GOVERNMENT OF
WESTERN AUSTRALIA

CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

Purpose Permit number:	CPS 9837/1
Permit Holder:	Department of Communities
Duration of Permit:	From 3 January 2023 to 3 January 2028

The permit holder is authorised to clear *native vegetation* subject to the following conditions of this permit.

PART I – CLEARING AUTHORISED

1. Clearing authorised (purpose)

The permit holder is authorised to clear *native vegetation* for the purpose of upgrades to a water supply network, including equipping and connecting two existing water bores and associated powerline and pipeline works

2. Land on which clearing is to be done

Lot 9 on Deposited Plan 91722, Ngaanyatjarraku-Giles and Warakurna

3. Clearing authorised

The permit holder must not clear more than 1.3 hectares (ha) of *native vegetation* within the area cross-hatched yellow in Figure 1 of Schedule 1.

PART II – MANAGEMENT CONDITIONS

4. Avoid, minimise, and reduce impacts and extent of clearing

In determining the *native vegetation* authorised to be cleared under this permit, the permit holder must apply the following principles, set out in descending order of preference:

(a) avoid the clearing of *native vegetation*;

(b) minimise the amount of *native vegetation* to be cleared; and

(c) reduce the impact of clearing on any environmental value.

5. Weed management

When undertaking any clearing authorised under this permit, the permit holder must take the following measures to minimise the risk of introduction and spread of *weeds*:

(a) clean earth-moving machinery of soil and vegetation prior to entering and leaving the area to be cleared;

(b) ensure that no known *weed*-affected soil, *mulch*, *fill*, or other material is brought into the area to be cleared; and

(c) restrict the movement of machines and other vehicles to the limits of the areas to be cleared

(d) where weed-affected soil, mulch, fill, or other material is to be removed from the area to be cleared, ensure it is transferred to areas of comparable weed status.

6. Wind erosion management

The permit holder must commence works to upgrade the water supply network no later than two (2) months after undertaking the authorised clearing activities to reduce the potential for wind erosion.

7. Directional clearing

The permit holder must conduct clearing activities in a slow and one directional manner to allow fauna to move into adjacent *native vegetation* ahead of the clearing activity

8. Demarcation of clearing area

Prior to undertaking any clearing authorised under this permit and during works to the upgrade the water supply network, the permit holder shall demarcate the clearing area authorised under this permit.

PART III - RECORD KEEPING AND REPORTING

9. Records that must be kept

The permit holder must maintain records relating to the listed relevant matters in accordance with the specifications detailed in Table 1.

Table 1: Records that must be kept

No.	Relevant matter	Specifications
1.	In relation to the authorised clearing activities generally	(a) the species composition, structure, and density of the cleared area; (b) the location where the clearing occurred, recorded using a Global Positioning System (GPS) unit set to Geocentric Datum Australia 1994 (GDA94), expressing the geographical coordinates in Eastings and Northings; (c) the date that the area was cleared; (d) the date that the water supply upgrade works were commenced;

No.	Relevant matter	Specifications
		(e) the size of the area cleared (in hectares); (f) actions taken to avoid, minimise, and reduce the impacts and extent of clearing in accordance with condition 4; (g) actions taken to minimise the risk of the introduction and spread of *weeds* in accordance with condition 5; (h) action taken to demarcate the clearing area in accordance with condition 8.

10. Reporting

The permit holder must provide to the *CEO* the records required under condition 9 of this permit when requested by the *CEO*.

DEFINITIONS

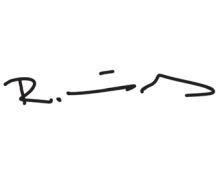
In this permit, the terms in Table 2 have the meanings defined.

Table 2: Definitions

Term	Definition
CEO	Chief Executive Officer of the department responsible for the administration of the clearing provisions under the *Environmental Protection Act 1986*.
clearing	has the meaning given under section 3(1) of the EP Act.
condition	a condition to which this clearing permit is subject under section 51H of the EP Act.
fill	means material used to increase the ground level, or to fill a depression.
department	means the department established under section 35 of the *Public Sector Management Act 1994* (WA) and designated as responsible for the administration of the EP Act, which includes Part V Division 3.
EP Act	*Environmental Protection Act 1986* (WA)
native vegetation	has the meaning given under section 3(1) and section 51A of the EP Act.
weeds	means any plant – (a) that is a declared pest under section 22 of the *Biosecurity and Agriculture Management Act 2007*; or (b) published in a Department of Biodiversity, Conservation and Attractions species-led ecological impact and invasiveness ranking summary, regardless of ranking; or

Term	Definition
	(c) not indigenous to the area concerned.

END OF CONDITIONS



Ryan Mincham
MANAGER
NATIVE VEGETATION REGULATION

Officer delegated under Section 20
of the Environmental Protection Act 1986

15 December 2022

Schedule 1

The boundary of the area authorised to be cleared is shown in the map below (Figure 1).

