



1. Application details and outcomes

1.1. Permit application details

| | |
|------------------------|---|
| Permit number: | 10466/1 |
| Permit type: | Purpose Permit |
| Applicant name: | Andy Well Mining Pty Ltd |
| Application received: | 22 December 2023 |
| Application area: | 570 hectares |
| Purpose of clearing: | Mineral production |
| Method of clearing: | Mechanical Removal |
| Tenure: | Mining Lease 51/870 Mining Lease 51/882 Miscellaneous Licence 51/97 |
| Location (LGA area/s): | Shire of Meekatharra |
| Colloquial name: | Gnaweeda Project |

1.2. Description of clearing activities

Andy Well Mining Pty Ltd proposes to clear up to 570 hectares of native vegetation within a boundary of approximately 922 hectares, for the purpose of mineral production. The project is located approximately 37 kilometres northeast of Meekatharra, within the Shire of Meekatharra.

The application is to allow for the implementation of the Gnaweeda Open Pit Mining Operation.

1.3. Decision on application and key considerations

| | |
|----------------|-----------------------------------|
| Decision: | Grant |
| Decision date: | 26 March 2024 |
| Decision area: | 570 hectares of native vegetation |

1.4. Reasons for decision

This clearing permit application was made in accordance with section 51E of the *Environmental Protection Act 1986* (EP Act) and was received by the Department of Energy, Mines, Industry Regulation and Safety (DEMIRS) on 22 December 2023. DEMIRS advertised the application for a public comment for a period of 21 days, and no submissions were received.

In making this decision, the Delegated Officer had regard for the site characteristics (Appendix A), relevant datasets (Appendix E), supporting information provided by the applicant including the results of a flora and vegetation survey (Appendix D), the clearing principles set out in Schedule 5 of the EP Act (Appendix B), proposed avoidance and minimisation measures (Section 3.1), relevant planning instruments and any other matters considered relevant to the assessment (Section 3.3).

The assessment identified that the proposed clearing may result in:

- the potential introduction and spread of weeds into adjacent vegetation, which could impact on the quality of the adjacent vegetation and its habitat values;
- potential impacts to watercourses; and
- potential land degradation in the form of wind erosion.

After consideration of the available information, as well as the applicant's minimisation and mitigation measures (see Section 3.1), the Delegated Officer determined the proposed clearing can be minimised and managed to be unlikely to lead to an unacceptable risk to environmental values.

The Delegated Officer decided to grant a clearing permit subject to conditions to:

- avoid, minimise to reduce the impacts and extent of clearing;
- take hygiene steps to minimise the risk of the introduction and spread of weeds;
- avoid the clearing of riparian vegetation where practicable, if watercourses are impacted, maintain water flows; and

- commence construction no later than three months after undertaking clearing to reduce the risk of erosion.

2. Legislative context

The clearing of native vegetation in Western Australia is regulated under the EP Act and the Environmental Protection (Clearing of Native Vegetation) Regulations 2004 (Clearing Regulations).

In addition to the matters considered in accordance with section 51O of the EP Act (see Section 1.4), the Delegated Officer has also had regard to the objects and principles under section 4A of the EP Act, particularly:

- the precautionary principle
- the principle of intergenerational equity
- the principle of the conservation of biological diversity and ecological integrity.

Other legislation of relevance for this assessment include:

- *Biodiversity Conservation Act 2016* (WA) (BC Act)
- *Conservation and Land Management Act 1984* (WA) (CALM Act)
- *Mining Act 1978* (WA)

The key guidance documents which inform this assessment are:

- *A guide to the assessment of applications to clear native vegetation* (DER, December 2014)
- *Procedure: Native vegetation clearing permits* (DWER, October 2021)
- Technical guidance – *Flora and Vegetation Surveys for Environmental Impact Assessment* (EPA, 2016)
- Technical guidance – *Terrestrial Fauna Surveys for Environmental Impact Assessment* (EPA, 2020)

3. Detailed assessment of application

3.1. Avoidance and mitigation measures

The applicant stated that the amount of clearing is based on the footprint of the operation and all attempts have been made to minimise this where possible. Vegetation surveys of the entire area to be cleared have occurred and no Threatened or Priority species will be impacted and all disturbances will be rehabilitated (Andy Well Mining Pty Ltd, 2023).

The Delegated Officer was satisfied that the applicant has made a reasonable effort to avoid and minimise potential impacts of the proposed clearing on environmental values.

3.2. Assessment of impacts on environmental values

In assessing the application, the Delegated Officer has had regard for the site characteristics (see Appendix A) and the extent to which the impacts of the proposed clearing present a risk to biological, conservation, or land and water resource values.

The assessment against the clearing principles (see Appendix B) identified the impacts of the proposed clearing are limited and able to be managed to be environmentally acceptable with standard avoid and minimise, hygiene, and staged clearing management conditions; as well as a riparian vegetation management condition.

