### 3.2.2. Threatened fauna

Monitoring of threatened fauna aims to detect and manage indirect construction-related impacts such as noise, vibration, edge effects and altered hydrology, particularly on specialist breeding habitat. Ecosystem credit species are threatened species whose occurrence can generally be predicted by vegetation surrogates and/or landscape features, or that have a low probability of detection using targeted surveys. Under the *Biodiversity Assessment Method 2020* (BAM: DPIE 2020), no targeted surveys are required for ecosystem credit species. Likewise, threatened fauna considered for monitoring as part of this program have excluded ecosystem credit species associated with HLW.

Twenty-eight threatened fauna species were identified, or are assumed to be present, within the HLW Area. Table 3-2 provides an overview of these fauna, including justification for their inclusion/exclusion for monitoring as part of this program.

Table 3-2 Justification for threatened fauna to be monitored

| Scientific Name | Common Name | BC Act Status | EPBC Act Status | SAII? | Included in program? | Justification |
|---|---|---|---|---|---|---|
| *Aprasia parapulchella* | Pink-tailed Legless Lizard | V | V | False | No | Pink-tailed Legless Lizard has been assumed present adjacent to disturbance zones. Habitat surveys will be undertaken for this species as part of the pre-clearing process, including provisions for buffer/exclusion zone if individuals are identified. Indirect impacts associated with this species will be managed through the provision of Annexure F: Connectivity Strategy to maintain connectivity corridors for this species, which will also undergo monitoring.<br>This species occurs in widespread habitats (open grassy and rocky areas) which will be retained throughout the ECZ, HTZ and surrounding areas. Therefore, indirect impacts are expected to have negligible effects on a potential population of Pink-tailed Legless Lizard and this species has been excluded from further monitoring. |

| Scientific Name | Common Name | BC Act Status | EPBC Act Status | SAII? | Included in program? | Justification |
|---|---|---|---|---|---|---|
| *Burhinus grallarius* | Bush Stone-curlew | E | - | False | No | This species has been assumed present within the HLW Area. However, the Revised BDAR considers the Bush Stone-curlew to have a low likelihood of occurrence due to low levels of woody debris within associated PCTs. Furthermore, widespread suitable habitat occurs across the locality for this species, and indirect/prescribed impacts associated with HLW are expected to have a negligible effect on a population of Bush Stone-curlew. As such, this species has been excluded from monitoring. |
| *Callocephalon fimbriatum* | Gang-gang Cockatoo | E | E | False | Yes | Two breeding hollows for the Gang-gang Cockatoo were recorded during the Revised BDAR. These occur within a 100 m buffer from disturbance zones, however will be retained.<br>Threatened fauna breeding habitat surveys will be undertaken for this species as part of the pre-clearing process. This includes the provision of buffer/exclusion zone if nest trees are identified. Potential indirect impacts to this species also include noise and vibration through potential blasting and/or crushing activities. Noise and vibration assessment for crushing and blasting will occur for this species prior to such activities. Ongoing monitoring of specialist breeding habitat has also been included as part of this monitoring program. |

| Scientific Name | Common Name | BC Act Status | EPBC Act Status | SAII? | Included in program? | Justification |
|---|---|---|---|---|---|---|
| *Calyptorhynchus lathami lathami* | South-eastern Glossy Black-Cockatoo | V | V | False | Yes | No South-eastern Glossy Black-Cockatoo individuals or breeding trees were identified within or surrounding the HLW Area. However, habitat is assumed present adjacent to disturbance zones.<br>Threatened fauna breeding habitat surveys will be undertaken for this species as part of the pre-clearing process. This includes the provision of buffer/exclusion zone if nest trees are identified. Potential indirect impacts to this species also include noise and vibration through potential blasting and/or crushing activities. Noise and vibration assessment for crushing and blasting will occur for this species prior to such activities. Ongoing monitoring of specialist breeding habitat has also been included as part of this monitoring program, however no monitoring sites are prescribed as this species is currently assumed present. If pre-clearing surveys or biodiversity verification reporting identify this species within 100 m of disturbance zones, monitoring will occur in those locations. |

| Scientific Name | Common Name | BC Act Status | EPBC Act Status | SAII? | Included in program? | Justification |
|---|---|---|---|---|---|---|
| *Cercartetus nanus* | Eastern Pygmy-possum | V | - | False | No | Eastern Pygmy-possum has been assumed present adjacent to disturbance zones. Threatened fauna breeding habitat surveys will be undertaken for this species as part of the pre-clearing process. This includes the provision of buffer/exclusion zone if nest trees are identified. Indirect impacts associated with this species will be managed through the provision of Annexure C: Hollow and Nest Strategy to replace impacted hollows, as well as Annexure F: Connectivity Strategy to maintain connectivity corridors; each of which contains monitoring of such provisions (Section 4.1). This species occurs in a broad range of habitats from rainforest through sclerophyll (including Box-Ironbark) forest and woodland to heath. It shelters in tree hollows, rotten stumps, holes in the ground, abandoned bird-nests, Ringtail Possum dreys or thickets of vegetation. Such habitats are widespread throughout the HLW Area and surrounds. Therefore, this species has been excluded from additional monitoring. |

| Scientific Name | Common Name | BC Act Status | EPBC Act Status | SAII? | Included in program? | Justification |
|---|---|---|---|---|---|---|
| *Chalinolobus dwyeri* | Large-eared Pied Bat | E | E | TRUE | No | No known maternity roosts or Large-eared Pied Bat records occur within HLW Area, or within a 10 km radius. Foraging habitat has been assumed within 2 km of mapped potential karst and cliff lines due to survey limitations in the Revised BDAR, however HLW would not interfere with habitat occurring within 100 m of mapped potential karst and cliff lines. Potential indirect impacts associated with powerline collisions will be mitigated through bird deterrent devices per Annexure F Connectivity Strategy of the HLW BMP. Potential indirect impacts to this species also include noise and vibration through potential blasting and/or crushing activities. Noise and vibration assessment for crushing and blasting will occur for this species prior to such activities (refer Section 4.1). This includes the provision of buffer/exclusion zone if roosts are identified. As such, additional monitoring for this species has been excluded at this time. If additional roosts are identified, this monitoring program will be reviewed/updated per Section 2.1. |
| *Crinia sloanei* | Sloane's Froglet | E | E | False | Yes | Sloane's Froglet has been assumed present adjacent to disturbance zones. This species may be indirectly impacted by potential impacts through waterway crossings of streams. As such, this species has been included in monitoring in accordance with UMM B8. |

| Scientific Name | Common Name | BC Act Status | EPBC Act Status | SAII? | Included in program? | Justification |
|---|---|---|---|---|---|---|
| *Cyclodomorphus praealtus* | Alpine She-oak Skink | E | E | False | No | Alpine She-oak Skink has been assumed present adjacent to disturbance zones due to limitations associated with survey feasibility. It has a relatively small home range and is confined to native grassland or heath habitats within a narrow altitudinal range. Based on consultation with NSW DCCEEW (documented in the Revised BDAR), the species is unlikely to occur west of Maragle at elevations less than 1200 m elevation. Given this, HLW Area is considered outside of the known range of the species. Indirect/prescribed impacts to species are considered highly unlikely in the Revised BDAR, therefore this species has been excluded from monitoring. |
| *Delma impar* | Striped Legless Lizard | V | V | False | No | Striped Legless Lizard has been assumed present adjacent to disturbance zones. Habitat surveys will be undertaken for this species as part of the pre-clearing process. Indirect impacts associated with this species will be managed through the provision of Annexure F: Connectivity Strategy to maintain connectivity corridors for this species, which will also undergo monitoring.<br>This species occurs in widespread habitats (open grassy and rocky areas) which will be retained throughout the ECZ, HTZ and surrounding areas. Therefore, indirect impacts are expected to have negligible effects on a potential population of Striped Legless Lizard and this species has been excluded from further monitoring. |

| Scientific Name | Common Name | BC Act Status | EPBC Act Status | SAII? | Included in program? | Justification |
|---|---|---|---|---|---|---|
| *Haliaeetus leucogaster* | White-bellied Sea Eagle | V | MAR | False | No | White-bellied Sea Eagle has been assumed present adjacent to disturbance zones.<br>Potential indirect impacts associated with collision risk will be mitigated through bird deterrent devices per Annexure F: Connectivity Strategy and stick nest dismantlement per Annexure C: Hollow and Nest Strategy of the HLW BMP. Threatened fauna breeding habitat surveys will be undertaken for this species as part of the pre-clearing process. This includes the provision of buffer/exclusion zone if nest trees are identified. Potential indirect impacts to this species also include noise and vibration through potential blasting and/or crushing activities. Noise and vibration assessment for crushing and blasting will occur for this species prior to such activities. Given the prioritised dismantling of stick nests within proximity to disturbance zones (to minimise collision risk and risk to assets), this species has been excluded from further monitoring. |

| Scientific Name | Common Name | BC Act Status | EPBC Act Status | SAII? | Included in program? | Justification |
|---|---|---|---|---|---|---|
| *Hieraaetus morphnoides* | Little Eagle | V | - | False | No | Little Eagle has been assumed present adjacent to disturbance zones.<br>Potential indirect impacts associated with collision risk will be mitigated through bird deterrent devices per Annexure F: Connectivity Strategy and stick nest dismantlement per Annexure C: Hollow and Nest Strategy of the HLW BMP. Threatened fauna breeding habitat surveys will be undertaken for this species as part of the pre-clearing process. This includes the provision of buffer/exclusion zone if nest trees are identified. Potential indirect impacts to this species also include noise and vibration through potential blasting and/or crushing activities. Noise and vibration assessment for crushing and blasting will occur for this species prior to such activities. Given the prioritised dismantling of stick nests within proximity to disturbance zones (to minimise collision risk and risk to assets), this species has been excluded from further monitoring. |
| *Keyacris scurra* | Key's Matchstick Grasshopper | E | E | False | No | Key's Matchstick Grasshopper has been assumed adjacent to disturbance zones via expert report. Indirect impacts associated with this species will be managed through the provision of Annexure F: Connectivity Strategy to maintain connectivity corridors for this species & Annexure G Rehabilitation Plan to rehabilitate temporarily impacted habitat for this species; each of which contain monitoring programs (Section 4.1). This species occurs in grassland and grassy woodland which is widespread throughout the HLW Area. Therefore, this species has been excluded from additional monitoring. |

| Scientific Name | Common Name | BC Act Status | EPBC Act Status | SAII? | Included in program? | Justification |
|---|---|---|---|---|---|---|
| *Litoria booroolongensis* | Booroolong Frog | E | E | False | Yes | Booroolong Frog has been assumed present adjacent to disturbance zones. This species may be indirectly impacted by potential impacts through waterway crossings of streams. As such, this species has been included in monitoring in accordance with UMM B8. |
| *Litoria castanea* | Yellow-spotted Tree Frog | CE | E | TRUE | Yes | Yellow-spotted Tree Frog has been assumed present adjacent to disturbance zones. This species may be indirectly impacted by potential impacts through waterway crossings of streams. As such, this species has been included in monitoring in accordance with UMM B8. |
| *Lophoictinia isura* | Square-tailed Kite | V | - | False | No | Square-tailed Kite has been assumed present adjacent to disturbance zones.<br>Potential indirect impacts associated with collision risk will be mitigated through bird deterrent devices per Annexure F: Connectivity Strategy and stick nest dismantlement per Annexure C: Hollow and Nest Strategy of the HLW BMP. Threatened fauna breeding habitat surveys will be undertaken for this species as part of the pre-clearing process. This includes the provision of buffer/exclusion zone if nest trees are identified. Potential indirect impacts to this species also include noise and vibration through potential blasting and/or crushing activities. Noise and vibration assessment for crushing and blasting will occur for this species prior to such activities. Given the prioritised dismantling of stick nests within proximity to disturbance zones (to minimise collision risk and risk to assets), this species has been excluded from further monitoring. |

| Scientific Name | Common Name | BC Act Status | EPBC Act Status | SAII? | Included in program? | Justification |
|---|---|---|---|---|---|---|
| *Mastacomys fuscus* | Broad-toothed Rat | V | V | False | No | Broad-toothed Rat has been assumed present adjacent to disturbance zones. Targeted surveys will be undertaken for this species as part of the pre-clearing process, including provisions for buffer/exclusion zone if individuals are identified. Indirect impacts associated with this species will be managed through the provision of Annexure F: Connectivity Strategy to maintain connectivity corridors, which contains monitoring of such provisions. This species occurs in wet alpine and subalpine heaths and woodlands which are widespread throughout the HLW Area. Therefore, this species has been excluded from additional monitoring. |
| *Myotis macropus* | Southern Myotis | V | - | False | No | Southern Myotis has been recorded adjacent to disturbance zones. It relies on waterways for all stages of its lifecycle (including breeding, roosting, and foraging). Per the Revised BDAR, no direct impacts are expected to aquatic values that would in turn impact reliant terrestrial habitat for this species, with prescribed impacts associated with water quality, waterbodies and hydrological processes considered negligent. Potential indirect impacts associated with powerline collisions will be mitigated through bird deterrent devices per Annexure F Connectivity Strategy of the HLW BMP. Potential indirect impacts to this species also include noise and vibration through potential blasting and/or crushing activities. Noise and vibration assessment for crushing and blasting will occur for this species prior to such activities (refer Section 4.1). This includes the provision of buffer/exclusion zone if roosts are identified. As such, additional monitoring for this species has been excluded at this time. If additional roosts are identified, this monitoring program will be reviewed/updated per Section 2.1. |

| Scientific Name | Common Name | BC Act Status | EPBC Act Status | SAII? | Included in program? | Justification |
|---|---|---|---|---|---|---|
| *Ninox connivens* | Barking Owl | V | - | False | Yes | Barking Owl has been assumed present adjacent to disturbance zones.<br>Potential indirect impacts associated with collision risk will be mitigated through bird deterrent devices per Annexure F: Connectivity Strategy. Threatened fauna breeding habitat surveys will be undertaken for this species as part of the pre-clearing process. This includes the provision of buffer/exclusion zone if nest trees are identified. Potential indirect impacts to this species also include noise and vibration through potential blasting and/or crushing activities. Noise and vibration assessment for crushing and blasting will occur for this species prior to such activities. Ongoing monitoring of specialist breeding habitat has also been included as part of this monitoring program, however no monitoring sites are prescribed as this species is currently assumed present. If pre-clearing surveys or biodiversity verification reporting identify this species within 100 m of disturbance zones, monitoring will occur in those locations. |

| Scientific Name | Common Name | BC Act Status | EPBC Act Status | SAII? | Included in program? | Justification |
|---|---|---|---|---|---|---|
| *Ninox strenua* | Powerful Owl | V | - | False | Yes | Powerful Owl has been assumed present adjacent to disturbance zones.<br>Potential indirect impacts associated with collision risk will be mitigated through bird deterrent devices per Annexure F: Connectivity Strategy. Threatened fauna breeding habitat surveys will be undertaken for this species as part of the pre-clearing process. This includes the provision of buffer/exclusion zone if nest trees are identified. Potential indirect impacts to this species also include noise and vibration through potential blasting and/or crushing activities. Noise and vibration assessment for crushing and blasting will occur for this species prior to such activities. Ongoing monitoring of specialist breeding habitat has also been included as part of this monitoring program, however no monitoring sites are prescribed as this species is currently assumed present. If pre-clearing surveys or biodiversity verification reporting identify this species within 100 m of disturbance zones, monitoring will occur in those locations. |
| *Petauroides volans* | Greater Glider | E | E | False | No | Greater Glider has been identified adjacent to disturbance zones. Potential indirect impacts associated with connectivity will be mitigated through Glider Crossing Zones per Annexure F: Connectivity Strategy of the HLW BMP, including associated baseline monitoring and ongoing monitoring (Section 4.1. Threatened fauna breeding habitat surveys will also be undertaken for this species as a part of the pre-clearing process, including the provision of buffer/exclusion zones if nest trees are identified. Therefore, this species has been excluded from additional monitoring. |

| Scientific Name | Common Name | BC Act Status | EPBC Act Status | SAII? | Included in program? | Justification |
|---|---|---|---|---|---|---|
| *Petaurus norfolcensis* | Squirrel Glider | V | - | False | No | Squirrel Glider has been identified in the ECZ, HTZ and adjacent to disturbance zones. Potential indirect impacts associated with connectivity will be mitigated through Glider Crossing Zones per Annexure F: Connectivity Strategy of the HLW BMP, including associated baseline monitoring and ongoing monitoring (Section 4.1). Threatened fauna breeding habitat surveys will also be undertaken for this species as a part of the pre-clearing process, including the provision of buffer/exclusion zones if nest trees are identified. Therefore, this species has been excluded from additional monitoring. |
| *Petroica rodinogaster* | Pink Robin | V | MAR | False | No | The Pink Robin is assumed present adjacent to disturbance zones. Threatened fauna breeding habitat surveys will be undertaken for this species as part of the pre-clearing process. This includes the provision of buffer/exclusion zone if nest trees are identified.<br>This species inhabits rainforest and tall, open eucalypt forest, forming nests in trees. Widespread suitable habitat will be retained over a variety of PCTs within and surrounding the HLW Area. Indirect impacts to connectivity will be mitigated and monitored for through Connectivity Corridors per Annexure F Connectivity Strategy of the HLW BMP. Therefore, indirect impacts are expected to have negligible effects on a potential population of Pink Robin and this species has been excluded from further monitoring. |

| Scientific Name | Common Name | BC Act Status | EPBC Act Status | SAII? | Included in program? | Justification |
|---|---|---|---|---|---|---|
| *Phascogale tapoatafa* | Brush-tailed Phascogale | V | - | False | No | Brush-tailed Phascogale has been assumed present adjacent to disturbance zones. Threatened fauna breeding habitat surveys will be undertaken for this species as part of the pre-clearing process. This includes the provision of buffer/exclusion zone if nest trees are identified. Indirect impacts associated with this species will be managed through the provision of Annexure C: Hollow and Nest Strategy to replace impacted hollows, as well as Annexure F: Connectivity Strategy to maintain connectivity corridors; each of which contains monitoring of such provisions. This species occurs in dry sclerophyll open forest, nest/shelter in small hollows (2.5-4 cm wide) and use many different hollows over a short time span. Such habitats are widespread throughout the HLW Area and surrounds. Therefore, this species has been excluded from additional monitoring. |
| *Phascolarctos cinereus* | Koala | E | E | False | No | The Koala was assumed present adjacent to disturbance zones based on the high number of local records and the occurrence of Koala feed tree species. Indirect impacts associated with this species will be managed through the provision of Annexure F: Connectivity Strategy to maintain connectivity corridors, which contains monitoring of such provisions (refer Section 4.1). Widespread suitable habitat will be retained over a variety of PCTs within and surrounding the HLW Area. As such, this species has been excluded from monitoring. |

| Scientific Name | Common Name | BC Act Status | EPBC Act Status | SAII? | Included in program? | Justification |
|---|---|---|---|---|---|---|
| *Polytelis swainsonii* | Superb Parrot | V | V | False | Yes | The Superb Parrot is assumed present adjacent to disturbance zones. Threatened fauna breeding habitat surveys will be undertaken for this species as part of the pre-clearing process. This includes the provision of buffer/exclusion zone if nest trees are identified. Potential indirect impacts to this species also include noise and vibration through potential blasting and/or crushing activities. Noise and vibration assessment for crushing and blasting will occur for this species prior to such activities. Ongoing monitoring of specialist breeding habitat has also been included as part of this monitoring program, however no monitoring sites are prescribed as this species is currently assumed present. If pre-clearing surveys or biodiversity verification reporting identify this species within 100 m of disturbance zones, monitoring will occur in those locations. |
| *Pseudomys fumeus* | Smoky Mouse | CE | E | TRUE | No | Smoky Mouse has been assumed present adjacent to disturbance zones. Targeted surveys will be undertaken for this species as part of the pre-clearing process, including provisions for buffer/exclusion zone if individuals are identified. Indirect impacts associated with this species will be managed through the provision of Annexure F: Connectivity Strategy to maintain connectivity corridors, which contains monitoring of such provisions. This species occurs in sclerophyll forest, heathland and open-forest, nesting in burrows, which are widespread throughout the HLW Area. Therefore, this species has been excluded from additional monitoring. |

| Scientific Name | Common Name | BC Act Status | EPBC Act Status | SAII? | Included in program? | Justification |
|---|---|---|---|---|---|---|
| *Tyto novaehollandiae* | Masked Owl | V | - | False | Yes | Masked Owl has been assumed present adjacent to disturbance zones via expert report.<br>Potential indirect impacts associated with collision risk will be mitigated through bird deterrent devices per Annexure F: Connectivity Strategy. Threatened fauna breeding habitat surveys will be undertaken for this species as part of the pre-clearing process. This includes the provision of buffer/exclusion zone if nest trees are identified. Potential indirect impacts to this species also include noise and vibration through potential blasting and/or crushing activities. Noise and vibration assessment for crushing and blasting will occur for this species prior to such activities. Ongoing monitoring of specialist breeding habitat has also been included as part of this monitoring program, however no monitoring sites are prescribed as this species is currently assumed present. If pre-clearing surveys or biodiversity verification reporting identify this species within 100 m of disturbance zones, monitoring will occur in those locations. |

| Scientific Name | Common Name | BC Act Status | EPBC Act Status | SAII? | Included in program? | Justification |
|---|---|---|---|---|---|---|
| *Tyto tenebricosa* | Sooty Owl | V | - | TRUE | Yes | Sooty Owl has been assumed present adjacent to disturbance zones via expert report.<br>Potential indirect impacts associated with collision risk will be mitigated through bird deterrent devices per Annexure F: Connectivity Strategy. Threatened fauna breeding habitat surveys will be undertaken for this species as part of the pre-clearing process. This includes the provision of buffer/exclusion zone if nest trees are identified. Potential indirect impacts to this species also include noise and vibration through potential blasting and/or crushing activities. Noise and vibration assessment for crushing and blasting will occur for this species prior to such activities. Ongoing monitoring of specialist breeding habitat has also been included as part of this monitoring program, however no monitoring sites are prescribed as this species is currently assumed present. If pre-clearing surveys or biodiversity verification reporting identify this species within 100 m of disturbance zones, monitoring will occur in those locations. |

V = Vulnerable; E = Endangered; CE = Critically Endangered; - = not listed

### 3.2.3. Threatened Ecological Communities

Monitoring of Threatened Ecological Communities (TECs) aims to detect and manage indirect construction-related impacts such as dust deposition, altered hydrology, edge effects, weed incursion, trampling or erosion. Three BC Act listed and two EPBC Act listed TECs were identified within the HLW Area. Table 3-3 provides an overview of these TECs, including justification for their inclusion/exclusion for monitoring as part of this program.

Table 3-3 Justification for TECs to be monitored

| TEC Name | BC Act Status | EPBC Act Status | SAII? | Included in program? | Justification |
|---|---|---|---|---|---|
| Montane Peatlands and Swamps / Alpine Sphagnum Bogs and Associated Fens | EEC | EEC | False | Yes | Plant Community Type 637 is associated with this TEC. It will be protected from indirect and prescribed impacts through no-go zones per the HLW BMP, including a 30 m buffer from mapped locations. To ensure the no-go zones are protecting this TEC, it has been included in monitoring. |
| Tableland Basalt Forest in the Sydney Basin and South Eastern Highlands Bioregions | EEC | - | TRUE | No | This TEC is associated with parts of PCT 953. A total of 0.66 ha is proposed for impact, comprising 0.50 for partial impacts (ECZ) and only 0.16 for complete clearing (Total Clearing Zone [TCZ]). 2.62 ha occurs outside of the disturbance zones, with more expected in the landscape, all of which will be protected through clearing limits. Other indirect impacts will be mitigated through the BMP (connectivity corridors, erosion and sediment controls, rehabilitation and monitoring of temporary disturbance sites, biosecurity protocols including weed and pathogen monitoring). Prescribed impacts associated with water quality, waterways, and hydrological processes on this TEC were determined unlikely in the Revised BDAR. As such, further monitoring has been excluded for this TEC. |

| TEC Name | BC Act Status | EPBC Act Status | SAII? | Included in program? | Justification |
|---|---|---|---|---|---|
| White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland | CEEC | CEEC | TRUE | No | 75.64 ha of this TEC is proposed for impact, comprising 9.32 for partial impacts (ECZ & HTZ) and only 66.32 for complete clearing (TCZ). Over 520 ha occurs outside of disturbance zones, with significance occurrence in the landscape, all of which will be protected through clearing limits. Other indirect impacts will be mitigated through the BMP (connectivity corridors, erosion and sediment controls, rehabilitation and monitoring of temporary disturbance sites, biosecurity protocols including weed and pathogen monitoring). Given its widespread occurrence and existing disturbance in the landscape, further monitoring has been excluded for this TEC. |

EEC = Endangered Ecological Community; CEEC = Critically Endangered Ecological Community; - = not listed

### 3.2.4. Partial clearing zones

This program also includes progressive monitoring of partial clearing zones per MCoA B30(d)(viii):

> *Progressively monitoring the areas of partial clearance following the commencement of construction and provision of a verification report every three months during construction to confirm the assumptions made in the BDAR regarding partial clearance within the Easement Clearing Zone and whether any changes are required to this plan.*

To minimise impacts on biodiversity, where practicable, Transgrid have opted to include a partial clearing methodology, thereby retaining vegetation beneath the easement during the operational maintenance phase of the amended project (i.e., Transgrid are not adopting full continuous clearance of the easement, which is the 'easier' maintenance option). Partial clearing defined in Table 13-1 of the Revised BDAR as the Easement Clearing Zone (ECZ) and Hazard Tree Zone (HTZ).

The ECZ includes land within the proposed transmission line easement where clearing and ongoing maintenance of tall growing vegetation would be undertaken. Earthworks and grubbing are not required within this zone except in limited circumstances.

The HTZ includes land located adjacent to the transmission line easement where selective tree removal, trimming or lopping would be undertaken to manage any risk of damage to transmission lines and structures in the event of tree fall. Earthworks and grubbing are not required within this zone except in limited circumstances.

The assumptions in the BDAR of the partial clearing in the ECZ include:

- All trees in ECZ polygons need to be removed regardless of height.
- Shrubs will be avoided to the extent possible, but the majority of clearing will be completed using machinery and there will likely be collateral impact on the existing shrub layer due to movement of machinery on site, as well as felling and removal of felled tree branches/barrels.
- Clearing will use of machinery that maximises vegetation clearance coverage/reach.
- Clearing will use machinery and tracks that minimises ground impacts.
- Machinery access paths will be consolidated/minimised.
- Machinery access will be restricted within ecologically sensitive areas (e.g., wetlands and bogs).
- Non-lethal methods of temporary vegetation removal (e.g., mulching/slashing, cutting) will be used that would allow native vegetation to re-grow.
- Where lethal vegetation control is used this would be targeted to avoid damage/death of non-target individuals (e.g., cut-stump painting of cleared woody individuals, rather than foliar spray applications).
- Hand clearing / felling will occur in areas that are not safely or practicably accessible for machine clearing.
- Hand clearing/felling may also be used in the immediate vicinity of areas of very high ecological sensitivity identified in the constraints mapping to minimise the potential for impacts. Fencing will be used to demarcate these areas.
- Felled trees will be tub ground to provide material for erosion/sediment control and rehabilitation. Mulch may be evenly spread on bare disturbed areas to assist with the protection of the soil. Spread of mulched material to a depth of >50 mm will be avoided where practicable.
- Logs may be placed on the edge of the easement in select areas where they will not impede easement access for maintenance.
- For conductor stringing purposes, all remaining shrubs within a 10-metre-wide area along the centre of the easement would need to be tied down or slashed to prevent snagging of the

conductor.

- In areas where mature trees can be retained on easement (e.g., valleys), a stringing methodology that does not require vegetation disturbance would be used.

### 3.3. Structure

The species/areas that will be targeted for monitoring during construction have been grouped by shared objectives and methods, as summarised in Table 3-4 below.

Table 3-4 Grouping of monitored entities

| Monitoring group | Target entities |
|---|---|
| Artificial hollow monitoring<br>Section 4.1.1 | • Brown Treecreeper (eastern subspecies; *Climacteris picumnus victoriae*).<br>• Little Lorikeet (*Glossopsitta pusilla*).<br>• Purple-crowned Lorikeet (*Glossopsitta porphyrocephala*).<br>• Brush-tailed Phascogale (*Phascogale tapoatafa*).<br>• Corben's Long-eared Bat (*Nyctophilus corbeni*).<br>• Eastern False Pipistrelle (*Falsistrellus tasmaniensis*).<br>• Eastern Coastal Free-tailed Bat (*Micronomus norfolkensis*)<br>• Eastern Pygmy-possum (*Cercartetus nanus*).<br>• Greater Broad-nosed Bat (*Scoteanax rueppellii*).<br>• Little Pied Bat (*Chalinolobus picatus*).<br>• Southern Myotis (*Myotis macropus*).<br>• Yellow-bellied Sheathtail-bat (*Saccolaimus flaviventris*).<br>• Superb Parrot (*Polytelis swainsonii*).<br>• Turquoise Parrot (*Neophema pulchella*).<br>• Squirrel Glider (*Petaurus norfolcensis*).<br>• Gang-gang Cockatoo (*Callocephalon fimbriatum*).<br>• Glossy Black-Cockatoo (*Calyptorhynchus lathami lathami*).<br>• Spotted-tailed Quoll (*Dasyurus maculatus*).<br>• Southern Greater Glider (*Petauroides volans*).<br>• Yellow-bellied Glider (*Petaurus australis*).<br>• Barking Owl (*Ninox connivens*).<br>• Powerful Owl (*Ninox strenua*).<br>• Masked Owl (*Tyto novaehollandiae*).<br>• Sooty Owl (*Tyto tenebricosa*). |
| Weed and pathogen monitoring<br>Section 4.1.2 | All flora and ecological communities. |

| Monitoring group | Target entities |
|---|---|
| Connectivity corridor monitoring<br>Section 4.1.3 | • Eastern False Pipistrelle.<br>• Southern Myotis.<br>• Large-eared Pied Bat.<br>• Broad-toothed Rat.<br>• Brush-tailed Phascogale.<br>• Smoky Mouse.<br>• Koala.<br>• Eastern Pygmy-possum.<br>• Southern Greater Glider.<br>• Yellow-bellied Glider.<br>• Squirrel Glider.<br>• Flame Robin.<br>• Scarlet Robin.<br>• Pink Robin.<br>• Varied Sittella.<br>• Alpine She-oak Skink.<br>• Pink-tailed Legless Lizard.<br>• Striped Legless Lizard.<br>• Sloane's Froglet.<br>• Booroolong Frog.<br>• Yellow-spotted Tree Frog.<br>• Key's Matchstick Grasshopper. |
| Rehabilitation monitoring<br>Section 4.1.4 | • Key's Matchstick Grasshopper habitats.<br>• PCT 266, 268, 277, 285, 287, 290, 297, 299, 300, 306, 319, 343, 352, 638, 679, 939, 953 and 1196.<br>• Critically Endangered & entity at risk of Serious and Irreversible Impact (SAII): White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland per BC Act & EPBC Act.<br>• Endangered & SAII: Tableland Basalt Forest in the Sydney Basin and South Eastern Highlands Bioregions per BC Act.<br>• Endangered: Montane Peatlands and Swamps per BC Act & EPBC Act. |
| Partial clearing zone monitoring and clearing limit monitoring<br>Section 4.2 | All threatened species habitats, PCTs and TECs. |

| Monitoring group | Target entities | |
|---|---|---|
| Threatened flora<br>Section 4.3 | • *Acacia ausfeldii.*<br>• *Ammobium craspedioides.*<br>• *Bossiaea fragrans.*<br>• *Caesia parviflora* var. *minor.*<br>• *Caladenia concolor.*<br>• *Caladenia montana.*<br>• *Calotis pubescens.*<br>• *Cullen parvum.*<br>• *Diuris tricolor.*<br>• *Glycine latrobeana.*<br>• *Grevillea wilkinsonii.*<br>• *Persoonia marginata.*<br>• *Pimelea bracteata.*<br>• *Pomaderris cotoneaster.* | • *Prasophyllum bagoense.*<br>• *Prasophyllum innubum.*<br>• *Prasophyllum keltonii.*<br>• *Prasophyllum petilum.*<br>• *Pterostylis alpina.*<br>• *Pterostylis foliata.*<br>• *Pterostylis oreophila.*<br>• *Pultenaea humilis.*<br>• *Senecio garlandii.*<br>• *Swainsona recta.*<br>• *Swainsona sericea.*<br>• *Thelymitra alpicola.*<br>• *Thesium australe.*<br>• *Xerochrysum palustre.* |
| Threatened owls, cockatoos and parrots<br>Section 4.4 | • Barking Owl.<br>• Powerful Owl.<br>• Gang-gang Cockatoo.<br>• Superb Parrot. | • Masked Owl.<br>• Sooty Owl.<br>• South-eastern Glossy Black-Cockatoo. |
| Threatened frogs<br>Section 4.5 | • Booroolong Frog.<br>• Sloane's Froglet. | • Yellow-spotted Tree Frog. |
| TECs<br>Section 4.6 | Montane Peatlands and Swamps / Alpine Sphagnum Bogs and Associated Fens | |

# 4. Monitoring program

## 4.1. BMP monitoring

### 4.1.1. Artificial hollow monitoring

Artificial hollow monitoring is detailed in Table 4-1 below, with additional information provided in Annexure C: Hollow and Nest Strategy of the HLW BMP. Any long-term monitoring (post-construction) will be detailed within the Transgrid Operational Biodiversity Management Plan and should incorporate components of monitoring detailed herein for a minimum of 3-years post installation.

