GOVERNMENT OF
WESTERN AUSTRALIA

CLEARING PERMIT

Granted under section 51E of the Environmental Protection Act 1986

PERMIT DETAILS
Area Permit Number: 8996/1
File Number: DWERVT6252
Duration of Permit: From 23 October 2020 to 23 October 2027

PERMIT HOLDER
City of Kalgoorlie-Boulder.

LAND ON WHICH CLEARING IS TO BE DONE
Lot 221 on Plan 217615, South Boulder.

AUTHORISED ACTIVITY
The Permit Holder shall not clear more than 0.96 hectares of native vegetation within the area cross-hatched yellow on attached Plan 8996/1(a).

CONDITIONS

1. **Avoid, minimise and reduce the impacts and extent of clearing**
   In determining the amount of native vegetation to be cleared authorised under this Permit, the Permit Holder must have regard to the following principles, set out in 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.

2. **Weed management**
   When undertaking any clearing or other activity authorised under this Permit, the Permit Holder must take the following steps to minimise the risk of the 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.

3. **Application**
   This Permit allows the Permit Holder to authorise persons, including employees, contractors and agents of the Permit Holder, to clear native vegetation for the purposes of this Permit subject to compliance with the conditions of this Permit and approval from the Permit Holder.

4. **Duration of clearing**
   This Permit does not authorise the Permit Holder to clear native vegetation within the area crossed hatched yellow on attached Plan 8996/1 for the purpose authorised under this Permit after 23 October 2022.

5. **Revegetation**
   The Permit Holder shall:
   (a) Retain the vegetative material and topsoil removed by clearing authorised within the area crossed hatched red on attached Plan 8996/1(b) and stockpile the vegetative material and topsoil in an area that has already been cleared.

(b) At an *optimal time* within 12 months following completion of the stated purpose, *revegetate* the areas within the area crossed hatched red on attached Plan 8996/1(b) not required for the authorised purpose for which they were cleared under this Permit, by:
    (i) ripping the ground on the contour to remove soil compaction; and
    (ii) laying the vegetative material and topsoil retained under condition 5(a) on the cleared area(s).
(c) Within 24 months of laying the vegetative material and topsoil on the cleared area in accordance with condition 5(b) of this Permit the Permit Holder shall:
    (i) engage an *environmental specialist* to determine the species composition, structure and density of the area *revegetated*; and
    (ii) where, in the opinion of an *environmental specialist*, the composition structure and density determined under condition 5(c)(i) of this Permit will not result in a similar species composition, structure and density to that of pre-clearing vegetation types in that area, *revegetate* the area by deliberately *planting* and/or *direct seeding* native vegetation that will result in a similar species composition, structure and density of native vegetation to pre-clearing vegetation types in that area and ensuring only *local provenance* seeds and propagating material are used.
(d) Where additional *planting* or *direct seeding* of native vegetation is undertaken in accordance with condition 5(c)(ii) of this Permit, the Permit Holder shall repeat condition 5(c)(i) and 5(c)(ii) within 24 months of undertaking the additional *planting* or *direct seeding* of native vegetation.
(e) Where a determination by an *environmental specialist* that the composition, structure and density within areas *revegetated* will result in a similar species composition, structure and density to that of pre-clearing vegetation types in that area, as determined in condition 5(c)(i) and condition 5(c) (ii) of this Permit, that determination shall be submitted for the *CEO*'s consideration. If the *CEO* does not agree with the determination made under condition 5(c)(ii), the *CEO* may require the Permit Holder to undertake additional *planting* and *direct seeding* in accordance with the requirements under condition 5(c)(ii).

6. Records must be kept

The Permit Holder must maintain the following records in relation to the clearing of native vegetation authorised under this Permit:

(a) 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 or decimal degrees;
(b) the date(s) that the area was cleared;
(c) the size of the area cleared (in hectares);
(d) actions taken to avoid, minimise and reduce the impacts and extent of clearing in accordance with condition 1 of this Permit;
(e) actions taken to minimise the risk of the introduction and spread of *weeds* in accordance with condition 2 of this Permit; and
(f) in relation to the *revegetation* of areas pursuant to condition 5 of this Permit:
    (i) the size of the area *revegetated*;
    (ii) the date(s) on which the area *revegetated* was undertaken;
    (iii) the *revegetation* activities undertaken;
    (iv) the date(s) where additional *planting* or *direct seeding* of native vegetation was undertaken;
    (v) the boundaries of the area *revegetated* (recorded digitally as a shapefile); and
    (vi) a copy of the *environmental specialist*'s report.