3.3. Relevant planning instruments and other matters

The clearing permit application was advertised on 23 February 2024 by the Department of Energy, Mines, Industry Regulation and Safety inviting submissions from the public. No submissions were received in relation to this application.

There is one native title claim (WCD2021/008) over the area under application (DPLH, 2024). This claim has been determined by the Federal Court on behalf of the claimant group (Yugunga-nya). However, the mining tenure has been granted in accordance with the future act regime of the *Native Title Act 1993* and the nature of the act (i.e. the proposed clearing activity) has been provided for in that process, therefore, the granting of a clearing permit is not a future act under the *Native Title Act 1993*.

There are no registered Aboriginal Sites of Significance within the application area (DPLH, 2024). It is the proponent's responsibility to comply with the *Aboriginal Heritage Act 1972* and ensure that no Aboriginal Sites of Significance are damaged through the clearing process.

Other relevant authorisations required for the proposed land use include:

- A Mining Proposal / Mine Closure Plan approved under the *Mining Act 1978*.

It is the proponent's responsibility to liaise with the Department of Water and Environmental Regulation and the Department of Biodiversity, Conservation and Attractions, to determine whether a Works Approval, Water Licence, Bed and Banks Permit, or any other licences or approvals are required for the proposed works.

End

Appendix A. Site characteristics

A.1. Site characteristics

| Characteristic | Details |
|------------------------|---|
| Local context | The area proposed to be cleared is part of an expansive tract of native vegetation in the extensive land use zone of Western Australia. It is surrounded by native vegetation and wash areas and drainage lines. It is adjacent to the Great Northern Highway (GIS Database). |
| Ecological linkage | According to aerial imagery, the application area is not located within any formal or informal ecological linkages (GIS Database). |
| Conservation areas | The application area is not located within any known or mapped conservation areas. The closest record is of an area of Unallocated Crown Land with Department Interest located approximately 25 kilometres northeast of the application area (GIS Database). |
| Vegetation description | <p>The vegetation of the application area is broadly mapped as the following Beard vegetation associations:</p> <p>18: Low woodland; mulga (<i>Acacia aneura</i>); 29: Sparse low woodland; mulga, discontinuous in scattered groups; and 39: Shrublands; mulga scrub (GIS Database).</p> <p>Flora and vegetation surveys were conducted over the application area by MWH Australia Pty Ltd (MWH) and Native Vegetation Solutions (NVS) during October and November, 2016 and November, 2023 respectively. The following vegetation associations were recorded within the application area (MWH, 2017; NVS, 2024):</p> <p>Claypan (AmAtHII) <i>Acacia mulganeura</i>, <i>Acacia tetragonophylla</i> and <i>Hakea lorea</i> subsp. <i>lorea</i> low isolated trees over <i>Eremophila fraseri</i> subsp. <i>fraseri</i> mid isolated shrubs mixed dead tussock grassland on heavy clay plains.</p> <p>Acacia shrublands (A?pa?pt) <i>Acacia ? paraneura</i> and <i>Acacia ? pteraneura</i> (with or without <i>Grevillea berryana</i>, <i>Acacia mulganeura</i> and <i>Acacia pruinocarpa</i>) low open woodland over <i>Psudras latifolia</i>, <i>Psudras rigidula</i> and <i>Eremophila latrobei</i> tall to mid isolated shrubs over <i>Eremophila glutinosa</i>, <i>Ptilotus schwartzii</i> and <i>Solanum lasiophyllum</i> low sparse shrubland on sandy clay quartz plains.</p> <p>Acacia shrublands (A?paA?ptD) <i>Acacia ? paraneura</i>, <i>Acacia ? pteraneura</i> and <i>Acacia mulganeura</i> low woodland over <i>Senna artemisioides</i> subsp. <i>helmsii</i>, <i>Dodonaea pachyneura</i> and <i>Eremophila fraseri</i> subsp. <i>fraseri</i> mid sparse shrubland over <i>Eremophila glutinosa</i>, <i>Eremophila flabellata</i> and <i>Solanum lasiophyllum</i> low sparse shrubland on drainage.</p> <p>Acacia shrublands (A?ptEffEfo) <i>Acacia ? pteraneura</i> low open woodland over <i>Eremophila fraseri</i> subsp. <i>fraseri</i> and <i>Eremophila forrestii</i> mid sparse shrubland over <i>Ptilotus obovatus</i>, <i>Solanum lasiophyllum</i> low sparse shrubland with <i>Aristida contorta</i> sparse tussock grassland on orange sandy medium clay plains.</p> <p>Mulga Woodlands (A?paAprPo) <i>Acacia ? paraneura</i> and <i>Acacia pruinocarpa</i> (with or without <i>Acacia fuscaneura</i>) low closed woodland over <i>Eremophila fraseri</i> subsp. <i>fraseri</i> mid sparse shrubland over <i>Ptilotus obovatus</i>, <i>Eremophila flabellata</i> and <i>Solanum lasiophyllum</i> low open to sparse shrubland on medium clay broad drainage.</p> <p>Mulga Woodlands (A?paEfoEff) <i>Acacia ? paraneura</i>, <i>Acacia mulganeura</i> and <i>Acacia tetragonophylla</i> low woodland over <i>Eremophila forrestii</i> and <i>Eremophila fraseri</i> subsp. <i>fraseri</i> mid open to sparse shrubland over <i>Eremophila flabellata</i>, <i>Solanum lasiophyllum</i> and <i>Ptilotus obovatus</i> low open to sparse shrubland with <i>Eragrostis eriopoda</i> sparse tussock grassland on orange sandy clay plains.</p> <p>Mulga Woodlands (A?paEfoEffD) <i>Acacia ? paraneura</i>, <i>Acacia mulganeura</i> and <i>Acacia tetragonophylla</i> low woodland over <i>Eremophila fraseri</i> subsp. <i>fraseri</i> with occasional <i>Eremophila forrestii</i> mid open to sparse shrubland over <i>Solanum lasiophyllum</i> and <i>Ptilotus obovatus</i> low open to sparse shrubland on orange sandy clay broad drainage.</p> <p>Eremophila spathulata on quartz (A?ptEspEss) <i>Acacia ? pteraneura</i> low open woodland over <i>Eremophila spathulata</i> and <i>Eremophila spectabilis</i> subsp. <i>spectabilis</i> mid sparse shrubland over <i>Eremophila compacta</i> subsp. <i>compacta</i>, <i>Ptilotus schwartzii</i> and <i>Ptilotus roei</i> low sparse shrubland on orange sandy medium clay plains.</p> <p>Eremophila spathulata on quartz (AprEsp) <i>Acacia pruinocarpa</i>, <i>Acacia grasbyi</i> and <i>Acacia tetragonophylla</i> tall sparse shrubland over <i>Eremophila spathulata</i>, <i>Eremophila macmillaniana</i> and <i>Ptilotus rotundifolius</i> mid sparse shrubland over <i>Solanum lasiophyllum</i> low sparse shrubland on stony quartz and ironstone plains.</p> <p>Eremophila spathulata on quartz (EsEm) <i>Eremophila spathulata</i>, <i>Eremophila macmillaniana</i> and <i>Senna</i> sp. Meekatharra (E. Bailey 1-26) mid sparse shrubland over <i>Ptilotus obovatus</i> low sparse shrubland on orange medium clay plains.</p> |

