Meeka Metals Limited
Turnberry and St Annes Open Pits

Surface Water Assessment

Revision No 1
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Report

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Executive Summary

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The scope of works for this assessment pertain to a surface water assessment:

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The salient findings include:

Recommendations

The

1. Introduction

1.1 Project Background

Meeka Metals owns and operates the Murchison Gold Project (MGP), situated approximately 45 km north-east of Meekatharra in the Murchison region of Western Australia. See Figure 1.1 Locality Map.. The project site is situated in the Murchison River catchment, and there are no notable surface water features in the immediate vicinity of the project area.

Meeka Metals is currently undertaking approvals for the Turnberry and St Annes open pits.

1.2 Scope of Work

In order to prepare the MGP Mining Proposal and Mine Closure Plan, Meeka Metals requires baseline characterisation of the surface water catchment within the Turnberry and St Annes deposits and associated haulage roads. Tasks included in the surface hydrological assessment include:

- Compilation and summary of relevant climate data (including estimation of rainfall intensity, frequency and duration for a range of events, up to and including the probable maximum precipitation event).
- Delineation of local surface water catchments and sub-catchments.
- Mapping of drainage networks for the MGP and associated haulage road.
- Identification and mapping of areas lying within the estimated 1 in 100-year flood zone (or other intervals as considered – mine life is 10yrs).
- Identification of any special surface water features or conservation areas requiring special management or protection.

The surface hydrological assessment, including modelling of surface flows and water balance estimations compiled to a standard suitable for Regulatory submissions to DMIRS and DWER.

1.3 Objectives

The overarching objectives of this hydrological assessment are multifaceted, aiming to evaluate and predict key hydrological parameters critical to the sustainable operation and closure of the mines. Specifically, the assessment seeks to model expected depths and velocities of runoff during operational and extreme flood events, providing insights into potential inundation scenarios and hydraulic responses. Additionally, the examination extends to the assessment of bunding heights around the mine workings, with a focus on optimizing their design for effective flood containment and risk mitigation.

The primary objectives include:

- **Depth Assessment:** The assessment aims to determine the expected depths of runoff during both routine operational conditions and extreme flood events;
- **Velocity Analysis:** The assessment seeks to quantify and analyze the velocities of runoff within the mine workings. This involves predicting the speed at which water flows across the terrain; and

- **Bund Height Optimization:** The study focuses on determining the optimal heights of bunds or embankments surrounding the mining operations.

This document details the surface water assessment for the Turnberry and St Annes opencast mines, with a focused examination on the key objectives of determining depths, velocities, and bund heights within the mining operations. The findings presented herein seeks to contribute to an understanding of the interplay between mining activities and surface water, empowering decision-makers with the knowledge needed to enhance safety protocols, optimize infrastructure design, and mitigate risks associated with hydrological events.

These objectives collectively form a comprehensive approach to hydrological assessment, ensuring that mining operations are equipped with the necessary insights to manage water-related challenges effectively. By addressing depths, velocities, and bund heights, the assessment provides a holistic understanding of the hydrological environment, enabling informed decision-making for the sustainable operation of Turnberry and St Annes opencast mines.

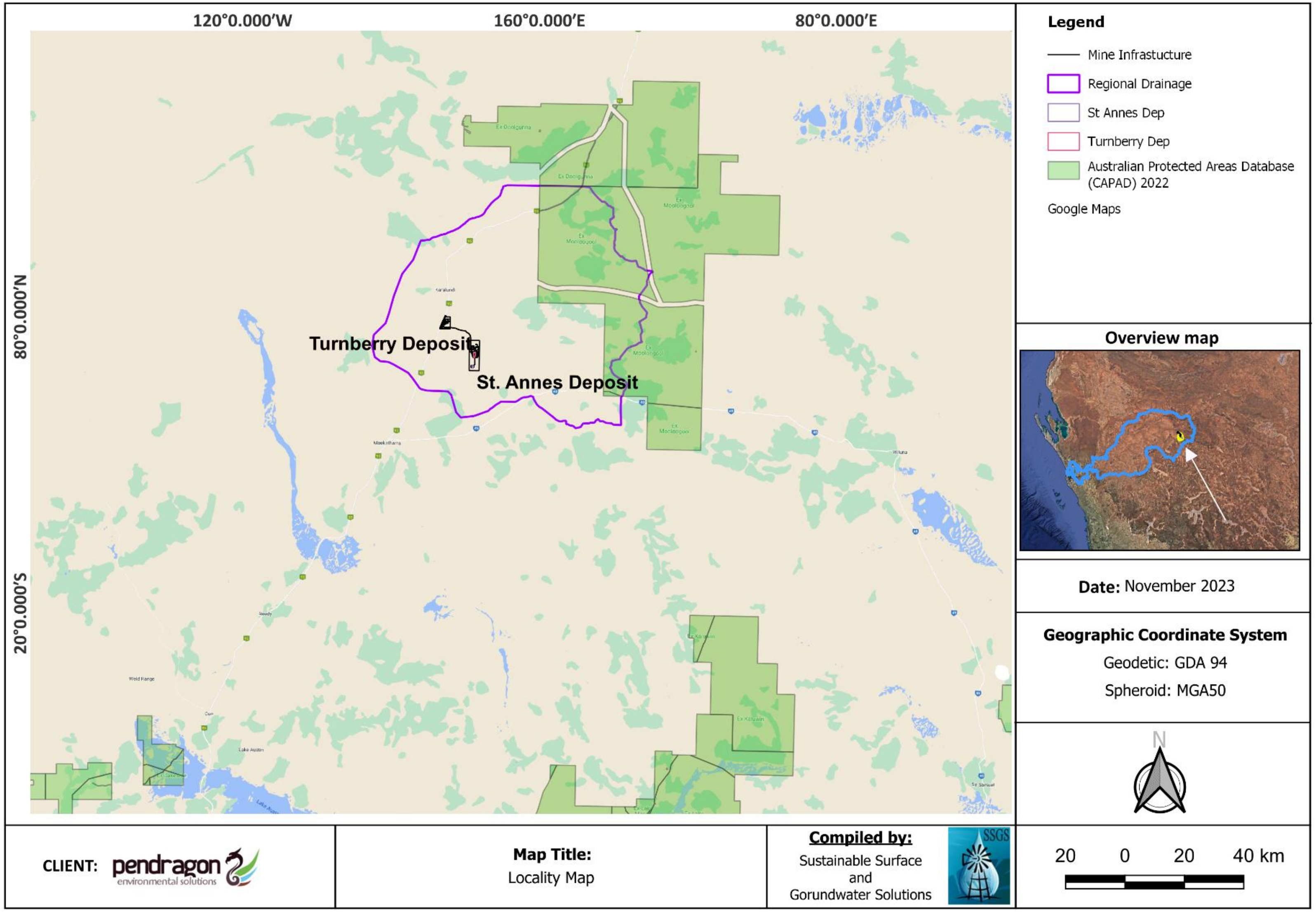

Figure 1.1 Locality Map.

2. Environmental Setting

2.1 Climate

The Turnberry and St Annes deposits are located within the arid desert region of the northern Murchison region of Western Australia. The nearest weather station is Meekatharra Airport (Station Number 007045, Table 2.1). The area experiences an average mean maximum temperature of 29.1°C varying between 38.4°C and 19.1°C. The average mean minimum temperature is 16.0° C varying between 24.4°C and 7.5°C in January and July, respectively.

Table 2.1: Climatic Data.

