CZR Resources Ltd
ABN: 91 112 866 869
Suite 9, Level 3, 47 Havelock St
West Perth, Western Australia 6005
PO Box 16
West Perth WA 6872
Phone: +61 8 9468 2050
Website: www.czrresources.com

Robe Mesa Iron Ore Project

WORK COMPLETED FOR THE REVIEW OF TROGLOFAUNA HABITAT AT ROBE MESA DEPOSIT

March 2023

Document Number: M-YLL-RobeMesa-2000-RPT-0003

Authorisation and Revision History

Revision	Date	Description	Prepared	Reviewed	Approved Study Mgr	Approved
A	08/03/2023	Issued for Internal Review	LOK	MC GH (Biota)		
0	21/3/2023	Final	LOK	MC	FG	FG

Confidentiality of Information

EXECUTIVE SUMMARY

An internal desktop review of the troglofauna habitat on the entire Mesa F feature (including the Robe Mesa Iron Ore Project) shows that 96.55% the habitat remains once mining at Robe Mesa is complete. Within the more localised Robe Mesa Tenure area, 66.06% of the troglofaunal habitat remains representing a significant amount and is reflective of the precautionary mining approach taken by CZR Resources,

The robe valley mesas, which host the Robe Mesa Project, represent an extensive suite of topographically constrained, CID style iron-ore deposits, which have been subject to extensive exploration and mining exploitation by Rio Tinto. The Robe Valley Mesas are recognised as troglofauna habitat, with the Department of Biodiversity, Conservation and Attractions (DBCA) listing the area as a Priority Ecological Community (PEC) based on their subterranean fauna communities.

Due to presence of the PEC within the Robe Mesa Project area, CZR Resources has undertaken a geological modelling exercise to define troglofaunal habitat occurrence within the Robe Mesa subsurface and better understand the impact that the mining activity, proposed under the Robe Mesa Project, will have on the availability of potential troglofauna habitat.

Biota Environmental Sciences was engaged throughout the project development phase to conduct a detailed survey to document the occurrence of Troglofauna species within Robe Mesa. Their work has suggested the primary Troglofauna habitat at Robe Mesa is within both the upper and lower mineralised channels, which are characterized by pisolitic iron mineralisation and act as a suitable vuggy habitat.

Channel iron deposits are synonymous with the palaeodrainage systems and typically comprise different strata. The hardcap, hard zone and mixed zone are inferred to be troglofauna habitat, based on sampling results and the potential for interconnected voids, suitable humidity and energy and organic material availability. Examination of drill logs and core samples suggest each of these strata exhibits the physical characteristics capable of hosting troglofauna. Clay-strata typically do not exhibit sufficient voids but may provide areas of greater moisture retention and perched water that influence humidity levels, thereby contributing to habitat quality for the fauna.

To quantify the habitat volumes from Robe Mesa, 3D-wireframining was employed to create solids which represents the geological units representing troglofauna habitat. The abundant downhole drill data at Robe Mesa allowed for accurate geological contacts to be modelled and the pit design provided by Snowden Optiro was used to refine the solids so they accurately represented the volumes which would be removed by proposed mining activity. Using some high-level assumptions, the geological units from Robe Mesa were able to be projected across the Mesa F landform, so that the broader Troglofauna habitat could also be assessed.

The available Troglofauna habitat within Robe Mesa Project, within the extents of mining licence M08_533, was calculated as being **~45,500,000 bcm,** which was inclusive of the upper and lower mineralised channels. The volume of Troglofauna habitat removed by proposed mining operations at Robe Mesa was calculated as being **~ 15,500,000 bcm.** The residual habitat remaining in M08_533 after the proposed mining activity is**~30,000,000 bcm**, which represents 66% of the pre-mining habitat volume. The proposed pit design only progresses deeper into the bottom channel in two isolated locations, so it is worth noting that the habitat impact is much less on the lower channel, with ~85% of the habitat remaining post mining. Note, this is a conservative estimate as the potential habitat, Interstitial Ironstone, which is found within the Interstitial Clay zone between the upper and lower channels, has been omitted from the potential habitat calculations, even though its function in maintaining microclimate contributes to the overall landform suitability as habitat.

When the broader scale Mesa F units are included in the assessment, the impact of the Robe Mesa volumes are placed into appropriate context. Extensive work undertaken over the past two decades in the locality has demonstrated that, while troglofauna species are endemic to specific mesas, they are occur across the extent of each isolated landform. The entirety of Mesa F is therefore the most appropriate scale at which to evaluate predicted habitat loss. The total habitat for Mesa F landform (inclusive of Robe Mesa) was calculated as being **~449,200,000 bcm,** meaning that that Robe Mesa (M08_533) habitat only represents 10% of the total Mesa F landform habitat. Going one step further, the proposed mining volume of ~15,500,000 bcm represents only **3.5%** of the total Mesa F landform habitat.

These results demonstrate that the proposed mining activity of the Robe Mesa Project has an isolated impact on the availability of Troglofauna habitat and there is high confidence of the ongoing persistence of a troglofauna community in the remainder of the landform, post-mining.

Industry investigations and publicly available submissions to the EPA, support approaches that retain 50% or less of the troglofaunal habitat.

Table of Contents

List of Tables.

List of Figures.

1. Introduction

The Robe Mesa Iron Ore project proposes an open-pit above water table mining operation within Robe Mesa, which exists as a northern extension of the Mesa F topographic landform. It has been recognised that this landform represents a habitat environment for subterranean invertebrate communities, specifically Troglofauna, which are currently classified as Priority Ecological Communities (PEC) by the Department of Biodiversity, Conservation and Attractions (DBCA).

CZR Resources acknowledges the importance of the Priority Ecological Communities and is committed to understanding the impact the proposed mining activity at Robe Mesa on the available Troglofauna habitat within the Robe River Pisolites (specifically within the Mesa F landform). CZR Resources is confident that the impact of mining will not be significant, due to the small scale of the proposed activity relative to the broader Mesa F landform volume and the abundance of available habitat which will be preserved and not impacted. As part of the environmental submissions for the Robe Mesa Iron Ore project CZR Resources has conducted this Troglofauna habitat review to support this hypothesis.

The review aims to define the available Troglofauna habitat within the Mesa F landform as well as the specific volumes of material which will be extracted by mining operations, so that a pre and post mining habitat volume can be determined. A similar exercise was completed by API Management (APIM), in August 2015 on the West Pilbara Iron Ore Project (WPIOP) Stage 1 Deposits. APIM provided their findings to CZR so that the methodology could be adapted for Robe Mesa Project. Red Hill Resources, who own similar CID deposits within the Yarraloola region, have also expressed interested in this type of review.