| Characteristic | Details |
|-------------------------------|--|
| | <p>Chenopod Shrublands (A?ptEffSaa) <i>Acacia ? pteraneura</i> low open woodland over <i>Eremophila fraseri</i> subsp. <i>fraseri</i> and <i>Senna artemisioides</i> subsp. <i>x artemisioides</i> mid sparse shrubland over <i>Sclerolaena densiflora</i> sparse dwarf chenopod shrubland on yellow brown clay loam and brown sandy clay plains.</p> <p>Chenopod Shrublands (SsMPnMc) <i>Senna</i> sp. Meekatharra (E. Bailey 1-26) and <i>Ptilotus nobilis</i> mid isolated shrubs over <i>Maireana carnososa</i>, <i>Sclerolaena cuneata</i> and <i>Sclerolaena densiflora</i> sparse dwarf chenopod shrubland on clayey sand or heavy clay plains.</p> <p>Chenopod Shrublands (EffMcSd) <i>Eremophila fraseri</i> subsp. <i>fraseri</i> mid isolated shrubs over <i>Ptilotus obovatus</i> low sparse shrubland over <i>Maireana carnososa</i> and <i>Sclerolaena densiflora</i> dwarf chenopod shrubland on orange medium to heavy clay plains.</p> <p>Chenopod Shrublands (EmAcSd) <i>Eremophila macmillaniana</i> and <i>Senna</i> sp. Meekatharra (E. Bailey 1-26) mid isolated shrubs over <i>Ptilotus obovatus</i> low isolated shrubs with <i>Aristida contorta</i> sparse tussock grassland over <i>Sclerolaena densiflora</i> and <i>Maireana carnososa</i> dwarf chenopod shrubland on orange medium clay plains.</p> <p>Chenopod Shrublands (AtEmSd) <i>Acacia tetragonophylla</i> tall isolated shrubs over <i>Eremophila macmillaniana</i>, <i>Eremophila fraseri</i> subsp. <i>fraseri</i> and <i>Senna</i> sp. Meekatharra (E. Bailey 1-26) mid isolated shrubs over <i>Ptilotus obovatus</i> and <i>Solanum lasiophyllum</i> low isolated shrubs with <i>Aristida contorta</i> sparse tussock grassland over <i>Sclerolaena densiflora</i> dwarf chenopod shrubland orange sandy medium clay or clay loam plains.</p> <p>Outcrops and Ridges (A?paAgEm) <i>Acacia ? paraneura</i> and <i>Acacia grasbyi</i> low open woodland over <i>Eremophila macmillaniana</i> mid sparse shrubland over <i>Eremophila glutinosa</i> and <i>Ptilotus obovatus</i> low sparse shrubland over <i>Sclerolaena diacantha</i> dwarf chenopod shrubland low stony ridges.</p> <p>Outcrops and Ridges (CfAfEI) <i>Corymbia ferritcola</i>, <i>Acacia fuscanera</i> and <i>Acacia grasbyi</i> low open woodland over <i>Eremophila latrobei</i> and <i>Dodonaea pachyneura</i> mid sparse shrubland over <i>Cymbopogon ambiguus</i> sparse tussock grassland on rocky outcrops and ridges.</p> <p>Outcrops and Ridges (CfA?ptDp) <i>Corymbia ferritcola</i>, <i>Acacia ? pteraneura</i> and <i>Acacia grasbyi</i> low open woodland over <i>Dodonaea pachyneura</i> mid sparse isolated shrubs over <i>Eremophila flabellata</i> low isolated shrubs on outcrops and adjacent plains.</p> |
| Vegetation condition | <p>The vegetation survey (MWH, 2017) and aerial imagery indicate the vegetation within the proposed clearing area is in Very Good to Completely Degraded (Trudgen, 1991) condition.</p> <p>The full Trudgen (1991) condition rating scale is provided in Appendix C.</p> |
| Climate and landform | <p>The application area falls within an arid zone with an annual average rainfall (Meekatharra Station) of 233.1 millimetres (BoM, 2024).</p> |
| Soil description | <p>The soil within the application area is mapped as BE2 and My50 (GIS Database). Northcote et al. (1960-68) describe soil unit BE2 as generally undulating terrain on granites with rocky granitic hills, bosses and tors, some breakaways, and a surface stone mantle: chief soils seem to be shallow earthy loams underlain by a red-brown hardpan. The red-brown hardpan is often exposed in eroded sites and elsewhere is present between 8 and 40 inches. Soil unit My50 is described as broad plains with a scatter of surface gravels: chief soils are shallow neutral red earths and shallow earthy loams in intimate microassociation. They are underlain by a red-brown hardpan at depths of 6-30 inches (Northcote et al., 1960-68).</p> |
| Land systems and erosion risk | <p>The application area falls within the Belele, Sherwood, Violet, Yandil, and Yanganoo land systems (DPIRD, 2024). These land systems are described by Curry et al. (1994) as follows:</p> <p>Belele land system: Hardpan wash plains with acacia tall shrublands, and low sandy banks supporting shrublands with wanderrie grasses. Hardpan plain and interbank areas and drainage tracts have minor susceptibility to soil erosion when degraded.</p> <p>Sherwood land system: Extensive, gently sloping stony and sandy plains on granite and gneiss below saline footslopes of lateritised breakaways and outcrops of weathered rock; mainly supports scattered mulga shrub lands with understorey nonhalophytic and halophytic shrubs. Duplex soils of footslope plains, sandy alluvial fans, and drainage tracts and channels are highly susceptible to accelerated erosion when shrub cover is degraded, as it is in most areas. Major units are not generally susceptible to accelerated erosion and are in better condition.</p> <p>Violet land system: Gently undulating gravelly plains on greenstone, laterite and hardpan, with low stony rises and minor saline plains; supports mulga and bowgada-dominated shrublands, with dense mulga groves and patchy halophytic shrublands. Drainage tracts are moderately susceptible and sandy surfaced gravelly plains are slightly susceptible to accelerated erosion if vegetation is degraded or soil surface disturbed.</p> <p>Yandil land system: Flat hardpan wash plains, extensively uniform and carrying light to moderate mantles of small pebbles and gravels; occasional wanderrie banks and groves; supports mulga shrublands, but widely degraded. Unmantled areas of major units (particularly drainage tracts) are moderately susceptible to accelerated erosion when degraded.</p> <p>Yanganoo land system: Almost flat hardpan wash plains, with or without small wanderrie banks and showing variable development of weak graving; supports mulga shrublands; the most</p> |