Site name: MEEKATHARRA AIRPORT	Site number: 007045		Commenced: 1944		Operational Status: Open									
	Latitude: 26.61° S		Longitude: 118.54° E		Elevation: 517 m									
Statistics	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Annual**	**Years**
Temperature														
Maximum temperature														
Mean maximum temperature (°C)	38.4	36.8	34.3	29.4	23.9	19.8	19.3	21.7	25.9	30	33.4	36.6	29.1	73
Minimum temperature														
Mean minimum temperature (°C)	24.4	23.8	21.5	17.1	12.1	8.8	7.5	8.7	11.6	15.4	18.8	22.2	16	74
Rainfall														
Mean rainfall (mm)	29.2	36.1	30.8	18.8	21.6	28.5	20	10.6	4.9	5.9	11.7	14.4	232.5	78
Highest rainfall (mm)	135.4	174.2	259	159.2	96	186.6	165.7	56.2	56.4	61.8	113.2	111.4	573.2	78
Highest daily rainfall (mm)	103.1	69.4	106	39.6	44.2	114.4	62.1	23.6	31.8	33.4	81.8	55.6	114.4	78
Mean number of days of rain	4.4	4.6	4.6	4.1	4.3	5.9	5.3	3.6	1.9	1.6	2.5	3.1	45.9	78
Mean number of days of rain ≥ 10 mm	0.8	1.1	0.8	0.5	0.7	0.8	0.6	0.3	0.1	0.2	0.3	0.3	6.5	78
Mean number of days of rain ≥ 25 mm	0.3	0.3	0.4	0.2	0.1	0.2	0.1	0	0	0	0.1	0.1	1.8	78
Evaporation														
Mean daily evaporation (mm)	15.8	14.1	11.7	8.2	5.4	3.8	3.9	5.4	8	11	13.3	14.9	9.6	50

Rainfall averages 232.5 mm annually with the highest mean monthly rainfall in February and the lowest mean monthly rainfall in September. Rainfall occurs predominantly during summer and is highly variable associated with tropical cyclonic depressions originating in Northern Australia. These rainfall events are responsible for localised flooding on the subdued plains of the region. Typically, the region experiences arid conditions, with evapotranspiration exceeding precipitation i.e. a water deficit climate prevails across the region.

The evaporation rate measurement at Meekatharra indicates a mean annual evaporation rate of approximately 3500 mm. These rates exhibit daily variations, ranging from 3.8mm/day to 15.8mm/day in January. **Table 2.1** illustrates the average monthly evaporation rates for Meekatharra. It is anticipated that the evaporation rates at the project site would align closely with the established averages at Meekatharra.

2.2 Rainfall Intensity

Design rainfall intensity data for the project area for selected rainfall durations and average recurrence interval (ARI) events are given in **Table 2.2: Design Rainfall Intensities (mm/hr).** (Commonwealth of Australia 2016 Bureau of Meteorology (ABN 92 637 533 532)). This data can be used for waterway designs.

Table 2.2: Design Rainfall Intensities (mm/hr).

Rainfall Duration	2 Year ARI	5 Year ARI	10 Year ARI	20 Year ARI	50 Year ARI	100 Year ARI
1 hour	16.3	25.7	33	40.9	52.8	63.1
3 hours	7.6	12	15.3	19	24.4	29.1
6 hours	4.8	7.4	9.5	11.6	14.7	17.3
12 hours	3	4.7	5.9	7.1	8.8	10.2
24 hours	1.9	2.9	3.6	4.3	5.3	6
48 hours	1.1	1.8	2.2	2.6	3.1	3.5
72 hours	0.8	1.3	1.6	1.8	2.2	2.5

2.3 Surface Water Hydrology

The area is characterised by low rises and a generally subdued topography, with the central, western and southern areas dominated by a surface water focal area expressed as flat hardpan wash plains with extensive fine sediment and minor quartz gravels. Further to the north and east are kaolinised footslopes and breakaways on extensive gently sloping plains over granite. These gently positive areas within the landscape control surface run-off in the area, resulting in diffused surface flow to the south and west.

2.3.1 Stream Flow

Streamflow in the region typically corresponds with rainfall patterns. Smaller flow channels experience brief durations of streamflow that cease shortly after rainfall. In contrast, larger river channels, draining extensive catchments, can sustain runoff for several weeks or even months following significant rainfall events.

Streamflow gauging stations are sparsely distributed in the area, and none are located near the project site. The nearest Department of Water (DoW) gauging stations include Yinnetharra Crossing (Gascoyne River) 310km to the northwest, Meedo Pool (Wooramel River) 360km to the west, and Emu Springs (Murchison River) 450km to the southwest, each with catchments of 34,775km^2, 7,826km^2, and 86,777km2, respectively. In contrast, the project area has a surface water catchment of approximately 320km^2.

Gauging data for the mentioned locations indicates average annual runoff volumes of approximately 3.6%, 2.6%, and 0.6% of the annual recorded rainfall at those locations. It's important to note that, due to differences in catchment sizes, the streamflow data from these stations may not precisely represent runoff conditions within the project area, but they broadly offer insights into average annual runoff.

For ungauged catchments in the region, peak streamflow discharges can be estimated using empirical techniques, as recommended in "Australian Rainfall and Runoff" (Institution of Engineers, 1987).

2.3.2 Climate Change

According to Australia’s Bureau of Meteorology’s State of the Climate 2022 (http://www.bom.gov.au/state-of-the-climate) Australia's climate has experienced an average warming of 1.47 ± 0.24 °C since national records commenced in 1910. Additionally, sea surface temperatures have risen by an average of 1.05 °C since 1900, leading to an upsurge in the occurrence of extreme heat events over both land and sea.

In the southwest of Australia, there has been a notable decrease of around 15% in April to October rainfall since 1970. Within this region, the most significant decline in rainfall, approximately 19%, occurred from May to July since 1970. Similarly, the southeast of Australia has witnessed a decline of about 10% in April to October rainfall since the late 1990s.

Across Australia, there has been a general reduction in streamflow at most gauges since 1975. However, certain areas in northern Australia have experienced an increase in both rainfall and streamflow since the 1970s. The country has observed a rise in extreme fire weather and an extended fire season across extensive regions since the 1950s. Conversely, there has been a decrease in the number of tropical cyclones observed in the Australian region. In alpine regions, indicators such as snow depth, snow cover, and the number of snow days have decreased since the late 1950s.

The oceans surrounding Australia are undergoing acidification and have warmed by more than 1 °C since 1900, contributing to prolonged and more frequent marine heatwaves. Additionally, sea levels are increasing around Australia, accompanied by a rise in the frequency of extremes, heightening the risk of inundation and damage to coastal infrastructure and communities.

2.3.3 Protected and conservation features.

The regional drainage area surrounding the Murchison Gold Project (MGP) includes two significant protected areas. Doolgunna, an IUCN Category Ia Nature Reserve, is located approximately 60km to the northeast. Additionally, Mooloogool, an IUCN Category II National Park, is situated around 25km east of the proposed mining area, as illustrated in Figure 1.1. Importantly, both of these areas are positioned upstream from the MGP and, therefore, will not be affected by mining activities at the project site.

2.3.4 Potential Impacts

Disruption of surface water flow patterns carries the potential to both diminish and, in certain instances, amplify surface water runoff volumes. Figure 2.3 illustrates the sub-catchment boundaries and planned flow paths within the project area. Generally, surface water in the project zone flows westward and north westward toward floodways/culverts at Great Northern Highway, lacking clearly defined significant flow paths.

The proposed pits, processing facilities, TSF/PAF dump, and other infrastructure are poised to intercept or obstruct natural drainage routes within the project catchment. Consequently, the development may potentially curtail discharges flowing north westward, ultimately affecting the Yalgar River. To avert flooding of the mine pit and associated infrastructure, bunding and minor diversion drains will be necessary for effective flow management. The operational lifespan of these drains and bunds will vary, ranging from a few years to permanent structures, designed based on the Average Recurrence Interval (ARI) flood event, considering the expected life and consequences of failure.

The design of diversions aims to redirect flows back into their original drainage paths downstream of the development or via minor channels and overland flow. The proposed diversions, encircling the planned development areas, will intercept an overland flow zone. While diverting this overland flow into a diversion drain/bund may potentially impact downstream vegetation and reduce soil moisture recharge, the affected area is predominantly occupied by the proposed mining developments.

If adequate management measures are not put in place, the planned development could potentially lead to the mobilization of additional sediments and an increase in erosion. The primary source of potential sediment is anticipated to be the ROM and topsoil stockpiles, although any disturbed area has the potential to elevate sediment loading in the natural environment.

The concentration of overland flow into diversion drains/bunds has the potential to raise peak flow rates, thereby increasing the likelihood of erosion and sedimentation at locations experiencing either increased or decreased velocities. The anticipated impact on downstream water quality from the heightened erosion risk is expected to be relatively localized.

Chemical or hydrocarbon spillage from storage and/or transfer areas may occur in the absence of proper utilization of control measures and adherence to operating procedures.

2.3.5 Catchment Delineation

The catchment delineation process involves defining the boundaries of a drainage area or basin. In the case of the Turnberry and St Annes operations, where the overall regional drainage basin was evaluated, a focused approach was undertaken to specifically delineate the catchment relevant to the smaller area in which the mining activities would occur. The process involves several key steps:

Data Collection:
Gather topographic and hydrological data, including digital elevation models (DEMs), stream network information, and land use data. These datasets are essential for accurately delineating catchment boundaries.

