needed. Optional in-situ water treatment as-needed. Final spill points are as follows: -Pit spill to Alpha rock drain for subsequent discharge to Halfway Creek via Alpha Pond	No criteria required for Facility Pond or Event Ponds.
Heap Leach Facility	Seepage, direct precipitation, and runoff from HLF will be collected in three Event Ponds and one Rainwater Pond. Event Ponds: Runoff and seepage from the active heap leach area will drain to three Event Ponds. Water in Event Ponds can be used as follows: -Primary source for makeup water to plant -Pumped and treated at HLF Water Treatment Plant. Rainwater Pond: Covered areas of HLF will shed runoff towards the Rainwater Pond. Water in Rainwater Pond can be used as follows: -Secondary source for makeup water to plant -Pumped towards Alpha rock drain for subsequent discharge to Halfway Creek via Alpha Pond	No criteria required for Event Ponds to Water Treatment Plant. No criteria required for plant makeup water. To discharge towards Alpha rock drain, water from Event Ponds must be treated to meet or must already meet water treatment targets To discharge towards Alpha rock drain, water from Rainwater Pond must be at or below water treatment target values To discharge in post-closure towards Halfway Creek, water must meet Post-Closure HLF Seepage EQS.
Water Treatment Plant	Treat excess HLF water. Treated water can be used as follows: -Freshwater or makeup water for plant -Pumped towards Alpha rock drain for subsequent discharge to Halfway Creek via Alpha Pond	No criteria required for plant makeup water. Water Treatment Plant discharge to meet target concentrations in effluent.

Source	Water Management Options	Discharge Criteria
Plant Site	Seepage and runoff from Plant Site will drain towards the sedimentation pond, Facility Pond North. Facility Pond water can be used as follows: -Dust suppression -Tertiary source for makeup water to plant -Pumped towards Alpha rock drain for subsequent discharge to Halfway Creek via Alpha Pond -Pumped to temporary or permanent pit lakes -Pumped to HLF Water Treatment Plant	No criteria required for plant makeup water, dust suppression, temporary pit lake, or to HLF Water Treatment Plant. Discharge to Alpha Pond to be at or below calculated allowable concentrations indicated in Table 4-9 of Heap Leach Process and Facilities Plan
Alpha Waste Rock Storage Facility	Seepage and runoff from Alpha WRSF will be conveyed through the Alpha rock drain to the Alpha Pond. Alpha Pond will provide sediment control for inflows and will discharge via pumping system and emergency spillway towards Halfway Creek. Contingency water management measures have been developed to manage water in Alpha Pond that does NOT meet Halfway Creek EQS. See Appendix A.	<u>Year -2:</u> During Alpha Pond construction, the Construction Period Discharge Criteria will apply. <u>Year -1 through Year 20¹:</u> During operations of Alpha Pond, the Halfway Creek EQS will apply.

Notes:

1. Alpha Pond will remain in-place until inflows from Alpha rock drain meet Halfway Creek EQS for direct discharge, at which point the dam will be decommissioned.

4.0 PRELIMINARY ENGINEERING DESIGN

4.1 Supporting Information

4.1.1 Hydrology

The hydrologic data used in the design of water management infrastructure was developed by Lorax (Lorax 2022a *Coffee Gold Project: 2021 Hydro-meteorology Baseline Report*) to estimate runoff volumes, peak flow rates and catchments. Reference material includes:

- Rainfall depths for each return period and duration
- Precipitation and temperature records from active monitoring stations on site
- Snowpack and snowmelt data from nearby snow pillow stations in Alaska
- Hydrometric monitoring gauges in Halfway Creek and Latte Creek.

Hydrological design inputs for the water management infrastructure are described in the Water Management Design Basis Report (SRK 2022).

4.1.2 Topography and Site Layout Drawings

All topographic and photogrammetric survey data were provided by Newmont and AECOM. The proposed design documents for development of the Mine Site were provided by Newmont and JDS Energy & Mining Inc.

4.1.3 Soil Characterization

Geomorphological terrain mapping (AECOM 2012) provided soil texture geomorphological process, surficial materials, and drainage characteristics. The soils within the Project drainage basins consist of thin soils overlying permafrost at depths zero to more than 5 m. Soil depth increased from the ridge lines to the valley floors. This information was used to inform the runoff calibration model described in SRK (2022)

4.2 Design Criteria

4.2.1 Component Definition

Water management in the Project area will consist of multiple conveyance systems and sedimentation ponds. The sedimentation ponds have a finite operational life and will be operated until water quality from site runoff meets site-specific closure objectives, after which they will be decommissioned.

Diversion berms and channels intercept and route non-contact surface runoff around active mining areas and sedimentation ponds and will be decommissioned after closure objectives are met.

Pit lakes are expected to be developed in the completed mining areas in combination with waste rock backfill. No open pit lakes are expected for Double Double Pit and Kona Pit, which will be fully backfilled with waste rock.

4.2.2 Hydrotechnical Design Criteria

The hydrotechnical design criteria for the Project are based on engineering best practices, professional engineering judgement and/or constructability considerations. Design criteria for water management infrastructure are presented in the following tables.

Table 4-1 Hydrologic Design Criteria for Estimating Peak Flows

Item	Value	Unit	Source
Maximum Snowmelt Rate ¹	53	mm/day	Lorax 2022a, Appendix 8-A
Rainfall Distribution	SCS Type I	-	NRCS 2019 ²
Rainfall Depth³			
1: 10 Year Return Period	77	mm	Lorax 2022a / SRK 2022
1: 200 Year Return Period	124	mm	Lorax 2022a / SRK 2022
1: 1,000 Year Return Period	154	mm	Lorax 2022a / SRK 2022

Notes:

1. Maximum snowmelt rate based on observations from Upper Chena snow pillow station near Coffee Creek (Lorax 2022a)
2. National Resource Conservation Service (NRCS). 2019
3. Rainfall depths were presented in Lorax 2022a and were adjusted in SRK 2022 to account for effects of climate change. Depths represent 24-hour duration events.

Table 4-2 Sedimentation Pond Design Criteria (Alpha Pond and Facility Pond)

Item	Value	Unit	Source / Comments
Rainfall Return Period for Storage and Dewatering System	10	Years	(BC MOE, December 2015)
Minimum Retention Time	24	hours	Operational Consideration
Minimum Freeboard	1.0	m	Engineering Judgement
Emergency Spillway Return Period	200 – 1,000	Years	(BC MOE, December 2015) (CDA 2019) and GISTM (ICMM 2020) for Significant Dam
Minimum Particle Size Settling Requirement	10	µm	(BC MOE, December 2015)

Table 4-3 Heap Leach Facility Event Pond Design Criteria (EP-1N, EP-1S, EP-2)

Item	Value	Unit	Source / Comments
Cumulative Storage Volume			
Rainfall Design Storm	PMP	mm	Engineering Judgement
Heap Drainage	72	hrs	Drainage from HLF based on prolonged power outage or pump failure
Minimum Freeboard	0.5	m	Engineering Judgement
Emergency Spillway Return Period	PMF	mm	Engineering Judgement

Table 4-4 Diversion Berm Geometry Criteria

	Item	Value	Unit	Source / Comments
Halfway Creek Diversion	Rainfall Return Period	10	Years	Linked to sizing for Sedimentation Ponds
	Channel Base Width Range	1 - 6	m	Engineering Judgement and based on topography
	Minimum Berm Height	2	m	Hydraulic sizing calculations and Engineering Judgement.
	Berm Top Width	3	m	Engineering Judgement
	Minimum Freeboard	0.2	m	From top of 10-year flood water level to berm crest. To account for initial berm settlement
	Side Slopes	2:1	(H:V)	Constructability Consideration
	Manning's Roughness	0.035	-	For minor natural steam with stones and weeds (Chow, 1994)
	Minimum Channel Longitudinal Slope	0.005	m/m	Constructability Consideration
Double Double Diversion	Rainfall Return Period	10	Years	Linked to sizing for Sedimentation Ponds
	Channel Base Width	0.5	m	Engineering Judgement and based on topography
	Minimum Berm Height	1	m	Hydraulic sizing calculations and Engineering Judgement.
	Minimum Freeboard	0.2	m	From top of 10-year flood water level to berm crest. To account for initial berm settlement
	Side Slopes	3:1	(H:V)	Constructability Consideration
	Manning's Roughness	0.035	-	For minor natural steam with stones and weeds (Chow, 1994)
	Minimum Channel Longitudinal Slope	0.005	m/m	Constructability Consideration

Table 4-5 Alpha Pond Embankment Criteria

	Item	Value	Unit	Source / Comments
Alpha Pond Dam	Freeboard	1.0	m	Engineering Judgement, applied to 1 in 200-year flood event
	Minimum Crest Width	6	m	Engineering Judgement
	Upstream Side Slope	2:1	(H:V)	Constructability Consideration
	Downstream Side Slope	2:1	(H:V)	Constructability Consideration
	Riprap Layer Thickness	0.5 or 2 times average (D ₅₀) particle size	m	Engineering Judgement

Table 4-6 Rock Drain Design Criteria – Conveyance Capacity Design Inputs

Parameter Value Reference	Parameter Value Reference	Parameter Value Reference
Event Return Period	200-year	Engineering Judgement
Nominal diameter, D50	75 mm	Engineering Judgement
Porosity, <i>n</i>	20 %	Engineering Judgement
Longitudinal slope	0.08 m/m	Topography
Particle surface-area-efficiency, <i>re</i>	1.3	Engineering Judgement

Table 4-7 Pit Dewatering System Design Criteria

Item	Value	Unit	Source / Comments
Event Return Period for Storage Capacity	10	Years	Engineering Judgement
Runoff Coefficient	1	-	Engineering Judgement
Catchment Area per Pump Station	1.0	Km ²	Engineering Judgement
Pumping Station Head Differential	100	m	Engineering Judgement
Dewatering Duration	7	Days	Engineering Judgement

Table 4-8 Site Haul Road Culvert Design Criteria

Item	Value	Unit	Source / Comments
Event Return Period for Conveyance Capacity	100	Years	BMP
Maximum Headwater Depth above Culvert	0.3	m	BMP
Manning's Roughness for culverts without cobble stone base	0.024	-	(Chow, 1994)

4.3 Preliminary Design

The preliminary design of the water management system is described in the following sections.

4.3.1 Catchment Delineation

Catchments for containing mine infrastructure were delineated for the mine based on available topography, and the latest mine plan. The areas for each catchment were used to determine preliminary sizing of sedimentation ponds and conveyance structures (see Figure 3-1). Table 4-9 summarizes the catchment areas for water management infrastructure.

Table 4-9 Catchment Areas for Water Management Infrastructure

Structure	Area [km ²]
Alpha Pond	9.63 (without Halfway Creek Diversion) 5.85 (with Halfway Creek Diversion)
Facility Pond	0.23
Halfway Creek Diversion	3.78
Double Double Diversion	0.48
Alpha Rock Drain	5.8 (in Operation Phase) 9.3 (in Post-Closure Phase)

4.3.2 Hydrologic Model

The hydrologic modeling program PC-SWMM (CHI Water, 2022) was used to perform the hydrologic calculations. Methods and assumptions for the model parameter inputs are discussed below and in SRK 2022. The model includes inputs of hourly temperature and precipitation from Project climate stations and was calibrated to simulate streamflow in Halfway Creek.

Modeling of peak flows to infrastructure considered both snowmelt-driven flood events and rainfall-driven flood events. The Alpha Pond specifically considered a maximum snowmelt event, based on regional records, and a 200-year and 1,000-year rainfall-driven flood event. Details on flood-routing approaches are described in subsequent sections, and the application of results to the Alpha Pond design is described in Section 4.3.8.

Losses from catchments were calculated using the Modified Green and Ampt method to simulate infiltration and runoff.

4.3.2.1 Snowmelt-Driven Flood Events

Snowpack and snowmelt data were analyzed as part of the baseline hydrometeorology report (Lorax 2022a). Historic data for the immediate Project area are limited. To determine approximate snowmelt depths, nearby snow pillow stations in Alaska were analyzed. As discussed in Section 2.6.3, the maximum recorded daily snowmelt rate from regional records was 53 mm, which occurred in late May at the Upper Chena snow pillow station in Alaska. This snowmelt depth was representative of a late snowmelt year, where the temperature sequence deriving snowmelt was expected to be higher than typical snowmelt years, which occur in April and early May.

The snowmelt response from the local streams around the Project have not been captured historically due to aufeis formations and lack of access to reinstall pressure transducers safely in advance of snowmelt onset. The hydrologic model includes a temperature-driven snowpack accumulation and snowmelt

component which calculates daily snowmelt rate contributing to each stream. Without streamflow data to calibrate to, the snowmelt response in the model was verified against the snowpack measurements at the local monitoring station.

To simulate the snowmelt-driven flood event, an adjusted temperature sequence was applied to simulate the 53 mm of snowmelt that occurred at the Upper Chena snow pillow station within 24-hours (SRK 2022). This condition was selected to be representative of an extreme snowmelt event for the purpose of verifying the designs at the Alpha Pond.

4.3.2.2 *Rainfall-Driven Flood Events*

The rainfall-driven flood event was modelled using summer storm rainfall depths, which were adjusted for climate change. The model was calibrated using climate records from site at both the Kona station and the KM11 station and coinciding streamflow records from the Halfway Creek monitoring station HC-6.8 (SRK 2022).

The climate change-adjusted rainfall depths for a 24-hour rainfall event at 1,300 masl were applied in the PC-SWMM model and distributed using the SCS Type I rainfall distribution (NRCS 2019). This distribution approximates an intense, short-duration storm event typical of storms in Yukon and nearby interior Alaska. A series of smaller storm events was applied in advance of the design storm to simulate saturated soil conditions. It is unusual for convective rainfall events to occur across a larger area, based on the baseline monitoring and regional characterizations. The application of design storms across the full basin area is therefore expected to be conservative.

The calibrated runoff parameters from Halfway Creek were applied to the Alpha Pond and Halfway Creek catchment areas and 24-hour inflow hydrographs were developed for each design event (10-year, 200-year, 1000-year). Once waste rock placement begins in the Halfway Creek catchment, runoff rates are expected to be delayed as water is stored and flows through rock voids and the rock drain. The natural runoff model developed for Halfway Creek is therefore expected to be conservative for estimating inflows to Alpha Pond once the Alpha WRSF expands.

4.3.3 *Conveyance Channel Design*

The channels will be designed to convey the 10-year, 24-hour peak flows and will have a minimum of 0.2 m of dry freeboard for the peak flow event to allow for possible ice buildup, sedimentation, and climatic and natural uncertainties and for initial settlement of the structures.

Prior to construction, seeps and perennial streams will be identified and mapped. These water sources could present locations where ice formation could occur and impede channel flow, especially during spring freshet. As the design progresses, the channel configuration may be adjusted to accommodate potential ice buildup in these locations.

The main types of conveyance structures are:

- Diversion berms
- Roadside run-off conveyance
- Waste rock bench ditches.

4.3.3.1 *Diversion Berms*

Non-contact water will be diverted around the Double Double Pit (Double Double Diversion), and along the west hillside that is upslope of the Alpha WRSF (Halfway Creek Diversion), by diversion berms. Non-contact water collected on the upgradient face of these diversion berms will be discharged towards the valley bottom (towards Latte for the Double Double Diversion and into Halfway Creek for the Halfway Creek Diversion).

Diversions will consist of building a berm with an access road on the natural slope to create a 1-meter-wide trapezoidal channel against natural ground. When the longitudinal slope along the diversions exceed approximately 10%, additional erosion protection measures will be implemented, such as riprap rock armouring.

The Halfway Creek Diversion berm will follow an access road to the Alpha Pond. A layer of geotextile and a layer of riprap will be placed, at appropriate sections, along this berm face and channel bottom to reduce erosion of underlying natural soils. The Halfway Creek Diversion is sized to convey the 1 in 10-year 24-hour flood event while maintaining 0.2m of freeboard to the berm crest. This return period was selected in line with the design criteria for the Alpha Pond, which is designed to manage sediment up to the 1 in 10-year flood event. Larger flood events may be conveyed with reduced freeboard, and in extreme cases, may discharge from the diversion towards Alpha Pond. The Alpha Pond emergency spillway has been sized assuming the full Halfway Creek Diversion has overtopped, in line with best practice for dam safety purposes. The total length of the Halfway Creek Diversion is 3.4 km. Figure 4-1 presents a layout of the Halfway Creek Diversion.

The Double Double Diversion berm will also follow an access road around the northern perimeter of Double Double Pit, discharging the non-contact water towards a natural gully that discharges to Latte Creek. The upstream face of the berm and the natural ground will be covered with riprap to reduce erosion of underlying natural soils. The Double Double Diversion is sized to convey the 1 in 10-year 24-hour flood event while maintaining a minimum of 0.2 m of freeboard. In the event that a larger flood event occurs and overtops a portion of the berm, all water will be collected in the Double Double Pit and managed according to the water quality in the pit at that time. The total length of the Double Double Diversion is 0.7 km. Figure 4-2 presents a layout of the Double Double Diversion.

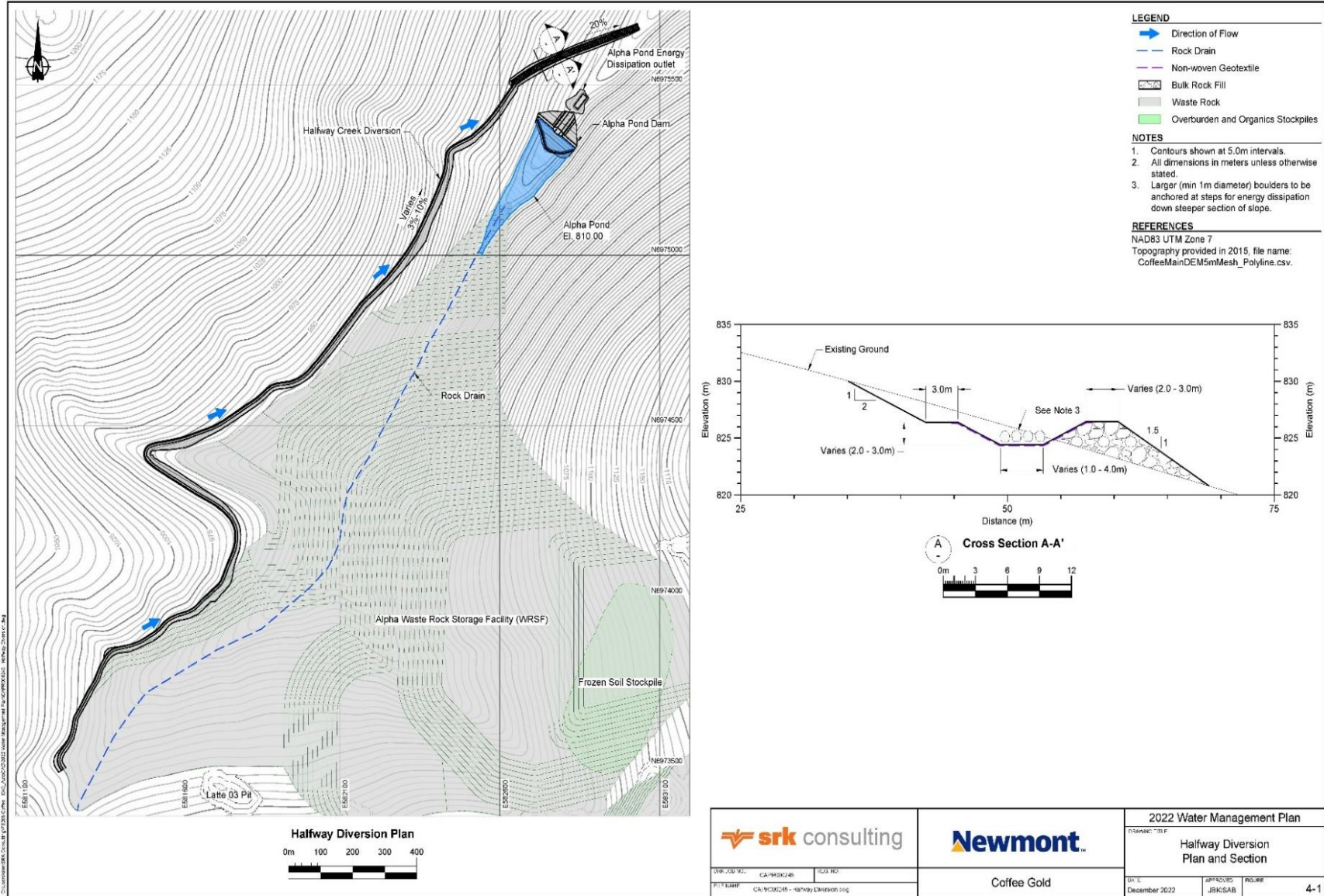


Figure 4-1 Halfway Creek Diversion Layout

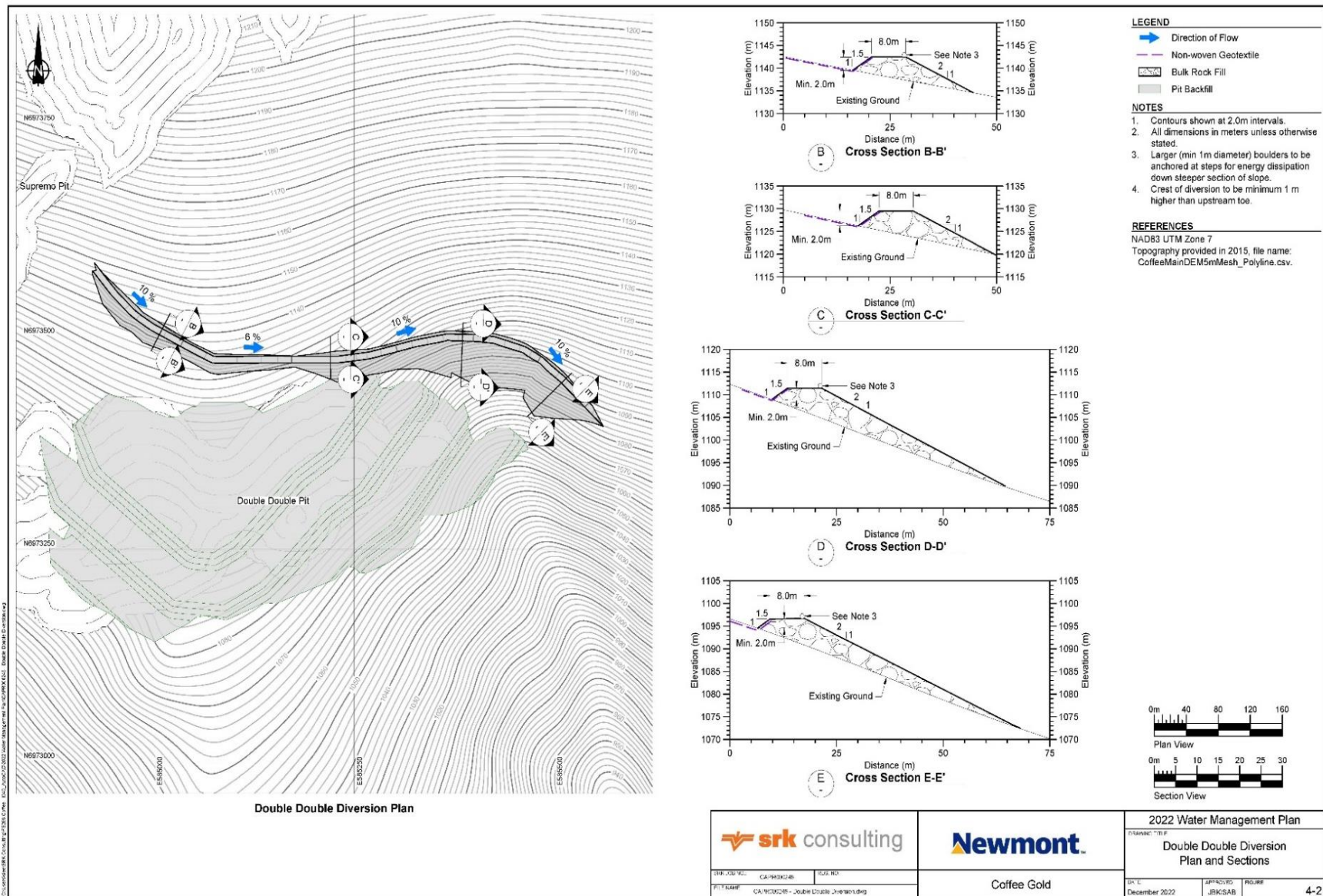


Figure 4-2 Double Double Diversion Layout

4.3.3.2 Roadside Runoff Conveyance

Where deemed appropriate, mine site and haul roads will be sloped inwards (upslope). Runoff from the roads will drain across the roads to the upgradient side slope, where a drainage ditch will run parallel to the road. The alignment of the roads will be constructed of fill and the upstream toe of the road will be designed so that water will flow downgradient along the road alignment. At set locations, the runoff travelling alongside the upstream toe will be directed downgradient through the use of a conveyance structure, such as a culvert, or in some cases, an open pit. Sediment and erosion control practices will be applied along roads to reduce erosion. To limit the rate of potential permafrost degradation, cuts in areas of ice rich permafrost will be avoided, using fill placement for the roads whenever possible.

The roadside drainage will be constructed with an approximate minimum depth of 1.0 m (from the upstream toe to the top crest of the road). A non-woven geotextile may be placed in areas of higher than expected ground ice content or with more exposed soil slopes (less vegetation) that are determined based on field mapping or field assessment to be more prone to erosion. When used, the geotextile material would be covered with a thin layer of riprap protection or some other suitable form of erosion protection.

4.3.3.3 Waste Rock Bench Ditches

Where erosion risk is a concern, the benches on the Alpha WRSF will be designed to slope inwards away from the WRSF crests. Runoff will be concentrated along the inside of each bench. If needed and to help prevent runoff from running over the WRSF face, a series of small bench diversion berms may be constructed. Maintaining this drainage pattern during operations may be challenging, and a variation of channels and berm cuts directing runoff down the WRSF face may be considered for minor runoff volumes. If these channels are required, they will have a v-shaped cross section and will have a minimum slope of 1% towards the waste rock perimeter.

4.3.4 Erosion Control

To protect channels and diversion berms from erosion, where designs or in-field assessment require, rock armoring (riprap) will be selected using NRCS Practice Standard 486 as developed for the United States Federal Highway Administration (Robinson 1998). The Practice Standard uses the Manning's equation and an iterative calculation to determine the depth and velocity of flow. Manning's n is based on depth of flow over a rough surface and varies depending on riprap size and slope based on the expressions of Strickler, Anderson and Abt *et al.* (1988). The practice calculates a stable median riprap rock diameter (D_{50}) to resist the tractive force of design peak flow in the channel. The selected riprap D_{50} will be confirmed using two additional methods (Isbash 1935, Khan and Ahmad 2011).

For design purposes, riprap thickness is assumed to be two times the median rock diameter (D_{50}), based on recommendations in the Surface Mining Water Diversion Design Manual (OSM, 1982), which suggests a thickness of 1.5 to 2 times the D_{50} for steep slopes (greater than 10%) and 1.5 times the D_{50} for mild slopes (less than 10%).

Where deemed appropriate or necessary, riprap will be placed over a non-woven geotextile drainage fabric. The geotextile fabric is intended to form a stable, non-erodible surface to minimize migration of underlying soils downstream and reduce the likelihood of embankment failure and erosion. Alternatively, a drainage layer of sorted crushed stone could be placed under the riprap in lieu of geotextile fabric. Geotextile fabric

is the preferred alternative for cost and ease of installation; however, the gravel filter layer may have a longer life expectancy. Since all diversion infrastructure is expected to be decommissioned in the long-term, the lifetime of the geotextile is appropriate.

Additional details of erosion control practices that will be used for the Project will be described in the Erosion and Sediment Control Plan.

4.3.5 Sediment Control

While erosion control measures will be in-place throughout the Project, some sediment may be mobilized during rainfall events after topsoil has been disturbed. Sediment controls will be installed as-needed to minimize the release of sediment from the Project to the environment.

The Alpha Pond and Facility Pond were designed to control the release of sediment from upstream disturbed areas. Both facilities will be in-place as of Year -1 and will operate throughout the life of mine until upstream areas are sufficiently remediated and water quality monitoring shows that no further sediment controls are required.

Prior to the construction of Alpha Pond and Facility Pond, temporary sediment controls will be installed around working areas, including silt fences, check dams, or other forms of sediment traps. Details on the sediment control practices are described in the Erosion and Sediment Control Plan.

4.3.6 Permafrost Protection

Construction in permafrost and ice-rich soils in the Project area will be carefully evaluated prior to final design. Geotechnical investigations in the summer of 2016 and 2018 collected information on ice-rich soils near the planned Alpha Pond dams. Overburden soils on site are presumed to be shallow with depths ranging from 1 to 5 m for most of the site (AECOM 2012). Wherever practical, and where ice rich soil exists, design will be aimed to place fill over the existing ground to slow rates of permafrost degradation, and excavations will be avoided. Detailed engineering designs will be completed prior to construction of key surface water infrastructure, including the Alpha rock drain, Alpha Pond, Facility Pond, Halfway Diversion and Double Double Diversion, which will be optimized with more geotechnical and permafrost information as it becomes available.

4.3.7 Alpha Rock Drain

The Alpha rock drain is a flow-through drain that will convey water from the upstream Halfway Creek catchment through the base of Alpha WRSF during the Construction Phase, Operation Phase and Reclamation and Closure Phase. Figure 4-3 shows the location of the rock drain. In addition to conveying upstream water, the rock drain will also be engineered to enable cross-valley flows intersecting the perimeter of the WRSF, including natural drainages that may intersect the WRSF. This will ensure that minimal ponding occurs upstream or on top of the WRSF. The design and construction of the Alpha rock drain follows best practice, guidelines and specifications and methods that were used to design and construct rock drains in similar sites, including the Minto Mine and Faro Mine in the Yukon, and the Pogo Mine in Alaska. A rock drain design report has been completed for the Project and provides additional details on the design approach (SRK 2018).

The rock drain is designed to convey up to the 1 in 200-year return period peak flow. The rock drain follows the centerline of Halfway Creek beneath the Alpha WRSF footprint and is designed to be a minimum of 10m in thickness. A thermal analysis has been completed to confirm that the rock drain will not fully freeze (SRK 2018). Some seasonal freezing at the toe may however occur, however the high efficiency of convective heat exchange between moving water and ice, even at low water temperatures, support the likelihood of rapid melting of seasonal ice where these conditions occur. Monitoring of the rock drain toe will be performed and if required active removal of ice from the downstream toe could be implemented by site staff. No freezing within the main rock drain itself is expected due to the large thermal waste rock mass above in addition to the energy from moving water. Seasonal freezing and thawing is less likely beneath the buried region of the rock drain that exceeds the depth of annual temperature variation caused by conductive heat transfer with the atmosphere (SRK 2018).

The drain sizing has taken into account the potential decrease in void ratio over time from fines migration, and or void ratio reduction as a result of material crushing from the overlying rock load. Specifically, the rock drain has been sized with a larger cross-sectional area than required based on the flood design criteria alone. In addition, mine rock will be placed in the Alpha WRSF such that overflows from the rock drain, resulting from either clogging, frozen conditions, or extreme flooding, would be conveyed safely over the lowest bench of the WRSF (within Halfway Creek) downstream towards the Alpha Pond.

The selection of suitable material to be placed around the rock drain will be included in the final design of the WRSF in advance of rock placement. The construction plan may includes specifying non-PAG rock for a minimum of 5 m along the top of the rock drain to reduce likelihood of repeated flushing of potentially-acid generating materials or expanding the thickness of the rock drain along the full alignment to increase conservatism.