| Characteristic | Details |
|------------------------|---|
| | extensive system in survey area. Major units locally susceptible to accelerated erosion when severely degraded, but much more susceptible to degradation and water starvation arising from inappropriately maintained roads and tracks. |
| Waterbodies | The desktop assessment and aerial imagery indicated that various minor, non-perennial watercourses and wash areas transect the area proposed to be cleared (GIS Database). |
| Hydrogeography | The application area falls within the East Murchison Groundwater Area which is legislated by the RIWI Act 1914 and contains a groundwater salinity of 1,000-3,000 which is described as brackish (GIS Database). |
| Flora | There are no Threatened or Priority flora species within the application area (MWH, 2017; NVS, 2024; GIS Database). There are records of one Priority 1 species nearby (MWH, 2017). |
| Ecological communities | The application area is not located within any known or mapped Threatened or Priority Ecological Communities. The Killara Calcrete Priority 1 PEC is located approximately 12 kilometres east of the survey application area (NVS, 2024; GIS Database). |
| Fauna | There are no Threatened or Priority fauna species within the application area (Terrestrial Ecosystems, 2023; GIS Database). There are no Threatened species of fauna likely to be recorded in the project area due to the lack of suitable habitat and lack of records nearby (Terrestrial Ecosystems, 2023). |
| Fauna habitat | A vertebrate fauna survey and assessment was conducted over the application area by Terrestrial Ecosystems during November, 2023. The following fauna habitats were recorded within the application area (Terrestrial Ecosystems, 2023): <ul style="list-style-type: none"> • Drainage; • Sheet flow areas; • Mulga woodland; • Shrublands on stoney plains; and • Breakaway areas. Representative photos are available in Appendix D. |