Selection of Area of Interest (AOI):
Identify the specific region of interest within the larger drainage basin. In this case, the mining operations were situated in a small area close to the watershed in the eastern part of the basin. The AOI is selected based on the geographical extent of the mining activities.

Digital Elevation Model (DEM) Processing:
Utilize DEM data to delineate the topographic characteristics of the landscape. This includes identifying ridge lines, valleys, and the overall terrain of the selected area.

Flow Direction and Accumulation Analysis:
Employ hydrological modeling techniques to determine the flow direction of water across the landscape. Calculate flow accumulation to identify where runoff converges and forms streams or rivers. The direction amplitude of the flow velocity vectors can be seen below in Figure 2.1.

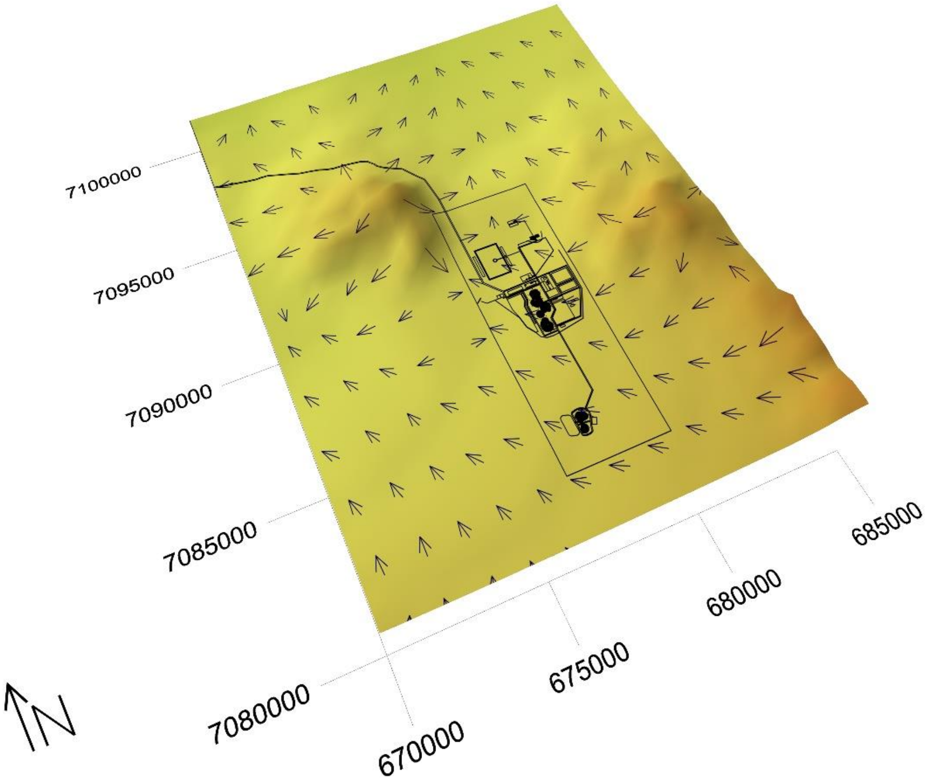

Figure 2.1 Mine Area Flow Velocity Vectors.

Watershed Delineation:
Apply watershed delineation algorithms to determine the boundaries of the catchment area for the selected region. These algorithms identify the divide between different watersheds based on the flow patterns derived from the DEM.

Define Sub-Catchments:
Within the larger catchment, identify and delineate sub-catchments relevant to the smaller area where mining activities are concentrated. This step involves subdividing the catchment into smaller units based on the natural drainage patterns.

Integration with Mining Plans:
Integrate the delineated catchment boundaries with the specific plans and layouts of the mining operations. Ensure that the catchment boundaries align with the areas where mining activities will take place.

Hydrological Modeling Considerations:
Consider the hydrological characteristics of the catchment, such as rainfall patterns, soil types, and land cover, in the context of mining activities. This information is vital for accurate hydrological modeling and predicting water flow within the catchment.

By focusing the catchment delineation process on the smaller area relevant to the mining activities, this approach enables a more targeted and precise analysis of the hydrological conditions specific to the mining operations. It ensures that the hydrological model accounts for the unique characteristics of the area where water management and environmental considerations are of particular concern due to mining activities.

The catchment delineation process, detailing the identification and definition of the drainage basin relevant to the specific mining activities in the Murchison region of Western Australia, is depicted by Figure 2.2 to Figure 2.3.

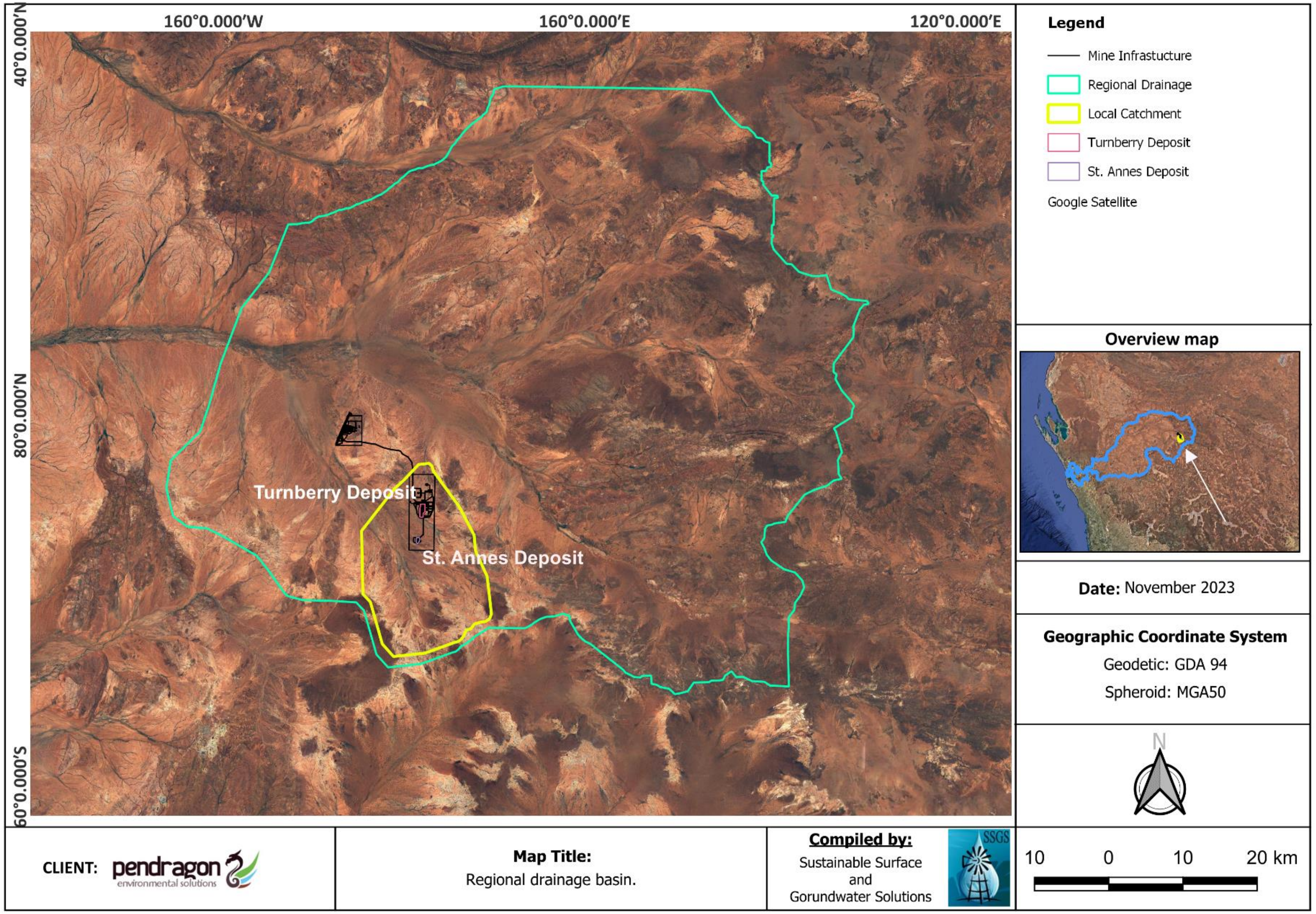

Figure 2.2 Regional drainage basin.