Table 4-1 Artificial hollow monitoring

| Artificial Hollow Monitoring |
|---|
| Objective and target |
| Ensure artificial hollow/replacement hollows provide suitable and functioning habitat for target fauna species and remain structurally sound through construction.<br>Targets include:<br>• 100% of hollows in working condition.<br>• Increasing occupancy/use by target species.<br>• No more than 10% invaded by pest species (e.g., myna, bees). |
| Location and sampling unit |
| All Hollow Replacement Zones, in accordance with Annexure C: Hollow and Nest Strategy of the HLW BMP. Each artificial hollow (including salvaged hollows) is considered an individual monitoring unit, as georeferenced and ID'd in the Nest Box Installation Report. |
| Method |
| Monitoring will be conducted by the Project Ecologist via endoscopic camera (or similar) attached to an extendable pole to minimise disturbance of resident fauna. The following will be recorded:<br>• Name of observer.<br>• Date.<br>• Prevailing weather conditions.<br>• Unique ID of the artificial hollow.<br>• Artificial hollow type (i.e., nest box, salvaged or hollow hogs).<br>• Assessment of artificial hollow and suspension system condition.<br>• Host-tree health and stability.<br>• Evidence of pest species.<br>• Evidence of fauna use.<br>• Photographic evidence of condition, fauna use and pest presence (if present). |
| Timing, effort and frequency |
| Biannually during construction (spring and autumn). Any long-term monitoring (post-construction) will be detailed within the Transgrid Operational Biodiversity Management Plan and should incorporate components of monitoring detailed herein for a minimum of 3-years post installation. |

| Artificial Hollow Monitoring |
|---|
| Data analysis |
| Occupancy trends:<br>• Track species-specific use over time to assess whether certain box types or placements are preferred.<br>• Compare against target species lists (Annexure C: Hollow and Nest Strategy).<br>Structural integrity assessment:<br>• Identify patterns of structural failure (e.g., weather, mount type, tree decay).<br>• Calculate integrity rate (%) per hollow type and guide replacements/adjustments.<br>Non-target use:<br>• Quantify invasive/non-target use and cross-reference with location and type.<br>Performance scoring:<br>• Develop a simple scoring system (e.g., 0-3 scale: failed, intact-unused, intact-used, target-occupied).<br>Species response indicators:<br>• Compare use across different Hollow Replacement Zones or vegetation types. |
| Reporting |
| Artificial Hollow Monitoring Reports will be prepared biannually, following monitoring detailed above. These will be provided to CPHR, FCNSW and DCCEEW as soon as it is available. The report will include the following:<br>• Name of observer, survey dates and prevailing weather conditions.<br>• Maps of Hollow Replacement Zones and replacement hollows within.<br>• Summarise condition, use, fauna occupancy and issues for each hollow type.<br>• Include photographic evidence (internal and external).<br>• Tabulate percentage use, failure and presence of non-target species including pests.<br>• Maintain spatial register (excel) with status, ID and last inspection date for each replacement hollow.<br>• Assessment of incidents/non-compliances based on targets provided in this monitoring program.<br>• Recommendations on adaptive management (if required) as detailed below.<br>All Artificial Hollow Monitoring Reports will be summarised and collated in the annual BMP Monitoring Report as detailed in the HLW BMP, including all GIS data collected (GPX files, shapefiles). |
| Adaptive management |

| Artificial Hollow Monitoring |
|---|
| • Repair or replace any damaged artificial hollows (e.g., fallen, chewed, weathered).<br>• Reposition salvaged hollows if shifted or destabilized.<br>• Remove or exclude pest species (e.g., European Honeybees) or non-target species (e.g., Myna nests).<br>• Re-fasten suspension system or replace if degraded.<br>• Replace any artificial hollows lost or rendered unusable (targeting no net loss of installed hollows).<br>• Re-bore or repair hollow hogs showing signs of collapse or degradation.<br>• Prune or manage surrounding vegetation if access is impeded. |

### 4.1.2. Weed and pathogen monitoring

Weed and pathogen monitoring is detailed in Table 4-2 below, with additional information provided in Annexure E: Biosecurity Management Plan of the HLW BMP.

Table 4-2 Weed and pathogen monitoring

| Weed and Pathogen Monitoring |
|---|
| Objective and target |
| Detect and control weed and pathogen spread resulting from construction activities, particularly into sensitive areas such as no-go zones, threatened species habitats, TECs and SAIIs.<br>Targets include:<br>• No new weed species introduced.<br>• No increase in weed cover or pathogen indicators beyond baseline levels. |
| Location and sampling unit |

| Weed and Pathogen Monitoring |
|---|
| Weed monitoring locations will be set at the following intervals of the alignment, with a sampling unit at each transect. Across HLW, at least 70 weed monitoring locations would be established. Of these, at least 10 locations would be within areas of high density weeds in State Forests land.<br>• Every 250 m in:<br>◦ Stockpiles (transect may be limited to length of stockpile).<br>◦ Areas of native vegetation with known high weeds of national significance (WoNS) infestations (per pre-clearing baseline surveys).<br>◦ High-conservation values (e.g., no-go zones, TECs, SAII flora species polygons).<br>◦ Within KMG rehabilitation zones per Annexure G Rehabilitation Plan of the HLW BMP.<br>• Every 1,000 m in:<br>◦ Cleared or low-value grazing lands (Category 1 land).<br>• High density weeds within State Forests land:<br>◦ Approximately every 2,000m-3,000m as determined by pre-clearing report, or<br>◦ Approximately 1,000m intervals at:<br>• native vegetation edges<br>• waterways<br>• disturbance interfaces<br>• high conservation value areas<br><br>Pathogen monitoring locations will be access points, vehicle washdown stations (to ensure that hygiene measures are effective) and compounds. Several small sub-samples will be collected at each location (minimum of 5 sub-samples), collected and combined into a single representative sample for that location. |
| Method |

| Weed and Pathogen Monitoring |
|---|
| Weeds:<br><br>Prior to the commencement of clearing, weeds will be mapped within the HLW Area during pre-clearing surveys by the Project Ecologist. Given the large area of impact associated with HLW, weed mapping may be undertaken on-foot, using drones or using binoculars to assess larger areas from a vantage point. The surveys will include the identification of weed species present, including density and location, and will include the physical demarcation of weed restricted areas. Results of baseline weed monitoring, particularly locations of weed restricted areas, will be used to confirm sensitive area maps and update HLW GIS.<br><br>Weed monitoring will be undertaken annually during construction works by the Project Ecologist to determine weed cover for the HLW Area, inform the location and extent of controls and monitor cycles of weed growth and novel weed establishment. For the first monitoring event, it is necessary to install permanent markers (e.g., star picket marked/flagged with monitoring location name) and record the coordinates of each monitoring location in order to relocate for subsequent monitoring events. Methods will involve the line-point intercept method along a 100 m transect:<br><br>• At each interval, the cover of weed species will be measured, using a straight rod. Any intercepts or "hits" of a weed species on the rod will be recorded as present (with one being the upper limit for each stratum at each point). No intercepts of weed species at each stratum records a zero.<br>• As data is collected along each transect, the cover (%) of weeds for each stratum (exotic shrubs <1 m, exotic grasses and exotic ground cover) is calculated by dividing the number of hits by the number of transects, then multiplying it by 100.<br>• As data is collected along each transect, the cover (%) of each stratum of weeds is calculated by determining the average cover at each interval.<br><br>Pathogens:<br><br>A soil sampling program will be undertaken prior to construction by a suitably qualified person(s) to test for presence/absence of *Phytophthora* within the HLW Area. Several small sub-samples will be collected at each location (minimum of 5 sub-samples), collected and combined into a single representative sample for that location. The collection of each sub sample will involve:<br><br>• Use a sterile garden trowel to scrape away surface leaf litter.<br>• Dig a small hole, collect a small amount of soil and living plant roots (the hole does not need to be any deeper than 10 cm and you only need 100-250 grams of soil).<br>• Place combined samples into a new, thick zip-lock plastic bag.<br>• Label the bag with date, monitoring site code and sample number (e.g., 19/10/2025, AccomCamp1).<br>• Place into a second bag to prevent cross contamination and as a safeguard against breakage.<br>• Store soil samples in a cool, dark place and dispatch for analysis as practicable after sampling.<br>• After each sample, scrub your hands and the trowel thoroughly with methylated spirits to disinfect them and prevent cross-contamination of samples.<br>• Send samples to a suitable laboratory to analyse for Phytophthora. The samples are to be stored in temperatures below 24° C, and with ice bricks that do not directly have contact with the samples. |
| Timing, effort and frequency |
| Baseline prior to clearing at an area (during Pre-clearing Surveys), then annually during construction. |

| Weed and Pathogen Monitoring |
|---|
| Data analysis |
| Weed cover trends:<br>• Compare against baseline data to detect increases in weed richness or total % cover.<br>• Assess spatial correlation with disturbance types (e.g., stockpiles vs easement).<br>Species incursion mapping:<br>• Identify new weed species or spread of target weeds into sensitive zones.<br>• Analyse trends around washdown locations, vehicle access points and bare soil areas.<br>Pathogen presence/spread:<br>• Monitoring data (laboratory results) for each pathogen monitoring location is to be kept in a spreadsheet with additional results added after each monitoring period. |
| Reporting |
| Pre-clearing Reports will include results from baseline weed monitoring, including:<br>• Weed species identified, including locations (figures) and estimates of density.<br>• Recommended weed control measures based on confirmed weed species occurrence.<br>• Locations of weed restricted areas.<br>The annual BMP Monitoring Report will be prepared to document results of weed and pathogen monitoring, including:<br>• Details on the weed control actions undertaken since the last report, including;<br>◦ A list of the control activities undertaken.<br>◦ A map of areas where control activities were undertaken.<br>• A comparative analysis against baseline data.<br>• The efficacy of the control measures in relation to the objective of minimising weed and pathogen distribution and/or abundance in the HLW Area.<br>• Recommendations for future control activities.<br>• A summary of the efficacy of other control measures outlined in the Biosecurity Plan and recommendations for revisions to controls.<br>During construction, any biosecurity issues will be reported to Transgrid immediately. |
| Adaptive management |
| • Report new weed presence to Transgrid. Develop and implement weed management options to control new weeds. Investigate the source of weed spread and implement improvements to weed management measures. Transgrid will report any new weed presence to NSW DPI, if the species is a Prohibited Matter such as *Parthenium hysterophorus*.<br>• Report new *Phytophthora* presence to Transgrid. Develop and implement pathogen management options. Investigate the source of pathogen spread and implement improvements to pathogen management measures.<br>• Re-train workers on hygiene protocols. Review and implement pathogen management options. |

### 4.1.3. Connectivity corridor monitoring

Connectivity corridor monitoring is detailed in Table 4-3 below, with additional information provided in Annexure F: Connectivity Strategy of the HLW BMP.

Table 4-3 Connectivity corridor monitoring

| Connectivity Corridor Monitoring |
|---|
| Objective and target |
| Ensure connectivity corridors are established/retained during construction, remain ecologically functional and provide suitable movement pathways for target fauna species.<br>Targets include:<br>• Ground Corridors established and retained.<br>• Vegetation and habitat features support fauna movements.<br>• Glider poles installed at correct locations, heights and numbers.<br>• Glider poles show evidence of use within 2 years. |
| Location and sampling unit |
| Monitoring locations will be established at each final Ground Corridor and Glider Crossing, with each corridor as a sampling unit. |
| Method |
| <u>Ground Corridors:</u><br>Qualitative assessments of habitat values by the Project Ecologist, including:<br>• Type, condition, structure, density, continuity and extent of retained vegetation.<br>• Score ground cover/shrub retention and linkage (visual continuity across the landscape).<br>• Identify gaps or impediments within the corridor including clearing works, fragmentation from access tracks/roads, evidence of pest use, erosion scars.<br>• Delineation of corridors.<br><u>Glider Crossings:</u><br>Terminating glider poles (one at each end of the Glider Crossing) will be fit with one motion detecting cameras during construction. Motion detecting cameras will be set to record 10 photos per motion trigger, with one second interval between images and a quiet period of 30 second between triggers, set to record continuously. |
| Timing, effort and frequency |
| Ground corridors = biannually each spring and autumn during construction.<br>Glider Crossing = motion detecting cameras will be set to record continuously for the entire year, with data analysis to target three months of the year during the construction period, including the target Glider species breeding periods:<br>• Greater Glider = March.<br>• Squirrel Glider & Yellow-bellied Glider = September.<br>Monitoring will continue for 5 years post-installation, to be incorporated into the Operational Biodiversity Management Plan by Transgrid. |



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| Connectivity Corridor Monitoring |
|---|
| Data analysis |
| Habitat value trends:<br>• Track % of each corridor that maintains suitable structure (>50% groundcover continuity).<br>• Score against baseline or predicted retention values from Revised BDAR.<br>• Identify newly emerging barriers (e.g., vehicle tracks, erosion, pests) that may impede movement.<br>Corridor functionality assessment:<br>• Cross-reference presence/absence data of Gliders with habitat structure.<br>• Determine corridor success rate (number of Glider Crossings with confirmed use over time). |
| Reporting |
| Biannual Connectivity Monitoring Reports will be prepared, including the following:<br>• Results of Ground Corridor monitoring.<br>• Results of Glider pole camera monitoring.<br>• Qualitative assessments of habitat values within Ground Corridors.<br>• Assessment of glider utilisation of glider poles.<br>• Assessment of the overall success of the mitigation measures installed.<br>• Identification of gaps/limitations to the connectivity monitoring methodology. This includes monitoring components, method of data collection (frequency and location), method of data, analysis and reporting requirements.<br>• Provision of recommendations for adjustments to monitoring techniques, timing and locations.<br>• Details of any non-conformances, including recommended corrective measures.<br>Biannual Connectivity Monitoring Reports will be provided to CPHR, NPWS, FCNSW and DCCEEW as soon as they are available. |
| Adaptive management |
| • Rehabilitate native ground layer and shrubs, monitor regrowth and undertake pest/weed control as necessary within Ground Corridors.<br>• Review pole spacing and height, assess surrounding vegetation, conduct additional Glider surveys in areas subject to baseline Glider surveys to compare Glider activity in surrounding areas.<br>• Development of a mitigation plan in consultation with NSW DCCEEW Environment and Heritage, addressing causes of Glider decline as determined in initial investigation. This may include increased monitoring or additional construction related mitigation measures.<br>• If this is ineffective, additional offsets may be required. |

### 4.1.4. Rehabilitation monitoring

Rehabilitation monitoring is detailed in Table 4-4 below, with additional information provided in Annexure G: Rehabilitation Plan of the HLW BMP.

Table 4-4 Rehabilitation monitoring

| Connectivity Corridor Monitoring | |
|---|---|
| Objective and target | |
| Monitor the natural regeneration of native vegetation in temporary disturbance areas to ensure the return of a resilient, self-sustaining vegetation community.<br>Targets include:<br>• Maintain 85% survival rate of target seedings in rehabilitated Key's Matchstick Grasshopper habitats.<br>• Maintain a stable, non-eroding soil surface across rehabilitated temporary disturbance areas.<br>• Re-establish ≥80% total groundcover of which ≥80% is native.<br>• Facilitate recruitment of ≥5 native species, including at least 2 functional groups (e.g., grass, forb, shrub).<br>• Maintain ≤10% cover of High Threat Weeds and ≤20% total weed cover.<br>• Rehabilitated sites are stable and trending towards natural regeneration without further intervention. | |
| Location and sampling unit | |
| Indicative monitoring locations are provided in Figure 3-1 of Annexure G: Rehabilitation Plan, targeting the following minimum monitoring locations:<br>• 1 monitoring location is required within the patch of rehabilitated KMG habitat.<br>• 1 monitoring location is required at each accommodation camp/ancillary facility.<br>• 1 monitoring location every 10 linear km of the alignment for all other temporary disturbance areas (i.e., brake and winch sites, rehabilitated temporary access tracks).<br>Each monitoring location will serve as a sampling unit. | |
| Method | |
| Photo monitoring points will provide an indication of the success or failure of any areas of rehabilitation conducted. Plot-based monitoring must follow the methods outlined in the *Biodiversity Assessment Method* (BAM; DPIE 2020a). Established 20 m x 20 m plots (or 400 $m^2$ equivalent for linear areas) must be assessed with the information outlined below recorded. | |
| Growth form | Growth form for each recorded native species |
| Species name | Scientific name of each native and exotic species |
| Cover | Estimate the foliage cover of each native and exotic species within the boundaries of the plot including all attached plant material, alive or dead, rooted in or overhanging the plot. Cover should be recorded:<br>• In decimals if less than 1% (e.g. 0.1, 0.2).<br>• In whole numbers up to 5% (e.g. 1, 2, 3).<br>To the nearest 5% if >5% cover (e.g. 5, 10, 15, 20, 25). |

| Connectivity Corridor Monitoring | |
|---|---|
| Abundance rating | Count (when ≤10) or estimate (when >10) the number of individuals of each native and exotic species rooted within the plot. Record abundance as:<br>• Counts of 1, 2, 3…<br>• Estimates of 10, 20, 30…<br>• 100, 200, 300…<br>• 1000, 2000, 3000. |
| Erosion | Visual assessment of soil stability; record presence/absence and dimensions (length × width × depth) of:<br>• Rills or gullies.<br>• Exposed subsoil.<br>• Sediment plumes downslope. |
| Timing, effort and frequency | |
| Monitoring will be completed by the Project Ecologist annually (spring) during construction works. Any longer-term monitoring (post-construction) would be detailed within the Transgrid Operational Environmental Management Plan and should incorporate components of monitoring detailed herein. | |
| Data analysis | |
| Trend analysis:<br>• Evaluate improvements or decline in vegetation metrics over time.<br>• Use scoring matrix (e.g., 0 = no regrowth, 1 = partial cover, 2 = full cover) for rapid visualisation.<br>• Compare abundance and cover of native/exotic species against targets listed in Revised BDAR.<br>Success rate evaluation:<br>• % plots meeting all target thresholds within specified timeframe.<br>Weed pressure mapping:<br>• Identify high weed infestation areas for early control or further rehabilitation efforts.<br>Correlation analysis:<br>• Compare vegetation recovery to original vegetation zone, soil quality or location to prioritise adaptive management. | |
| Reporting | |
| Following the completion of monitoring, all data will be collated and presented within the annual BMP Monitoring Report. The report will include the following:<br>• Details of monitoring methods.<br>• Assessment of rehabilitation success by annual plot data and reporting, with reference to targets provided above. Photographic evidence of condition by photo points.<br>• Comparison of annual monitoring with previous year (if construction monitoring extends 2-years), as well as Revised BDAR data.<br>• Assessment of incidents and non-compliances.<br>• Recommendations for future rehabilitation and/or corrective efforts (if necessary).<br>• If for any reason rehabilitation cannot be achieved as per the Rehabilitation Plan, evidence will be supplied and reasoning detailed within. | |

| Connectivity Corridor Monitoring |
| --- |
| Adaptive management |
| • Implement supplementary seeding.<br>• Increase frequency of weed control per Annexure E: Biosecurity Plan of the HLW BMP.<br>• Reassess weed source pathways (e.g., vehicles, stockpiles) and address any barriers<br>• Install/repair erosion controls (e.g., jute matting, coir logs).<br>• Regrade of contour site to slow runoff.<br>• Reapply topsoil or mulch as needed.<br>• Infill with native mulch or topsoil.<br>• Targeted seeding with native grasses and forbs.<br>• Evaluate seedbank condition.<br>• Targeted seeding with native species.<br>• Implement secondary rehabilitation (e.g., deep ripping, re-mulching, seeding).<br>• Consider active revegetation.<br>• Extend monitoring and maintenance timeline. |

## 4.2. Partial clearing zone monitoring

In line with CoA B30(d)(viii), partial clearing areas will be progressively monitored to confirm the assumptions made in the Revised BDAR regarding partial clearance within the Easement Clearing Zone and whether any changes are required to this plan.

Two key assumptions are to be tested by the partial clearing monitoring:

- Tracking the extent (hectares) of partial and total clearing with reference to the current final layout plans to demonstrate adherence to the clearing limits.
- Verify the assumptions relating to vegetation impacts and retained vegetation integrity in the partial clearing zone.

### 4.2.1. Tracking of clearing limits

Verification monitoring of clearing limits will be conducted every three months throughout the construction phase. Clearing must be tracked with reference to the most recent Final Layout Plans, as submitted in accordance with Condition C8 to the Department. Within these plans, all areas must be categorised as follows:

- Cleared:
    - Total clearance.
    - Partial clearance.
    - Hazard tree removal only.
- Not impacted (forecast).

Any clearing activities outside the areas identified in the most recent final layout plans must be clearly identified and justified, such as changes made in accordance with an approved Consistency Assessment or in response to an incident that has been reported.

All clearing completed during the current three-month reporting period must be verified using georeferenced drone imagery (or equivalent) with <1 m spatial resolution. A spatial polygon file must be produced to delineate both the completed and forecast clearing footprint for the reporting period. This shapefile must be used to quantify the extent of clearing for the following:

- Native vegetation.
- Threatened flora habitats.
- Threatened fauna habitats.
- Endangered population habitats.

When calculating the extent of clearing, the most current approved datasets must be used and clearly referenced. The spatial dataset, along with the following, must be submitted to Transgrid and CPHR as part of the quarterly verification report:

- Maps showing all areas cleared within the reporting period, and
- A reconciliation table comparing the clearing footprint to the current approved clearing limits.

### 4.2.2. Vegetation condition assessment

The vegetation condition assessment component of the progressive partial clearing monitoring is intended to verify key Revised BDAR assumptions, specifically:

- Retention of mid and understorey vegetation structure.
- Retention of Vegetation Integrity (VI) score as a proxy for condition.

Monitoring vegetation condition (a proxy for ecological function) in partially cleared areas will enable detection of changes over time. This information will then be used to inform any changes required to clearing methods to maintain the vegetation condition and meet the Revised BDAR assumptions.

Assessments will be carried out using vegetation integrity survey plot methods outlined in the *Biodiversity Assessment Method 2020* (BAM, 2020). Monitoring sites will consist of plots measuring 400 m² (e.g. 20 m × 20 m), with actual plot dimensions adjusted to suit the available area within each partially cleared site.

The target number of plots has been calculated with reference to the total area of clearing within each vegetation class, using the following rules:

- 1 plot per 3 ha by vegetation classes (rounded up).
- No plots for vegetation classes smaller than 0.5 ha.

The target number of plots for each vegetation class are then proportionally distributed across the Very High, High, and Moderate vegetation condition classes within each Plant Community Type (PCT). The target distribution of vegetation plots is summaries in Table 4-5, with indicative monitoring locations displayed in Figure 4-1. Each vegetation plot must be paired to a control plot located within adjoining, non-impacted areas of the same PCT and condition class. Control plots will be assessed as the same time (within days) of the impact plots.

Photographic monitoring points (refer Section 4.2.3) must be established in PCTs that are less than 0.5 ha and therefore do not have any vegetation plot monitoring.

Table 4-5 Minimum number of plots required per vegetation class and zone

| Vegetation class | PCT ID | Vegetation zone | Area (ha) | Plots per vegetation class | Plots per vegetation zone |
|---|---|---|---|---|---|
| Inland Riverine Forests | | | 1.68 | 1 | |
| | 5 | Moderate | 1.68 | | 1 |
| Inland Rocky Hill Woodlands | | | 0.08 | 0 | |

| Vegetation class | PCT ID | Vegetation zone | Area (ha) | Plots per vegetation class | Plots per vegetation zone |
|---|---|---|---|---|---|
| | 319 | Moderate | 0.07 | | 0 |
| | | Low | 0.01 | | 0 |
| Montane Bogs and Fens | | | 0.53 | 1 | |
| | 939 | High | 0.53 | | 1 |
| Montane Wet Sclerophyll Forests | | | 34.50 | 12 | |
| | 638 | High | 25.88 | | 9 |
| | | Moderate | 7.60 | | 3 |
| | | Low | 0.88 | | 0 |
| | | Very low | 0.14 | | 0 |
| Southern Tableland Dry Sclerophyll Forests | | | 62.01 | 21 | |
| | 299 | Moderate | 10.74 | | 4 |
| | | Low | 0.15 | | 0 |
| | | Very low | 1.03 | | 0 |
| | 352 | Very low | 0.14 | | 0 |
| | 953 | Very high | 20.97 | | 7 |
| | | High | 18.56 | | 7 |
| | | Moderate | 6.62 | | 3 |
| | | Low | 3.80 | | 0 |
| Southern Tableland Grassy Woodlands | | | 0.43 | 0 | |
| | 731 | Low | 0.35 | | 0 |
| | | Very low | 0.08 | | 0 |
| Southern Tableland Wet Sclerophyll Forests | | | 11.26 | 4 | |
| | 300 | Very high | 9.52 | | 3 |
| | | Moderate | 1.35 | | 1 |

| Vegetation class | PCT ID | Vegetation zone | Area (ha) | Plots per vegetation class | Plots per vegetation zone |
|---|---|---|---|---|---|
| | | Low | 0.40 | | 0 |
| Subalpine Woodlands | | | 25.20 | 9 | |
| | 679 | High | 2.27 | | 1 |
| | | Low | 0.05 | | 0 |
| | 1196 | High | 21.78 | | 8 |
| | | Low | 1.09 | | 0 |
| Upper Riverina Dry Sclerophyll Forests | | | 11.01 | 4 | |
| | 285 | Very high | 0.37 | | 0 |
| | | High | 3.54 | | 3 |
| | | Low | 4.09 | | 0 |
| | 290 | High | 1.56 | | 1 |
| | | Moderate | 0.21 | | 0 |
| | | Low | 0.08 | | 0 |
| | | Very low | 0.13 | | 0 |
| | 297 | Moderate | 0.49 | | 0 |
| | | Low | 0.08 | | 0 |
| | | Very low | 0.10 | | 0 |
| | 306 | Low | 0.15 | | 0 |
| | | Very low | 0.04 | | 0 |
| | 314 | Very high | 0.18 | | 0 |
| Western Slopes Dry Sclerophyll Forests | | | 4.17 | 2 | |
| | 287 | Very high | 2.28 | | 1 |
| | | Moderate | 0.80 | | 0 |
| | | Very low | 0.03 | | 0 |

| Vegetation class | PCT ID | Vegetation zone | Area (ha) | Plots per vegetation class | Plots per vegetation zone |
|---|---|---|---|---|---|
| | 343 | Moderate | 0.83 | | 1 |
| | | Low | 0.10 | | 0 |
| | | Very low | 0.13 | | 0 |
| Western Slopes Grassy Woodlands | | | 17.65 | 6 | |
| | 266 | Moderate | 1.48 | | 1 |
| | | Low | 2.01 | | 0 |
| | 268 | Very high | 1.76 | | 1 |
| | | Low | 0.27 | | 0 |
| | 277 | High | 4.15 | | 3 |
| | | Low | 3.55 | | 0 |
| | | Very low | 2.35 | | 0 |
| | 278 | High | 1.05 | | 1 |
| | 280 | Low | 0.12 | | 0 |
| | | Very low | 0.92 | | 0 |
| **Grand total** | | | **168.53** | **60** | **60** |

### 4.2.3. Photographic monitoring

Photographic monitoring aims to provide a visual reference of each monitoring site over time, and allow observations of disturbance, stress, weed encroachment, pest and pathogens, and any other general observations relevant to the condition of the vegetation. Photographic monitoring will be completed with each vegetation integrity plot, consisting of a photograph from each end of the centreline transection in accordance with the BAM.

At non-vegetation integrity plot sites, including PCTs with <0.5 ha of partial clearing, photographic monitoring will occur at fixed georeferenced locations with the orientation recorded to allow for repeat monitoring. Photographic monitoring must use consistent photo points (i.e., tripod/star picket, set height, nominated bearing) to obtain qualitative/visual data showing retention of vegetation condition and height (~200 mm) across the ECZ/HTZ.

### 4.2.4. Reporting

A Partial Clearing Validation Report (PCVR) will be submitted every three months during construction. The initial report will be provided within 6 weeks of completion of the first three months of construction-phase clearing (i.e., within 4.5 months of commencement of construction-phase clearing). A subsequent report will be provided every three months thereafter during construction. The report will

be prepared by a person accredited to apply the BAM.

The report will confirm partial clearance has been undertaken in accordance with procedures identified in Annexure B: Clearing Protocol. The report will also provide the results of any partial clearance monitoring undertaken during the reporting period in accordance with Table 4-6 to confirm the assumptions made in the Revised BDAR regarding partial clearance within the ECZ and HTZ.

The PCVR will report on all PCTs in which partial clearance works or monitoring have been undertaken during the reporting period. Each report will assess any changes to vegetation condition observed during monitoring, and determine any changes subsequently required to the HLW BMP, this Biodiversity Monitoring Program, or Annexure B: Clearing Protocol.

The following information is to be collected and compiled within each report:

Part A: Clearing limit tracking:

- Table of the HLW construction clearing limits with comparison to the extent of clearing completed.
- Forecast for clearing of each PCT and threatened species habitat.

Part B: Partial Clearing Monitoring:

- Description of areas subject to partial clearance to date, including area ($m^2$) of each PCT partially cleared.
- The name of contributors to the report and the BAM Accredited Assessor responsible for the results.
- Date(s).
- Weather conditions.
- VI scores for each paired plot by applying s4.3.3 of the BAM for assessing vegetation integrity (VI plot survey), including provision of field data sheets.
- Photographic monitoring images compared with previous and baseline images.
- Any other disturbance observed within partial clearance monitoring areas.
- Assessment against the targets in Table 4-6.
- Recommendations for any additional actions required.

Reports will be provided to Transgrid within 6 weeks of the end of each reporting period.

### 4.2.5. Monitoring procedure

Clearing limit and partial clearing monitoring is summarised in Table 4-6 below.

Table 4-6 Clearing limit and partial clearing monitoring

| Clearing Limit and Partial Clearing Monitoring |
|---|
| Objective and target |
| The following objectives relate to partial clearing monitoring:<br>• Track the extent (hectares) of partial and total clearing with reference to the current final layout plans to demonstrate adherence to the clearing limits.<br>• Verify the assumptions relating to vegetation impacts and retained vegetation integrity in the partial clearing zone.<br>Overall, vegetation performance will be assessed against the following targets:<br>• Consistent visual condition of each PCT compared to the baseline monitoring sessions and baseline data.<br>• Consistent VI scores compared to control plots (<10% difference). |
| Location |
| <u>Tracking of clearing limits:</u><br>• All areas where clearing has occurred.<br><u>Vegetation condition monitoring:</u><br>• Point location of proposed partial clearing zone (impact) and reference (control) monitoring points per Table 4-5. Indicative locations are shown in Figure 4-1.<br><u>Photographic monitoring:</u><br>• Point location of proposed partial clearing zone (impact) and reference (control) monitoring points.<br>• Point location of proposed photographic monitoring points in vegetation zones <0.5 ha. |
| Method |

| Clearing Limit and Partial Clearing Monitoring |
|---|
| <u>Tracking of clearing limits:</u><br>• Georeferenced drone imagery (or equivalent) with a spatial accuracy <1 m must be used to verify the clearing.<br><u>Vegetation condition monitoring:</u><br>• Assessments will be carried out using vegetation integrity survey plot methods outlined in the BAM. Monitoring sites will consist of plots measuring 400 m² (e.g. 20 m × 20 m), with actual plot dimensions adjusted to suit the available area within each partially cleared site.<br><u>Photographic monitoring:</u><br>• Baseline data will consist of 'baseline' photographs taken prior to the commencement of clearing works. Photographic monitoring locations established in baseline session will be permanent for the duration of the monitoring program. The geolocation and bearing of the initial (baseline) photographs will be recorded, and a physical marker installed, to ensure subsequent photographs remain consistent throughout the construction phase and allow accurate comparisons to be made.<br>• BAM plot photos in conjunction with vegetation condition monitoring.<br>• At non-vegetation integrity plot sites, photographic monitoring will continue at baseline photo monitoring points. |
| Timing, effort and frequency |
| <u>Tracking of clearing limits:</u><br>• Within 3 months of clearing in the monitoring area then quarterly for the duration of construction.<br><u>Vegetation condition monitoring:</u><br>• Within 3 months of clearing in the monitoring area then biannually at each monitoring site for the duration of construction.<br><u>Photographic monitoring:</u><br>• Within 3 months of clearing in the monitoring area then biannually at each monitoring site for the duration of construction. |
| Data analysis |
| <u>Tracking of clearing limits:</u><br>• The vegetation tracking must be reconciled with reference to the most current final layout plans submitted to the Department.<br>• Vegetation and Species Polygons must utilise the most current HumeLink data set approved by CPHR from the Revised BDAR or subsequent Condition 29 Biodiversity Assessment Verification Report.<br><u>Vegetation condition monitoring:</u><br>• Comparison of VI Score, composition and structure scores for grass and forb growth forms and leaf litter for each paired plot.<br><u>Photographic monitoring:</u><br>• The visual condition of PCTs is to be directly compared to the baseline photographic monitoring session and all previous photographic monitoring session(s). |

## Clearing Limit and Partial Clearing Monitoring

### Reporting

Partial Clearing Validation Report (PCVR) will be prepared quarterly by an appropriately experienced ecologist accredited under the BAM. The following information is to be collected and compiled within each report:

Part A: Clearing limit tracking:

- Table of the HLW construction clearing limits with comparison to the extent of clearing completed.
- Forecast for clearing of each PCT and threatened species habitat.