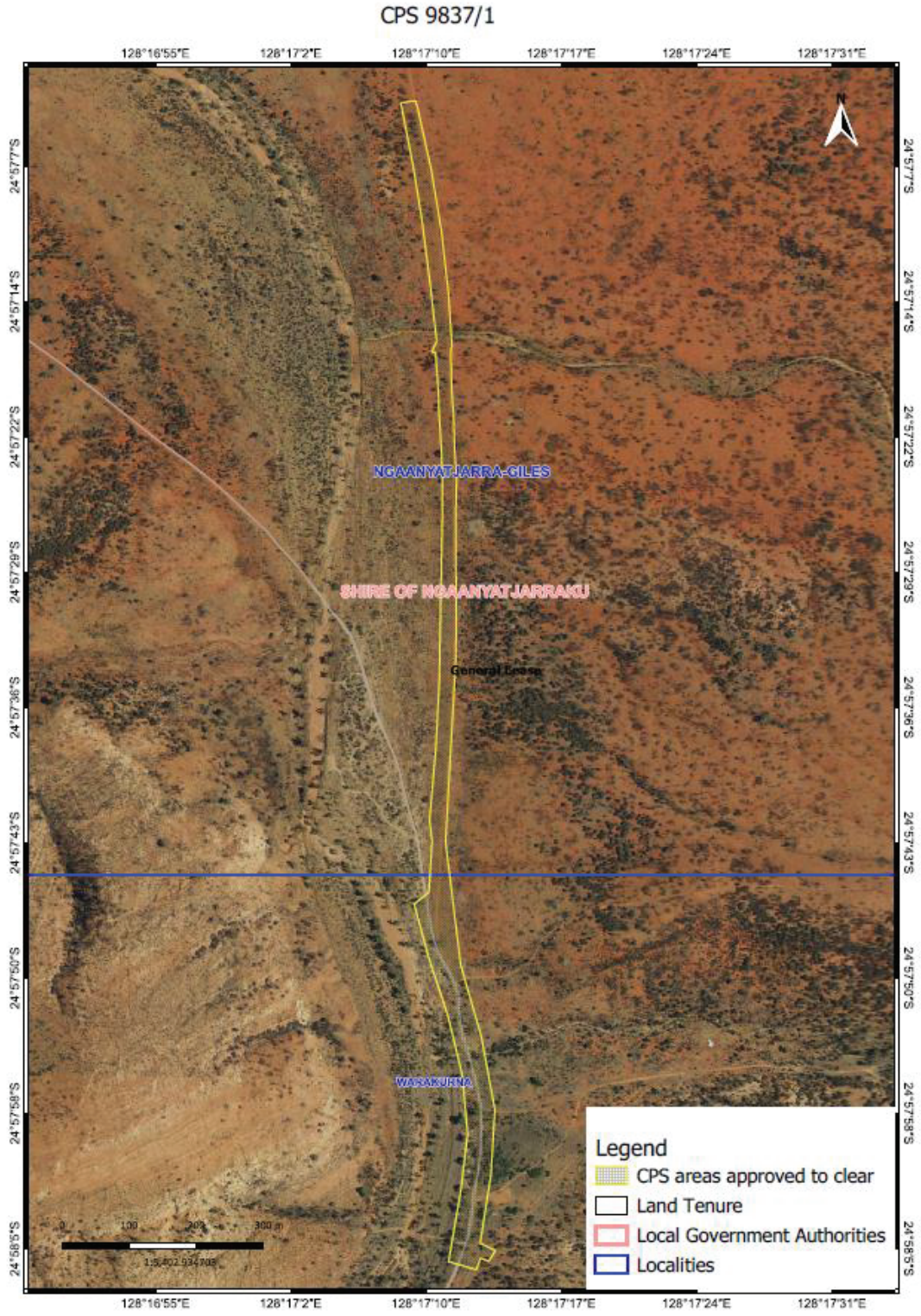


Figure 1: Map of the boundary of the area within which clearing may occur

Government of Western Australia
Department of Water and Environmental Regulation

Clearing Permit Decision Report

1 Application details and outcome

1.1. Permit application details

Permit number:	CPS 9837/1
Permit type:	Purpose permit
Applicant name:	Department of Communities
Application received:	5 August 2022
Application area:	1.3 hectares (ha) of native vegetation within a 5.75 ha footprint
Purpose of clearing:	Upgrades to water supply network, including equipping and connecting two existing water bores and associated powerline and pipeline works
Method of clearing:	Mechanical
Property:	Lot 9 on Deposited Plan 91722
Location (LGA area/s):	Shire of Ngaanyatjarraku
Localities (suburb/s):	Ngaanyatjarra-Giles and Warakurna

1.2. Description of clearing activities

The Department of Communities (DoC) is working with Warakurna Community Incorporated and the Ngaanyatjarra Council (Aboriginal Corporation) to deliver important upgrades to the Warakurna Aboriginal community's water supply network. The upgrades will increase the Warakurna community's water security and accommodate expected future population growth.

The upgrades consist of equipping and connecting two existing water supply bores to Warakurna's water and power network via an underground water pipeline and overhead powerline. The pipeline and powerline will be laid alongside an existing track located approximately 3.5 kilometres north of the Warakurna community. Up to 1.3 ha of native vegetation may be cleared within a 5.75 ha corridor next to an existing track in order to complete the project.

DoC determined the location of the corridor for the project through surveys and monitoring with:

- native title holders for the area;
- senior Aboriginal knowledge holders for the area;
- the Warakurna Rangers;
- the Ngaanyatjarra Council (Aboriginal Corporation); and
- Warakurna Community Incorporated.

The location of the areas to be cleared was selected to minimise the amount of clearing required, in addition to meeting the cultural and technical requirements of the project, which include the location of water resources and existing powerline and water infrastructure.

1.3. Decision on application

Decision:	Granted
Decision date:	15 December 2022
Decision area:	Up to 1.3 ha of native vegetation within 5.75 ha footprint as depicted in Section 1.5, below.

1.4. Reasons for decision

This clearing permit application was submitted, accepted, assessed and determined in accordance with sections 51E and 51O of the *Environmental Protection Act 1986* (EP Act). The Department of Water and Environmental Regulation (DWER) advertised the application for 21 days and no submissions were received.

In making this decision, the Delegated Officer had regard for the site characteristics (see Appendix A), relevant datasets (see Appendix E.1), the findings of a site inspection by the applicant (see Appendix D), the clearing principles set out in Schedule 5 of the EP Act (see Appendix B), relevant planning instruments and any other matters considered relevant to the assessment (see Section 3). The Delegated Officer also took into consideration the importance of the project in providing water security for the Warakurna community.

In considering the impacts of the clearing, the Delegated Officer has taken the following into account:

- Priority flora species which have been historically recorded in the local area. The Delegated Officer acknowledged the applicant's survey efforts to identify priority flora individuals which may be present within the application area. In the absence of a formal flora survey, advice from DBCA was sought in relation to the potential impacts of the clearing on conservation significant flora. Based on the advice received from DBCA, the Delegated Officer considered the risks to the conservation status of any flora species as unlikely to be significant should any inadvertent clearing of individuals occur.
- Clearing may result in inadvertent loss of fauna individuals that may be present at the time of clearing. To minimise the potential impacts, a condition has been imposed on the permit which requires slow, one directional clearing to facilitate movement of fauna into adjacent habitat.
- Clearing may impact on the tributary of a minor, non-perennial watercourse at the point where the water pipeline crosses the tributary. Given the limited extent of clearing over this location, it is considered that clearing is unlikely to have significant impact on an environment associated with a watercourse.
- Clearing may result in land degradation due to wind erosion unless appropriate management measures are put in place. A condition which requires the commencement of the upgrade works within two months of authorised clearing will mitigate the risk of wind erosion and has been conditioned on the permit.
- Clearing could introduce and spread weeds into adjacent vegetation, which could impact on the quality of the adjacent vegetation and its habitat values. Appropriate weed management measures have been conditioned to mitigate this risk.

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 is unlikely to lead to appreciable land degradation or have long-term adverse impacts on the habitat values within both the application area and adjacent vegetation. Potential impacts of clearing can be minimised and managed to unlikely lead to an unacceptable risk to environmental values by imposing management conditions to the permit.

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

- avoid and minimise to reduce the impacts and extent of clearing
- take hygiene steps to minimise the risk of the introduction and spread of weeds
- ensure the clearing area is demarcated prior to, and during clearing activities
- commence upgrade works within two months of the authorised clearing to mitigate the risk of wind erosion
- undertake slow, progressive one-directional clearing towards adjacent native vegetation to allow terrestrial fauna to move into adjacent habitat ahead of the clearing activity.