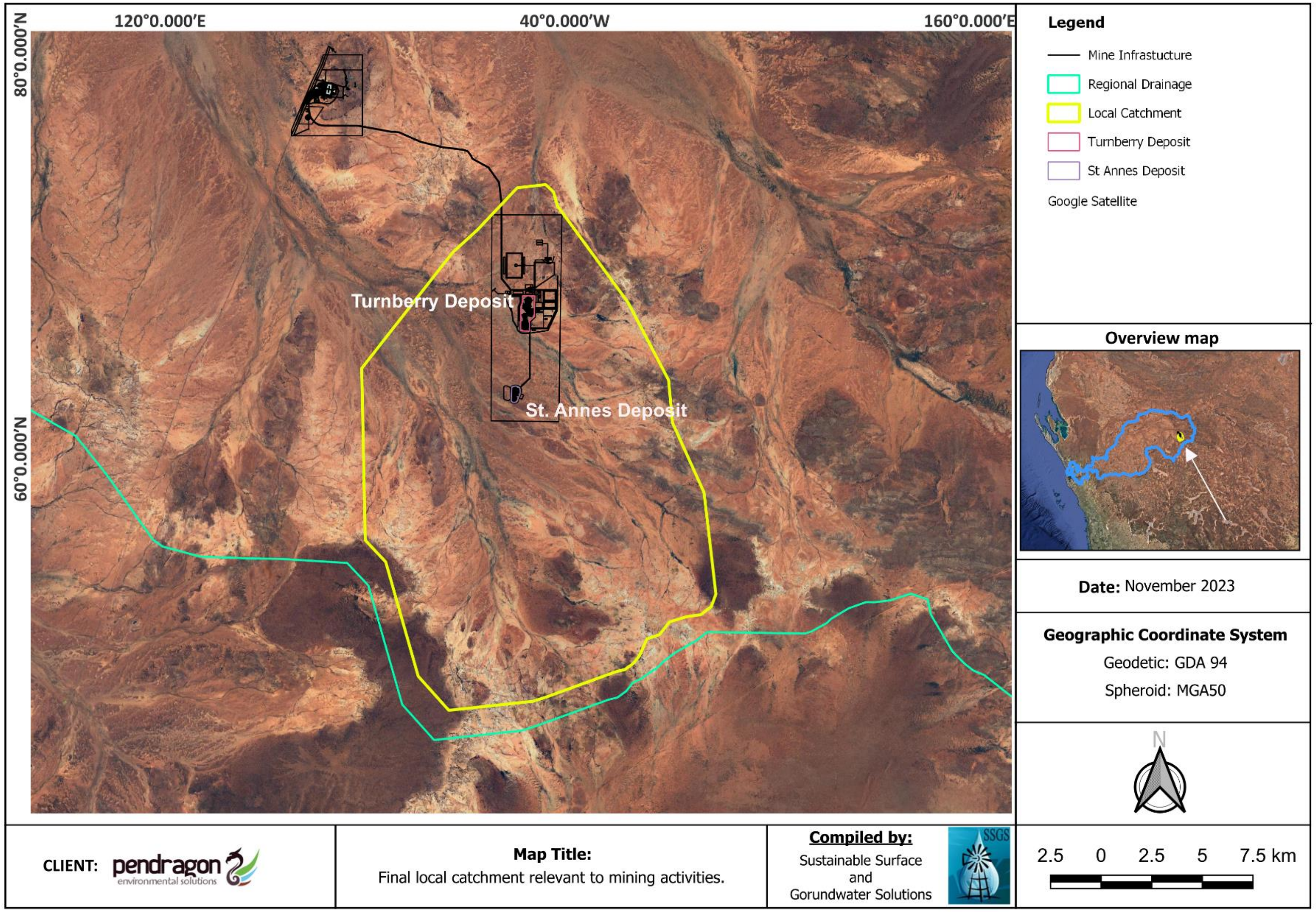

Figure 2.3 Final local catchment relevant to mining activities.

2.3.6 Hydrological Modeling

The Hydrologic Engineering Center's River Analysis System (HEC-RAS) software for hydrological and hydraulic engineering is widely recognized for its versatility and applicability in modeling complex water flow scenarios. Therefore HEC-RAS has been specifically chosen to model the hydrological dynamics of the Turnberry and St Annes open pit mines situated in the Murchison region of Western Australia. The selection of HEC-RAS for this assessment is due to its robust analyses for water flow, floodplain mapping, and hydraulic assessments in diverse geological and environmental settings.

Methodology

Running a transient state hydrological model in HEC-RAS involves simulating the changing flow conditions over time, capturing the dynamic nature of river and open channel systems. This is particularly important for understanding how flow patterns evolve during flood events or other transient situations. Here are the basic steps to run a transient state hydrological model in HEC-RAS:

1. Project Setup:
   a. Define the project data, including the river reach geometry, cross-sections, bridge and culvert data, and any other relevant information.

2. Geometry Import or Creation:
   a. Import or create the geometry of the river or channel, including cross-sectional data. HEC-RAS requires accurate geometric information to simulate the flow.

3. Time-Series Data Input:
   a. Specify time-dependent boundary conditions, such as upstream flow rates, downstream water levels, or any other variations in boundary conditions over time.
   b. Import or input hydrograph data for each time step, representing the temporal variation of inflows into the system.

4. Initial Conditions:
   a. Set initial conditions for the model. This includes specifying initial water surface elevations, velocities, and other relevant parameters at the start of the simulation.

5. Define Flow Boundary Conditions:
   a. Specify how the flow will enter and exit the model domain over time. This involves defining time-varying boundary conditions at the upstream and downstream ends of the reach.

6. Assign Roughness Values:
   a. Define Manning's roughness coefficients for different channel reaches. These coefficients can vary over time to account for changes in channel conditions (e.g., vegetation growth, sedimentation) during the simulation.

7. Define Flow Releases and Structures:
   a. If there are any flow releases from reservoirs or structures during the simulation period, specify the time-varying flow rates or water surface elevations associated with these releases.

8. Temporal Control:
    a. Set up the temporal controls, including the simulation start and end times, time step intervals, and any other time-related parameters.

9. Simulation Options:
    a. Configure simulation options, such as the numerical solution method, output options, and convergence criteria. These settings influence the accuracy and efficiency of the transient state simulation.

10. Run Simulation:
    a. Execute the transient state simulation by clicking on the "Compute" button. HEC-RAS will solve the dynamic flow equations for each time step, considering the changing boundary conditions and geometry over time.

11. Results Analysis:
    a. Once the simulation is complete, analyze the results using various tools within HEC-RAS. View water surface profiles, velocity vectors, and other relevant output data at different time steps.

12. Review and Calibration:
    a. Review the simulation results and, if necessary, calibrate the model parameters to improve the accuracy of the simulated flow conditions compared to observed data.

Storm Rainfall Data

In this study, the transient state model was calibrated and validated using the 24-hour middle-loaded frequency storm data. This specific storm event, characterized by its middle-loaded temporal distribution, was selected to simulate realistic and dynamic flow conditions over a 24-hour period. The middle-loaded frequency storm data represents a meaningful scenario for understanding the response of the drainage system to a storm event with a balanced temporal distribution of rainfall intensity.

The temporal distribution of the storm event is presented graphically in Figure 2.4 below. This figure illustrates the variation in rainfall intensity over a 24-hour period, highlighting the storm's temporal profile.

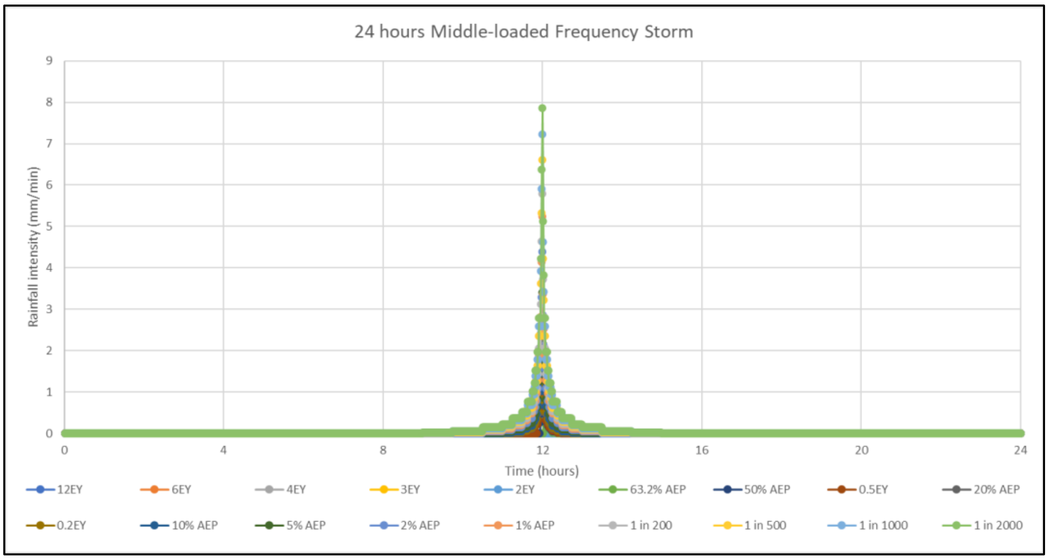

Figure 2.4 Graph depicting the 24-hour middle loaded frequency storm data.