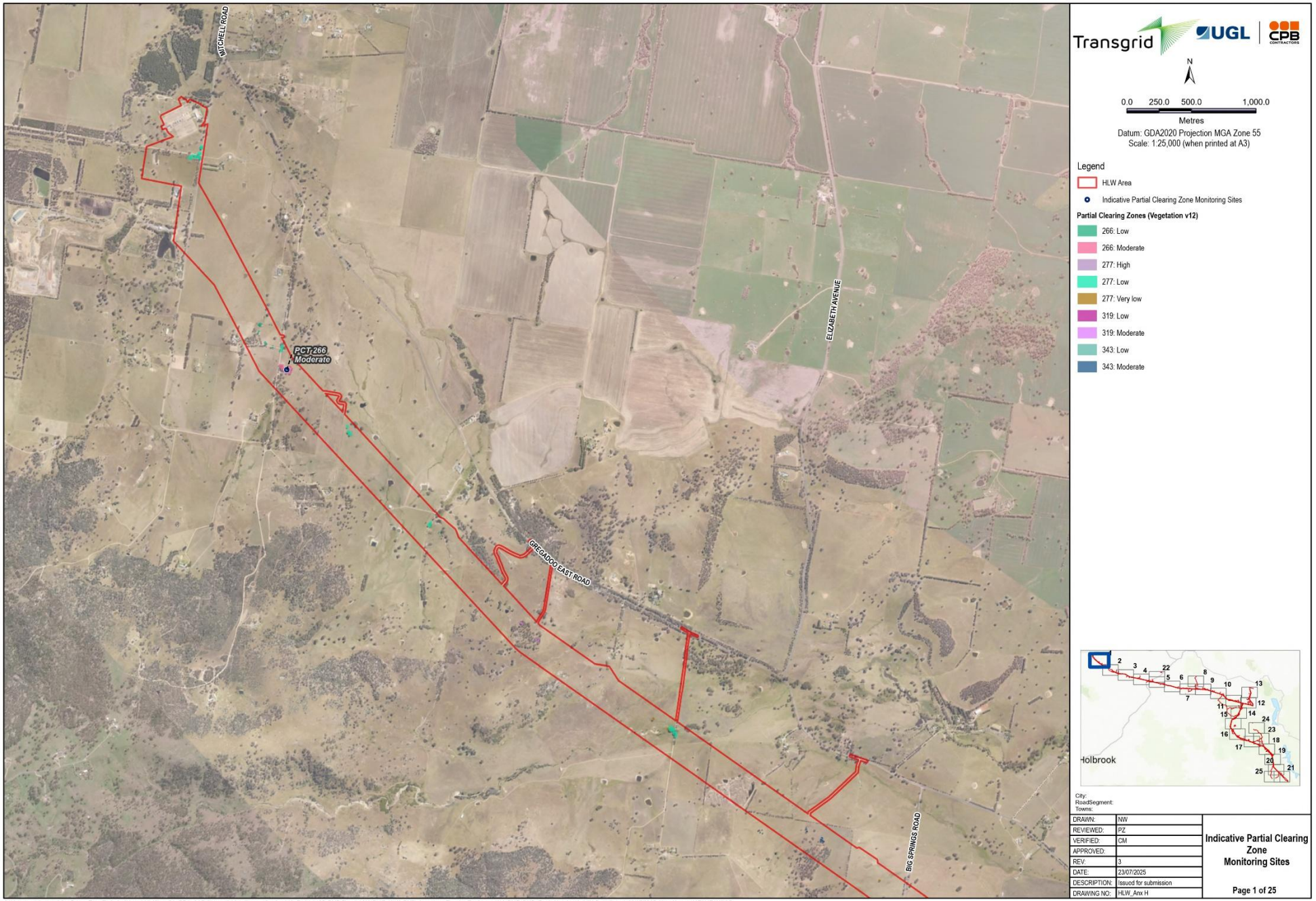
Part B: Partial Clearing Monitoring:

- Description of areas subject to partial clearance to date, including area ($m^2$) of each PCT partially cleared.
- The name of contributors to the report and the BAM Accredited Assessor responsible for the results.
- Date(s).
- Weather conditions.
- VI scores for each paired plot by applying s4.3.3 of the BAM for assessing vegetation integrity (VI plot survey), including provision of field data sheets.
- Photographic monitoring images compared with previous and baseline images.
- Any other disturbance observed within partial clearance monitoring areas.
- Assessment against targets listed above.
- Recommendations for any additional actions required.

Reports will be provided to Transgrid within 6 weeks of the end of each reporting period.

### Adaptive management

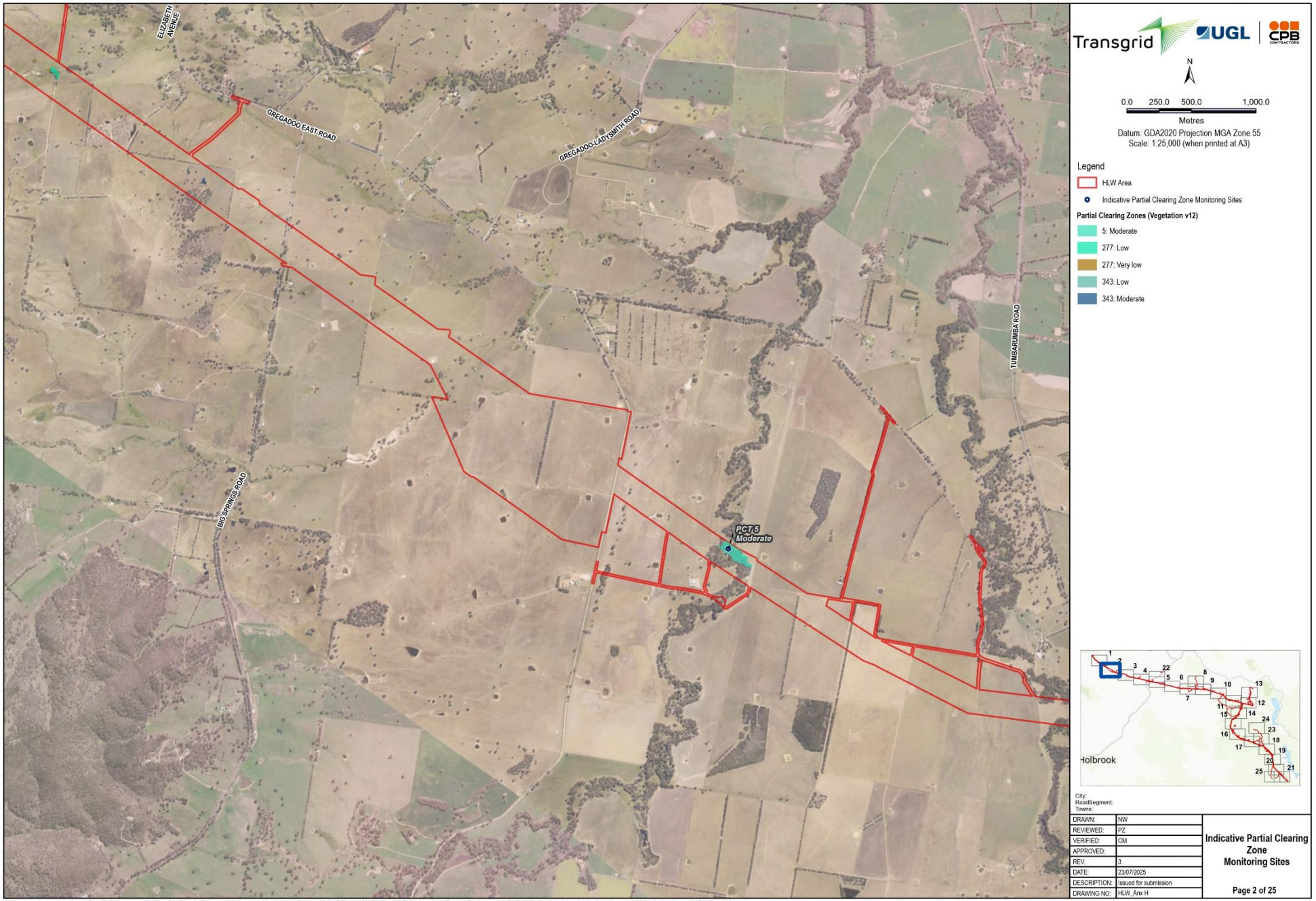
- Forecast exceedance of the clearing limits must be addressed by avoiding impact within the future clearing areas. If this is not possible, a request must be made in accordance with B25 to change the clearing limits.
- Unless otherwise explained by non-HLW associated impacts (e.g., extreme climate events, bushfires, etc.), corrective actions will be required should the triggers be met. Depending on the likely cause of visible condition decline, the decline in VI or negative changes in other metrics such as dieback, stress or disturbance, the Project Ecologist and Environmental Manager will determine the best course of action in consultation with Transgrid. Corrective actions that would be discussed and confirmed between Transgrid and the Project Ecologist may include:
  - Identifying the cause of declines in vegetation condition.
  - A review of the areas identified as ECZ and HTZ.
  - A review of works occurring within partial clearance zones.
  - Review of this Biodiversity Monitoring Program and Annexure B: Clearing Protocol of the HLW BMP for any changes required.
  - Review if further Project training is required and implemented.
- Where the triggers are met, Transgrid will determine appropriate additional mitigation measures in consultation with CPHR.




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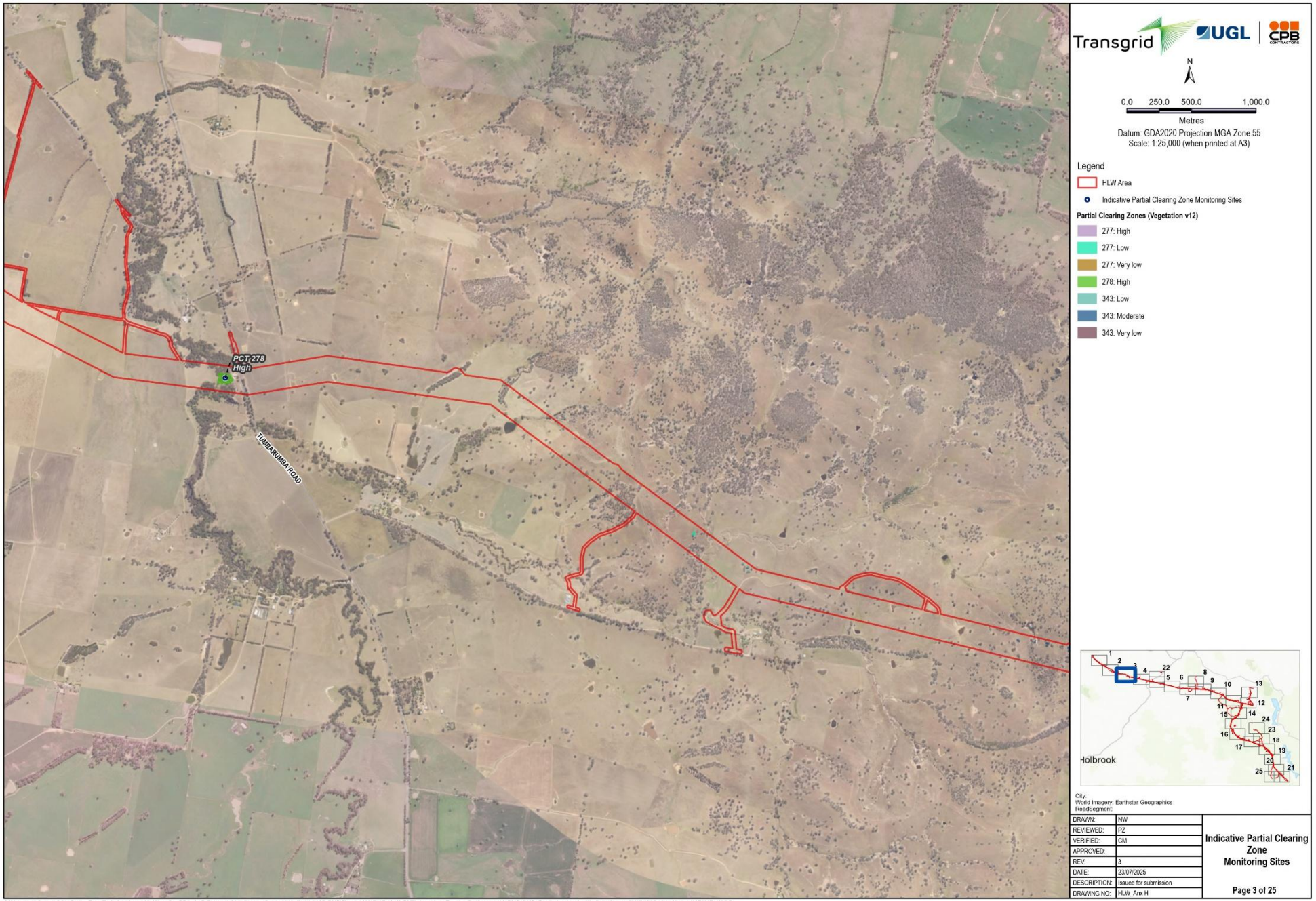
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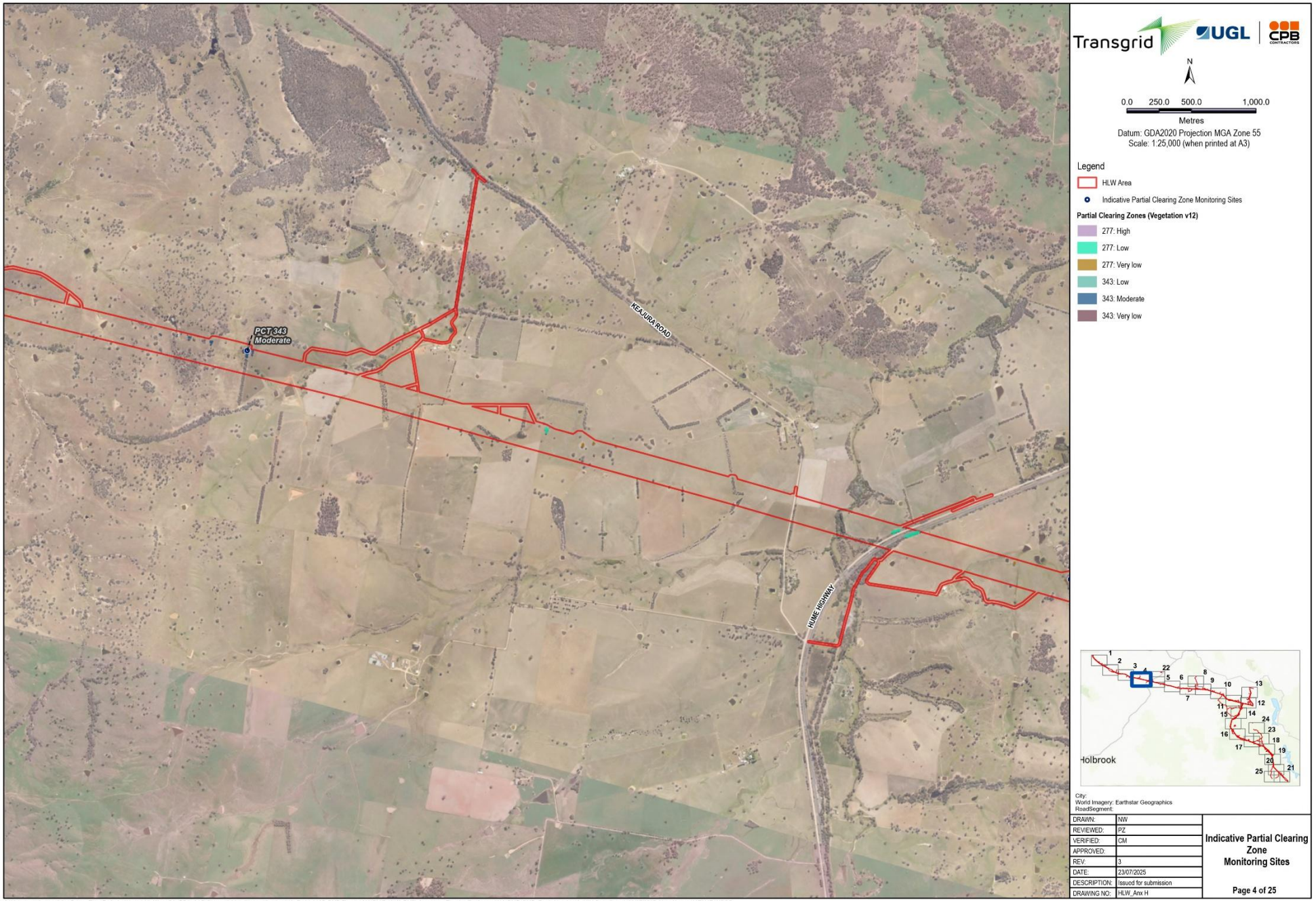

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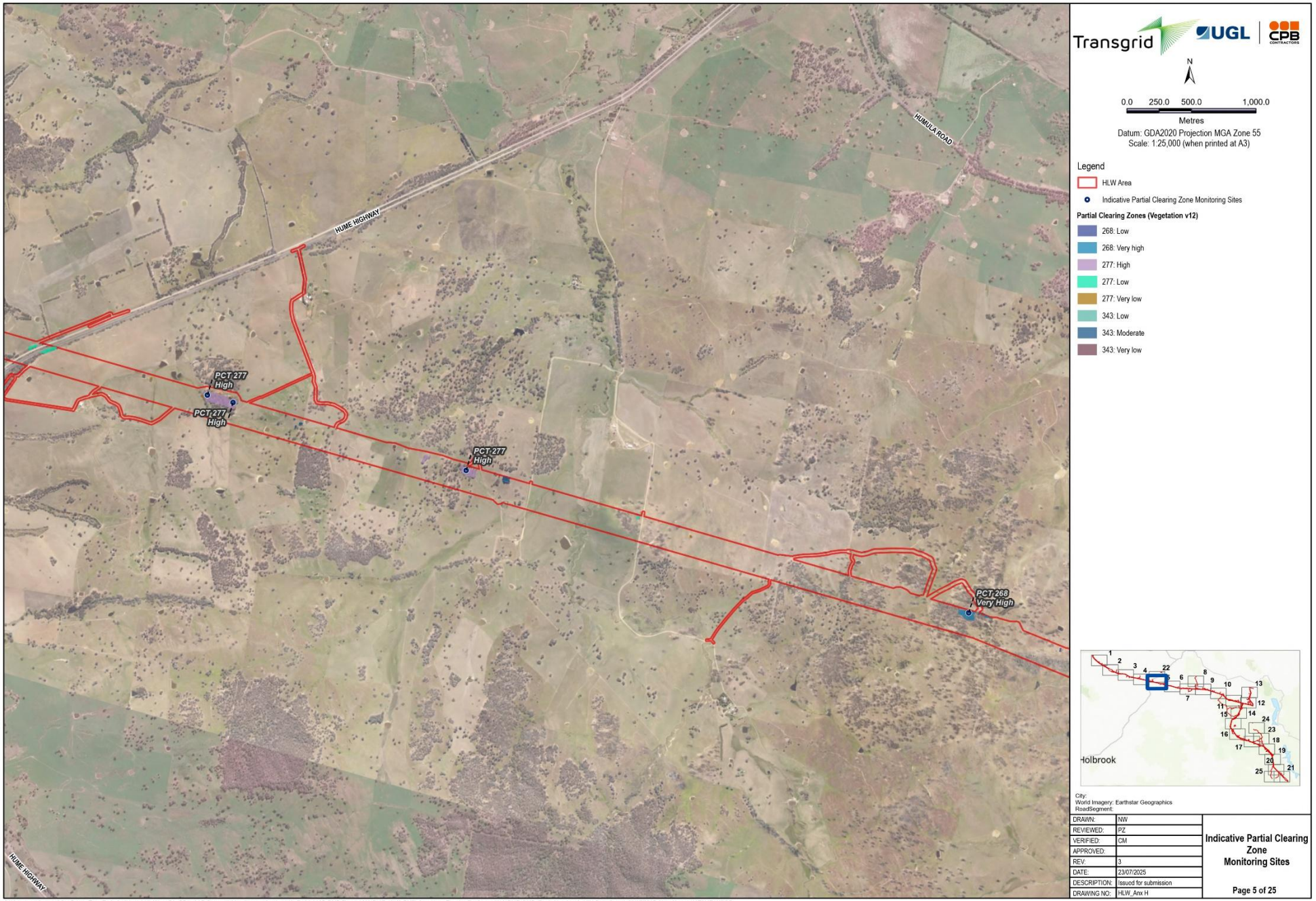
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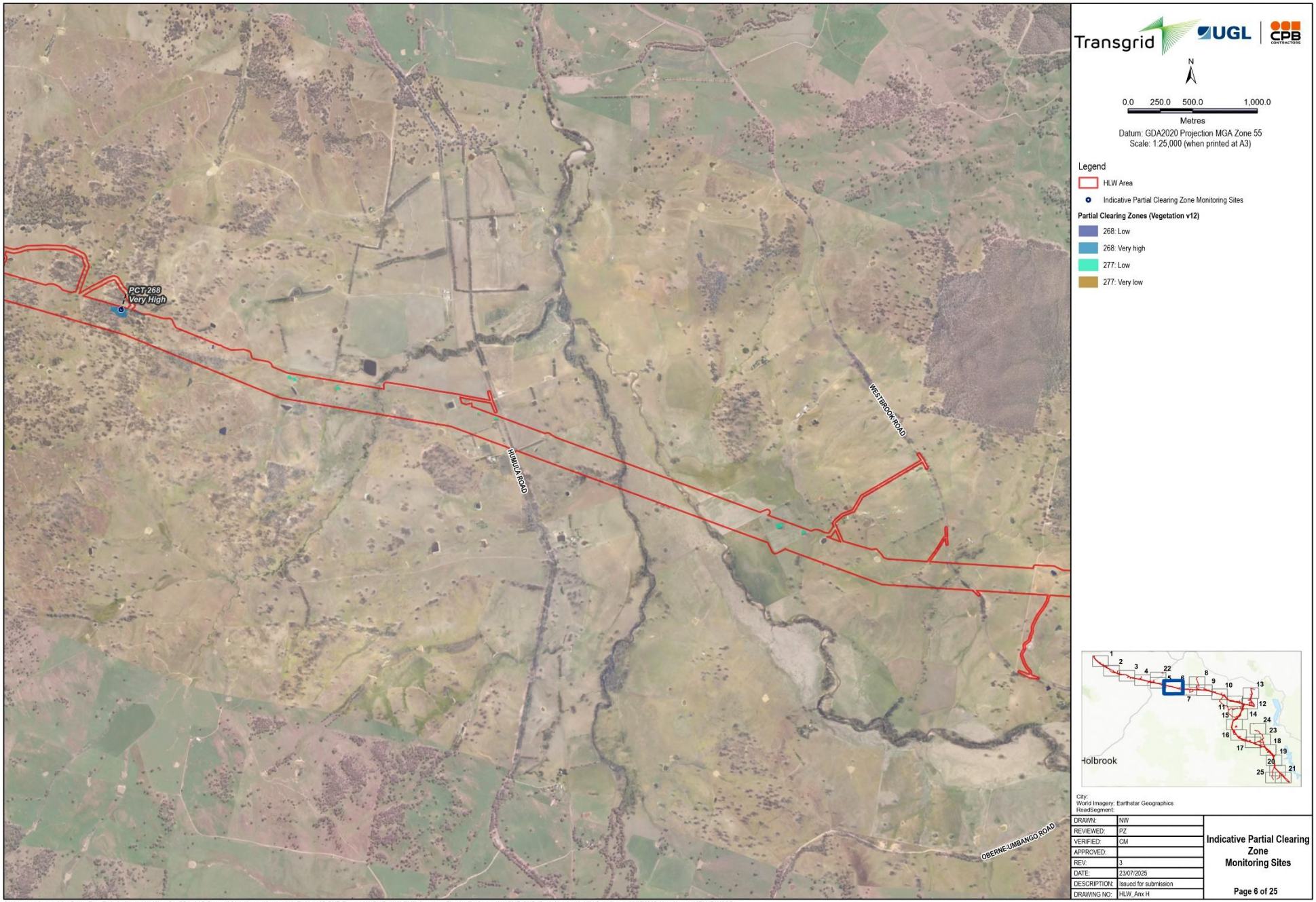

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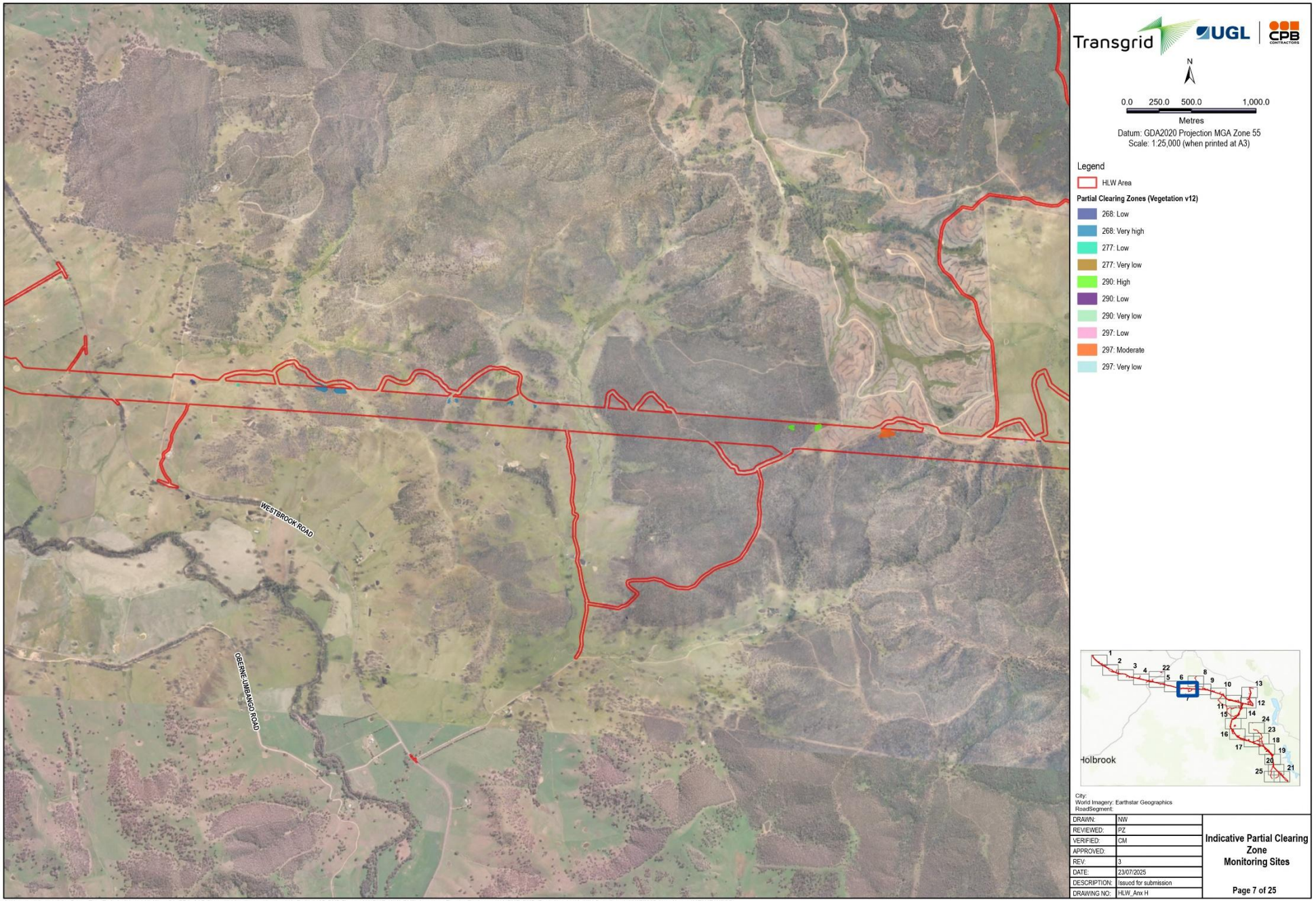

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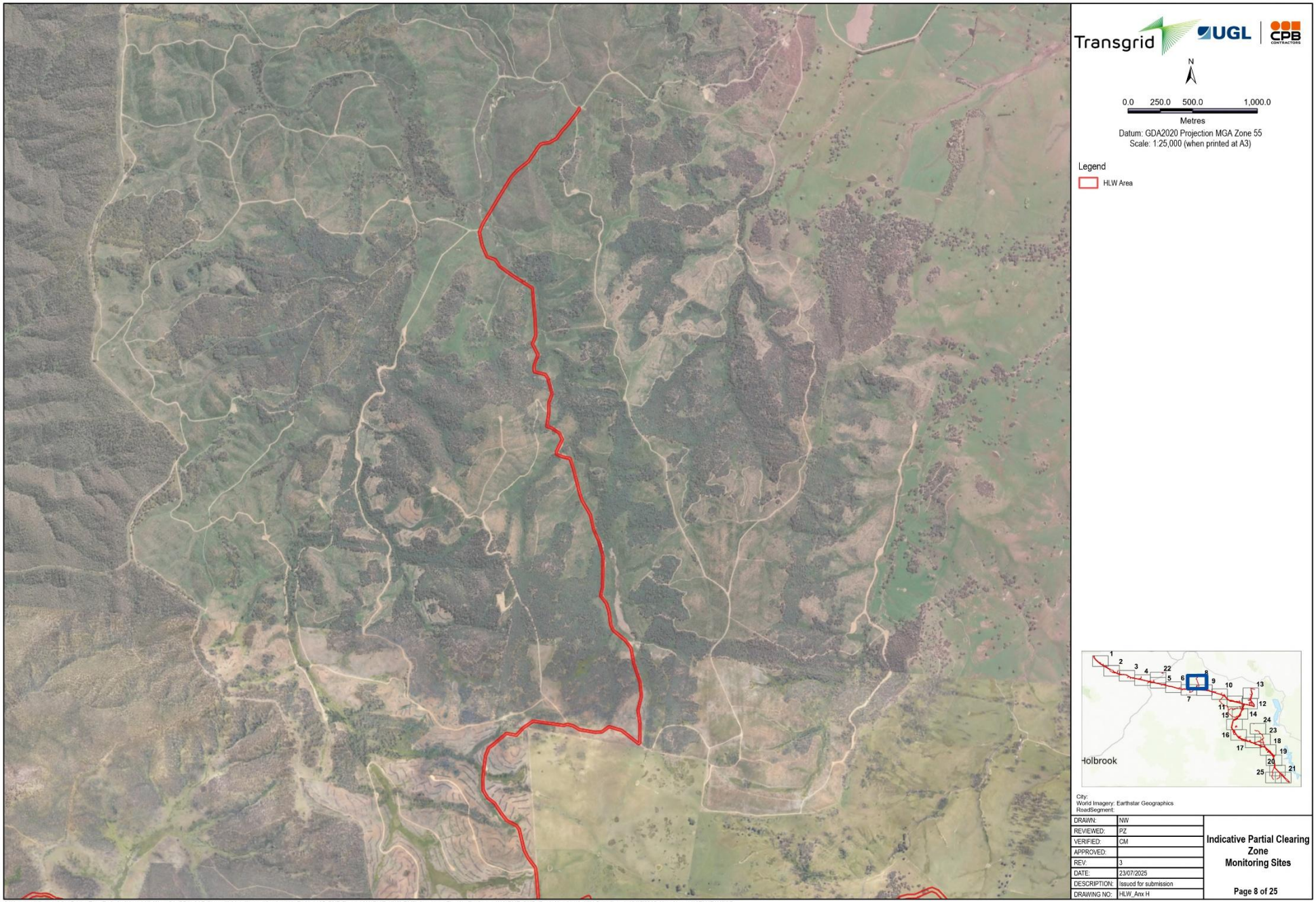

