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ULAN COAL MODIFICATION 6
EPBC REFERRAL - BIODIVERSITY SUPPORTING DOCUMENTATION

FINAL

May 2022

ULAN COAL MODIFICATION 6 EPBC REFERRAL - BIODIVERSITY SUPPORTING DOCUMENTATION

FINAL

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on behalf of

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1.0 Introduction

This report provides supporting information for the Referral of the Ulan Coal Mine Proposed Modification Project (the Proposed Action) submitted under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

The Proposed Action includes an extension to several longwall panels at the Ulan West Underground operations and Ulan Underground Operations and requires the construction of new surface infrastructure, comprising ventilation facilities, dewatering bore stations and access tracks, with some currently approved infrastructure no longer planned to be constructed as it will be replaced by this new infrastructure.

The Proposed Action would extend the life of the Ulan Coal Complex (UCC) to 2035 and allow for the recovery of approximately 25 million tonnes of run-of-mine (ROM) coal and provide ongoing employment opportunities for the existing UCC workforce. The Proposed Action generally comprises:

- extension of life of mine until 30 August 2035
- extension of mining areas to the north of Ulan West and West of Ulan Underground to access approximately 25 Mt of additional ROM coal by accessing the mineable resource identified in Mining Lease Application (MLA) 609
- extension of Ulan Underground LWW9 to LWW11, and Ulan West LW9 to LW12, and widening of Ulan Underground LWW11 and Ulan West LW12 to accessing approximately 25 Mt of additional ROM coal
- minor changes to infrastructure including dewatering bores, ventilation shafts and associated infrastructure to accommodate the proposed mine plan.

The 1088.6 hectare (ha) Referral Area includes the additional disturbance areas, being the proposed surface infrastructure and proposed longwall modification areas as shown on **Figure 1.1**. The Proposed Action includes approximately 27.4 ha of surface infrastructure areas (Areas 1 to 4) where direct impacts will occur (hereafter referred to as the Proposed Direct Impact Area) and approximately 993.2 ha that will be potentially subject to indirect impacts associated with subsidence from longwall mining (hereafter referred to as the Potential Indirect Impact Area). The Proposed Direct Impact Area and the Potential Indirect Impact Area are shown on **Figure 1.2** and **Figure 1.3** respectively.

This report should be read in conjunction with the Referral submitted for the Proposed Action.

As described in the Referral, the key potential impacts associated with the Proposed Action relevant to Matters of National Environmental Significance (MNES) are:

- subsidence effects and consequent impacts on listed threatened species and ecological communities, and water resources
- disturbance associated with surface facilities and associated ancillary services and water management, and consequent impacts on listed threatened species and ecological communities, and water resources.

1.1 Direct Impacts

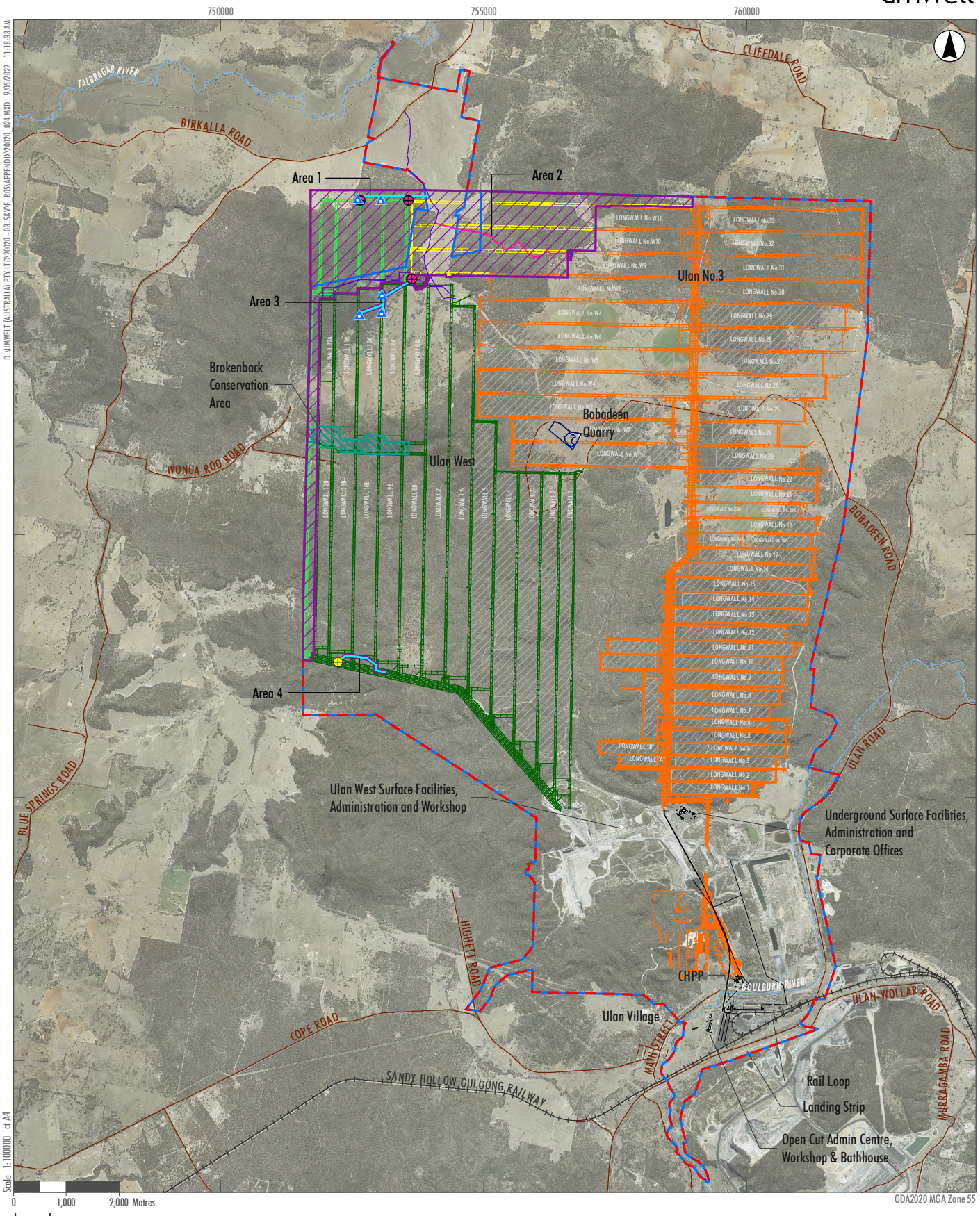
Within the Referral Area approximately 27.4 ha are proposed to be directly impacted by surface infrastructure and associated ancillary services (refer to **Figure 1.2**) under the current layout of the proposed infrastructure. Under the maximum parameters assessment (refer to **Section 1.3** for detail of the maximum parameters assessment approach), the largest total area of Direct Impacts that could occur (calculated by determining the largest footprint of all surface infrastructure layout scenarios considered) is 37.1 ha.