The processes involved in the review include creation of 3-dimensional (3D) CID shapes; the generation of 3D solid pit shapes from pit shells; calculations to determine the potential remaining Troglofauna habitat post mining and any other relevant investigations and case studies that aided in the interpretation and understanding of the potential Troglofauna habitat in the Robe Mesa deposits.

This report provides a detailed summary of the methodology employed and the parameters involved in the above processes.

2. Objective.

The objective of this report is to quantify the impact that the proposed mining activity at Robe Mesa will have on Troglofauna habitat within the Mesa-F / Robe Mesa topographic structure. CZR Resources intends to assess the available Troglofauna habitat within the Project area, to better understand the potential impact that the project will have on this habitat.

To achieve this objective, this report aims to identify what constitutes Troglofauna habitat within the Robe Mesa/Mesa F topographic structure and ascertain the extent of this environment. The methodology employed and parameters used in this estimation process will be discussed.

Furthermore, this report will look to define the amount of material, specifically material which represents Troglofauna habitat, which will be mined as part of the proposed operations at Robe Mesa. Due to the high density of drill data available and the advanced pit-design study completed on the project, this estimate can be completed with a high level of confidence.

With habitat extents and proposed mining activity defined, the impact of mining activity on the available Troglofauna habitat can be better understood, which is what this report aims to do.

3. Robe Mesa Geological Summary.

3.1 Robe Mesa Downhole Data Set.

Robe Mesa has been subject to extensive drilling campaigns as part of the project evaluation. The campaigns have included multiple rounds of RC drilling for resource definition and a diamond-core program for metallurgical testwork and material classification purposes.

There are 280 RC drillholes on Robe Mesa with an average depth of 60m and achieving a drill-density of 50x50m across the project extents (Figure 1). All RC holes were sampled as 1m downhole intervals, and all composites were subject to geological logging and assay analysis.

There are also 11 diamond drill holes on Robe Mesa, which were drilled in 2022. The diamond holes have an average depth of 60m and were positioned to represent the full lateral extents of the project area. The diamond core from these holes was subject to geological logging, photography, and extensive metallurgical test work.

Together, the RC and diamond drilling campaigns have allowed for a comprehensive downhole data set to be attained. The drill density sufficiently defines the lateral and depth extents of the Robe Mesa CID Deposit and the material which is proposed to be mined has been sufficiently defined by drilling.

The geological interpretations discussed in this report for Robe Mesa are derived exclusively from the downhole data set. Geochemical data from the assays and physical observations from the diamond core have allowed for geological units to be differentiated and defined. Furthermore, the 1m downhole composites have also allowed for the stratigraphic contacts and unit volumes to be well constrained.

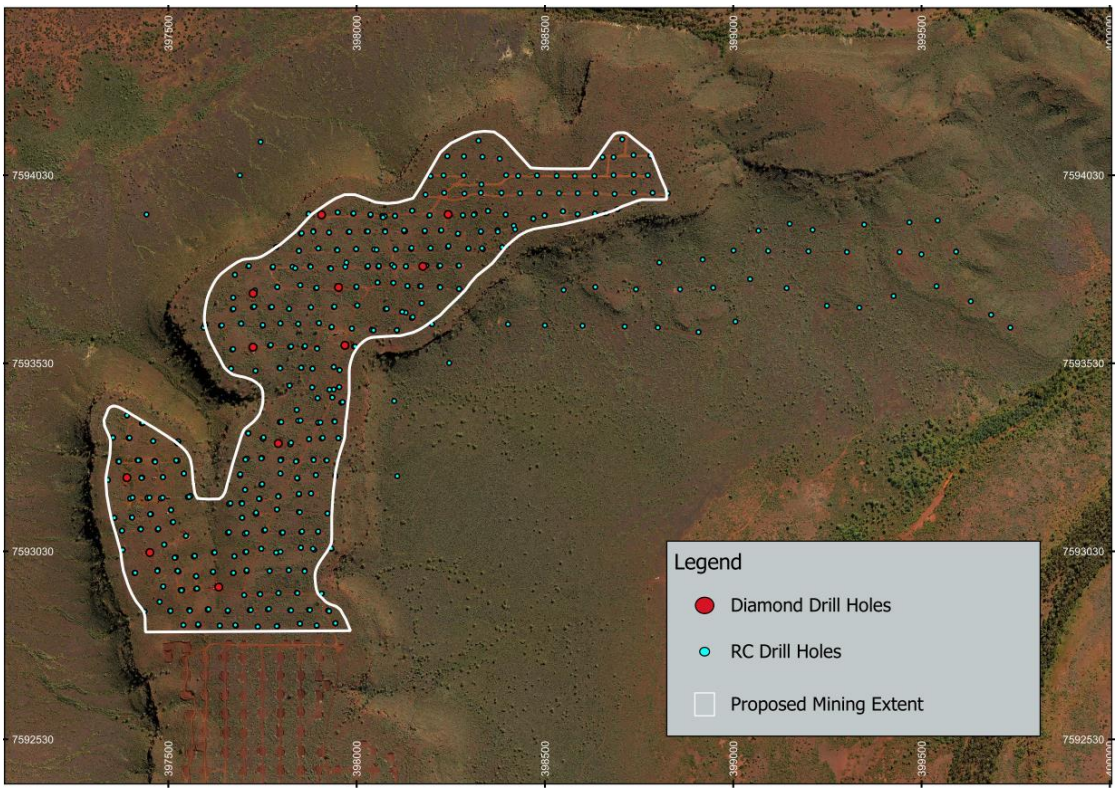


Figure 1: Planview of Robe Mesa Drillsite illustrating RC and diamond drillholes.

3.2 Robe Mesa Stratigraphic Units.

Robe Mesa occurs as a topographic structure of tertiary-aged, pisolitic ironstone that represents the preserved remnants of a paleo-channel from the Robe River which was at an earlier stage fully incised into the basement of Paleoproterozoic metamorphic rocks of the Ashburton Basin.

Locally, Robe Mesa preserves two channels with well-formed CID style iron ore mineralisation (MCU and MCL) both of which are enveloped by a transitional unit which is mineralised but less sorted and lower in Fe grade (MMU and MML). The mineralised channels are separated by an interstitial waste unit which is characterised by sandy ironstone rocks and clay rich lenses. Directly underlying the lower mineralised channel is a thin ferruginous silty ironstone unit above a clay rich basement rock. The Robe Mesa straigrpahic units are detailed in Table 1 and illustrated in the Figure 2 cross section and Figure 3 core photography.

Table 1: Geological Units within Robe Mesa Project.