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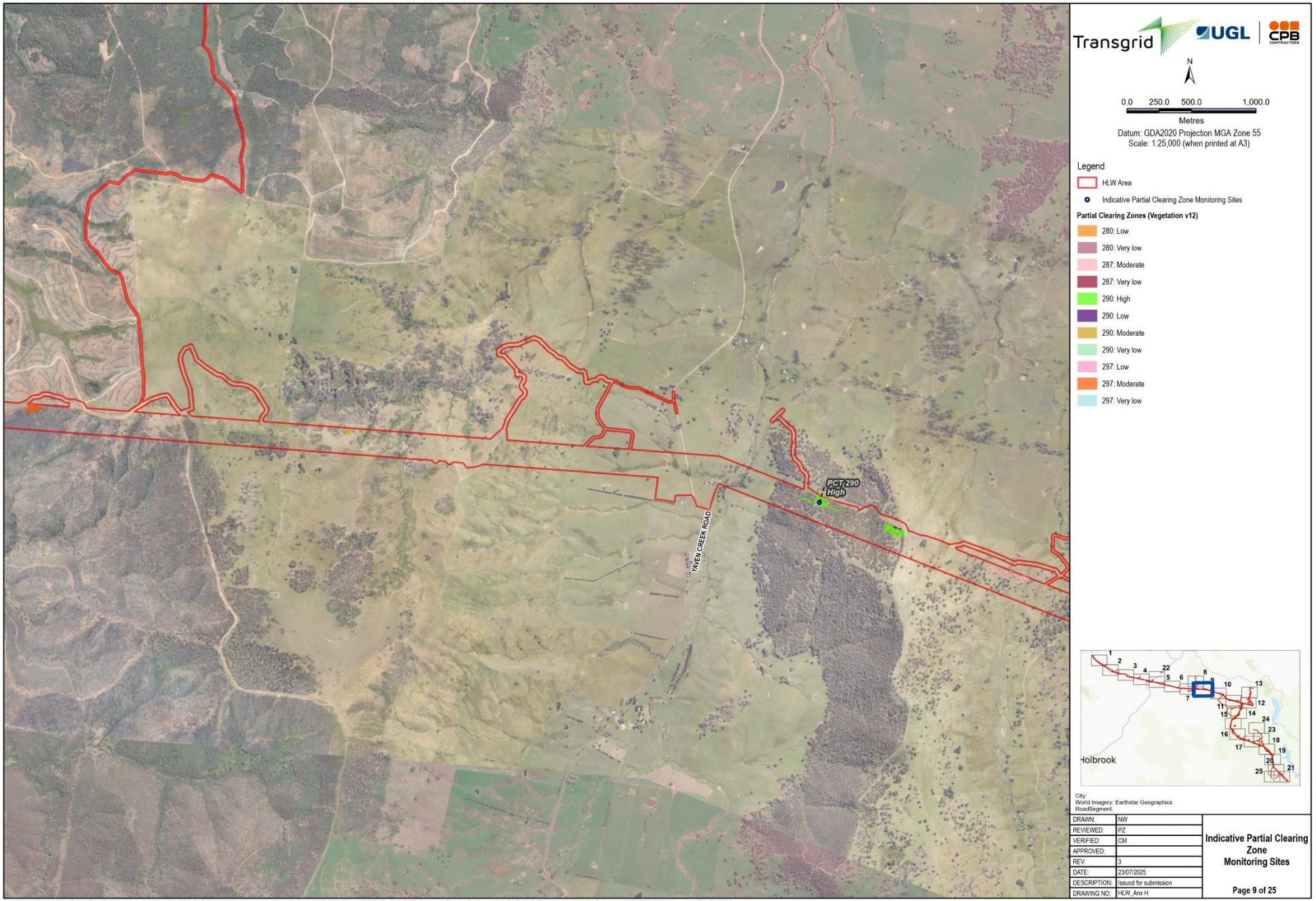
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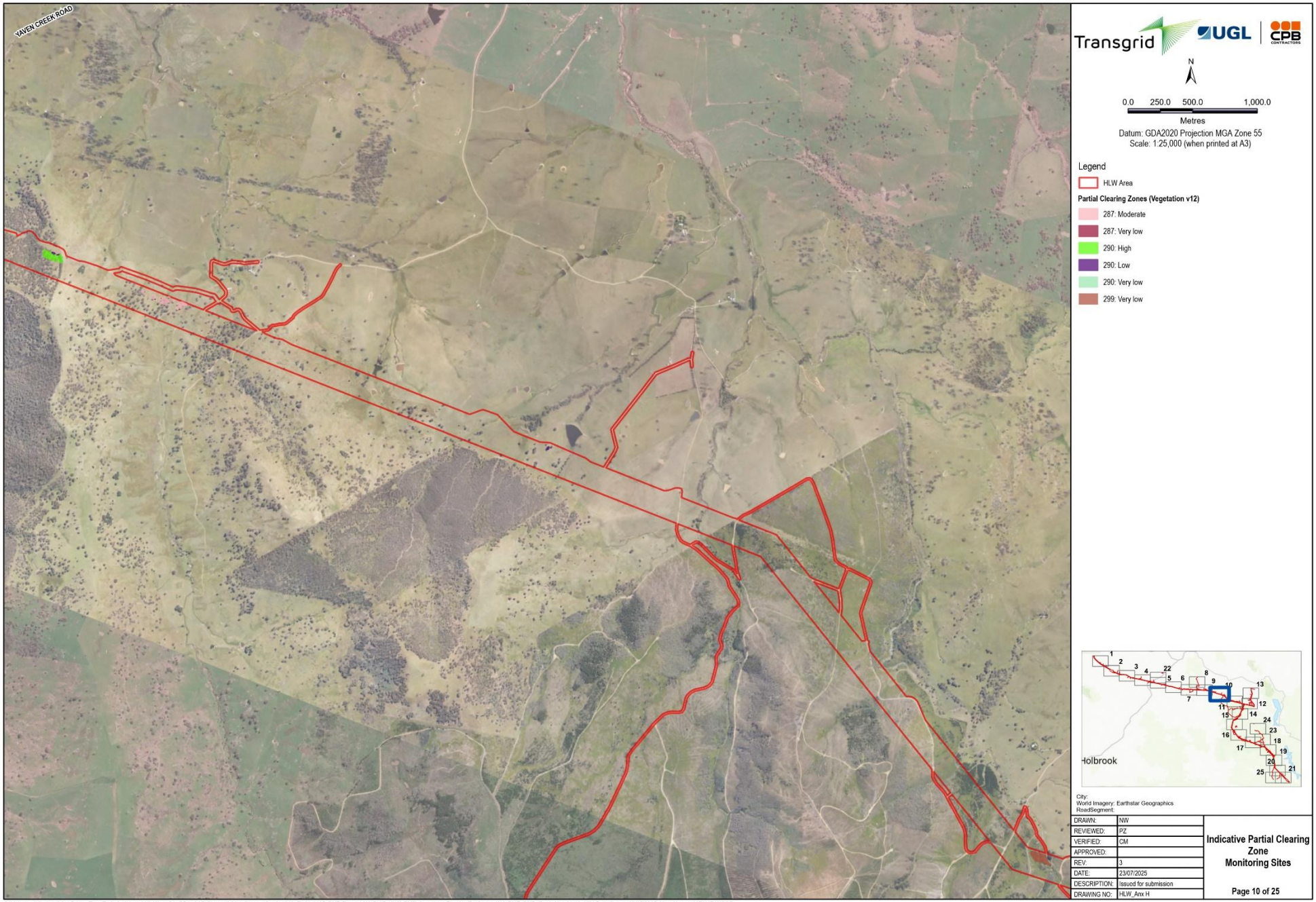
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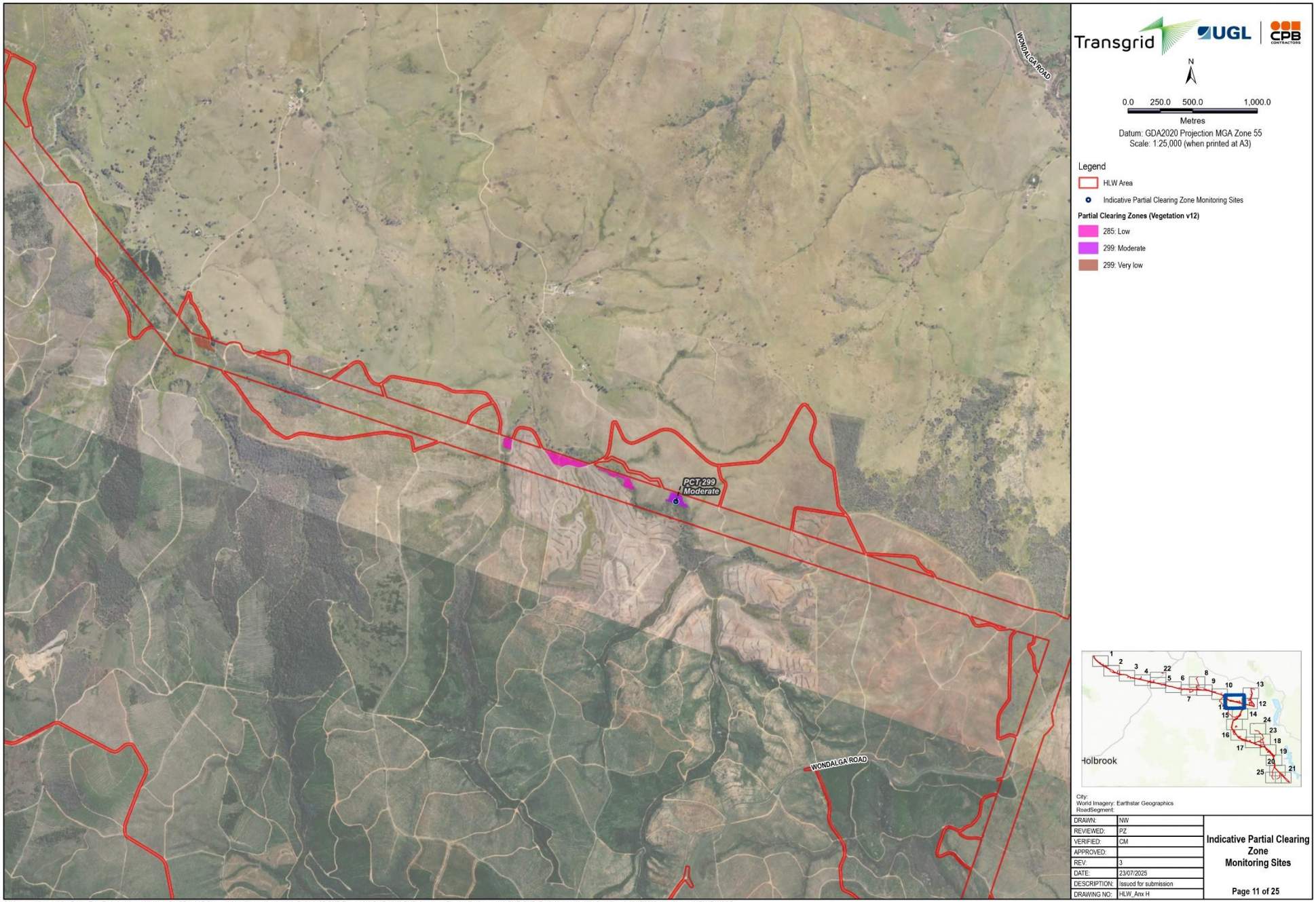


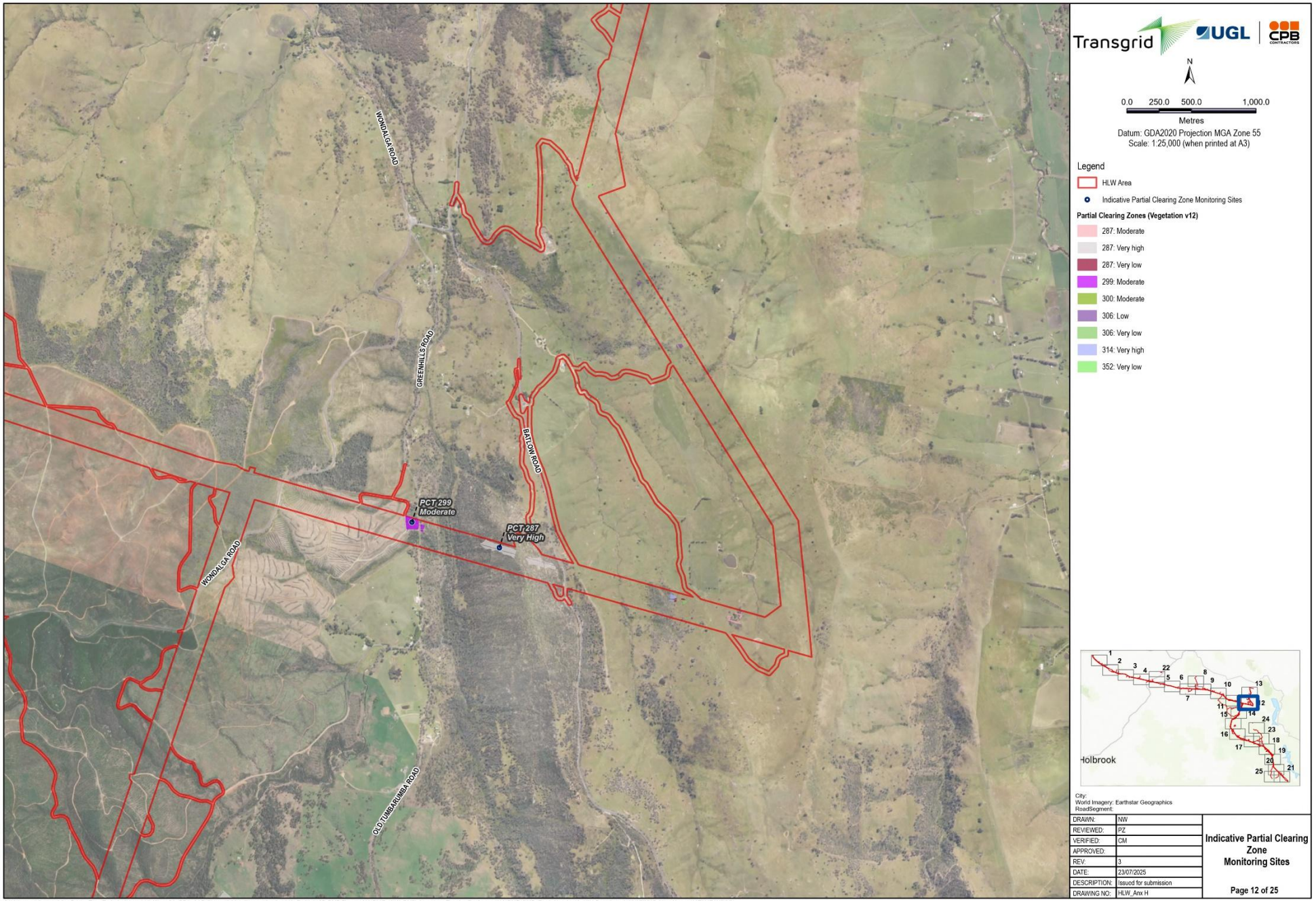

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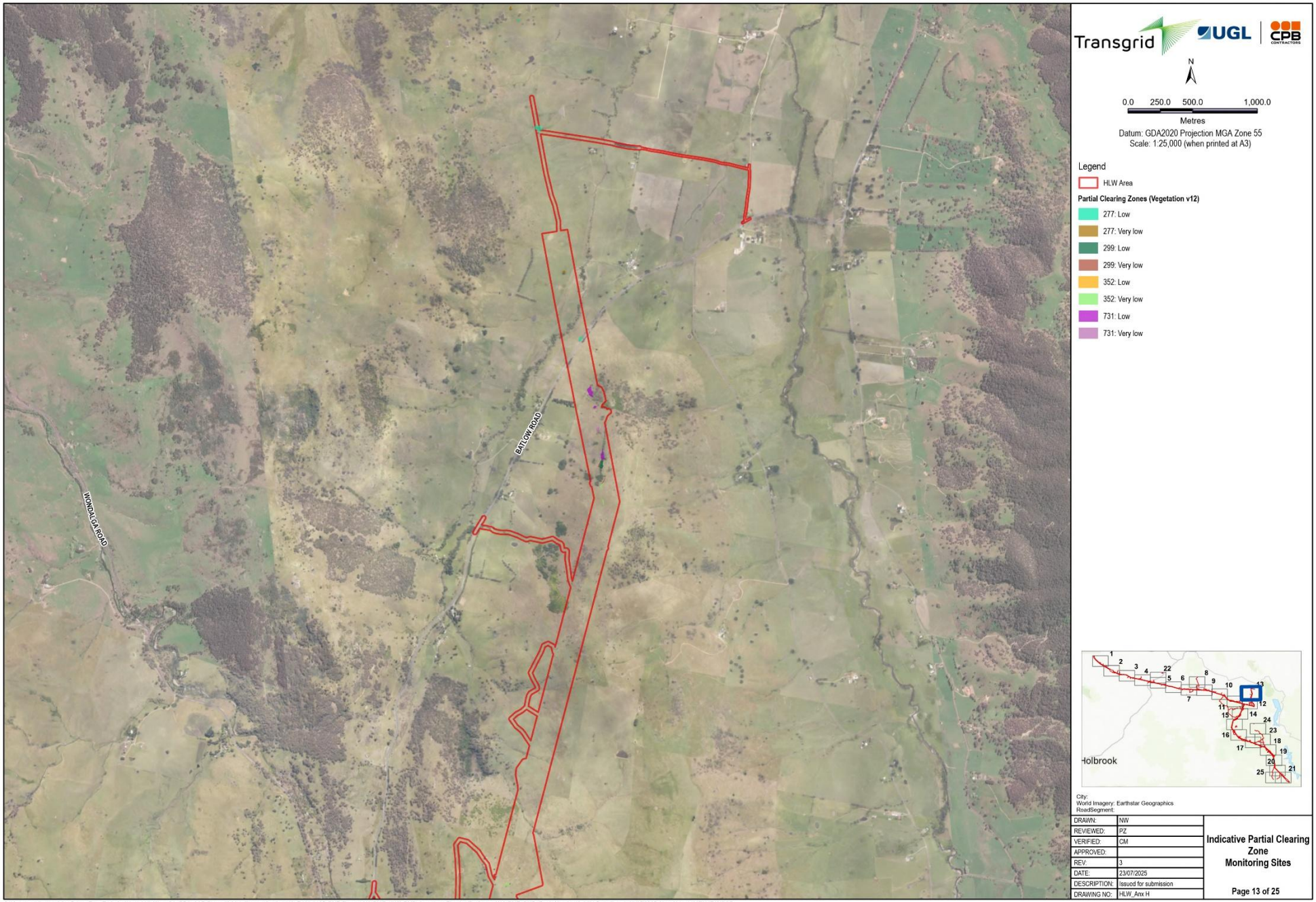
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YAVEN CREEK ROAD
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Metres
Datum: GDA2020 Projection MGA Zone 55
Scale: 1:25,000 (when printed at A3)
Legend
HLW Area
Partial Clearing Zones (Vegetation v12)
287: Moderate
287: Very low
290: High
290: Low
290: Very low
299: Very low
Holbrook
City:
World Imagery: Earthstar Geographics
RoadSegment:
DRAWN: NW
REVIEWED: PZ
VERIFIED: CM
APPROVED:
REV: 3
DATE: 23/07/2025
DESCRIPTION: Issued for submission
DRAWING NO: HLW_Anx H
Indicative Partial Clearing Zone Monitoring Sites
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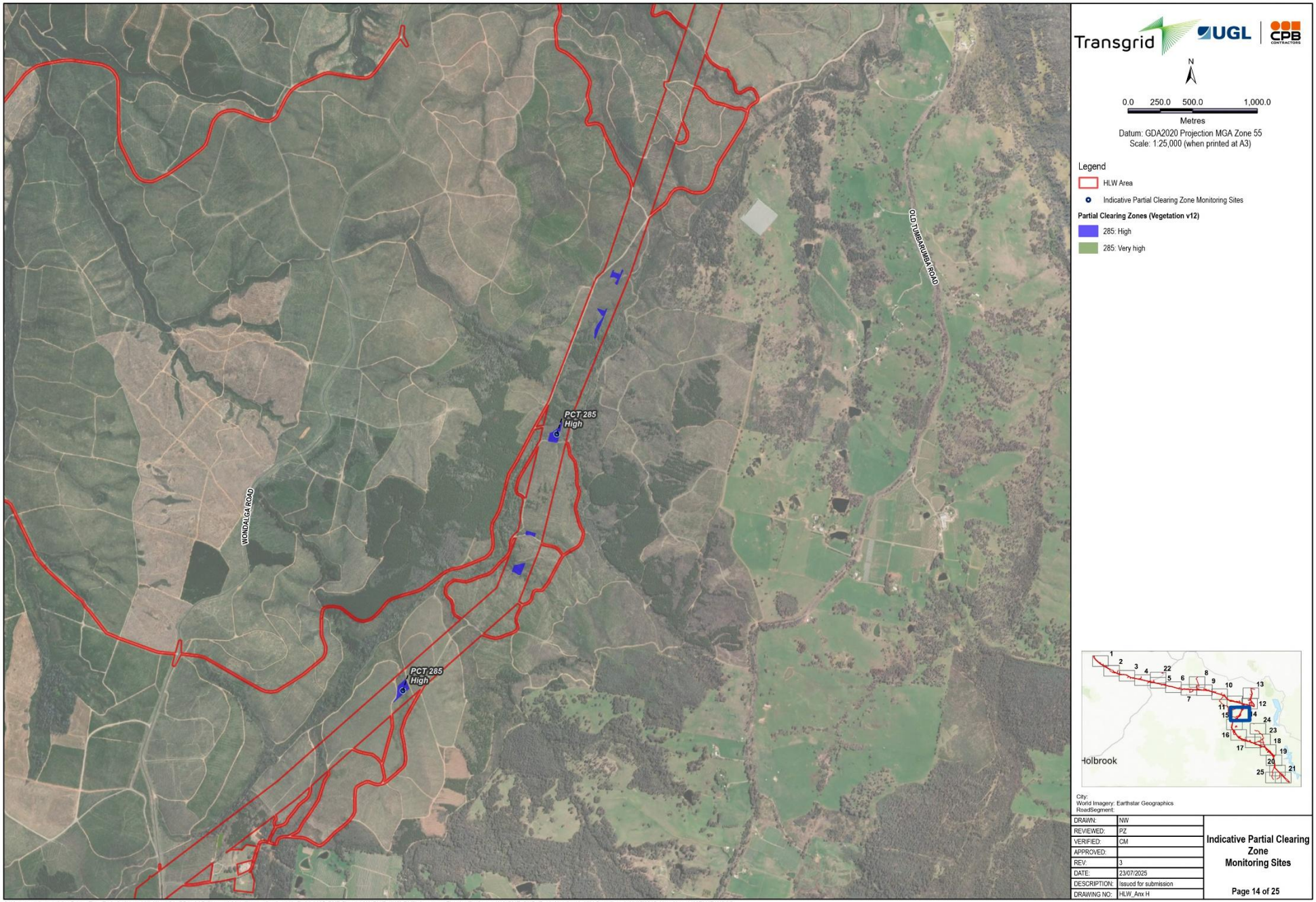

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PCT 299
Moderate
WONDALGA ROAD
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Metres
Datum: GDA2020 Projection MGA Zone 55
Scale: 1:25,000 (when printed at A3)
Legend
HLW Area
Indicative Partial Clearing Zone Monitoring Sites
Partial Clearing Zones (Vegetation v12)
285: Low
299: Moderate
299: Very low
Holbrook
City:
World Imagery: Earthstar Geographics
RoadSegment:
DRAWN: NW
REVIEWED: PZ
VERIFIED: CM
APPROVED:
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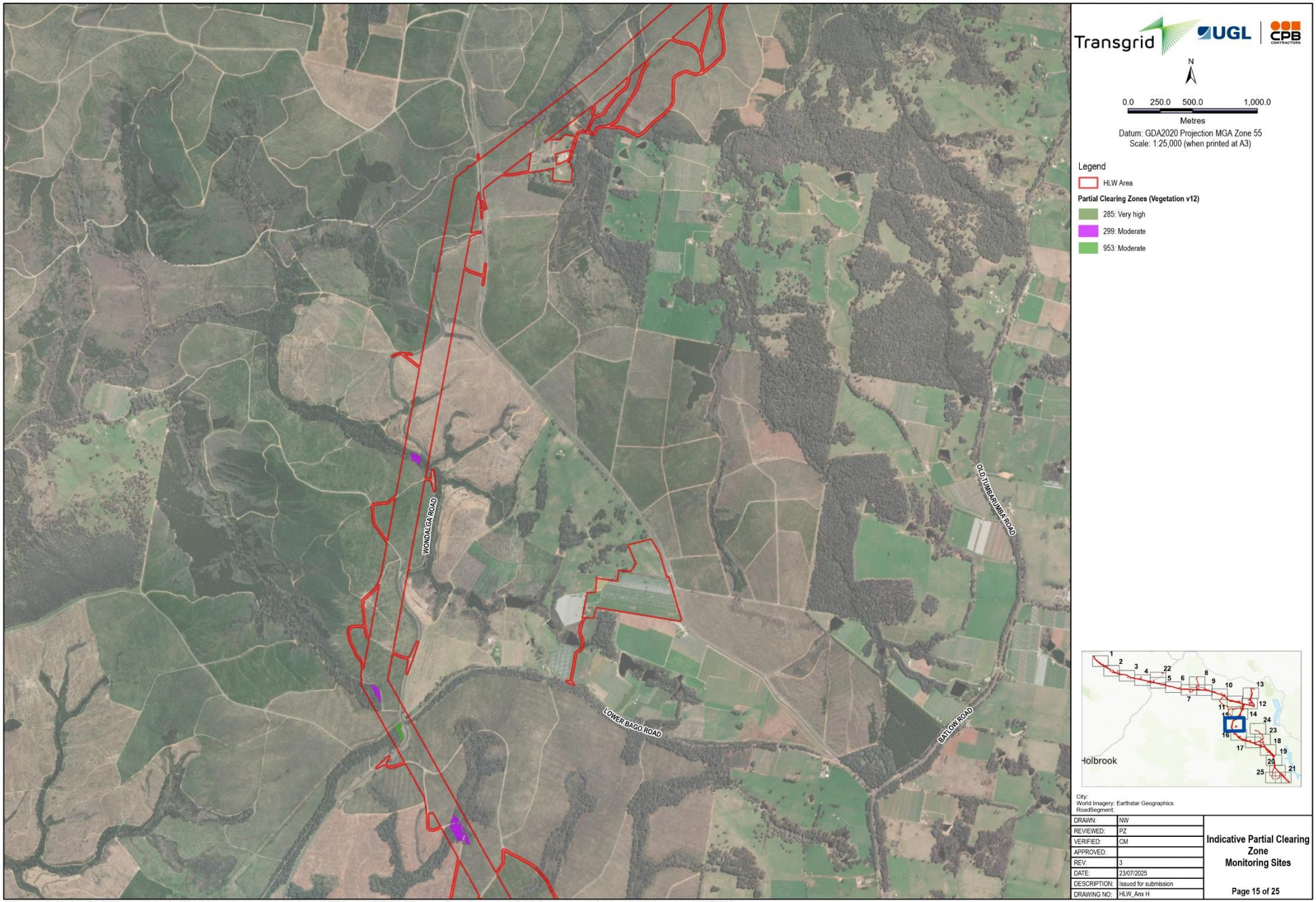

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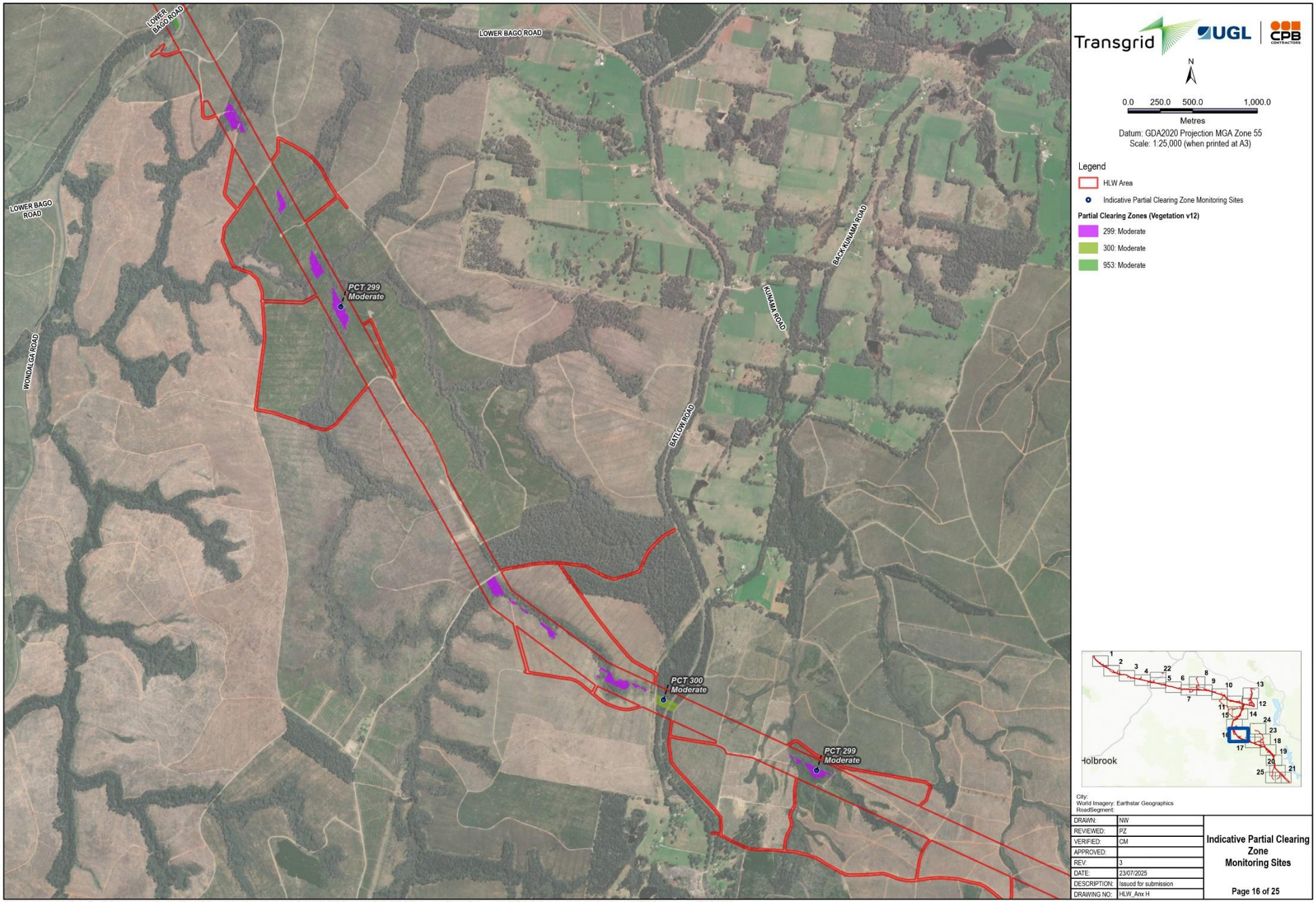

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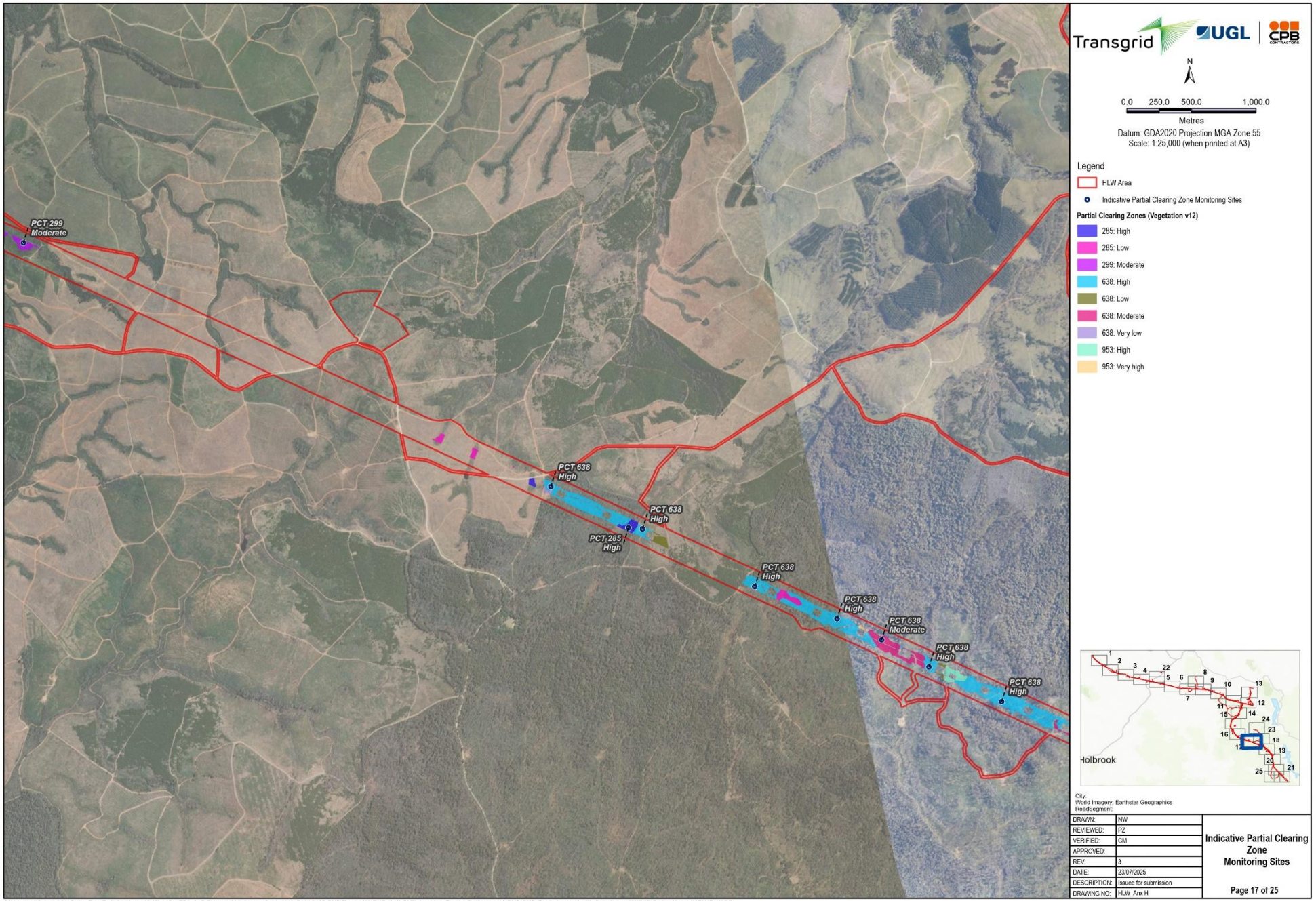