Assessments of Significance (provided in **Section 6.0**) were undertaken for one EPBC Act listed Critically Endangered Ecological Community (CEEC), four critically endangered species and eight vulnerable species. These assessments concluded that there is unlikely to be a significant impact on any EPBC listed threatened ecological community or threatened species, either from Direct or Indirect Impacts. The Direct Impacts of the Proposed Action based on the proposed surface infrastructure layout will disturb approximately 27.4 hectares of native vegetation (which is known or potential habitat for threatened species), which includes disturbance to approximately 9.5 hectares of vegetation that comprises the White Box – Yellow Box – Blakely's Red Gum Woodland CEEC. The approximate 27.4 hectares (current layout) to 37.1 hectares (maximum parameters) subject to Direct Impact is considered a relatively small area and given there are significant areas of similar native vegetation in the local area, and that there will not be any material fragmentation or isolation of habitats, the Proposed Action is not likely to result in a significant impact on any threatened species or ecological communities.

1.2 Potential Indirect Impacts

Approximately 993.2 hectares are subject to proposed underground mining activities and subsidence (**Figure 1.3**). The area shown on **Figure 1.3** and referred to as the Potential Indirect Impact Area is the subsidence affectation area as determined from subsidence modelling. The 993.2 hectares excludes any areas subject to Direct Impacts that overlap with the Potential Indirect Impact Area.

The subsidence movements expected within the Referral Area have been calibrated based on subsidence behaviour characteristics determined by extensive site specific monitoring at the UCC over 35 longwall panels at Ulan Underground mine and Ulan West. Subsidence monitoring has been conducted routinely at the UCC since the commencement of longwall mining at the Ulan Underground. The results of this subsidence monitoring and implications for mining are presented in end of panel reports and compilation reports for all the previous longwall panels at the UCC. These results are considered to provide a strong basis to provide confidence in predicting subsidence for the Proposed Action.