When considering the storm frequency data in Figure 2.4. The following rainfall volumes (in cubic meters) were calculated for each of the proposed open pit areas. The volumes the events over the proposed pit areas are given in **Table 2.3** below.

Table 2.3: Mining Area Rainfall Volumes (m^3).

Pit Name	Pit Volume (m^2)	Average Recurrence Interval (ARI) events volumes in m^3.			
		2 Year ARI	5 Year ARI	10 Year ARI	20 Year ARI
Turnberry Pit 1	191900	1524	4169	5949	8060
Turnberry Pit 2	144500	1147	3140	4480	6069
Turnberry Pit 3	146300	1162	3179	4535	6145
St. Annes Pit 1	95100	755	2066	2948	3994
St. Annes Pit 2	49700	395	1080	1541	2087

Model Setup

The hydrological model was set up in accordance with the previously mentioned methodology, incorporating the critical 24-hour frequency storm data to simulate realistic transient flow conditions. The model was subjected to a comprehensive range of average recurrence interval's (ARI), including 2-year, 5-year, 10-year and 20-year ARI's. Each probability level represents a distinct hydrological scenario, enabling an examination of the drainage system's response to varying magnitudes of rainfall events. The selection of these exceedance probabilities is fundamental in assessing the system's resilience to different intensities of storms, contributing to an understanding of its behavior under both frequent and extreme hydrological conditions. Through this approach, the hydrological model captures a spectrum of potential scenarios, enhancing its applicability in informing water management decisions and flood risk assessments within the study area.

Model Results

Depth

Figure 2.5 provides a visual representation of the outcomes derived from the hydrological model, regarding the predicted depths of runoff across the entire model domain. Specifically, the figure illustrates the dynamic response of the drainage system under different exceedance probabilities, ranging from 1 in 2 years to 1 in 20 years. Each scenario captures the anticipated depth of runoff at various locations within the model domain, offering insight into how the system behaves under different magnitudes of storm events.

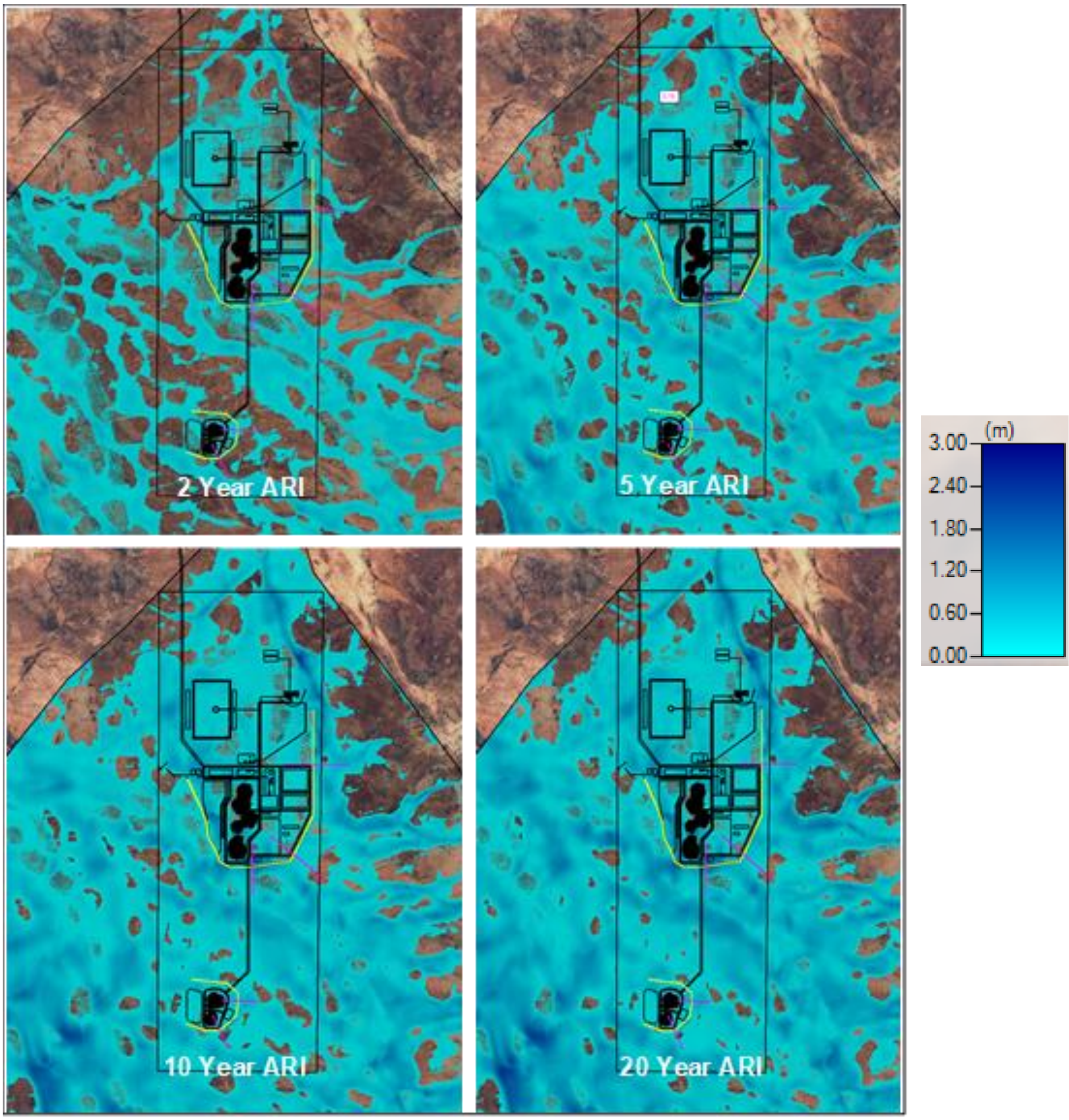

Figure 2.5 Predicted depths for different exceedance probabilities.

Velocities

In Figure 2.6, the predicted velocities of runoff across the model domain are depicted, showing the hydrodynamic response of the drainage system under varying average recurrence interval's (ARI), including 2-year, 5-year, 10-year and 20-year ARI's. Each figure delineates the projected velocities at different locations across the model domain, providing a visualization of the spatial distribution of flow velocities.