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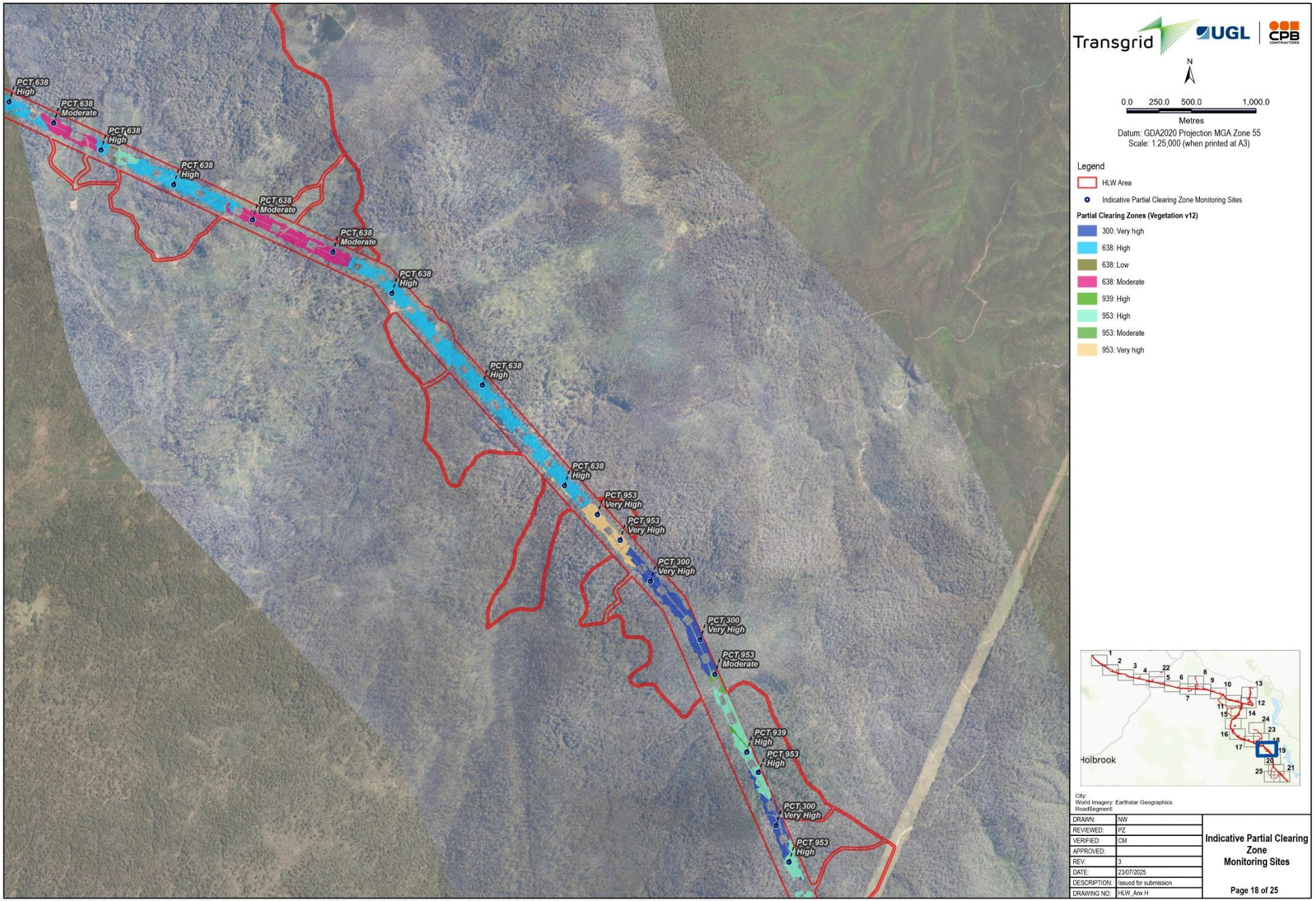


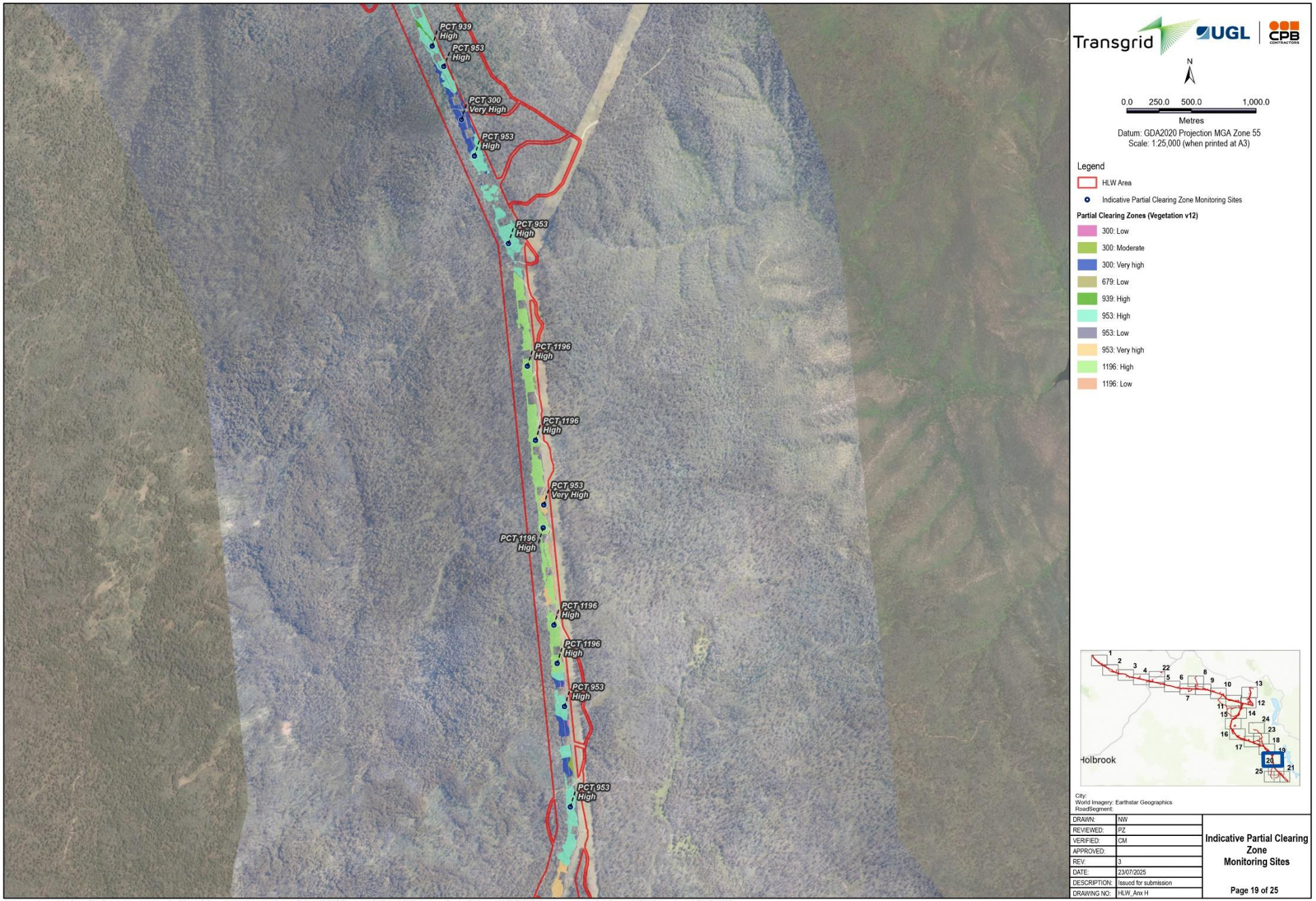

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PCT 299
Moderate
PCT 638
High
PCT 638
High
PCT 285
High
PCT 638
High
PCT 638
High
PCT 638
Moderate
PCT 638
High
PCT 638
High
Transgrid
UGL
CPB
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Metres
Datum: GDA2020 Projection MGA Zone 55
Scale: 1:25,000 (when printed at A3)
Legend
HLW Area
Indicative Partial Clearing Zone Monitoring Sites
Partial Clearing Zones (Vegetation v12)
285: High
285: Low
299: Moderate
638: High
638: Low
638: Moderate
638: Very low
953: High
953: Very high
Holbrook
City:
World Imagery: Earthstar Geographics
RoadSegment:
DRAWN: NW
REVIEWED: PZ
VERIFIED: CM
APPROVED:
REV: 3
DATE: 23/07/2025
DESCRIPTION: Issued for submission
DRAWING NO: HLW_Anx H
Indicative Partial Clearing Zone Monitoring Sites
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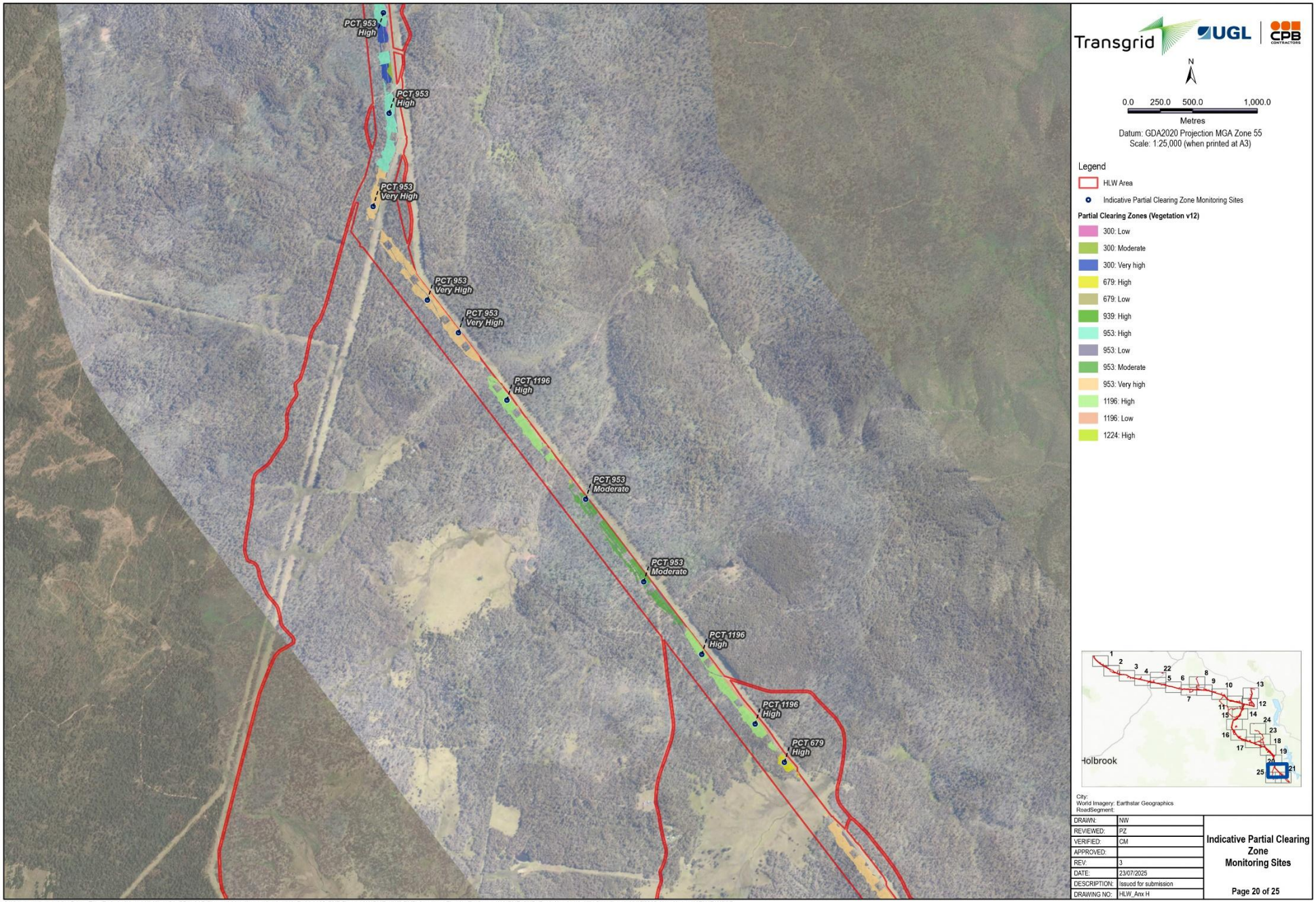

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PCT 638 Moderate
PCT 638 High
PCT 638 High
PCT 638 Moderate
PCT 638 Moderate
PCT 638 High
PCT 638 High
PCT 638 High
PCT 953 Very High
PCT 953 Very High
PCT 300 Very High
PCT 300 Very High
PCT 953 Moderate
PCT 939 High
PCT 953 High
PCT 300 Very High
PCT 953 High
Transgrid
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Metres
Datum: GDA2020 Projection MGA Zone 55
Scale: 1:25,000 (when printed at A3)
Legend
HLW Area
Indicative Partial Clearing Zone Monitoring Sites
Partial Clearing Zones (Vegetation v12)
300: Very high
638: High
638: Low
638: Moderate
939: High
953: High
953: Moderate
953: Very high
Holbrook
City:
World Imagery: Earthstar Geographics
RoadSegment:
DRAWN: NW
REVIEWED: PZ
VERIFIED: CM
APPROVED:
REV: 3
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Indicative Partial Clearing Zone Monitoring Sites
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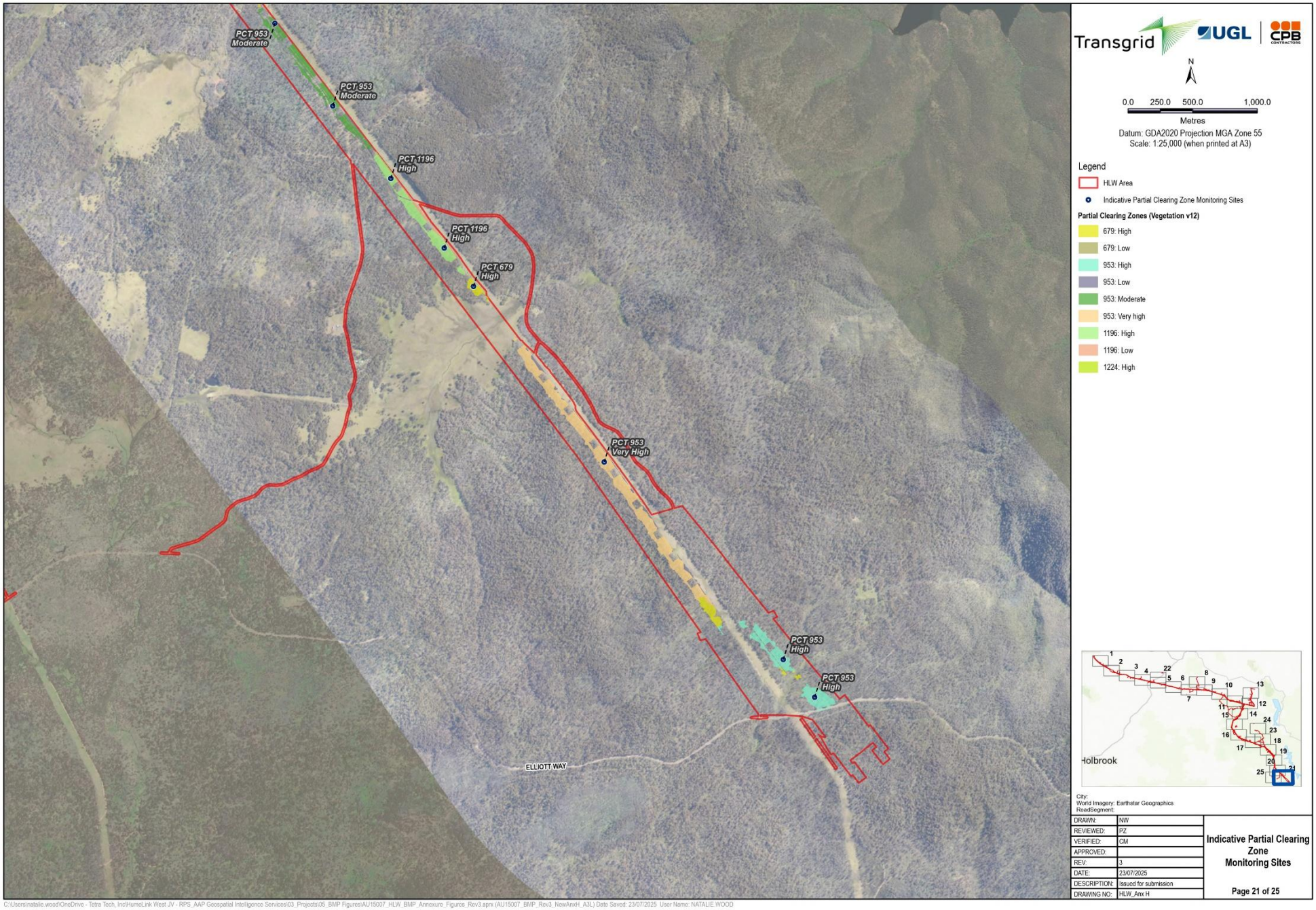
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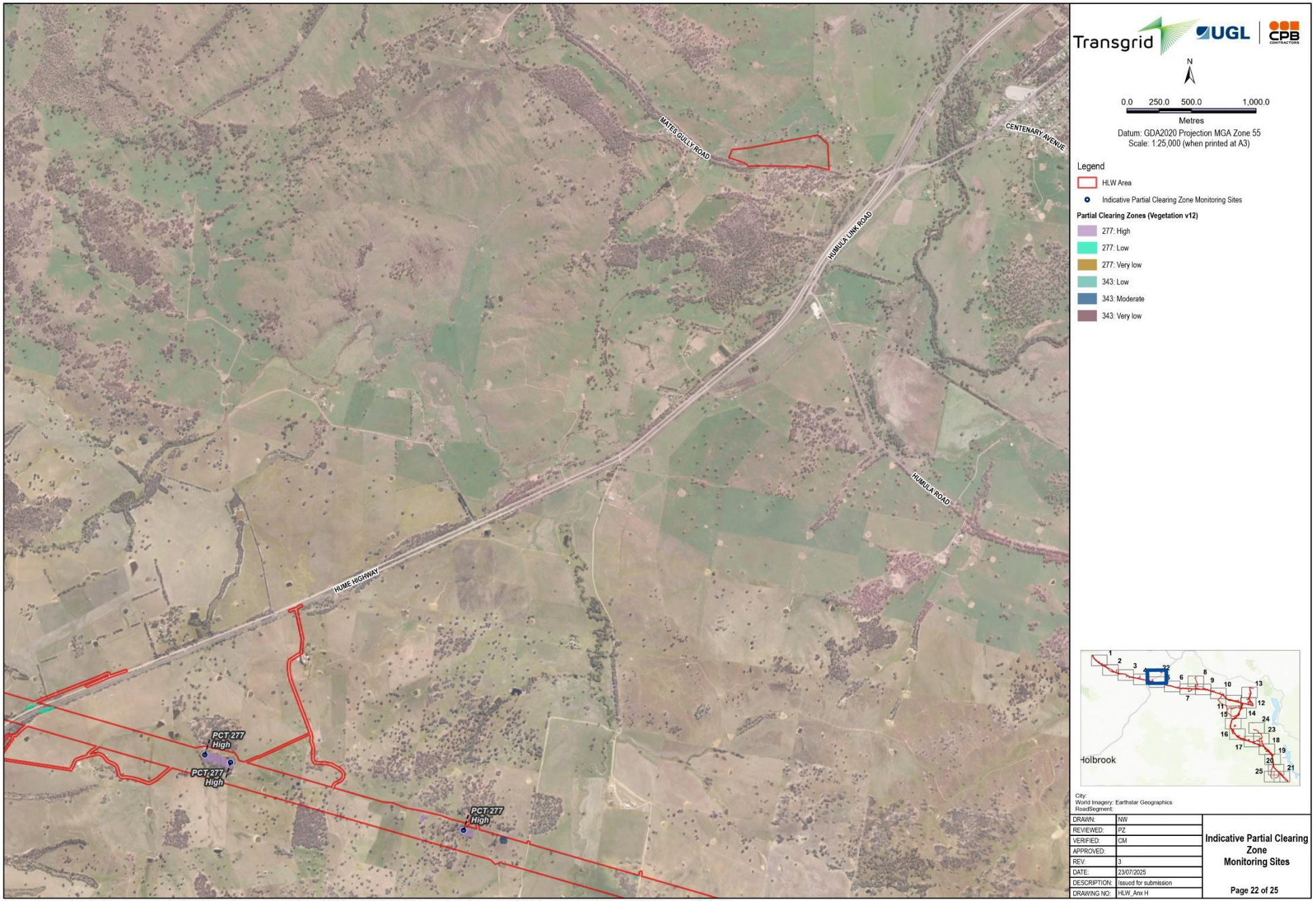

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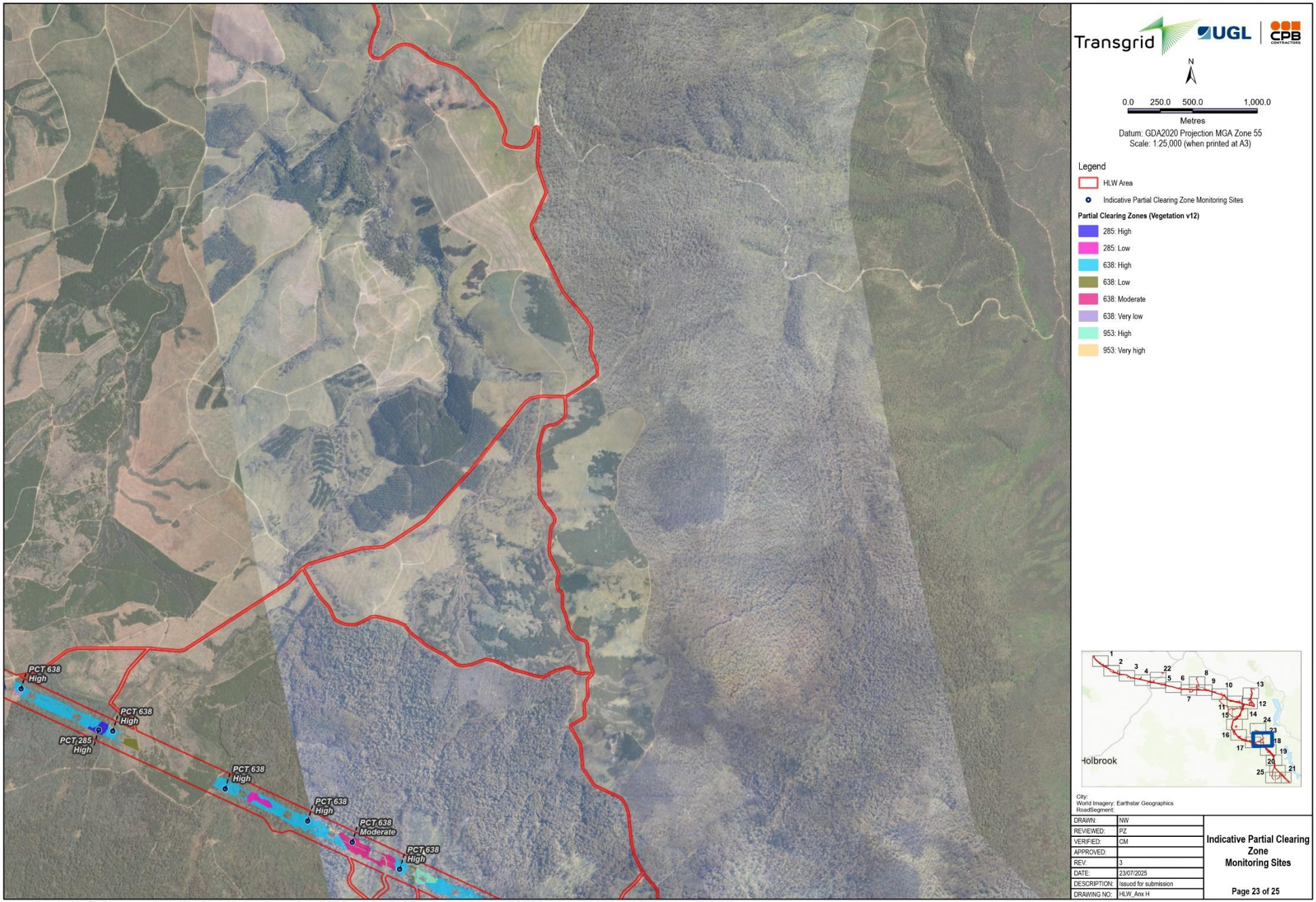

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Metres

Datum: GDA2020 Projection MGA Zone 55
Scale: 1:25,000 (when printed at A3)

Legend

- HLW Area
- Indicative Partial Clearing Zone Monitoring Sites

**Partial Clearing Zones (Vegetation v12)**

- 285: High
- 285: Low
- 638: High
- 638: Low
- 638: Moderate
- 638: Very low
- 953: High
- 953: Very high




City:
World Imagery: Earthstar Geographics
RoadSegment:

| | |
|---|---|
| DRAWN: | NW |
| REVIEWED: | PZ |
| VERIFIED: | CM |
| APPROVED: | |
| REV: | 3 |
| DATE: | 23/07/2025 |
| DESCRIPTION: | Issued for submission |
| DRAWING NO: | HLW_Anx H |

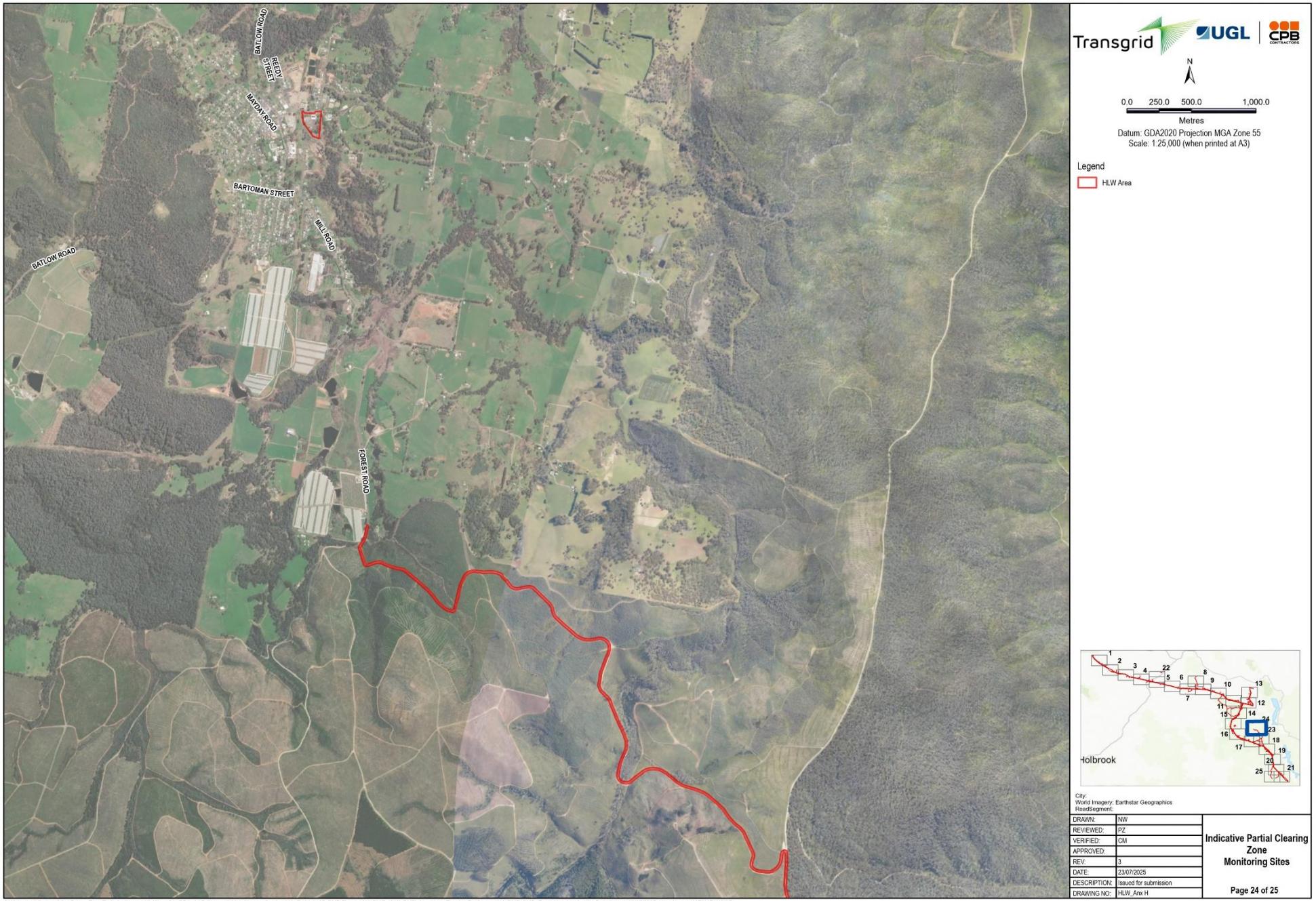
**Indicative Partial Clearing Zone Monitoring Sites**

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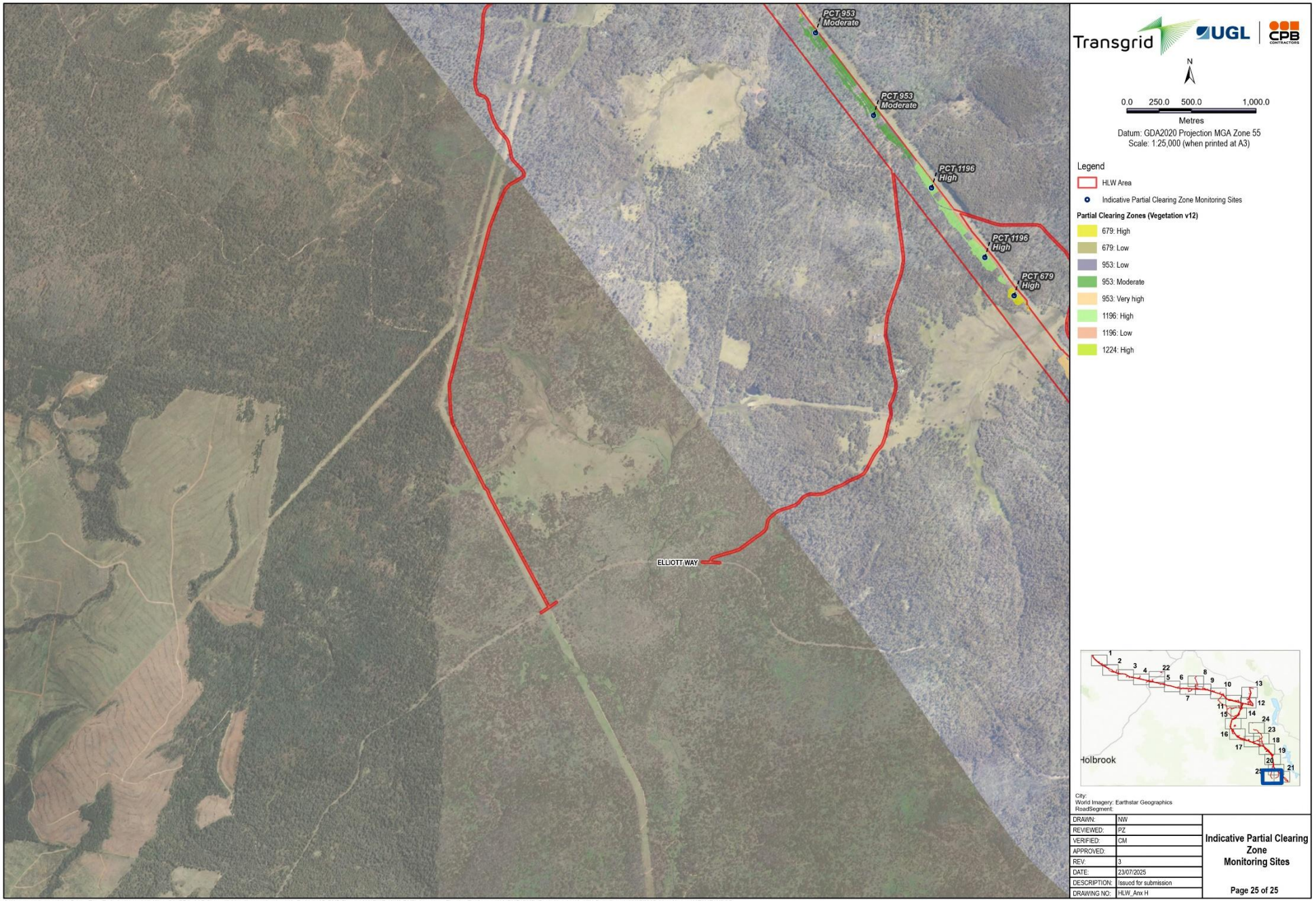
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## 4.3. Threatened flora monitoring

Threatened flora monitoring is detailed in Table 4-7 below.