	Geo Code	Unit Name	Description
	MCU	CID – Upper.	Strongly mineralised pisolitic ironstone.
	MMU	Mixed Zone – Upper.	Poorly sorted Pisolotic ironstone
	WII	Interstitial Waste.	Sandy ironstone with some mixed pisolite.
	WCI	Interstitial Clay.	Clay rich lenses within interstitial waste.
	MCL	CID – Lower.	Strongly mineralised pisolitic ironstone.
	MML	Mixed zone - Lower.	Poorly sorted Pisolotic ironstone
	WIB	Silty Ironstone-Basal.	Clay rich ironstone.
	WCB	Basal clay.	Claystone basal unit.

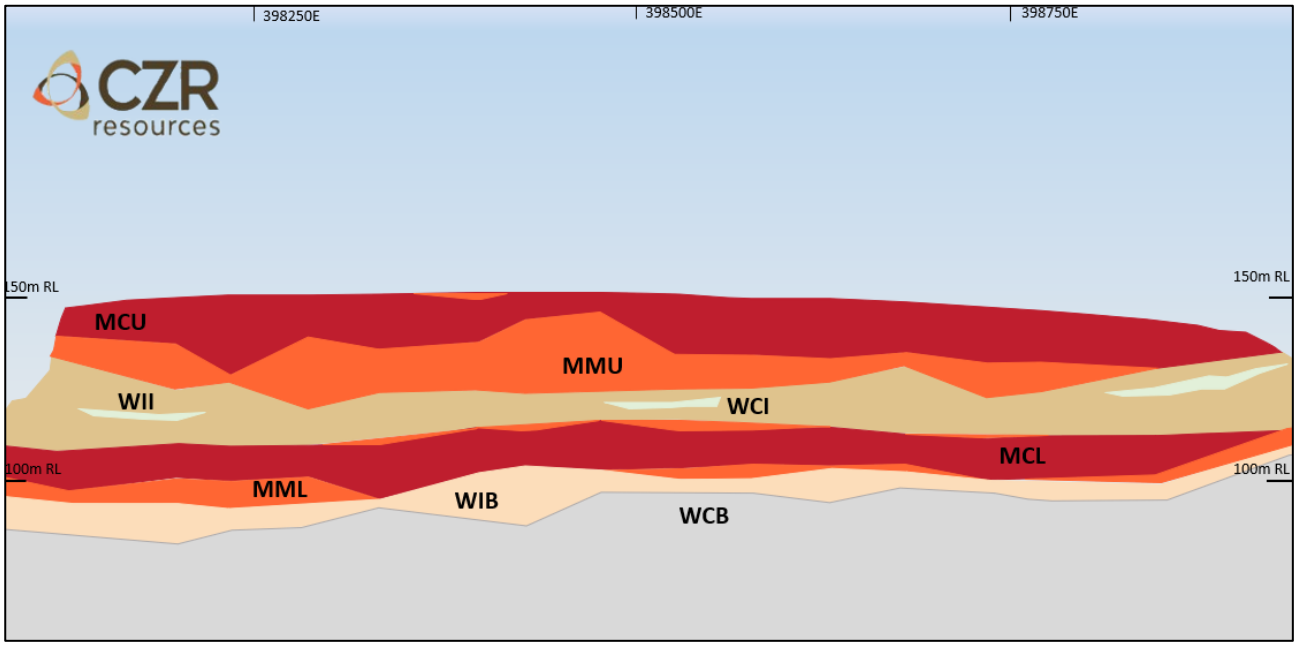


Figure 2: Cross section illustrating the Robe Mesa Geological units.

MCU: From YAR_DDH_007. 0-1m.

MMU: From YAR_DDH_001. 25-25m.

WII: From YAR_DDH_003. 28-29m.

MCL: From YAR_DDH_001. 39-40m.

MML: From YAR_DDH_006. 37-38m.

WIB: YAR_DDH_003. 60-61m.

WCB: YAR_DDH_007. 54-55m.

Figure 3: Diamond Core Photography of the different Geological Units from the Robe Mesa Project.

3.3 Robe Mesa CID Extent

The Robe River Paleo Channel is an extensive geological feature in the West Pilbara terrain. It is clearly defined by satellite imagery and preserved as a chain of elevated topographic Mesas, many of which have been exploited by mining operations. Robe Mesa is the northern extension of RTIO's Mesa F deposit, together forming a connected Mesa Structure, approximately 10km in strike length. Detailed DEM image shown in Figure 3 demonstrates the small portion of the Mesa F Structure where the Robe Mesa Proposed pit will be mined.

It is reasonable to conclude that the Robe Mesa mineralised sequence detailed in 3.2 is continuous across the full extents of the Mesa F structure. This is supported by the fact that RTIO has committed an extensive grade-control program across Mesa F with drillholes extending to 60m depth.

Furthermore, CZR Resources has drilling information on the SW flank of Mesa F, which confirms the presence of two mineralised channels. This drilling intercepted the basal component of the upper channel mineralisation and also the bottom channel mineralisation. The results of this program are detailed in reference item [Coziron asx announcement], and includes details of the RC intercepts and cross section illustrations of the mineralised sequence.