1.5. Site map

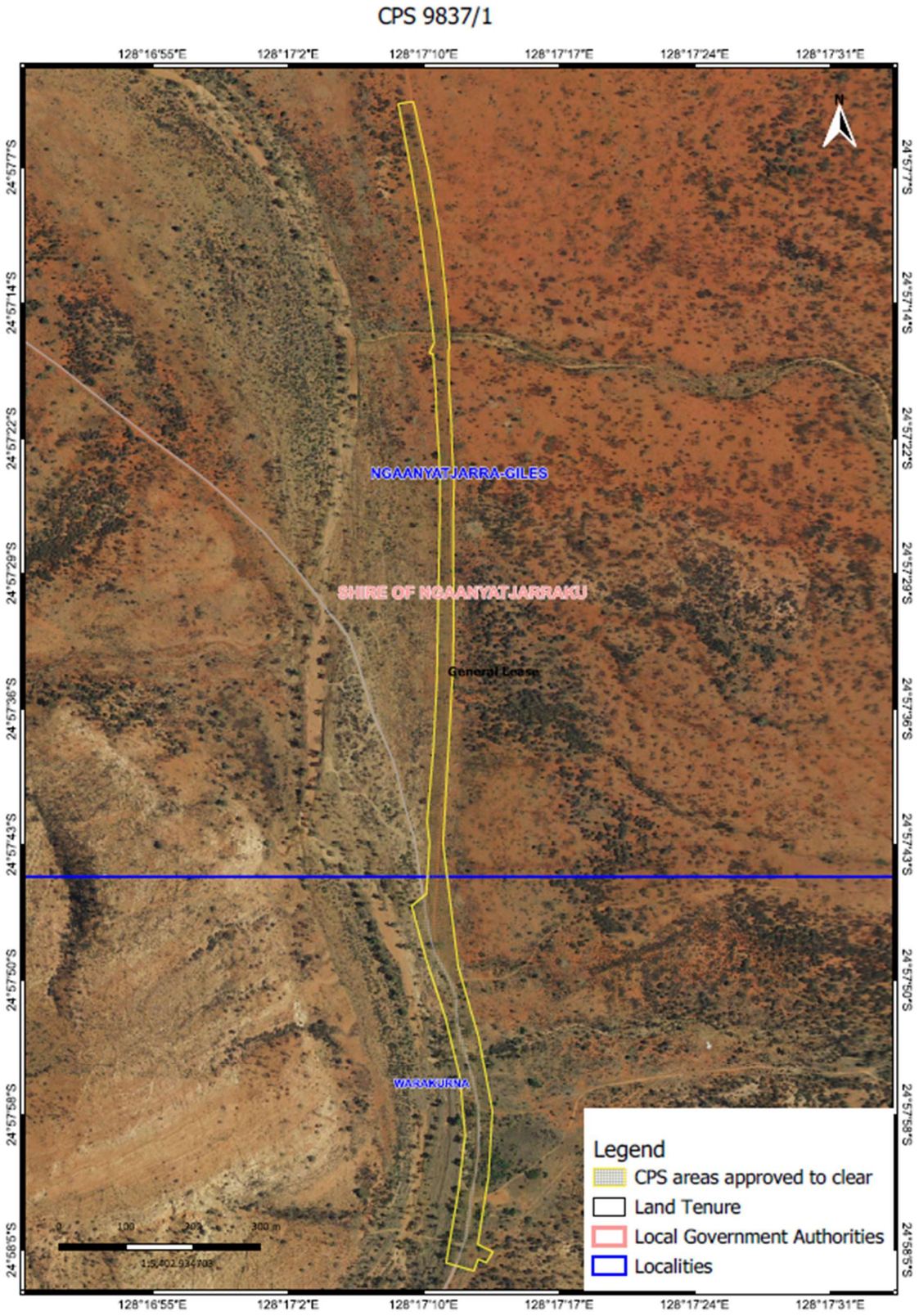


Figure 1 Map of the application area

The area cross-hatched yellow indicates the area authorised to be cleared under the granted clearing permit.

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)
- *Planning and Development Act 2005* (WA) (P&D Act)
- *Soil and Land Conservation Act 1945* (WA)

The key guidance documents which inform this assessment are:

- *A guide to the assessment of applications to clear native vegetation* (DER, December 2013)
- *Procedure: Native vegetation clearing permits* (DWER, October 2019)
- Technical guidance – *Flora and Vegetation Surveys for Environmental Impact Assessment* (EPA, 2016)

3 Detailed assessment of application

3.1. Avoidance and mitigation measures

The applicant submitted that the decision to upgrade the water supply infrastructure rather than constructing new infrastrucure was a result of environmental, cultural, and technical considerations involving the local community leaders.

Upgrading the existing water services infrastructure minimises the requirement for clearing. The location of the clearing near an existing track and infrastructure also minimises the amount of clearing. While the crossing of water pipelines over a non-perennial tributary is unavoidable, the applicant and the community have agreed to equip and connect existing bores located on flat ground away from the fall of the tributary.

The applicant is committed to only clear native vegetation when required and avoid and minimise clearing of native vegetation during clearing and construction.

The Delegated Officer was satisfied that the applicant has undertaken reasonable measures 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 that the impacts of the proposed clearing may present a risk to biodiversity (flora and fauna), land and water resources. The consideration of these impacts, and the extent to which they can be managed through conditions applied in line with sections 51H and 51I of the EP Act, is set out below.

3.2.1. Biological values – Biodiversity – Flora and Fauna – Principle (a) and (b)

Assessment

Flora
A desktop assessment using available datasets indicated that eleven priority flora species have been recorded from within a 20 km radius of the application area, many of which are historical (See Appendix A.3 for the list). Two

Priority 3 flora species *Goodenia gibbosa* and *Prostanthera centralis* were recorded in the application area in 1967 and 1966 respectively. Given the age of the records, DBCA advised that the locations of the two species are unlikely to be accurate and the individuals may not persist. No threatened flora species has been previously recorded in the application area and vicinity. The lack of biodiversity records from the local and regional area is likely because the Central Ranges bioregion, or the Mann-Musgrave Block subregion, is poorly surveyed. The vegetation in the Central Ranges has only been mapped at a broad scale (1:1,000,000) and was completed at association level (Beard, 1974). The Central Region remains relatively unexploited with the extent of native vegetation in the region in the excess of 99 percent. Notwithstanding the large remnant native vegetation cover, nature conservation in the area has been assessed as prone to biodiversity loss due to human activities including extraction of sands and gravel, and feral animals and weed infestations (Ngaanyatjarra Council Land Management Unit, 2002).

During the assessment, the Department advised the applicant of records of the priority flora species from the application area and vicinity. The applicant contacted DBCA for further advice related to the flora species prior to an engineering survey performed at the site between 2 and 4 November 2022 to demarcate the project footprint. With DBCA's direction and advice, a team comprised of two rangers from the Ngaanyatjarraku Indigenous Protected Area, six DoC staff and three contractors searched for the listed priority flora species over the entire application area and vicinity during the three day survey. The team did not find any of the priority listed flora species in the application area and vicinity. Photographs from the survey are available in Appendix D. In the absence of a formal vegetation and flora survey over the application area within the context of a poorly surveyed region, the presence of conservation significant flora species cannot be ruled out.