Table 4-7 Threatened flora monitoring

| Threatened Flora Monitoring |
|---|
| Objective and target |
| Monitor indirect impacts (e.g., dust, erosion, trampling, weeds) on threatened flora occurring adjacent to disturbance zones.<br>Targets for monitoring include:<br>• No measurable decline in abundance, condition, health, or population extent of threatened flora located within 30 m of disturbance zones.<br>• No increase in weed % compared to control sites. |
| Location and sampling units |
| Flora monitoring sites have been identified at all locations where threatened flora species (*Ammobium craspedioides*, *Pimelea bracteata, Prasophyllum bagoense, Prasophyllum keltonii* & *Xerochrysum palustre*) have been recorded within 30 m of disturbance zones during Revised BDAR surveys (Section 4.7), as well as >30 m from disturbance sites (if present) for control sites. If pre-clearing surveys or biodiversity verification reporting identify any additional species within 30 m of disturbance zones, monitoring of impact and control sites will occur in accordance with this monitoring program. |
| Method |
| Before-After-Control-Impact (BACI) monitoring as detailed below.<br>Fixed photographic monitoring points and vegetative monitoring 20 x 20 m plot (or 400 $m^2$ equivalent for linear areas). Each plot must be assessed in accordance with composition and structure plot guidelines listed in the BAM 2020. Plots will be established and permanently marked using a stake at all corners, tagged for future reference. In addition to vegetation monitoring required by the BAM 2020, record the following specific to the targeted threatened flora:<br>• Presence/absence.<br>• Health/condition – score based on leaf colour, turgor, flowering, insect damage, etc.<br>• Recruitment – # seedlings, juveniles.<br>• Dust/erosion – score based on dust accumulation, exposed root, sediment runoff, etc.<br>• Trampling or disturbance – broken stems, soil compaction, vehicular tracks. |
| Timing, effort and frequency |

| Threatened Flora Monitoring |
|---|
| Where possible, one monitoring event should be undertaken prior to construction activities occurring, or as close as possible to commencement (ideally within 3 months). Monitoring will then be undertaken annually in Spring and Summer during construction to encompass the approved survey period for current target species:<br>• *Ammobium craspedioides* = Sep-Nov.<br>• *Pimelea bracteata* = year-round.<br>• *Prasophyllum bagoense* = Dec.<br>• *Prasophyllum keltonii* = Jan.<br>Additional monitoring may be required to capture additional flora species identified during pre-clearing surveys or biodiversity verification reporting, with locations incorporated into this program per Section 2.1. |
| Data analysis |
| Based on above survey methods, compare vegetation monitoring plot data of pre-construction (if available), control and impact sites, ensuring:<br>• Observed decline in count, cover or recruitment <10% in impact vs control sites, increase in weed cover <10% compared to control sites, OR<br>• No significant change from baseline ($p \leq 0.05$), with enough replicates for statistical analysis, in impact vs control sites. |
| Reporting |
| Annual threatened flora monitoring will be summarised in the BMP Monitoring Report, including the following:<br>• Details of monitoring methods.<br>• Results and observations – monitoring plot data, threatened species occurrence, health, recruitment, existing disturbance etc.<br>• Discussion/interpretation of impacts – comparison of impact monitoring data with pre-clearing/control data to:<br>◦ Identify decline in abundance, condition, health, or population extent of threatened flora.<br>◦ Identify increased disturbance (e.g., dust, erosion, trampling).<br>◦ Investigate potential causes, HLW-related or otherwise.<br>◦ Investigate consequence of impacts on target flora.<br>• Adaptive management (per the below).<br>Annual BMP Monitoring Reports will be provided to CPHR, NPWS, FCNSW and DCCEEW as soon as they are available. |
| Adaptive management |

| Threatened Flora Monitoring |
|---|
| • Initial investigation to document potential causation between decline and HLW construction related impacts.<br>• Development of a mitigation plan, in consultation with NSW DCCEEW Environment and Heritage, addressing causes of decline as determined in initial investigation.<br>• If this is ineffective, undertake seed collection and propagation from in-situ populations (if appropriate) and try to re-establish local populations. This will be accompanied by additional monitoring.<br>• If this is ineffective, additional offsets may be required. |

## 4.4. Threatened owl, cockatoo and parrot monitoring

Threatened owl, cockatoo and parrot monitoring is detailed in Table 4-8 below.

Table 4-8 Threatened owl, cockatoo and parrot monitoring

| Threatened Owl, Cockatoo and Parrot Monitoring |
|---|
| Objective and target |
| Monitor for threatened owls, cockatoos and parrots adjacent to disturbance zones to detect any significant decline or displacement caused by construction activities.<br>Targets for monitoring include:<br>• Occupancy = target species occupy identified natural or artificial hollows.<br>• Breeding activity = evidence of nesting/breeding (e.g., courtship, nesting, incubation, feeding of chicks).<br>• Site fidelity = repeat use of hollows across years.<br>• Artificial hollow use = use of artificial hollows.<br>• Breeding success = breeding events result in successful fledging of young.<br>• Disturbance response = nesting activity maintained in proximity to disturbance zones. |
| Location and sampling units |
| All threatened owl, cockatoo and parrot nest trees identified during pre-clearing surveys or biodiversity verification surveys within 100 m of disturbance zones will be subject to monitoring. Each confirmed nest tree will comprise a sampling unit.<br>If nest trees are identified > 100 m from disturbance zones, these nest trees will constitute control sites to monitor for disturbance response. |
| Method |
| At all confirmed nest trees within (impact) and over 100 m (control) from disturbance zone, the following will occur:<br>• One motion-triggered or timelapse camera will be installed at each hollow entrance.<br>• One endoscopic camera inspection of the nest hollow will be conducted.<br>• Artificial hollow monitoring per Section 4.1.1. |
| Timing, effort and frequency |

| Threatened Owl, Cockatoo and Parrot Monitoring |
|---|
| Prior to clearing, targeted pre-clearing surveys will be undertaken in assumed and known habitats for threatened owls, cockatoos and parrots per Annexure B: Clearing Protocol to identify confirmed nest trees. Following clearing and annually through construction, any nest trees identified within and over 100 m of disturbance zones will continue to be monitored per this program during breeding periods:<br>• Sooty Owl (breeding season = Mar-Sep).<br>• South-eastern Glossy Black-Cockatoo (breeding season = Apr-Aug).<br>• Masked Owl (breeding season = Apr-Nov).<br>• Powerful Owl (breeding season = May-Oct).<br>• Superb Parrot (breeding season = Sep-Nov).<br>• Barking Owl & Gang-gang Cockatoo (breeding season = Oct-Jan).<br>Monitoring is to continue through to fledging. |
| Data analysis |
| Based on above survey methods, the following metrics/indicators will be used/analysed:<br>• Occupancy = direct observations of adult birds, chew marks, faeces / whitewash, feathers, prey remains.<br>• Breeding activity = observation of nesting behavior, eggs, chicks, or fledglings. Observation of adults entering hollows repeatedly.<br>• Site fidelity = return of the same species/individuals to known hollows.<br>• Artificial hollow use = artificial hollow use is recorded for target species.<br>• Breeding success = active nests produce successful fledglings.<br>• Disturbance response = ongoing occupancy and breeding activity. |
| Reporting |

| Threatened Owl, Cockatoo and Parrot Monitoring |
|---|
| Annual threatened owl, cockatoo and parrot monitoring will be summarised in the BMP Monitoring Report, including the following:<br>• The name and qualification of contributors to monitoring, data analysis and reporting.<br>• Date(s) of surveys.<br>• Survey methods and extent, including maps of impact and control nests (if relevant).<br>• Distance from disturbance for each monitored nest.<br>• Weather conditions.<br>• Survey results per monitored nest including:<br>◦ Species and numbers of individuals.<br>◦ Direct and indirect (e.g., chew marks, presence of feathers or faecal staining) signs of occupancy.<br>◦ Frequency of adult visits.<br>◦ Behaviours indicating incubation (e.g., female remaining inside hollow) and feeding.<br>◦ Presence of nesting material, eggs or chicks.<br>◦ Individual markings (if identifiable) or behaviours suggesting returning pairs.<br>◦ Date of hatching and fledging (if witnessed).<br>• Results of artificial hollow monitoring, specific to threatened owl, cockatoos and parrots per Section 4.1.1.<br>• Supporting photographic/video evidence.<br>• Assessment against targets listed above.<br>• Recommendations for any additional actions required.<br>Annual BMP Monitoring Reports will be provided to CPHR, NPWS, FCNSW and DCCEEW as soon as they are available. |
| Adaptive management |
| • Initial investigation to document potential causation between decline and HLW construction related impacts.<br>• Development of a mitigation plan in consultation with NSW DCCEEW Environment and Heritage, addressing causes of decline as determined in initial investigation. This may include increased monitoring or additional construction-related mitigation measures.<br>• If this is ineffective, additional offsets may be required. |

## 4.5. Threatened frog monitoring

Threatened frog monitoring has been divided into occupancy monitoring (Table 4-9) and habitat monitoring (Table 4-10) listed below.

Table 4-9 Threatened frog occupancy monitoring

| Threatened Frog Occupancy Monitoring |
|---|
| Objective and target |
| Determine species occupancy (i.e., presence or absence) and estimate frog species abundance of the threatened frog target species and document any changes arising from HLW.<br>Targets for monitoring include:<br>• Maintain evidence of threatened frog occupancy comparable to baseline (pre-construction) or control sites.<br>• No reduction greater than 20%. |
| Location and sampling units |
| Frog monitoring sites have been identified 250 m upstream (control) and downstream (impact), total transect effort of 500 m in assumed threatened frog habitats. These locations are displayed in Section 4.7, including:<br>• 1 x site for Sloane's Froglet (including 1 control and 1 impact site).<br>• 2 x sites for Yellow-spotted Tree Frog (including 1 control and 1 impact site).<br>• 1 x site for Booroolong Frog (including 1 control and 1 impact site). |
| Method |
| Before-After-Control-Impact (BACI) monitoring as detailed below.<br>Aural-visual surveys are to be completed as 500 m transects or, if accessible, through shallow wetlands for a 120-minute period per transect. Each transect is to be physically demarcated to ensure repetition of monitoring events. Monitoring methods include the following, to be completed at each 500 m transect (DPIE, 2020b):<br>• Aural-visual surveys commence with an aural survey where two surveyors listen for calls (in silence and darkness), for a minimum of five minutes.<br>• Visual surveys – Spotlight along the length of the transect to detect frogs via eye-shine. Focus on suitable habitat such as offline pools (for Sloane's Froglet) and emergent aquatic vegetation (Yellow-spotted Tree Frog). A minimum of five minutes should be taken to cover each 50 m of transect with a visual search.<br>• Aural surveys – Listen for target frog calls every 50 m of the transect. Include a call-playback component where a loudspeaker is used to broadcast the calls of target frogs to elicit a response. The call is broadcast continuously through the speaker for a period of no less than two minutes and responses are typically heard within the first minute. The playback period is followed by a two-minute listening period to detect any late responses or responses masked by the sound of the broadcast call.<br>• Record date, weather conditions, species, count, sex (where possible), location (easting and northing as well as descriptive attributes) and observers.<br>• Hygiene protocols to be followed to prevent the spread of chytrid fungus (refer to Annexure E: Biosecurity Management Plan of the HLW BMP). |
| Timing, effort and frequency |

| Threatened Frog Occupancy Monitoring |
|---|
| Surveys will be undertaken for 120-minutes per night across 4 nights during the approved survey periods:<br>• Sloane's Froglet = Jul-Aug.<br>• Booroolong Frog = Oct-Dec.<br>• Yellow-spotted Tree Frog = Nov-Dec.<br>Survey must be undertaken after appropriate rainfall (e.g. flooding rains), with at least one monitoring event undertaken, where weather permits, prior to construction works commencing at each site. Ongoing monitoring will occur annually during construction works during the approved survey periods. Surveys during dry, windy and/or cold conditions (when frogs reduce activity) should be avoided. |
| Data analysis |
| Based on above survey methods, compare frog occupancy data of pre-construction (if available), control and impact sites, ensuring:<br>• Observed occupancy decline <20% in impact vs control sites, OR<br>• No significant change from baseline/control ($p \leq 0.05$), with enough replicates for statistical analysis, in impact vs control sites. |
| Reporting |
| Threatened frog occupancy monitoring will be summarised in the BMP Monitoring Report, including the following:<br>• Details of monitoring methods.<br>• Results and observations – aural visual survey data.<br>• Discussion/interpretation of impacts – comparison of control and impact monitoring data to:<br>◦ Identify decline in occupancy.<br>◦ Investigate potential causes, HLW-related or otherwise.<br>◦ Investigate consequence of impacts on target frogs.<br>• Adaptive management (per the below).<br>Annual BMP Monitoring Reports will be provided to CPHR, NPWS, FCNSW and DCCEEW as soon as they are available. |
| Adaptive management |
| • Initial investigation to document potential causation between decline and HLW construction related impacts.<br>• Development of a mitigation plan in consultation with NSW DCCEEW Environment and Heritage, addressing causes of decline as determined in initial investigation. This may include increased monitoring or additional construction-related mitigation measures.<br>• If this is ineffective, additional offsets may be required. |

Table 4-10 Threatened frog habitat monitoring

| Threatened Frog Habitat Monitoring |
|---|
| Objective and target |
| Monitor potential frog habitats within and adjacent to the HLW Area and document any changes arising from HLW.<br>Targets for monitoring include:<br>• Impact sites retain at least 80% of key microhabitat features (e.g., ground cover, vegetated edge, water retention, shelter objects) post-construction and compared to control sites.<br>• No measurable increase in sedimentation or loss of water-holding capacity in >10% of impact sites.<br>• No measurable increase in weed cover or decrease of native vegetation cover in >10% of impact sites. |
| Location and sampling units |
| Frog monitoring sites correlate with occupancy habitat sites detailed in Table 4-9 and shown in Figure 4-2, including control (i.e., upstream) and impact locations (i.e., downstream). |
| Method |
| Before-After-Control-Impact (BACI) monitoring as detailed below.<br>A Rapid Aquatic Assessment (RAA) modified from the Australian River Assessment System methodology (Parsons et al., 2002) is to be completed at each monitoring site, comprising a 50 m transect. The start and end points of each 50 m transect are to be physically demarcated to ensure repetition of monitoring events. Photographs are to be taken of each start and end point at an approximate height of 1.5 m. A horizontal field of view of approximately 40° is to be achieved for the central angle of view for human vision (i.e., 40-60°). The following aquatic assessments are to be conducted at each transect: |

| Threatened Frog Habitat Monitoring |
|---|
| • Stream condition:<br>  ◦ Flow width (m) averaged from set distance along the stream (5 m, 15 m, 25 m, 35 m, 45 m).<br>  ◦ Max flow width (m).<br>  ◦ Min flow width (m).<br>  ◦ Soil moisture ±3% volumetric water content averaged from set distance along the stream (5 m, 15 m, 25 m, 35 m, 45 m).<br>  ◦ Clarity/sediment load (0 [no clarity] – 5 [clearest]), and<br>  ◦ Erosion (0 [no signs of erosion] – 5 [severe]).<br>• Stream flow type:<br>  ◦ Pooling.<br>  ◦ Flowing.<br>  ◦ Continuous.<br>  ◦ Discontinuous, or<br>  ◦ Riffles.<br>• Aquatic vegetation type:<br>  ◦ Submerged.<br>  ◦ Floating, or<br>  ◦ Emergent.<br>• Substrate type:<br>  ◦ Bedrock.<br>  ◦ Boulder (>256mm).<br>  ◦ Cobble (64-256mm).<br>  ◦ Pebble (16-64mm).<br>  ◦ Gravel (2-16mm).<br>  ◦ Sand (0.06-2mm), or<br>  ◦ Clay/Silt (<0.06mm).<br>• Bank slope:<br>  ◦ Flat <10°.<br>  ◦ Low 10 – 30°.<br>  ◦ Moderate 30 – 60°.<br>  ◦ Steep 60 – 80°, or<br>  ◦ Vertical 80 – 90.<br><br>This riparian assessment is to be supplemented by photo monitoring points and plot-based vegetation monitoring to be completed in an established 20 x 20 m plot (or 400 $m^2$ equivalent for linear areas) within the vegetated riparian corridor. Each plot must be assessed in accordance with composition and structure plot guidelines listed in the BAM 2020. |
| Timing, effort and frequency |
| At least one monitoring event should be undertaken prior to, or soon after commencement of construction works (within 6 months of construction works commencing). Ongoing monitoring will occur annually during construction works (in spring). |
| Data analysis |
| Based on above survey methods, compare frog habitat data of pre-construction (if available), control and impact sites, ensuring:<br>• Impact sites retain at least 80% of key microhabitat features (e.g., ground cover, vegetated edge, water retention, shelter objects) post-construction and compared to control sites.<br>• No measurable increase in sedimentation or loss of water-holding capacity in >10% of impact sites OR significant change from baseline ($p \leq 0.05$) with enough replicates.<br>• No measurable increase in weed cover or decrease of native vegetation cover in >10% of impact sites. No significant change from baseline/control ($p \leq 0.05$), with enough replicates for statistical analysis, in impact vs control sites OR significant change from baseline ($p \leq 0.05$) with enough replicates.<br>• Observed increase <25% with RAA results (accounting for observer bias). |

| Threatened Frog Habitat Monitoring |
|---|
| Reporting |
| Threatened frog habitat monitoring will be summarised in the BMP Monitoring Report, including the following:<br>• Details of monitoring methods.<br>• Results and observations – BAM plot and RAA data.<br>• Discussion/interpretation of impacts – comparison of control and impact monitoring data to:<br>◦ Compare changes in key microhabitat features (e.g., ground cover, vegetated edge, water retention, shelter objects).<br>◦ Compare changes in sedimentation.<br>◦ Compare changes in native vegetation and weed cover.<br>◦ Investigate potential causes, HLW-related or otherwise.<br>◦ Investigate consequence of impacts on target frog habitats.<br>• Adaptive management (per the below).<br>Annual BMP Monitoring Reports will be provided to CPHR, NPWS, FCNSW and DCCEEW as soon as they are available. |
| Adaptive management |
| • Initial investigation to document potential causation between decline and HLW construction related impacts.<br>• If the result of a HLW related event, corrective actions to address further impacts, and an assessment of whether remediation of the waterway/riparian corridor is required, undertaken in consultation with NSW DCCEEW Environment and Heritage.<br>• Ongoing monitoring to determine if corrective actions have addressed the impact and avoided long-term impacts.<br>• If this is ineffective, additional offsets may be required. |

## 4.6. TEC monitoring

TEC monitoring is detailed in Table 4-11 below.

Table 4-11 TEC monitoring

| TEC Monitoring |
|---|
| Objective and target |
| Ensure Montane Peatlands and Swamps / Alpine Sphagnum Bogs and Associated Fens located within no-go zones remain free from direct and indirect construction-related impacts, and maintain ecological condition throughout the construction phase.<br>Targets for monitoring include:<br>• No observable changes in floristic composition, structure or condition.<br>• No increase in weed cover (>5%), physical disturbance or erosion indicators over baseline levels. |
| Location and sampling unit |
| The location of TEC will be within no-go zones relevant to Montane Peatlands and Swamps / Alpine Sphagnum Bogs and Associated Fens (PCT 637), as displayed in Section 4.7. Sampling units will be limited to one to avoid any monitoring-related impacts to the community. |
| Method |
| Before / After clearing monitoring as detailed below.<br>Photo monitoring points and plot-based vegetation monitoring to be completed in an established 20 x 20 m plot (or 400 $m^2$ equivalent for linear areas). Assessed in accordance with composition and structure plot guidelines listed in the BAM 2020. |
| Timing, effort and frequency |
| Monitoring points will be established prior to the commencement of clearing to establish baseline metrics. These would be documented in Pre-clearing Reports or BMP Monitoring Reports.<br>The first post-clearing monitoring event should occur within three months of the commencement of clearing at the nominated monitoring site. Follow-up monitoring would then occur annually there-after through construction. |
| Data analysis |
| Based on above survey methods, compare vegetation monitoring data of baseline (including Revised BDAR data) and impact sites, ensuring:<br>• No observable changes in floristic composition, structure or condition OR no significant change from baseline/control ($p \leq 0.05$), with enough replicates for statistical analysis.<br>• No increase in weed cover (>5%), physical disturbance or erosion indicators over baseline levels. |

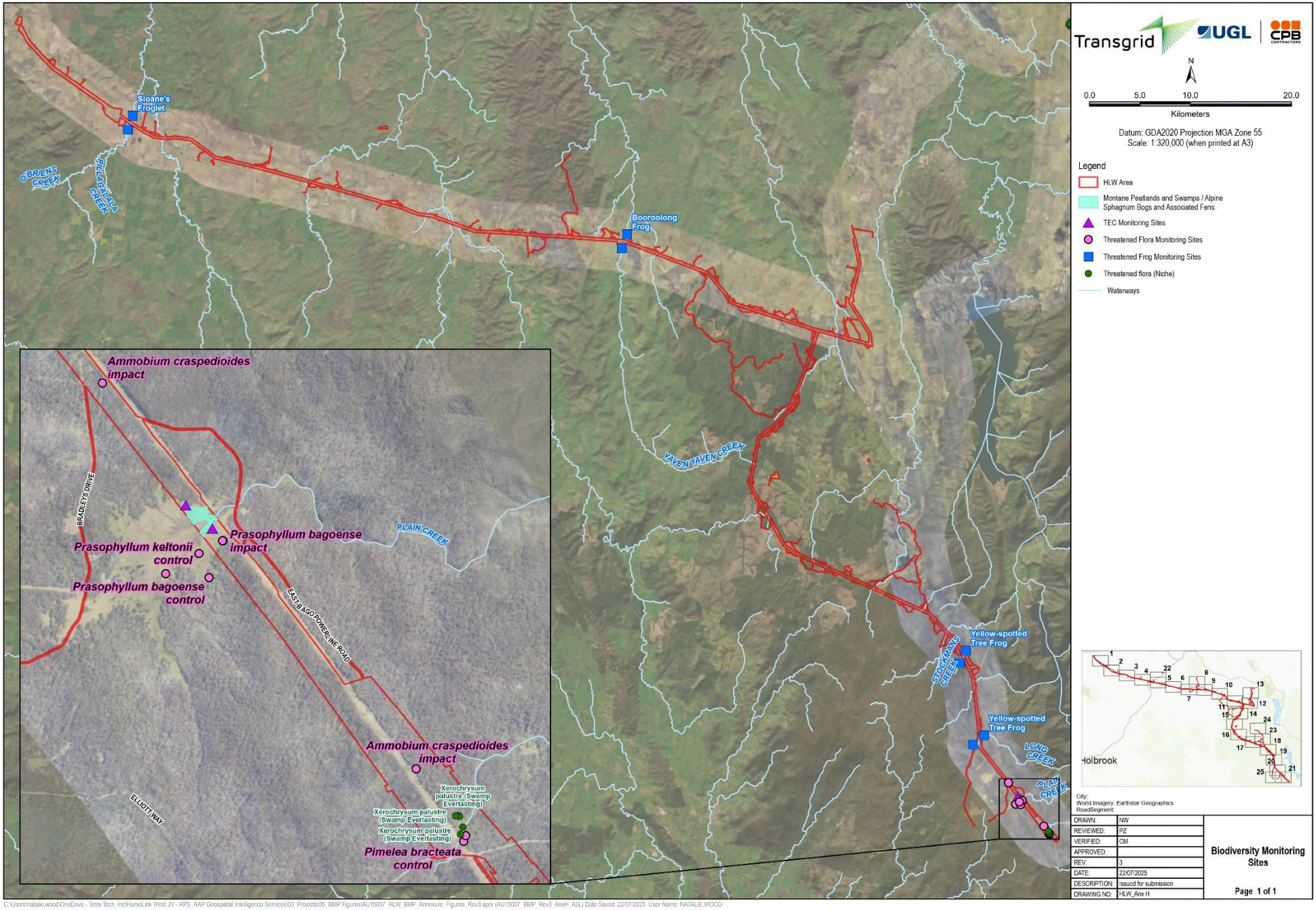
| TEC Monitoring |
| --- |
| Reporting |
| TEC monitoring will be summarised in the BMP Monitoring Report, including the following:<br>• Details of monitoring methods.<br>• Results and observations – BAM plot monitoring of floristics, associated vegetation integrity score.<br>• Compliance assessment:<br>◦ Tracking of vegetation integrity scores against baseline data.<br>◦ Comparison of post-clearing floristic species richness and cover by growth form type for native species with pre-clearing data and Revised BDAR data to identify any losses or gains in native species composition.<br>◦ Comparison of post-clearing cover and species richness for exotic flora species compared with pre-clearing data and Revised BDAR data to identify any weed introductions or increases to exotic flora species cover.<br>◦ Confirmation of compliance with clearing requirements and reporting on any excessive clearing.<br>◦ Investigation of potential causes, HLW-related or otherwise<br>• Adaptive management (per the below).<br>Annual BMP Monitoring Reports will be provided to CPHR, NPWS, FCNSW and DCCEEW as soon as they are available. |
| Adaptive management |
| • Initial investigation to document potential causation between decline and HLW construction related impacts.<br>• If the result of a HLW related event, corrective actions to address further impacts, and an assessment of whether remediation of the TEC is required, undertaken in consultation with NSW DCCEEW Environment and Heritage.<br>• Ongoing monitoring to determine if corrective actions have addressed the impact and avoided long-term impacts.<br>• If this is ineffective, additional offsets may be required. |

## 4.7. Monitoring sites

Monitoring sites have been developed as part of this strategy based on Revised BDAR data, as displayed in Figure 4-2. This includes:

- Control and impact sites for threatened flora monitoring – *Ammobium craspedioides, Pimelea bracteata, Prasophyllum bagoense, Prasophyllum keltonii* and *Xerochrysum palustre.*
- Control and impact sites for threatened frog monitoring – Sloane's Froglet, Yellow-spotted Tree Frog and Booroolong Frog.
- Monitoring site for Montane Peatlands and Swamps / Alpine Sphagnum Bogs and Associated Fens (PCT 637 no-go zone).

Additional monitoring sites will be added if pre-clearing surveys or biodiversity verification reporting identify additional locations of target flora (within 30 m of disturbance zones), fauna or TECs, and will be subject to the monitoring program detailed in Section 4.




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# 5. References

Australian Museum (2022) *Discover & Learn*. Retrieved from: https://australian.museum/

DCCEEW – Cth (2014). Draft survey guidelines for Australia's threatened orchids. Retrieved from: https://www.dcceew.gov.au/environment/epbc/publications

DCCEEW – Cth (2010a). *Survey guidelines for Australia's threatened birds*. Retrieved from: https://www.dcceew.gov.au/environment/epbc/publications

DCCEEW – Cth (2010b). *Survey guidelines for Australia's threatened frogs*. Retrieved from: https://www.dcceew.gov.au/environment/epbc/publications

DCCEEW – NSW (2025a). *BioNet Atlas of NSW Wildlife*. Retrieved from: http://www.environment.nsw.gov.au/atlaspublicapp/UI_Modules/ATLAS_/AtlasSearch.aspx?who=ddb86a5f-2881-40ec-b09d-5b2c6ce0d614.

DCCEEW – NSW (2025b). *BioNet Species Sightings Data.* Retrieved from: https://www.environment.nsw.gov.au/topics/animals-and-plants/biodiversity/nsw-bionet/about-bionet-atlas/species-sightings-data

DCCEEW – NSW (2025c). *Threatened Biodiversity Profile Search.* Retrieved from: https://atlaseditor.bionet.nsw.gov.au/UI_Modules/TSM_/Default.aspx

DCCEEW – NSW (2024). *Public register of Saving our Species conservation strategies*. Retrieved from: https://savingourspecies.environment.nsw.gov.au/

DPIE (2020a) *Biodiversity Assessment Method 2020*

DPIE (2020b). *NSW Survey Guide for Threatened Frogs: A guide for the survey of threatened frogs and their habitats for the Biodiversity Assessment Method*

eBIRD (2025). *Discover a new world of Birding*. Retrieved from: https://ebird.org/home

Niche Environment and Heritage Pty Ltd (2024). *HumeLink Biodiversity Development Assessment Report EIS Technical Report 1 Rev 0.* Version: June 2024

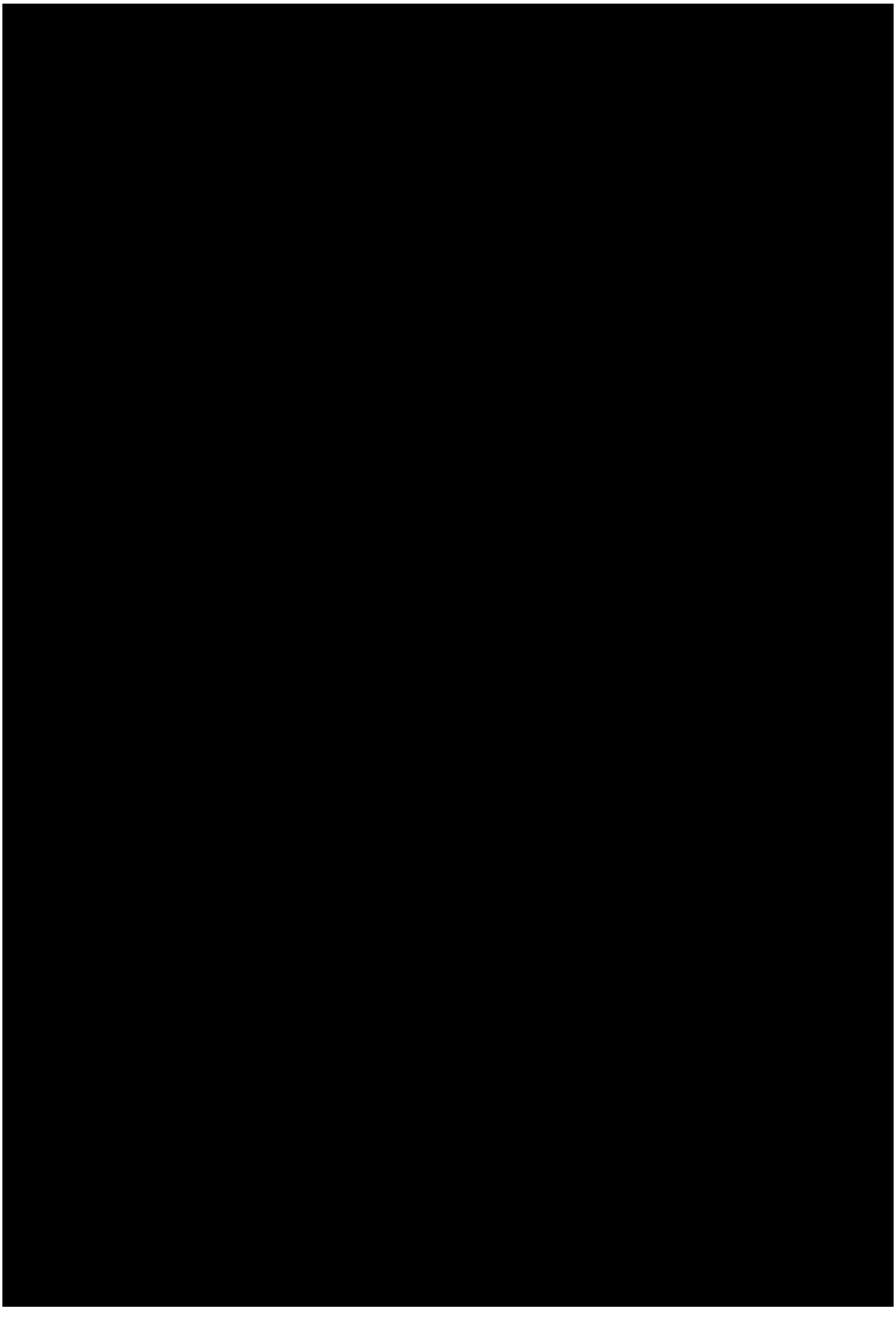
OEH (2004). *Threatened Biodiversity Survey and Assessment Guidelines: Guidelines for developments and activities (2004 working draft).*

Parsons, M., Thoms, M. and Morris, R. (2002). *Australian River Assessment System: AusRivAS Physical Assessment Protocol, Monitoring River Heath Initiative Technical Report 22*, Commonwealth of Australia and University of Canberra, Canberra.

# Annexure I Author's Qualifications and Experience



Official



# Annexure J Additional and Appropriate Measures under Condition B30(d)(xiii)

ABN 70 250 995 390
**180 Thomas Street, Sydney**
PO Box A1000 Sydney South
NSW 1235 Australia
**T** (02) 9284 3000
**F** (02) 9284 3456

Monday, 2 September 2024

[redacted]
Senior Team Leader, Southeast Conservation Planning Team, Biodiversity Conservation Division
NSW Department of Climate Change, Energy, the Environment and Water
11 Farrer Place, Queanbeyan, NSW, 2620

Dear [redacted],

**Transgrid's proposals for additional and appropriate measures to compensate the likely serious and irreversible impacts arising from HumeLink**

The aim of this letter is to present Transgrid's proposal for Additional and Appropriate Measures (A&AM) for all the Serious and Irreversible Impact (SAII) entities that will likely be subject to SAII due to the biodiversity impact of the HumeLink project (SSI-36656827).

Table 1 - Summary of SAII entities identified in the draft amended Biodiversity Development Assessment Report (BDAR -Revision C) for HumeLink that are likely to be subject to a SAII.

| Entity names | SAII principle* | Direct impact (ha) |
|---|---|---|
| *White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland* (**Box Gum Woodland or BGW**) | Principles 1** & 2† | 477.91 |
| *Pimelea bracteata* (**Rice Flower**) | Principle 2 | 4.76 |
| *Tyto tenebricosa* (**Sooty Owl**) | Principle 4‡ | 68.81 |

*As per clause 6.7 the Biodiversity Conservation Regulation (2017) NSW.
**SAII due to a further decline of the species or ecological community that is currently in a **rapid rate of decline**.
† SAII due to a further reduction in the population size of the species or ecological community that already has a **very small population size.**
‡SAII due to the species being **unlikely to respond to measures to improve its habitat.**

The objective of this letter is to:

- Outline Transgrid's A&AM proposals for the entities listed in Table 1 to the NSW Biodiversity Conservation and Sciences Division (BCS).
- Provide sufficient detail about each A&AM to enable drafting of Conditions of Approval.