7. Reporting

(a) The Permit Holder must provide to the *CEO* on or before 30 June of each year, a written report:
    (i) of records required under condition 6 of this Permit; and
    (ii) concerning activities done by the Permit Holder under this Permit between 1 January to 31 December of the preceding calendar year.

(b) If no clearing authorised under this Permit has been undertaken, a written report confirming that no clearing under this Permit has been undertaken, must be provided to the *CEO* on or before 30 June of each year.
(c) Prior to 23 July 2027, the Permit Holder must provide to the CEO a written report of records required under condition 6 of this Permit where these records have not already been provided under condition 7(a) of this Permit.

DEFINITIONS
The following meanings are given to terms used in this Permit:

CEO: means the Chief Executive Officer of the Department responsible for the administration of the clearing provisions under the *Environmental Protection Act 1986*;

direct seeding means a method of re-establishing vegetation through the establishment of a seed bed and the introduction of seeds of the desired plant species;

environmental specialist means a person who holds a tertiary qualification in environmental science or equivalent, and has experience relevant to the type of environmental advice that an environmental specialist is required to provide under this Permit, or who is approved by the CEO as a suitable

environmental specialist.

fill means material used to increase the ground level, or fill a hollow;

local provenance means native vegetation seeds and propagating material from natural sources within 75 kilometres and the same Interim Biogeographic Regionalisation for Australia (IBRA) subregion of the area cleared;

mulch means the use of organic matter, wood chips or rocks to slow the movement of water across the soil surface and to reduce evaporation;

optimal time means the period from April to May;

planting means the re-establishment of vegetation by creating favourable soil conditions and planting seedlings of the desired species;

revegetation, revegetate, revegetated means the re-establishment of a cover of native vegetation in an

area such that the species composition, structure and density is similar to pre-clearing vegetation types in that area, and can involve regeneration, direct seeding and/or planting;

weed/s 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 Regional Weed Rankings Summary, regardless of ranking; or
(c) not indigenous to the area concerned.

Mathew Gannaway
MANAGER
NATIVE VEGETATION REGULATION

Officer delegated under Section 20
of the Environmental Protection Act 1986

30 September 2020

Plan 8996/1(a)

CPS 8996-1

base layers

Road Centrelines

Cadastre - LGATE 218

N

0 50 100 150 m

Mathew
Gannaway
2020.09.30
12:46:33 +08'00'

Officer delegated under section 20 of the Environmental Protection Act 1986

GOVERNMENT OF WESTERN AUSTRALIA

MGA Zone 50
Geocentric Datum of Australia 1994

Plan 8996/1(b)

CPS layers

CPS subject to conditions

base layers

Road Centrelines

Cadastre - LGATE 218

N

0 50 100 150 m

Mathew Gannaway
2020.09.30 12:46:04 +08'00'

Officer delegated under section 20 of the Environmental Protection Act 1986

MGA Zone 50
Geocentric Datum of Australia 1994

GOVERNMENT OF WESTERN AUSTRALIA

Clearing Permit Decision Report

1. Application details and outcome

1.1. Permit application details

Permit number:	8996/1
Permit type:	Area permit
Applicant name:	City of Kalgoorlie-Boulder
Application received:	04 August 2020
Application area:	0.96 hectares of native vegetation
Purpose of clearing:	Laydown area
Method of clearing:	Mechanical clearing
Property:	Lot 221 on Deposited Plan 217615, South Boulder
Location (LGA area):	City of Kalgoorlie-Boulder
Localities (suburb):	South Boulder

1.2. Description of clearing activities

Proposed clearing of approximately 0.96 hectares is required for a laydown area to support contract works required for an upgrade to the City of Kalgoorlie-Boulder's South Boulder Wastewater Treatment Plant (WWTP). The application area is located entirely within the WWTP property (Lot 221) on the Goldfields Highway, approximately two kilometres south of Boulder (Figure 1).

1.3. Decision on application and key considerations

Decision:	Granted
Decision date:	30 September 2020
Decision area:	0.96 hectares of native vegetation as depicted in Section 1.5, below.

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 Water and Environmental Regulation (DWER) on 4 August 2020. DWER advertised the application for public comment and no submissions were received.

In undertaking the assessment, and in accordance with section 51O of the EP Act, the Delegated Officer has given consideration to the Clearing Principles in Schedule 5 of the EP Act (Appendix B), supporting information provided by the applicant, relevant planning instruments, and any other pertinent matters they deemed relevant to the assessment (Section 3). The Delegated Officer also took into consideration the purpose of the clearing to facilitate an upgrade to the South Boulder Waste Water Treatment Plant to improve the effluent quality and increase the capacity of the existing plant.