Although the results from the survey may reflect the conditions of the application area at the time of survey, based on the timing of the survey and in the absence of standard flora and vegetation survey methodology, further advice from DBCA was sought. In providing the following advice on the proposed clearing, DBCA adopted a risk-based approach for the assessment of potential impacts on the conservation significant flora species that may be present within the application area:

> *Comesperma viscidulum* – Priority 4 is a shrub that occurs over a large range from five general locations within Western Australia (WA). It has also been recorded within the Northern Territory (NT) and South Australia (SA). It flowers April through to August, that it is unlikely to be identified in a November survey. DBCA advised that as this species has been recorded from a number of locations over a wide range, if present, impacts are unlikely to be significant at the regional or species level.
>
> *Eragrostis sp.* Erect spikelets (P.K. Latz 2122) Priority 3 – is an erect perennial grass, recorded from five locations in WA over a wide range. It is also known from one record in the NT and 1 record in SA. The closest record to the application area (0.46km) was found in gravelly semi-saline creek levee in 2016. The number of plants present is not indicated. The next nearest record is approximately 78 km from application area. Specimen records indicate it has been collected in April, August and September that old flowers of may be identified at the time of the survey, if present. Given the distance to the next nearest record, if this species does occur within the application area, DBCA advised that potential for impacts could be significant at a regional level. However, as this species is known from a wide range and the application area is relatively small and linear, impacts are unlikely to be significant to the overall conservation of the species.
>
> *Fuirena nudiflora,* Priority 3 - is a tufted annual sedge. Habitat is described as swamps and creek beds. It is known from five locations in WA, three from the Kimberley Region and one historic (1967) record near the application area. It is also known from several locations (>15) locations within the Northern Territory and Queensland. From the photos provided it does not appear that the application area contains suitable habitat for this species. However, if habitat were present, impacts are unlikely to be significant to the conservation of the species as it is known from several locations over a wide range and the application area is within the known range of the species.
>
> *Goodenia gibbosa*, Priority 3 – is herb of up to 40 cm tall which flowers in July and occurs on sandy soils. This species is known from approximately four locations in WA (Goldfields). The habitat appears to extend into the NT, where there are several records. The application area is located within the known range for this species. There is a single record within the application area from 1967. Given the age of the record, the location is unlikely to be accurate. Based on the available information, this species may have been difficult to identify at the time of the survey, however if present, impacts are unlikely to be significant to the conservation of the species.
>
> *Indigofera cornuligera* subsp. cornuligera Priority 3 - shrub flowering May-July, with maroon-pink flowers. This species is known from approximately seven locations within WA, and it extends into the NT (where it

is widespread) and SA. The application area is within the known range for this species. If present within the application area, impacts are unlikely to be significant at the regional or species level.

Indigofera gilesii Priority 3 - shrub to, to 1.5 m high, with purple-pink flowers. This species has been collected at various times of year including October, so it may have been identifiable at the time of survey. It is known from over 20 locations within WA and is also known to occur within the NT. The application area is within the known range for this species, with three known records within 7 km. Therefore, if present within the application area, impacts are unlikely to be significant at the regional or species level.

Isotropis winneckei Priority 3 - perennial, herb with pink-purple flowers. Within WA, it has been recorded in flower in May, July and September, so it may have had old flowers present at the time of survey. *I.winneckei* is known from approximately three locations in WA, represented by four specimen records, however the habitat appears continuous into the NT where it is well represented. It has also been recorded in Queensland. The habitat for this species is described as rocky rises, stony plateau's and scree slopes. This habitat type does not appear to be present within the application area as the photos indicate that the survey area is relatively flat. As this species it is well represented elsewhere in Australia, if suitable habitat were present within the application area, impacts are unlikely to be significant to the overall conservation of the species.

Prostanthera centralis Priority 3 - shrub, 0.3-1 m high. This species flowers from July to October and therefore may have been identifiable at the time of survey. This species is known from three locations within WA including several records from the Rawlinson Range, with historic (1966/1967) records from within the application area. Given this species would have been identifiable at the time of survey, it is unlikely that a large subpopulation occurs within the application area. As *P.centralis* is well represented in the area, impacts are unlikely to be deemed significant at the regional or species level.

Ptilotus royceanus Priority 1 - shrub up to 0.5m high, flowering April to October. This species may have been identifiable at the time of survey. The habitat for this species is described as steep rocky crevices, cliff faces and rock walls. Therefore, based on the photographs of the habitat present and the mapped topography, this species it considered unlikely to occur within the application area.

Tephrosia sp. Central (P.K. Latz 17037) Priority 3 – orange flowering shrub, flowering period unknown, may have been identifiable at the time of survey. It has been recorded in a variety of habitats including creek beds, rock slopes, gravely woodlands. This species has only been recorded at two locations within Western Australia, close to the Northern Territory border. It is also known from several locations in the Northern Territory and Queensland. There is a record adjacent to the application area, however it from 1974 so the mapped location is unlikely to be accurate. The habitat appears to be contiguous through to the Northern Territory. If found to be present within the application area, impacts may be regionally significant, however given it is relatively well represented in other states, impacts are unlikely to be significant to the conservation of the species.

Schoenus centralis, Priority 1, is a tufted annual grass, approximately 0.05 m high. *S. centralis* is only known from one specimen record within WA, approximately 15 km from the application area, recorded in 1967. Given the historical nature of the record, the location is unlikely to be accurate and the species may no longer persist. It is also known from two locations in the Northern Territory, and several locations in Queensland and New South Wales. The WA record is also quite disjunct from other locations. Therefore, if this species is found to be present, impacts may be significant at the species level and regional level. The habitat of this species is described as sandy drainage lines, creek beds and seepage areas. DBCA advised for avoidance of this habitat where possible to minimise the overall risk to the species. However, DBCA also suggested that the overall risk may be deemed acceptable if only a small area of suitable habitat is present. The application area is located approximately 100 m from a minor, non-perennial watercourse to the west of the application area. A small area measuring approximately 20 square-metres (sqm) where the pipeline crosses a tributary to the watercourse (Figure 2) may contain suitable habitat and be impacted by the clearing. However, given the minor amount of clearing within this habitat and availability of other similar habitat outside the application area, the clearing will not have a significant impact on habitat for *S. centralis*. Inadvertent clearing of this flora taxon, if present, is unlikely to pose a significant risk to the conservation status of this species.

Weed infestation has been known in the Arid Zone of Australia. Buffel grass (*Cenchrus ciliaris*) is known to be the most widespread weed species in the region, particularly along the roadsides and tracks. This weed is introduced and spread by people movement, feral animals including camels, road and rail corridor development, and the application of dust control measures in the widely scattered Aboriginal communities (Scott et.al. in H. Lambers,

2018). As an existing track is present within the clearing area, conditions that control the transport and transfer of soils or materials from the proposed clearing activities is crucial to minimise and mitigate the risks of weed spread and introduction to nearby vegetation. A weed control condition is imposed on the permit to mitigate this impact.

Fauna

Two conservation significant fauna species, *Falco peregrinus* (Peregrine falcon- OS) and the Vulnerable *Petrogale lateralis* subsp. MacDonell Range (MacDonnell Range black-footed rock-wallaby, warru or central Australian rock-wallaby), have been recorded from the local area. Sources of these records include verbal and written accounts and a survey conducted in 2012. In the absence of a recent fauna survey over the application area, the presence of conservation significant fauna individuals in the area cannot be ruled out.