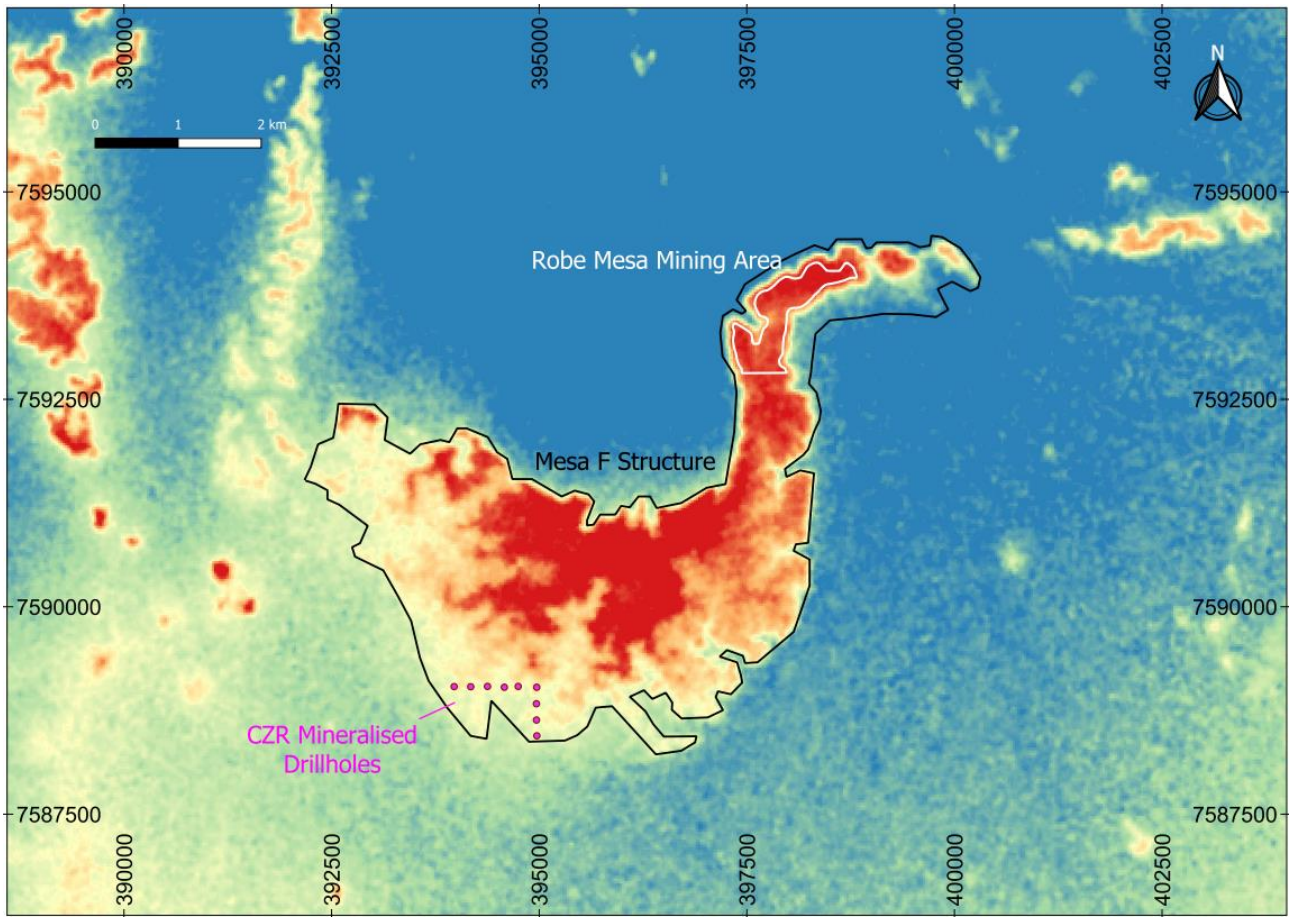


Figure 4: DEM elevation image, coloured by elevation gradient, illustrating the topographic relief which defines the Mesa F landform. Robe Mesa Project area delineated by white polygon, Mesa F landform area delineated by black polygon.

3.4 Stratigraphy representing troglofauna habitat

Biota Environmental Sciences (Biota) has conducted a detailed survey to document the occurrence of Troglofauna with the Robe Mesa project area. Their output reports are listed as reference items in section 8.

In summary, Biota has confirmed that troglofauna have been identified (sampled) in both the upper and lower mineralised channels within Robe Mesa. This is within expectation, as the Robe Mesa CID mineralisation represents a typical habitat environment for troglofauna as it is characterized by vuggy rock texture, and it is located above the local water table. It is recognised, however, that troglofauna can travel through the void space created by drillholes, so sampled troglofauna may have originated from underlying or overlying strata.

The basal rock units underlying the lower pisolitic channel (WIB and WCB units) have been determined to not represent main troglofauna habitat, due their high clay content, lack of vuggy structure and position underneath the recorded water table.

The interstitial waste units which separate the upper and lower pisolitic channel are also not considered to be main troglofauna habitat, though they may fulfill a function in maintaining humid microclimates through impeding water penetration and storing recharge within the structure. This is primarily due to the increased clay content and absence of well mineralised, vuggy rock texture. For this reason, the interstitial units are considered to represent a horizon barrier between the upper and lower mineralised channels, although this hypothesis requires additional work to improve the understanding.

Table 2: List of Robe Mesa Geological domains with Troglofauna habitat status listed.

	Geo Code	Unit Name	Troglofauna Habitat Status
	MCU	Well formed CID – Upper.	Troglofauna habitat.
	MMU	Mixed Zone – Upper.	Troglofauna habitat.
	WII	Interstitial Ironstone.	Limited Troglofuna habitat.
	WCI	Interstitial Clay.	Limited Troglofuna habitat.
	MCL	Well formed CID – Lower.	Troglofauna habitat.
	MML	Mixed zone - Lower.	Troglofauna habitat.
	WIB	Silty Ironstone – Basel.	Limited Troglofuna habitat.
	WCB	Basal clay.	Limited Troglofuna habitat.

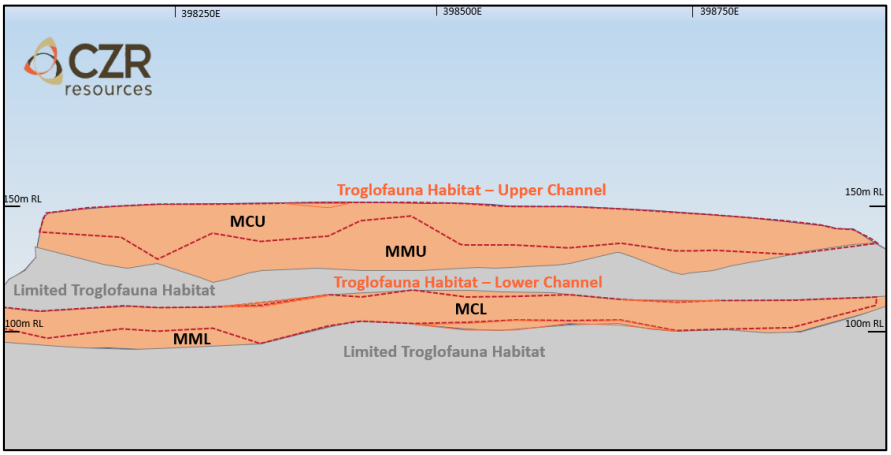


Figure 5: Cross section, illustrating distribution of the mineralised channels which are considered as Troglofauna habitat.

4. Robe Mesa Ground Water Table.

Mining at the Robe Mesa pit will all be above ground water table.

The ground water level is an important metric when defining troglofauna habitat, due to their inability to inhabit ground water.

For these reasons, there has been a great focus by CZR Resources to identify, understand and monitor the position of the ground water level within the Robe Mesa Project. In July 2022, CZR drilled a monitoring bore within the deposit, to a depth of 100m and cased to depth with slotted PVC, protected by 1mm gravel filter. The bore intercepted the water-table at 62m depth from surface, positioning the static water level at 89.4m RL. This bore has been dipped regularly and there is no evidence of substantial fluctuations of this measurement.

In addition to the monitoring bore, a selection of RC and diamond drillholes were also dipped to determine the water table occurrence. The results from these additional holes were consistent, with the water table being recorded between 86m RL and 91.5m RL. The results from the water observation points are recorded in Table 3: List of Robe Mesa water observation sites used to determine the ground water level.

The water table appears to be confined to the basal silty ironstone unit (WIB) which directly underlies the bottom CID channel and directly overlies the basement clay unit. It is important to note that the WIB and WCB unit are not ore units and due to their basal position in the stratigraphy, will not be mined out.