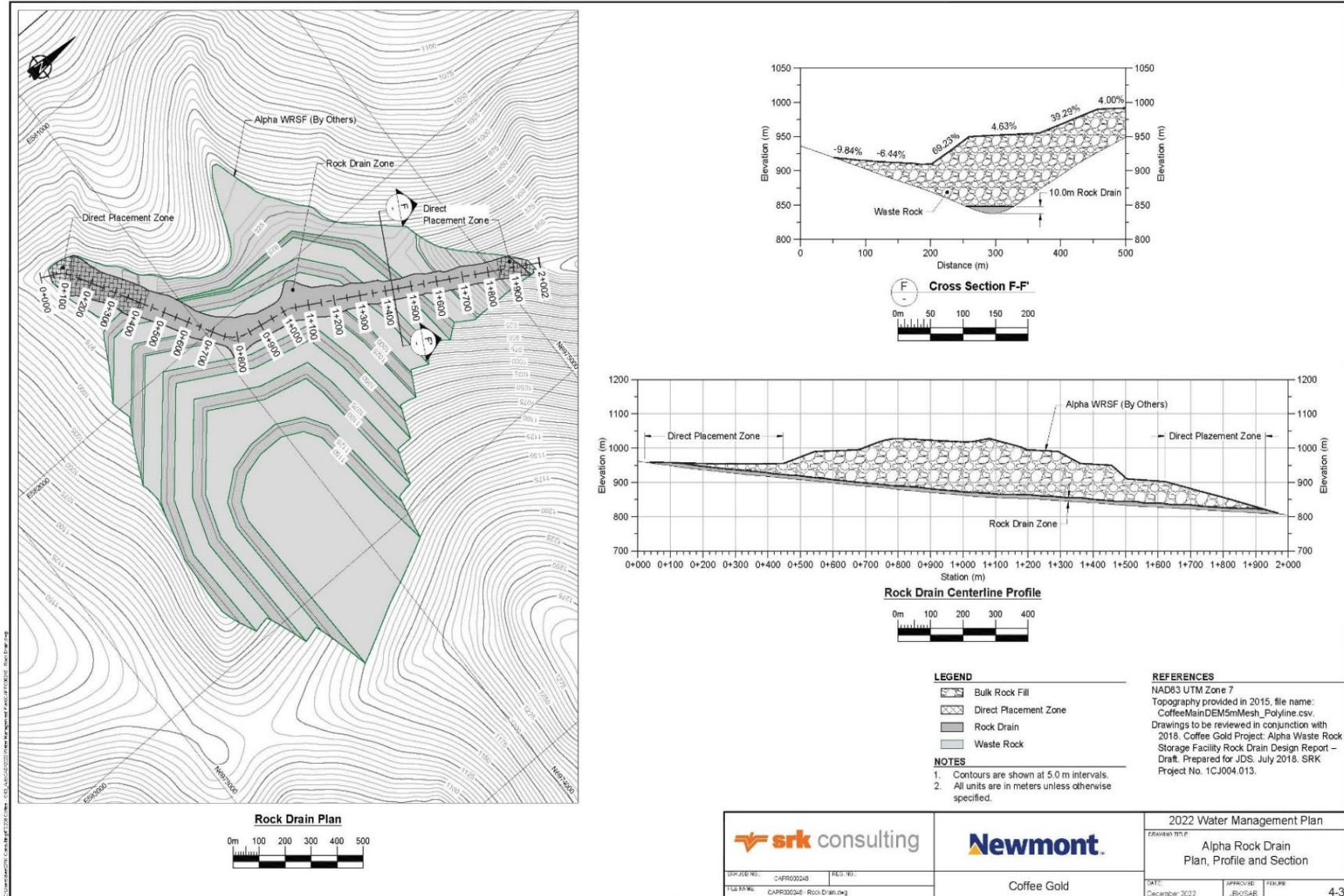


Figure 4-3 Location and Detail of Alpha Rock Drain

4.3.8 Alpha Pond

Infiltration into and surface runoff from the Alpha WRSF and its upstream catchment, along with excess water from active mining areas, will be collected in the Alpha Pond. The Alpha Pond will provide sediment control for contact water in mining areas and will discharge to Halfway Creek. Design details are provided in SRK 2022.

The primary purpose of the Alpha Pond is for sediment control. For this reason, the Environmental Design Flood (EDF) for the Alpha Pond was selected as the 1 in 10-year flood event, based on the sedimentation pond guidance from BC MOE Technical Guidance 7 (BC MOE 2015). The design volume to the invert of the spillway (Maximum Operating Water Level) is 298,100 m³ based on the 10-year 24-hour inflow volume.

The pond will operate with a pumping or siphon system to discharge water over the dam and into Halfway Creek. A maximum pumping rate of 0.5 m³/s (500 L/s) was calculated to dewater the 10-year 24-hour inflow volume within 7 days. A lower pumping rate will be applied for normal operating conditions and was selected to be one third of the maximum pumping rate (e.g., ~166 L/s). The selection of the minimum operating water level (MOWL) was determined in order to provide the minimum retention time and pond surface area to settle a 10 micron particle based on the lower pumping rate (BC MOE 2015).

Figure 4-4 presents a schematic of the Alpha Pond operating levels and pumping or overflow controls (Table 4-10).

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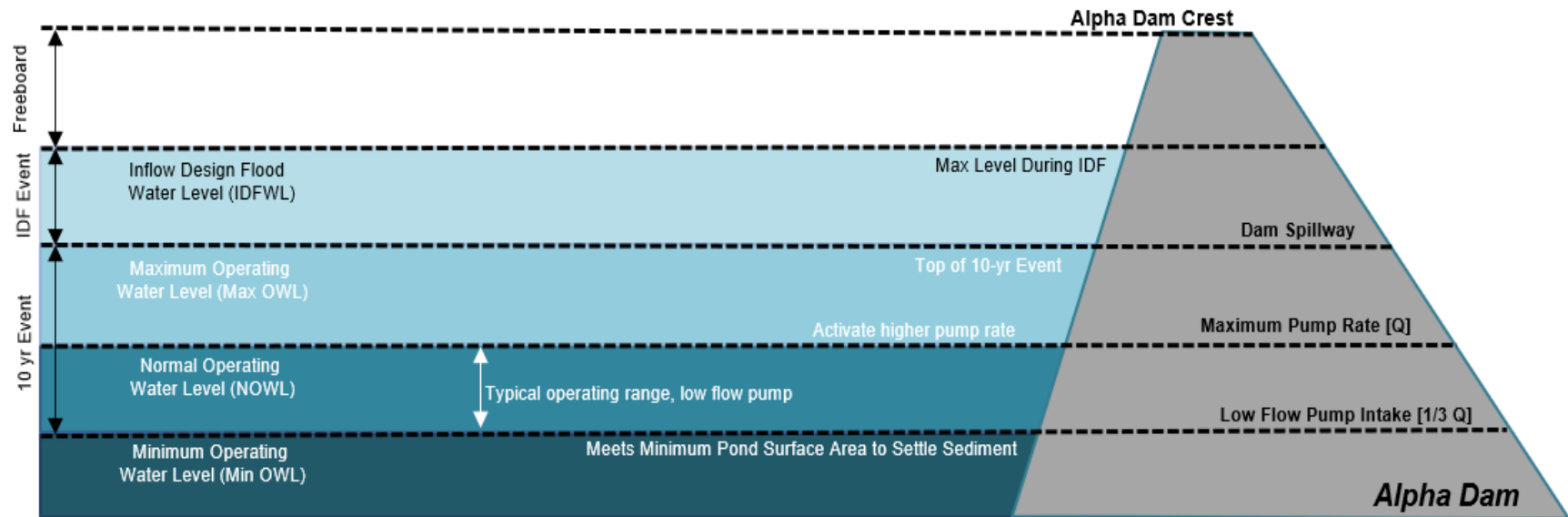


Figure 4-4 Alpha Pond Operating Levels Schematic

Table 4-10 Alpha Pond Operating Levels Summary

Parameter	Value [masl]	Summary of Operations
Minimum Operating Water Level (Min OWL)	795.4	Selected to control sedimentation based on low flow pump rate and residence time. When water is below this level, pumps are turned off, but seepage is expected to continue. When water is above this level, activate low-flow pump.
Normal Operating Water Level (NOWL)	799.0	Typical operating range of the pond. When water level is above this level, activate maximum range of pump
Maximum Operating Water Level (Max OWL)	810.0	Selected to manage the 10-year flood event without overtopping. This is the invert of the emergency spillway
Inflow Design Flood maximum water level	811.1 (811.2)	Max water level during routing of the IDF, assuming initial pond level is at spillway. Result is for the 200-year flood, with 1,000-year flood level in brackets.
Dam Crest	812.0	Selected to maintain minimum freeboard during IDF (1.0m freeboard with 200-year flood or snowmelt flood, 0.5m freeboard with 1,000-year flood)

The Alpha Pond will be constructed Year -1 of mining at a location downstream of the final Alpha WRSF footprint. A smaller structure may be constructed further upstream in the Halfway Creek catchment during construction of the main Alpha Pond dam which would also provide a location for water quality sampling and sediment collection during initial waste rock placement and Alpha Dam construction. The dam will be constructed primarily of ROM rock or locally sourced material Figure 4-5 presents the Alpha Pond Dam and associated infrastructure.

For events larger than the 10-year flood, water will be discharged through the emergency spillway. The design criteria for the emergency spillway was selected based on CDA (2019) and GISTM (ICMM 2020). The Consequence Classification for the Alpha Pond dam is “Significant” (SRK 2022). The design criteria for the Inflow Design Flood (IDF) based on CDA (2019) is a flood ranging between the 1 in 200-year return period and the 1 in 1,000-year return period. While the Alpha Pond is not a tailings dam, design criteria from the Global Industry Standard on Tailings Management (GISTM) were also considered, which recommends a return period of 1 in 1,000-year for “Significant” dams (ICMM 2020). Both conditions were tested in the emergency spillway, with 1.0m of freeboard maintained in the 200-year event and 0.5m of freeboard in the 1,000-year event. A snowmelt-driven event was also tested through the pond and spillway, which also provides greater than 1.0m of freeboard to the dam crest. The IDF simulations assume that the Halfway Creek Diversion has failed, resulting in a larger catchment area contributing flow to the Alpha Pond.

Since the pond is designed for sediment control, the dam will be equipped with a filter system, with a finer material layer, transition material layer, and outer / bulk rock fill shell. This filter system would be designed to retain the sediment while still allowing some controlled seepage through the dam while minimizing the risk of piping or internal erosion. The upstream face of the dam and the emergency spillway along the downstream face of the dam will be armoured with a layer of riprap.

Seepage through the base of the pond and through the dam itself are expected. A foundation and dam seepage model was prepared, and the results were incorporated in the water balance and water quality model.

Active monitoring of Alpha Pond water quality will be completed in the initial years of operation when there is less waste rock in the Halfway catchment that could be contributing to chemical loadings from the placement of waste rock in the Alpha WRSF. Initial monitoring results would help to inform management decisions for the Alpha Pond.

Should water quality issues be identified in the Alpha Pond through monitoring that would preclude discharge to the receiving environment (i.e., exceedance of the EQS for the Alpha Pond), several contingency measures are available and are described in Appendix A. These include, but are not limited to:

- Source control
- Pumping of water to an open pit for temporary storage
- Pumping of water to the Facility Pond for use as makeup water in the mill or for dust suppression
- Pumping to the Event Ponds if Event Storage Requirements (ESR) can be maintained.

In-pit water treatment may also be considered in the event that these contingency measures, including source control, are ineffective. The in-pit treatment system can be designed to target the specific contaminants that exceed the EQS for Alpha Pond discharge. A monitoring well will be installed

downstream of the Alpha Pond dam to monitor seepage. This well will be designed such that it can be converted to a pumpback system to capture seepage if water quality in the Alpha Pond temporarily exceeds the Alpha Pond EQS.

Monitoring of the Alpha Pond is expected to include the following:

- Water quality monitoring and volume monitoring within the Alpha Pond
- Water quality, toxicity and flow monitoring for the active MDMER discharge point, and monitoring of dam seepage water quality via a downgradient groundwater well
- Water quality, toxicity, and flow monitoring at the downstream Use-protection WQO attainment point (HC-1.0).

Additional details on water quality monitoring in Alpha Pond and water level and volume monitoring in Alpha Pond are provided in the Surface Water Quality Monitoring Plan and the Hydrology Monitoring Plan, respectively. The Alpha Pond and dam will also be monitored for overall integrity and stability, as described in the Physical Monitoring Plan.

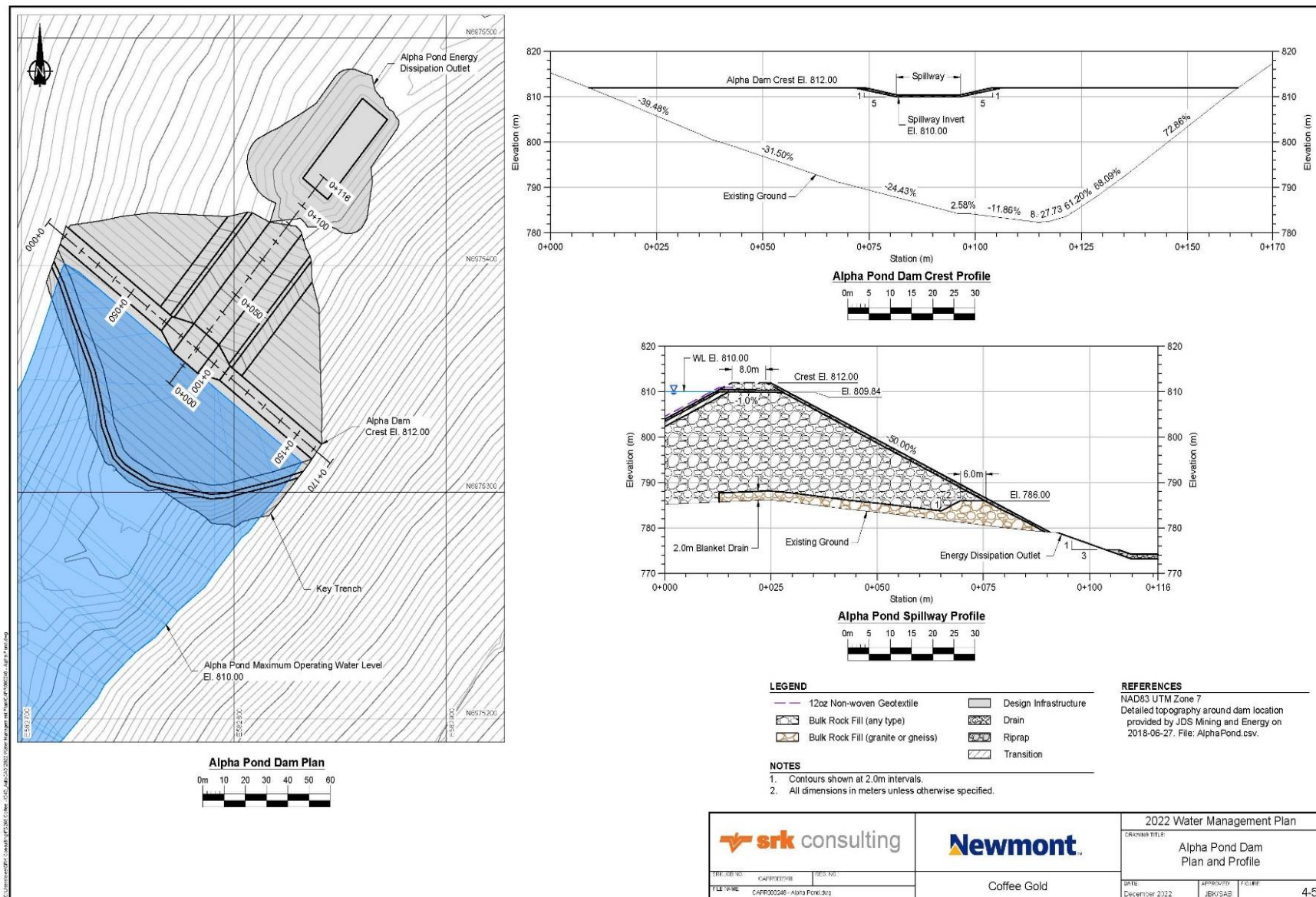


Figure 4-5 Alpha Pond Layout

4.3.8.1 *Alpha Pond Performance Targets and Mitigation Measures*

As described in Section 4.3.8, contingency measures have been developed should the water quality in Alpha Pond be unacceptable for direct discharge.

Active monitoring of water quality in Alpha Pond and Halfway Creek will be used in tandem with the water quality model to trigger a contingency plan. The first step of the contingency plan is to investigate the source of the potential or observed exceedance and implement source control measures to prevent exceedances in the future. If source control proves to be unsuccessful, the next step will be the detailed design and implementation of one of the contingency measures described in Appendix A. The contingency measure implemented will be dependent on the source and the parameter that is exceeding the discharge criteria.

Should any of the following instances occur, the first step of the contingency plan will be implemented, as noted above:

1. Water quality monitoring data from Alpha Pond will be reviewed on a monthly basis for all EQS parameters. The appropriate contingency plan will be implemented if the monitoring data indicate the potential for exceedance of the EQS in Alpha Pond within the next year.
2. Similar to above, water quality monitoring data from Alpha Pond will be screened against the most recent water quality model projections on a monthly basis. The contingency plan will be implemented where it is warranted if the monthly average concentration for any EQS parameter is tracking higher than the base case model results.
3. The water quality model will be updated on an annual basis, providing a 12-month outlook for water quality in Alpha Pond. The appropriate contingency plan will be implemented if the projections show any exceedance of parameters with an EQS in the Alpha Pond or the SSWQOs in Halfway Creek over the next 12-months.

The triggers listed above focus on the water quality observations or model predictions in Alpha Pond or Halfway Creek. Specific trigger values for Alpha Pond water quantity, including direct discharge rates or indirect seepage rates are not proposed. This is an intentional choice, as the development of the EQS and SSWQOs considered a wide range of hydrologic conditions, beyond the Yukon government standard of the 7Q₁₀ flow in the receiving stream. Additional details on the derivation of the EQS are described in the *Coffee Mine Project – Water Balance and Water Quality Model* (Lorax 2022d).

4.3.9 *Facility Pond*

Surface runoff from the plant and camp area will be collected in the Facility Pond. The top surface of the camp and plant pad will be constructed so that it grades towards the pond.

The pond will provide sediment control from the plant pad. Water collected may be managed as follows:

1. Provide water for dust suppression.
2. Provide makeup water to the plant.
3. Pumped towards Alpha Pond, so long as water quality meets Alpha Pond EQS.
4. Pumped to temporary or permanent pit lake.
5. Pumped to HLF Water Treatment Plant.

The pump and pond volume were designed to manage up to the 10-year flood event, as per sedimentation technical guidance (BC MOE 2015).

The Facility Pond will have a minimum capacity of 20,400 m³, which can store the 10-year 24-hour flood event without overtopping. The inflow volume was calculated based on a runoff coefficient of 0.80 for the full pond catchment area, occupied primarily by the plant and camp pad. The pond will be equipped with an emergency spillway, designed to convey up to the 200-year flood event. The spillway from the Facility Pond will be directed towards Alpha Pond, enabling a secondary capture point prior to discharge to the environment.

The pumping system, pond spillway and any pond seepage will discharge to the hillslope upstream of the Alpha rock drain. Additional armouring in the form of riprap may be installed to reduce erosion of the hillslope.

The pond geometry has been developed to provide a 5:1 length to width ratio as recommended for sedimentation ponds. The base length for Facility Pond will be 150 m with a base width of 30 m. The design incorporates 0.5 m of dead storage for sediment accumulation. The pumping rate was selected to dewater the 10-year 24-hour inflow volume in two days, which was determined to be 85 L/s. The pump intake depth was selected in order to provide a minimum pond surface area and pond volume for particle settling of a 10 micron particle. The residence time for the full pond storage volume based on the selected pumping rate is 760 hours. Details on pond design approach and geometry are described in the Water Management Design Basis Report (SRK 2022). Figure 4-6 presents a plan view of the Facility Pond and Figure 4-7 presents typical cross-sections.

Water levels in the Facility Pond will be measured with a continuous pressure transducer, as described in the Hydrology Monitoring Plan. Monthly water quality samples will be collected from the Facility Pond, as described in the Surface Water Quality Monitoring Plan. The Facility Pond will also be monitored for overall integrity and stability, as described in the Physical Monitoring Plan.



Figure 4-6 Facility Pond Detail Layout

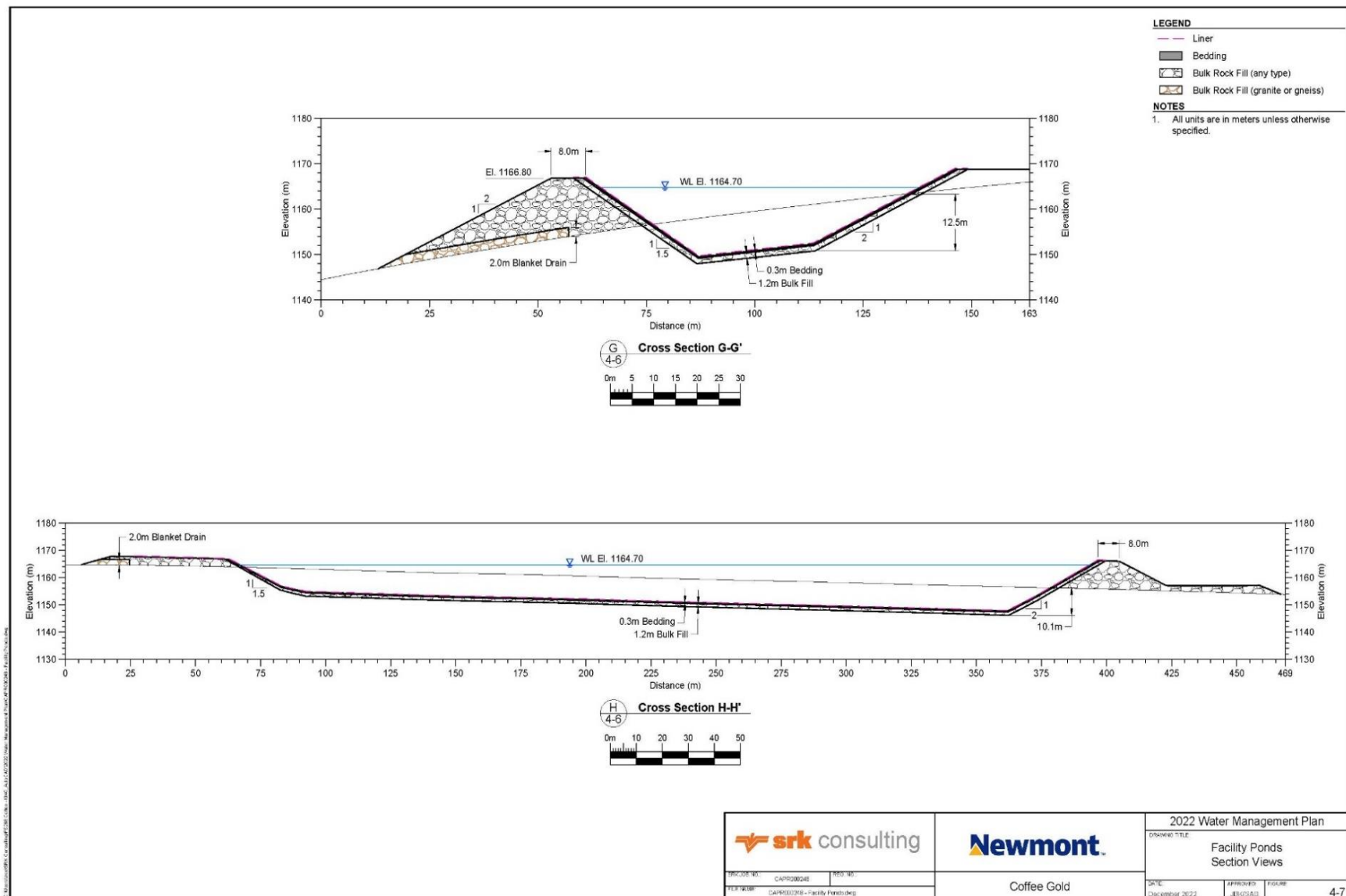


Figure 4-7 Facility Pond Typical Sections

4.3.10 Additional Sedimentation Pond Details

Sedimentation ponds, including the Alpha Pond and the Facility Pond will be monitored to ensure appropriate sediment removal is occurring. Additional details regarding sedimentation pond operations include addition of flocculent and sediment removal, as described below.

4.3.10.1 Flocculation Stations

Flocculant may be used to enhance settling as needed. If determined to be necessary based on discharge water quality of total suspended solids (TSS), flocculent dosing stations may be installed at the sedimentation pond inlets, or closer to sediment sources and will contain a flocculent metering system to add flocculent proportionally to flow. Flocculent could also be used in water management structures (i.e., diversions, conveyance channels, or pipelines) prior to reaching the ponds. Flocculent dosing rates will be determined by on-site bench scale testing. A non-toxic anionic or non-ionic flocculent may be used.

4.3.10.2 Sediment Removal

Sediment accumulated within the sedimentation ponds will be removed as needed. The volume of sediment that has accumulated in the ponds will be monitored annually. If warranted, sediment will be removed from the ponds during low flow periods of the year, most likely in the late fall. The water level will be lowered using the active pumping system, and sediment will be removed and hauled to a storage location. Potential storage sites include dedicated cells within the WRSFs or completed pits.

4.3.10.3 Temporary Sediment Management

Temporary sediment management systems, including silt fences, sediment curtains or straw bale check dams may be employed downstream of stockpiles to control TSS before discharging to or in the Alpha Pond. Additional details are provided in the Sediment and Erosion Control Plan.

4.3.10.4 Sediment Pond Malfunction

In the event of a sediment pond malfunction or containment breach, where downstream channel scouring or sediment deposition occurs, channel banks will be stabilized to limit further erosion and channel avulsion. Sediment deposit, if deemed necessary, will be dredged. An assessment of the sediment pond design criteria, inspection schedule, operating standards, and mode of failure would be reviewed. The outcome of this assessment may require additional monitoring, in terms of frequency and spatial scope. Remediation could include construction of temporary diversions and settling ponds with associated pumping systems, where necessary. For smaller sedimentation ponds, snow and ice may need to be removed as required to maintain functionality.

4.3.11 Pit Water Management

Meteoric water collected in active mining areas will be managed using pumping systems or water trucks. The general strategy is to transport water from active mining areas, where in-pit management is not possible, to the closest available storage reservoir for sediment control, if required, until site specific effluent quality standards are met, and water can be discharged.

The available water storage facilities to provide sedimentation control for pit water will vary throughout the life of mine. During early mine operations, the primary water storage facility on site will be the Alpha Pond

and the Facility Pond. During this time, water collected in active pits will be pumped towards Facility Pond, used for dust suppression or makeup water to the HLF, or pumped towards the Alpha Pond. Once active mining concludes in the Double Double Pit and isolated areas of the Latte Pit, water collected from active pit areas may be discharged for storage to any one of the Facility Pond, the Alpha Pond, Double Double Pit, or inactive sections of the Latte Pit. The specific routing of pit water is mostly dependent on the proximity of the storage reservoir to a given pit area and will be determined on an individual basis based on pump and pipeline availability, water storage capacity in any of the above facilities, and the associated water quality. This strategy provides operations with flexibility to move water between pits and storage ponds as needed, based on monitoring of water quality and storage levels, as well as operational needs.

Latte Pit and Double Double Pit are both planned to be backfilled later in mine operations. Any water stored temporarily in either pit will be dewatered, to the extent required, to the Facility Pond, which will convey water towards Alpha Pond, in preparation for the backfilling operation. Double Double Pit will be completely backfilled, while Latte Pit will only be partially backfilled and is expected to be reflooded in support of the development of a pit lake.

Water quality and water levels will be actively monitored in all pit lakes prior to the lakes reaching their final spill point elevations. Corrective actions, such as water treatment, will be pursued in pit lakes that have elevated water quality relative to the effluent discharge limits, in advance of pits discharging to environment. All final discharge locations will be engineered to control erosion in the receiving environment. The details of pit water management on an individual pit-by-pit basis are described in Section 3.2.4 of this report. Details on monitoring of pit spill points are provided in the Surface Water Quality Monitoring Plan.

The dynamic pit staging and availability of water storage at the Coffee Mine during mine operation complicates the development of a detailed pump and pipeline design. In order to provide operators with sufficient flexibility, a standard pumping framework has been produced which may be applied during any individual period to produce an estimate of pumping requirements. The general strategy is to implement one high-head slurry pump (Godwin HL 225M or similar) with a 12-inch-high density polyethylene pipe for every 1 square kilometer of active pit footprint and every 100 m of required static head.

Table 4-7 presents the key design criteria used to model the dewatering framework. The expected inflow volume to a 1 km² working area during a 10-year flood event is approximately 55,000 m³. This volume can be dewatered within 7 days given the pump and pipeline specifications listed above. For larger flood events, a longer period of temporary flooding may be expected in the active mining areas, or alternatively a secondary pump and pipeline can be implemented to temporarily increase the dewatering rate. Water levels and water quality in Alpha Pond will be reviewed in advance of pumping water from Facility Pond to ensure sufficient capacity is available to manage the additional inflows. Active monitoring of water quality at the source (i.e., in the pit sumps) will reduce the risk of having non-compliant water in Alpha Pond. In-pit water treatment may be considered in the event that source control contingency measures outlined in Section 4.3.8 are ineffective. The in-pit treatment system may be designed to target the specific contaminants that exceed the EQS for Alpha Pond discharge. The detailed design of the pit dewatering system, including quantification of the number of pumps and pipeline alignments, will be developed in the Detailed Engineering stage based on the final open pit configuration and mining schedule.

4.3.12 Heap Leach Facility

The HLF consists of a conventional lined leach pad to support a multi-lift, free-draining heap. The HLF pad area will be lined with two layers of synthetic liner in a composite manner, consisting of a 2.0-mm-thick single-side textured LLDPE geomembrane overlying and in direct contact with a 6-mm-thick heavily reinforced geosynthetic clay liner (GCL). A network of drainage pipes and drainage gravel will be placed over the plastic liner to protect the liner from damage, to control the maximum hydraulic head over the liner system to well under 1 m, and to collect the gold bearing solution.

EP-1N, EP-1S, and the Rainwater ponds will be located between the east end of Stage 1 of the leach pad and the process plant, EP-2 will be located east of the process plant (Figure 3-3). A total of four ponds are planned for the HLF:

- Event Ponds:
 - EP-1N
 - EP-1S
 - EP-2
- Rainwater Pond

All ponds are to be constructed as part of the initial, pre-production construction (Year -1). The event ponds, EP-1N EP-1S, and EP-2 will be lined with the primary (top) liner being a 2.5 mm thick smooth HDPE (or other suitable material). The event ponds EP-1N, EP-1S, and a process sump within EP-2 will contain heap contact solution and therefore, a secondary liner being a 1.5 mm HDPE or LLDPE drain liner to function as a leak detection layer between the liners will also be installed in those heap contact solution areas. These two geomembranes will be underlain by a GCL to form a composite bottom system liner. A leak detection sump will be installed in the low corner of the ponds. Operating solution will be stored in tanks located at the process plant. There will be three tanks, two for gold bearing, and one barren. EP-2 will contain a sump in the lower portion for storage of gold bearing solution tank overflow.

During the early operation phase, makeup water is expected to be required as production and barren solution flow to the HLF ramp up to the nominal operation rates. The event ponds may be used to store solution to fulfill this makeup water requirement, using water from available makeup water sources, while maintaining solution storage requirements. As the operation phase progresses, the event ponds will be rarely used, and the EP-2 larger portion most likely will never be used, reserving their capacity for large storm or freshet events or other process plant upset conditions. The sump in the lower portion of EP-2 is anticipated to be utilized approximately 30% of the time for flows from the gold bearing tank.

The event ponds are sized to contain the following cumulative volume:

- runoff from the probable maximum precipitation (PMP) event (rainfall of 283 mm in 24 hours)
- full heap drainage during a power outage or pump failure (1,100 m³/hour over 72 hours)
- seasonal water accumulation.

The Rainwater Pond will be used to store non-contact water diverted away from the ore leaching pad, particularly if raincoats are employed as a contingency measure to limit meteoric infiltration to the HLF. Rainwater pond water can be used as make-up water for leaching operations; for other site consumption,

such as dust control; or tested and discharged to the environment if water quality meets applicable effluent quality standards (EQS) for the receiving environment catchment. Design volumes for all ponds are presented in Table 4-11.