Four records of Peregrine falcon occur within the local area, with the closest record located approximately within eleven kilometres from the application area. The Peregrine Falcon typically nests on rocky ledges in tall, vertical cliff faces and gorges, or in tall trees associated with drainage lines. The falcon is known to have a wide range of habitat types including plains, open woodlands, and pylons and spires of buildings mimicking the cliff (DAWE, 2021). The application area and surrounds exhibit some of these characteristics which are likely to provide suitable habitat for the Peregrine Falcon. Whilst the Peregrine Falcon may fly by or utilise the area in transit, given the large home range of this species and the availability of the large and intact tracks of vegetation and rocky landscape within the region, it is unlikely that the application area represents a significant habitat for this species. Clearing is unlikely to impact on the conservation status or significant habitat for this fauna species.

Records of black footed rock wallaby in the area have been known from verbal and written history and a survey in 2012. The nearest record to the application area is from within approximately 11 km of the clearing area. In Western Australia, populations of *Petrogale lateralis* subsp. McDonnell Range are known to exist in the Central Ranges region. Rock wallabies prefer rocky habitats with crevices and overhangs for cover from extreme weather and predators (Pearson, 2012). This fauna species lives in groups of 10 to 100 individuals, forage on grasses, herbs and forbs usually within 100 m of outcrops without the necessities to have access to free water. Given its habitat preference, its limited foraging range and the availability of similar habitats within the vast area of the Central Ranges, the application area is unlikely to comprise significant habitat for the Rock wallaby. In addition, noting the fauna's relatively large body size and habit to live in large groups, any individuals present at the time of clearing would be visible to the extent that inadvertent impact on the fauna species during clearing is unlikely. Slow, one-directional clearing towards adjacent vegetation would further minimise potential impacts on any individual present by allowing them to move to nearby vegetation ahead of clearing.

Conclusion

Given the above, it is determined that the impacts of clearing are unlikely to be significant to the conservation of priority flora species previously recorded within the local area which may also be present within the application area. Suitable habitat is not present for all species, and many occur over a wide range with several locations. Further to this, the area of proposed clearing is relatively small and linear, so the area of impact is likely to be minimal. Potential impacts of clearing on the introduction and spread of weeds can be mitigated by imposing a weed management condition to the on the permit. Inadvertent impact to any fauna individuals present could also be mitigated through permit conditions.

Conditions

To address the above impacts, the following conditions have been imposed on the permit:

- clearly demarcate clearing areas prior to clearing and during upgrade works to ensure all clearing is restricted to authorised areas;
- implementation of weed management measures;
- conduct clearing in slow, one-directional manner to allow any fauna individuals present to move into adjacent vegetation ahead of the clearing activity.

3.2.2. Land and water resources – Principles (f) and (g)

Assessment

The application area is located on a flat ground, approximately 100 metre upslope of a minor non-perennial watercourse. The clearing footprint does not intersect this watercourse, however, the water pipeline will cross a minor, non-perennial tributary, immediately north of Bore WAR 1/17 (see Figure below). The crossing of the gully by the water pipeline is unavoidable given the location of available water sources in the otherwise arid region. As discussed in Section 3.3, the Department of Communities submitted that noting the crossing of the stream,

avoidance and mitigation measures were exercised, to minimise impacts. Whilst clearing and temporary disturbance to a small area near the crossing is unavoidable, it is considered unlikely that clearing would result in long-term risks to water quality and land degradation within the local and regional contexts.

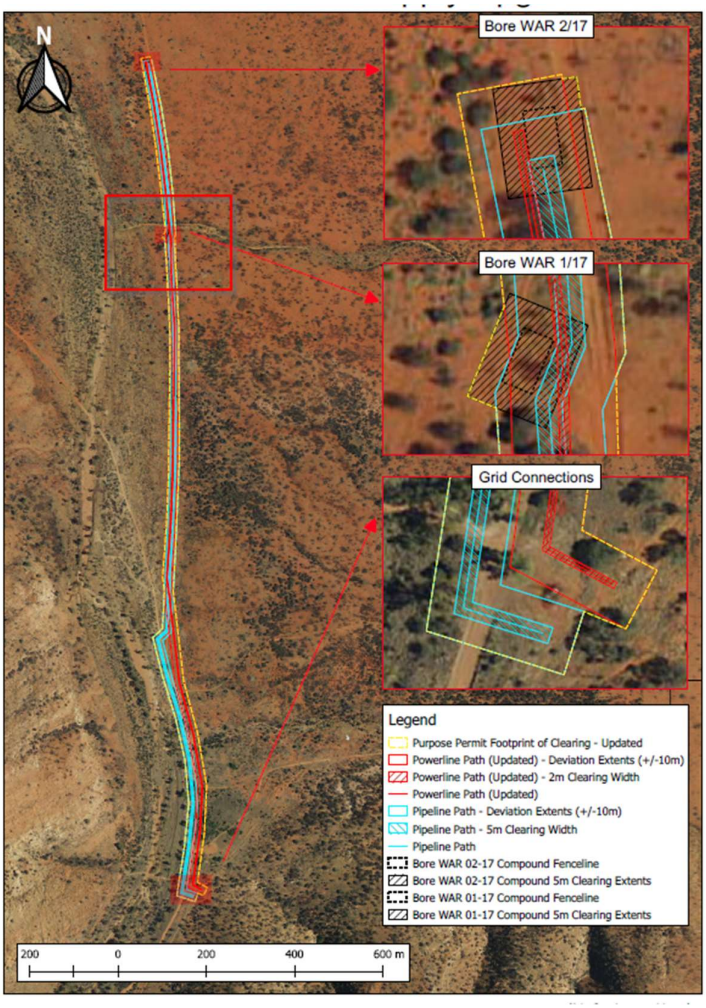


Figure 2. The clearing footprint intersects a gully immediately north of Bore WAR 1/17. Map and drawing provided by DoC (2022).

The application area is in an Arid region where the soils comprise of sands and the climate is dry. Consequently, in the absence of ground cover, the loose sands are prone to wind erosion. Rainfall is limited and evaporation is high that the risk from water erosion is low. However, where rainfall is sufficient, which may occur between December and March, runoff in the area generally drains as sheet flow which may transport sediment to nearby areas. The sub-bioregion is known to be the source of sediment for the neighbouring regions (Tille, P.J., 2006). The application area, typical of the Arid region, may have a high dust load. Dust is known to accumulate on plants, particularly near to the source, and may affect the plant health and the nearby vegetation, even if temporary. Research on the impacts of dust on plant health in the Arid zones asserted that the accumulation of dust and impacts on plant health in the arid region are driven more by the variability of cumulative rainfall than dust load (Matsuki et.al., 2016). Noting the linear and narrow shape of the proposed clearing within the context of a largely uncleared area with extensive vegetation extent, the proposed clearing is not expected to lead to significant degradation of the vegetation nearby due to the dust. Similarly, although clearing may increase the risk of land degradation due to wind erosion, within the context of the extensive vegetation cover of the local area and the region, this impact is unlikely to be significant. The application of a condition requiring that upgrades to the water supply network commence within two (2) months of the authorised clearing being conducted will mitigate the risk of erosion.