This implies that the mineralisation contact will be the basal limit to mining and not the water table. Furthermore, it can be concluded that water-table level will not be a constraining metric when assessing the Troglofauna habitat status of mined material. (i.e. all ore material which will be mined at Robe Mesa is to be considered a Troglofauna habitat).

Table 3: List of Robe Mesa water observation sites used to determine the ground water level.

Hole ID	X	Y	Z	Depth_downhole	Depth_RL
YAR_DDH_001	397905	7593927	148.299	62	86.3
YAR_DDH_002	398241.3	7593926	148.992	57.5	91.5
YAR262	397712.5	7593788	146.563	56	90.6
YAR_RC_011	397549	7593073	146.411	57	89.4
YAR403	397576.8	7592931	145.222	55	90.2

5. Robe Mesa Proposed Mining Extents

External consultants Snowden Optiro were engaged by CZR Resources to complete a full Mineral Resource Update in late 2022, on the back of the RC and diamond drilling which occurred at Robe Mesa earlier in the year. Following on from this, Snowden Optiro were also engaged to complete a Mineral Reserve for the Robe Mesa Project. This exercise is in the final stages of being completed.

The final pit extents and design for the project have been determined and provided to CZR Resources. The image below shows the pit design overlain on the Robe Mesa area.

As can be seen, the boundary for the proposed pit has been designed with a 50m buffer from the Mesa contour. This is a common practice with Mesa mining, allowing for the Mesa Structure to be preserved whilst mining progresses deeper within the core.

The entire upper channel is within the pit outline is subject to mining at Robe Mesa, but as can be seen below, mining only progresses deeper into the lower channel, in select areas.

The Final Pit design allows for accurate volumes of mining material of each unit type to be determined.

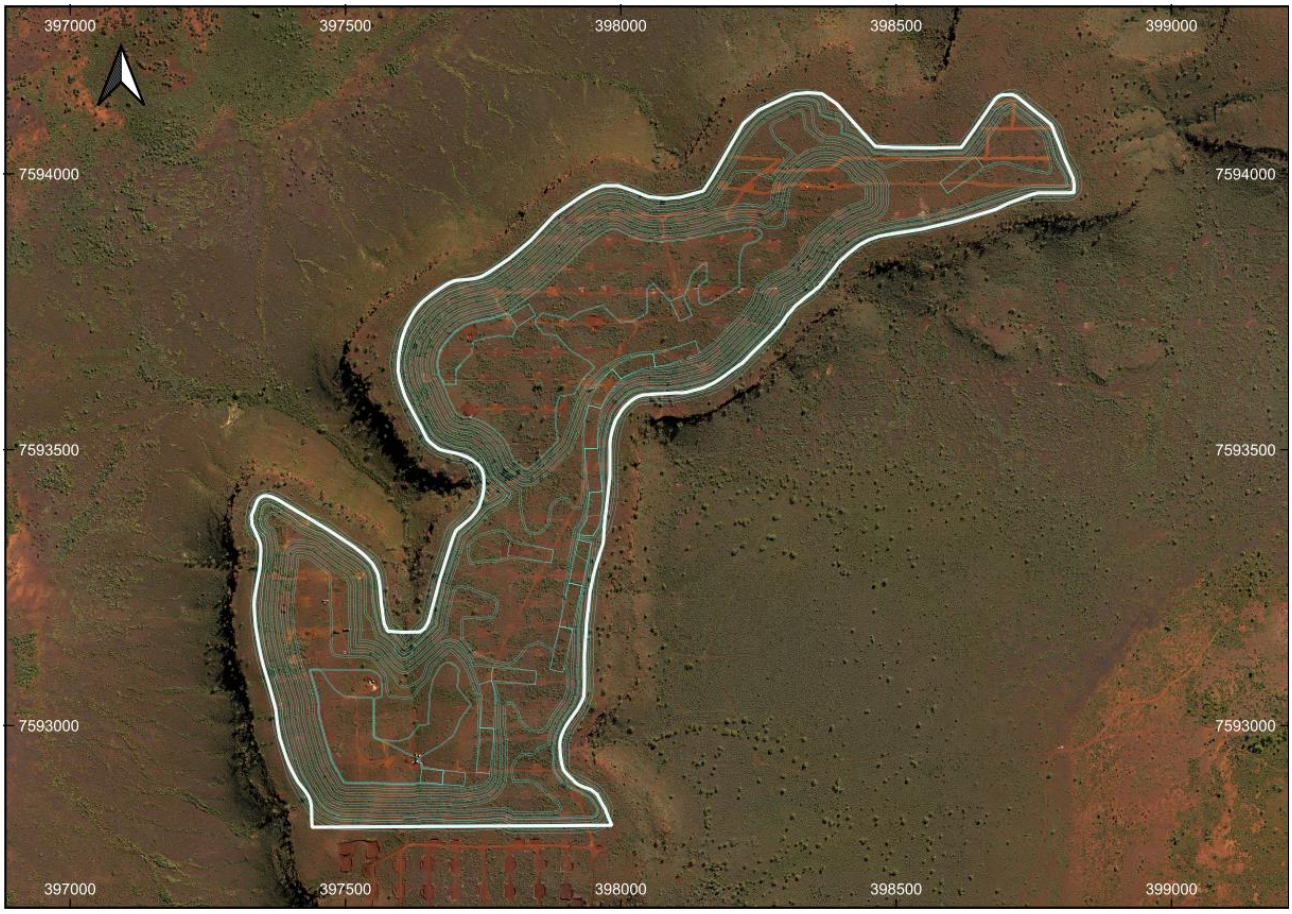


Figure 6: Robe Mesa Pit Boundary extents (white polygon) with pit contours detailed in blue polygons.

6. Volume Determination Methodology.

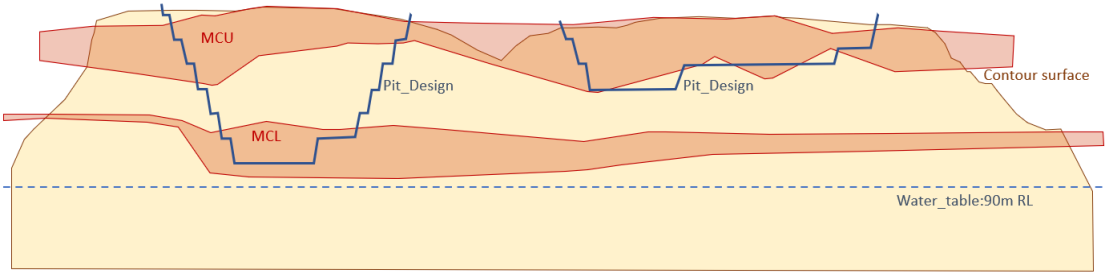
6.1 Calculation of Troglofauna Habitat within Robe Mesa

Due to the density of drilling, the availability of detailed lidar data and the confirmed mining extents provided by Optiro, there is sufficient information to accurately define the volume of specific geological units, specifically those that act as Troglofauna Habitat, which will be removed by mining activity at Robe Mesa.