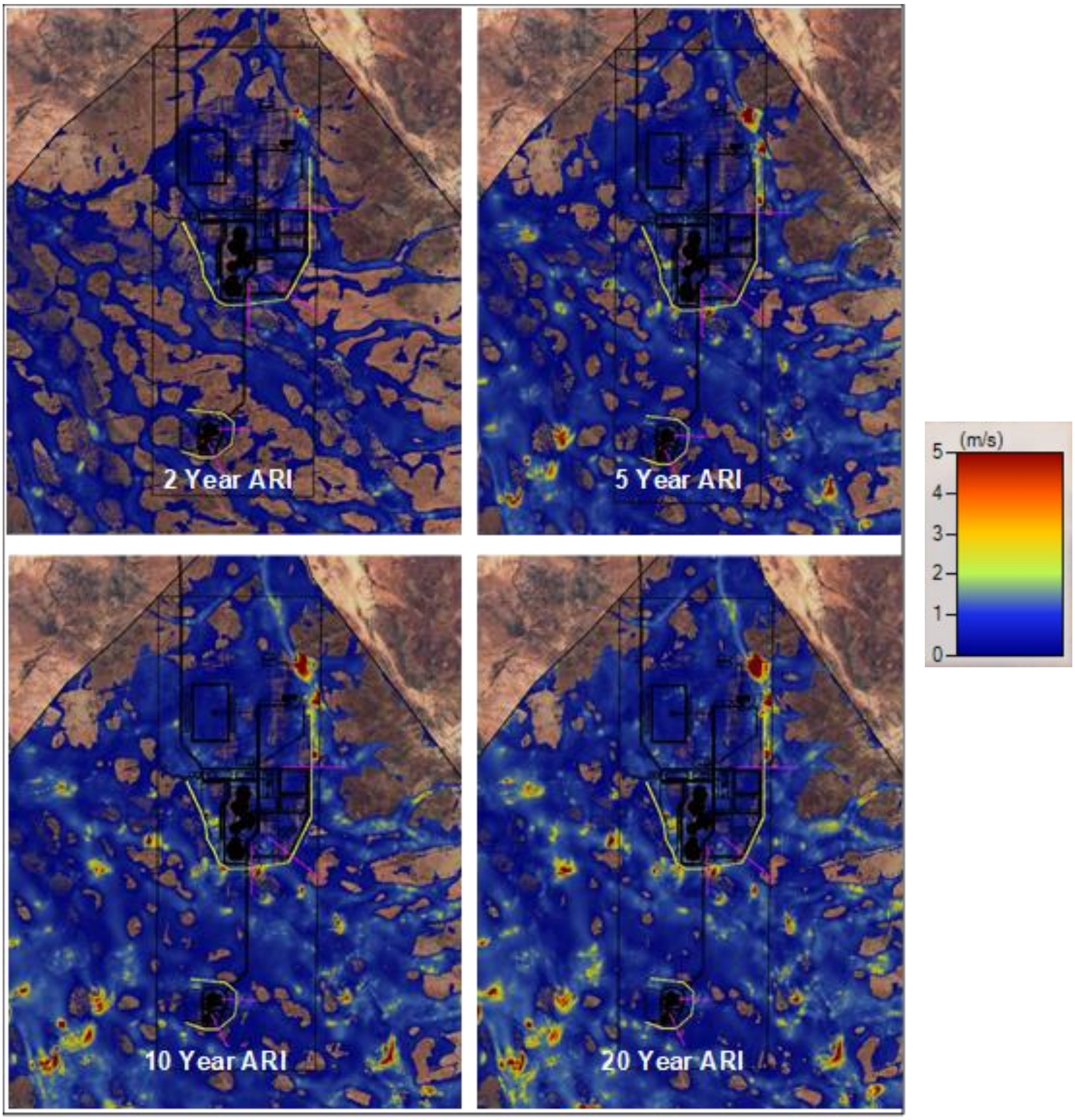

Figure 2.6 Predicted velocities for different exceedance probabilities.

Bunding:

The efficacy of the proposed bund walls around the mine workings was assessed through analysis of cross sections strategically positioned across these barriers. Figure 2.7 indicate the locations of these cross sections. By drawing the Water Surface Elevation (WSE) against topography and the interactions between the bund walls and the surrounding terrain captured in these cross-sectional profiles, the evaluation aimed to gauge the structural integrity and hydraulic performance of the protective measures.

This examination of cross sections provides insight into the potential effectiveness of the bund walls in mitigating water-related risks and safeguarding the mine workings, aiding in the refinement of water management strategies and ensuring the resilience of the mining infrastructure in the face of varying hydrological conditions.

The SWE for a 5-year ARI probability exceedance across the bund walls at each cross section is depicted in Figure 2.8 to Figure 2.12.

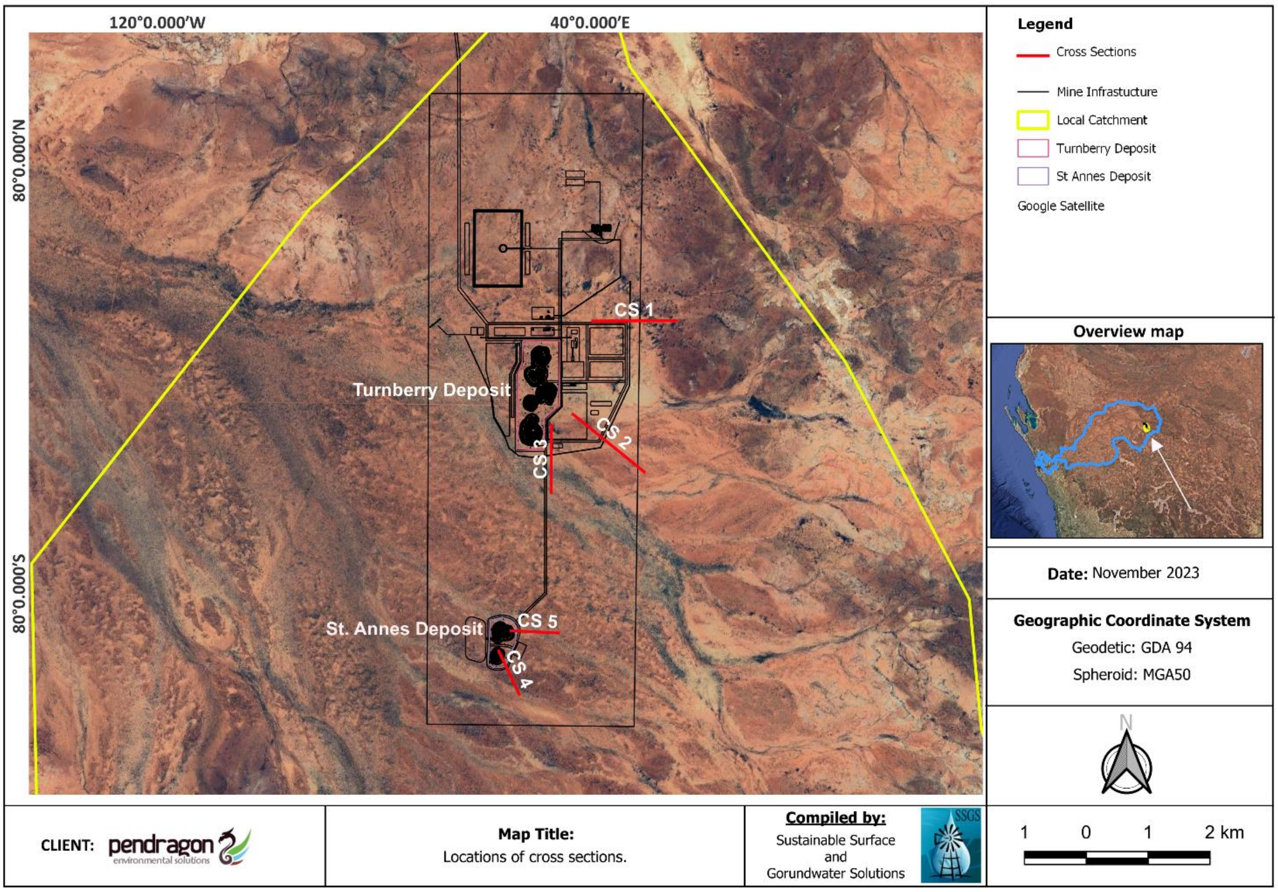

Figure 2.7 Locations of cross sections.