Conclusion
Given the above, the proposed clearing is considered unlikely to result in appreciable land degradation and dust deposition provided appropriate management measures are applied.

Conditions:
To address the above impacts, the following management measures will be required as a condition on the clearing permit:

- commencement of upgrades to the water supply network within two (2) months after authorised clearing.

3.3. Relevant planning instruments and other matters

The proposed clearing is located within Lot 9 on Deposited Plan 91722, being Reserve 17614. Reserve 17614 is reserved for the "Use and Benefit of the Aboriginal Inhabitants" and is vested in the Aboriginal Affairs Planning Authority and controlled by the Aboriginal Lands Trust. The reserve is proclaimed under Part III of the *Aboriginal Affairs Planning Authority Act 1972* (WA).

The area of Reserve 17614 is subject to Registered Crown Lease GE I798552 between the Aboriginal Lands Trust and the Ngaanyatjarra Land Council (Aboriginal Corporation) (NLC).

Reserve 17614 is overlapped by the Ngaanyatjarra Lands (Part A) (WAD 48/2018) native title determination (Ngaanyatjarra Part A Determination). Yarnangu Ngaanyatjarraku Parna (Aboriginal Corporation) RNTBC (YNP) holds in trust the native title rights and interests recognised in the Ngaanyatjarra Part A Determination.

The Ngaanyatjarra Council, acting on behalf of the NLC and the YNP, has confirmed in writing that it supports DoC's application for the native vegetation clearing permit required for the Warakurna water supply upgrades.

Several Aboriginal sites of significance have been mapped within the Shire of Ngaanyatjarraku. It is the permit holder's responsibility to comply with the *Aboriginal Heritage Act 1972* (WA) and ensure that no Aboriginal Sites of Significance are damaged through the clearing process. The NLC has consulted Senior Traditional Owners for the proposed works. The Senior Community members have given their permission and declared that there are no cultural heritage sites or items in the proposed clearing area. NLC have also confirmed that there is no objection from the women in the Community, provided the already confirmed and marked pathway is adhered to (NLC, 2019).

The Department of Communities has confirmed that a 26D Licence (number CAW184413(1)) has been obtained under the *Rights in Water and Irrigation Act 1914* for the existing bores which are to be equipped and connected (Department of Communities, 2022e). The NLC and the Warakurna Community as the users of the water supply facilities have been informed of their obligations to obtain a licence to take the water.

End

Appendix A. Site characteristics

A.1. Site characteristics

Characteristic	Details
Local context	The area proposed to be cleared is in the extensive land use zone of Western Australia, approximately 3.5 kilometres north of Warakurna Community, in the Central Ranges IBRA bioregion. It is within an approximately 2-kilometre long by 23-metre-wide corridor along an existing track servicing the existing water supply facility. Aerial imagery indicates the local area (20-kilometre radius from the centre of the area proposed to be cleared) retains approximately 99 per cent of the original native vegetation cover.
Ecological linkage	The application area is not mapped within any formal ecological linkages.
Conservation areas	There are no DBCA conservation estate or reserves located within or in the vicinity of the application area. The nearest conservation area is the Pila Nature Reserve (Gibson Desert) – a Class A reserve located approximately 200 km west of the application area. The Ngaanyatjarraku region, however, is within the Ngaanyatjarraku Indigenous Protected Area (Ngaanyatjarra Council Land Management Unit, 2002), listed on the Register of the National Estate. Section 4(1)(b) of the *Environmental Protection (Environmentally Sensitive Areas) Notice 2005* designates areas included in the Register of the National Estate as ESAs.
Vegetation description	Vegetation mapping of the region is that of a broad scale (1:1,000,000) and was completed at association level (Beard 1974). The mapping indicates that two vegetation associations occur across the application area: • Low woodland; mulga (*Acacia aneura*) (vegetation association 18) • Hummock grasslands, shrub steppe; acacia and grevillea over *Triodia basedowii* (vegetation association 95) The current extents of the vegetation associations are greater than 99 per cent of the pre-European extent at all scales (e.g. State, IBRA Sub-region and Local Government Area (LGA).
Vegetation condition	Photographs supplied by the applicant indicate the vegetation within the proposed clearing area is in Good to Very Good condition according to the condition rating scale adapted by the EPA (2016) for the Eremaean and Northern Botanical Province (Trudgen, 1991). The full Trudgen (1991) condition rating scale is provided in Appendix C. Representative photos are available in Appendix D.
Climate and landform	The climate of the Central Ranges bioregion is hot and arid. Rainfall in this region can be variable and unpredictable in parts or it can be summer or winter dominant. The area is influenced by a northern tropical/summer climatic pattern where rainfall is greatest in the summer months, and a southern climatic pattern where rainfall is nonseasonal. In general rainfall predominantly occurs between December and March, derived from summer storms. The average annual rainfall at nearby Warburton Airfield is 243.8 mm. The area is warm to hot throughout the year, with a mean maximum daily temperature of 37.8 °C (recorded in January) and a mean minimum temperature of 5.8 °C (recorded in July) (BoM 2021). The application area is mapped within the Central Australian Ranges soil landscape region, identified within Western Australia's Rangelands and Arid Interior (Tille, 2006). The Central Australian Ranges region consists of sandplains and dunes (with hills and ranges surrounded by wash plains) on the granitic and volcanic rocks of the Musgrave Complex and the sedimentary rocks of the Amadeus basin.

Characteristic	Details
	The application area is located approximately on a flat ground approximately 100 m upslope of a minor non-perennial watercourse to the west at an elevation of 560 m. It is surrounded by steep hills with more than 20% slope.
Soil description	The soils and landforms within the application area are mapped (Department of Primary Industries and Regional Development, 2021) as: • 619My109 (northern half of application area) - Outwash plains and dissected fan and terrace formations flanking ranges of sedimentary and some metamorphic, volcanic, and granitic rocks • 616BA21 (southern half of application area) - Steep hills and ranges on sedimentary and some metamorphic, volcanic, and granitic rocks; bare rock outcrop is common; some gorges The soils within the application area consist of red sandy earths, red deep sands and read loamy earths (Tille, P.J., 2006)
Land degradation risk	Being in the Arid region and consisting mostly of sands, the soils in the area are prone to wind erosion. The area is also the source of sediments to the neighbouring regions (Tille, P.J., 2006). With limited rainfall and high evaporation, the risk from water erosion is low. Where rainfall is sufficient, runoff in the area generally drains as sheet flow Placing the project site on a flat ground instead of a fall of any watercourse minimises the risk of water erosion.
Waterbodies	The application area is located on a flat ground approximately 100 m upslope of a minor, non-perennial watercourse to the west. A few minor tributaries discharge into the watercourse. Given the arid climate of the local area, watercourses are rarely inundated.
Hydrogeography	The application area lies within the East Murchison Groundwater Area. The region is characterised by low rainfall and high evaporation. The area is partly underlain by hard fractured rocks; groundwater is difficult to locate. Selection of water bore locations were informed by a geotechnical survey conducted in search of the groundwater resources available for the region.
Flora	Few flora records exist from the Central Ranges most likely because the region is under surveyed. Many of the records are historical in nature. Eleven priority flora species have been recorded from within the local area (20 km radius of the application area). No threatened flora species are recorded for the local area.
Ecological communities	There are no mapped threatened (TEC) or priority (PEC) ecological communities within 100km of the area proposed to be cleared.
Fauna	Two conservation significant fauna species have been recorded from the local area, with the closest records approximately 11 km of the application area.