The Delegated Officer noted the temporary nature of the clearing, and that on completion of the upgrade to the Waste Water Treatment Plant the cleared laydown area will no longer be required for the stated purpose. Revegetating the cleared area with native vegetation at an optimal time within twelve months of the area no longer being required will minimise wind erosion and any longer term impacts. The Delegated Officer also noted that in some areas native vegetation occurs adjacent to the proposed clearing and implementing weed management strategies will mitigate impacts to these adjacent areas.

After consideration of the available information, the Delegated Officer has determined that with appropriate management conditions the proposed clearing is not likely to lead to an unacceptable risk to the environment. The Delegated Officer decided to grant a clearing permit subject to revegetation and weed management conditions.

1.5. Site map

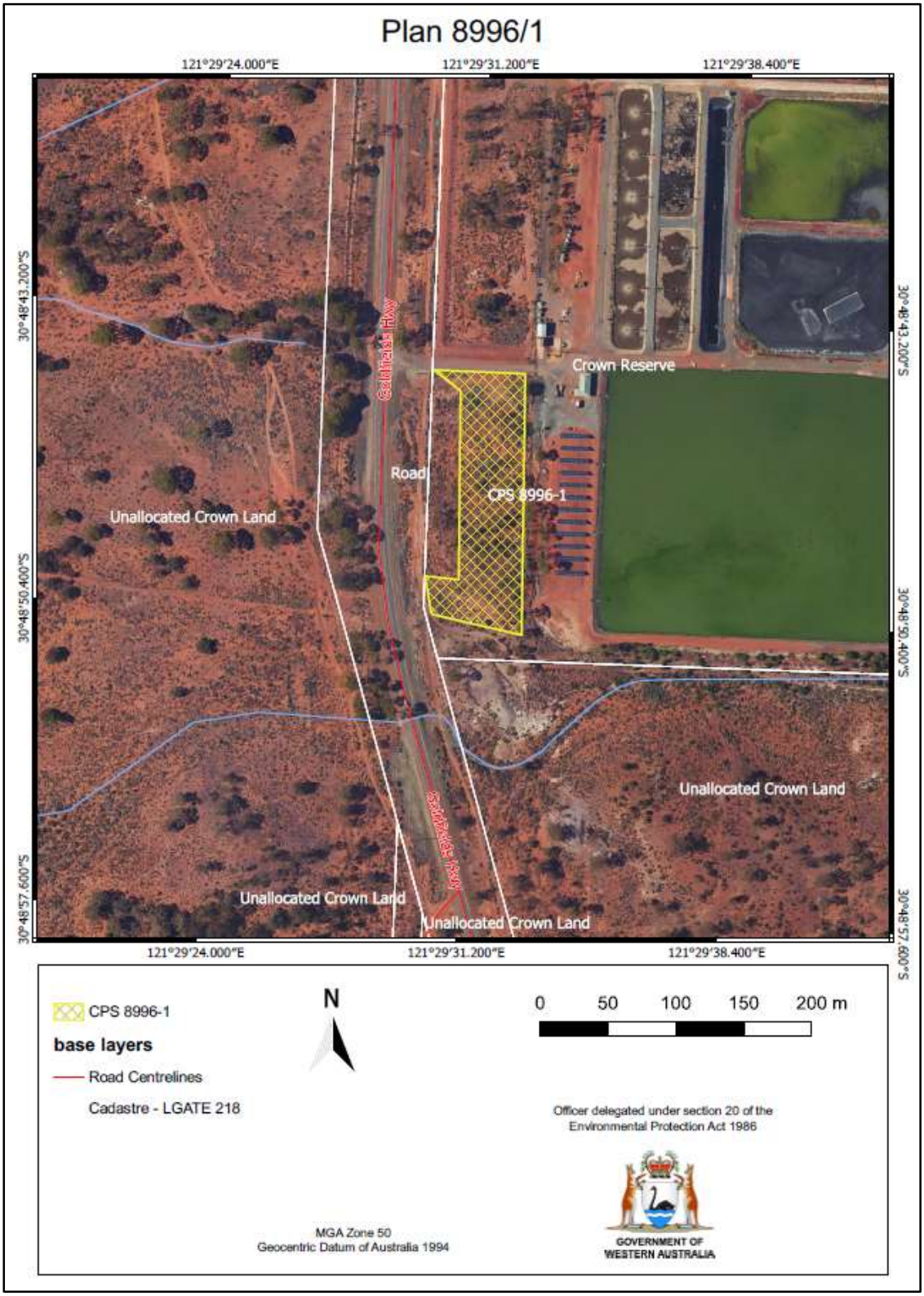


Figure 1. Map of area approved to clear. The area cross-hatched yellow indicates the areas authorised to be cleared under the granted clearing permit.