Table 4-11 Design Pond Volumes for Heap Leach Facility

Pond	Capacity to Freeboard Elevation (m ³)
EP-1N	112,000
EP-1S	90,000
EP-2	340,000
Rainwater	53,000
Total	596,000

4.3.13 Culverts

No major stream crossings are expected to be required for the Project. Ephemeral tributaries in the headwaters of the surrounding catchments are expected to be crossed by haul roads and access roads. Culvert crossings will be designed at these locations to facilitate water management along all roads. All culverts will be circular corrugated steel pipes (CSP) with a corresponding Manning's roughness of 0.024. The culverts will be placed in a compacted fine-grained engineering fill (manufactured crush material) according to the appropriate manufacturer specifications. Sizing of culverts and locations will be designed as the Project progresses.

4.3.14 Sewage Water Treatment

A sewage treatment plant will be constructed and operated at the Camp Site. Sewage will be treated by a membrane bioreactor plant. Treated effluent will be sent to a dispersion field that will drain towards Latte Creek catchment. Additional details for sewage water treatment are described in the General Mine Development Plan.

4.3.15 Potable Water Treatment

Freshwater will be required at the Camp Site for potable water and fire water. The water will be supplied from a well field located near the Yukon River and will be transported to the mine site by a year-round buried pipeline or by a water truck. The pipeline will be designed with 3,500 m³/day capacity, based on peak demand over the entire life of mine. This capacity has yet to be refined with evaluation of local storage versus immediate supply. The pipeline is proposed to follow the mine access road alignment and will be connected to the fresh/fire water tank at the Camp Site and to the Plant Site. The pipeline alignment may be modified during operations to accommodate pit development.

Pumphouses will be required to transport the water along the 18.2 km pipeline to the Camp Site. It is expected that multiple wells will be required to provide enough water to meet the variable summer and winter conditions. The proposed freshwater pipeline alignment is shown on Figure 1 2.

A potable water treatment plant will be constructed and operated at the Camp Site. The treatment plant will consist of filtration, ultraviolet and chlorine disinfection. Treated water from the potable water treatment plant will be stored in an insulated and heated potable water storage tank. The capacity of the plant will be sufficient to treat 110,000 L/day to support 400 people.

4.3.16 Water Treatment Design for Permitting

Operation of the heap leach facility is projected to generate a positive water balance with the need to manage and remove (e.g., discharge) excess solution to maintain adequate storage in the event ponds system (i.e., Event Storage Requirement) throughout operations and early closure of the heap leach facility. Solution Removal from the system is defined as all solution that is removed from containment within the HLF system. The HLF WBM indicates that active treatment of excess solution will be required beginning in Year 2, and will require staging of active treatment capacity as illustrated in Figure 4-8 and described in Forte (2022):

- 25 L/s (90 m³/h) beginning in Year 2 through to Year 7. This is the maximum solution removal rate required during normal operations over this period to maintain the Event Storage Requirement (ESR)
- 35 L/s (126 m³/h) from Year 7 to Year 16 is the max Solution Removal rate required to maintain the Event Storage Requirement Year 7 to Year 16.
- 14 L/s (50 m³/h) beginning in Year 16 after cover placement is complete.

Treated effluent will be discharged towards the Alpha rock drain, for subsequent discharge to Halfway Creek via the Alpha Pond.

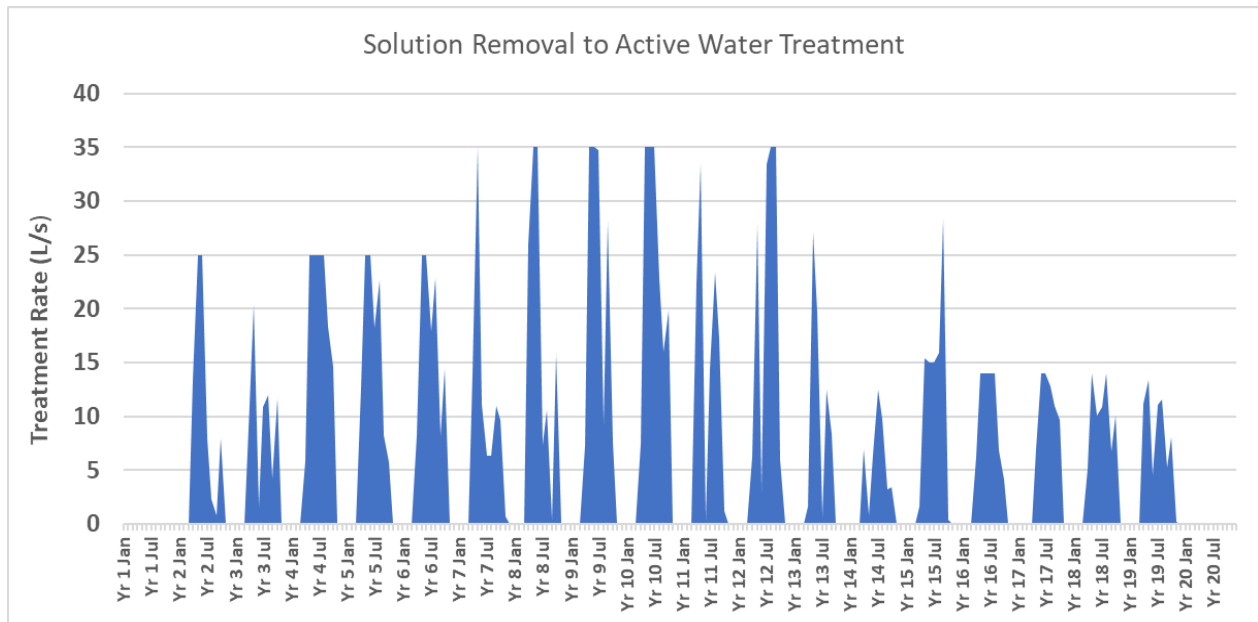


Figure 4-8 Solution Removal Rates (1 Realization) to Active Treatment (Yr 2 to Yr 20)

Heap leach solution will be a mixture of meteoric infiltration water and cyanide leaching solutions with variable water chemistry throughout the Project lifecycle. Water generated through the infiltration of the heap will contain cyanide, metals, and other dissolved inorganics. Development of estimates of HLF solutions is described in detail in Lorax (2022) Coffee Project Geochemical Source Terms and will be summarized herein.

To support development of the treatment requirements for the project, the site wide water balance and water quality model (WBWQM) was used to back-calculate maximum threshold (i.e., allowable) concentrations for each parameter in water treatment plant effluent to ensure Use-Protection WQO in Halfway Creek at HC-1.0 were maintained under all anticipated flow conditions during the annual period of April to October. The back-calculated allowable concentrations were then used to guide water treatment system design approaches for permitting. Table 4-12 compares back-calculated allowable concentrations for WTP effluent relative to estimated HLF solution chemistry at various stages in the mine life and indicates those parameters likely to require treatment.

Table 4-12 Summary of Parameters Requiring Treatment

Parameter	Units	Early Phase HLF Solution	Late Phase HLF Solution	Calculated Allowable Conc. In WTP Effluent	Water Treatment Required
N-NH ₃	mg/L	72	0.06	16	Yes
N-NO ₃	mg/L	50	307	79	Yes
N-NO ₂	mg/L	1	1.9	0.15	Yes
Cl	mg/L	300	123	1300	No/unlikely
Sulphate	mg/L	1100	2516	1100	Yes
WAD-CN	mg/L	130	0.2	0.046	Yes
TDS	mg/L	2750	4100	3000	Yes
Al-D	mg/L	0.09	0.2	3.4	No
Ag-D	mg/L	0.00045	0.00125	0.0027	No
As-D	mg/L	5.0	2.0	0.043	Yes
Ca-D	mg/L	300	350	NA	NA
Cd-D	mg/L	0.0036	0.00013	0.002	Possibly
Cr-D	mg/L	0.008	0.014	0.05	No
Cu-D	mg/L	2	0.014	0.029	Yes
Co-D	mg/L	0.5	0.25	0.03	Yes
Fe-D	mg/L	2.3	0.5	10	No/unlikely
Hg-D	mg/L	0.005	0.00026	0.00019	Possibly
Mg-D	mg/L	2	155	NA	NA
Mn-D	mg/L	0.27	0.06	3	No
Mo-D	mg/L	0.125	0.105	0.77	No
Na-D	mg/L	580	1168	NA	NA
K-D	mg/L	8	11	NA	NA
Ni-D	mg/L	0.019	0.006	0.8	No
Pb-D	mg/L	0.0002	0.0013	0.02	No
Sb-D	mg/L	0.09	0.5	0.08	Yes

Parameter	Units	Early Phase HLF Solution	Late Phase HLF Solution	Calculated Allowable Conc. In WTP Effluent	Water Treatment Required
Se-D	mg/L	0.007	0.005	0.021	No
U-D	mg/L	0.1	0.685	0.7	Probable
Zn-D	mg/L	0.7	0.052	0.2	Yes

Several water treatment approaches have been evaluated during feasibility and preliminary lab testing designed to address the water treatment requirements for the project. Based on the water treatment testwork conducted to date and the heap leach water balance and water quality modeling, the proposed treatment system will consist of the following processes:

1. Flow Equilibration.
2. Cyanide Destruction.
3. Physico-Chemical Treatment.
4. Solids Handling.
5. Denitrification using Electrochemical Bioreactor (EBR).
6. Aerobic Post-Treatment.

An additional ammonia removal step may be required during the Early Phase of mine operation. Descriptions of unit processes, design criteria, and assumptions are provided in the Heap Leach Process and Facilities Plan (see Appendix C of that document).

5.0 LIFE-OF-MINE WATER MANAGEMENT

This section describes water management throughout the following phases of the mine life:

- Phase 1: Construction (Year -3 to -1)
- Phase 2: Operations
 - Stage 1: Early Operations (Year -1 to Year 2)
 - Stage 2: Operations (Year 3 to Year 10)
- Phase 3: Post-mining Closure Stage (Year 10 to 15)
- Phase 4: Active Closure Stage (Year 16 to 20)
- Phase 5: Post-Closure (Year 21+).

Figure 5-1 through Figure 5-5 present the water management structures and flow pathways throughout the life of mine. Flow diagram schematics are also provided for each phase in Appendix B.

Figures illustrating the movement of water throughout the life of mine are presented in the following sections. For more detail on mine plan development and schedule, see the Project Description section of the Project Proposal.

5.1.1 Phase 1: Construction

The Construction Phase takes place from Year -3 to Year -1 of the mine life and is focused on the development of water infrastructure that is necessary for mine operation to commence. Active mining is not underway during this phase; however, pre-stripping activities may occur. Additional water management measures will be implemented in all stripping areas in accordance with the Erosion and Sediment Control Plan. As such, all water is non-contact water and is collected in the natural watersheds present on site before being discharged to the environment via the surrounding rivers and creeks. The Facility Pond and Alpha Pond are constructed, along with the Halfway Creek Diversion, and the heap leach pad and ponds are constructed. Figure 5-1 presents the water management structures and flow pathways during the Construction Phase.

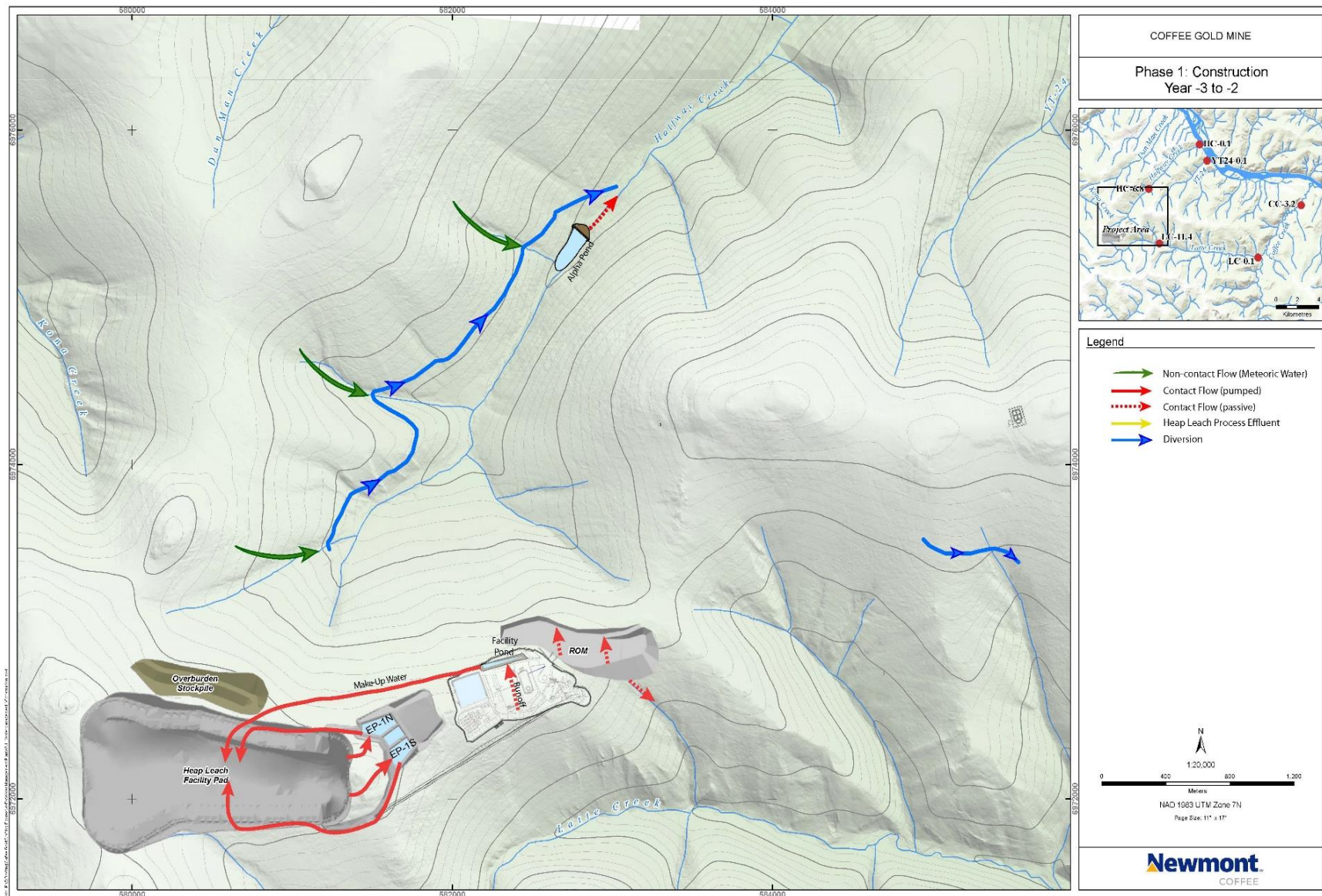


Figure 5-1 Water Management Schematic for Construction Yr -3 to Yr -1

5.1.2 Phase 2: Stage 1 Early Operations

Stage 1 of mine operation begins in Year -1 and runs until Year 2. During this time, active mining begins in Latte Pit, Supremo Pit and Double Double Pit. Water collected in the active basins of these pits will be used for dust suppression, or pumped to Facility Pond where it can be used process water or pumped towards Alpha Pond for discharge to Halfway Creek.

Ore processing at the heap leach facility also commences in this phase. Excess heap leach rinse solution is routed to the event ponds, which also provide process water. Figure 5-2 presents the water management structures and flow pathways during in early operations.

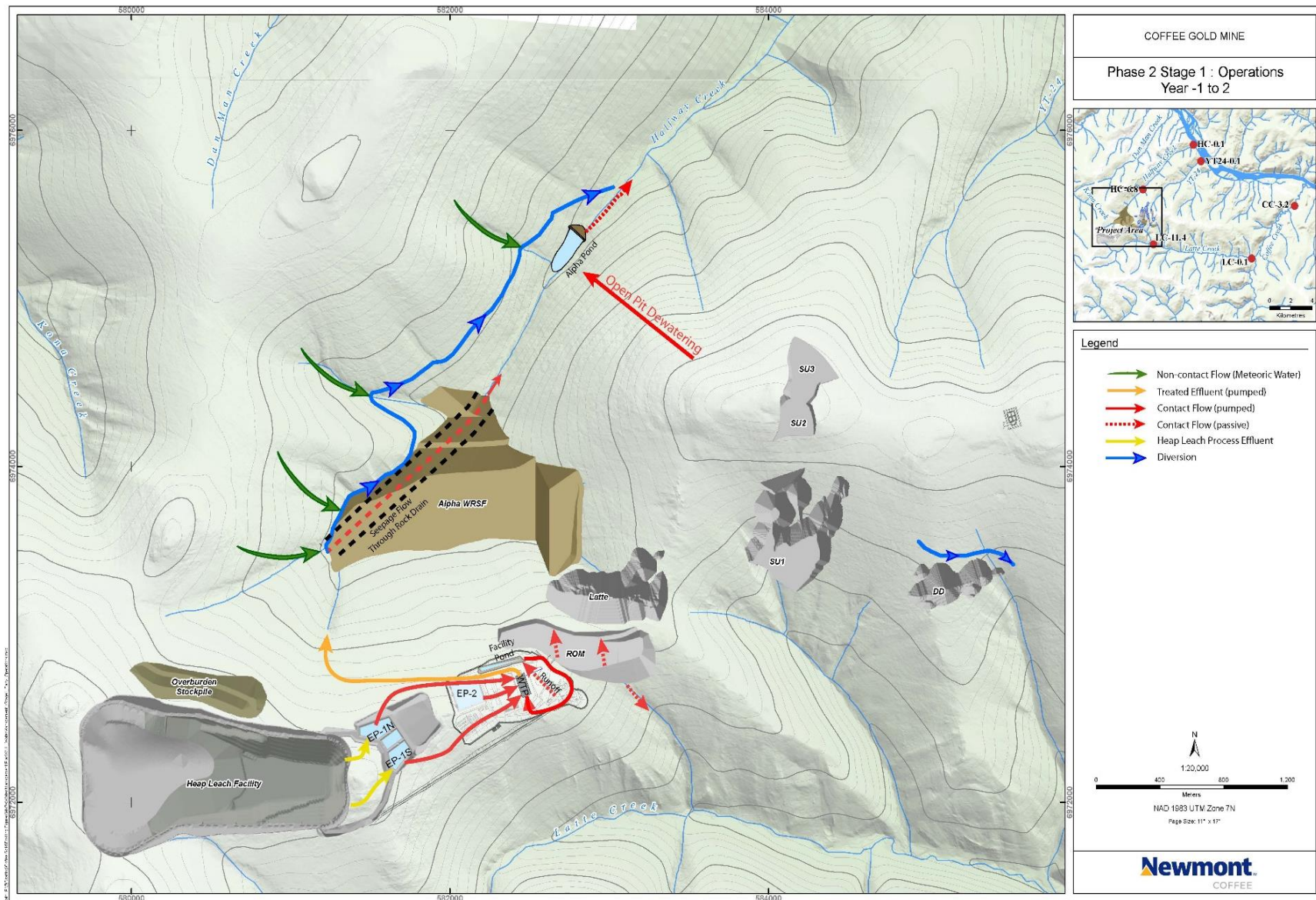


Figure 5-2 Water Management Schematic for Operation Yr -1 to Yr 2

5.1.3 Phase 2: Stage 2 Operations

Stage 2 of mine operation occurs from Year 2 to Year 10 of mine life. The active mining of Double Double Pit and isolated sections of Latte Pit are concluded early in this phase. Contact water from remaining active pit areas is prioritised for dust suppression, but further contact water may be routed to any one of Double Double Pit, Latte Pit, or Alpha Pond (via Facility Pond) for sediment control before being discharged to the natural environment. Additional contact water sourced from the event ponds and plant site is also routed to the Alpha Pond.

Pit lakes will begin to form throughout Stage 2. The expected spill points from the pits to the environment are presented in Figure 5-3 along with the year that spilling is expected to begin (average conditions). Water quality monitoring will track water in advance of any water discharging off-site, and actions will be implemented, including water treatment, if required.

Stage 2 also introduces the water treatment plant near the heap leach facility and plant site. Heap leach processing solution is expected to exceed the site-specific water quality objectives and will be routed to the treatment plant before either being discharged towards Alpha Pond or recycled as makeup water for the heap leach facility.

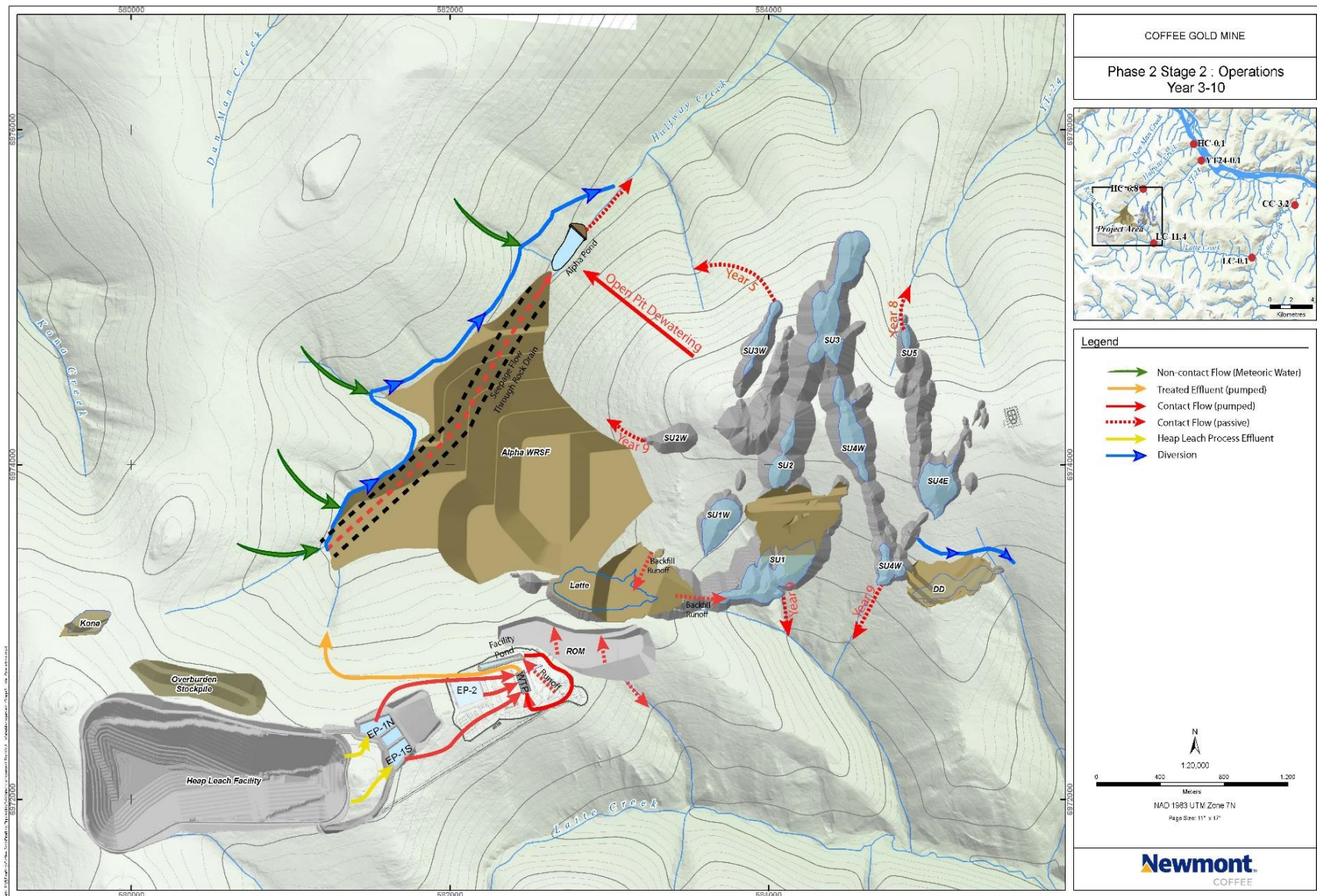


Figure 5-3 Water Management Schematic for Operation Yr 3 to Yr 10

5.1.4 Phase 3: Post-Mining Closure

The Post-Mining Closure phase is planned to occur between year 10 and year 15 of mine life. During this phase, active mining has concluded, and all pits are flooded. Meteoric water collected in the pit basins will be monitored for quality and will be discharged to the environment if the effluent meets the site-specific water quality objectives. HLF rinse solution will be collected and processed until recirculation ceases in Year 15. Excess process solution and additional contact water present in the Facility Pond will be treated at the water treatment plant before either being discharged to Alpha Pond or recycled as makeup water for the heap leach facility. Figure 5-4 presents the water management structures and flow pathways during the Post-mining Closure Phase.

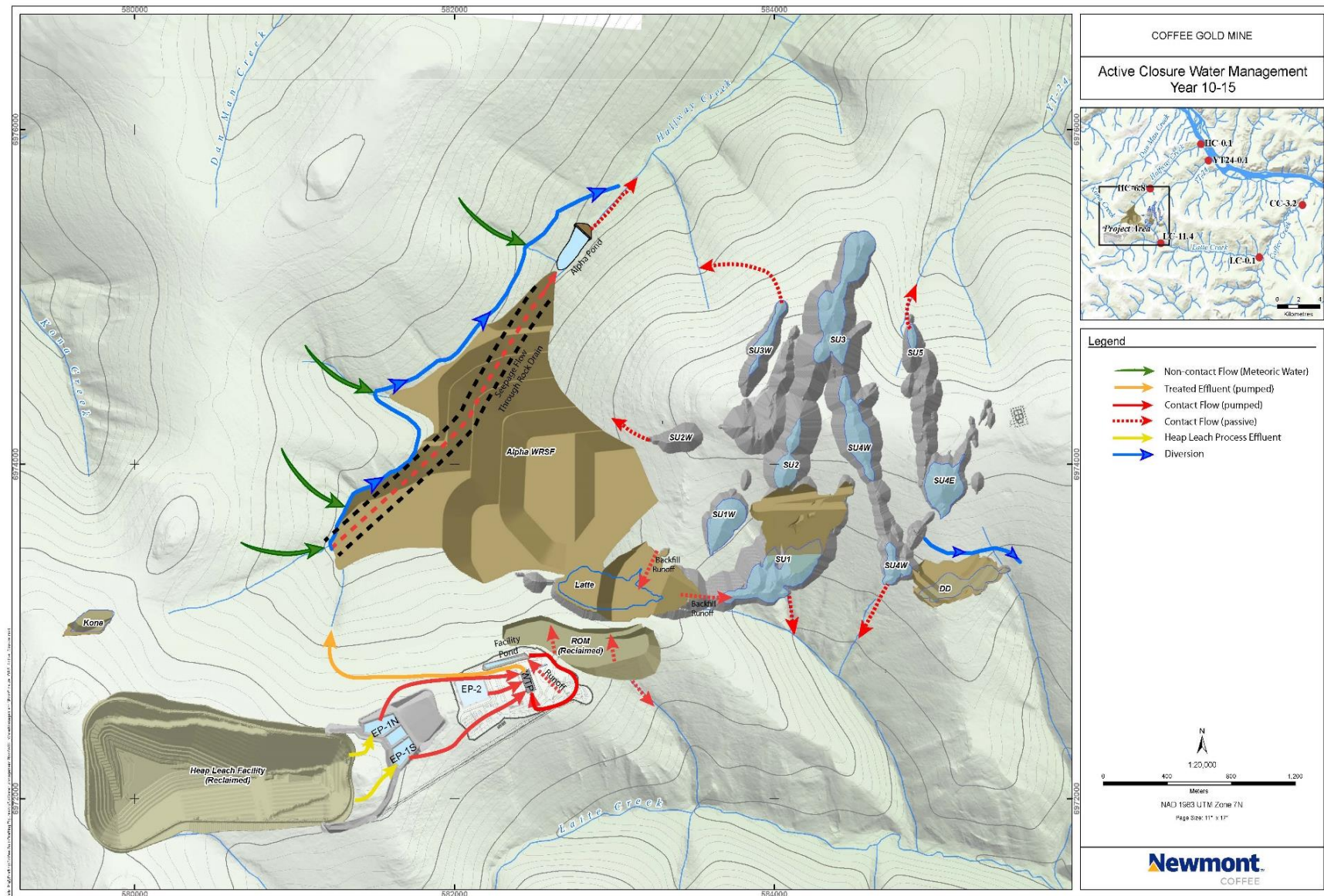


Figure 5-4 Water Management Schematic for Post-mining Closure Yr 10 to Yr 15

5.1.5 Phase 4: Active Closure

The Active Closure phase runs from year 16 to year 21 of mine life. During this phase, meteoric water collected in the pit basins will be monitored for quality and will be discharged to the environment if the effluent meets the site-specific water quality objectives. If required, the passive water treatment system for HLF drainage will be constructed. Ongoing operations of the WTP will continue as required. The process plant and WTP will be decommissioned once no longer required. Once water quality monitoring indicates it is acceptable to do so, the Alpha Pond will be decommissioned. The Halfway Creek Diversion and Double Double Diversion will be breached. Figure 5-5 presents the water management structures and flow pathways during the Active Closure Phase.

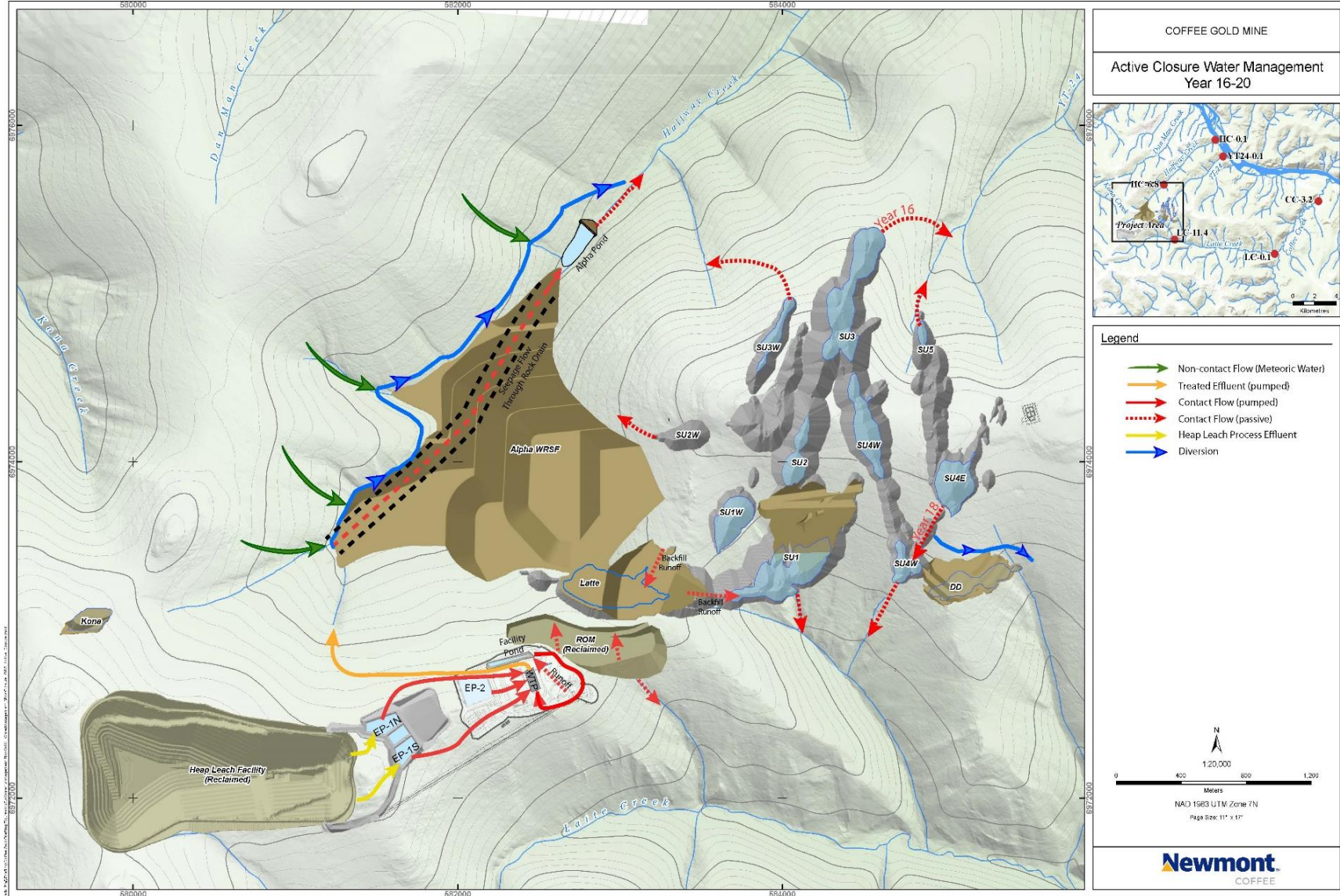


Figure 5-5 Water Management Schematic for Active Closure Yr 16 to Yr 20

5.1.6 Phase 5: Post-Closure

In the Post Closure phase, pit lakes continue to develop and spill to the environment. Heap Leach drain down is routed to a passive treatment facility, if required, before ultimately being routed to Halfway Creek via the Alpha WRSF rock drain and overflow channel. Figure 5-6 presents the water management structures and flow pathways during the Post-closure Phase.