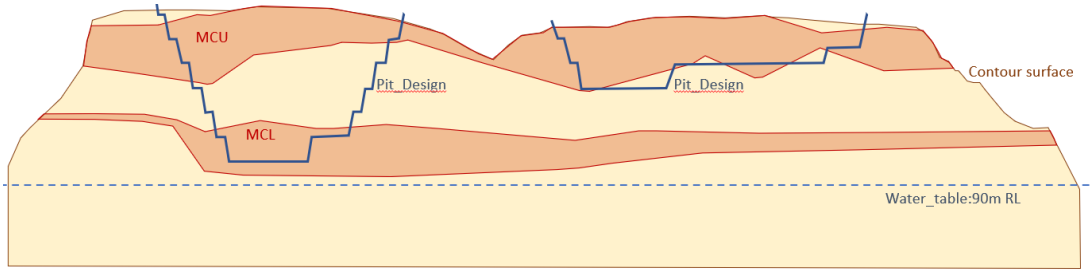
The method employed to define the volume of geological units is called 3D-wireframing, which involves creating a solid to represent the spatial extents of a specific unit type. Downhole drilling data, including logging and assays, are used to determine contacts between different units whilst contour surfaces and pit-design surfaces are used to constrain the solids to represent accurate volumes.

The images below illustrate the process of wireframe creation and constraining by surface.

Step 1: Wireframes generated from downhole drill information on Robe Mesa Section 7593230N.



Step 2: Wireframe shaped cut to beneath the contour surface.



Step 3: Wireframes cut to above the pit design.

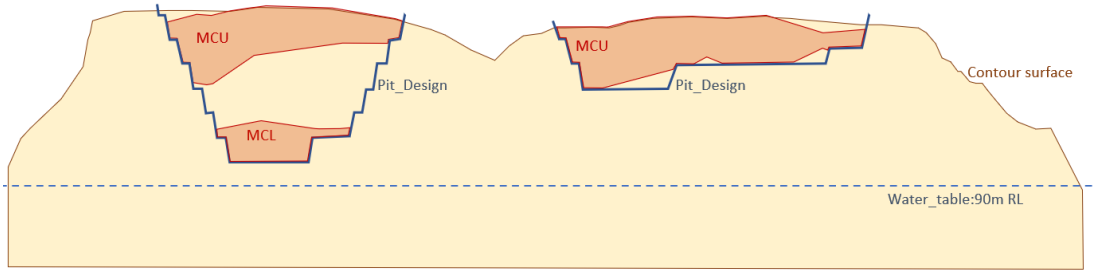


Figure 7: Schematic illustrating the wireframing processes. The diagram above is only showing the well mineralised pisolitic ironstone units for simplicity.

This process has been completed for all geological units at Robe Mesa, using 3D software, Surpac by Dassault Systems. The process of calculating volume of the respective shapes, relies upon Surpac algorithms which are accepted as industry standard.

The solids generated in step 2 and step 3 are saved separately and volumes determined for each, so that pre and post mining volumes can be ascertained for the Robe Mesa area.

The solids generated for this exercise were also used in the Robe Mesa Mineral Resource Estimation Workflows and subsequently have been reviewed and validated by Snowden Optiro and classified as JORC compliant geological interpretation.

The results for the volume calculations are detailed in section 7.

6.2 Calculation of Troglofauna Habitat within Mesa F Landform.

As discussed in section 3.3, Robe Mesa represents just the northern component of Mesa F, which forms an elevated and topographically constrained Mesa structure. The baseline assumption being made in this report is that the geological units at Robe Mesa are consistent across Mesa F further implying that the Troglofauna habitats are also continuous and consistent. To place the impact of removing Troglofauna habitat from Robe Mesa mining area into appropriate context, the volume of potential Troglofauna habitat from within the Mesa F extent needs to be estimated.

Like the Robe Mesa volume determination, wireframing is employed to create 3D solids for each respective geological unit with the Mesa F terrain. However, due to the limited availability of drill-hole data from the Mesa F terrain, there is a lower level of precision accepted for creating the solid extents and some assumptions are required to be adopted.

The baseline assumptions and conditions used to create the Mesa F solids are detailed below:

- Geological units were modelled as planar features, which have a consistent crest and toe RL (Figure 7).
- The RL of geological units was derived from the average position observed within Robe Mesa. Table 4 details the RL of the contacts and respective unit width.
- The perimeter extents were derived from the black polygon detailed in section 3.3, although terminated in the north by the RTIO and CZR tenure boundary, where CZR's more detailed modelling is assumed.
- Geological units were modelled as being continuous to Mesa Edge, and where relevant, the topographic surface was utilised to constrain the solids (Figure 8). If the solid sits well below the topographic surface, the lateral extents were limited by the boundary string detailed in section 3.
- The water table was modelled as being consistent at 90m RL. The assumption remains that water level does not restrict the available habitat for the purpose of this exercise.

Table 4: Table summarising the average contact position and width for the different geological units.

Geological Unit	Hanging wall contact (RL m)	Footwall contact (RL m)	Width
MCU	Contour Surface	129	variable
MMU	129	124	5
MML	110	109	1
MCL	109	98	11
MML	98	97	1