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 1.3), 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 inter-generational equity; and
- the principle of the conservation of biological diversity and ecological integrity.

Other legislation of relevance for this assessment include:

- *Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act);*
- *Biodiversity Conservation Act 2016 (BC Act);* and
- *Conservation and Land Management Act 1984* (WA) (CALM Act).

The key guidance documents which inform this assessment are:

- *A guide to the assessment of applications to clear native vegetation* (December 2013); and
- *Procedure: Native vegetation clearing permits* (DWER October 2019).

3. Detailed assessment of application

3.1. Avoidance and mitigation measures

The application area is associated with an upgrade to the South Boulder WWTP which is located entirely within Lot 221, Goldfields Highway, South Boulder. The applicant has assessed other areas within Lot 221 to incorporate the laydown area required for the upgrade of the plant, including the rear (east) of the property. However, potential impacts to water courses has precluded their use (City of Kalgoorlie-Boulder 2020a).

The applicant has stated that native trees will be planted and maintained along the front of the property boundary to screen the treatment plant from the Goldfields Highway (City of Kalgoorlie-Boulder 2020a). After consideration of avoidance and mitigation measures, it was determined that revegetation of the laydown area upon the conclusion of its purpose was required to prevent potential wind and water erosion.

3.2. Assessment of environmental impacts

In assessing the application in accordance with section 51O of the EP Act, the Delegated Officer has examined the application and site characteristics (Appendix A) and considered whether the clearing poses a risk to environmental values. The assessment against the Clearing Principles is contained in Appendix B.

This assessment identified that the clearing may pose a risk to the environmental values of significant flora and land degradation, and that this required further consideration. The detailed consideration and assessment of the clearing impacts against the specific environmental value is provided below. Where the assessment found that the clearing presents an unacceptable risk to environmental values, conditions aimed at controlling and/or ameliorating the impacts have been imposed under sections 51H and 51I of the EP Act. These are also identified below.

3.2.1.Environmental value: Biological values (flora) – Clearing Principles (a) to (d)

Assessment: No Threatened Ecological Communities (TECs), Priority Ecological Communities (PECs), or Threatened flora taxa have been recorded within the local area of a 20 kilometre radius from the perimeter of the application area (Appendix A2), and none are likely to occur (Appendix B).

Fifteen Priority (P) flora taxa have been recorded within the local area (two P1, three P2, seven P3 and three P4). Five of these taxa occur within soil types comparable to those occurring over the application area (Appendix A2).

The Priority 2 *Eremophila praecox* has been recorded 16 times within the local area, with the closest approximately 7.1 kilometres distant (WAH 1998-). *Eremophila praecox* occurs in red to brown sandy loam on undulating plains and has a distribution of approximately 120 kilometres within both the Coolgardie and Murchison Bioregions (WAH 1998-), and at the locations of Kalgoorlie, Five Mile Hill, Kurrawang, and Kanowna Belle (DBCA 2018) (Appendix E).

The Priority 2 *Goodenia salina* has been recorded just once within the local area (WAH 1998-). *Goodenia salina* has a distribution of approximately 425 kilometres, and is known predominantly from the Mallee Bioregion south of the application area at Lake King and Lake Cairlocup (DBCA 2018), with one occurrence also in the Coolgardie Bioregion 8.2 kilometres south of the application area (WAH 1998-) (Appendix E). The species occurs on well-drained, saline, grey or brown loamy clay and low gypseous dunes near salt pans, a habitat not consistent with the application area (WAH 1998-).

The Priority 3 *Alyxia tetanifolia* occurs north of the application area on sandy clay, loam, concretionary gravel and drainage lines and near lakes; a habitat not generally consistent with the application area. The species has been recorded five times within the local area, with the closest approximately 6.0 kilometres south-west of the application area (WAH 1998-). This species has a distribution of approximately 485 kilometres (Appendix E) and is known from both the Coolgardie and Murchison Bioregions (WAH 1998-) at the locations of Diemals, Kalgoorlie, Goongarri, Boogardie, and Mt Magnet (DBCA 2018).