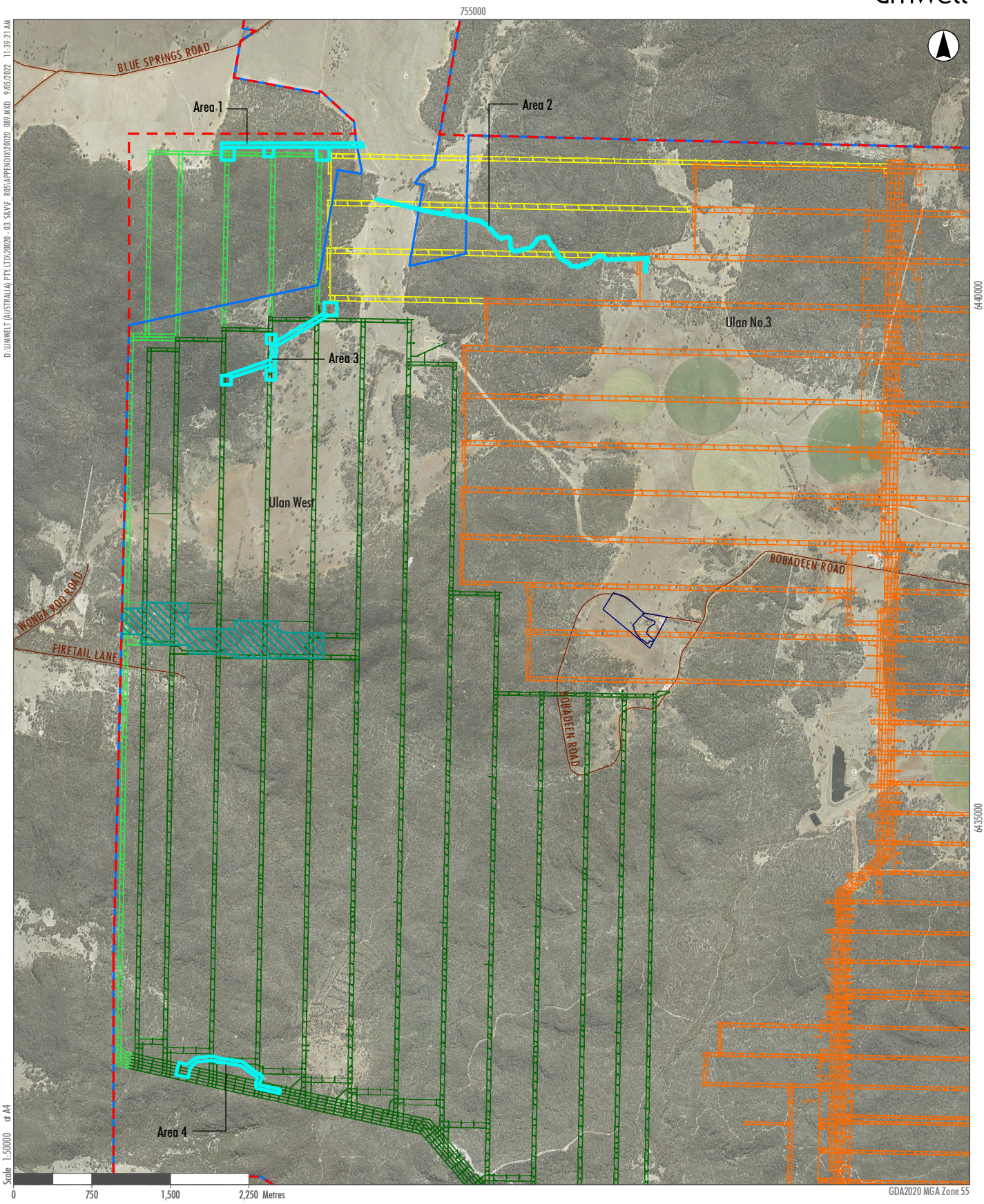
Legend

- Project Approval Boundary
- Proposed Project Approval Boundary
- Referral Area
- Brokenback Conservation Area
- Bobadeen Quarry
- Roads
- Railway
- Major Watercourses
- Existing Surface Infrastructure
- Approved Ulan Underground Mine Plan
- Approved Ulan West Mine Plan
- Previously Mined
- Approved Infrastructure
- Proposed Borehole
- Proposed Vent Shaft
- Proposed Dewatering Bores
- Proposed Infrastructure
- Proposed Access Track Corridor
- Proposed Ulan Underground Mine Plan Modification
- Proposed Ulan West Underground Mine Plan Modification

FIGURE 1.1

Location of the Project Area

Image Source: Glencore (2018) Data source: Glencore (2020); NSW DFSI (2020)



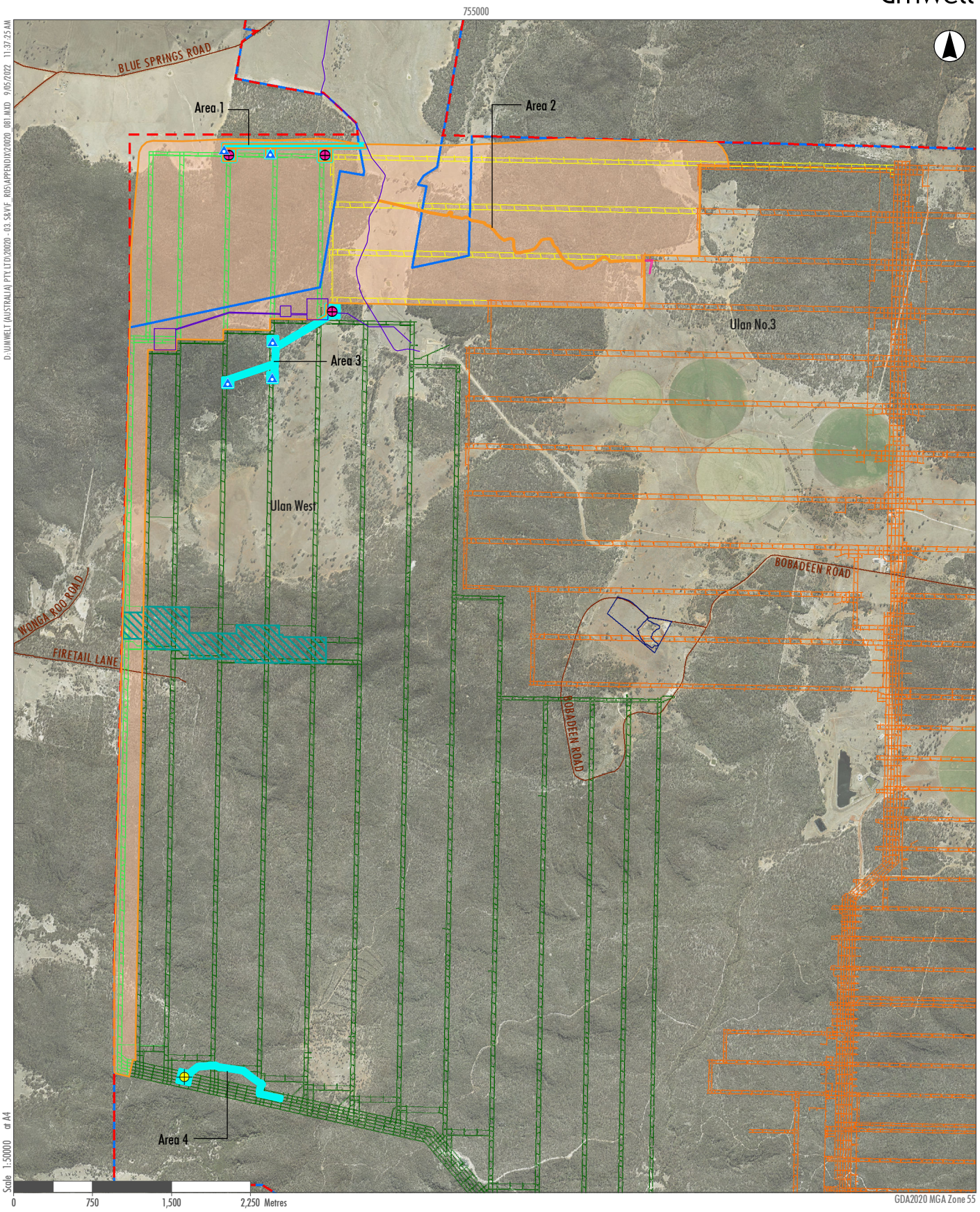
Legend

- Project Approval Boundary
- Proposed Project Approval Boundary
- Brokenback Conservation Area
- Bobadeen Quarry
- Roads
- Railway
- Major Watercourses
- Existing Surface Infrastructure
- Approved Ulan Underground Mine Plan
- Approved Ulan West Mine Plan
- Proposed Infrastructure
- Proposed Ulan Underground Mine Plan Modification
- Proposed Ulan West Underground Mine Plan Modification