Appendix B. Assessment against the clearing principles

| Assessment against the clearing principles | Variance level | Is further consideration required? |
|---|------------------------------|------------------------------------|
| Environmental value: biological values | | |
| <p><u>Principle (a):</u> “Native vegetation should not be cleared if it comprises a high level of biodiversity.”</p> <p><u>Assessment:</u></p> <p>The area proposed to be cleared is unlikely to contain conservation significant flora or fauna, or Priority Ecological Communities (MWH, 2017; NVS, 2024; Terrestrial Ecosystems, 2023; GIS Database). Priority 1 flora species <i>Stenanthemum mediale</i> was recorded outside of the application area near the area designated for a haul road (MWH, 2017). The closest record was located over 10 metres from the boundary of the application area. A total of 106 individuals were recorded outside of the application area (MWH, 2017). The application area was designed to avoid these individuals (Andy Well Mining Pty Ltd, 2023). It is unlikely that the proposed clearing will have a significant impact on <i>Stenanthemum mediale</i>. Aerial imagery shows the vegetation in the application area is sparse, with large areas of void vegetation (GIS Database).</p> <p>No introduced flora species were recorded in the application area (MWH, 2017; NVS, 2024). Weeds have the potential to significantly change the dynamics of a natural ecosystem and lower the biodiversity of an area. Potential impacts to the biodiversity as a result of the proposed clearing may be minimised by the implementation of a weed management condition.</p> | Not likely to be at variance | No |
| <p><u>Principle (b):</u> “Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna.”</p> <p><u>Assessment:</u></p> <p>Fauna habitat types represented in the application area are abundant and in similar condition in adjacent areas, and it is unlikely to support a high level of fauna diversity due to a lack of understorey and leaf litter (Terrestrial Ecosystems, 2023). There were no records of any conservation significant fauna within the application area or within a 20 kilometre radius (GIS Database).</p> | Not likely to be at variance | No |

| Assessment against the clearing principles | Variance level | Is further consideration required? |
|---|------------------------------|------------------------------------|
| <p><u>Principle (c):</u> <i>“Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora.”</i></p> <p><u>Assessment:</u></p> <p>The area proposed to be cleared is unlikely to contain threatened flora species or habitat to support threatened flora (MWH, 2017).</p> | Not likely to be at variance | No |
| <p><u>Principle (d):</u> <i>“Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a threatened ecological community.”</i></p> <p><u>Assessment:</u></p> <p>The area proposed to be cleared does not contain vegetation that can indicate the presence of a Threatened Ecological Community (MWH, 2017).</p> | Not likely to be at variance | No |
| Environmental value: significant remnant vegetation and conservation areas | | |
| <p><u>Principle (e):</u> <i>“Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.”</i></p> <p><u>Assessment:</u></p> <p>The application area falls within the Murchison Bioregion of the Interim Biogeographic Regionalisation of Australia (GIS Database). Over 99 per cent of the pre-European vegetation still exists in the Murchison Bioregion (Government of Western Australia, 2019). The application area is broadly mapped as Beard vegetation associations 18, 29, and 39 (GIS Database). These vegetation associations have not been extensively cleared as over 99 percent of the pre-European extent of these vegetation associations remain uncleared at both the state and bioregional level (Government of Western Australia, 2019). The application area does not provide an important ecological linkage or fauna movement corridor (Terrestrial Ecosystems, 2023).</p> | Not at variance | No |
| <p><u>Principle (h):</u> <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.”</i></p> <p><u>Assessment:</u></p> <p>Given the distance to the nearest conservation area (GIS Database), the proposed clearing is not likely to have an impact on the environmental values of any mapped conservation areas.</p> | Not likely to be at variance | No |
| Environmental value: land and water resources | | |
| <p><u>Principle (f):</u> <i>“Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.”</i></p> <p><u>Assessment:</u></p> <p>Given multiple minor ephemeral watercourses and wash areas are located within the application area (GIS Database), the proposed clearing is likely to impact vegetation growing in, or in association with, an environment associated with a watercourse or wetland. Potential impacts to the riparian vegetation as a result of the proposed clearing may be minimised by the implementation of a watercourse management condition.</p> | At variance | No |
| <p><u>Principle (g):</u> <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.”</i></p> <p><u>Assessment:</u></p> <p>Some of the mapped soils are slightly or moderately susceptible to erosion (Curry et al., 1994). Noting the extent and location of the application area, the proposed clearing is likely to have an appreciable impact on land degradation.</p> | At variance | No |
| <p><u>Principle (i):</u> <i>“Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.”</i></p> <p><u>Assessment:</u></p> <p>Given no permanent watercourses, wetlands, or Public Drinking Water Source Areas are recorded within the application area (GIS Database), the proposed clearing is unlikely to cause deterioration in the quality of surface or underground water.</p> | Not likely to be at variance | No |