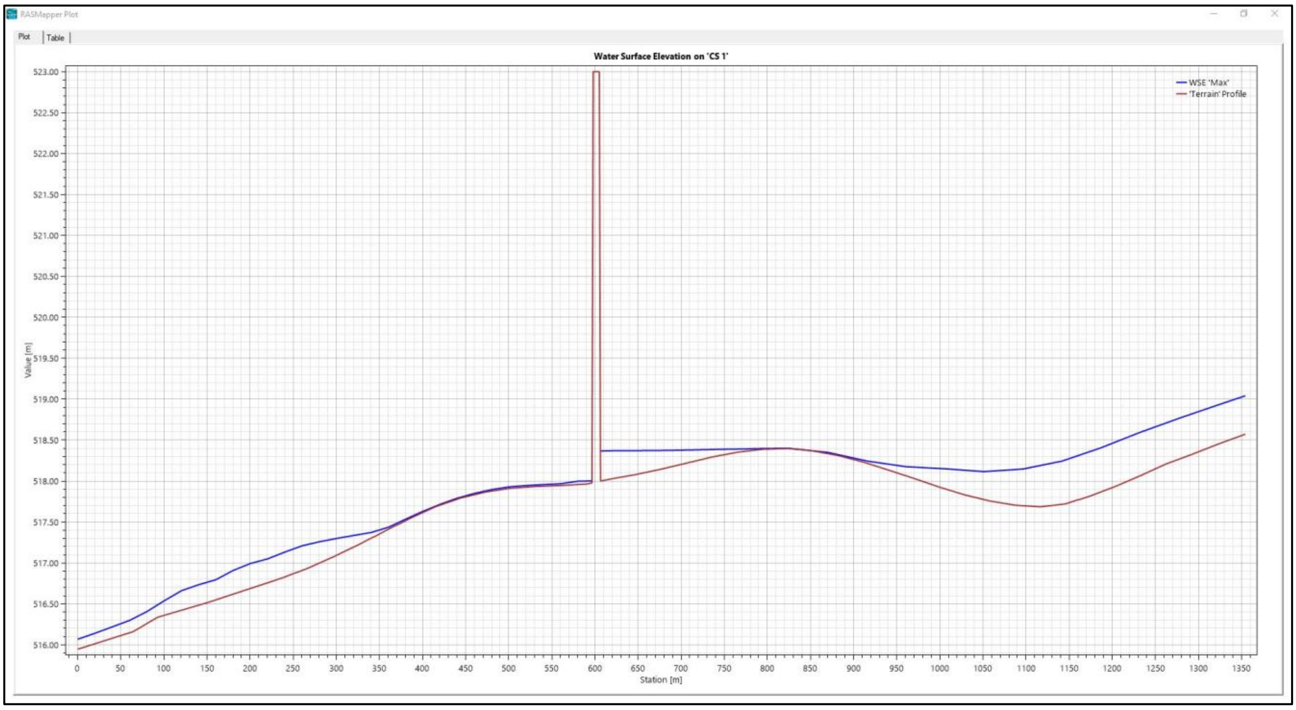

Figure 2.8 WSE at cross section 1.

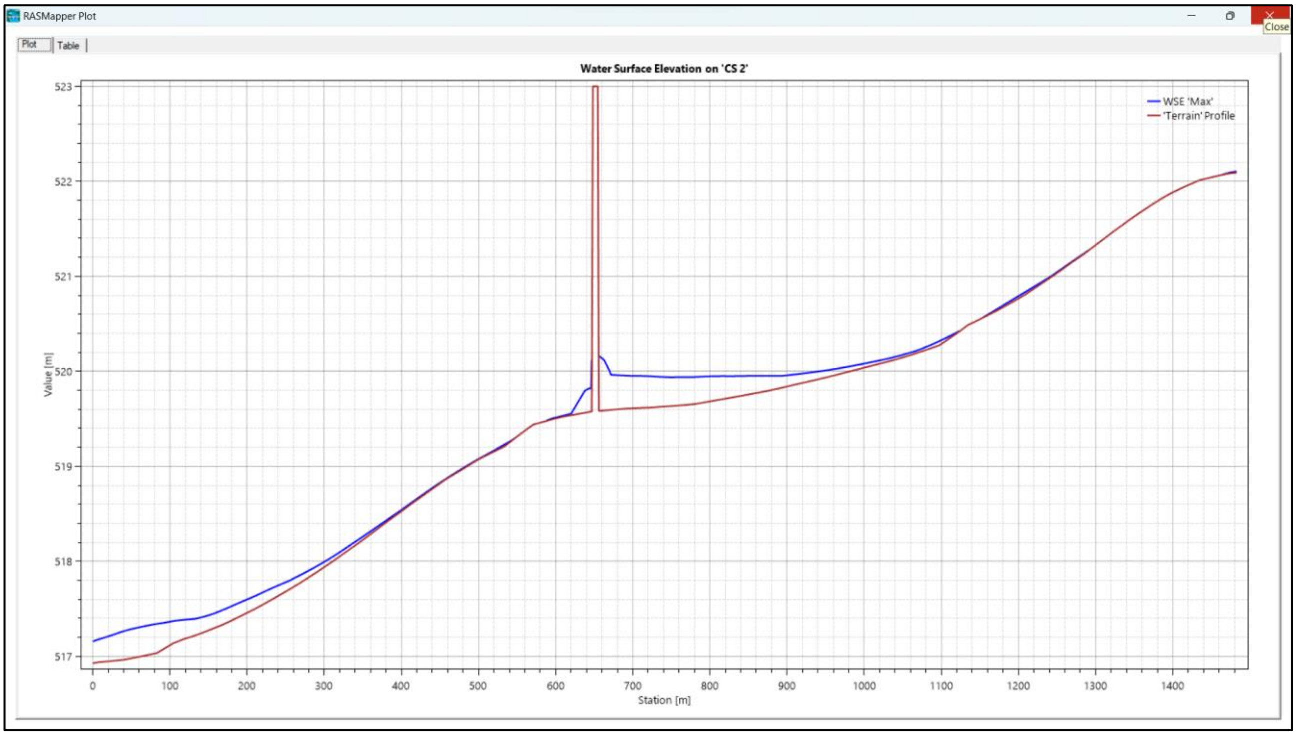

Figure 2.9 WSE at cross section 2.

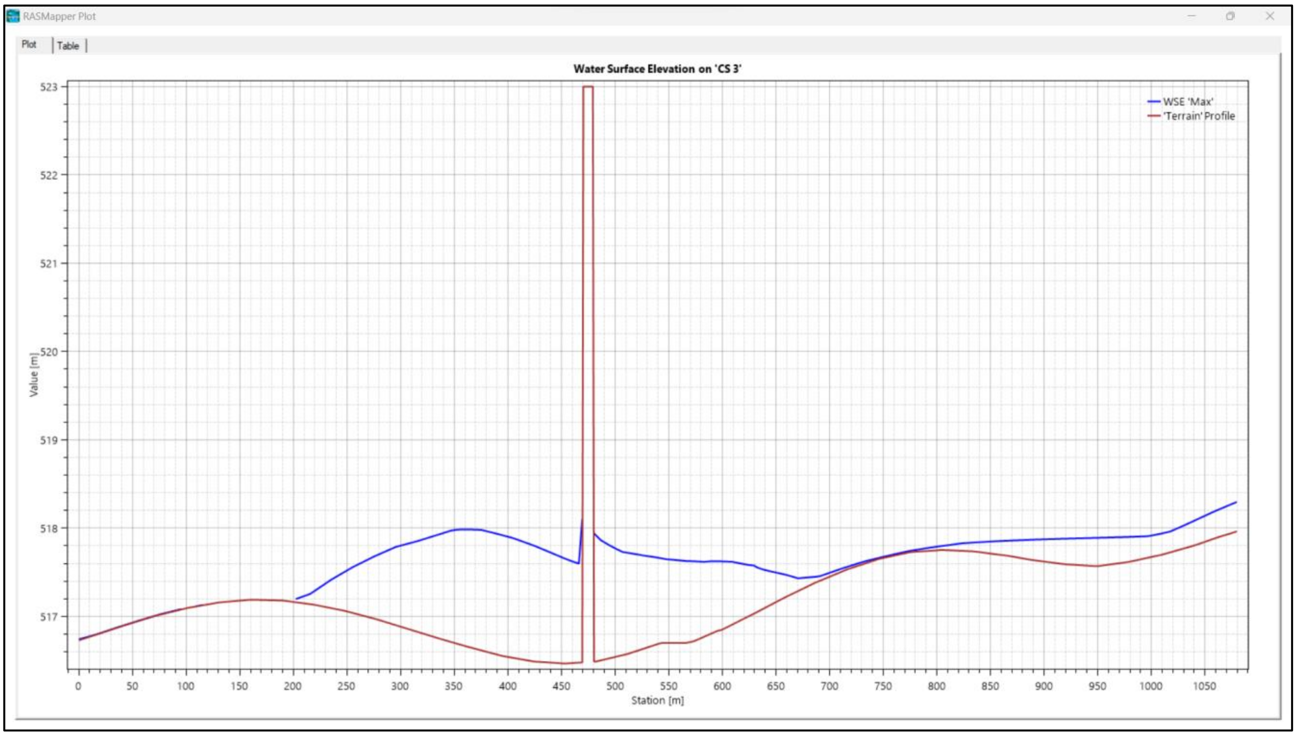

Figure 2.10 WSE at cross section 3.