FIGURE 1.2

Proposed Direct Impact Area

Image Source: Glencore (2018) Data source: Glencore (2020); NSW DFSI (2020)



Legend

- Project Approval Boundary
- Proposed Project Approval Boundary
- Potential Indirect Impact Area
- Brokenback Conservation Area
- Bobadeen Quarry
- Roads
- Railway
- Major Watercourses
- Existing Surface Infrastructure
- Approved Ulan Underground Mine Plan
- Approved Ulan West Mine Plan
- Approved Infrastructure
- Proposed Borehole
- Proposed Vent Shaft
- Proposed Dewatering Bores
- Proposed Infrastructure
- Proposed Access Track Corridor
- Proposed Ulan Underground Mine Plan Modification
- Proposed Ulan West Underground Mine Plan Modification

FIGURE 1.3

Potential Indirect Impact Area

Image Source: Glencore (2018) Data source: Glencore (2020); NSW DFSI (2020)

1.3 Maximum Parameters Assessment

UCMPL has provided a conceptual surface infrastructure configuration to be assessed as the Proposed Direct Impact Area to accommodate the proposed mine plan (as shown in **Figure 1.2**). However, due to the fact that the final underground mine layout has not been determined at the time of submitting this Referral, UCMPL is seeking some flexibility for the final positioning of surface infrastructure and ancillary services. The final location of surface infrastructure will be subject to further exploration and detailed mine planning, and as a result may lie outside the areas defined here as the Proposed Direct Impact Area.

Acknowledging this need for flexibility, and in order to establish a worst-case or 'maximum parameters' for the biodiversity assessment, UCMPL has confirmed a number of additional infrastructure contingency options over the proposed additional mining area to allow for a worst case assessment. It should be noted that these contingency options are not intended to be layouts for potential future construction, but to provide for a conservative assessment of the scale of potential impacts that could occur as part of the Proposed Action. The final design of the layout and location of surface infrastructure will be determined as part of project implementation.

To provide for the maximum parameters assessment, nine contingency layout options for the Ulan West surface infrastructure (potentially to replace the current 'Area 1') and four options for the Ulan Underground surface infrastructure (potentially to replace one part of the current 'Area 3') have been developed, as well as a buffer to the proposed access track (Area 2) which allows for flexibility in the alignment of the track to allow the 'maximum parameters' to be defined. Importantly, the maximum parameters approach uses the infrastructure contingency options to consider the worst-case direct impact area for each PCT and CEEC. That is, the highest level of direct impact that would occur for each entity, rather than a cumulative assessment of all options. The infrastructure contingency footprint options are provided on **Figure 1.4**.

The process for assessing these infrastructure contingency options in accordance with the Biodiversity Assessment Method (BAM) for the NSW approval process is summarised below. This is relevant to the Referral process and assessment of Matters of National Environmental Significance (MNES), given that the offsetting requirements for the Proposed Modification will be assessed under a bilateral agreement. Under this approach, the NSW and the Commonwealth of Australia departments will jointly assess the offsetting requirements for the Proposed Modification (Proposed Action) to avoid duplication in commitments.

The approach taken for the maximum parameters assessment in accordance with NSW BAM requirements, as determined in consultation with the Department of Planning and Environment (DPE) and Biodiversity Conservation and Science (BCS), is as follows:

1. The indicative Proposed Direct Impact Area has been assessed and credits calculated in the usual manner in accordance with the BAM.

2. In addition, a maximum parameters assessment has been completed considering the infrastructure contingency options provided by UCMPL. The maximum impacts of the combination of the indicative Proposed Direct Impact Area layout and each of the contingency options have been determined for ecosystem and species credits (impact areas defined and credits calculated).

3. Should the Proposed Action be approved, the final infrastructure locations will be determined once the mine plan has been finalised and will be micro-sited to avoid disturbance to biodiversity values as much as possible, including specifically seeking to minimise impacts on the CEEC and other MNES. As such, the final locations may potentially be outside the corridor assessed for biodiversity impact purposes as part of the maximum parameters approach. A biodiversity due diligence exercise will be conducted at the relevant time and UCMPL will ensure that the biodiversity impacts associated with