| Assessment against the clearing principles | Variance level | Is further consideration required? |
|--|------------------------------|------------------------------------|
| <p><u>Principle (j):</u> “Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.”</p> <p><u>Assessment:</u></p> <p>Given no permanent watercourses or wetlands are recorded within the application area (GIS Database), the proposed clearing is unlikely to cause, or exacerbate, the incidence or intensity of flooding.</p> | Not likely to be at variance | No |

Appendix C. Vegetation condition rating scale

Vegetation condition is a rating given to a defined area of vegetation to categorise and rank disturbance related to human activities. The rating refers to the degree of change in the vegetation structure, density and species present in relation to undisturbed vegetation of the same type. The degree of disturbance impacts upon the vegetation’s ability to regenerate. Disturbance at a site can be a cumulative effect from a number of interacting disturbance types.

Considering its location, the scale below was used to measure the condition of the vegetation proposed to be cleared. This scale has been extracted from Trudgen, M.E. (1991) *Vegetation condition scale* in National Trust (WA) 1993 Urban Bushland Policy. National Trust of Australia (WA), Wildflower Society of WA (Inc.), and the Tree Society (Inc.), Perth.

Measuring vegetation condition for the Eremaean and Northern Botanical Provinces (Trudgen, 1991)

| Condition | Description |
|---------------------|--|
| Excellent | Pristine or nearly so, no obvious signs of damage caused by human activities since European settlement. |
| Very good | Some relatively slight signs of damage caused by human activities since European settlement. For example, some signs of damage to tree trunks caused by repeated fire, the presence of some relatively non-aggressive weeds, or occasional vehicle tracks. |
| Good | More obvious signs of damage caused by human activity since European settlement, including some obvious impact on the vegetation structure such as that caused by low levels of grazing or slightly aggressive weeds. |
| Poor | Still retains basic vegetation structure or ability to regenerate it after very obvious impacts of human activities since European settlement, such as grazing, partial clearing, frequent fires or aggressive weeds. |
| Very poor | Severely impacted by grazing, very frequent fires, clearing or a combination of these activities. Scope for some regeneration but not to a state approaching good condition without intensive management. Usually with a number of weed species present including very aggressive species. |
| Completely degraded | Areas that are completely or almost completely without native species in the structure of their vegetation; i.e. areas that are cleared or ‘parkland cleared’ with their flora comprising weed or crop species with isolated native trees or shrubs. |

Appendix D. Photographs of the vegetation

Photographs of the fauna habitats present in the application area are shown below (Terrestrial Ecosystems, 2023).



Plate 1. Drainage

Plate 2. Drainage



Plate 3. Mulga Woodland



Plate 4. Mulga Woodland



Plate 5. Shrubland on stoney plains



Plate 6. Shrubland on stoney plains



Plate 7. Sheet drainage



Plate 8. Sheet drainage



Plate 9. Breakaway areas



Plate 10. Breakaway areas

Appendix E. Sources of information

E.1. GIS databases

Publicly available GIS Databases used (sourced from www.data.wa.gov.au):

- Aboriginal Heritage Places (DPLH-001)
- Clearing Regulations – Schedule One Areas (DWER-057)
- DBCA – Lands of Interest (DBCA-012)
- DBCA Legislated Lands and Waters (DBCA-011)

- Environmentally Sensitive Areas (DWER-046)
- Groundwater Salinity Statewide (DWER-026)
- Hydrographic Catchments – Catchments (DWER-028)
- Hydrography – Inland Waters – Waterlines
- Hydrography, Linear (DWER-031)
- IBRA Vegetation Statistics
- Pre-European Vegetation Statistics
- RIWI Act, Groundwater Areas (DWER-034)
- RIWI Act, Surface Water Areas and Irrigation Districts (DWER-037)
- Soil Landscape Mapping – Best Available (DPIRD-027)
- Soil Landscape Mapping – Rangelands (DPIRD-064)
- WA Now Aerial Imagery