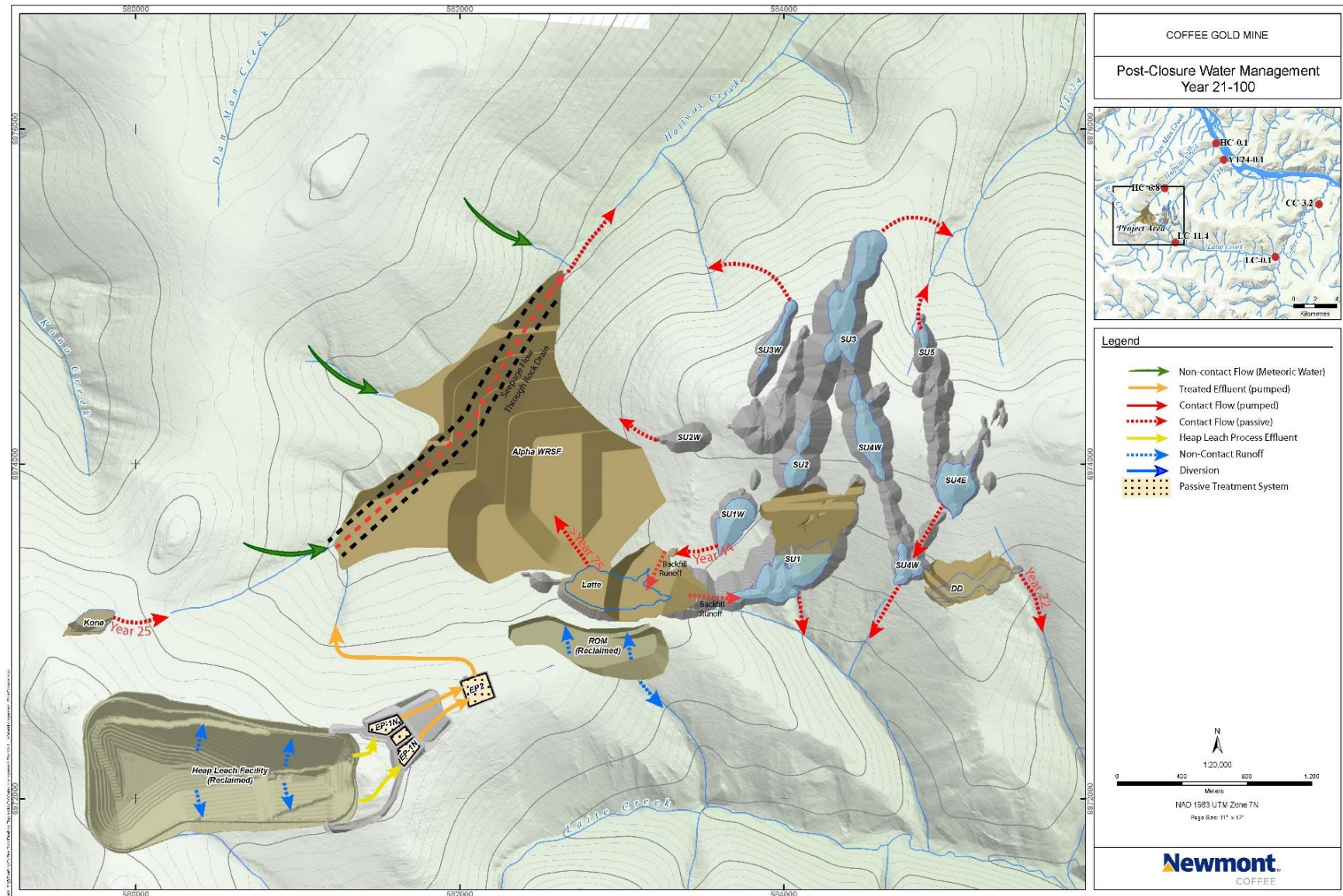


Figure 5-6 Water Management Schematic for Post Closure Yr 21+

6.0 MONITORING

Monitoring will be undertaken to 1) verify and monitor the site water balance, 2) assess water quality to verify that performance objectives are being met, and 3) verify the integrity and stability of conveyance structures. Details regarding monitoring are presented in the Environmental Monitoring and Adaptive Management Plan.

7.0 REPORTING

The Water Management Plan is anticipated to be subject to authorization under the Water Use License that are required for the Project. As such, reporting to the appropriate regulatory bodies is expected to be required as conditions of these licences.

Reporting the results of ongoing monitoring activities will likely be required monthly and/or annually, and will include, but not necessarily be limited to, details of:

- Meteorological monitoring
- Description and volumes of the water use and waste deposition
- Results of any water quality monitoring, including groundwater, and streamflow measurements
- Any updates to water balance for Mine Site or HLF
- Detailed data on the volume of water collected, transferred, contained, or released to the environment
- Summary of physical inspections and any corrective actions taken as a result of the inspections.

Copies of reports will be provided to First Nations and will be made available for public viewing on platforms provided by the regulatory bodies, as required.

8.0 ANNUAL WATER MANAGEMENT PLANNING

The Site-wide Water Balance and Water Quality and Heap Leach Facility water balance models will be updated annually and will include the following components:

- Current forward looking mine plan, including ore and waste rock tonnages, open pit staging, etc.
- The model results from the previous year (water balance and water quality for key nodes) will be compared to monitoring data in a validation exercise.
- The model will be initialized with current conditions (*i.e.*, pond volumes, waste rock tonnages), and run in predictive mode using a range of climate scenarios to provide an ensemble of predictions.
- The model results will include:
 - Updated water quality predictions for downstream receiving environment waterbodies, including expected-case and worst-case scenarios, relative to monitoring data.
 - Review loading from Alpha WRSF to Alpha Pond relative to mass of waste rock included to validate geochemical source term assumptions.
 - Updated year-by-year capacity for emergency available storage in mined pits including consideration of storage that would or would not affect access to ore and impede mining.
 - Discussion of the timeframe of water storage available prior to release of environment in the event of a loss in pumping ability.
 - An annual water treatment discharge volume plan for the upcoming year.

Precipitation and snowmelt recurrence interval analyses are not expected to be completed on an annual basis but will be reviewed in the case that large precipitation events are measured on-site that indicate potential exceedances of the design storm events used in water management infrastructure design.

Water balance and water quality model runs generated in support of Project updates, additional water quality mitigation measures or new information will be provided to regulators.

9.0 REFERENCES

- AECOM, 2012. Geomorphological Mapping and Landscape Model Development for Strategic Soil Geochemical Sampling at the Coffee Gold Project, Yukon Territory. Prepared for Kaminak Gold Corporation. AECOM Project Number: 60215708. March 2012
- Basu, A. (2013). Isotopic fractionation of chromium and uranium during abiotic and microbial Cr(VI) reduction and microbial U(VI) reduction (Doctoral dissertation). University of Illinois, Urbana, Illinois. <http://hdl.handle.net/2142/44306>
- Benner, S.G., Blowes, D.W., Ptacek, C.J. (1997). A full-scale porous reactive wall for prevention of acid mine drainage. *Ground Water Monit. Rem.* 17, 99-107.
- Blowes, D.W., Ptacek C., Benner S.G., McRae C.W.T., Bennett T.A. and Puls R.W. (2000). Treatment of inorganic contaminants using permeable reactive barriers. *Journal of Contaminant Hydrology*, 45:123-137.
- BC Ministry of Environment. 2015. Environmental Management Act Technical Guidance 7 Assessing the Design, Size, and Operation of Sediment Ponds Used in Mining.
- Canadian Dam Association, Dam Safety Guideline, 2007. Revised 2013
- Canadian Dam Association (CDA). Technical Bulletin: Application of Dam Safety Guidelines to Mining Dams. 2019
- Chow, V.T. 1994. *Open Channel Hydraulics*. McGraw Hill.
- International Council on Mining & Metals (ICMM). Global Industry Standard on Tailings Management (GISTM). August 2020.
- Interstate Technology & Regulatory Council (ITRC). (2005). *Permeable Reactive Barriers: Lessons Learned/New Directions*. Prepared by The Interstate Technology & Regulatory Council Permeable Reactive Barriers Team. February 2005. <http://itrcweb.org/Guidance/ListDocuments?TopicID=19&SubTopicID=23#>.
- Interstate Technology & Regulatory Council (ITRC). (2011). *Permeable Reactive Barrier: Technology Update*. Prepared by The Interstate Technology & Regulatory Council PRB: Technology Update team. June 2011. <http://itrcweb.org/Guidance/ListDocuments?TopicID=19&SubTopicID=23#>.
- Interstate Technology & Regulatory Council (ITRC). (2013). *Biochemical Reactors for Mining-Influenced Water*. Prepared by The Interstate Technology & Regulatory Council Biochemical Reactors for Mining-Influenced Waste Team. November 2013. <http://www.itrcweb.org/bcr-1/Content/Resources/BCRPDF.pdf>.
- Li, M.H. and Chibber, P, Overland flow Time of Concentration on Very Flat Terrains, *Transportation Research Record*, 2008, Pp. 133-140.

- Lorax Environmental. 2022a. *Coffee Gold Project – 2021 Hydro-Meteorology Baseline Report*. Prepared by Lorax Environmental Services Ltd. for Newmont Corporation, January 2022.
- Lorax Environmental. 2022b. *Coffee Gold Project – Surface Water Quality Monitoring Plan*. Prepared by Lorax Environmental Services Ltd. for Newmont Corporation, September 2022.
- Lorax Environmental. 2022c. *Coffee Gold Project – Groundwater Monitoring Plan*. Prepared by Lorax Environmental Services Ltd. for Newmont Corporation, October 2022.
- Lorax Environmental. 2022d. *Coffee Gold Project – Water Balance and Water Quality Model Report*. Prepared by Lorax Environmental Services Ltd. for Newmont Corporation, December 2022.
- NRCS, United States Department of Agriculture, Natural Resources Conservation Service. 2019. Part 630 Hydrology National Engineering Handbook. Chapter 4: Storm Rainfall Depth and Distribution. August 2019.
- Robinson, K. M., C. E. Rice, and K. C. Kadavy. 1998. Design of Rock Chutes, 1998.
- SRK, 2016. Conceptual Reclamation and Closure Plan.
- SRK, 2018. Coffee Gold Project – Alpha Waste Rock Storage Facility Rock Drain Design Report – Revision 0. Prepared for JDS Energy and Mining Inc.
- SRK, 2022. Coffee Gold Project - Water Management Design Basis Report. Prepared for Newmont Goldcorp.
- Strickler, Anderson, and Abt. 1988, Resistance to Flow Over Riprap in Steep Channels, Water Resources Bulletin, Vol N°24, N°6.
- TMG, 2016. Heap Leach Pad Management Plan
- USACE, U.S. Army Corps of Engineers Institute for Water Resources Hydrologic Engineering Center, Hydrologic Modeling System HEC-HMS, Version 4.1, 2013
- U.S. Environmental Protection Agency (USEPA). (1998). Permeable Reactive Barrier Technologies for Contaminant Remediation. <https://clu-in.org/download/rtdf/prb/reactbar.pdf>.
- U.S. Environmental Protection Agency (USEPA). (2005). Permeable Reactive Barriers for Inorganic and Radionuclide Contamination. Prepared by Bronstein K., National Network of Environmental Management Studies Fellow. Prepared for the U.S. Environmental Protection Agency, August, 2005.
- U.S. Environmental Protection Agency (USEPA). (2008). Field Application of a Permeable Reactive Barrier for Treatment of Arsenic in Ground Water. <http://permanent.access.gpo.gov/LPS112931/600r08093.pdf>.
- United States Department of the Interior, Office of Surface Mining (OSM), Surface Mining Water Diversion Design Manual, 1982.

- Western University. 2022. Computerized Tool for the Development of Intensity-Duration-Frequency Curves under Climate Change – Version 6.0. <https://www.idf-cc-uwo.ca>. Accessed May 5, 2022.
- Wilkin, R.T., Acree, S.D., Ross, R.R., Beak, D.G. and Lee, T.R. (2009). Performance of a zerovalent iron reactive barrier for the treatment of arsenic in groundwater: Part 1. Hydrogeochemical studies. *Journal of Contaminant Hydrology*, 106: 1-14.
- Yukon Guide for Developing Water Quality Objectives and Effluent Quality Standards for Quartz Mining Projects. October 2021. Government of Yukon.



AppB_FlowDiagrams
_DraftWMP_2022122

APPENDIX A

Contingency Water Management Memo (SRK 2022)

FINAL

Memo

To	Christian Roldan (Newmont), Ryan Herbert (Ensero)	Client	Newmont Corporation
From	Samantha Barnes, John Kurylo	Project	CAPR002388
Cc		Date	July 26 2023
Subject	Coffee Gold Project Contingency Water Management Measures - Memo		

File name: CoffeeGold_ContingencyWaterMemo_CAPR002388_20230331_FINAL.docx

1 Introduction

Newmont Corporation (Newmont), in coordination with SRK Consulting (Canada) Inc. (SRK), have prepared a series of contingency water management strategies in support of the Coffee Gold Mine, located in the Yukon, Canada. These strategies form part of the response to the Final Screening Report's recommended mitigation to address the risk of effluent quality objectives being exceeded in the discharging facilities during mine operations. As noted in the screening report, the contingency plan includes a proof of concept and estimated implementation time, as well as water quality early warning triggers.

The following memorandum presents the contingency water management strategies that were developed in response to this comment. These strategies are based on three alternative conditions, where water quality at the primary discharge facility, Alpha Pond, does not meet the Effluent Quality Standards (EQS). Conditions include exceedances of total suspended solids (TSS) concentrations, exceedances of nitrate, nitrite or ammonia concentrations, and exceedances in metals concentrations.

2 Contingency Strategies

The EQS were developed for each stream surrounding the Project. The Alpha Pond is located within the Halfway Creek watershed and therefore the Halfway Creek EQS thresholds apply to the contingency measures described herein. Details on the development and selection of EQS are presented in the Water Management Plan.

There are three water quality conditions which may warrant contingency strategies in the Alpha Pond effluent discharge.

1. Water in Alpha Pond exceeds the EQS for total suspended solids (TSS).
2. Water in Alpha Pond exceeds the EQS nitrate, nitrite or ammonia concentration.
3. Water in Alpha Pond exceeds any of the EQS metals concentrations.

Water management strategies under normal operating conditions vary throughout the life of mine based on the expansion of mining extents and operations of the water treatment plant. Contingency measures have been developed for each water quality condition listed along with two periods in the mine life, including early operations from Year -1 to Year 2 and the remaining mine life from Year 3 to Year 9. The concentrations of nitrate, nitrite, ammonia and TSS in the Alpha Pond are expected to decrease over time once active mining is complete; however, the risk of high metals concentrations may persist through the active closure period. To account for this, an additional contingency measures scenario has been included for the active closure phase in Year 10 onwards for elevated metals concentration condition.

The following sections present the contingency measures for each water quality condition and each mining period.

2.1 Contingency Strategy for High TSS Concentrations

The first instance where water management of Alpha Pond effluent may require additional measures is if the TSS concentration exceeds the EQS. The strategy to mitigate this risk is to include a flocculation station at the upstream extent of Alpha Pond to promote particle settling. A flocculant will be discharged into Halfway Creek upstream of the Alpha Pond, which will mix with influent water. This will allow the flocculant to mix and then ultimately settle at the Alpha Pond location. This strategy is to be conducted using upstream best management practices for sediment management, in compliance with the Erosion and Sediment Control Plan.

This strategy could be applied in the early mining stage as well as in the later mining stage.

Timeline for implementing the flocculant addition is expected to be short. Newmont will procure flocculant and prepare a plan for dosing influent water in advance of construction to ensure the strategy is employable at the onset of the upset conditions.

The high TSS water contingency strategy is presented in Figure 2-1 and Figure 2-2, for early mine operation and late mine operation, respectively.

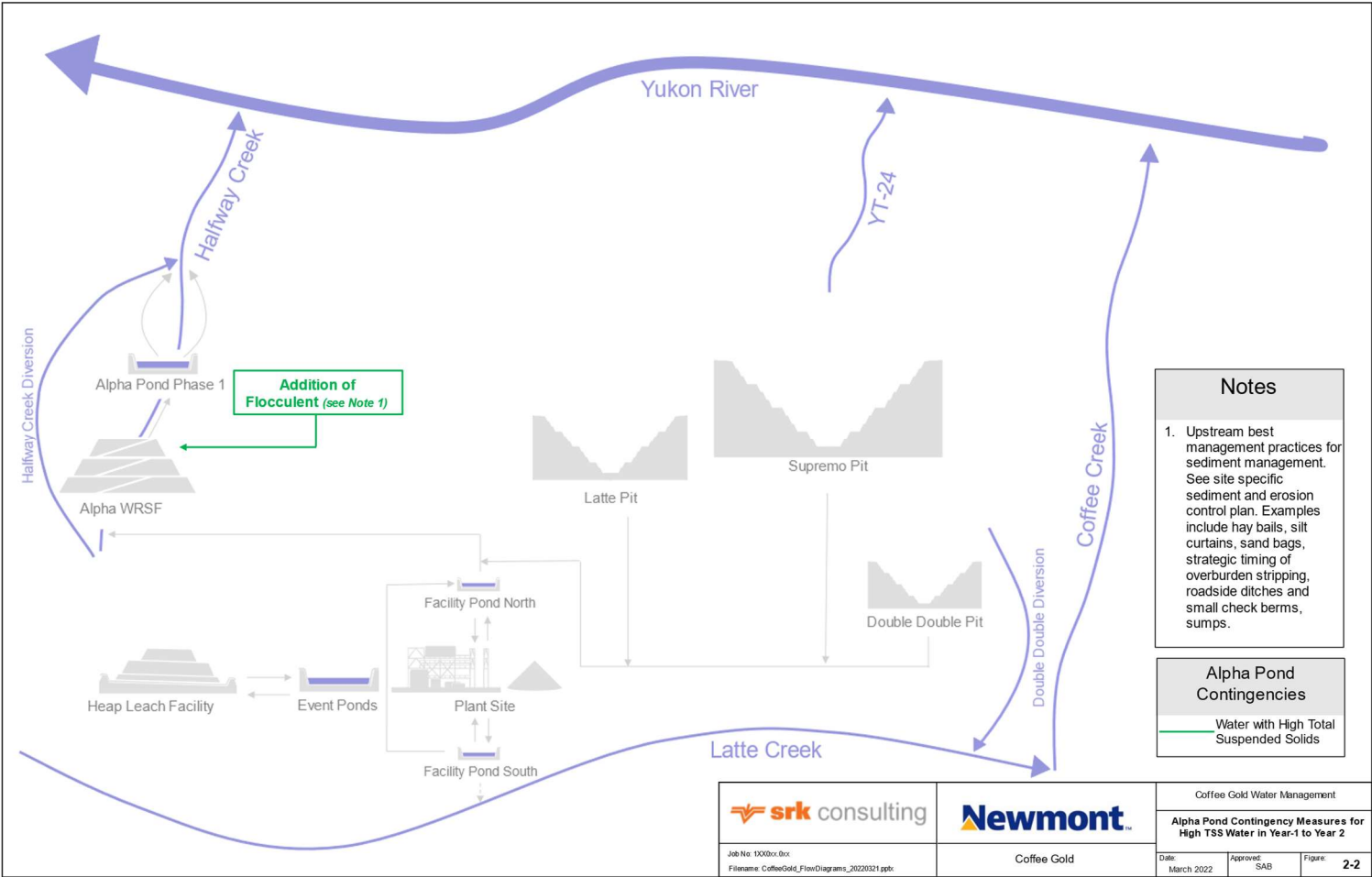


Figure 2-1: Alpha Pond Contingency Strategy for High TSS Water in Year -1 to Year 2

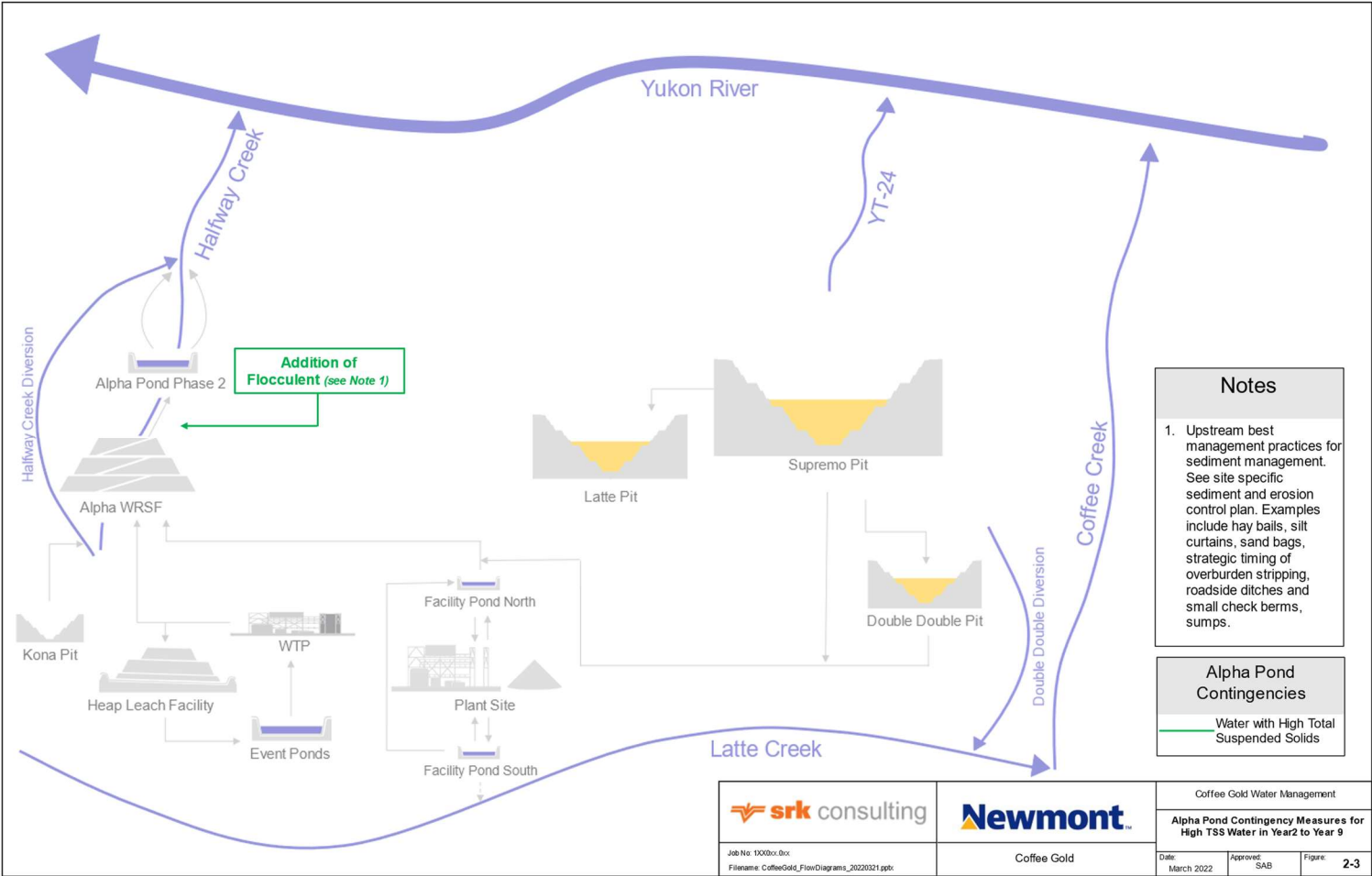


Figure 2-2: Alpha Pond Contingency Strategy for High TSS Water in Year 2 to Year 9

2.2 Contingency Strategy for High Nitrate, Nitrite or Ammonia Concentrations

The strategy for mitigation of water with high nitrate, nitrite or ammonia concentrations is to implement proactive source control in the blasting areas (i.e. in the active open pits) in advance of placing waste rock in the Alpha Waste Rock Storage Facility (WRSF).

Pit source control is a preventative measure focused on limiting the amount of nitrate introduced to the environment through blasting. The details of blasting source control for this Project are to be determined as part of the ongoing mine planning and optimizations. Operational methods for blasting source control may include the use of a waterproof liner in the blast pattern bore holes to limit the potential for nitrate leach while the explosive product is idle in the borehole, the modification of drilling patterns and plans to use a lower quantity of explosives (potentially at a slower advancement rate), or a shift from ammonium nitrate/ fuel oil explosives to emulsion explosives. Further blasting source control may be achieved through an enhanced training program which would aim to reduce the occurrence of misfires and mishandling of explosives. Supplies will be prepared and available on-site in advance of construction, allowing quick implementation of the contingency strategy once levels of nitrate begin to increase in Alpha Pond. Source control measures are in supplement to blasting management best practices, which will be followed through the duration of mine life independent of nitrate content.

If high nitrate content is noted in Alpha Pond water, investigation efforts may be implemented to identify the specific source of the high nitrate loading. Once identified, mitigation efforts may be implemented to isolate the source and treat the effluent before it reaches the Alpha Pond.

Source control is the highest priority contingency strategy. However, there may be a delay between implementation of source control and improvements in Alpha Pond water quality. Non-compliant water in the Alpha Pond may be pumped to the event ponds or inactive mining areas until acceptable improvements are noted. Pumped water may be used as makeup for heap leach processing, or treated and discharged back to the Alpha Pond once the treatment plant is online.

Should Alpha Pond water be non-compliant, downstream seepage may also be collected via the planning monitoring well, which will be designed such that it can be converted to a pumpback system. This contingency system will help increase the capture efficiency from Alpha Pond.

The nitrate, nitrite and ammonia contingency strategies are presented in Figure 2-3 and Figure 2-4 for early mine operation and late mine operation, respectively. The difference between the two periods is the addition of the Kona Pit in Year 8 and the ability to treat water at the water treatment plant. Due to the decentralized nature of the blast source control measure, it is not anticipated that significant changes will be required to accommodate the Kona Pit.

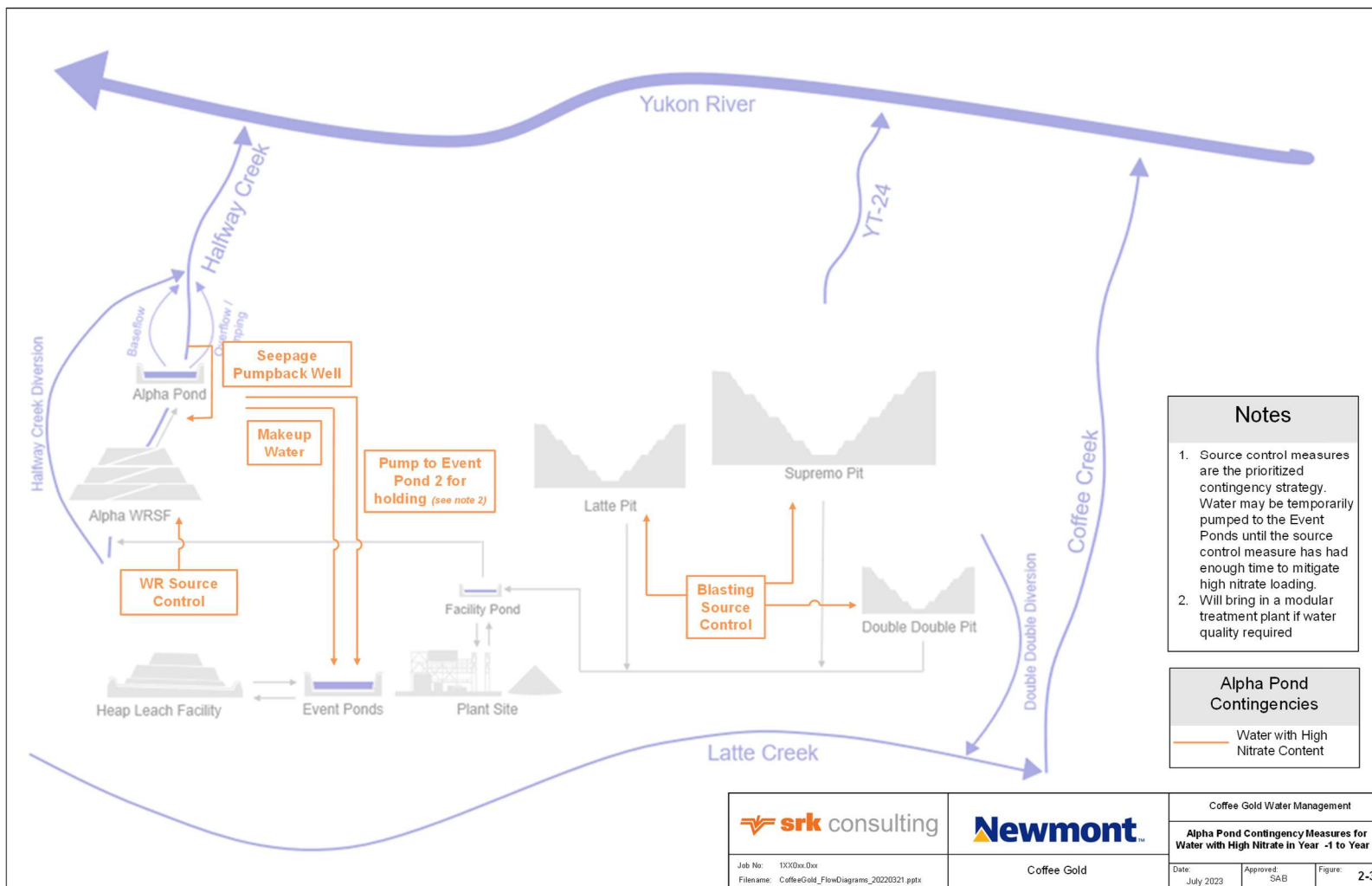
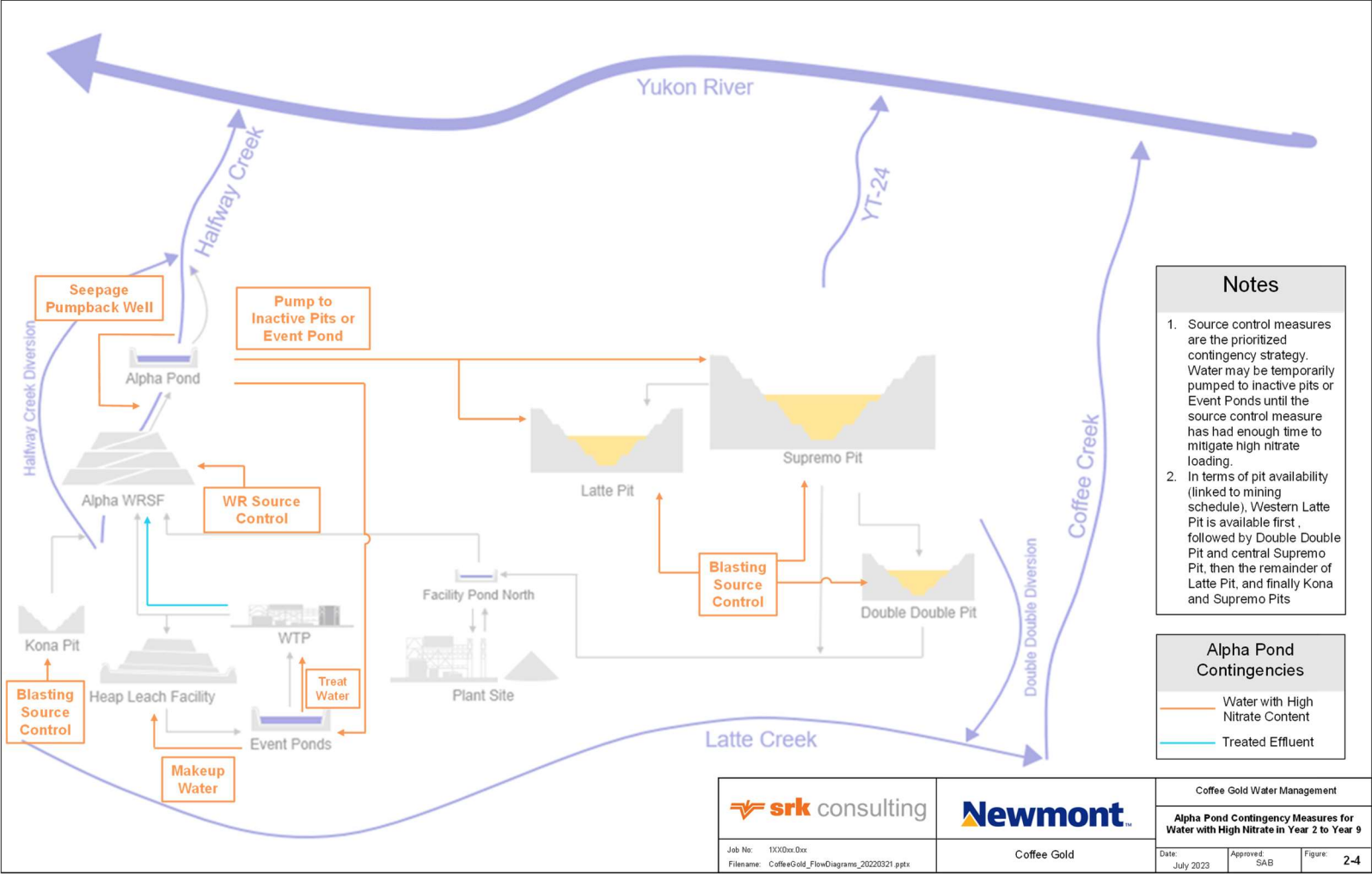


Figure 2-3: Alpha Pond Contingency Strategy for High Nitrate, Nitrite or Ammonia Concentrations in Year -1 to Year 2



2.3 Contingency Strategy for High Metal Concentrations

Multiple contingency strategies have been identified to manage elevated metal concentrations in the water collected in Alpha Pond. Strategies may vary throughout the life of mine depending on the mining progress with respect to open pits and water treatment options.