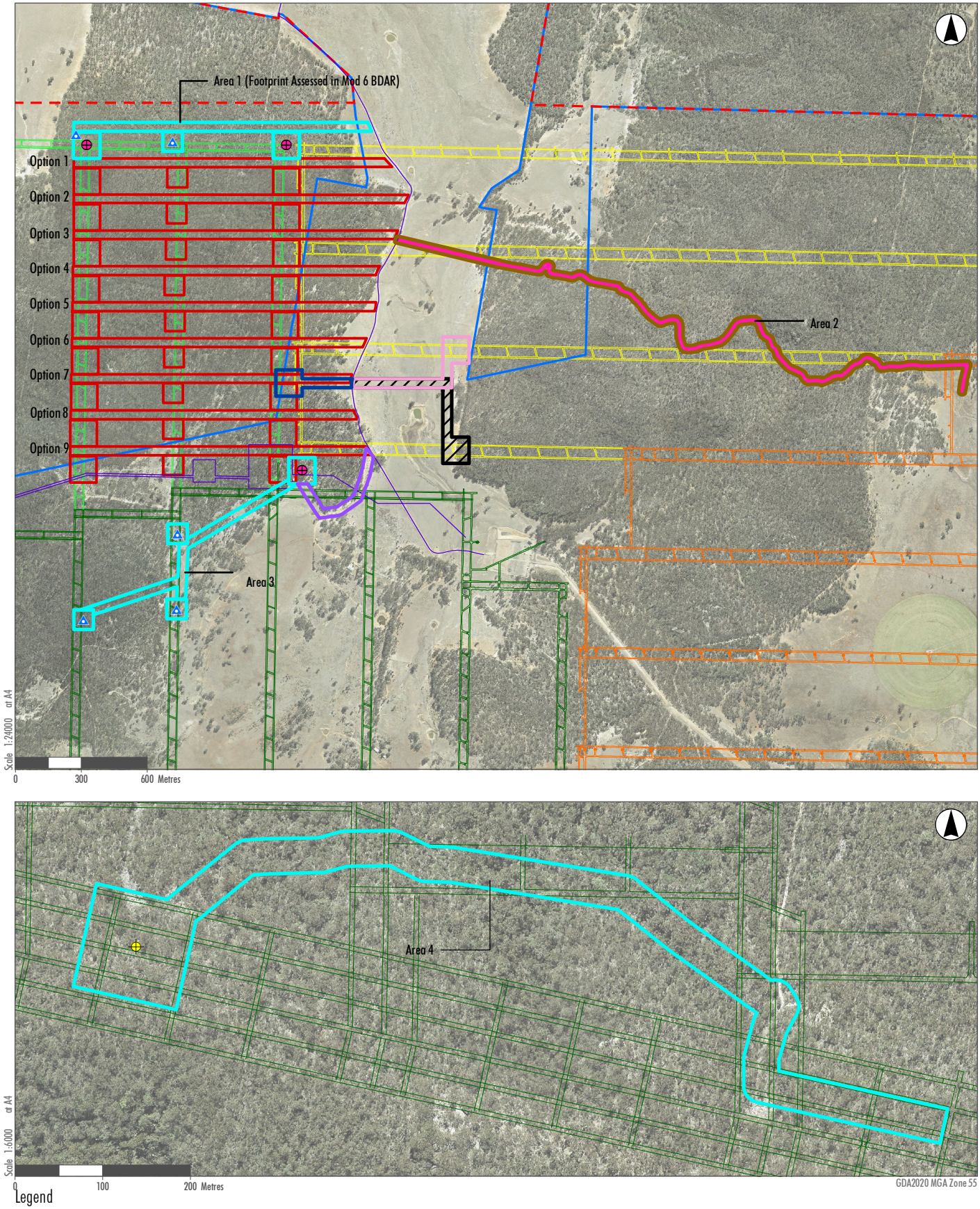
the final infrastructure locations will be the same or less than those assessed under the maximum parameters assessment.

4. The Biodiversity Management Plan (BMP) will be updated to include the final credits required to be retired, based on the credit per hectare calculated in the maximum parameters assessment. Where the updates to the layout and recalculation of final BAM credits can be done using existing BAM survey data this will occur. Should the footprint vary sufficiently to require additional BAM data collection, this data would be collected at the appropriate time to ensure the BAM minimum requirements are met. An updated BAM calculator will be prepared, and the outcomes agreed with BCS and documented in the BMP. This would ensure that the credits retired are based on the final detailed design. Credits would then be retired as per the BMP (based on the final detailed design) with updates to the BMP to be made before each stage of surface development and approved by DPE.

5. Importantly, the maximum parameters approach uses the infrastructure contingency options to consider the worst-case direct impact area for each PCT/CEEC, i.e. the highest level of direct impact that would occur for each PCT, rather than a cumulative assessment of all options. Credits have been generated for the PCTs impacted along with the same threatened species used in the assessment of the Direct Impact Area.

A detailed account of the maximum parameters assessment in the context of the NSW requirements will be documented in the Biodiversity Development Assessment Report (BDAR) prepared for the Proposed Modification.

In the context of the EPBC Referral, the maximum parameters assessment approach requires that the largest area of impact on any MNES (such as threatened ecological communities, or potential habitat for threatened species) be considered in the assessment of significance. The maximum parameters assessment approach to the EPBC Referral is detailed further in **Section 4.2**.



Legend

- Project Approval Boundary
- Proposed Project Approval Boundary
- Approved Ulan Underground Mine Plan
- Approved Ulan West Mine Plan
- Approved Infrastructure
- Proposed Borehole
- Proposed Vent Shaft
- Proposed Dewatering Bores
- Proposed Infrastructure (Footprint Assessed in Mod 6 BDAR)
- Proposed Access Track Corridor (Footprint Assessed in Mod 6 BDAR)
- Proposed Ulan Underground Mine Plan Modification
- Proposed Ulan West Underground Mine Plan Modification
- Proposed Access Track Corridor Buffer
- Ulan West Infrastructure Options

Ulan Underground Infrastructure Pad Options

- Area A
- Area B
- Area C
- Area D

FIGURE 1.4

Maximum Parameters Area

Image Source: Glencore (2018) Data source: Glencore (2020); NSW DFSI (2020)

2.0 Ecological Investigations and Survey

The information in this section provides an outline of the ecological investigations and surveys undertaken for the Proposed Action to date.

2.1 Literature and Database Review

A review of previous documents and reports relevant to the Proposed Action was undertaken. This included regional and sub-regional vegetation mapping reports, monitoring surveys and relevant ecological database searches. The information obtained was used to inform survey design, and was also used to assist in the assessment of potentially occurring threatened and migratory species and Threatened Ecological Communities (TECs). Relevant key documents included:

- Department of Agriculture, Water and the Environment (DAWE) (2022a) Protected Matters Search Tool for known/predicted EPBC Act-listed TECs, accessed February 2022
- Department of Planning, Industry and Environment (DPIE) (2022a) Threatened Biodiversity Data Collection (TBDC), accessed February 2022
- Department of Planning, Industry and Environment (DPIE) (2022b) Vegetation Information System (VIS) accessed February 2022
- Department of Planning, Industry and Environment (DPIE) (2022c) BioNet Atlas of NSW Wildlife, accessed February 2022
- Ulan Continued Operations Project – Modification 4 Longwall Optimisation Project Ecological Impact Assessment (Eco Logical 2017)
- Ulan Coal - Continued Operations Ecological Assessment. Appendix 8 of the Environmental Assessment (Umwelt 2009)
- *Ulan Coal - Ulan West Modification Environmental Assessment* (Umwelt 2015)
- *UCML EPBC 5 Yearly Offset and Cliffline Management Area Report* (Eco Logical 2020)
- Ulan Coal Mines Pty Ltd (UCMPL) Annual Floristic Monitoring in 2020 (Eco Logical 2021a)
- *UCML Microbat Monitoring Report 2020* (Eco Logical 2021b)
- Microbat Monitoring of the Ulan Coal Lease during 2019 (Hoye 2020)
- State Vegetation Type Map - Central Tablelands Region (Department of Planning, Industry and Environment 2017).