A.2. Vegetation extent

	Pre-European extent (ha)	Current extent (ha)	Extent remaining (%)	Current extent in all DBCA managed land (ha)	Current proportion (%) of pre-European extent in all DBCA managed land
IBRA bioregion*					
Central Ranges	4,701,529	4,700,252	99.97	NA	NA
Vegetation complex					
Vegetation association 18	1,078,212.78	1,076,122.04	99.81	NA	NA
Vegetation Association 95	47,953.38	47,953.379	~100	NA	NA
Local area					
Local area (20 km radius of the application area)	1,294,490,152	1,294,490,152	~99		

*Government of Western Australia (2019a)

**Government of Western Australia (2019b)

A.3. Flora analysis table

With consideration for the site characteristics set out above, relevant datasets (see Appendix E.1), information provided by the applicant and advice from DBCA, impacts to the following conservation significant flora required further consideration.

Species name	Conservation status	Suitable habitat features? [Y/N]	Suitable vegetation type? [Y/N]	Suitable soil type? [Y/N]	Distance of closest record to application area (km)	Number of known records (total)	Are surveys adequate to identify? [Y, N, N/A]
Comesperma viscidulum	4	N	Y	Y	3.67	1	N/A
Eragrostis sp. Erect spikelets (P.K. Latz 2122)	3	N	Y	Y	0.46	1	N/A
Fuirena nudiflora	3	N	Y	Y	15.64	1	N/A
Goodenia gibbosa	3	N	Y	Y	0.00	1	N/A
Indigofera cornuligera subsp. cornuligera	3	N	Y	Y	0.33	2	N/A
Indigofera gilesii	3	N	Y	Y	5.61	3	N/A
Isotropis winneckei	1	N	Y	Y	14.97	1	N/A
Prostanthera centralis	3	N	Y	Y	0.00	8	N/A
Ptilotus royceanus	1	N	Y	Y	0.26	3	N/A
Schoenus centralis	1	N	Y	Y	15.64	1	N/A

Species name	Conservation status	Suitable habitat features? [Y/N]	Suitable vegetation type? [Y/N]	Suitable soil type? [Y/N]	Distance of closest record to application area (km)	Number of known records (total)	Are surveys adequate to identify? [Y, N, N/A]
Tephrosia sp. Central (P.K. Latz 17037)	3	N	Y	Y	0.26	1	N/A
T: threatened, CR: critically endangered, EN: endangered, VU: vulnerable, P: priority							

A.4. Fauna analysis table

Species name	Conservation status	Suitable habitat features? [Y/N]	Suitable vegetation type? [Y/N]	Distance of closest record to application area (km)	Number of known records (total)	Are surveys adequate to identify? [Y, N, N/A]
Falco peregrinus (Peregrine falcon)	OS	Yes	Yes	10.99	6	N/A
Petrogale lateralis subsp. (MacDonnell Ranges) (MacDonnell Range black-footed rock-wallaby, black-footed rock-wallaby (MacDonnell Ranges), warru)	VU	Yes	Yes	10.99	2	N/A
T: threatened, CR: critically endangered, EN: endangered, VU: vulnerable, P: priority						

Appendix B. Assessment against the clearing principles

Assessment against the clearing principles	Variance level	Is further consideration required?
Environmental value: biological values		
Principle (a): *"Native vegetation should not be cleared if it comprises a high level of biodiversity."* Assessment: The local and regional area is poorly surveyed with limited biodiversity records. The application area comprises habitat that is suitable for conservation significant flora and fauna species, however, the clearing as proposed will not be significant to the conservation of these species.	May be at variance	Yes *Refer to Section 3.2.1, above.*

Assessment against the clearing principles	Variance level	Is further consideration required?
Principle (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."* Assessment: There are only two records of conservation significant fauna species from the local area (20 km). Photographs of the application area indicate that the area is unlikely to comprise significant habitat for conservation significant fauna.	Not likely to be at variance	Yes *Refer to Section 3.2.1, above.*
Principle (c): *"Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, threatened flora."* Assessment: No threatened flora species are recorded from the local area. The area proposed to be cleared is unlikely to contain habitat for threatened flora species listed under the BC Act.	Not likely to be at variance	No
Principle (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."* Assessment: The area proposed to be cleared does not contain species that can indicate a threatened ecological community.	Not likely to be at variance	No
Environmental value: significant remnant vegetation and conservation areas		
Principle (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."* Assessment: The extent of native vegetation in the local area is approximately 99 percent. This is consistent with the national objectives and targets for biodiversity conservation in Australia. The vegetation proposed to be cleared is not considered to be part of an ecological linkage in the local area.	Not likely to be at variance	No
Principle (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."* Assessment: Given the distance to the nearest DBCA conservation area, the proposed clearing is not likely to have an impact on the environmental values of conservation areas in the region. Given the approval of the Ngaanyaatjarraku Traditional Council of the project and proposed clearing, potential impact on the Ngaanyatjarraku Indigenous Protected Area is unlikely to be significant.	Not likely to be at variance	No
Environmental value: land and water resources		
Principle (f): *"Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland."* Assessment: The proposed water pipeline crosses a gully, which is a minor tributary to a non-perennial watercourse located approximately 100 m from the project area. Mitigation measures have been considered to minimise any impact to the non-perennial watercourse.	At variance	Yes *Refer to Section 3.2.2, above.*

Assessment against the clearing principles	Variance level	Is further consideration required?
Principle (g): *"Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation."* Assessment: Given the dry environment and the sandy soils of the region, the area can be highly susceptible to wind erosion and dust deposition, particularly in the absence of groundcover. Potential impacts of clearing on land degradation can be mitigated by imposing a management condition to reduce the risk of erosion.	May be at variance	Yes *Refer to Section 3.2.2, above.*
Principle (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."* Assessment: The water supply infrastructure requiring the proposed clearing has been designed and informed by technical analysis that include the considerations for the quality of surface and groundwater in the area. The impact of clearing on the quality of water resources in the area is unlikely to be significant.	Not likely to be at variance	No
Principle (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."* Assessment: The mapped soils and topographic contours in the surrounding area do not indicate the proposed clearing is likely to contribute to increased incidence or intensity of flooding.	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.

Condition	Description
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 vegetation (Department of Communities, 2022c)

With guidance from DBCA, the applicant conducted a field survey in search of listed priority flora species within the application area between 2 and 4 November 2022. Whilst no priority flora species were identified in the survey, photographs of the vegetation area were taken as a reference. Refer to Figure 4 for the location of each photograph.