Restricted GIS Databases used:

- Threatened Flora (TPFL)
- Threatened Flora (WAHerb)
- Threatened Fauna
- Threatened Ecological Communities and Priority Ecological Communities
- Threatened Ecological Communities and Priority Ecological Communities (Buffers)

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4. Glossary

Acronyms:

| | |
|---------------|---|
| BC Act | <i>Biodiversity Conservation Act 2016</i> , Western Australia |
| BoM | Bureau of Meteorology, Australian Government |
| DAA | Department of Aboriginal Affairs, Western Australia (now DPLH) |
| DAFWA | Department of Agriculture and Food, Western Australia (now DPIRD) |

| | |
|-----------------|---|
| DCCEEW | Department of Climate Change, Energy, the Environment and Water, Australian Government |
| DBCA | Department of Biodiversity, Conservation and Attractions, Western Australia |
| DEMIRS | Department of Energy, Mines, Industry Regulation and Safety |
| DER | Department of Environment Regulation, Western Australia (now DWER) |
| DMIRS | Department of Mines, Industry Regulation and Safety, Western Australia (now DEMIRS) |
| DMP | Department of Mines and Petroleum, Western Australia (now DMIRS) |
| DoEE | Department of the Environment and Energy (now DCCEEW) |
| DoW | Department of Water, Western Australia (now DWER) |
| DPaW | Department of Parks and Wildlife, Western Australia (now DBCA) |
| DPIRD | Department of Primary Industries and Regional Development, Western Australia |
| DPLH | Department of Planning, Lands and Heritage, Western Australia |
| DRF | Declared Rare Flora (now known as Threatened Flora) |
| DWER | Department of Water and Environmental Regulation, Western Australia |
| EP Act | <i>Environmental Protection Act 1986</i> , Western Australia |
| EPA | Environmental Protection Authority, Western Australia |
| EPBC Act | <i>Environment Protection and Biodiversity Conservation Act 1999</i> (Federal Act) |
| GIS | Geographical Information System |
| ha | Hectare (10,000 square metres) |
| IBRA | Interim Biogeographic Regionalisation for Australia |
| IUCN | International Union for the Conservation of Nature and Natural Resources – commonly known as the World Conservation Union |
| PEC | Priority Ecological Community, Western Australia |
| RIWI Act | <i>Rights in Water and Irrigation Act 1914</i> , Western Australia |
| TEC | Threatened Ecological Community |

Definitions:

{DBCA (2019) Conservation Codes for Western Australian Flora and Fauna. Department of Biodiversity, Conservation and Attractions, Western Australia}:-

T Threatened species:

Listed by order of the Minister as Threatened in the category of critically endangered, endangered or vulnerable under section 19(1), or is a rediscovered species to be regarded as threatened species under section 26(2) of the *Biodiversity Conservation Act 2016* (BC Act).

Threatened fauna is that subset of ‘Specially Protected Fauna’ listed under schedules 1 to 3 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for Threatened Fauna.

Threatened flora is that subset of ‘Rare Flora’ listed under schedules 1 to 3 of the *Wildlife Conservation (Rare Flora) Notice 2018* for Threatened Flora.

The assessment of the conservation status of these species is based on their national extent and ranked according to their level of threat using IUCN Red List categories and criteria as detailed below.

CR **Critically endangered species**

Threatened species considered to be “*facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with criteria set out in the ministerial guidelines*”.

Listed as critically endangered under section 19(1)(a) of the BC Act in accordance with the criteria set out in section 20 and the ministerial guidelines. Published under schedule 1 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for critically endangered fauna or the *Wildlife Conservation (Rare Flora) Notice 2018* for critically endangered flora.

EN **Endangered species**

Threatened species considered to be “*facing a very high risk of extinction in the wild in the near future, as determined in accordance with criteria set out in the ministerial guidelines*”.

Listed as endangered under section 19(1)(b) of the BC Act in accordance with the criteria set out in section 21 and the ministerial guidelines. Published under schedule 2 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for endangered fauna or the *Wildlife Conservation (Rare Flora) Notice 2018* for endangered flora.

VU **Vulnerable species**

Threatened species considered to be “*facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with criteria set out in the ministerial guidelines*”.

Listed as vulnerable under section 19(1)(c) of the BC Act in accordance with the criteria set out in section 22 and the ministerial guidelines. Published under schedule 3 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for vulnerable fauna or the *Wildlife Conservation (Rare Flora) Notice 2018* for vulnerable flora.

Extinct Species:

EX Extinct species
Species where “*there is no reasonable doubt that the last member of the species has died*”, and listing is otherwise in accordance with the ministerial guidelines (section 24 of the BC Act).
Published as presumed extinct under schedule 4 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018* for extinct fauna or the *Wildlife Conservation (Rare Flora) Notice 2018* for extinct flora.