## Legislative framework

Section 7.16 of the *Biodiversity Conservation Act 2016* NSW states that where state significant infrastructure is likely to have serious and irreversible impacts on biodiversity values, the Minister is required to determine whether there are any additional and appropriate measures that will minimise those

impacts if consent or approval is to be granted. The *Biodiversity Conservation Regulation 2017* does not elaborate on the meaning of 'additional and appropriate measures', there is no case law from the NSW Land and Environment Court defining the term, and there are no published NSW Government guidelines. Hence, the content of A&AM has largely been determined through consultation with the NSW BCS, the outcomes of which are documented below.

## Consultation

Transgrid and BCD formally consulted about A&AM on the following dates:

- Wednesday 13 March 2024
- Wednesday 10 May 2024
- Monday 13 May 2024
- Wednesday 22 May 2024
- Wednesday 12 June 2024

Additional informal consultation occurred outside of these dates. A summary of the outcomes of this consultation can be found below:

- A&AM would ideally occur within the same IBRA region as the impact.
- A&AM must be additional to the biodiversity offset measures required to be delivered for the HumeLink project.
- Preparation, establishment and funding of a Local Area Management Plan (LAMP) is a recommended option for **Box Gum Woodland** A&AM.
- A LAMP would seek:
    - to deliver a landscape-scale restoration project, and may be based upon an indicator species model of conservation ecology
    - a net increase in the area of occupation and condition of BGW
    - to enhance ecosystem function and connectivity across the target landscape
    - establish a long-term landscape management program with potential for self-perpetuation
    - incorporate community engagement, capacity building, ownership and financial incentive as a foundation of the program
- Options for **Rice Flower** A&AM include:
    - seed and vegetative material collection
    - germination trials to understand seed dormancy and germination mechanisms
    - genetic sequencing
    - propagation of individuals from seed and vegetative material

- translocation to a secure site
- funds for the management of *in situ* populations on private land such as herbivore fencing

- Options for **Sooty Owl** A&AM include:
  - Experimenting with restoration methods such as different nest box designs
  - Nest box monitoring
  - Project management and reporting

# **A&AM Proposal 1** - BGW – Bango to Burrinjuck LAMP

## Proposal 1 overview

For BGW, we propose the design and delivery of a Local Area Management Plan (LAMP) that:

1. Guides the establishment of a pragmatic, deliverable, landscape-scale conservation initiative to compensate for SAII impacts
2. Is located near the impact footprint of HumeLink
3. Spans an area historically covered by Box Gum Woodland
4. Seeks to establish ecological connectivity within a currently fragmented landscape
5. Incorporates community engagement, capacity building, ownership and value as a foundation of the program
6. Provides for an indicator species approach, facilitates adaptive management and has clear performance targets
7. Has the potential for self-perpetuation through community engagement

Proposal 1 seeks to prepare and seed-fund a LAMP that aims to re-establish ecological connectivity between Bango and Burrinjuck Nature Reserves (NR) (see Figure 1). The proposed corridor has an indicative distance of 31 - 47 km (yellow hashed lines in **Figure** 1) and would aim to increase ecological connectivity by restoring patches of remnant woodland, or 'stepping stones' along its path (see purple polygons **Figure** 1 for existing remnants).

The indicator species model uses the population of a specific species as a proxy for improvement in whole-of-ecosystem function. The most common indicator species are animals, and quantitative information on that species' presence and abundance is used as a surrogate that indicates the quality of the environment around it. The selection of the indicator species is determined by the objectives of the restoration program.

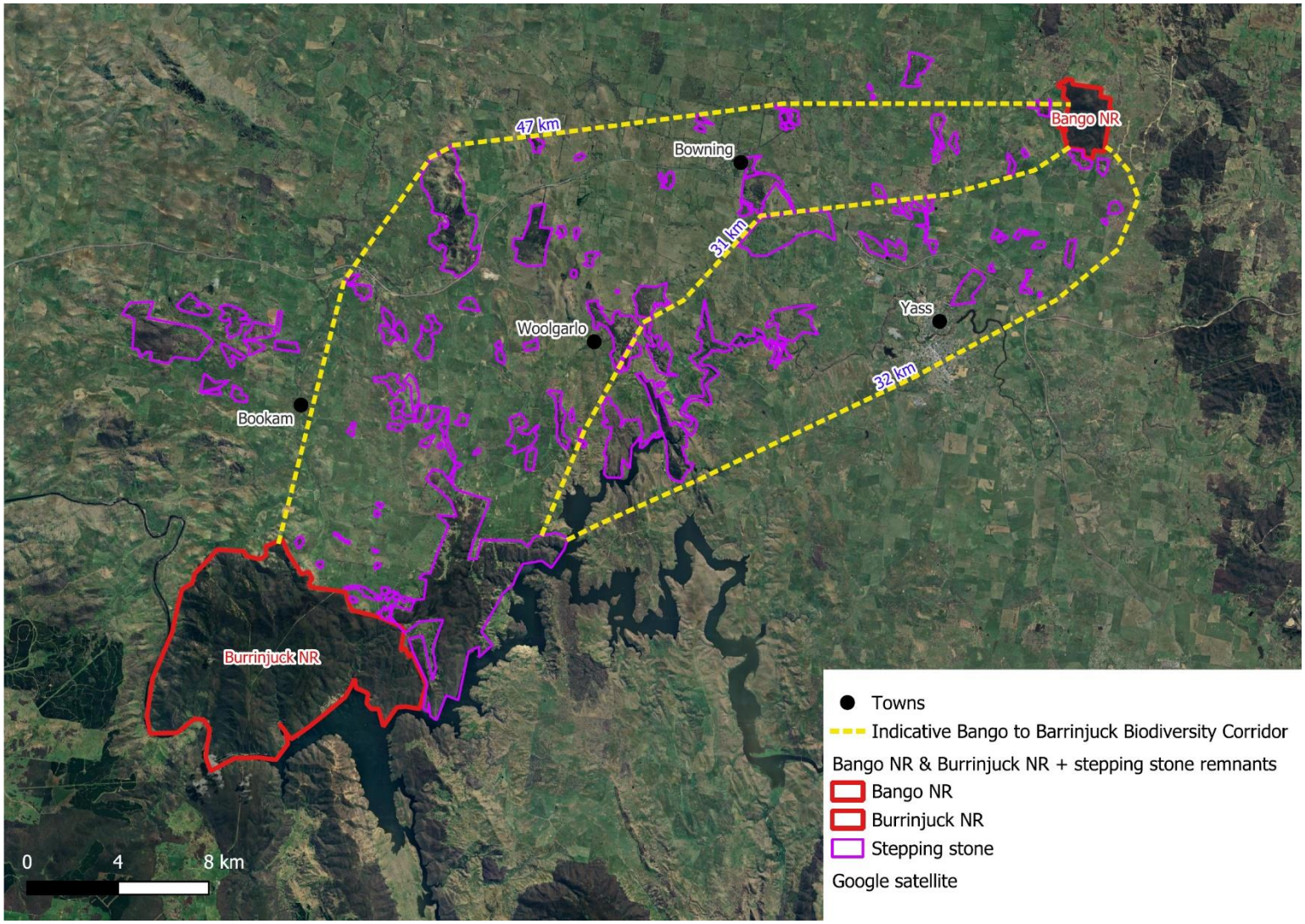



**Figure** 1 – indicative biodiversity corridor for a LAMP that connects Bango NR to Burrinjuck NR.

## LAMP Elements

The key elements of the LAMP are:

- **Scientific review** to determine minimum requirements of a landscape connectivity network aimed at expanding extent of target indicator species populations.
- **Extensive landholder engagement and co-design** to identify a practical and achievable landscape connectivity corridor.
- **Develop a LAMP** including **mapping** to guide targeted strategic management and restoration works**,** a **Restoration Management Plan**, performance targets and **monitoring plan**.
- **Establish a steering committee** of key stakeholders that meet quarterly to determine how funds will be allocated. This committee might include representatives from:
  - The Ecosystem and Threatened Species (EaTS) team in the NSW BCS
  - The landholder network within the landscape connectivity corridor, including Local Aboriginal Land Councils
  - Landcare
  - Regen Farmers Mutual
  - Transgrid
- Identify and **engage network of landholders**. This might involve:
  - A formal process of educational workshops and mentoring driven by organisations with expertise in landholder engagement and regenerative agriculture such as Regen Farmers Mutual.
  - Co-design of the LAMP with landholders
  - Financial support to facilitate landholders in adjusting their enterprises in a way that ensures future sustainability of restoration actions.
  - Normalising behaviours to promote protection of indicator species and BGW.
  - Engaging indigenous landholders in the LAMP catchment area.
  - Establishing communication networks among landholders so that they can share their experience with the LAMP.
- **Provide seed-funds** to initiate LAMP delivery
- Establish long-term **funding structures** that maximise likelihood of achieving LAMP goals. This would include connecting the network of landholders to emergent sources of green finance such as:
  - Biodiversity Credits arising from the voluntary nature positive markets, both domestic and international
  - Generation of Australian Carbon Credit Units (ACCUs)
  - Partnering with large consumer businesses who are seeking to reduce scope 3 emissions in their supply chain
  - Philanthropy

- **Monitoring program** to measure project success against LAMP performance targets and facilitate adaptive management.

A primary benefit of a LAMP approach to A&AM compared to establishment of additional offsets is the prospect of delivering landscape-scale outcomes over a much larger land area than would be possible under Biodiversity Stewardship Agreements (BSA).

A LAMP aiming to design and deliver the Bango to Burrinjuck Biodiversity Corridor aligns with an existing project driven by Landcare's Yass Area Network (YAN) called Habitat Hops.

## Funding and delivery model

For the purposes of costing the LAMP we have assumed the following:

- 2.5 FTEs across BCS, Transgrid and Landcare for a period of 3 years to undertake LAMP design, delivery, monitoring, reporting, GIS mapping and geospatial analysis, statistical analysis, project management, coordinate landholders, coordinate volunteers, and provide expert ecological advice.
- 0.5 FTE in Landcare for a period of 7 years (years 4-10) to manage ongoing delivery and funds disbursement.
- Engagement of consultants with expertise in agro-economy and regenerative agriculture to build and maximise landholder participation.
- Supply and installation of 57,500 local provenance tube stock
- Monitoring equipment (monitoring labour to be provided by landholders and funded staff)
- Ongoing costs such as software licenses, safety advice, contingency and project management
- Approximately 50 landholders would contribute to LAMP delivery

We estimate the total cost of design and delivery of a LAMP that creates a biodiversity corridor connecting Nature Reserves (NR) such as Bango NR and Burrinjuck NR to be [redacted] (see sheet two in attached spreadsheet).The Biodiversity Stewardship Payment Fund (BSPF) or a similar trust fund mechanism could be investigated as a model for distributing funds over the life of the program.

## Justification

Our proposal to prepare, fund and deliver a LAMP targeting BGW restoration via an indicator species model is **additional** to the offsets being provided for impacts of the HumeLink project upon BGW because it:

- Provides a framework and funding for the **restoration of 477.91 ha of BGW** through a landscape-scale ecological connectivity project
- Seeks to establish **biodiversity connectivity** between two nature reserves separated by 31 - 47 km.
- Seeks to build knowledge and capacity of biodiversity conservation and restoration initiatives within the local community by establishing a network of landholders who are committed to implementing, promoting and stewarding the LAMP.
- Has potential to become a long-term self-sustaining community conservation model that delivers positive habitat management and restoration outcomes beyond the scope of the LAMP.

Our proposal for **BGW is appropriate** because:

- It is costed to deliver a biodiversity corridor **within the same IBRA subregion** as the impact site
- The biodiversity corridor is planned within a **landscape historically covered by BGW**
- The LAMP proposal is a **landscape scale project** to match the HumeLink footprint.

# A&AM Proposal 2 - Rice Flower – genomically diverse seed collection strategies

## Proposal 2 overview

For Rice Flower, we propose a program to undertake seed and vegetative material collection and propagation, followed by genetic analysis to determine if translocation is suitable, and if so, how a translocation plan would be designed to maximise genetic diversity. Additionally, we have costed for either *in situ* management of a population or translocation of an *ex situ* population to a site secured by an in-perpetuity conservation covenant. The option chosen would be determined by the results of the genetic analysis and consultation with the Accountable Officer for Rice Flower.

## Elements

Undertake the following conservation management actions:

- seed collection and vegetative tissue sampling across the known distribution of the Rice Flower (i.e. not confined to the area subject to direct impact).
- genomic sampling and sequencing to comprehensively assess the level of genomic diversity present across the species' natural distribution, which will inform seed collection strategies.
- sampling, storing and testing of collected germplasm material to guarantee representation of the species *ex situ*, and improve our understanding of seed viability and germination traits.
- seed and vegetative propagation with the aim of growing 50 juveniles.
- translocation of propagated individuals to a site secured by an in-perpetuity conservation covenant with the aim of establishing 50 individuals to sexual maturity OR management of existing *in situ* populations of Rice Flower on McPhersons Plain.
- Annual reporting to the BCD accountable officer for Rice Flower.

This proposal will:

- contribute to our understanding of the reproductive and genetic health of the species, which is vital information in supporting a species that is facing rapid decline and adverse effects of anthropogenic development.
- guide seed sourcing strategies to support genomically representative collections for *ex situ* seed banking and conservation actions (e.g., translocation).
- provide recommendations on the seed germination traits that contribute to the likelihood of plant recruitment *in situ* as well as *ex situ* propagation success.
- develop guidelines that support conservation efforts and future management actions leading to the long-term survival of the species (e.g., translocation, population supplementation, living collection propagation).

The value of the genomic sampling is threefold. Firstly it applies the principle of '*first do no harm'* by ensuring we don't undertake a translocation which introduces alleles that swamp distinct populations, thereby inadvertently reducing genetic diversity and the species' overall resilience. Second, it ensures that if a translocation is undertaken, we select the individuals with maximum genetic diversity and position them

in a way which is most likely to result in cross-pollination. And thirdly, it will determine if *Pimelea bracteata* is in fact a distinct population from its nearest relative *Pimelea ligustrina.*

## Funding and delivery model

We estimate the total cost of delivery of the above conservation management actions for Rice Flower to be approximately [redacted] (see sheet three in attached spreadsheet). This costing is based on the proposal developed by Dr Nathan Emery (also attached) of the Botanic Gardens of Sydney (BGS) and would engage two of their expert teams, including:

- Seedbank & Conservation Collections (SBCC), and
- Research Centre for Ecosystem Resilience (ReCER).

Transgrid have also budgeted translocation costs such as fence installation, fence maintenance, weed control, watering and monitoring. However, we note that the detailed design of any translocation program is contingent on the results of the genomic analysis undertaken by BGS, which may advise against a translocation. Instead, we have costed management actions for the preservation of an existing *in situ* population as a proxy for translocation cost. The funds that have been costed for management of an *in situ* population of Rice Flower could be reallocated to translocation of an *ex situ* population. However, all major management decisions would be made in consultation with the Accountable Officer for the species.

## Justification

Our proposal for Rice Flower is **additional** for the following reasons:

- It would undertake genetic analysis and seed collection on a **representative sample** of the of the **entire population** of Rice Flower, not just the impact population.
- It would result in **knowledge** about how to relax the species' **physiological dormancy** and then **trigger germination.** Rice Flower is a notoriously difficult species to propagate from seed.
- It will determine if *Pimelea bracteata* is a distinct population from its nearest relative *Pimelea ligustrina.*

Our proposal for Rice Flower is **appropriate** for the following reasons:

- It pertains to both the **impact population** and the **entire population**.
- It indirectly addresses one of the key threatening processes (dieback) by enabling the **maintenance of genetically diverse *ex situ* populations.**
- The results of the genetic analysis would be used for **adaptive management**

# A&AM Proposal 3 – Sooty Owl – Breeding Habitat Restoration

## Proposal 3 overview

For Sooty Owl, we are proposing to implement habitat restoration actions at a yet-to-be determined site. Transgrid would seek to deliver all restoration actions at a site secured by an in-perpetuity conservation covenant (such as a Biodiversity Stewardship Agreement or Conservation Agreement under the *Biodiversity Conservation Act 2016*). Restoration activities would focus on artificial measures to reinstate Sooty Owl breeding habitat including different artificial nest hollow designs. The efficacy of the restoration measures would be monitored and analysed by funding a PhD student over the three-year project timeframe.

## Elements

The restoration might include the following, however, detailed design of any conservation actions would be undertaken in consultation with the BCD Accountable Officer for Sooty Owl and any future PhD student:

- Installation and monitoring of the artificial nest hollow designs at a site secured by an in-perpetuity conservation covenant. Artificial nest hollow designs might include:
  - A **chainsaw cavity and entrance** where the arborist uses a chainsaw to carve out a suitably sized cavity and entrance in a tree limb or trunk. The carving would occur into mature trees with >40cm trunk diameter.
  - A **chainsaw entrance to existing cavity** where the arborist creates access to a previously inaccessible, internal tree cavity.
  - A completely artificial **plastic nest box** (such as those made by Habitat) where a thermally stable, manufactured nest box is attached to a tree. Attachment of nest boxes would occur through a mounting bracket system, which is designed to enable the tree to scar over the bracket. The habitat nest box itself involves a modular, stackable design and multiple entry configurations suitable for the species.
  - A completely artificial, **traditional plywood nest box**. This would involve mounting nest boxes with pre-determined dimensions on existing trees using the Habisure system. The standard nest box would include a hinged, sloping lid, and a suitably sized entrance hole and incised ladder for easy access.
- **Funding a PhD student** to design the study, monitor Sooty Owl response to restoration management actions and analyse results. The study would include assessment of relative efficacy of each active restoration management action. Note that while research intro restoration management actions may not be appropriate for entities such as BGW, we consider it to be essential for Sooty Owl given it is listed as an SAII entity under Principle 4, which states that the *'species or ecological community is unlikely to respond to measures to improve its habitat and vegetation integrity and therefore its members are not replaceable.'* Additionally, the Biodiversity Conservation Trust's Guidelines on Artificial Hollows and the NSW Recovery Plan for Sooty Owl both state *'The potential for artificial hollows (nest-boxes) to fast-track habitat development for owls should be investigated.'* Therefore, research is required to uncover methods that may improve the species habitat.

During consultation with the EaTS in May and June 2024, they indicated the preferred management action for Sooty Owl would be installation of nest boxes because additional management actions, such as

supplementary planting or installation of coarse woody debris, could interfere with scientific robustness of monitoring efforts.

## Funding and delivery model

We estimate the total cost of delivery of the above restoration actions for Sooty Owl to be approximately [redacted] (see sheet four in attached spreadsheet).

## Justification

Our proposal for Sooty Owl is **additional** for the following reasons –

- It will **generate knowledge** about the efficacy of untested habitat restoration methods for the species

Our proposal for Sooty Owl is **appropriate** for the following reasons –

- It aims to **address one of the key habitat constraints** for the species, being large cavities for breeding
- It contains a **research component**, which is consistent with listing as SAII under Principle 4

## **Summary** of A&AM proposals

In summary, Transgrid is proposing a total of [redacted] of additional and appropriate measures to compensate for 524.91 ha of likely SAII to three SAII entities as a result of HumeLink's development footprint (See Table 2). This is equivalent to [redacted] per ha of SAII.

Table 2 – Summary of the value of additional and appropriate measures proposed to compensate for HumeLink's likely serious and irreversible impact.

| SAII entity | SAII impact (ha) | Additional and appropriate measure ($) | Cost per ha for A&AM |
|---|---|---|---|
| Box Gum Woodland | 477.91 | [redacted] | |
| Rice Flower | 4.76 | | |
| Sooty Owl | 68.81 | | |
| **Total** | **551.48** | | |

For further detail on how costings were calculated, please refer to the attached spreadsheet and zip folder containing proposals and quotes, or contact [redacted]

Yours faithfully,

[redacted]

Biodiversity Manager

2 September 2024

# Annexure K Biodiversity figures



A MEMBER OF THE CIMIC GROUP
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Scale: 1:25,000 (when printed at A3)

## Legend

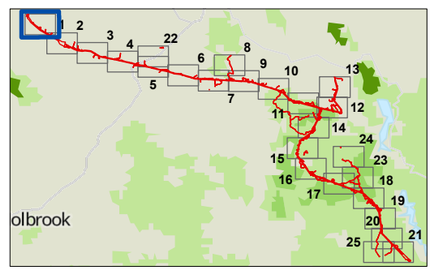
- HLW Area
- SAII

**TEC**

- White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland (BC Act)
- White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland (BC Act and EPBC Act)

**Vegetation Communities and Zones**

- 266 - White Box grassy woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion(266: Low)
- 266 - White Box grassy woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion(266: Moderate)
- 277 - Blakelys Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion(277: High)
- 277 - Blakelys Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion(277: Low)
- 277 - Blakelys Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion(277: Moderate)
- 277 - Blakelys Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion(277: Very low)
- 319 - Tumbledown Red Gum - White Cypress Pine hill woodland in the southern part of the NSW South Western Slopes Bioregion(319: Low)
- 319 - Tumbledown Red Gum - White Cypress Pine hill woodland in the southern part of the NSW South Western Slopes Bioregion(319: Moderate)
- 343 - Mugga Ironbark - Red Box - Red Stringybark - Western Grey Box grass/shrub woodland on metamorphic substrates in the Tarcutta - Gundagai region, NSW South Western Slopes Bioregion(343: Low)
- 343 - Mugga Ironbark - Red Box - Red Stringybark - Western Grey Box grass/shrub woodland on metamorphic substrates in the Tarcutta - Gundagai region, NSW South Western Slopes Bioregion(343: Moderate)
- 0 - Non-native (Non-native)
- 9996 - Non-native (Roads)
- 9997 - Non-native (Waterbodies)
- 9998 - Non-native (Planted vegetation)




World Imagery: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
World Topographic Map: Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

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**Vegetation**



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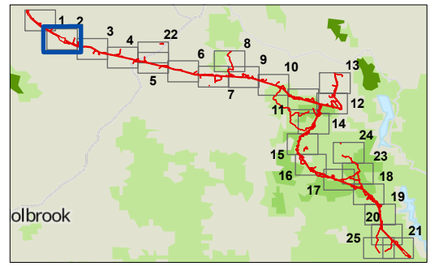
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- White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland (BC Act and EPBC Act)

**Vegetation Communities and Zones**

- 5 - River Red Gum herbaceous-grassy very tall open forest wetland on inner floodplains in the lower slopes sub-region of the NSW South Western Slopes Bioregion and the eastern Riverina Bioregion.(5: Moderate)
- 277 - Blakelys Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion(277: Low)
- 277 - Blakelys Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion(277: Moderate)
- 277 - Blakelys Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion(277: Very low)
- 278 - Riparian Blakelys Red Gum - box - shrub - sedge - grass tall open forest of the central NSW South Western Slopes Bioregion(278: High)
- 278 - Riparian Blakelys Red Gum - box - shrub - sedge - grass tall open forest of the central NSW South Western Slopes Bioregion(278: Low)
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| DRAWING NO: | HLW_Overview |

**Vegetation**

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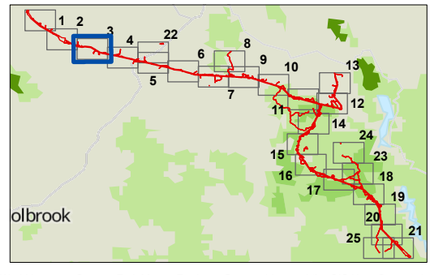
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- White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland (BC Act and EPBC Act)

**Vegetation Communities and Zones**

- 277 - Blakelys Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion(277: High)
- 277 - Blakelys Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion(277: Low)
- 277 - Blakelys Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion(277: Very low)
- 278 - Riparian Blakelys Red Gum - box - shrub - sedge - grass tall open forest of the central NSW South Western Slopes Bioregion(278: High)
- 278 - Riparian Blakelys Red Gum - box - shrub - sedge - grass tall open forest of the central NSW South Western Slopes Bioregion(278: Low)
- 278 - Riparian Blakelys Red Gum - box - shrub - sedge - grass tall open forest of the central NSW South Western Slopes Bioregion(278: Very low)
- 343 - Mugga Ironbark - Red Box - Red Stringybark - Western Grey Box grass/shrub woodland on metamorphic substrates in the Tarcutta - Gundagai region, NSW South Western Slopes Bioregion(343: Low)
- 343 - Mugga Ironbark - Red Box - Red Stringybark - Western Grey Box grass/shrub woodland on metamorphic substrates in the Tarcutta - Gundagai region, NSW South Western Slopes Bioregion(343: Moderate)
- 343 - Mugga Ironbark - Red Box - Red Stringybark - Western Grey Box grass/shrub woodland on metamorphic substrates in the Tarcutta - Gundagai region, NSW South Western Slopes Bioregion(343: Very low)
- 0 - Non-native (Non-native)
- 9996 - Non-native (Roads)
- 9997 - Non-native (Waterbodies)
- 9998 - Non-native (Planted vegetation)




World Imagery: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
World Topographic Map: Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

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**Vegetation**



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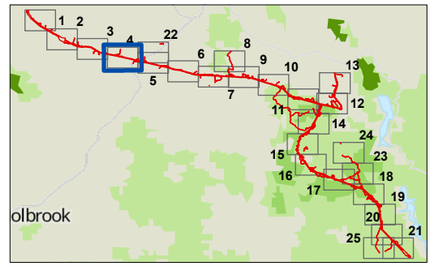
- HLW Area
- SAII

**TEC**

- White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland (BC Act)
- White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland (BC Act and EPBC Act)

**Vegetation Communities and Zones**

- 277 - Blakelys Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion(277: High)
- 277 - Blakelys Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion(277: Low)
- 277 - Blakelys Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion(277: Moderate)
- 277 - Blakelys Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion(277: Very low)
- 343 - Mugga Ironbark - Red Box - Red Stringybark - Western Grey Box grass/shrub woodland on metamorphic substrates in the Tarcutta - Gundagai region, NSW South Western Slopes Bioregion(343: Low)
- 343 - Mugga Ironbark - Red Box - Red Stringybark - Western Grey Box grass/shrub woodland on metamorphic substrates in the Tarcutta - Gundagai region, NSW South Western Slopes Bioregion(343: Moderate)
- 343 - Mugga Ironbark - Red Box - Red Stringybark - Western Grey Box grass/shrub woodland on metamorphic substrates in the Tarcutta - Gundagai region, NSW South Western Slopes Bioregion(343: Very low)
- 0 - Non-native (Non-native)
- 9996 - Non-native (Roads)
- 9997 - Non-native (Waterbodies)
- 9998 - Non-native (Planted vegetation)




World Imagery: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
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**Vegetation**



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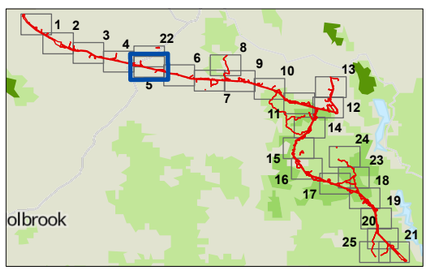
- HLW Area
- SAII

**TEC**

- White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland (BC Act)
- White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland (BC Act and EPBC Act)

**Vegetation Communities and Zones**

- 268 - White Box - Blakelys Red Gum - Long-leaved Box - Nortons Box - Red Stringybark grass-shrub woodland on shallow soils on hills in the NSW South Western Slopes Bioregion(268: Low)
- 268 - White Box - Blakelys Red Gum - Long-leaved Box - Nortons Box - Red Stringybark grass-shrub woodland on shallow soils on hills in the NSW South Western Slopes Bioregion(268: Very high)
- 277 - Blakelys Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion(277: High)
- 277 - Blakelys Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion(277: Low)
- 277 - Blakelys Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion(277: Moderate)
- 277 - Blakelys Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion(277: Very low)
- 280 - Red Stringybark - Blakelys Red Gum +/- Long-leaved Box shrub/grass hill woodland of the NSW South Western Slopes Bioregion(280: High)
- 280 - Red Stringybark - Blakelys Red Gum +/- Long-leaved Box shrub/grass hill woodland of the NSW South Western Slopes Bioregion(280: Moderate)
- 343 - Mugga Ironbark - Red Box - Red Stringybark - Western Grey Box grass/shrub woodland on metamorphic substrates in the Tarcutta - Gundagai region, NSW South Western Slopes Bioregion(343: Low)
- 343 - Mugga Ironbark - Red Box - Red Stringybark - Western Grey Box grass/shrub woodland on metamorphic substrates in the Tarcutta - Gundagai region, NSW South Western Slopes Bioregion(343: Moderate)
- 343 - Mugga Ironbark - Red Box - Red Stringybark - Western Grey Box grass/shrub woodland on metamorphic substrates in the Tarcutta - Gundagai region, NSW South Western Slopes Bioregion(343: Very low)
- 0 - Non-native (Non-native)
- 9996 - Non-native (Roads)
- 9997 - Non-native (Waterbodies)
- 999



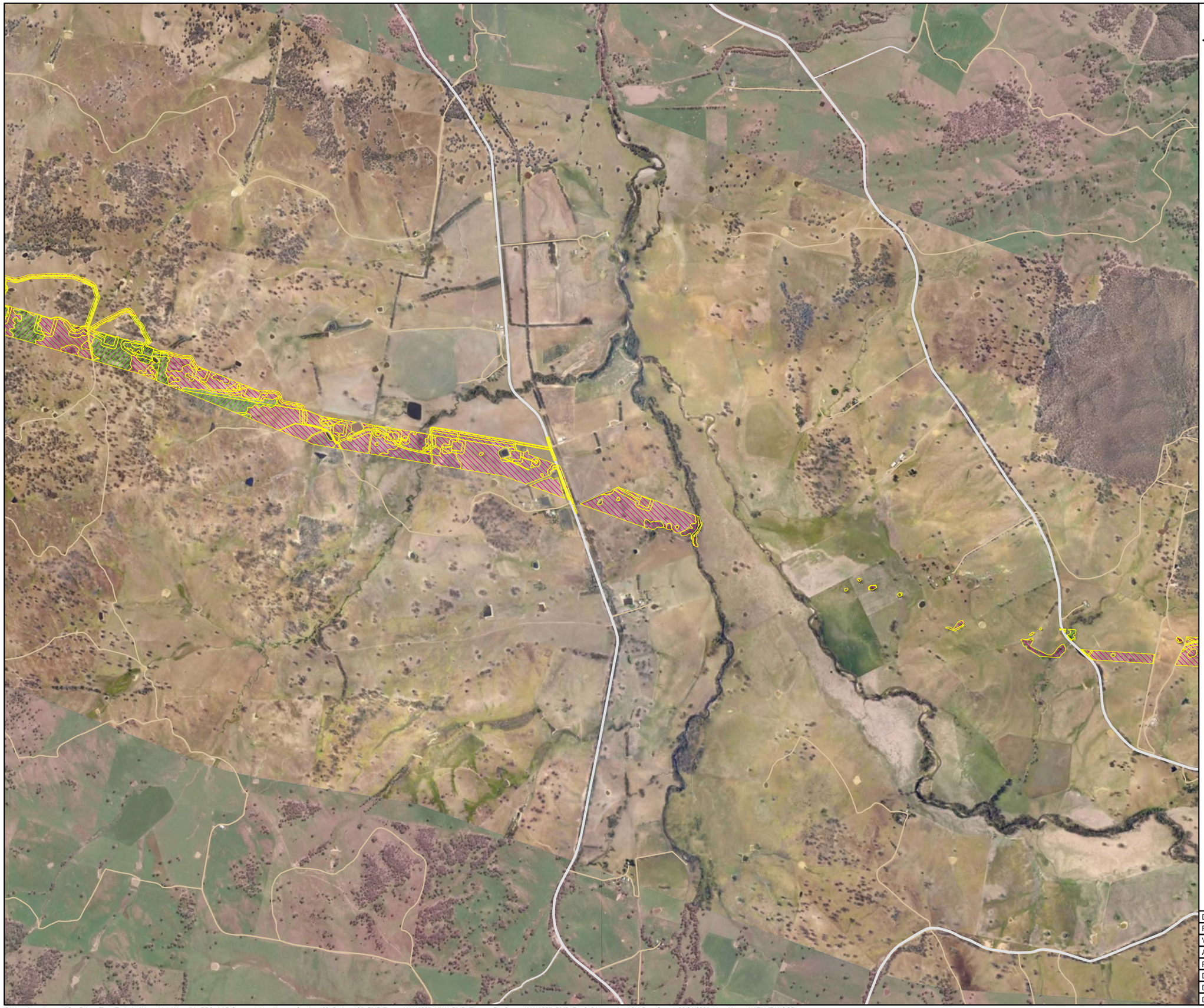

World Imagery: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
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**Vegetation**



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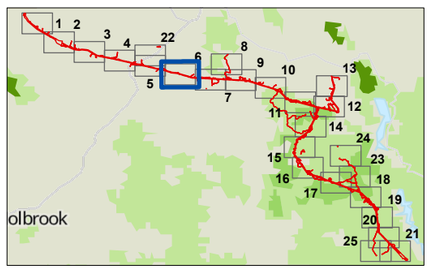
- HLW Area
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**TEC**

- White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland (BC Act)
- White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland (BC Act and EPBC Act)