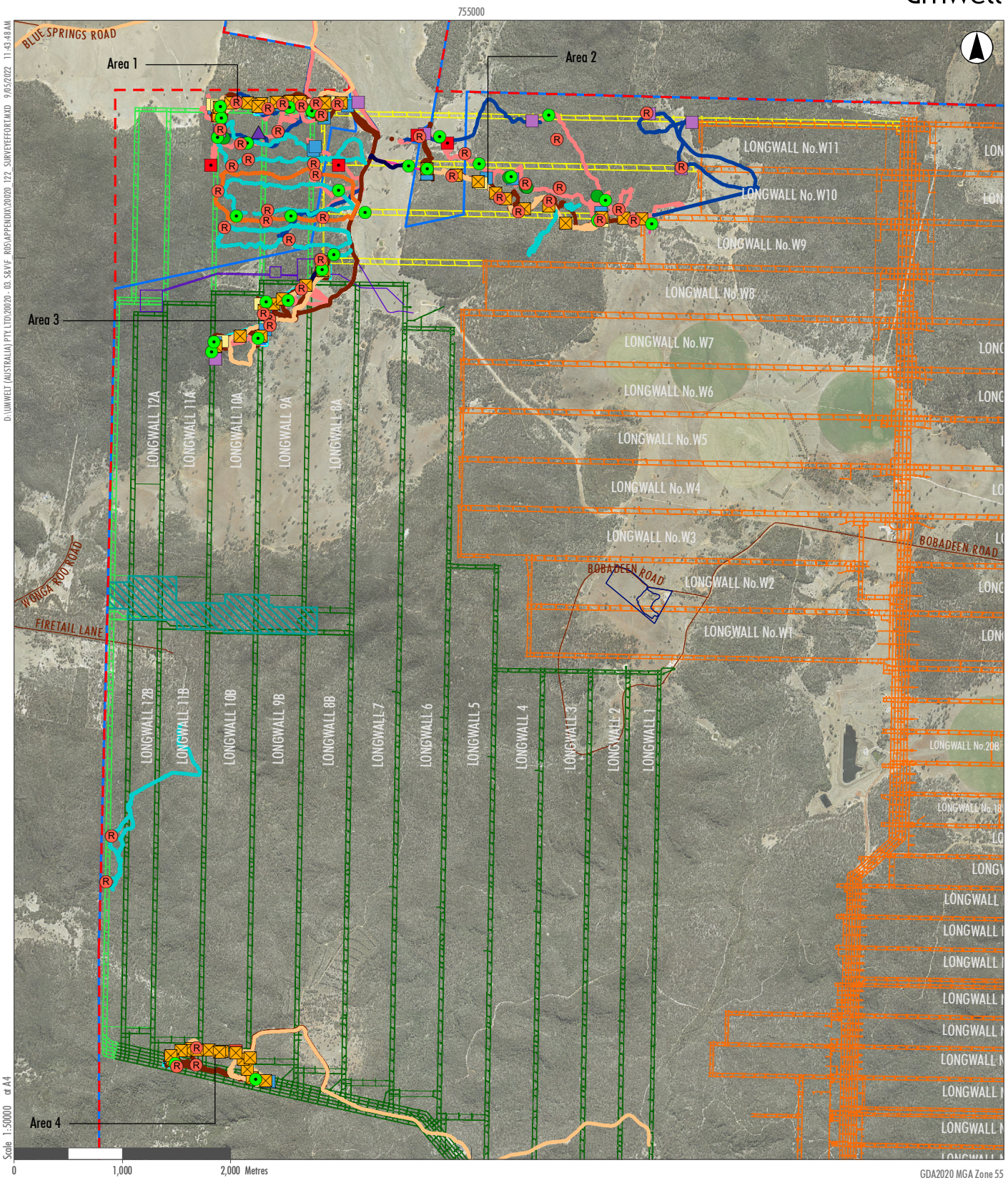
2.2 Ecological Surveys

Extensive ecological survey has been undertaken at the UCC within and nearby to the Referral Area resulting in a detailed understanding of the biodiversity occurring in the local area (refer to **Figure 2.1**).

Surveys completed within the Referral Area include bird and herpetological searches, spotlighting, diurnal and nocturnal call playback, targeted threatened species searches, harp trapping and Anabat recording for microbats, habitat assessment and opportunistic observation. Threatened species, vegetation communities and TECs considered likely to occur within the local area were targeted as part of these surveys utilising targeted threatened species transect surveys and plot based surveys.

All surveys were undertaken in accordance with the NSW Biodiversity Assessment Method (BAM) 2020 (DPIE 2020d) and other survey relevant guidelines including the NSW threatened flora survey guidelines (Department of Planning, Industry and Environment, 2020e) and requirements of the NSW Threatened Biodiversity Database Collection (DPIE 2022a).

A description of the surveys undertaken within the Referral Area as it relates to relevant Matters of National Environmental Significance (MNES) is provided in the sections below.