The highest priority contingency strategy for high metal content water is source identification and control. The details of metal source control for this Project are to be determined as part of the ongoing mine planning and optimizations. If water in Alpha Pond is found to be non-compliant with EQS, mitigation strategies to achieve desired results will be implemented at the identified source, which is expected to be either the open pits or the Alpha WRSF. Alpha Pond water may take time to observe improvements caused by source-specific mitigation measures. Temporary strategies may be implemented until acceptable improvements are noted in the Alpha Pond.

Should Alpha Pond water be non-compliant at any time in the mine life, downstream seepage may also be collected via the planning monitoring well, which will be designed such that it can be converted to a pumpback system. This contingency system will help increase the capture efficiency from Alpha Pond.

During early mining, the likelihood of metal exceedances is lower, due to the smaller mining area footprints and larger natural area catchments contributing to Alpha Pond. At this stage, non-compliant water could be pumped to other mine water storage facilities, including the Heap Leach Facility Event Ponds or the Facility Pond. Water collected in either the Facility Pond or the Event Ponds will be used as makeup water to the Heap Leach Facility and the Process Plant. The Event Ponds would also provide temporary storage for non-compliant water while a more permanent solution is facilitated, which may include a modular treatment plant to meet the EQS. Figure 2-5 presents the high metal content contingency strategy for early mine operation from Year -1 to Year 2. The pumps and pipeline from Alpha Pond to the Event Ponds will be procured in advance of construction, enabling activation of this strategy upon observation of changes in the water quality in Alpha Pond.

From Year 3 onwards, the main water treatment plant will be active on-site near the process plant. Non-compliant water from Alpha Pond could be pumped to the Event Ponds and treated at the main water treatment plant. Alternatively, Alpha Pond could be pumped to completed mining areas which could be used for temporary or permanent water storage during pit lake development. Any pumping to pit lakes would require active monitoring and analysis to ensure that the pumped volumes wouldn't result in new EQS exceedances in the pit lakes.

Based on the current mine plan, it is expected that the west portion of Latte Pit will be available to collect water by the end of Year 2, which is before more notable volumes of waste rock are placed at the Alpha Waste Rock Storage Facility. Northern Supremo Pit 1 and Double-Double Pit are finished mining and become available for water storage by the end of Year 4. Throughout Years 5 to 9, the remaining portions of Latte Pit, Supremo Pit and Kona Pit incrementally reach completion. As the mine site matures, it is anticipated that the pump and pipeline infrastructure required to transfer water from Alpha Pond to the available pits will be continually reconfigured to best suit the operational and economic needs of the mine. Estimated pipeline and pump requirements are discussed further in Section 4. Pipelines and pumps to completed pits will be procured as-needed if observations during

early operations suggest that elevated metal concentrations will be anticipated throughout the life of mine. Figure 2-6 presents the high metal content contingency strategy for Year 3 to Year 9.

At the end of active mining, additional measures may be taken to mitigate high metal content water in Alpha Pond. Pumping water to the main water treatment and supplying heap leach demand, or pumping to flooded pit lakes may continue, as in operations. In addition, new source control measures may be incorporated, such as covering completed sections of the WRSF that identify as being high loading sources to Alpha Pond. Contingency measures in closure will be determined and developed throughout ongoing closure planning in the operational period, based on observations through the active mining phase. Figure 2-7 presents the high metal content water contingency strategy for Year 10 and onwards.

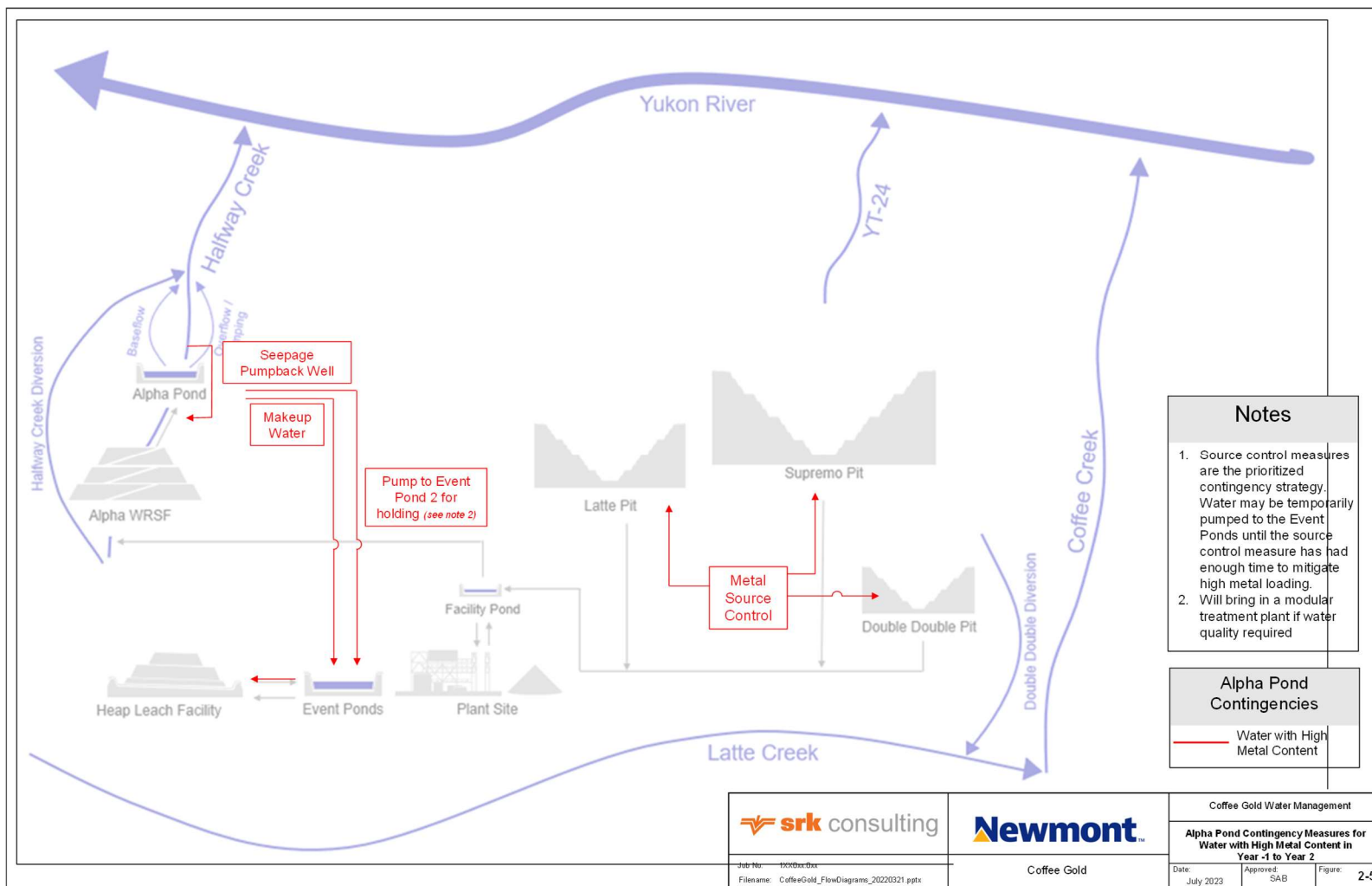


Figure 2-5: Alpha Pond Contingency Strategy for High Metal Concentrations in Year -1 to Year 2

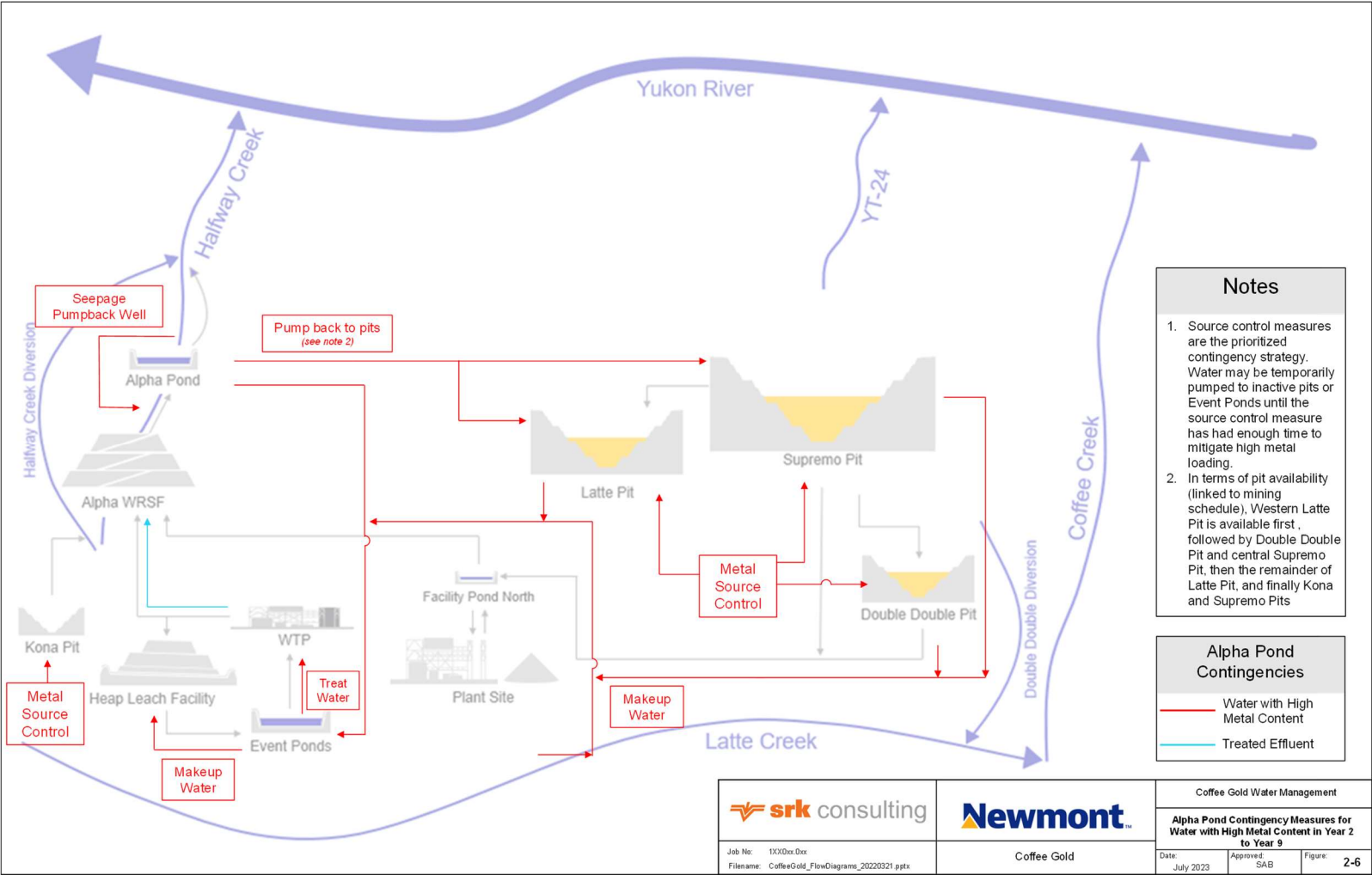


Figure 2-6: Alpha Pond Contingency Strategy for High Metal Concentrations in Year 2 to Year 9

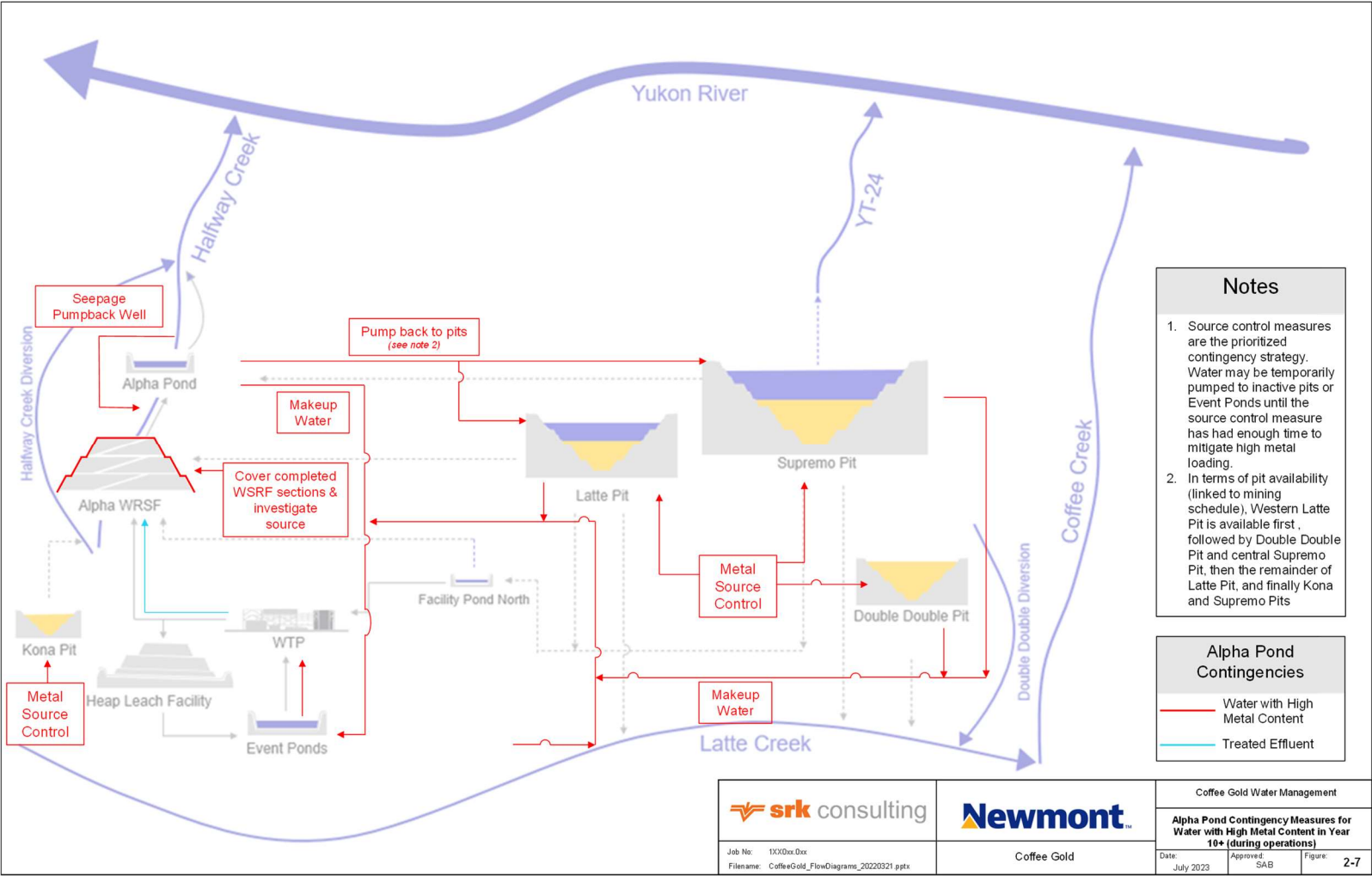


Figure 2-7: Alpha Pond Contingency Strategy for High Metal Concentrations in Year 10+

3 Temporary Storage Options

Throughout the life of mine, various temporary water storage areas exist, including ponds in the Heap Leach and Process Plant area, and open pits when they are no longer being actively mined. The availability of water storage areas are described in Table 3-1. These areas may be utilized temporarily to store non-compliant water from the Alpha Pond, as described in the various contingency measures from Section 2.

Table 3-1: Available Water Storage Areas throughout Life Of Mine

Facility	Years for Water Storage	Notes
Open Pit Areas		
Double Double Pit	Yr 3 – Yr 10	Mining completed in Year 3 Pit will require dewatering in advance of backfilling. May be flooded again after backfilling is complete
Kona Pit	Yr 10	Mining completed in Year 10 Pit will require dewatering in advance of backfilling. May be flooded again after backfilling is complete
Latte Pit	Yr 3 – Yr 10	West section of Latte Pit is available in Yr 3 while mining continues in east Latte Pit. Pit will require dewatering in advance of backfilling. May be flooded again after backfilling is complete
Supremo Pit	Yr 3 – Yr 10	Isolated sections of Supremo Pit become available for water storage as early as Yr 3. Available storage incrementally increases with mine life progression
Heap Leach and Process Area Ponds		
Event Pond 1-N	Year -1 – Year 10	Storage capacity of 112,000 m ³ Designed for storm event contact water runoff management for Heap Leach Facility
Event Pond 1-S		Storage capacity of 90,000 m ³ Designed for storm event contact water runoff management for Heap Leach Facility
Event Pond 2		Storage capacity of 340,000 m ³ Designed for storm event contact water runoff management for Heap Leach Facility
Rainwater Pond		Storage capacity of 53,000 m ³ Designed for non-contact water capture diverted from ore leaching pad, particularly if raincoats are employed
Facility Pond		Storage capacity of 20,400 m ³ Designed to store storm event runoff from plant and camp area

4 Pump and Pipeline Summary

The high metal content contingency strategy is dependent on the ability to transfer water from the Alpha Pond to other areas of the Project footprint using pumps and pipelines, and to treat water as-needed. SRK has conducted a conceptual analysis of the pumps and pipelines needed for the Coffee Project contingency water management plan.

4.1 Pipeline Configuration.

Pipeline configurations have been arranged for water transfer from Alpha Pond to the Heap Leach Facility Event Ponds or the Facility Pond, and to each open pit mining area. Figure 4-1 to Figure 4-5 present the pipeline alignments to each location, which were selected to follow planned mining roads where possible.

Static head between the Alpha Pond and each potential discharge location were calculated based on local topography. A fixed pumping rate of 2,000 gpm (130 L/sec) was selected, along with a pipeline diameter of 12 inches. Pumping system options were reviewed, and the Godwin HL 225 pump was selected to manage high solids content water across the site.

Total head was calculated using the Hazen Williams equation, which calculates friction and other losses based on the pipeline length and diameter, flow rate, and the pipe material, which is assumed to be high-density polyethylene (HDPE). A series of pumping stages will be required for each pumping alternative based on the pressure rating of the pipeline and the total head relative to the design head of the selected pump. Further optimization in the detailed engineering of pumped pipeline configurations may reduce the number of pump stages and associated cost of implementation. Table 4-1 presents the alternative pipeline alignments for each potential discharge location, including the expected number of pump staging points based on the total head and associated pressure.

Table 4-1: Pump and Pipeline Requirements for Alternative Pumping Locations for High TSS Water from Alpha Pond

Pump System	Discharge Location	Static Head [m]	Total Head [m]	Pipeline Length [km]	Number of Pump Stages
PS-C-01	Event Pond or Facility Ponds	390	480	4.4	7
PS-C-02	Kona Pit	370	470	5.3	7
PS-C-03	Latte Pit	140	190	2.9	3
PS-C-04	Supremo Pit	130	190	3.1	3
PS-C-05	Double Double Pit	190	310	6.3	5

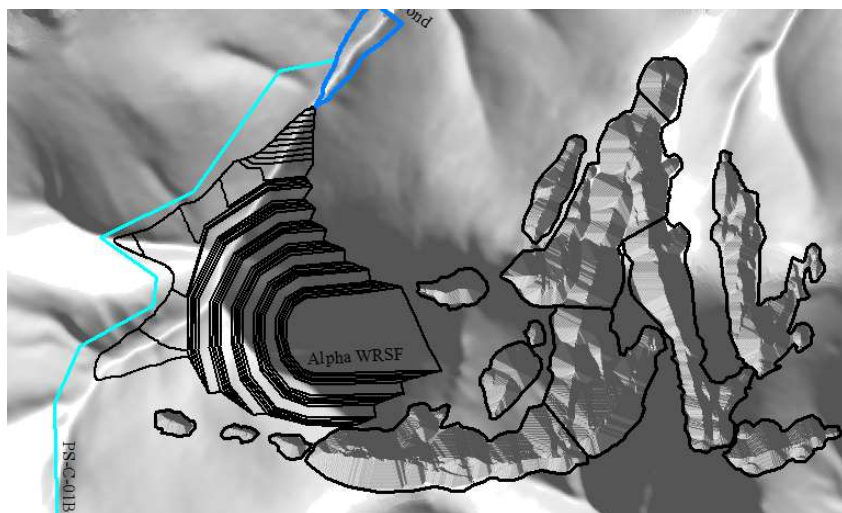


Figure 4-1: Pipeline Configuration to Event Ponds or Facility Ponds (PS-C-01)

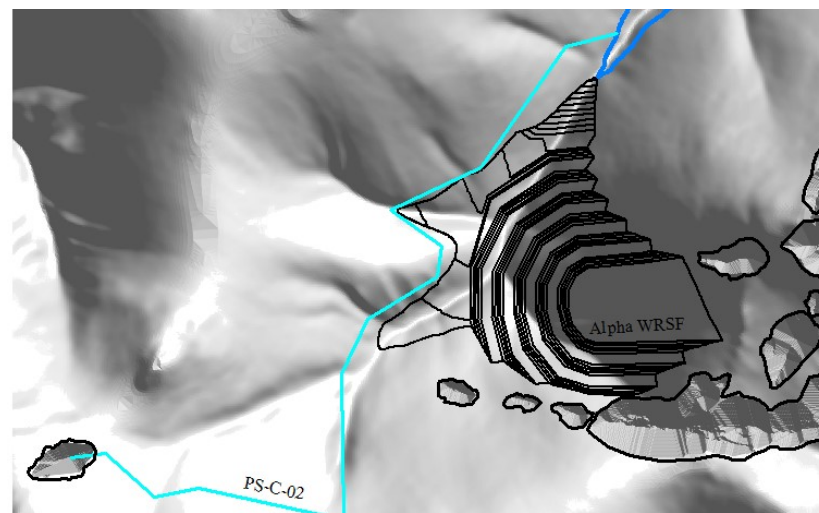


Figure 4-2: Pipeline Configuration to Kona Pit (PS-C-02)

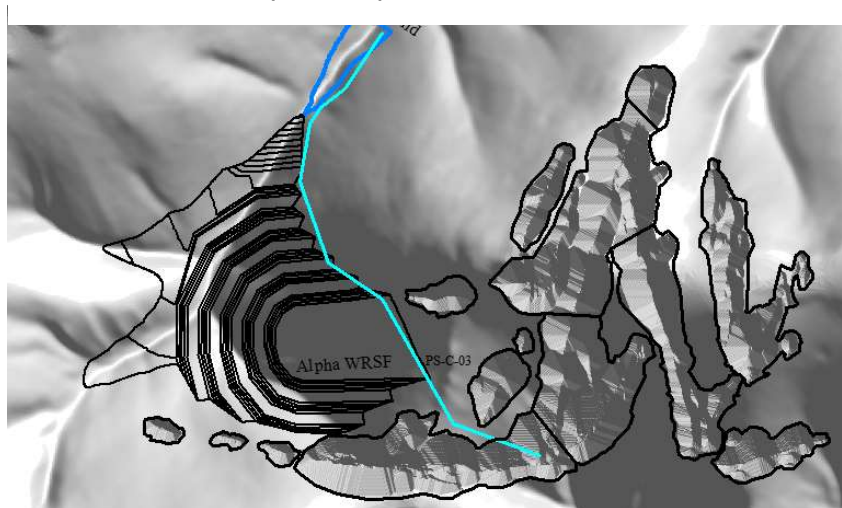


Figure 4-4: Pipeline Configuration to Latte Pit (PS-C-03)

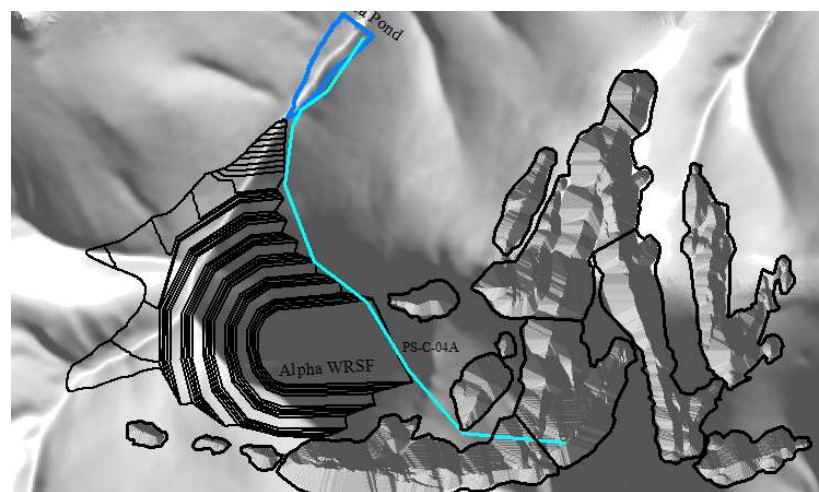


Figure 4-3: Pipeline Configuration to Supremo Pit (PS-C-04)

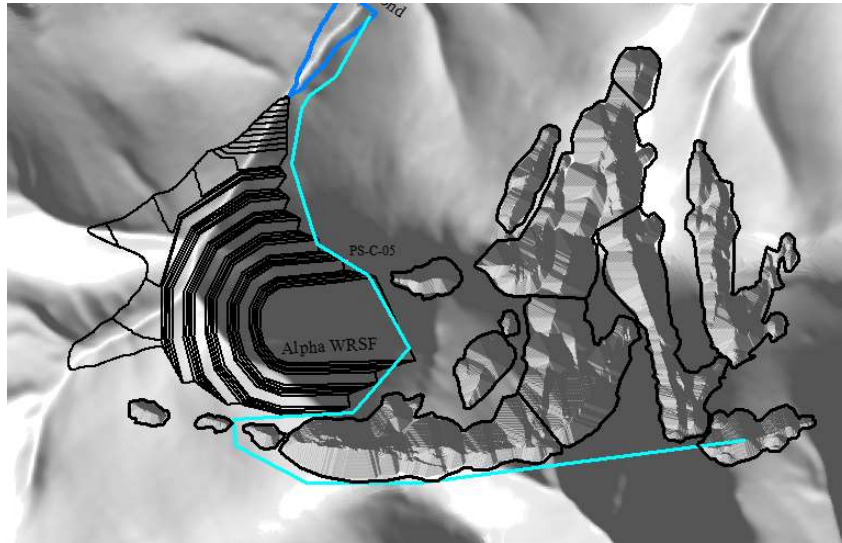


Figure 4-5: Pipeline Configuration to Double Double Pit (PS-C-05)

5 Conclusion

A series of contingency water management strategies have been prepared to support the goal of meeting EQS in Halfway Creek downstream of Alpha Pond. Based on the latest water quality predictions these additional water management strategies are not expected to be required, and thus have been labelled as “contingencies”. Selection of the appropriate strategy will rely on operational monitoring data in the Alpha Pond and other receiving facilities.

Table 5-1 summarizes contingency measures based on the water quality observations in Alpha Pond.