**Vegetation Communities and Zones**

- 5 - River Red Gum herbaceous-grassy very tall open forest wetland on inner floodplains in the lower slopes sub-region of the NSW South Western Slopes Bioregion and the eastern Riverina Bioregion.(5: Low)
- 268 - White Box - Blakelys Red Gum - Long-leaved Box - Nortons Box - Red Stringybark grass-shrub woodland on shallow soils on hills in the NSW South Western Slopes Bioregion(268: High)
- 268 - White Box - Blakelys Red Gum - Long-leaved Box - Nortons Box - Red Stringybark grass-shrub woodland on shallow soils on hills in the NSW South Western Slopes Bioregion(268: Low)
- 268 - White Box - Blakelys Red Gum - Long-leaved Box - Nortons Box - Red Stringybark grass-shrub woodland on shallow soils on hills in the NSW South Western Slopes Bioregion(268: Very high)
- 268 - White Box - Blakelys Red Gum - Long-leaved Box - Nortons Box - Red Stringybark grass-shrub woodland on shallow soils on hills in the NSW South Western Slopes Bioregion(268: Very low)
- 277 - Blakelys Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion(277: Low)
- 277 - Blakelys Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion(277: Very low)
- 278 - Riparian Blakelys Red Gum - box - shrub - sedge - grass tall open forest of the central NSW South Western Slopes Bioregion(278: Low)
- 278 - Riparian Blakelys Red Gum - box - shrub - sedge - grass tall open forest of the central NSW South Western Slopes Bioregion(278: Very low)
- 0 - Non-native (Non-native)
- 9996 - Non-native (Roads)
- 9997 - Non-native (Waterbodies)
- 9998 - Non-native (Planted vegetation)




World Imagery: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
World Topographic Map: Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

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**Vegetation**



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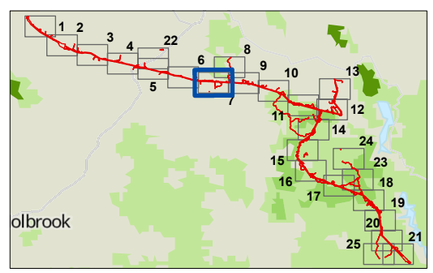
- HLW Area
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**TEC**

- White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland (BC Act)
- White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland (BC Act and EPBC Act)

**Vegetation Communities and Zones**

- 268 - White Box - Blakelys Red Gum - Long-leaved Box - Nortons Box - Red Stringybark grass-shrub woodland on shallow soils on hills in the NSW South Western Slopes Bioregion(268: High)
- 268 - White Box - Blakelys Red Gum - Long-leaved Box - Nortons Box - Red Stringybark grass-shrub woodland on shallow soils on hills in the NSW South Western Slopes Bioregion(268: Low)
- 268 - White Box - Blakelys Red Gum - Long-leaved Box - Nortons Box - Red Stringybark grass-shrub woodland on shallow soils on hills in the NSW South Western Slopes Bioregion(268: Very High)
- 268 - White Box - Blakelys Red Gum - Long-leaved Box - Nortons Box - Red Stringybark grass-shrub woodland on shallow soils on hills in the NSW South Western Slopes Bioregion(268: Very high)
- 268 - White Box - Blakelys Red Gum - Long-leaved Box - Nortons Box - Red Stringybark grass-shrub woodland on shallow soils on hills in the NSW South Western Slopes Bioregion(268: Very low)
- 277 - Blakelys Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion(277: Low)
- 277 - Blakelys Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion(277: Very low)
- 280 - Red Stringybark - Blakelys Red Gum +/- Long-leaved Box shrub/grass hill woodland of the NSW South Western Slopes Bioregion(280: High)
- 287 - Long-leaved Box - Red Box - Red Stringybark mixed open forest on hills and hillslopes in the NSW South Western Slopes Bioregion(287: High)
- 287 - Long-leaved Box - Red Box - Red Stringybark mixed open forest on hills and hillslopes in the NSW South Western Slopes Bioregion(287: Low)
- 290 - Red Stringybark - Red Box - Long-leaved Box - Inland Scribbly Gum tussock grass - shrub low open forest on hills in the southern part of the NSW South Western Slopes Bioregion(290: High)
- 290 - Red Stringybark - Red Box - Long-leaved Box - Inland Scribbly Gum tussock grass - shrub low open forest on hills in the southern part of the NSW South Western Slopes Bioregion(290: Low)
- 290 - Re Stri
- 290 - Re Stri
- 295 - Ro Pep
- 297 - Bro
- 297 - Bro
- 297 - Bro
- 299 - Rip
- 316 -
- 0 -
- 999
- 999
- 999




World Imagery: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
World Topographic Map: Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

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**Vegetation**



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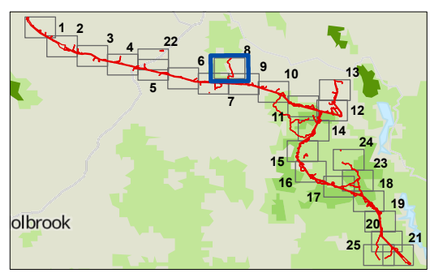
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**Vegetation Communities and Zones**

- 268 - White Box - Blakelys Red Gum - Long-leaved Box - Nortons Box - Red Stringybark grass-shrub woodland on shallow soils on hills in the NSW South Western Slopes Bioregion(268: Low)
- 268 - White Box - Blakelys Red Gum - Long-leaved Box - Nortons Box - Red Stringybark grass-shrub woodland on shallow soils on hills in the NSW South Western Slopes Bioregion(268: Very high)
- 287 - Long-leaved Box - Red Box - Red Stringybark mixed open forest on hills and hillslopes in the NSW South Western Slopes Bioregion(287: High)
- 290 - Red Stringybark - Red Box - Long-leaved Box - Inland Scribbly Gum tussock grass - shrub low open forest on hills in the southern part of the NSW South Western Slopes Bioregion(290: Moderate)
- 290 - Red Stringybark - Red Box - Long-leaved Box - Inland Scribbly Gum tussock grass - shrub low open forest on hills in the southern part of the NSW South Western Slopes Bioregion(290: Very low)
- 295 - Robertsons Peppermint - Broad-leaved Peppermint - Nortons Box - stringybark shrub-fern open forest of the NSW South Western Slopes Bioregion and South Eastern Highlands Bioregion(295: Moderate)
- 299 - Riparian Ribbon Gum - Robertsons Peppermint - Apple Box riverine very tall open forest of the NSW South Western Slopes Bioregion and South Eastern Highlands Bioregion(299: Moderate)
- 306 - Red Box - Red Stringybark - Nortons Box hill heath shrub - tussock grass open forest of the Tumut region(306: Low)
- 316 - Nortons Box - Red Box - Red Stringybark +/- Nodding Flax Lily forb-grass open forest mainly on the Tumut region(316: Low)
- 0 - Non-native (Non-native)
- 9996 - Non-native (Roads)
- 9997 - Non-native (Waterbodies)




World Imagery: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
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**Vegetation**



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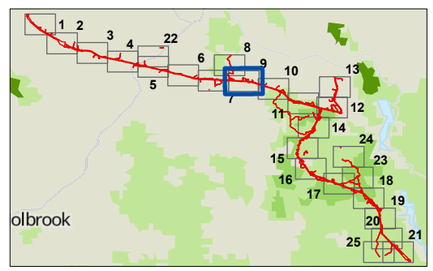
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**TEC**

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- White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland (BC Act and EPBC Act)

**Vegetation Communities and Zones**

- 280 - Red Stringybark - Blakelys Red Gum +/- Long-leaved Box shrub/grass hill woodland of the NSW South Western Slopes Bioregion(280: High)
- 280 - Red Stringybark - Blakelys Red Gum +/- Long-leaved Box shrub/grass hill woodland of the NSW South Western Slopes Bioregion(280: Low)
- 280 - Red Stringybark - Blakelys Red Gum +/- Long-leaved Box shrub/grass hill woodland of the NSW South Western Slopes Bioregion(280: Moderate)
- 280 - Red Stringybark - Blakelys Red Gum +/- Long-leaved Box shrub/grass hill woodland of the NSW South Western Slopes Bioregion(280: Very low)
- 287 - Long-leaved Box - Red Box - Red Stringybark mixed open forest on hills and hillslopes in the NSW South Western Slopes Bioregion(287: Low)
- 287 - Long-leaved Box - Red Box - Red Stringybark mixed open forest on hills and hillslopes in the NSW South Western Slopes Bioregion(287: Moderate)
- 287 - Long-leaved Box - Red Box - Red Stringybark mixed open forest on hills and hillslopes in the NSW South Western Slopes Bioregion(287: Very low)
- 290 - Red Stringybark - Red Box - Long-leaved Box - Inland Scribbly Gum tussock grass - shrub low open forest on hills in the southern part of the NSW South Western Slopes Bioregion(290: High)
- 290 - Red Stringybark - Red Box - Long-leaved Box - Inland Scribbly Gum tussock grass - shrub low open forest on hills in the southern part of the NSW South Western Slopes Bioregion(290: Low)
- 290 - Red Stringybark - Red Box - Long-leaved Box - Inland Scribbly Gum tussock grass - shrub low open forest on hills in the southern part of the NSW South Western Slopes Bioregion(290: Moderate)
- 290 - Red Stringybark - Red Box - Long-leaved Box - Inland Scribbly Gum tussock grass - shrub low open forest on hills in the southern part of the NSW South Western Slopes Bioregion(290: Very low)
- 295 - Ro Pep
- 297 - Bro
- 297 - Bro
- 297 - Bro
- 299 - Rip
- 316 -
- 0 -
- 999
- 999




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**Vegetation**



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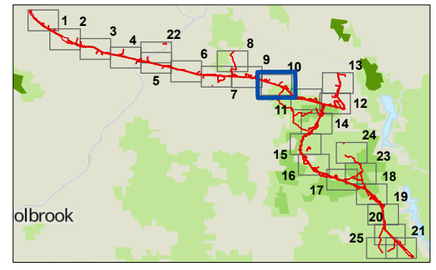
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**TEC**

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- White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland (BC Act and EPBC Act)

**Vegetation Communities and Zones**

- 278 - Riparian Blakelys Red Gum - box - shrub - sedge - grass tall open forest of the central NSW South Western Slopes Bioregion(278: Very low)
- 280 - Red Stringybark - Blakelys Red Gum +/- Long-leaved Box shrub/grass hill woodland of the NSW South Western Slopes Bioregion(280: High)
- 280 - Red Stringybark - Blakelys Red Gum +/- Long-leaved Box shrub/grass hill woodland of the NSW South Western Slopes Bioregion(280: Low)
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- 290 - Red Stringybark - Red Box - Long-leaved Box - Inland Scribbly Gum tussock grass - shrub low open forest on hills in the southern part of the NSW South Western Slopes Bioregion(290: High)
- 290 - Red Stringybark - Red Box - Long-leaved Box - Inland Scribbly Gum tussock grass - shrub low open forest on hills in the southern part of the NSW South Western Slopes Bioregion(290: Low)
- 290 - Red Stringybark - Red Box - Long-leaved Box - Inland Scribbly Gum tussock grass - shrub low open forest on hills in the southern part of the NSW South Western Slopes Bioregion(290: Very low)
- 299 - Riparian Ribbon Gum - Robertsons Peppermint - Apple Box riverine very tall open forest of the NSW South Western Slopes Bioregion and South Eastern Highlands Bioregion(299: Very low)
- 0 - Non-native (Non-native)
- 9996 - Non-native (Roads)
- 9997 - Non-native (Waterbodies)




World Imagery: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
World Topographic Map: Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

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**Vegetation**

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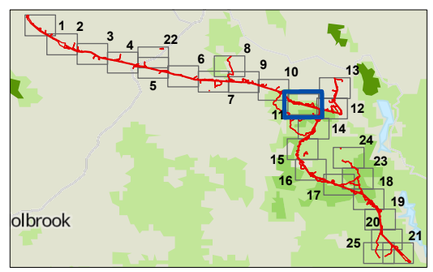
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## Legend

- HLW Area

**Vegetation Communities and Zones**

- 285 - Broad-leaved Sally grass - sedge woodland on valley flats and swamps in the NSW South Western Slopes Bioregion and adjoining South Eastern Highlands Bioregion(285: Low)
- 290 - Red Stringybark - Red Box - Long-leaved Box - Inland Scribbly Gum tussock grass - shrub low open forest on hills in the southern part of the NSW South Western Slopes Bioregion(290: Low)
- 299 - Riparian Ribbon Gum - Robertsons Peppermint - Apple Box riverine very tall open forest of the NSW South Western Slopes Bioregion and South Eastern Highlands Bioregion(299: Moderate)
- 299 - Riparian Ribbon Gum - Robertsons Peppermint - Apple Box riverine very tall open forest of the NSW South Western Slopes Bioregion and South Eastern Highlands Bioregion(299: Very low)
- 0 - Non-native (Non-native)
- 9996 - Non-native (Roads)
- 9997 - Non-native (Waterbodies)




World Imagery: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
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**Vegetation**



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## Legend

- HLW Area
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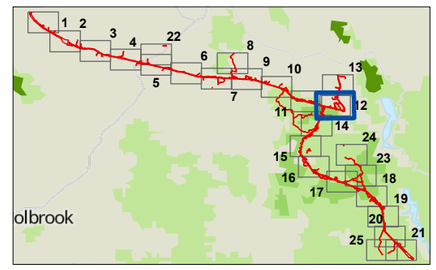
**TEC**

- White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland (BC Act)

**Vegetation Communities and Zones**

- 266 - White Box grassy woodland in the upper slopes sub-region of the NSW South Western Slopes Bioregion(266: Very low)
- 280 - Red Stringybark - Blakelys Red Gum +/- Long-leaved Box shrub/grass hill woodland of the NSW South Western Slopes Bioregion(280: Very low)
- 287 - Long-leaved Box - Red Box - Red Stringybark mixed open forest on hills and hillslopes in the NSW South Western Slopes Bioregion(287: Moderate)
- 287 - Long-leaved Box - Red Box - Red Stringybark mixed open forest on hills and hillslopes in the NSW South Western Slopes Bioregion(287: Very high)
- 287 - Long-leaved Box - Red Box - Red Stringybark mixed open forest on hills and hillslopes in the NSW South Western Slopes Bioregion(287: Very low)
- 299 - Riparian Ribbon Gum - Robertsons Peppermint - Apple Box riverine very tall open forest of the NSW South Western Slopes Bioregion and South Eastern Highlands Bioregion(299: Moderate)
- 300 - Ribbon Gum - Narrow-leaved (Robertsons) Peppermint montane fern - grass tall open forest on deep clay loam soils in the upper NSW South Western Slopes Bioregion and western Kosciuszko escarpment(300: Moderate)
- 306 - Red Box - Red Stringybark - Nortons Box hill heath shrub - tussock grass open forest of the Tumut region(306: Low)
- 306 - Red Box - Red Stringybark - Nortons Box hill heath shrub - tussock grass open forest of the Tumut region(306: Very high)
- 306 - Red Box - Red Stringybark - Nortons Box hill heath shrub - tussock grass open forest of the Tumut region(306: Very low)
- 314 - Apple Box - Red Stringybark basalt scree open forest in the upper Murray River region(314: Low)
- 314 - Apple Box - Red Stringybark basalt scree open forest in the upper Murray River region(314: Very high)
- 314 - Apple Box - Red Stringybark basalt scree open forest in the upper Murray River region(314: Very low)
- 352 - Red Stringybark - Blakelys Red Gum hillslope open forest on meta-sediments in the Yass - Boorowa - Crookwell region of the NSW South Western Slopes Bioregion and South Eastern Highlands Bioregion(352: Low)

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World Imagery: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
World Topographic Map: Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

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**Vegetation**



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- HLW Area
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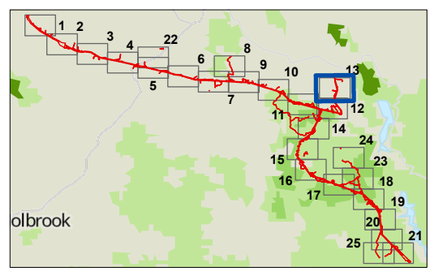
**TEC**

- White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland (BC Act)
- White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland (BC Act and EPBC Act)

**Vegetation Communities and Zones**

- 277 - Blakelys Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion(277: Low)
- 277 - Blakelys Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion(277: Moderate)
- 277 - Blakelys Red Gum - Yellow Box grassy tall woodland of the NSW South Western Slopes Bioregion(277: Very low)
- 280 - Red Stringybark - Blakelys Red Gum +/- Long-leaved Box shrub/grass hill woodland of the NSW South Western Slopes Bioregion(280: Very low)
- 299 - Riparian Ribbon Gum - Robertsons Peppermint - Apple Box riverine very tall open forest of the NSW South Western Slopes Bioregion and South Eastern Highlands Bioregion(299: Low)
- 299 - Riparian Ribbon Gum - Robertsons Peppermint - Apple Box riverine very tall open forest of the NSW South Western Slopes Bioregion and South Eastern Highlands Bioregion(299: Moderate)
- 299 - Riparian Ribbon Gum - Robertsons Peppermint - Apple Box riverine very tall open forest of the NSW South Western Slopes Bioregion and South Eastern Highlands Bioregion(299: Very low)
- 306 - Red Box - Red Stringybark - Nortons Box hill heath shrub - tussock grass open forest of the Tumut region(306: Very low)
- 352 - Red Stringybark - Blakelys Red Gum hillslope open forest on meta-sediments in the Yass - Boorowa - Crookwell region of the NSW South Western Slopes Bioregion and South Eastern Highlands Bioregion(352: Low)
- 352 - Red Stringybark - Blakelys Red Gum hillslope open forest on meta-sediments in the Yass - Boorowa - Crookwell region of the NSW South Western Slopes Bioregion and South Eastern Highlands Bioregion(352: Very low)
- 731 - Broad-leaved Peppermint - Red Stringybark grassy open forest on undulating hills, South Eastern Highlands Bioregion(731: Low)
- 731 - Broad-leaved Peppermint - Red Stringybark grassy open forest on undulating hills, South Eastern Highlands Bioregion(731: Very low)
- 0 - Non-native (Non-native)
- 9996 - Non-native (Roads)

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World Imagery: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
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**Vegetation**



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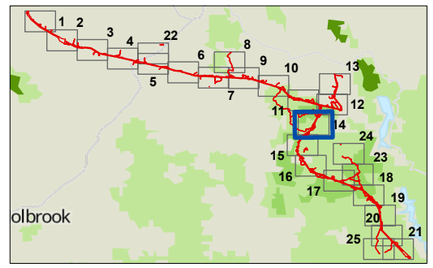
- HLW Area
- SAII

**TEC**

- Tableland Basalt Forest (BC Act)

**Vegetation Communities and Zones**

- 285 - Broad-leaved Sally grass - sedge woodland on valley flats and swamps in the NSW South Western Slopes Bioregion and adjoining South Eastern Highlands Bioregion(285: High)
- 285 - Broad-leaved Sally grass - sedge woodland on valley flats and swamps in the NSW South Western Slopes Bioregion and adjoining South Eastern Highlands Bioregion(285: Very high)
- 953 - Mountain Gum - Snow Gum - Broad-leaved Peppermint shrubby open forest of montane ranges, South Eastern Highlands Bioregion and Australian Alps Bioregion(953: Low)
- 953 - Mountain Gum - Snow Gum - Broad-leaved Peppermint shrubby open forest of montane ranges, South Eastern Highlands Bioregion and Australian Alps Bioregion(953: Moderate)
- 0 - Non-native (Non-native)
- 9996 - Non-native (Roads)
- 9997 - Non-native (Waterbodies)




World Imagery: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
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**Vegetation**

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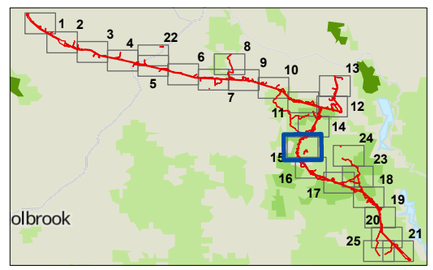
- HLW Area
- SAII

**TEC**

- Tableland Basalt Forest (BC Act)

**Vegetation Communities and Zones**

- 285 - Broad-leaved Sally grass - sedge woodland on valley flats and swamps in the NSW South Western Slopes Bioregion and adjoining South Eastern Highlands Bioregion(285: High)
- 285 - Broad-leaved Sally grass - sedge woodland on valley flats and swamps in the NSW South Western Slopes Bioregion and adjoining South Eastern Highlands Bioregion(285: Very high)
- 299 - Riparian Ribbon Gum - Robertsons Peppermint - Apple Box riverine very tall open forest of the NSW South Western Slopes Bioregion and South Eastern Highlands Bioregion(299: Moderate)
- 299 - Riparian Ribbon Gum - Robertsons Peppermint - Apple Box riverine very tall open forest of the NSW South Western Slopes Bioregion and South Eastern Highlands Bioregion(299: Very low)
- 300 - Ribbon Gum - Narrow-leaved (Robertsons) Peppermint montane fern - grass tall open forest on deep clay loam soils in the upper NSW South Western Slopes Bioregion and western Kosciuszko escarpment(300: Moderate)
- 953 - Mountain Gum - Snow Gum - Broad-leaved Peppermint shrubby open forest of montane ranges, South Eastern Highlands Bioregion and Australian Alps Bioregion(953: Low)
- 953 - Mountain Gum - Snow Gum - Broad-leaved Peppermint shrubby open forest of montane ranges, South Eastern Highlands Bioregion and Australian Alps Bioregion(953: Moderate)
- 953 - Mountain Gum - Snow Gum - Broad-leaved Peppermint shrubby open forest of montane ranges, South Eastern Highlands Bioregion and Australian Alps Bioregion(953: Very low)
- 0 - Non-native (Non-native)
- 9996 - Non-native (Roads)
- 9997 - Non-native (Waterbodies)




World Imagery: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
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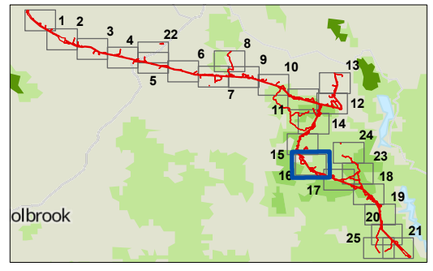
- HLW Area
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**TEC**

- Tableland Basalt Forest (BC Act)

**Vegetation Communities and Zones**

- 299 - Riparian Ribbon Gum - Robertsons Peppermint - Apple Box riverine very tall open forest of the NSW South Western Slopes Bioregion and South Eastern Highlands Bioregion(299: Moderate)
- 300 - Ribbon Gum - Narrow-leaved (Robertsons) Peppermint montane fern - grass tall open forest on deep clay loam soils in the upper NSW South Western Slopes Bioregion and western Kosciuszko escarpment(300: Moderate)
- 953 - Mountain Gum - Snow Gum - Broad-leaved Peppermint shrubby open forest of montane ranges, South Eastern Highlands Bioregion and Australian Alps Bioregion(953: Moderate)
- 0 - Non-native (Non-native)
- 9996 - Non-native (Roads)




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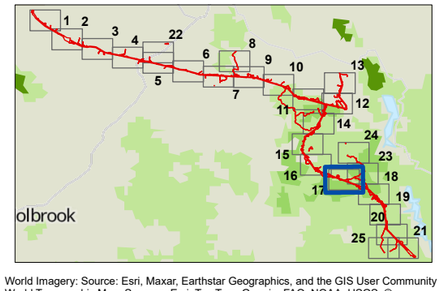
- HLW Area
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**TEC**

- Tableland Basalt Forest (BC Act)

**Vegetation Communities and Zones**

- 285 - Broad-leaved Sally grass - sedge woodland on valley flats and swamps in the NSW South Western Slopes Bioregion and adjoining South Eastern Highlands Bioregion(285: High)
- 285 - Broad-leaved Sally grass - sedge woodland on valley flats and swamps in the NSW South Western Slopes Bioregion and adjoining South Eastern Highlands Bioregion(285: Low)
- 299 - Riparian Ribbon Gum - Robertsons Peppermint - Apple Box riverine very tall open forest of the NSW South Western Slopes Bioregion and South Eastern Highlands Bioregion(299: Moderate)
- 638 - Alpine Ash - Mountain Gum moist shrubby tall open forest of montane areas, southern South Eastern Highlands Bioregion and Australian Alps Bioregion(638: High)
- 638 - Alpine Ash - Mountain Gum moist shrubby tall open forest of montane areas, southern South Eastern Highlands Bioregion and Australian Alps Bioregion(638: Low)
- 638 - Alpine Ash - Mountain Gum moist shrubby tall open forest of montane areas, southern South Eastern Highlands Bioregion and Australian Alps Bioregion(638: Moderate)
- 638 - Alpine Ash - Mountain Gum moist shrubby tall open forest of montane areas, southern South Eastern Highlands Bioregion and Australian Alps Bioregion(638: Very low)
- 953 - Mountain Gum - Snow Gum - Broad-leaved Peppermint shrubby open forest of montane ranges, South Eastern Highlands Bioregion and Australian Alps Bioregion(953: High)
- 953 - Mountain Gum - Snow Gum - Broad-leaved Peppermint shrubby open forest of montane ranges, South Eastern Highlands Bioregion and Australian Alps Bioregion(953: Moderate)
- 953 - Mountain Gum - Snow Gum - Broad-leaved Peppermint shrubby open forest of montane ranges, South Eastern Highlands Bioregion and Australian Alps Bioregion(953: Very high)
- 0 - Non-native (Non-native)
- 9996 - Non-native (Roads)




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**Vegetation**



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## Legend

HLW Area

**TEC**

Montane Peatlands and Swamps (BC Act) / Alpine Sphagnum Bogs and Associated Fen (EBPC Act)

**Vegetation Communities and Zones**

285 - Broad-leaved Sally grass - sedge woodland on valley flats and swamps in the NSW South Western Slopes Bioregion and adjoining South Eastern Highlands Bioregion(285: Low)

300 - Ribbon Gum - Narrow-leaved (Robertsons) Peppermint montane fern - grass tall open forest on deep clay loam soils in the upper NSW South Western Slopes Bioregion and western Kosciuszko escarpment(300: Very high)

638 - Alpine Ash - Mountain Gum moist shrubby tall open forest of montane areas, southern South Eastern Highlands Bioregion and Australian Alps Bioregion(638: High)

638 - Alpine Ash - Mountain Gum moist shrubby tall open forest of montane areas, southern South Eastern Highlands Bioregion and Australian Alps Bioregion(638: Low)

638 - Alpine Ash - Mountain Gum moist shrubby tall open forest of montane areas, southern South Eastern Highlands Bioregion and Australian Alps Bioregion(638: Moderate)

939 - Montane wet heath and bog of the eastern tablelands, South Eastern Highlands Bioregion(939: High)

953 - Mountain Gum - Snow Gum - Broad-leaved Peppermint shrubby open forest of montane ranges, South Eastern Highlands Bioregion and Australian Alps Bioregion(953: High)

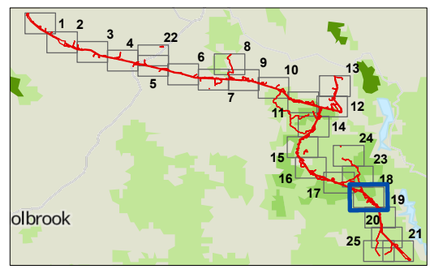
953 - Mountain Gum - Snow Gum - Broad-leaved Peppermint shrubby open forest of montane ranges, South Eastern Highlands Bioregion and Australian Alps Bioregion(953: Low)

953 - Mountain Gum - Snow Gum - Broad-leaved Peppermint shrubby open forest of montane ranges, South Eastern Highlands Bioregion and Australian Alps Bioregion(953: Moderate)

953 - Mountain Gum - Snow Gum - Broad-leaved Peppermint shrubby open forest of montane ranges, South Eastern Highlands Bioregion and Australian Alps Bioregion(953: Very high)

0 - Non-native (Non-native)

9996 - Non-native (Roads)




World Imagery: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
World Topographic Map: Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

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**Vegetation**

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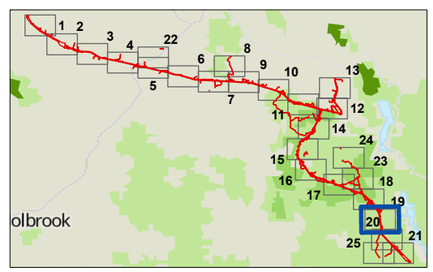
HLW Area

**TEC**

Montane Peatlands and Swamps (BC Act) / Alpine Sphagnum Bogs and Associated Fen (EBPC Act)

**Vegetation Communities and Zones**

- 300 - Ribbon Gum - Narrow-leaved (Robertsons) Peppermint montane fern - grass tall open forest on deep clay loam soils in the upper NSW South Western Slopes Bioregion and western Kosciuszko escarpment(300: Low)
- 300 - Ribbon Gum - Narrow-leaved (Robertsons) Peppermint montane fern - grass tall open forest on deep clay loam soils in the upper NSW South Western Slopes Bioregion and western Kosciuszko escarpment(300: Moderate)
- 300 - Ribbon Gum - Narrow-leaved (Robertsons) Peppermint montane fern - grass tall open forest on deep clay loam soils in the upper NSW South Western Slopes Bioregion and western Kosciuszko escarpment(300: Very high)
- 679 - Black Sallee - Snow Gum low woodland of montane valleys, South Eastern Highlands Bioregion and Australian Alps Bioregion(679: Low)
- 939 - Montane wet heath and bog of the eastern tablelands, South Eastern Highlands Bioregion(939: High)
- 953 - Mountain Gum - Snow Gum - Broad-leaved Peppermint shrubby open forest of montane ranges, South Eastern Highlands Bioregion and Australian Alps Bioregion(953: High)
- 953 - Mountain Gum - Snow Gum - Broad-leaved Peppermint shrubby open forest of montane ranges, South Eastern Highlands Bioregion and Australian Alps Bioregion(953: Low)
- 953 - Mountain Gum - Snow Gum - Broad-leaved Peppermint shrubby open forest of montane ranges, South Eastern Highlands Bioregion and Australian Alps Bioregion(953: Moderate)
- 953 - Mountain Gum - Snow Gum - Broad-leaved Peppermint shrubby open forest of montane ranges, South Eastern Highlands Bioregion and Australian Alps Bioregion(953: Very high)
- 1196 - Snow Gum - Mountain Gum shrubby open forest of montane areas, South Eastern Highlands Bioregion and Australian Alps Bioregion(1196: High)
- 1196 - Snow Gum - Mountain Gum shrubby open forest of montane areas, South Eastern Highlands Bioregion and Australian Alps Bioregion(1196: Low)
- 0 - Non-native (Non-native)
- 9996 - Non-native (Roads)




World Imagery: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
World Topographic Map: Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

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| DRAWN: | NW |
| REVIEWED: | PI |
| VERIFIED: | CM |
| APPROVED: | |
| REV: | 2 |
| DATE: | 30/04/2025 |
| DESCRIPTION: | Issued for submission |
| DRAWING NO: | HLW_Overview |

**Vegetation**

N

0.0 250.0 500.0 1,000.0

Metres

Datum: GDA2020 Projection MGA Zone 55
Scale: 1:25,000 (when printed at A3)

## Legend

HLW Area

**TEC**

Montane Peatlands and Swamps (BC Act) / Alpine Sphagnum Bogs and Associated Fen (EBPC Act)

**Vegetation Communities and Zones**

300 - Ribbon Gum - Narrow-leaved (Robertsons) Peppermint montane fern - grass tall open forest on deep clay loam soils in the upper NSW South Western Slopes Bioregion and western Kosciuszko escarpment(300: Low)

300 - Ribbon Gum - Narrow-leaved (Robertsons) Peppermint montane fern - grass tall open forest on deep clay loam soils in the upper NSW South Western Slopes Bioregion and western Kosciuszko escarpment(300: Moderate)

300 - Ribbon Gum - Narrow-leaved (Robertsons) Peppermint montane fern - grass tall open forest on deep clay loam soils in the upper NSW South Western Slopes Bioregion and western Kosciuszko escarpment(300: Very high)

637 - Alpine and sub-alpine peatlands, damp herbfields and fens, South Eastern Highlands Bioregion and Australian Alps Bioregion(637: High)

679 - Black Sallee - Snow Gum low woodland of montane valleys, South Eastern Highlands Bioregion and Australian Alps Bioregion(679: High)

679 - Black Sallee - Snow Gum low woodland of montane valleys, South Eastern Highlands Bioregion and Australian Alps Bioregion(679: Low)

939 - Montane wet heath and bog of the eastern tablelands, South Eastern Highlands Bioregion(939: High)

953 - Mountain Gum - Snow Gum - Broad-leaved Peppermint shrubby open forest of montane ranges, South Eastern Highlands Bioregion and Australian Alps Bioregion(953: High)

953 - Mountain Gum - Snow Gum - Broad-leaved Peppermint shrubby open forest of montane ranges, South Eastern Highlands Bioregion and Australian Alps Bioregion(953: Low)

953 - Mountain Gum - Snow Gum - Broad-leaved Peppermint shrubby open forest of montane ranges, South Eastern Highlands Bioregion and Australian Alps Bioregion(953: Moderate)

953 - Mountain Gum - Snow Gum - Broad-leaved Peppermint shrubby open forest of montane ranges, South Eastern Highlands Bioregion and Australian Alps Bioregion(953: Very high)

1196 - Snow Gum - Mountain Gum shrubby open forest of montane areas, South Eastern Highlands Bioregion and Australian Alps Bioregion(1196: High)

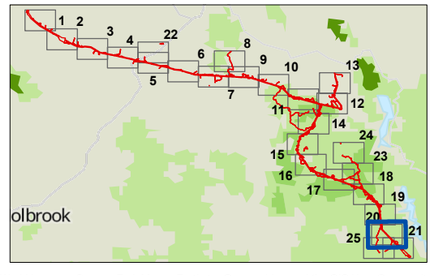
1196 - Snow Gum - Mountain Gum shrubby open forest of montane areas, South Eastern Highlands Bioregion and Australian Alps Bioregion(1196: Low)

122 - Sub

0 -

999

999




World Imagery: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
World Topographic Map: Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

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**Vegetation**