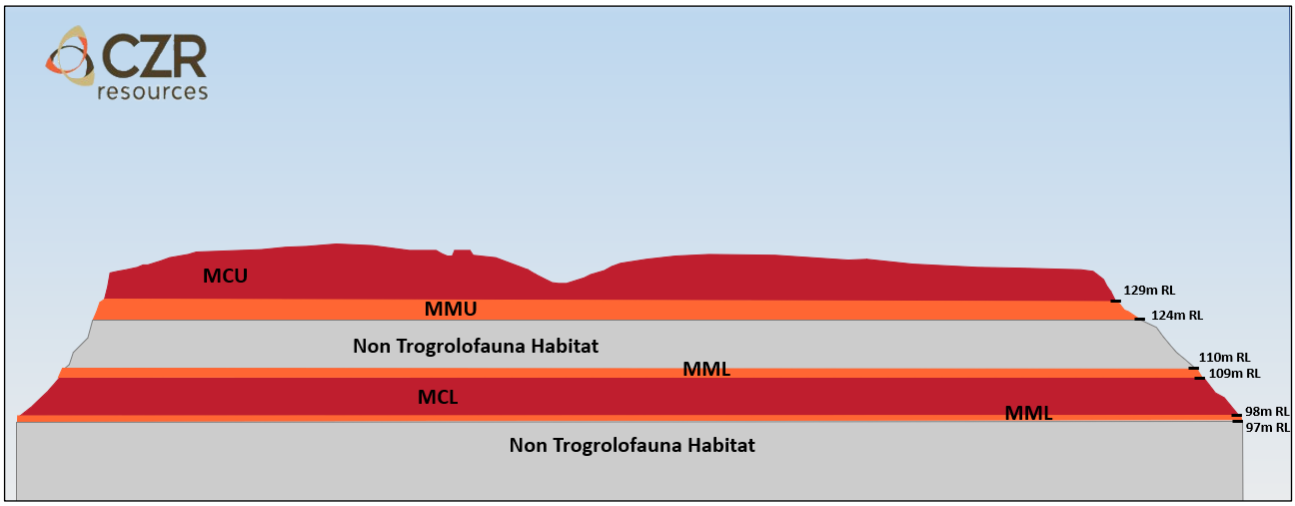


Figure 8: Inferred cross sectional view of modelled geological units for the broader Mesa F volume determination (outside CZR tenements).

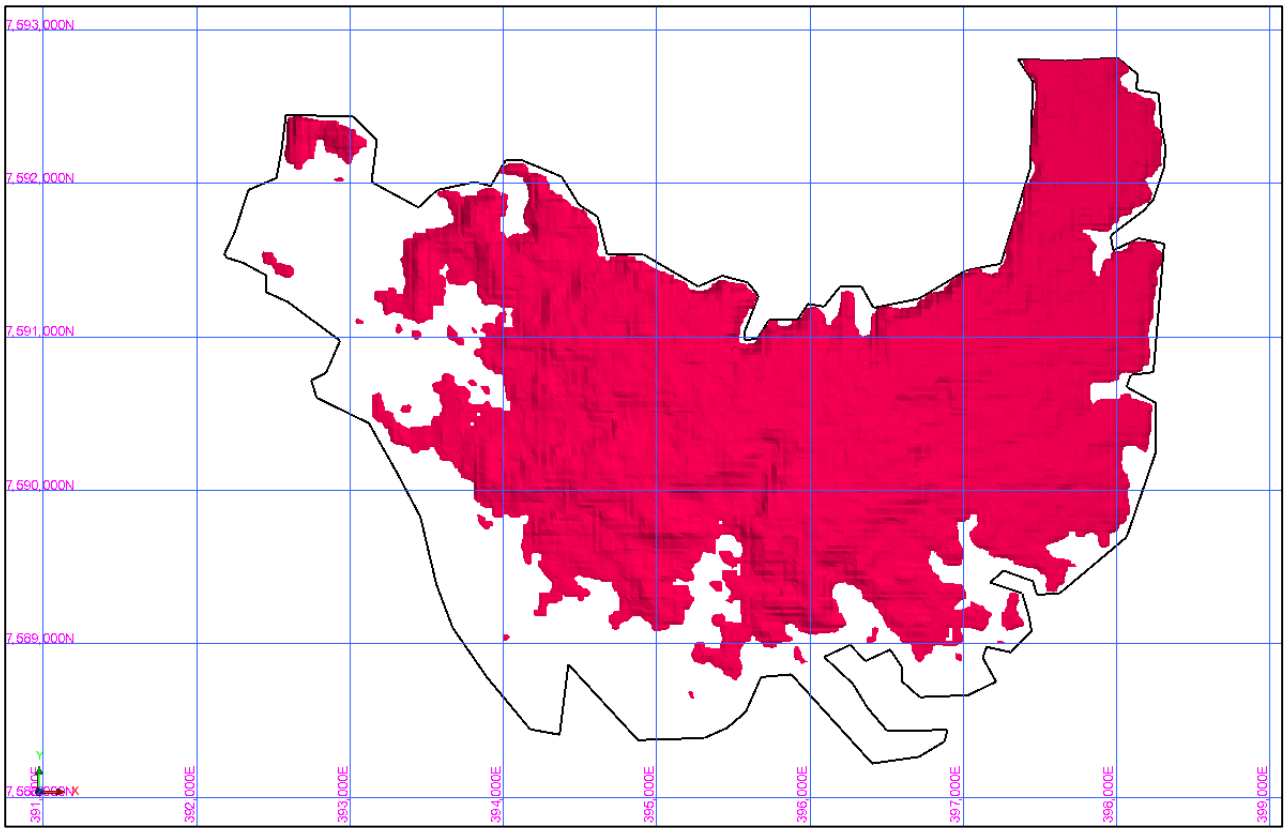


Figure 9: Plan view of Surpac solid created for MCU unit within the Mesa F area, constrained mostly by contour surface rather than the perimeter polygon.

6.3 Limitations on the Volume Determinations

The methodology discussed in section 6.1 and 6.2 does rely on some assumptions to be made for estimations to be completed on Troglofauna habitat.

These assumptions can limit the accuracy/reliability of the data generated and it follows that increased data would allow for more refined determinations to be made.

The core assumption items are detailed below:

Interpolation of geological units into Mesa F landform.

As discussed in section 6.2, the geological units are modelled as planar within Mesa F landform. It is more likely that the geological contacts would occur as undulating boundaries, with variable channel width across the Mesa Profile.

To accurately model the geological units with a high level of confidence, additional downhole drillhole data would be required. Mesa F has been subject to an extensive grade-control drilling program in 2022. There is now 50 x 50m drill density across the full extent of the deposit, however this data is not publicly available outside of RTIO internal database.

Determining the habitat status of geological units within Robe Mesa Deposit.

Within Robe Mesa domain, Troglofauna occurrence has been documented for both the upper and lower mineralised channels. Based on this sample data, the top and lower mineralised channels were the only units modelled for the habitat assessment.

Troglofauna sampling sites are derived from existing RC drill-holes, by lowering traps into the holes at nominated depths. It is worth noting, that whilst Troglofauna may have been sampled in the upper and lower mineralised horizons, it does not confirm they reside in the location. There is a possibility, that Troglofauna only reside in one of the mineralised channels but use the void pathway created by the RC drillhole to traverse through to the other channel. If this was the case, a more refined habitat could be modelled and assessed, using only one of the channels.

There is sufficient detail in this report to perform this single channel habitat assessment, but additional Troglofauna sample data would be required to support this decision. Ideally, sampling of RC drillholes which exclusively drill the top channel mineralisation and sampling of RC drillholes which exclusively drill the bottom channel mineralisation would be required to determine if Troglofauna population is constrained to only one of the mineralised channels.

Determining the water table position across Robe Mesa and Mesa F landform.

The understanding of the Robe Mesa water table position discussed in section 5 is sufficient for the purpose of this exercise, although additional water-bore drillholes would be beneficial for further supporting the claim that available Troglofauna habitat within Robe Mesa and Mesa F landform exclusively sits above the localised ground water level.