EW Extinct in the wild species
Species that “*is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; and it has not been recorded in its known habitat or expected habitat, at appropriate seasons, anywhere in its past range, despite surveys over a time frame appropriate to its life cycle and form*”, and listing is otherwise in accordance with the ministerial guidelines (section 25 of the BC Act).
Currently there are no threatened fauna or threatened flora species listed as extinct in the wild. If listing of a species as extinct in the wild occurs, then a schedule will be added to the applicable notice.

Specially protected species:

Listed by order of the Minister as specially protected under section 13(1) of the BC Act. Meeting one or more of the following categories: species of special conservation interest; migratory species; cetaceans; species subject to international agreement; or species otherwise in need of special protection.

Species that are listed as threatened species (critically endangered, endangered or vulnerable) or extinct species under the BC Act cannot also be listed as Specially Protected species.

MI Migratory species
Fauna that periodically or occasionally visit Australia or an external Territory or the exclusive economic zone; or the species is subject of an international agreement that relates to the protection of migratory species and that binds the Commonwealth; and listing is otherwise in accordance with the ministerial guidelines (section 15 of the BC Act).

Includes birds that are subject to an agreement between the government of Australia and the governments of Japan (JAMBA), China (CAMBA) and The Republic of Korea (ROKAMBA), and fauna subject to the *Convention on the Conservation of Migratory Species of Wild Animals* (Bonn Convention), an environmental treaty under the United Nations Environment Program. Migratory species listed under the BC Act are a subset of the migratory animals, that are known to visit Western Australia, protected under the international agreements or treaties, excluding species that are listed as Threatened species.

Published as migratory birds protected under an international agreement under schedule 5 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018*.

CD Species of special conservation interest (conservation dependent fauna)
Fauna of special conservation need being species dependent on ongoing conservation intervention to prevent it becoming eligible for listing as threatened, and listing is otherwise in accordance with the ministerial guidelines (section 14 of the BC Act).

Published as conservation dependent fauna under schedule 6 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018*.

OS Other specially protected species
Fauna otherwise in need of special protection to ensure their conservation, and listing is otherwise in accordance with the ministerial guidelines (section 18 of the BC Act).

Published as other specially protected fauna under schedule 7 of the *Wildlife Conservation (Specially Protected Fauna) Notice 2018*.

P Priority species:
Possibly threatened species that do not meet survey criteria, or are otherwise data deficient, are added to the Priority Fauna or Priority Flora Lists under Priorities 1, 2 or 3. These three categories are ranked in order of priority for survey and evaluation of conservation status so that consideration can be given to their declaration as threatened fauna or flora.

Species that are adequately known, are rare but not threatened, or meet criteria for near threatened, or that have been recently removed from the threatened species or other specially protected fauna lists for other than taxonomic reasons, are placed in Priority 4. These species require regular monitoring.

Assessment of Priority codes is based on the Western Australian distribution of the species, unless the distribution in WA is part of a contiguous population extending into adjacent States, as defined by the known spread of locations.

P1 Priority One - Poorly-known species

Species that are known from one or a few locations (generally five or less) which are potentially at risk. All occurrences are either: very small; or on lands not managed for conservation, e.g. agricultural or pastoral lands, urban areas, road and rail reserves, gravel reserves and active mineral leases; or otherwise under threat of habitat destruction or degradation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under immediate threat from known threatening processes. Such species are in urgent need of further survey.

P2 Priority Two - Poorly-known species

Species that are known from one or a few locations (generally five or less), some of which are on lands managed primarily for nature conservation, e.g. national parks, conservation parks, nature reserves and other lands with secure tenure being managed for conservation. Species may be included if they are comparatively well known from one or more locations but do not meet adequacy of survey requirements and appear to be under threat from known threatening processes. Such species are in urgent need of further survey.

P3 Priority Three - Poorly-known species

Species that are known from several locations, and the species does not appear to be under imminent threat, or from few but widespread locations with either large population size or significant remaining areas of apparently suitable habitat, much of it not under imminent threat. Species may be included if they are comparatively well known from several locations but do not meet adequacy of survey requirements and known threatening processes exist that could affect them. Such species are in need of further survey.

P4 Priority Four - Rare, Near Threatened and other species in need of monitoring

(a) Rare. Species that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection but could be if present circumstances change. These species are usually represented on conservation lands.

(b) Near Threatened. Species that are considered to have been adequately surveyed and that are close to qualifying for vulnerable but are not listed as Conservation Dependent.

(c) Species that have been removed from the list of threatened species during the past five years for reasons other than taxonomy.

Principles for clearing native vegetation:

- (a) Native vegetation should not be cleared if it comprises a high level of biological diversity.
- (b) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna.
- (c) Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora.
- (d) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of a threatened ecological community.
- (e) Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.
- (f) Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.
- (g) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.
- (h) Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.
- (i) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.
- (j) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.