Table 5-1: Summary of Contingency Water Management Strategies based on Water Quality in Alpha Pond

Water Quality Observation in Alpha Pond	Contingency Water Management Strategy	Implementation Timeline
High TSS concentrations	Addition of flocculant upstream of Alpha Pond to improve particle settling	Flocculant will be permanently available on-site in case of periodic upset conditions.
High nitrate, nitrite or ammonia concentrations	Source control methods during blasting Water Treatment	Blasting modifications and strategies will be drafted in detail in advance of mining and supplies procured and kept on-site in case of periodic upset conditions
High metals concentrations	Pump water to Event Ponds or Facility Ponds for use in Heap Leach Facility or other Process Plant water demand Store water temporarily in completed mining areas Additional investigation into the source of elevated metals concentrations Water Treatment	Pumps and pipelines will be procured in advance of mining to move water from Alpha Pond to the Event Ponds and Facility Ponds. Additional pipelines will be procured as-needed if storage in the pits is required. Temporary modular treatment plant is not expected to be needed and will only be procured when storage options are expected to be depleted and water quality issues persist

Closure

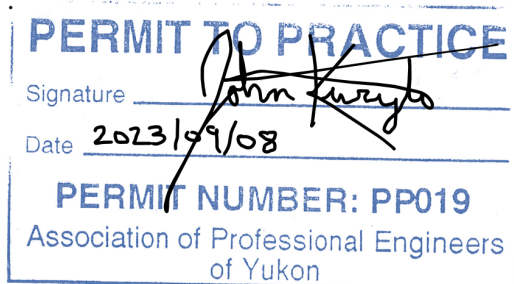
This report, Coffee Gold Project – Water Management Design Basis Report, was prepared by

Samantha Barnes, P.Eng, M.Eng
Senior Consultant (Hydrotechnical)



and reviewed by

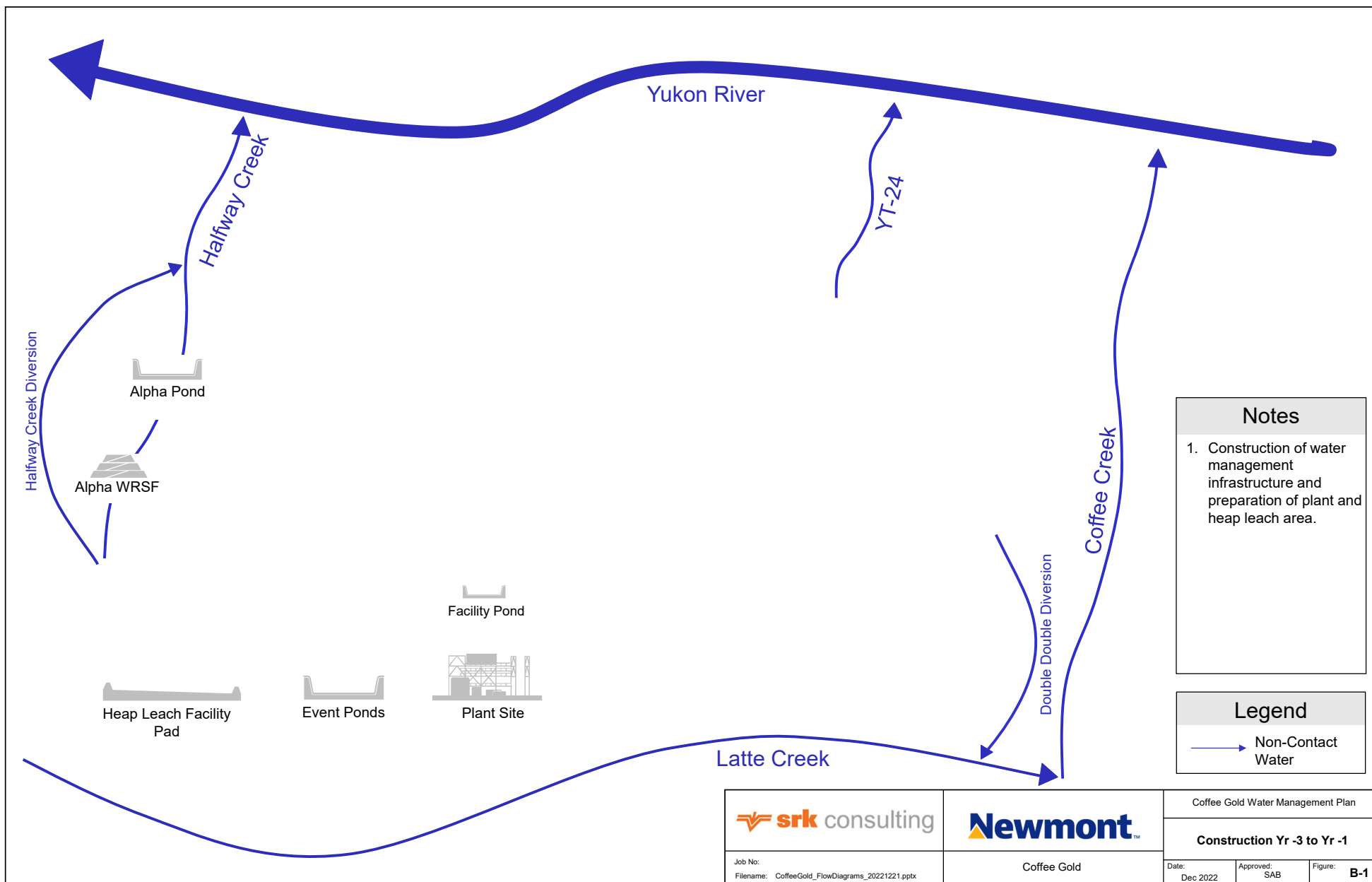
John Kurylo, PEng, MSc
Principle Consultant (Geotechnical)

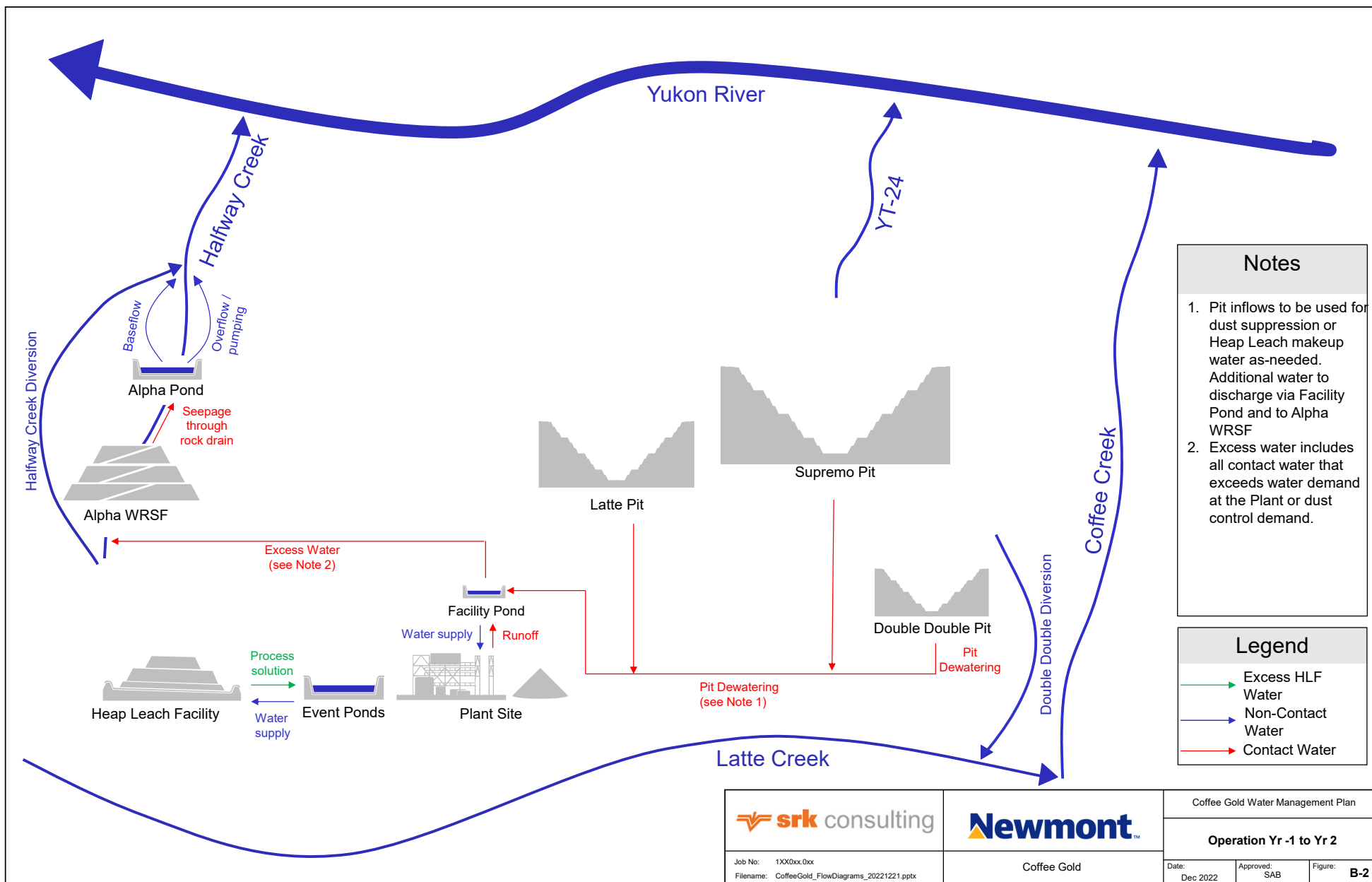


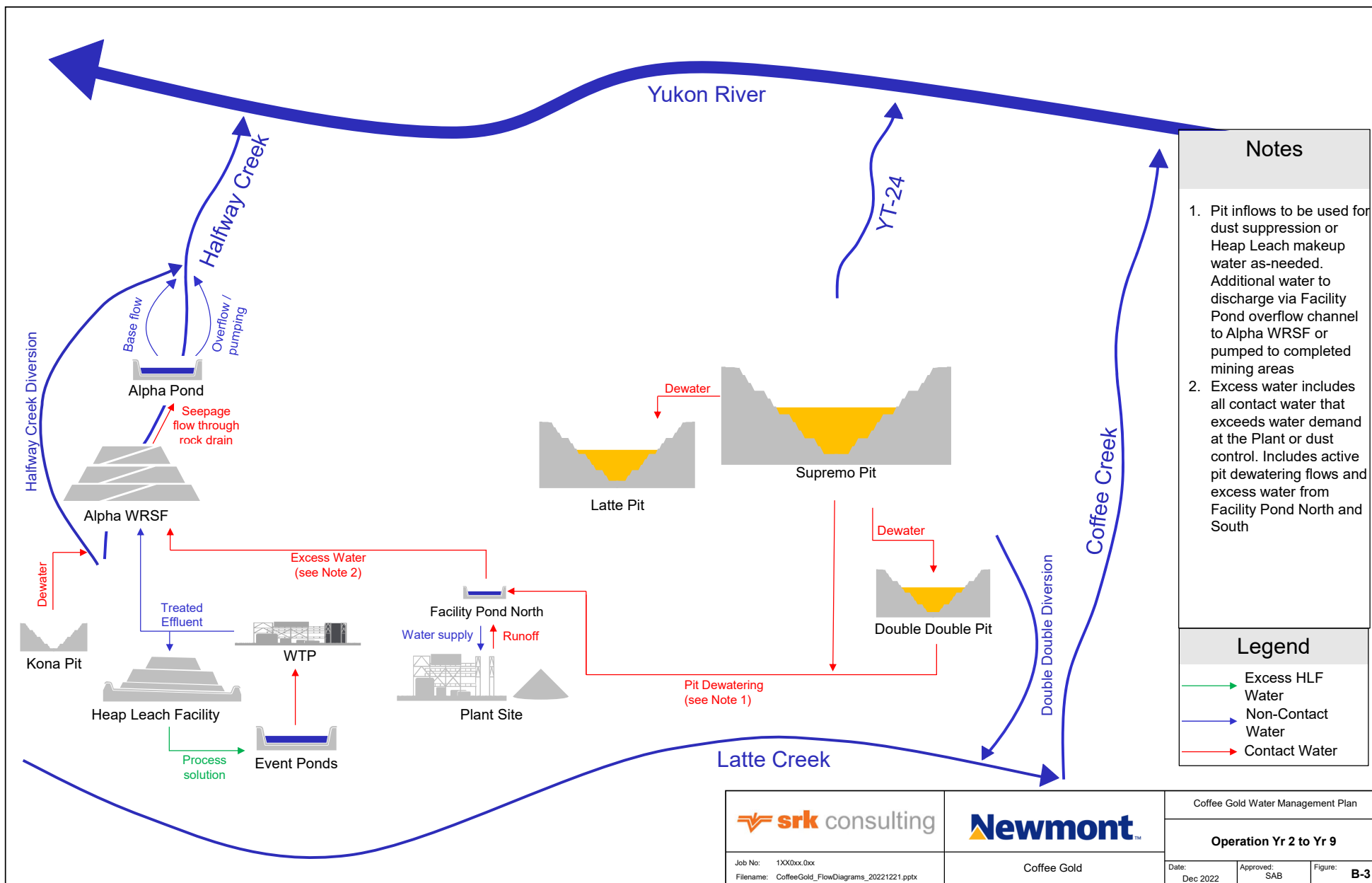
All data used as source material plus the text, tables, figures, and attachments of this document have been reviewed and prepared in accordance with generally accepted professional engineering and environmental practices.

APPENDIX B

Water Management Process Flow Diagrams

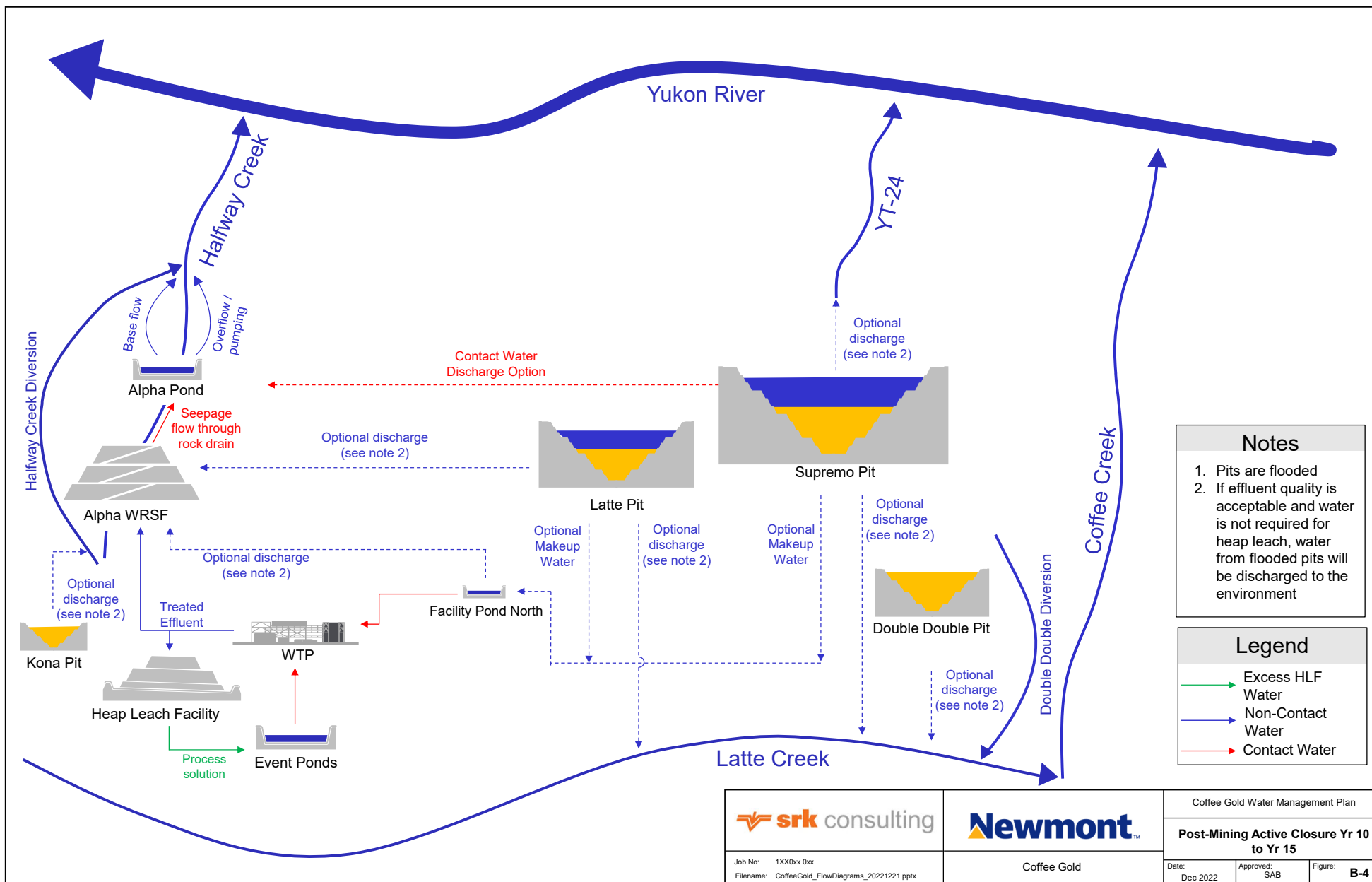


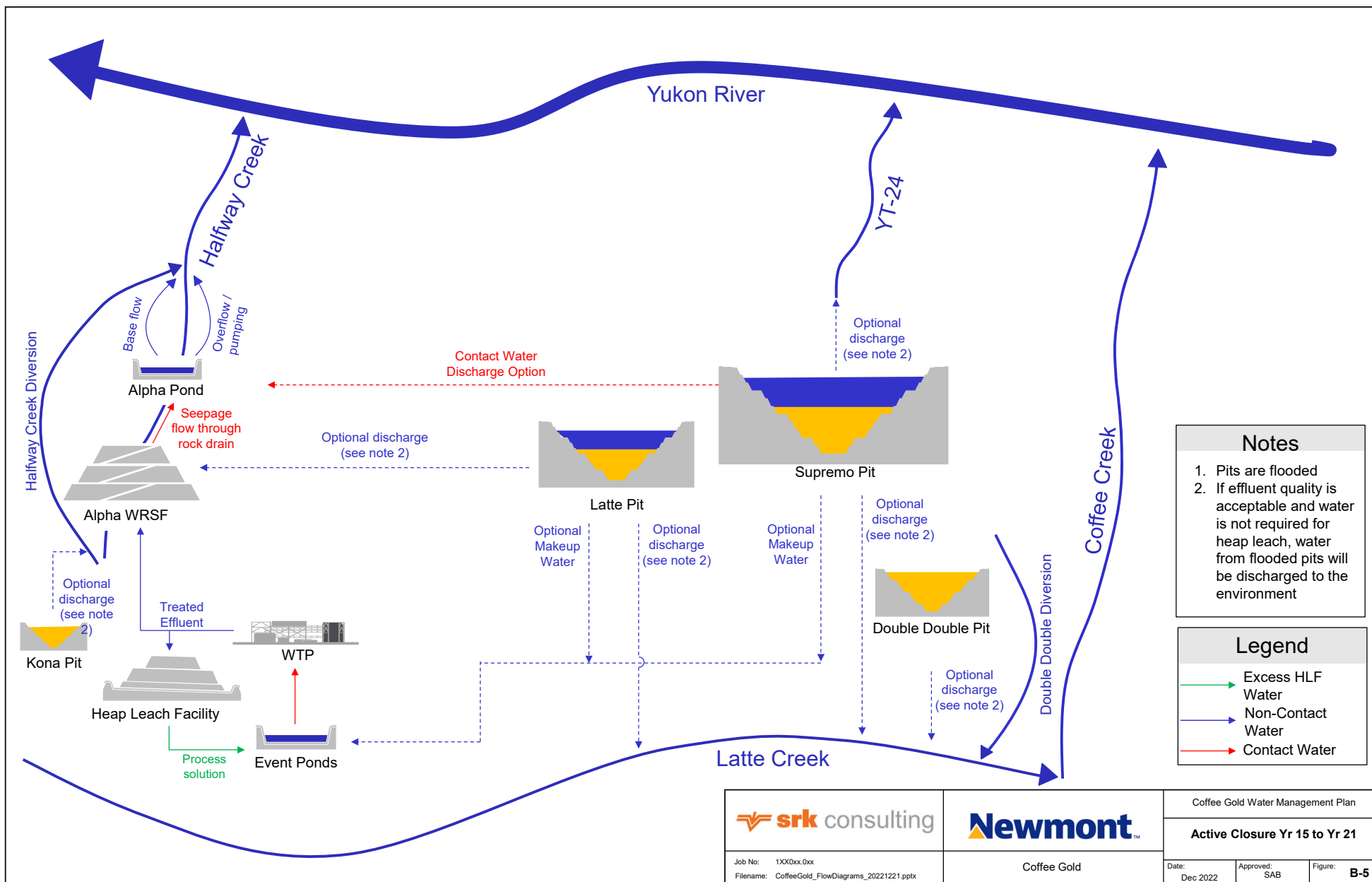


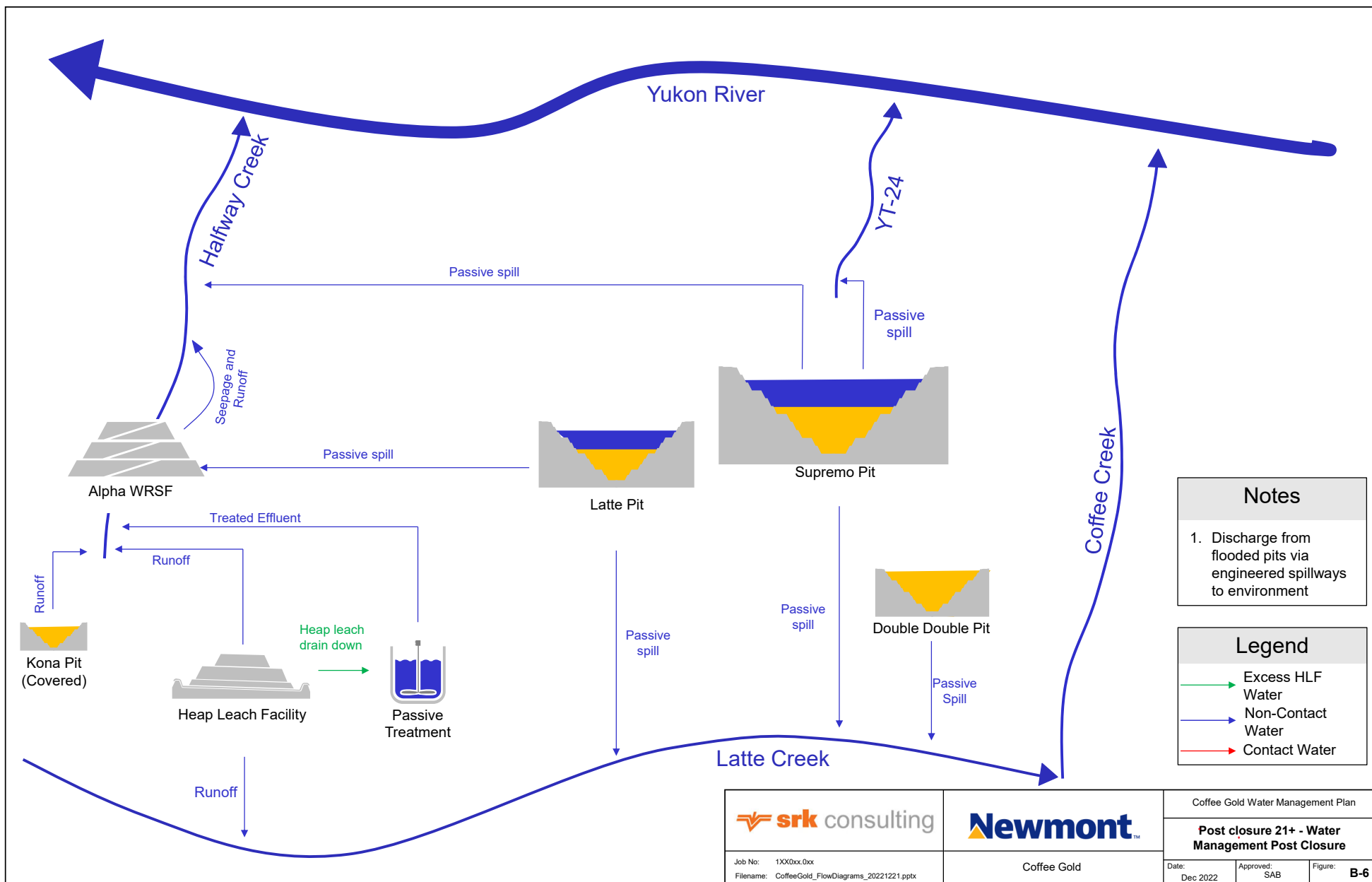


Notes	
1.	Pit inflows to be used for dust suppression or Heap Leach makeup water as-needed. Additional water to discharge via Facility Pond overflow channel to Alpha WRSF or pumped to completed mining areas
2.	Excess water includes all contact water that exceeds water demand at the Plant or dust control. Includes active pit dewatering flows and excess water from Facility Pond North and South

Legend	
→	Excess HLF Water
→	Non-Contact Water
→	Contact Water







APPENDIX C

Water Management Plan Table of Concordance

Decision Document Mitigation Measures				
Mitigation Number	Proposed Mitigation	Management Plan	Project Phases	Notes
Wildlife and Wildlife Habitat				
1	The Proponent shall apply for a lease or another form of regulatory approval under the Territorial Lands Act that will provide the Proponent with the authority and ability to control access between Maisy May Creek and the Stewart River. The point of access control shall be the beginning of new road connecting the existing road network with the Stewart River barge landing. Access shall be restricted through means such as a gatehouse or equivalent access restriction until the road is decommissioned such that this section of new road not become a public road.	ARCMP Section 2.0: Authorizations for Construction; Section 7.0: Access Tie-in, Access Control, and Staging Area	Construction Operation	
		AROMP Section 3.1: Access Control		
		Wildlife Protection Plan Section 4.2.4.1: Access Management		
2	The Proponent shall restrict public access to the Coffee Creek barge landing and roads connected to the barge landing that it maintains. Access shall be restricted through means such as a gatehouse, as near the barge landing as possible, until such time the road network attached to the barge landing is decommissioned such that these roads not become public roads.	ARCMP Section 7.0: Access Tie-in, Access Control, and Staging Area	Construction Operation	Access restricted through operation of the barge landings and through a gatehouse located approximately 2.8 km northeast of the north Stewart River barge landing.
		AROMP Section 3.1: Access Control		Access restricted through operation of the barge landings and through a gatehouse located approximately 2.8 km northeast of the north Stewart River barge landing.
		Wildlife Protection Plan Section 4.2.4.1: Access Management		
2.1	The Proponent shall ensure that all new road sections do not become public roads and that all new road sections be decommissioned by the conclusion of project activities. New barge landings shall be obstructed in a manner to prevent unloading of vehicles by barge.	ARCMP Section 9.13: Decommissioning and Reclamation	Closure	
		AROMP Section 3.1: Access Control	Construction Operation Closure	
		RCP Section 7.8.2: NAR and On-site Access Road	Closure	
3	The Proponent shall not use the NAR, except for maintenance purposes, when caribou migrations are expected to intersect the NAR or caribou are persistently crossing the NAR over a period of three days. Normal road use shall not resume until caribou are considered to have cleared the road corridor.	AROMP Section 4.5: Interaction with Wildlife	Construction Operation Closure	
		Wildlife Protection Plan Section 4.3.1: Species Specific Mitigation: Caribou		Phased approach to caribou mitigation: Response Level 3.
4	Snowbanks along the Northern Access Route shall be maintained at a level of less than 50 cm above the roadbed. Flowthrough breaks should be included at appropriate intervals and locations along the Northern Access Road.	Wildlife Protection Plan Section 4.1: Project Design; Section 4.2.4: Manage Road Operations	Construction Operation	Snowbanks will be managed and maintained to 0.5 m high where safe to do so and allowed by other design considerations and will include periodic breaks to allow wildlife to move across the road, spaced between 500 m and 1 km apart on alternating sides of the road.
		AROMP Section 4.3: Snow Removal and Snow Management		Snowbanks will be managed and maintained to 0.5 m high where safe to do so and allowed by other design considerations and will include periodic breaks to allow wildlife to move across the road, spaced between 500 m and 1 km apart on alternating sides of the road.
5	The proponent shall retain an individual qualified in caribou behavior who will, in consultation with Government of Yukon, implement design features to reduce the likelihood of entrapment within project infrastructure as well as design features that reduce noise, visual, and light stimuli in alpine and subalpine habitats of high importance to caribou that are within line of sight of the mine site's activities to assist in reducing stimuli that may cause an expansion of the zone of influence (ZOI) for the mine site.	Noise Management Plan Section 5.0: Environmental Protection Measures	Construction Operation Closure	
		Wildlife Protection Plan Section 4.0: Wildlife Protection Measures Framework; Section 4.2: General Wildlife Protection Measures		
		ARCMP Section 7.0: Access Tie-in, Access Control, and Staging Area; Section 8.0: Borrow Sources		
6	Between May 1 and August 31, the minimum cruising altitude for project-related aircraft shall be 600m. This window will be extended as necessary based on seasonal caribou presence documented in the Wildlife Monitoring Plan and decision criteria in the Adaptive Management Plan.	Wildlife Protection Plan Section 4.2.5: Manage Aircraft Operations	Construction Operation Closure	

Decision Document Mitigation Measures				
Mitigation Number	Proposed Mitigation	Management Plan	Project Phases	Notes
Water and Aquatic Resources				
7	In evaluating whether the non-degradation threshold for Coffee Creek is met, the Proponent shall be subject to performance evaluation criteria that incorporate a suitable method to determine if the Coffee Gold Project is the primary or most substantial cause of any exceedance of the non-degradation threshold. The Proponent's non-degradation thresholds shall be revised to require that the Project not be the primary or most substantial cause of any exceedance of a non-degradation threshold.	Adaptive Management Plan Section 2.3.2: Non-Degradation Water Quality Objectives - Coffee Creek and Yukon River	Construction Operation Closure	
8	The proponent shall revise water quality objectives prior to licensing, as necessary, dictated by the current relevant science and using the same level of protection assessed during the Screening. That is, use-protection objectives in Halfway, Latte and YT-24 creeks, and performance evaluations that reflect non-degradation objectives in Coffee Creek and the Yukon River downstream of Halfway, Latte and YT24 creeks.	Water Management Plan Section 1.3.2: Territorial Regulations	Construction Operation Closure	
9	Prior to licensing, the Proponent shall revise use-protection water quality objectives to ensure they incorporate the most recent toxicological information and guidance from CCME, Government of Canada, and BCMoE for the protection of freshwater aquatic life.	Water Management Plan Section 1.3.2: Territorial Regulations	Construction Operation Closure	
10	Reclamation and closure plans required under the Quartz Mining Act will include, at a minimum, the same use protection and non-degradation objectives as during operations. Water quality early warning triggers for reclamation and closure will be developed and applied for all watercourses as part of the Environmental Monitoring and Adaptive Management Plan.	RCP Section 3.1.5: Water Quality Objectives RCP Section 5.8.2: Contingency Planning and Adaptive Management Approach	Closure	
11	The Proponent shall develop water related adaptive management plans in accordance with Government of Yukon's 2021 guidance document, including any future revisions, "Guidelines for developing adaptive management plans in Yukon: water-related components of quartz mining projects".	EMAMP Section 14: Adaptive Management	Construction Operation Closure	
		Adaptive Management Plan		
12	Ore shall not remain on the ROM ore pad at the end of operations, during scheduled or unscheduled closure, without prior confirmation of long-term attenuation capacity of the schist pad for the key COPs, arsenic and uranium that has been reviewed and accepted by the relevant regulator.	RCP Section 6.4.1: Heap Leach Facility and ROM Stockpile"	Temporary Closure	
13	The proponent shall provide to the relevant regulator all iterative water balance and water quality model runs generated in support of future licensing applications based on project updates, additional water quality mitigation measures proposed during screening and licensing, and new information. During operations, the proponent shall provide results of monitoring data to allow comparison with predictions with relevant regulators and affected First Nations.	Water Management Plan Section 7.0: Reporting Water Management Plan Section 8.0: Annual Water Management Planning	Construction Operation Closure	
14	Prior to licensing, the proponent shall summarize the results of all test work completed for the development of the proposed bioreactor treatment system (EBR system), identify treatment performance objectives for the EBR, provide timelines to complete the remaining test work and develop the detailed design of the EBR system.	Heap Leach and Process Facilities Plan Section 4.5: Water Treatment of Heap Leach Solutions Heap Leach and Process Facilities Plan Appendix C: Coffee Mine Water Treatment Design for Permitting	Construction Operation	

Decision Document Mitigation Measures				
Mitigation Number	Proposed Mitigation	Management Plan	Project Phases	Notes
Water and Aquatic Resources				
15	The overall timeline for development of the EBR system must meet the conditions evaluated during the Screening, such that detailed plans for the EBR are submitted, reviewed and accepted by the responsible regulator, and the EBR is operational prior to the HLF water balance reaching a threshold that requires discharge of treated excess water to Halfway Creek or the Latte Pit.	Heap Leach Process and Facilities Plan Section 4.4: Solution Management Heap Leach and Process Facilities Plan Section 4.5 Water Treatment of Heap Leach Solutions	Construction Operation	
16	The proponent shall provide contingency plans contemplating scenarios where timelines or effluent quality objectives cannot be met prior to licensing. Contingency plans shall include a proof of concept, an estimated implementation time, and water quality early warning triggers which will be developed and applied for all affected watercourses as part of the Environmental Monitoring and Adaptive Management Plan.	Water Management Plan Section 4.3.8.1: Alpha Pond Performance Targets and Mitigation Measures Water Management Plan Appendix A: Coffee Gold Project Contingency Water Management Measures - Memo	Construction Operation	
		Heap Leach Process and Facilities Plan Section 4.5.3.3 and Appendix D: Contingency Water Treatment Plan	Construction Operation	
17	The proponent must define acceptable performance conditions for the Alpha Pond in terms of water quantity and quality for seepage from the Pond as part of the adaptive management for the Alpha Pond.	Water Management Plan Section 4.3.8.1: Alpha Pond Performance Targets and Mitigation Measures	Construction Operation	
18	The proponent shall provide contingency plans contemplating scenarios where the management of surface effluent discharged from Alpha Pond fails to meet water quality objectives in Halfway Creek.	Water Management Plan Section 4.3.8.1: Alpha Pond Performance Targets and Mitigation Measures	Construction Operation	
Traditional Land Use and Heritage Resources				
18.1	The Noise Management Plan shall include the following measures to reduce the effects on traditional land uses: a) The plan shall include an objective to mitigate noise from a traditional land use perspective. b) In collaboration with affected First Nations, mitigations measures shall be identified that achieve the above objective. This may include reducing the timing and frequency of noise-related activities during critical times for traditional land use, such as fall harvesting. c) The Proponent shall develop a system for tracking, recording, and responding to complaints related to noise in collaboration with Environmental Health Services. Complaints are to be submitted to Environmental Health Services for recording purposes. d) The Proponent shall establish, in discussion with affected First Nations and communities, a means by which to communicate and inform individuals and communities who may be affected by Project-related noise in advance of any changes in sound levels that may occur, including when planned blasts are predicted to occur or deviations in the blasting plans. e) This aspect of the plan shall be adaptive and be based on inputs from the Noise Monitoring Plan and/or through the Socio-economic Management Plan undertaken in collaboration with affected First Nations.	a) Noise Management Plan Section 1.2: Scope and Objectives b) Noise Management Plan Section 5.0: Environmental Protection Measures c) Noise Management Plan Section 5.1.5: Noise Complaint Procedure d) Noise Management Plan Section 5.1.3: Blasting e) Noise Management Plan Section 5.2: Adaptive Management	Construction Operation Closure	