7. Results

Table 5: Volume determination results from the wireframing calculations.

5.1 Voume Determination for Robe Mesa Tenure (M08_533)			
File Suffix	**Description**	**Volume**	**Units**
mcu	Robe Mesa_Well formed CID_Upper	14,556,666	bcm
mmu	Robe Mesa_Mixed Zone_Upper	7,336,353	bcm
mml	Robe Mesa_Mixed Zone_Lower	5,964,179	bcm
mcl	Robe Mesa_Well formed CID_Lower	20,993,787	bcm
		48,850,985	bcm

5.2 Volume Determination for Mesa F Tenure (ML_248)			
File Suffix	**Description**	**Volume**	**Units**
mcu	Mesa F_Well formed CID_Upper	138,870,597	bcm
mmu	Mesa F_Mixed Zone_Upper	60,610,681	bcm
mml	Mesa F_Mixed Zone_Lower	31,403,870	bcm
mcl	Mesa F_Well formed CID_Lower	172,721,286	bcm
		403,606,434	bcm

5.3 Total Troglofauna Habitat_Mesa F + Robe Mesa			
Unit	**Description**	**Volume**	**Units**
mcu	Well formed CID_Upper	153,427,263	bcm
mmu	Mixed Zone_Upper	67,947,034	bcm
mml	Mixed Zone_Lower	37,368,049	bcm
mcl	Well formed CID_Lower	193,715,073	bcm
		452,457,419	bcm

5.4 Volume determination for Robe Mesa Mining			
File Suffix	**Description**	**Volume**	**Units**
mcu	RM_Mined_Material_Well formed CID_Upper	8,314,862	bcm
mmu	RM_Mined_Material_Mixed Zone_Upper	3,635,652	bcm
mml	RM_Mined_Material_Mixed Zone_Lower	595,314	bcm
mcl	RM_Mined_Material_Well formed CID_Lower	2,962,026	bcm
		15,507,854	bcm

Table 6: Impact assessment summary of the wireframing results.

6.1 Habitat Impact from Proposed Mining within Robe Mesa Tenure (M08_533).				
Unit	**Pre-Mining Trogofaula Habitat**	**Proposed Mined Volumes**	**Post-Mining Trogofaula Habitat**	**Habitat remaining Post Mining (%)**
mcu	14,556,666	8,314,862	6,241,804	42.88
mmu	7,336,353	3,635,652	3,700,701	50.44
mml	5,964,179	595,314	5,368,865	90.02
mcl	20,993,787	2,962,026	18,031,761	85.89
	48,850,985	**15,507,854**	**33,343,131**	**68.25**

6.1 Habitat Impact from Proposed Mining within Total Mesa Structure (Robe Mesa and Mesa F).				
Unit	**Pre-Mining Trogofaula Habitat**	**Proposed Mined Volumes**	**Post-Mining Trogofaula Habitat**	**% of habitat remaining Post Mining**
mcu	153,427,263	8,314,862	145,112,401	94.58
mmu	67,947,034	3,635,652	64,311,382	94.65
mml	37,368,049	595,314	36,772,735	98.41
mcl	193,715,073	2,962,026	190,753,047	98.47
	452,457,419	**15,507,854**	**436,949,565**	**96.57**

8. Final Statements and Recommendations

This review has been undertaken by CZR Resources to define and quantify the Troglofauna habitat environment within the Robe Mesa Project area and assess the impact that the proposed mining volumes will have on the available Troglofauna habitat.

The results have strongly demonstrated that the mining volumes proposed by the Robe Mesa Project will have an isolated, and relatively small impact on the availability of Troglofauna habitat within the Mesa F landform.

Some areas of improvement have been identified, to further refine the analysis of troglogauna habitat within Robe Mesa and surrounding Mesa F.

It is recommended that the following work be carried out to ensure that CID habitat calculations represent the best possible estimate using all available data:

1. Standing Water Level (SWL) surfaces to be re-fined with follow up water-bore drilling on top of the Mesa.
2. Continual monitoring and data collection of water bores to try and ascertain seasonal variation in the SWL surface at Robe Mesa.
3. Utilise the extensive drilling data generated by Rio Tinto to further refine the geological contacts within Mesa F.
4. Complete additional Troglofauna sampling activity to determine if populations are constrained to one particular mineralised channel.

Although assumptions inherent in the processes have been identified, it is unlikely that they will make a material difference to the results demonstrated in this report.

9. Reference Documents and Datasets

9.1 Acknowledgement of similar work previous conducted and publicly available

- API Management (APIM), in August 2015 on the West Pilbara Iron Ore Project (WPIOP) Stage 1 Deposits.
- APIM EPA statement Microsoft Word - 941C4830.docx (epa.wa.gov.au) which states

  "API considers that the retention of at least 50% of troglofauna habitat for each palaeodrainage habitat unit constitutes a significant amount and is reflective of a precautionary approach."

  "Mining ceased at Mesa K in 1996, after a project life of eight years, leaving 44% of the original mesa formation intact. Sampling conducted demonstrated that a similar community to that of the then intact Mesa A was still present more than 10 years after the cessation of mining activities (API 2011 & Biota 2010b). A subsequent application to mine the mesa was referred to the EPA in 2007. This referral proposed the removal of an additional 15% of troglofauna habitat. The EPA endorsed the proposal stating that the size of retained portions of mesa was sufficient to maintain suitable habitat for existing troglofauna species and that diverse troglobitic communities persisted after previous mining."

- Robe Valley Reports on Troglofauna Habitat include.
  - Mesas A and K Targeted Troglofauna Survey, Oct 2017

    A7 Targeted Troglofauna Survey (Biota 2017c) (epa.wa.gov.au)
  - Mesa A Hub: Mesas B and C Troglobitic Fauna Assessment July 2017

    A7 Mesas B and C Troglobitic Fauna Assessment (Biota 2017b) (epa.wa.gov.au)
  - Troglofauna Habitat Data Analysis June 2017 Prepared for Rio Tinto – Mesa A

    A7 Troglofauna Habitat Data Analysis (Astron 2017b) (epa.wa.gov.au)
  - Mesa A Hub Subterranean Fauna Peer Review Rio Tinto Iron Ore, June 2018

    A7 Subterranean Fauna Peer Review (Biologic 2018) (epa.wa.gov.au)
  - Mesa A and Robe Valley Troglobitic Fauna, Draft Troglobitic Fauna Management Plan, Jun 2006

    Microsoft Word - Troglofauna Mgt Plan v6.doc (epa.wa.gov.au)

- Coziron ASX announcement: *"Yarraloola Project – Maiden Inferred Resource for the P529 deposit from 2016 RC drilling"*. Dated 09/05/2017.