Photo 1 - Bore WAR 2/17 looking south

Photo 2 - looking north east

Photo 3 - looking north

Figure 4 - Looking south

Photo 5 – Looking south

Photo 6 - looking east

Figure 7 - looking north

Figure 8 - looking north

Figure 9 – water pipeline - looking north

Figure 10 - connection point looking north

Figure 3. Photographs of vegetation within the application area (DoC, 2022c).

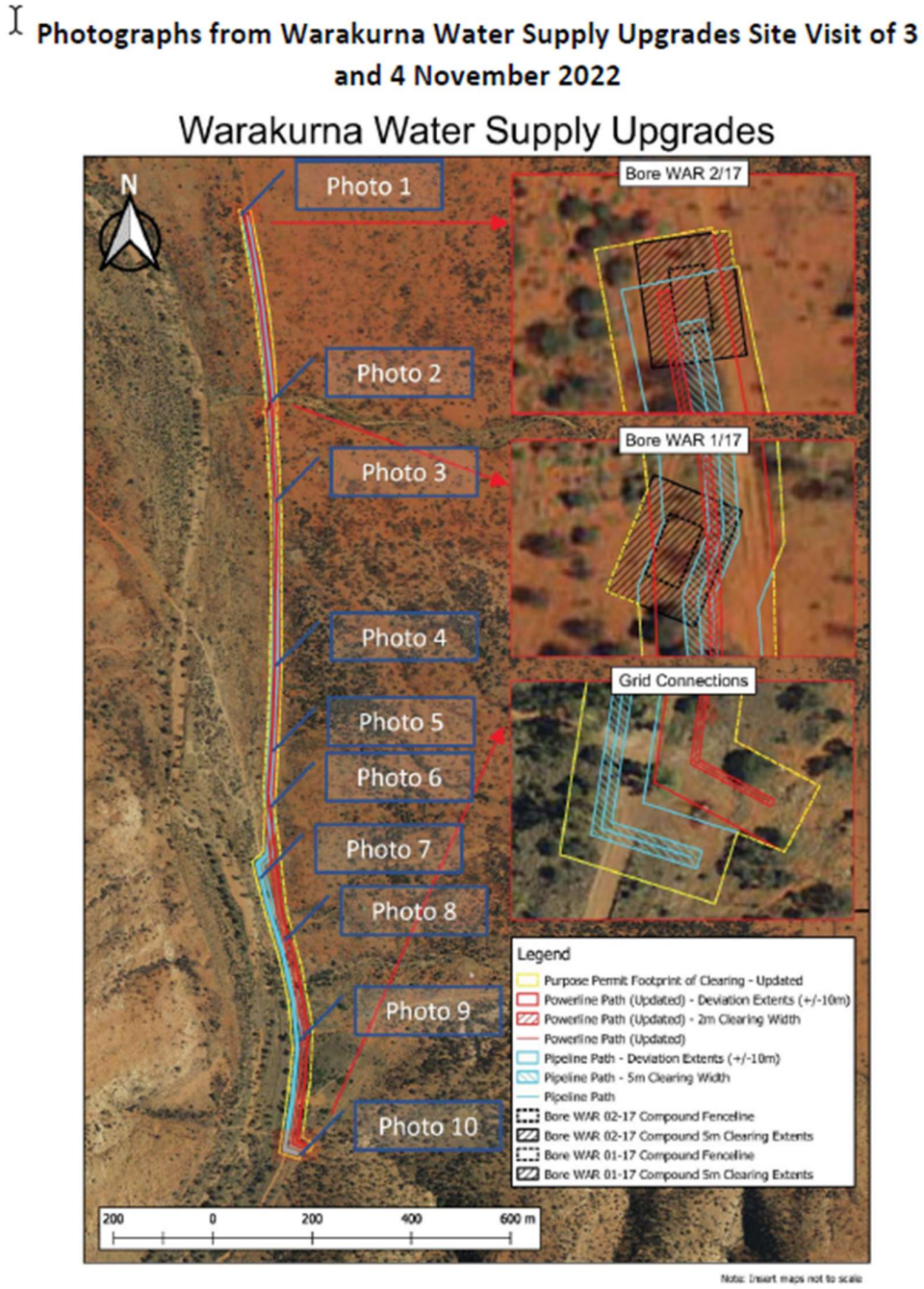


Figure 4. Location of vegetation in the photographs presented in Figure 3 (DoC, 2022c)

Appendix E. Sources of information

E.1.GIS databases

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

- 10 Metre Contours (DPIRD-073)
- Aboriginal Heritage Places (DPLH-001)

- Aboriginal Heritage Places (DPLH-001)
- Cadastre (LGATE-218)
- Cadastre Address (LGATE-002)
- Contours (DPIRD-073)
- DBCA – Lands of Interest (DBCA-012)
- DBCA Legislated Lands and Waters (DBCA-011)
- Directory of Important Wetlands in Australia – Western Australia (DBCA-045)
- Environmentally Sensitive Areas (DWER-046)
- Flood Risk (DPIRD-007)
- Groundwater Salinity Statewide (DWER-026)
- Hydrography – Inland Waters – Waterlines
- Hydrological Zones of Western Australia (DPIRD-069)
- IBRA Vegetation Statistics
- Imagery
- Local Planning Scheme – Zones and Reserves (DPLH-071)
- Native Title (ILUA) (LGATE-067)
- Offsets Register – Offsets (DWER-078)
- Pre-European Vegetation Statistics
- Public Drinking Water Source Areas (DWER-033)
- Ramsar Sites (DBCA-010)
- Regional Parks (DBCA-026)
- Remnant Vegetation, All Areas
- RIWI Act, Groundwater Areas (DWER-034)
- RIWI Act, Surface Water Areas and Irrigation Districts (DWER-037)
- Soil Landscape Land Quality – Flood Risk (DPIRD-007)
- Soil Landscape Land Quality – Phosphorus Export Risk (DPIRD-010)
- Soil Landscape Land Quality – Subsurface Acidification Risk (DPIRD-011)
- Soil Landscape Land Quality – Water Erosion Risk (DPIRD-013)
- Soil Landscape Land Quality – Water Repellence Risk (DPIRD-014)
- Soil Landscape Land Quality – Waterlogging Risk (DPIRD-015)
- Soil Landscape Land Quality – Wind Erosion Risk (DPIRD-016)
- Soil Landscape Mapping – Best Available
- Soil Landscape Mapping – Systems
- Wheatbelt Wetlands Stage 1 (DBCA-021)

Restricted GIS Databases used:

- ICMS (Incident Complaints Management System) – Points and Polygons
- Threatened Flora (TPFL)
- Threatened Flora (WAHerb)
- Threatened Fauna
- Threatened Ecological Communities and Priority Ecological Communities
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Department of Communities (2022d) *Mitigation measures to minimise impacts on nearby streams. Supporting information for clearing permit application CPS 9837/1,* received 12 December 2022 (DWER Ref:DWERDT697436).

Department of Communities (2022e) *Water licences required and obtained for the water supply upgrade for the Warakurna Indigenous Community. Supporting information for clearing permit application CPS 9837/1,* received 9 December 2022 (DWER Ref:DWERDT699470).

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