Decision Document Mitigation Measures				
Mitigation Number	Proposed Mitigation	Management Plan	Project Phases	Notes
Traditional Land Use and Heritage Resources				
19	The Proponent shall facilitate and support traditional land use activities within the project area to the extent possible (that is, within the limits of safety and in areas under the control of the Proponent). Facilitation and support shall include, but not be limited to: a) Making all or a portion of the Coffee Creek camp available for traditional uses; b) Funding suitable infrastructure at the Coffee Creek camp for traditional uses; c) Funding and supporting culture camps for affected First Nations; d) Ensuring staff are provided with information regarding traditional land uses they may encounter.	SEMP		Additional detail will not be provided
20	The Proponent shall establish an elder-in-residence program in order to better: a) improve cross cultural awareness; b) increase First Nations physical presence at the mine site; c) improve First Nation knowledge of project development, and improve the Proponent's understanding of First Nation perspectives regarding the Project's development; d) ensure First Nation workers can access elders at the mine site.	SEMP		Additional detail will not be provided
21	The Proponent shall include the following in the scope of the Socio-Economic Management Plan: a) A management objective to continue to identify effects on each affected First Nation's Traditional Land Use in the Coffee Creek Area b) A commitment to carrying thorough effectiveness monitoring and adaptive management of measures intended to mitigate impacts from construction until post-closure; c) A commitment to ensure that all affected First Nations have an opportunity to participate in developing end land use objectives for the site that are consistent with traditional land use values for the area, including future uses. d) Development of a Terms of Reference with each affected First Nation for the methodology to undertake studies under the umbrella of the SEMP relating to effects to Traditional Land Use, including roles and responsibilities of Proponent and First Nation contributors; and e) Capacity funding to ensure the affected First Nations' full participation in the SEMP management and monitoring components that are relevant to the affected First Nations interests, if they so choose.	SEMP		Additional detail will not be provided
22	The Proponent shall fund efforts of affected First Nations (TH, WRFN, SFN and FNNND) to collect traditional knowledge with respect to the Coffee Creek area for the purposes of supporting a First Nation-developed culture program aimed at transmitting knowledge about the area to future generations.	SEMP		Additional detail will not be provided

Decision Document Mitigation Measures				
Mitigation Number	Proposed Mitigation	Management Plan	Project Phases	Notes
Traditional Land Use and Heritage Resources				
23	The Proponent shall provide capacity funding for each affected First Nation to retain Indigenous Project Monitors, if they so choose, which shall have the following functions in relation to reducing effects to traditional land use; a) To identify, document and develop mechanisms to support resolution of potential conflict between mining activities and First Nation cultural values and practices in the Coffee Creek area. b) The monitors shall be involved in the collection of information on matters on-site related to harvestable resources in the project area and surrounding landscape and ways in the accessibility to those resources or quality of experience in harvesting those resources may be diminished. c) The monitors shall be on-site during mining activities but also be given means for community-based outreach work. This may include but not be limited to travel to First Nation primary communities and/or accommodating First Nation elders and land users at the site. d) The monitors shall also be involved in data collection for other culturally important land uses. Data collection shall include but not be limited to land user perceptions, regarding compatibility of traditional activities and adjacent industrial activities (e.g. user tolerance for noise, visual scarring, or other "sense of place" determinants). e) The Monitors shall be provided authority and resources to scope traditional knowledge and traditional use studies aimed at documenting mining / land use conflicts (actual or potential), and ways in which those conflicts could be mitigated. For greater clarity, this condition envisions that the Monitor may, from time to time, employ supporting staff of their choosing to support special projects. f) Funding for the Monitors shall be sufficient to enable the above functions, if so desired by each affected First Nation. The Indigenous Project Monitors act as a liaison between the affected First Nations and the Proponent and are a mechanism to implement the adaptive management framework outlined in the SEMP to address effects to traditional land uses. The Indigenous Project Monitors may act in conjunction with, or replace, the Environmental Monitors as committed to by the Proponent, depending on the needs and preferences of each affected First Nation. The Indigenous Project Monitors are intended to be independent of the Proponent and represent the interests of the affected First Nations.	SEMP		Additional detail will not be provided
24	The proponent shall only landfill inert substances at the project site. The Proponent shall work with affected First Nations and regulatory agencies to develop an Approved Landfill Materials list and mechanism for establishing suitably low leachability risk for proposed landfill materials.	Waste and Hazardous Materials Management Plan Section 1.3: Incorporation of Traditional Knowledge and Consultation Feedback	Construction Operation Closure	

Decision Document Mitigation Measures				
Mitigation Number	Proposed Mitigation	Management Plan	Project Phases	Notes
Health and Safety				
25	The Proponent shall develop mandatory, regular harassment prevention training, in consultation with a qualified expert, to be delivered to all the Proponent's employees, contractors and consultants working on the Project. The qualified expert must also be proficient in cross-cultural awareness training.	SEMP and HR Policy		Additional detail will not be provided
26	The Proponent shall ensure that human resource staff complete training to enable them to effectively support employees who disclose workplace harassment. In order to support reporting of sexual harassment and assault, human resource staff shall provide all new staff members with information about ways in which they can record and provide evidence of harassment or bullying, what happens after they make a disclosure, and how they will be protected from reprisals.	SEMP and HR Policy		Additional detail will not be provided
27	The Proponent shall ensure that all HR staff complete training to effectively support employees who disclose sexualized or gender-based violence, as well as harassment and discrimination against Indigenous people in their workplace or at home. It is recommended that a counsellor be available on site for support through this as well.	SEMP and HR Policy		Additional detail will not be provided
28	The Proponent shall create a mentor program for Yukon First Nation employees to achieve three goals: a) ensure that First Nation women have access to a mentor or supervisor who has the authority to and regularly checks in to address any negative experiences related to the male-dominated work environment, and who pays special attention to potential cases of abuse; b) develop a formal feedback process to ensure that enquiries are regularly made of First Nation employees to ensure that they are able to voice their concerns and address any negative experiences; and c) involve TH, SFN, FNNND and WRFN in further developing the program to ensure that it meets the needs of First Nation employees.	SEMP		Additional detail will not be provided
29	The Proponent shall, in consultation with a qualified expert and with TH, SFN, FNNND and WRFN, develop gender appropriate and gender- and sexuality-specific policies and processes that promote a safe, respectful, and inclusive environment for women and gender and sexual minorities.	SEMP and HR Policy		Additional detail will not be provided
30	The Proponent shall ensure that HR staff administer confidential exit surveys with explicit questions about whether workplace harassment occurred, if disclosures were made, and what supports were provided. The proponent shall use this information to track trends and inform hiring, policy, and other initiatives at the mine site, and shall provide an annual report to Health and Social Services and the Women's Directorate detailing the Proponent's efforts to prevent workplace harassment as well as statistics on reported incidences of harassment, disclosures, etc.	SEMP and HR Policy		Additional detail will not be provided
31	The Proponent shall ensure that the on-site First Aid Technician or Emergency Medical Technician is trained in Mental Health First Aid and/or has formal mental health training to provide short-term or crisis support at the mine site and has referrals to other mental wellness supports or navigation to other systems.	SEMP		Additional detail will not be provided
32	The Proponent shall ensure that on-site employees have the ability to utilize the Employee Assistance Plan (EAP) services available (i.e., make available a private phone line or Internet connection so employees can discreetly reach EAP services	SEMP		Additional detail will not be provided
33	The Proponent shall retain professional services in the appropriate field to help their on-site mental health first aid staff develop the methods and tools that are appropriate to provide support to perpetrators of violence and harassment to help end cycles of abuse.	SEMP		Additional detail will not be provided

Decision Document Mitigation Measures				
Mitigation Number	Proposed Mitigation	Management Plan	Project Phases	Notes
Health and Safety				
34	The Proponent shall consider gender equity/diversity in hiring processes.	SEMP and HR Policy		Additional detail will not be provided
35	To address and mitigate impacts to employees who are or become victims of domestic abuse, the Proponent must create a policy that: a) outlines clear procedures for the workplace to deal with affected employees and provide appropriate resources and support; b) plans for and addresses the safety concerns of the affected employees while at work to ensure that all workers are safe from threats of domestic violence; and c) includes a personal safety plan for employees suffering from domestic violence.	Code of Conduct		Additional detail will not be provided
36	The Proponent shall provide access to the EAP for the eligible dependents of employees and inform all employees of this.	SEMP and HR Policy		Additional detail will not be provided
37	The Proponent shall develop clear standards for behaviour at work and codes of conduct against sexual harassment and gender-based violence on the job site and in the broader community, including standards/codes of conduct in relation to the sex trade, and shall distribute education and awareness campaign materials on genderbased violence. Refer to Unlocking Opportunities for Women and Business: Actions and Strategies for Oil, Gas and Mining Companies Tool Suite 4: Addressing Gender Based Violence in the Workforce (2018) for information and resources.	Code of Conduct		Additional detail will not be provided
38	The Proponent's Noise Management and Monitoring Plans submitted at licensing should incorporate all recommendations outlined in Appendix 10-A Noise Intermediate Component Analysis Report 2017, s.43.3. In addition, the Proponent must implement the following measures based on industry best-practice guidelines: a) Workers' living quarters shall be designed to limit noise, with mitigating features such as high-quality soundproofing for windows and seals on doors. b) Physical barriers shall be used to maximize shielding and reduce noise transmission. Physical barriers shall be of an appropriate height and thickness to break the line-of-sight between the project related noise sources and the dormitory and other sensitive receptors at the permanent camp, to reduce noise levels to lower than 30 dBA (Leq) indoors to be protective of sleep. c) Optimization of operations shall include notifying workers of the schedule for loud procedures or particularly annoying noise events. Periods of respite shall be provided in the case of unavoidable maximum noise level events.	a) Noise Management Plan Section 5.1.4: Design of Permanent Camp b) Noise Management Plan Section 5.1.1: Heavy Equipment c) Noise Management Plan Section 5.1.3: Blasting"	Construction Operation Closure	
39	If thresholds under YAAQS are being approached at the sites of the monitoring stations, or where CACs have exceeded thresholds, activities involving sources of emission will be reduced. In this way, air quality and adaptive management may reduce or prevent further increases in CACs, and reduce the risk to employees during non-working hours. The Proponent shall notify workers traversing areas that have elevated outdoor concentrations and require them to use appropriate PPE. Off-duty workers will be advised to reduce exposure by remaining indoors to the extent possible and closing windows in camp residences at times of peak emissions.	Air Quality and Greenhouse Gas Monitoring Plan Section 4.3: Data Analysis	Construction Operation Closure	
40	The Proponent shall incorporate an adaptive management plan in collaboration with First Nations and regulators, that establishes concrete actions for approaching and exceeding thresholds. The following adaptive management actions and corresponding triggering thresholds are to be used until such time as a detailed project specific approach is jointly developed to operationally target the reduction of CAC's and particulates and management of air quality at, and in proximity to, the Project site.	Air Quality and Greenhouse Gas Monitoring Plan Section 4.3: Data Analysis	Construction Operation Closure	
41	The Proponent shall ensure that impacts on employee health (both on and off-duty, on-site) are considered in assessing the need for adaptive measures. The Proponent shall ensure that ambient air quality in camp buildings meets indoor air quality guidelines through various means including the use of adequate ventilation and air filtration systems, effective insulation, seals on windows and doors, bans on vehicles idling in the immediate vicinity. Indoor air monitoring will occur to ensure that emissions are not accumulating in indoor environments.	Air Quality and Greenhouse Gas Management Plan Section 7.1.4: Design of Camp Accommodations Health and Safety Program	Construction Operation Closure	

Decision Document Mitigation Measures				
Mitigation Number	Proposed Mitigation	Management Plan	Project Phases	Notes
Community and Economics				
42	The Proponent shall maintain a transition fund, as a component of the Workforce Transition Strategy, of an amount sufficient to ensure, in the event of unscheduled closure: a) the funding of programs and other financial commitments outlined in the Socio-Economic Monitoring Program for a period of 12 months, b) maintenance of the Employee Assistance Program for a minimum of 6 months.	SEMP		Additional detail will not be provided
43	The Proponent will promptly notify Health and Social Services of unscheduled closures, the supports and services the Proponent has in place for impacted employees and their families, and any forecasted implications beyond the scope of what the Proponent can address. Health and Social Services will assess the need to coordinate or deploy health and social resources to support impacted communities, in alignment with mandate(s) and scope.	RCP Section 6.7.1: Management of Socio-economic Aspects of Temporary Closure	Temporary Closure	
44	The Proponent shall provide staff with access to online information and resources for money management and budgeting.	SEMP and EAP		Additional detail will not be provided
45	Recruitment for care and maintenance positions shall follow the same process used for hiring mine employees, prioritizing local hire, with preference given to former qualified mine employees.	SEMP		Additional detail will not be provided
46	Security requirements shall take into consideration the potential for early unscheduled closure and the need for care and maintenance requirements to maintain environmental safeguards prior to decommissioning.	RCP Section 9.0: Reclamation and Closure Liability"	Closure	
47	The Proponent shall match the current Government of Yukon incentive for secondary suite renovation (\$10,000). Residents in Dawson and its environs will be eligible, with the number of Proponent grants capped at 30 approved and matched incentives.	SEMP		Additional detail will not be provided
48	The Government of Yukon shall work with the City of Dawson and Tr'ondëk Hwëch'in Government to identify and make available suitable lands for housing development.	Yukon Government		Additional detail will not be provided

Decision Document Monitoring Requirements				
Mitigation Letter	Proposed Mitigation	Management Plan	Project Phases	Notes
Wildlife and Wildlife Habitat				
A	The Government of Yukon shall implement a monitoring program for linear development (i.e. roads) and surface disturbance (i.e. mined areas) in the White Gold area in relation to effects to moose and other wildlife (i.e. caribou). The program shall be scoped with the following considerations: 1. Monitoring shall include past developments and disturbances as well as reclamation efforts. 2. Monitoring shall seek to consolidate the quantity and quality of data submitted by Proponents into a consistent format for intended use in this program. 3. The program shall aspire to define significant cumulative linear and surface disturbance thresholds in the White Gold area for moose and caribou prior to issuance of any new Quartz Mining Land Use approvals, or expansion by more than 5% of the disturbance area for existing approvals. 4. The program shall be developed collaboratively with First Nations with traditional territory overlapping the area. First Nation participation in the monitoring program shall be funded by Government of Yukon. 5. The program shall be guided by a Terms of Reference (ToR), developed by consensus with Government of Yukon and First Nation government representatives. The ToR shall define temporal and spatial scopes, roles and responsibilities, and overall mandate. 6. Monitoring shall reflect and complement priorities identified in and work undertaken for the Dawson Land Use Plan.	Yukon Government		
B	The Government of Yukon shall implement monitoring of the overall abundance of moose in the Dawson Gold Fields MMU using a variety of methods that allow for tracking of population abundance and spatial distribution, such as aerial surveys and tracking of licensed harvest data, and which are performed consistently throughout the Project's lifecycle. Surveys should be conducted in early winter, commencing prior to construction, with subsequent surveys at five-year intervals, where possible, and include involvement of monitors from affected First Nations. The subsequent effects monitoring shall be informed by survey results and annual monitoring of all licensed moose harvest in game management subzones adjacent to, and intersecting the Northern Access Route.	Yukon Government		
C	The Proponent shall, in coordination and consultation with Government of Yukon, undertake effects monitoring of moose populations for areas of direct overlap with mine infrastructure, including the Northern Access Route, and for areas determined to be in the ZOI for moose within the Dawson Gold Fields MMU, Lower Stewart MMU and White Gold MMU.			Newmont is currently in negotiations with Yukon Government regarding the effects monitoring program for wildlife. Program details will be provided when finalized as the negotiations are ongoing.
D	Within 5 years of commencing operations, Government of Yukon shall conduct regional surveys, focusing on the interactions between the Fortymile and Klaza caribou herds and the Project. These surveys shall be conducted for the purposes of understanding the direct effects of the Project as well as the effects of the Project's induced development on herd movements and populations, establishing adaptive management thresholds and determining if additional measures are required should the evidence indicate there are negative project-related effects on caribou, either directly or indirectly.	Yukon Government		

Decision Document Monitoring Requirements				
Mitigation Letter	Proposed Mitigation	Management Plan	Project Phases	Notes
Water and Aquatic Resources				
E	The proponent shall develop and implement a plan to monitor seepage quality downgradient of the ROM ore pad to serve enable detection of any arsenic or uranium breakthrough from the pad to the underlying groundwater. Monitoring data shall be compared to triggers developed under the proponent’s Environmental Monitoring and Adaptive Management Plan.	Groundwater Monitoring Plan Section 2.3.5: Seepage Monitoring	Construction Operations Closure	GW Monitoring Plan includes a visual survey once a month during the non-frozen season to confirm the presence of persistent seepage around facility perimeters (ROM).
		Adaptive Management Plan Section 4.5.3: Indicators, Performance Thresholds and Responses		Latte Creek thresholds tied to completing an evaluation of the ROM stockpile pad seepage.
Water and Aquatic Resources				
F	The proponent’s Environmental Monitoring and Adaptive Management Plan (EMAMP) plan shall include: 1. Water management goals defined as use-protection in Halfway, Latte and YT-24 creeks, and non-degradation in Coffee Creek and the Yukon River downstream of Halfway, Latte and YT-24 creeks; 2. For the purpose of non-degradation performance evaluation for the Yukon River extend monitoring spatially to the Yukon River downstream of Halfway, YT-24 and Coffee creeks, in areas directly affected by each creek’s plume. This is in addition to water quality for the purpose of non-degradation performance evaluation in the fully mixed areas of the Yukon River downstream of Coffee Creek.	1) Water Management Plan Section 1.3.2: Territorial Regulations 1) Adaptive Management Plan Section 1.3: Adaptive Management Plan Objectives	Construction Operations Closure	
		2) SWQ monitoring plan Section 2.0: Monitoring Locations and Frequencies		

Decision Document Monitoring Requirements				
Mitigation Letter	Proposed Mitigation	Management Plan	Project Phases	Notes
Water and Aquatic Resources				
F	3. The rationale for the scope of the monitoring programs; 4. Descriptions of how the Project effects assessments informed the development of the monitoring programs; and 5. Descriptions and rationales for which programs require an adaptive management component. 6. Include AMP events for Halfway Creek closer to the site than HC1.0, which is located in the lower reaches of Halfway Creek upstream of the Yukon River, where use-protection WQOs can be proposed; 7. Include annual assessments to confirm non-degradation of surface water quality in Coffee Creek downstream of Latte Creek and the Yukon River downstream of Halfway, Latte and YT-24 creeks; such assessments will include comparison to a reference watershed; 8. Thresholds for arsenic and uranium levels in downgradient seepage of the ROM ore pad and triggers for adaptive measures 9. And shall develop Adaptive Management initiatives to address areas of uncertainty relevant to: i. Performance of the Alpha Rock Drain; ii. Performance of the Alpha Pond(s) (water quality and seepage quantity and quality); iii. Performance of the bioreactor treatment system for HLF seepage (EBR system); and iv. NORM/TENORM for long-term storage of uranium-rich materials (EBR materials) 10. Define stabilization of water quality in the Alpha Pond (during the Closure phase, as a pre-condition for decommissioning of the Alpha Pond in Post-Closure) as: i. No notable upward trends in the COPIs ii. A sustained reduction in inter-annual variability in COPi concentrations from Operations phase conditions iii. Discharge concentrations for all COPIs are consistently at levels that allow WQOs to be achieved in Halfway Creek.	3) EMAMP	Construction Operations Closure	
		4) EMAMP Section 2.0: Environmental Monitoring and Adaptive Management Approach		
		5) EMAMP Section 2.2: Adaptive Management Approach		
		6) Water Management Plan Section 4.3.8.1: Alpha Pond Performance Targets and Mitigation Measures		
		7) Adaptive Management Plan		Will not include a comparison to a reference watershed.
		8) Adaptive Management Plan Section 4.5.3: Indicators, Performance Thresholds and Responses		Latte Creek thresholds tied to doing an evaluation of the ROM stockpile pad seepage.
		9i) Water Management Plan Section 4.3.7: Alpha Rock Drain		
		9ii) Water Management Plan Section 4.3.8.1: Alpha Pond Performance Targets and Mitigation Measures		
		9iii) Heap Leach and Process Facilities Plan Section 4.5.3.1: Process Descriptions		
		9iii) Heap Leach and Process Facilities Plan Section 4.5.3.3: Contingency Water Treatment Plan		
		9iv) Heap Leach and Process Facilities Plan, Section 4.5.3.1 Process Descriptions		
		10) RCP Section 7.7: Site Water Management Infrastructure		

Decision Document Monitoring Requirements				
Mitigation Letter	Proposed Mitigation	Management Plan	Project Phases	Notes
Health and Safety				
G	The Proponent shall include the following parties in the development of a monitoring program to ensure that the Project's effects on personal safety are adequately monitored: Government of Yukon, the Yukon Status of Women Council, and the Yukon Aboriginal Women's Council.	SEMP		
H	To position Government of Yukon with adequate information to act on recommendations and preparation of services within communities, data collected in the monitoring program must be shared and used by parties in the development of response and resources to address effects as they occur. To support that, information relating to the amount and percentage of workforce that is transient to the Yukon will be required. The Proponent shall provide a quarterly report detailing the numbers and percentage of workforce that is transient (i.e. fly-in/fly-out and non-resident to the Yukon) to the Government of Yukon.	SEMP		
I	The Proponent shall develop an Air Quality and Dust Management and Monitoring Plan which incorporates the following: 1. Long-term Monitoring stations o Long-term monitoring stations will be operated throughout the phases of the Project. The long-term monitoring stations: o Shall be placed at the permanent camp facilities, mine dry and office complex); the truck shop/warehouse; and at the Yukon River foreshore, east of the existing Coffee Creek camp. These are sites of predicted exceedances and worker presence (including off-duty workers) and likely exposure. The aim of establishing these stations is to redress the insufficient number of monitoring stations suggested by the Proponent for the mine site area. o Employ continuous monitoring, as opposed to the periodic and volumetric monitoring currently proposed. 2. Apply the use of MicroPulse LiDAR technology to monitor and track dust and particulates throughout the Project and adjacent areas. 3. At the commencement of Project Operations, Government of Yukon (YG) shall develop a repository for the monitoring data collected by the Proponent under the Air Quality and Dust Management Plan, and which it will provide on a timely (quarterly) basis. This repository will be accessible to First Nations, industry parties, regulators and the general public. YG shall review repository data and ensure compliance with the Adaptive Management Measures outlined under Mitigations 40 and 41. 4. A system for implementing additional monitoring and/or mitigation measures in the event of: o Changes to overall air quality, particularly increases in particulates, dust and contaminant concentrations approaching thresholds; o Complaints o Such a plan is required for submission during the Quartz Mining Licence phase for the Project. 5. A system for tracking, recording and responding to complaints related to air quality in collaboration with Environmental Health Services. Complaints are to be submitted to Environmental Health Services for recording purposes.	1. Air Quality and Greenhouse Gas Monitoring Plan Section 2.0: Monitoring Locations, Section 3.0: Monitoring Methodology 2. Air Quality and Greenhouse Gas Monitoring Plan Section 3.5: Dust Plume Tracking 3. Air Quality and Greenhouse Gas Monitoring Plan Section 4.0 Data Analysis and Interpretation; Yukon Government 4. Air Quality and Greenhouse Gas Monitoring Plan Section 4.3 Data Analysis 5. Newmont Coffee Grievance Mechanism	Construction Operations Closure	

Decision Document Monitoring Requirements				
Mitigation Letter	Proposed Mitigation	Management Plan	Project Phases	Notes
Community and Economics				
J	A working group shall be formed consisting of Government of Yukon, City of Dawson, Tr'ondëk Hwëch'in Government and the Proponent. This working group will monitor project-induced population growth and housing demand across project life. Project monitoring must involve the collection of data on the population of Dawson, rental and homeownership rates, availability of rental and market housing and associated prices. The Proponent shall provide an annual report on workforce numbers and place of worker residence, made publicly available, to establish clear reporting of immigration trends.	SEMP		

Proponent Commitment Table of Concordance - Water Management Plan

Mitigation Name	Reference	Proponent Committed Mitigation	Management Plan	Commitment Incorporated	Section Location	Notes
Water Management Plan	PP Table 32-2 (YOR 2017-0211-027-1)	Goldcorp will develop and implement a Water Management Plan that contains the following commitments:	Water Management Plan	Yes	WMP Section 3.0: Mine Affected Water; Section 5.0: Life-of-Mine Water Management	
Water Management Plan		Construct the water management facilities via a network of conveyance structures and ponds through the Construction, Operations, and Reclamation and Closure phases.	Water Management Plan	Yes	WMP Section 1.1.2: Objectives and Purposes	
Water Management Plan		- Ensure the quantity and quality of contact water discharged from the Mine Site complies with applicable regulatory requirements. - Compare water quality monitoring data for creeks in the Project area and Yukon River to baseline water quality data and relevant guidelines including site-specific water quality objectives.	SWQ Monitoring Plan	Yes	SWQ Monitoring Plan Section 1.0: Introduction; Section 2.0: Monitoring Locations and Frequencies	
Water Management Plan	SIR4-R4 (YOR 2017-0211-4259)	Maintain the physical integrity and stability of the Mine Site through controlled water management.	Water Management Plan	Yes	WMP Section 1.1.2: Objectives and Purposes	Incorporated into the mine plan.
Water Management Plan		Manage water that could potentially be affected by the mine (e.g., contact water) in accordance with industry best management practices.	Water Management Plan	Yes	WMP Section 1.1.2: Objectives and Purposes	
Water Management Plan	SIR7-R7-4 (YOR 2017-0211-2174)	Stabilization of water quality in the Alpha Pond will be defined as follows: - No notable upward trends in the COPCs. - A sustained reduction in inter-annual variability in COPC concentrations. - All discharge COPC concentrations are consistently at levels that allow WQOs to be achieved in Halfway Creek.	RCP	Yes	RCP Section 7.7: Site Water Management Infrastructure	Reference for this commitment is for SIR7-R7-40. This is defined in the RCP during the closure phase, as a pre-condition for decommissioning of the Alpha Pond.
Water Management Plan	SIR4-R4 (YOR 2017-0211-4259)	Minimize alteration to the pre-development drainage network, and the volume of contact water to be managed;	Water Management Plan	Yes	WMP Section 1.2.2: Objectives and Purposes	
Water Management Plan		Maintain the physical integrity and stability of slopes and watercourses downstream of the Mine Site.	Water Balance and Water Quality Report	Yes	WBWQM Report Section 1.2.2: Objectives and Purposes	Incorporated into Water Balance and Water Quality Report (Lorax 2023). The design of water management features (spillways); with respect to discharge rates and baseline flows in Halfway Creek.
Water Management Plan		Minimize any potential effects to surface water and groundwater quantity and quality in the receiving environment.	Water Management Plan	Yes	WMP Section 1.2.2: Objectives and Purposes	
Water Management Plan	SIR1-9.3.7-R198 (YOR 2017-0211-325-1)	The site-wide Water Management Plan for the Project is to facilitate compliance with MDMER regulatory requirements for all site discharges, including the Alpha Pond (e.g., federal Fisheries Act, as well as the conditions established in the Project's Quartz Mining and Water Use Licence that will be required for the Project under the provisions of the Yukon Waters Act).	Water Management Plan	Yes	WMP Section 1.3: Regulatory Considerations	
Water Management Plan	SIR1-20.1-R279 (YOR 2017-0211-326-2)	For the sediment ponds to function according to design specifications, regular maintenance will be required, which will include removing accumulated sediment as necessary and removing ice and snow prior to freshet.	Water Management Plan	Yes	WMP Section 4.3.10: Additional Sedimentation Pond Details	
Water Management Plan	SIR2-2.3-R2-4 (YOR 2017-0211-411-1)	All discharge limits and associated monitoring locations, water quality objectives for the receiving environment streams and associated attainment points will be described in full in the Water Management Plan, Hydrology Monitoring Plan and Surface Water Quality Monitoring Plan – to be submitted for the Quartz Mining License and Water Use License applications.	Water Management Plan; Hydrology Monitoring Plan; SWQ Monitoring Plan	Yes	WMP Section 1.3: Regulatory Considerations; Section 3.5: Discharge Criteria Hydrology Monitoring Plan Section 3.0: Monitoring Locations and Frequencies SWQ Monitoring Plan Section 2.0: Monitoring Locations and Frequencies	
Water Management Plan	SIR4-R4 (YOR 2017-0211-4259)	The discharge of contact water from the Mine Site is anticipated to be subject to The Metal and Diamond Mining Effluent Regulations (MDMER, a regulation issued pursuant to the Federal Fisheries Act, RSC 1985, c.F-14.	Water Management Plan	Yes	WMP Section 1.3: Regulatory Considerations	

Proponent Commitment Table of Concordance - Water Management Plan

Mitigation Name	Reference	Proponent Committed Mitigation	Management Plan	Commitment Incorporated	Section Location	Notes
Water Management Plan	SIR4-R4 (YOR 2017-0211-4259)	Precipitation that comes into contact with the Mine Site will be collected and retained in sedimentation ponds to minimize the concentration of total suspended solids (TSS) in contact water before it is discharged to the receiving environment. The primary sedimentation ponds will be the Alpha Ponds (Phase I and Phase II) located below the Alpha WRSF in Halfway Creek. The Facility Pond – North and Facility Pond – South will collect runoff from the plant site area.	Water Management Plan	Yes	WMP Section 1.1: Scope and Objectives; Section 3.2: Mine Infrastructure Water Management	The primary sedimentation pond will be Alpha Pond in the Halfway Creek catchment. Surface runoff from the plant and camp area will be collected in the Facility Pond and pumped to the Alpha Pond.
Water Management Plan		A water treatment plant will be constructed during the Operation Phase to treat excess process water (and operated through the Reclamation and Closure Phase); treated water will be discharged to the Alpha Pond and ultimately into Halfway Creek once treatment and effluent quality standards are met.	Water Management Plan	Yes	WMP Section 1.1: Scope and Objectives	
Water Management Plan		Non-contact water will be diverted away from mine infrastructure to the extent practical to reduce infiltration into WRSFs and pit inflows, while contact water is aimed to be intercepted and conveyed by conveyance structures to sedimentation ponds and pit lakes.	Water Management Plan	Yes	WMP Section 3.2.1: Alpha WRSF and Alpha Pond; Section 3.2.4.4: Double Double Pit; Section 4.3.3.3: Waste Rock Bench Ditches	
Water Management Plan		The MDMER also stipulates requirements related to effluent monitoring, including toxicity tests, calculation of monthly mean concentrations and loading, and effluent monitoring, as well as biological monitoring. The timing as to when MDMER will apply to the Project will be determined in consultation with Environment and Climate Change Canada (ECCC), which administers the MDMER. However, it is anticipated that it will be triggered once waste rock is placed in the Alpha WRSF or mine effluent discharged. Final discharge points will be specified during the licensing phase of the Project. Prior to the Operation phase, detailed monitoring requirements in support of Environmental Effects Monitoring (EEM) will be confirmed, also in consultation with ECCC.	Water Management Plan	Yes	WMP Section 1.4.1: Federal Regulations	
Water Management Plan	SIR7-R7-25 (YOR 2017-0211-2174)	Active monitoring of Alpha Pond will be completed in the initial years of operation where there is less waste rock in the Halfway catchment that is contributing to chemical loading, with particular attention to NO3 (nitrate) concentrations from the waste rock placement. Initial monitoring would help to inform management decisions for the Alpha Pond. Should water quality and/or quantity issues be identified in the Alpha Ponds by monitoring, that would preclude discharge to the receiving environment (i.e., potential exceedance of WQOs in Halfway Creek), several contingency measures are available. These include, but are not limited to: pumping of water to an open pit for temporary storage; pumping to the event ponds if design capacity can be maintained; completing a downstream raise to the dam; supply of process makeup water for HLF irrigation from the Alpha Pond; and creating a downstream pumping system that can circulate the water back upstream of the Alpha dam (pump back system) to increase the residence time and help take advantage of mixing with other flows in the approximate 6.25 km2 upstream catchment. Monitoring related to discharge is proposed: • downslope of the Alpha Waste Rock Storage Facility (WRSF) for seepage water quality; • water quality monitoring and volume monitoring within the Alpha pond; • water quality, toxicity and flow monitoring of the dam seepage and active discharge locations; and • At an MDMER compliance point to be established downstream of the discharge for water quality, ecological toxicity, and volume/flows.	Water Management Plan	Yes	WMP Section 4.3.8: Alpha Pond	Alpha Pond water quality contingencies have been addressed within the Contingency Water Management Memo appended to the Water Management Plan.