Legend

- Project Approval Boundary
- Proposed Project Approval Boundary
- Brokenback Conservation Area
- Bobadeen Quarry
- Roads
- Approved Ulan Underground Mine Plan
- Approved Ulan West Mine Plan
- Approved Infrastructure
- Proposed Borehole
- Proposed Vent Shaft
- Proposed Dewatering Bores
- Proposed Infrastructure
- Proposed Access Track Corridor
- Proposed Ulan Underground Mine Plan Modification
- Proposed Ulan West Underground Mine Plan Modification
- Threatened Species Meander (Summer)
- Spotlight Survey (Oct 2020)
- Threatened Species Meander (Oct 2020)
- Threatened Species Meander (Aug 2020)
- Spotlight Survey (Aug 2020)
- Meander transects (January 2022)
- Meander transects (February 2022)
- Call Playback (Aug 2020)
- Call Playback (Oct 2020)
- Call Playback - Red-crowned Toadlet
- Diurnal Bird Survey
- Diurnal Reptile Search
- Hollow-bearing Tree Assessments
- Koala SAT
- BAM Plots
- Rapid Assessment
- Remote Camera for Squirrel Glider and Brush-tailed Phascogale

FIGURE 2.1

Survey Effort - Overview

Image Source: Glencore (2018) Data source: Glencore (2020); NSW DFSI (2020)

2.2.1 Floristic Surveys

A total of 29 floristic plots were conducted across the Referral Area as part of the biodiversity survey with the survey effort shown on **Figure 2.2** to **Figure 2.5**. These surveys were concentrated within the Proposed Direct Impact Area and were undertaken during two separate survey periods in order to accurately sample the vegetation communities and potentially occurring threatened flora species within the Referral Area. The two main survey periods were 10 to 14 August and 19 to 23 October 2020, with further plots sampled in January 2022.

At each floristic and vegetation integrity plot, data was recorded according to Section 4 of the BAM (DPIE 2020d). This involved setting out 20 x 50 m, 20 x 20 m and 1 x 1 m plots. The location of each plot was recorded using a hand-held GPS with accuracy of ± 5 m. The Map Grid of Australia (MGA) coordinate system was used.

At each plot/transect, roughly 45 to 60 minutes was spent searching for all vascular flora species present within the 20 x 20 m plot. Searches of each 20 x 20 m plot were generally undertaken through parallel transects from one side of the plot to another. Most effort was spent on examining the groundcover, which usually supported well over half of the species present, however the composition of any shrub, mid-storey, canopy and emergent layers were also thoroughly examined.

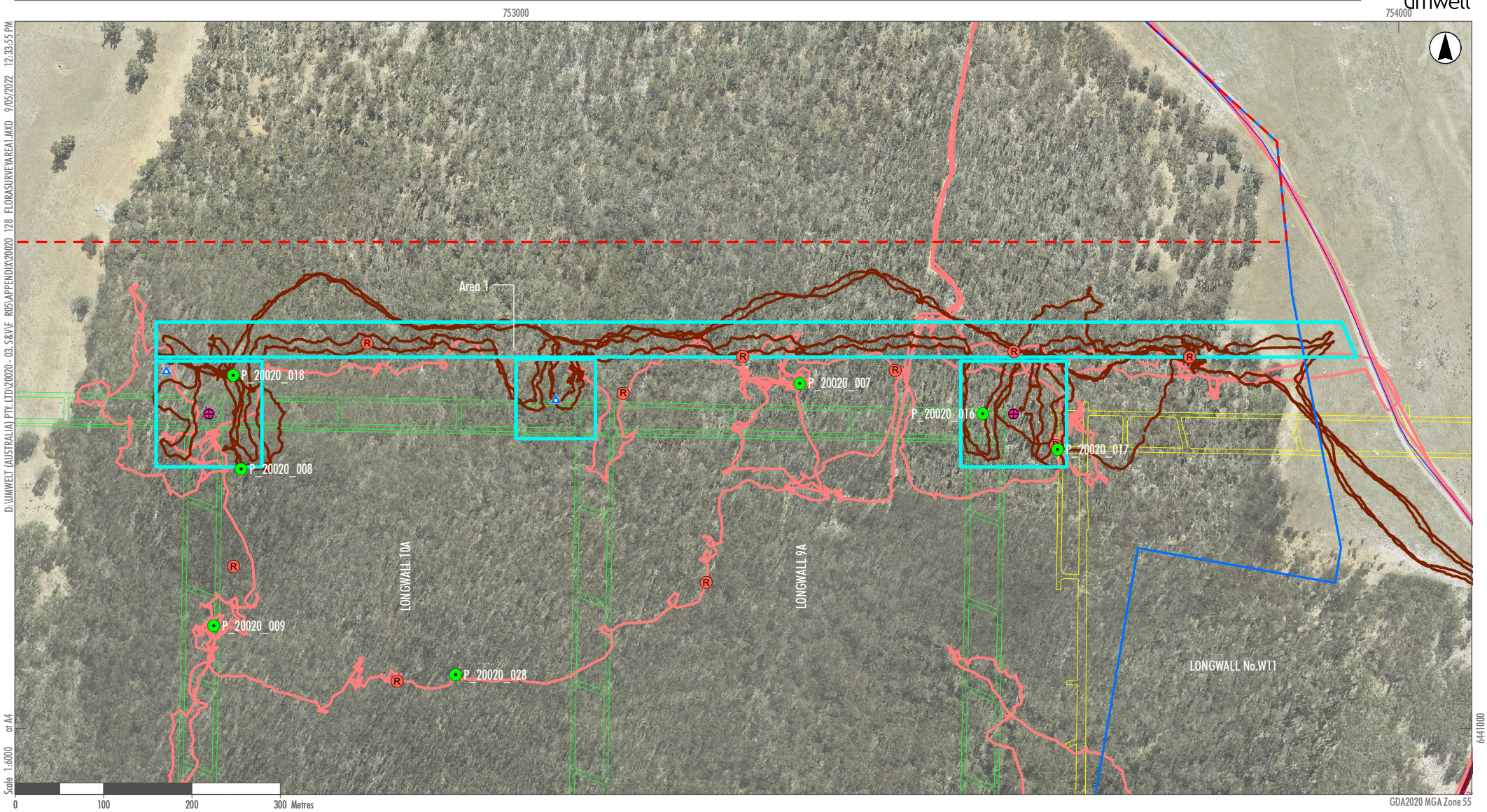
For each flora species recorded in the plot, the following data was collected in accordance with Table 2 of the BAM 2020 (DPIE 2020d):

- stratum/layer in which the species occurs
- growth form
- scientific name and common name
- cover
- abundance.