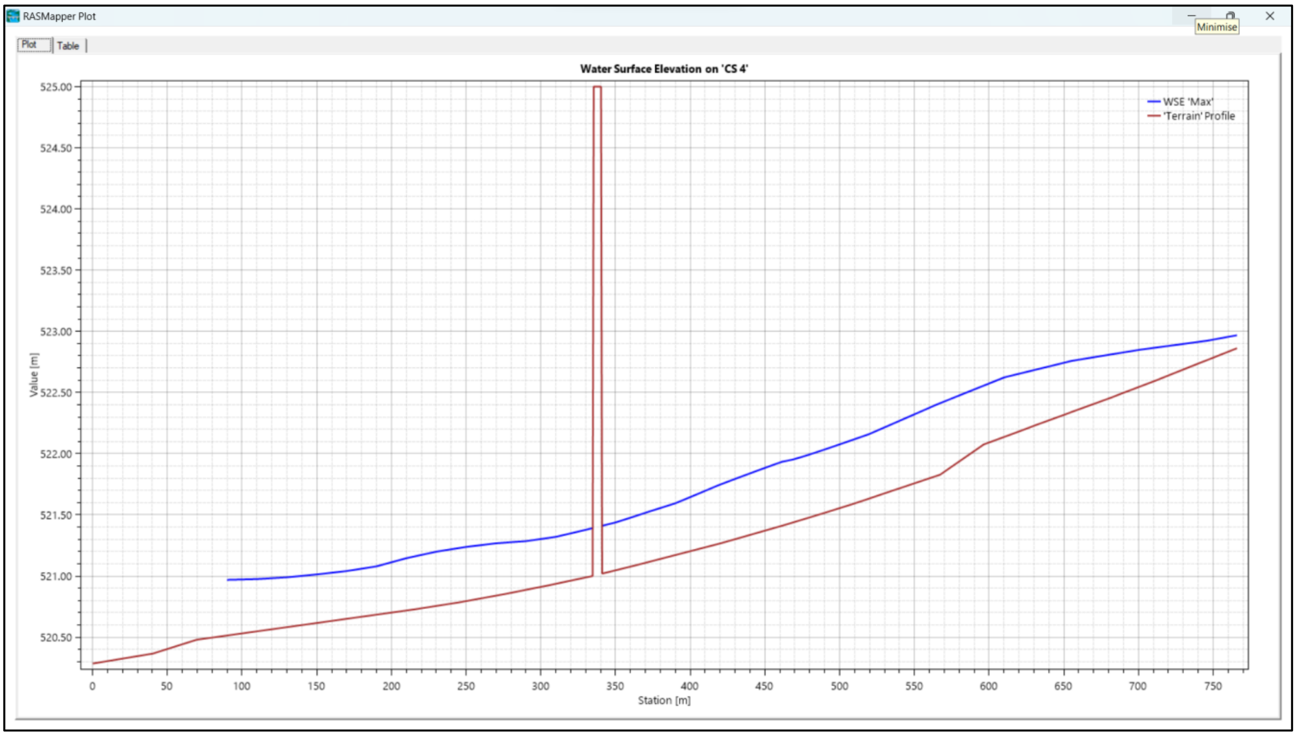

Figure 2.11 WSE at cross section 4.

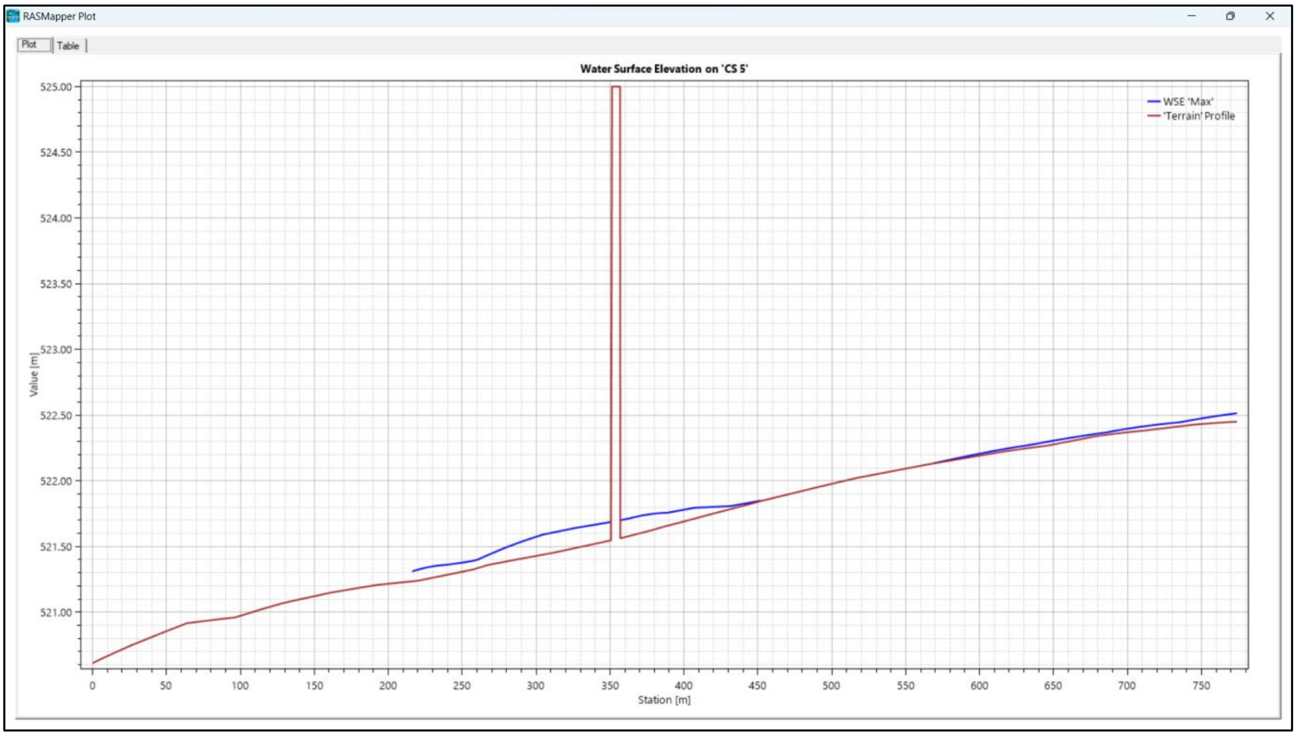

Figure 2.12 WSE at cross section 5.

3. Conclusions and Recommendations

Hydrological model outputs for the Turnberry and St Annes open pit mines, particularly concerning the predicted velocities and depths during flood events, reveal encouraging findings for operational and closure considerations.

Modelling for a 20-year ARI predict an approximate maximum flow depth of around 1m, while predicted velocities do not exceed 2.5 m/s.

With the findings indicating that flow depths are not expected to exceed 1m, a final bund wall height of 2m emerges as a prudent and sufficient measure. This height incorporates a 0.8 m freeboard, ensuring a margin of safety, and additional allowance to accommodate potential unexpected exceedances beyond predicted model results. Where the bunds cross or are in close proximity to drainage channels consideration should be given to V-channels and rock armour.

References

ANZECC & ARMCANZ (2000): Australian and New Zealand Guidelines for Fresh and Marine Water Quality. Australian and New Zealand Environment and Conservation Council (ANZECC) and Agriculture and Resource Management Council of Australia and New Zealand (ARMCANZ).

Abbreviations

Abbreviations	
ADWG	Australian Drinking Water Guideline
AHD	Australian Height Datum
AMIRA	Australian Mineral Industries Research Association
ANZECC	Australian and New Zealand Environment and Conservation Council
ARMCANZ	Agriculture and Resource Management Council of Australia and New Zealand
ASLP	Australian Standard Leaching Protocol
CSM	Conceptual Site Model
DMIRS	Western Australian Department of Mines and Industry Regulation and Safety
DO	Dissolved Oxygen
DWER	Western Australian Department of Water and Environmental Regulation
EC	Electrical Conductivity
EIA	Environmental Impact Assessment
EIS	Environmental Impact Statement
EMP	Environmental Management Plan
EMS	Environmental Management System
EPA	Western Australian Environmental Protection Authority
LoM	Life of Mine
GDE	Groundwater Dependent Ecosystem
MCP	Mine Closure Plan
MP	Mining Proposal
NEPM	National Environment Protection (Assessment of Site Contamination) Measure 1999 (updated 2013), abbreviate to: ASC NEPM.
ORP	Oxidation Reduction Potential
TDS	Total Dissolved Solids
TSF	Tailings Storage Facility
TSS	Total Suspended Solids
WRL	Waste Rock Dump
Units	
cm	centimetre
d	day
ha	hectare
hr	hour
kg	kilogram

Abbreviations	
km	kilometre
m	metre
mm	millimetre
mg/L	milligram per litre
µg/L	micro-gram per litre
min	minute
yr	year
s	second
t	tonnes
µS/cm	micro-Siemens per centimetre

Discipline

Acronym	Parameter Definition/(Determination)	Unit