Proponent Commitment Table of Concordance - Water Management Plan

Mitigation Name	Reference	Proponent Committed Mitigation	Management Plan	Commitment Incorporated	Section Location	Notes
Water Management Plan	SIR4-R4 (YOR 2017-0211-4259)	The Water Use License will specify mine effluent discharge standards that must be met for the Project and may also include water quality objectives for the receiving environment. These will be determined as part of Project licensing, and will be informed by consultation with First Nations, the Yukon Government and Yukon Water Board, and will be developed with reference to the water quality predictions that have been derived for the Project. This plan will be updated to include water quality objectives once they have been established.	Water Management Plan	Yes	WMP Section 1.3.2: Territorial Regulations WMP Section 8.0: Annual Water Management Planning	
Water Management Plan		Raincoats (geomembrane covers) will be used to cover portions of the heap as it is developed, to reduce the amount of precipitation infiltrating into the heap and entering the process solution, and to increase heat retention in winter. The raincoats will remain in use over portions of the heap until individual sections are progressively reclaimed (rinsed and capped).	Water Management Plan	No		Raincoats are not currently described in the plan, listed as a contingency measure only (WMP Section 4.3.12: Heap Leach Facility) Raincoats (geomembrane covers) may be used to cover portions of the heap as it is developed, to reduce the amount of precipitation infiltrating into the heap and entering the process solution, and to increase heat retention in winter. If deemed necessary, raincoats may remain in use over portions of the heap until individual sections are progressively reclaimed (rinsed and capped).
Water Management Plan	SIR4-R4 (YOR 2017-0211-4259)	To protect channels and diversion berms from erosion, rock armor (riprap) size will be determined using NRCS Practice Standard 486 as developed for the United States Federal Highway Administration and two other methods.	Water Management Plan	Yes	WMP Section 4.3.4: Erosion Control	
Water Management Plan		The riprap will be placed over a non-woven geotextile drainage fabric.	Water Management Plan	Yes	WMP Section 4.3.4: Erosion Control	
Water Management Plan		Construction in permafrost and ice-rich soils present on site will be carefully analyzed prior to final design.	Water Management Plan	Yes	WMP Section 4.3.6: Permafrost Protection	
Water Management Plan		Monitoring of the rock drain toe will be performed and if required active removal of ice from the downstream toe could be implemented by site staff (as no freezing within the main rock drain itself expected due to the large thermal waste rock mass above in addition to the energy from moving water).	Water Management Plan	Yes	WMP Section 4.3.7: Alpha Rock Drain	
Water Management Plan		Flocculant may be used to enhance settling when needed. If determined to be necessary or desired, flocculent dosing stations may be installed at the sedimentation pond inlets, or closer to sediment sources and will contain a flocculent metering system to add flocculent proportionally to flow. Flocculent dosing rates will be determined by on-site bench scale testing. A non-toxic anionic or non-ionic flocculent may be used.	Water Management Plan	Yes	WMP Section 4.3.10.1: Flocculation Stations	
Water Management Plan		The proposed water treatment system is a two-stage process. The first stage of the treatment process will oxidize residual cyanide using hydrogen peroxide. The products of this process will be cyanate and/or ammonia and carbon dioxide. The second stage of the process will utilize a biological reactor system termed Electrochemical Biological Reactor or EBR.	HLPF Plan	No	HLPF Plan Section 4.5: Water Treatment of Heap Leach Solutions; Appendix C: Coffee Mine Water Treatment Design for Permitting (WesTech 2023) RCP Section 2.3.1: Reclamation Research	Cyanide destruction will occur through the SO2/air method. Chlorination will be evaluated as an alternative. The water treatment system includes a 6 stage process, with cyanide destruction and EBR being two of the stages.
Water Management Plan		Monitoring will be undertaken to 1) verify and monitor the site water balance, 2) assess water quality to verify that performance objectives are being met, and 3) verify the integrity and stability of conveyance structures.	Water Management Plan	Yes	WMP Section 6.0: Monitoring	

Proponent Commitment Table of Concordance - Water Management Plan

Mitigation Name	Reference	Proponent Committed Mitigation	Management Plan	Commitment Incorporated	Section Location	Notes
Water Management Plan	SIR7-R7-25 (YOR 2017-0211-2174)	Based on the water quality predictions, NO3 (nitrate) has been determined to be the parameter that has the greatest risk of exceedance of downstream water quality objectives (WQOs) due to its provenance (blasting residue). Local source control of NO3 can further reduce this risk and will be actively monitored and managed during operations. These monitoring results will then be used to refine the water quality and water balance model annually and inform any adaptive management strategies that would be developed for the facility in the unexpected case that water quality does not meet predictions or quality objectives.	Explosives Management Plan; Adaptive Management Plan	Yes	Explosives Management Plan Section 3.3: Nitrogen Management Practices AMP Section 2.3: Performance Thresholds	
Water Management Plan	SIR4-R4 (YOR 2017-0211-4259)	Meteorological monitoring will include: • Operation of the existing weather stations, which are located at KM 11 of the mine access road (record period 2012-present; 975 m), and between the proposed HLF and Kona Pit locations (record period 2018-present; 1,300 m). • Continued monitoring of baseline snow courses to quantify snow water equivalent accumulation. All conveyance structures (drainage ditches, collection channels) and both sedimentation ponds and their dams will be inspected for stability (slumping or failure), signs of seepage, blockage due to ice or foreign debris and significant erosion or damage to any geosynthetic components. Monitoring by a qualified professional in accordance with the requirements of the CDA guidelines will be required. Monitoring of surface water during the Operation Phase, Reclamation and Closure and Post-closure Phases, in support of water management, will include both hydrologic (flow) monitoring and water quality sampling. A generic hydrologic monitoring program will focus below on monitoring concepts as they relate to: Mine Site Monitoring; Effluent Monitoring; and Receiving Environment Monitoring. Design and delivery of future monitoring activities will require the involvement of the regulatory agencies that have jurisdiction over water-related issues, affected First Nations and coordinated efforts by Goldcorp staff.	Meteorological Monitoring Plan; Physical Monitoring Plan; SWQ Monitoring Plan; Hydrology Monitoring Plan; Reclamation and Closure Plan; Groundwater Monitoring Plan	Yes	Meteorological Monitoring Plan Section 2.0: Monitoring Locations and Frequencies Physical Monitoring Plan Section 5.0: Water Management Infrastructure SWQ Monitoring Plan Section 2.0: Monitoring Methodology Hydrology Monitoring Plan Section 4.0: Monitoring Methodology RCP Section 7.11: Maintenance, Monitoring and Reporting Activities Groundwater Monitoring Plan Section 2: Mine Site Groundwater Monitoring Reporting and Annual Review sections of all above reports	
Water Management Plan	SIR6-R6-12 (YOR 2017-0211-7131)	During Operations, as the pits are mined out, all inflows resulting from meteoric inputs and groundwater inflows will be pumped out to the nearest downgradient receiving stream. No free water is anticipated to exist within pits during the winter, thus dewatering flows to receiving streams are zero during this season. Once pit development is complete, the pit is assumed to fill with meteoric and groundwater inputs, effectively removing these flows from the natural catchment area for the duration required for the pit to fill to the natural spill elevation.	Water Management Plan	No	WMP Section 4.3.11: Pit Water Management	During Operations, meteoric water collect in the active mining areas will be managed using pumping systems or water trucks. The general strategy is to transport water from active mining areas to the closest available water storage reservoir for sediment control. Water from the active pits may be used for dust suppression, or can be pumped to the Facility Pond for use in the mill as makeup or discharge towards Alpha Pond. Water may also be pumped to other flooded pit lakes. Once pit development is complete, the pit is assumed to fill with meteoric inflows, effectively removing these flows from the natural catchment area for the duration required for the pit to fill to the natural spill elevation.
Design of Potable and Process Water Systems	SIR1-9.4.1-R218 (YOR 2017-0211-326-2)	The potable water and process water loops will be designed, built, and operated as two completely separate and independent systems. HAZOP reviews will be performed to confirm that the two systems remain isolated from each other. Potable water will also be stored in separate tanks away from the cyanide tanks.	GMDP	Yes	GMDP Section 4.4.6: Potable Water and Fire Water Infrastructure	

Proponent Commitment Table of Concordance - Water Management Plan

Mitigation Name	Reference	Proponent Committed Mitigation	Management Plan	Commitment Incorporated	Section Location	Notes
Rinse Effluent Management	SIR1-2.8-R26 (YOR 2017-0211-323-1)	No rinse effluent, either from preliminary or final rinsing, will be discharged from the system before commissioning of the treatment plant; however, rinse effluent may be used as makeup water for the active leaching system (i.e., leaching for gold recovery).	Water Management Plan	No	WMP Section 4.3.16: Water Treatment for Permitting	Excess water from the heap leach facility will be stored in Event Ponds and either used for makeup water in the mill or treated in the water treatment plant. No excess heap each water will be discharged towards Alpha Pond unless water quality is at or below the water treatment target criteria for each parameter.
Rock Drains and Conveyance Structures	PP Table 32-1 (YOR 2017-0211-027-1)	The Alpha rock drain is designed to accommodate up to two times the 100-year, 24-hour storm event with average snowmelt runoff. The material used to construct the rock drain will have a D50 of 0.3 m. Conveyance structures will be designed to convey the 100-year, 24-hour peak flows.	Water Management Plan	No	WMP Section 4.2.2: Hydrotechnical Design Criteria WMP Section 4.3.3: Conveyance Channel Design	The Alpha rock drain can convey the 200-year flood event (24-hour peak flow) with average snowmelt. The material used to construct the rock drain will have a D50 of 0.075m. Conveyance structures (diversions) will convey non-contact water around mining infrastructure and are designed for the 10-year 24-hour flood event.
Rock Drains and Conveyance Structures	SIR1-5.8.3-R110 (YOR 2017-0211-325-1)	The design and construction of the rock drain for the Alpha WRSF will follow the practices, guidelines, specifications, and methods that were used to design and construct rock drains in similar sites including the Minto Mine and Faro Mine in Yukon, and the Pogo Mine in Alaska.	Water Management Plan	Yes	WMP Section 4.3.7: Alpha Rock Drain	
Sediment Pond Containment Capacity	PP Table 32-1 (YOR 2017-0211-027-1)	• The Alpha Pond will be designed to hold the 100-year freshet and will have a capacity of 357,400 m3.	Water Management Plan	No	WMP Section 4.3.8: Alpha Pond	The Alpha Pond will be designed to hold the 10-year 24-hour storm volume and will have a capacity of 298,100 m3.
Sediment Pond Containment Capacity		• The Facility Pond will be designed for the 10-year, 24-hour rainfall event, and will have capacity of 9,400 m3.	Water Management Plan	No	WMP Section 4.3.9: Facility Pond	The Facility Pond will be designed for the 10-year, 24-hour rainfall event, and will have capacity of 20,400 m3.
Sediment Pond Containment Capacity		• Runoff from the Mine Site will be routed to the Alpha Pond and Facility Pond. The ponds will serve two purposes: 1) settlement of TSS load prior to discharge, and 2) reduction in peak discharge rate of a storm by attenuating (storing and releasing) runoff and discharging it at a lower peak rate.	Water Management Plan	Yes	WMP Section 3.1: Water Management Overview WMP Section 4.3.8: Alpha Pond	
Sediment Pond Design	SIR4-R4-2 (YOR 2017-0211-4259)	The Alpha Pond is planned to be completed in two stages. The Phase 1 Alpha Pond will be located higher up in the Halfway catchment and will be put in place during year -1 of mining. As the Alpha WRSF expands it may eventually overtake the Phase 1 Alpha Pond (will be earliest around year 4 of mining). Before the Phase 1 Alpha Pond footprint is impacted a second Phase 2 Alpha Pond will be built further down in the Halfway creek catchment. Newmont Goldcorp may opt to only construct the ultimate Phase 2 pond.	Water Management Plan	No	WMP Section 4.3.8: Alpha Pond	The Alpha Pond will be located downstream of the final Alpha WRSF footprint, within the Halfway Creek streambed. The Alpha Pond will be constructed in year -1 of mining, in advance of waste rock placement. A smaller structure may be constructed further upstream in the Halfway Creek catchment during construction of the main Alpha Pond dam which would also provide a location for water quality sampling and sediment collection during initial waste rock placement and Alpha Dam construction.
Sediment Pond Design	SIR7-R7-26 (YOR 2017-0211-2174)	The Alpha Pond will operate as a continuously passive discharge system; however, a pumping system will be installed at the Alpha Pond to allow for controlled downstream discharge.	Water Management Plan	Yes	WMP Section 4.3.8: Alpha Pond	The Alpha Pond will operate with a controlled pumping system to discharge water to Halfway Creek. An emergency spillway will be constructed on the embankment to passively convey larger flood events towards Halfway Creek.
Sediment Pond Design	SIR7-R7-25 (YOR 2017-0211-2174)	In addition to seepage, active discharge from the Alpha pond would be employed in the form of pumps or siphons to manage water levels, conduct dam/pond maintenance, and ensure adequate available storage for design storm events. The Alpha sediment dam and corresponding reservoir (Alpha Pond) will be constructed downstream of the Alpha WRSF with the primary purpose to control sediment but will also have the secondary benefit of allow a set location for water quality to be checked downstream of the WRSF. The Alpha Pond (Phase 2) is expected to have the largest potential for increased sediment or chemical loadings (due to the upstream Alpha WRSF), will require the largest dam structure, and will have the largest associated construction costs.	Water Management Plan	Yes	WMP Section 4.3.8: Alpha Pond	

Proponent Commitment Table of Concordance - Water Management Plan

Mitigation Name	Reference	Proponent Committed Mitigation	Management Plan	Commitment Incorporated	Section Location	Notes
Sediment Pond Design	SIR4-R4-2 (YOR 2017-0211-4259)	Around the camp and plant pad two small (under 20,000 m3) Facility Ponds (North and South) are proposed to be constructed. The surface of the camp and plant pad will be constructed so that it grades towards one of the two ponds. The Facility ponds are planned to be constructed before any processing activities / heap stacking occurs at the HLF. The North Facility Pond would discharge to the Halfway catchment while the South Facility Pond will discharge towards the Latte catchment.	Water Management Plan	No	WMP Section 3.2.3: Plant Site; Section 4.3.9: Facility Pond	The Facility Pond (North) will be constructed around the camp and plant pad for sediment control of surface runoff. The surface of the camp and plant pad will be constructed so that it grades towards the Facility Pond. The Facility Pond will be constructed before any processing activities / heap stacking occurs at the HLF. The Facility Pond will discharge towards the Halfway catchment.
Sediment Pond Design	SIR1-9.3.5-R193 (YOR 2017-0211-325-1)	The settling ponds will be designed using the settling rates presented in the table to have at least 48 hours residence time for runoff from a 1:10-year, 24-hour storm. Detailed design of the pond dimension and outflow structure that will be submitted to support the Project licensing applications will include minimum length to width ratio to limit shortcircuiting.	Water Management Plan	Yes	WMP Section 4.3.9: Facility Pond	Incorporated into Water Management Design Basis Report (SRK 2022)
Sediment Pond Design	SIR6-R6-21 (YOR 2017-0211-7131)	A preliminary dam break study will be prepared for Project licensing that will look at potential inundation pathways if a dam break (not expected) was to occur on site. More detailed (Preliminary level) designs will be prepared for Project licensing applications which will further describe design components, and include items appropriate for an Operations, Maintenance and Surveillance (OMS) manual/plan. An OMS manual for the Alpha pond/dam will be completed prior to facility operation, and will include appropriate guidance and triggers for management, including physical/geotechnical inspections, water level monitoring, etc.	Water Management Plan	Yes	WMP Section 4.3.8: Alpha Pond	Incorporated into Water Management Design Basis Report (SRK 2022)
Sediment Pond Design	SIR4-R4-2 (YOR 2017-0211-4259)	The Alpha and Facility sedimentation ponds will consist of an embankment (dam), a storage basin, an outlet, and an emergency spillway. The dams will be constructed primary of ROM rock or locally sourced material.	Water Management Plan	Yes	WMP Section 4.3.8: Alpha Pond	
Sediment Pond Design	SIR2-9.2-R2-58 (YOR 2017-0211-411-1)	The ponds are designed to operate as empty ponds post-storm events providing a minimum 24 hour of retention time and promote sedimentation.	Water Management Plan	No	WMP Section 4.3.9: Facility Pond	The ponds are designed to operate with a minimum pond volume to provide a minimum retention time and surface area for sediment removal.
Sediment Pond Design	PP Table 32-1 (YOR 2017-0211-027-1)	Based on the design criteria of sediment control, these dams will have a filter system with the dams (i.e., finer material layer, transition material layer, then outer / bulk rock fill shell). This filter system would be designed to retain the sediment while still allowing some controlled seepage through the dams (without piping / internal erosion occurring). The upstream faces of the dams will be covered with a layer of riprap. All ponds have been sized to accommodate a volume greater than the expected one-day rainfall (i.e., volume of water equal to the 10-year, 24-hour storm event runoff volume), which will allow for extended water retention and increased settlement of TSS.	Water Management Plan	Yes	WMP Section 4.3.8: Alpha Pond	
Sediment Pond Design	SIR1-5.8.3-R110 (YOR 2017-0211-325-1)	Sedimentation ponds will have spillways that can convey runoff from the 1:200-year, 24-hour rainfall event. The spillway will be designed for the 200-year peak flow.	Water Management Plan	Yes	WMP Section 4.3.8: Alpha Pond WMP Section 4.3.9: Facility Pond	The Alpha Pond will have a spillway that can safely convey up to the 1,000-year return period 24-hour peak flow. The Facility Pond will have a spillway that can safely convey up to the 200-year return period 24-hour peak flow.
Sediment Pond Design	SIR7-R7-32 (YOR 2017-0211-2174)	The Facility and Alpha ponds will be managed to minimum levels prior to the onset of winter to increase storage capacity for the following spring freshet. HLF pond volume will be informed by the HLF water balance.	Water Management Plan	Yes	WMP Section 3.1: Water Management Overview	

Proponent Commitment Table of Concordance - Water Management Plan

Mitigation Name	Reference	Proponent Committed Mitigation	Management Plan	Commitment Incorporated	Section Location	Notes
Sediment Pond Discharge: Water Quality	PP Table 32-1 (YOR 2017-0211-027-1)	Water collected in the Facility Pond is to be used primarily as HLF makeup water. If water is collected in the Facility Pond but is not needed as makeup water in the HLF, other options will be evaluated. If water quality in the Facility Pond meets discharge water quality standards for Latte Creek, it will be discharged to this catchment. If water quality does not meet Latte Creek discharge standards, Facility Pond water can be removed and discharged to the Alpha Pond. The mechanism of removal could include pumping and piping to the Alpha Pond via the Alpha WRSF underdrain; or pumping to a water truck and releasing it to the Alpha Pond.	Water Management Plan	No	WMP Section 4.3.9: Facility Pond	Water collected in the Facility Pond is to be used primarily as HLF makeup water. If water is collected in the Facility Pond but is not needed as makeup water in the HLF, other options will be evaluated. If water quality in the Facility Pond meets discharge water quality standards at Halfway Creek, water will be conveyed towards the Alpha Pond. The mechanism of removal could include pumping and piping to the Alpha Pond via the Alpha WRSF underdrain; or pumping to a water truck and releasing it to the Alpha Pond.
Sediment Pond Discharge: Water Quality	SIR1-2.8-R24 (YOR 2017-0211-323-1)	If excess water accumulates in the Facility Pond when the water treatment plant is available, water can be treated through the water treatment plant.	Water Management Plan	Yes	WMP Section 4.3.9: Facility Pond	
Sediment Pond Discharge: Water Quality	SIR2-2.3-R2-5 (YOR 2017-0211-411-1)	If the Facility Pond water does not meet the discharge limits for Latte Creek (to meet use protection objectives in Latte Creek and non-degradation objectives in Coffee Creek) and does not meet limits once additional mitigations applied (e.g., sediment curtains or flocculent), but POC concentrations are low enough that it can be routed to the Halfway Creek catchment. • Prior to Year 3, this water can be routed directly to the Alpha WRSF underdrain, for discharge to Halfway Creek via the Alpha Pond, where the additional catchment and pond volumes allow for increased residence time and flow volumes (as is currently assumed in the WBM/WQM), or; • Once the Latte Pit has been mined out in Year 3, a substantial storage volume (3Mm3) will be available to store any off-specification water from the Facility Pond. This volume is approximately 100 times the average annual predicted discharge volume (~31,000 m3) from the Facility Pond.	Water Management Plan	No		No longer accurate due to mine planning updates.
Sediment Pond Discharge: Water Quality	SIR2-2.3-R2-4 (YOR 2017-0211-411-1)	All excess discharge from the Facility Pond that meets discharge criteria for Latte Creek will be preferentially discharged to Latte Creek upgradient of the Supremo South Pit dewatering discharge point. Discharge points will have energy dissipation installed to prevent scouring of the ground or channel and erosion and sedimentation. Goldcorp has committed to meeting use protection water quality objectives in Latte Creek, and non-degradation water quality objectives in Coffee Creek. In order to ensure that these objectives are met for all POCs, 'end-of-pipe' discharge limits will be back-calculated from the receiving environment attainment point.	Water Management Plan	No		No longer accurate due to mine planning updates.
Sediment Pond Discharge: Water Quality	SIR2-3.1-R2-17 (YOR 2017-0211-411-1)	In the event that water cannot be released to the environment due to water quality concerns, there are two main contingencies: • Storage in reservoir (e.g., mined out pit) until such time that additional meteoric inputs dilute the contact water to acceptable discharge limits, or water treatment is brought online. • Commence active treatment of the off-spec water prior to discharge to the receiving environment.	Water Management Plan	Yes	WMP Section 4.3.8: Alpha Pond; Section 4.3.9: Facility Pond	
Sediment Pond Discharge: Water Quality	SIR2-2.3-R2-4 (YOR 2017-0211-411-1)	All standard water quality parameters will be monitored in the Facility Pond on a monthly basis, when free water is accessible.	SWQ Monitoring Plan	Yes	SWQ Monitoring Plan Section 4.0: Monitoring Locations and Frequencies	
Sediment Pond Discharge: Water Quality	SIR2-5.5.1-R2-39 (YOR 2017-0211-411-1)	All mine site discharge will be required to meet Metal Mining Effluent Regulations (MMER) limits for total suspended solids and therefore increases in fine sediment load due to mine site discharges will be limited.	Water Management Plan	Yes	WMP Section 1.3.1: Federal Regulations	
Sediment Pond Discharge Capacity	PP Table 32-1 (YOR 2017-0211-027-1)	The Alpha Pond outlet structure will be capable of discharging the 100-year freshet flow. The Facility Pond outlet structure will be capable of discharging the 10-year, 24-hour rainfall event. Storms up to the 200-year event will be discharged from the emergency spillway.	Water Management Plan	No	WMP Section 4.2: Design Criteria	The Alpha Pond and Facility Pond pumping systems were designed to manage the 10 year 24-hour event. Larger events can be conveyed through the emergency spillways, including the 200-year 24-hour event for the Facility Pond and the 1,000-year 24-hour event for the Alpha Pond.

Proponent Commitment Table of Concordance - Water Management Plan

Mitigation Name	Reference	Proponent Committed Mitigation	Management Plan	Commitment Incorporated	Section Location	Notes
Sediment Pond Discharge Capacity	SIR2-2.3-R2-4 (YOR 2017-0211-411-1)	For larger events up to the 200-year peak flow, pond inflows will be discharged via the emergency spillway into the downstream tributary of Latte Creek. Discharge volumes from the Facility Pond will be monitored by a pump totalizer, regardless of where the pond water is routed. The pump intake will be located such that sediment at the base of the pond is not drawn into the pump and discharged.	Water Management Plan	No	WMP Section 4.3.9: Facility Pond	For larger events up to the 200-year peak flow, Facility Pond (North) inflows will be discharged via the emergency spillway towards Alpha WRSF. The Facility Pond South has been removed, which formerly discharged towards Latte Creek.
Sediment Pond Freeboard	PP Table 32-1 (YOR 2017-0211-027-1)	Height of sediment pond embankments provides for 1 m of freeboard.	Water Management Plan	Yes	WMP Section 4.2.2: Hydrotechnical Design Criteria	
Water Balance and Water Quality Model	SIR3-R3-38 (YOR 2017-0211-501-1)	Goldcorp is to develop monthly balance and water quality model based on an annual varying mine plan to inform licensing phase and additional Water Management Plan development. In this regard, the water and load balance model for the Coffee Gold Project will encode annually varying mine footprints and water management assumptions into the GoldSim model logic. Ultimately, screened outputs from the annually varying water balance model will be used to inform all analyses submitted in support of licensing applications.	Water Balance and Water Quality Report	Yes	Water Balance and Water Quality Report	Water Balance and Water Quality Model Report (Lorax 2023)
Water Balance and Water Quality Model	TH Proposed Conditions (March 2020) (YOR 2017-0211-3971)	The Site-wide Water Balance and Water Quality and Heap Leach Facility models will be updated annually and include the following components: a) Updated water quality predictions for downstream receiving environment waterbodies, including expected-case and worst-case scenarios; b) Updated year-by-year capacity for emergency available storage in mined pits including consideration of storage that would or would not affect access to ore and impede mining; c) Discussion of the timeframe of water storage available prior to release of environment in the event of a loss in pumping ability; d) Updated schedule for water treatment implementation that includes engineering, procurement, construction, and commissioning; e) An annual water treatment discharge volume plan/goal for the upcoming year; and f) Reassessment of reoccurrence interval analyses and precipitation trends. g) Assessment of amount of raincoat deployment necessary to manage water in the event of the mine entering temporary closure (in order to set raincoat inventory requirements).	Water Management Plan; Heap Leach and Process Facility Plan; RCP	Yes	WMP Section 8.0: Annual Water Management Planning HLPF MP Section 4.5.7: Additional Design Testwork and Schedule RCP Section 6: Temporary Closure	Precipitation and snowmelt recurrence interval analyses are not expected to be completed on an annual basis but will be reviewed in the case that large precipitation events are measured on-site that indicate potential exceedances of the design storm events used in water management infrastructure design.

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Contingency Water Treatment	TH Proposed Conditions (March 2020) (YOR 2017-0211-3971)	The plan for Contingency Water Treatment would be implemented in the event of a need to treat and discharge water prior to the time when the proposed EBR based water treatment plant becomes operational. The Proponent shall provide a description of a feasible conceptual water treatment contingency for active water treatment of HLF solution using reverse osmosis or other alternative technology. The contingency water treatment option will include: a) Consideration of temporary closure timing and buildup of HLF solution; b) Description of reverse osmosis (or other proposed contingency treatment) system flowsheet; c) Management of water treatment residuals, for example retentate; d) Consideration and evaluation of both economic and technical feasibility; e) High level schedule of contingency deployment including the following milestones: - o Kickoff of contingency execution - o Final engineering design - o Installation of equipment on site - o Commissioning - o Start of plant operation f) Potential triggers for deployment.	HLPF Plan	Yes	HLPF Plan Appendix D: Contingency Water Treatment Plan (WesTech 2023).	
Active Water Treatment Testwork	TH Proposed Conditions (March 2020) (YOR 2017-0211-3971)	The Proponent shall provide licensing bodies the results of any bench-scale electro bioreactor testwork. The Water Management Plan must include a water treatment section that describes the workplan and schedule for any pilot-scale and/or full-scale treatment plant design, construction, and operation. At a minimum, the workplan will include a discussion of the preliminary schedule covering kick-off of pilot design through operation of full-scale water treatment plant including key milestones such as: • kickoff of pilot design (should a pilot plant be determined to be required) • pilot deployment to site • pilot operation at site • pilot reporting • design of full-scale system • construction of full-scale system • beginning of full-scale operation The proponent shall provide licensing bodies the results of the passive treatment testing that assesses the use of passive bioremediation treatment of heap leach rinse solutions prior to authorization this treatment method at closure.	HLPF Plan; RCP	Yes	HLPF Plan Section 4.5: Water Treatment of Heap Leach Solutions; Appendix C: Coffee Mine Water Treatment Design for Permitting (WesTech 2023) RCP Section 2.3.1: Reclamation Research	
Passive Water Treatment Testwork	TH Proposed Conditions (March 2020) (YOR 2017-0211-3971)	The proponent shall provide licensing bodies the results of the passive treatment testing that assesses the use of passive bioremediation treatment of heap leach rinse solutions prior to authorization this treatment method at closure.	RCP	Yes	RCP Section 2.3.1.2: Treatment Technologies Reclamation Research	

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Receiving Environment Water Quality	TH Proposed Conditions (March 2020) (YOR 2017-0211-3971)	Proponent must manage contact water from mine sources in such a manner as to ensure downstream water quality meets site-specific water quality objectives that are consistent with the classification for each waterbody as described below: a) Latte Creek (use-protection); b) Coffee Creek (non-degradation); c) Halfway Creek (use-protection); d) YT-24 (use-protection); and, e) Yukon River (non-degradation). Site-specific water quality objectives must be developed using generally accepted procedures and the application of objectives must consider the potential for non-mine-related impacts to creeks that are outside of the Proponent's control. The Proponent must monitor surface water quality downstream of the point of discharge of mine sources in each waterbody specified above.	Water Management Plan; SWQ Monitoring Plan; Water Balance Water Quality Model	Yes	WMP Section 1.3: Regulatory Considerations; Section 3.5: Discharge Criteria SWQ Monitoring Plan Section 2.0: Monitoring Locations and Frequencies	
Temporary Closure	TH Proposed Conditions (March 2020) (YOR 2017-0211-3971)	In the event of temporary closure, the Proponent shall: a) Within 3 months, provide regulators with a short term HLF water balance for solution recirculation, contingency volume, and time available and volume and quality of water required for HLF rinsing; b) Within 3 months, provide regulators with an implementation plan for the Water treatment plant (if not operational); c) If, while in temporary closure, the decision is made to enter permanent closure, the proponent shall provide regulators with an updated Reclamation and Closure Plan.	RCP	Yes	RCP Section 6: Temporary Closure; Section 6.5: Interim Water and Solution Management	