At each vegetation integrity plot the following attributes were recorded in accordance with the BAM 2020 (DPIE 2020d) to determine the condition of the vegetation zone:

- ***Composition*** - native plant species richness by growth form (within the 20 x 20 m plot)
- ***Structure*** – estimate foliage cover of native and exotic species by growth form (within the 20 x 20 m plot)
- ***Function*** (within the 20 x 50 m plot) including, number of large trees, presence or otherwise of tree stem size classes, presence or otherwise of canopy species regeneration, length of fallen logs, percentage cover for litter (recorded from five 1 x 1 m plots), number of trees with hollows and high threat exotic cover.

Additional details were also recorded in each quadrat, including soil texture, drainage and depth; site disturbances; physiography (position in the landscape); and vegetation structure (strata percentage covers, heights and dominant species). Photographic records were also taken at each site.



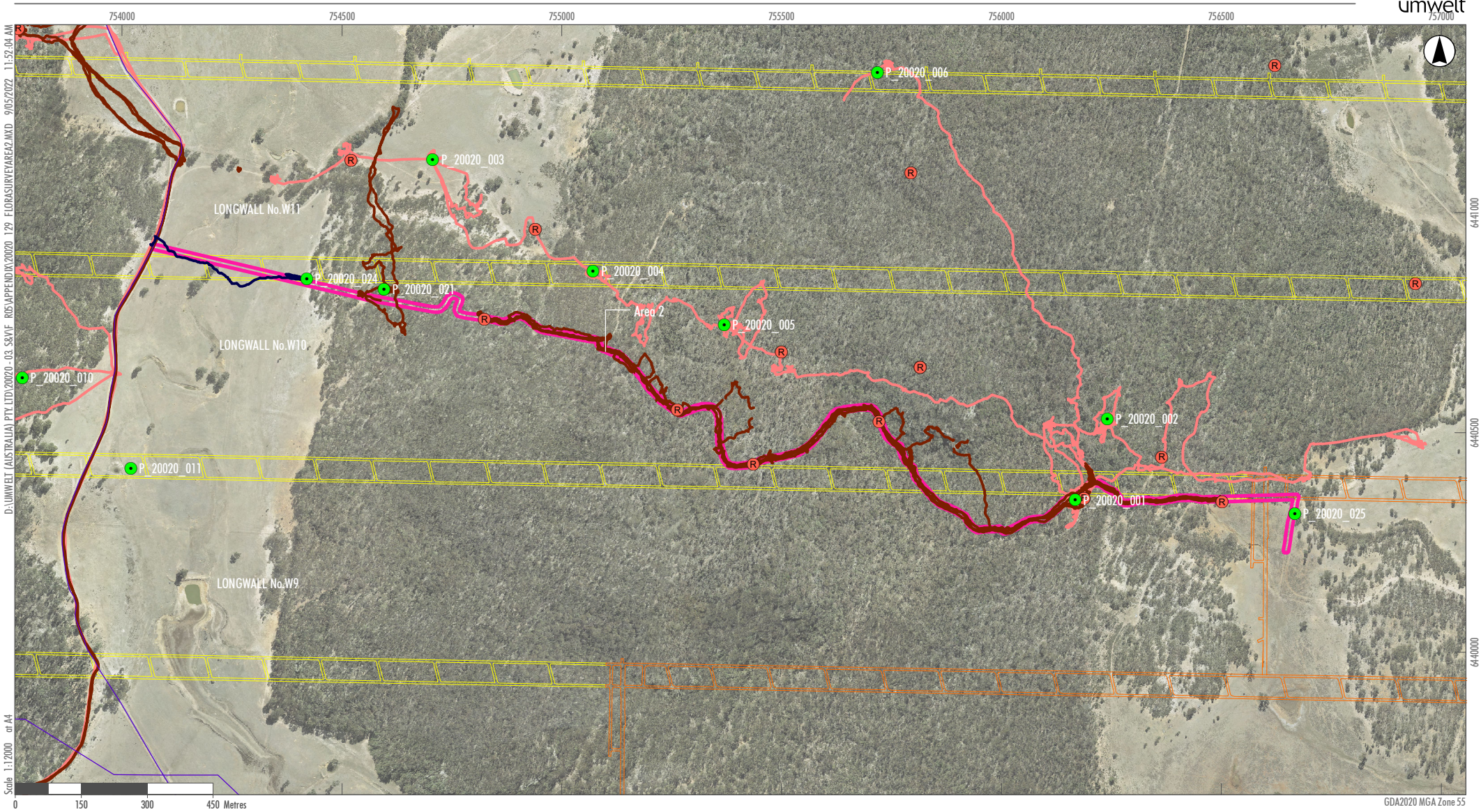
Legend

- Project Approval Boundary
- Proposed Project Approval Boundary
- Approved Infrastructure
- Proposed Vent Shaft
- Proposed Dewatering Bores
- Proposed Infrastructure
- Proposed Access Track Corridor
- Proposed Ulan West Underground Mine Plan Modification
- Proposed Ulan Underground Mine Plan Modification
- BAM Plots
- Rapid Assessment
- Species Credit Species Transects (Aug 2020)
- Species Credit Species Transects (Oct 2020)

FIGURE 2.2

Flora Survey Methods (Area 1)

Image Source: Glencore (2018) Data source: Glencore (2020); NSW DFSI (2020)



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Scale 1:12000 at A4

Legend

- Approved Infrastructure
- Approved Ulan Underground Mine Plan
- Proposed Ulan Underground Mine Plan Modification
- Proposed Access Track Corridor
- BAM Plots
- Rapid Assessment
- Species Credit Species Transects (Aug 2020)
- Species Credit Species Transects (Oct 2020)
- Species Credit Species Transects (Jan 2021)

FIGURE 2.3

Flora Survey Methods (Area 2)

Image Source: Glencore (2018) Data source: Glencore (2020), Umwelt (2020), NSW DFSI (2020)