The Priority 3 *Lepidium fasciculatum* is an annual with little information available. However it has a very wide distribution of approximately 1,300 kilometres; from within 60 kilometres of the west coast, through to the Nullarbor Plain close to the South Australian border (Appendix E). *Lepidium fasciculatum* has been recorded from the Avon Wheatbelt, Coolgardie, Esperance Plains, Mallee, and Nullarbor Bioregions (WAH 1998-) and from the locations of Salmon Gums, Kalgoorlie, Esperance, and Mingenew (DBCA 2018). It has been recorded just once within the local area approximately 8.4 kilometres to the north of the application area (WAH 1998).

The Priority 3 *Notisia intonsa* has a widespread distribution of approximately 420 kilometres from 90 km north of the application area to close to the Esperance coast (Appendix E). *Notisia intonsa* is known from the Avon Wheatbelt, Coolgardie, Esperance Plains, Mallee, Murchison Bioregions (WAH 1998-), and from locations of Gibraltar, Boorabbin, Dundas, Ravenshtorpe, North Ironcap, Ora Banda, Lake Cowan, and Parker Range (DBCA 2018). The species has been recorded just once within the local area approximately 16.3 kilometres south-west of the application area (WAH 1998-).

Given the soil types and habitats, distances to known locations, and the extent and composition of the vegetation proposed to be cleared, it is considered that conservation-significant flora and ecological communities are unlikely to be impacted by the proposed clearing. However, considering the proximity of native vegetation to the application area, the proposed clearing has the potential to increase the spread of weeds into adjacent native vegetation.

Outcome: Based on the above assessment, the Delegated Officer has determined that the proposed clearing is not likely to be significant in relation to this environmental value.

Conditions: Weed management strategies will mitigate impacts to the adjacent native vegetation.

3.2.2.Environmental value: Land degradation – Clearing Principle (g)

The application area incorporates open Eucalypt woodland on alluvial soils of broad valley floors and is located within the Soil Land System of Mx43, with soils mapped as 265Mx4 (DPIRD 2018). That is, gently undulating valley plains and pediments. The primary soils are alkaline red earths with limestone or limestone nodules at a shallow depth.

The application area is not located within an area that is mapped as having a risk of encountering acid sulfate soils. The potential for acidification is low with a moderate risk of sub-surface compaction (DPIRD 2017). During the clearing and operation of the laydown area standard operational methodologies such as dust control and drainage control will ameliorate any potential land degradation. Any impacts to surrounding landscapes, soils and drainage can also be managed through appropriate design incorporating drainage control. Based on the scale of proposed clearing and standard methodologies proposed, clearing is unlikely to cause appreciable land degradation during operations. However, once the stated purpose of the laydown area has been completed the area may become subject to wind erosion and generate dust.

Outcome: Based on the above assessment, the Delegated Officer has determined that the proposed clearing is not likely to be significant in relation to this environmental value.

Conditions: To mitigate impacts of potential land degradation following the use of the laydown area, the following conditions will be added to the permit:

- Salvage and storage of vegetative material and topsoil.
- Laying the vegetative material and topsoil retained on the cleared area.
- Monitoring and contingency actions, such as direct seeding and planting with locally-provenanced species if required.

3.3. Relevant planning instruments and other matters

The application was advertised on the DWER website for a 21 day public comment period on 4 September 2020. No public submissions were received in relation to this application.

The application area is located within Lot 221 Goldfields Highway, South Boulder 6432. Lot 221 is a Crown Allotment within Reserve R 42000 (LR3098/969) (Type 3R). The proprietor of Reserve R 42000 is the State of Western Australia, with a Management Order to the City of Kalgoorlie-Boulder for the purposes of a sewage treatment plant.

The City of Kalgoorlie-Boulder is planning a two year, major upgrade of the South Boulder Waste Water Treatment Plant (sewage treatment plant). The upgrade is designed to improve the effluent quality and increase the capacity of the plant to treat the City's sewage requirements (City of Kalgoorlie-Boulder 2020b). The temporary laydown area is required to facilitate the upgrade.

The application area is zoned Public Purposes (water supply sewerage drainage) (Zone No. 1998) under the City of Kalgoorlie-Boulder Local Planning Scheme No. 1 and the proposed clearing is consistent with this purpose.

The application area intersects an area identified for a contaminated sites report classified as *'possibly contaminated - investigation required'* (Site ID 3511 - WWTP & Integrated Liquid Waste Facility, 221 Goldfields Hwy, South Boulder). Advice was sought from DWER: Science and Planning–Contaminated Sites. The proposed clearing is unlikely to disturb soil within the Waste Water Treatment Plant and does not represent a change to a more sensitive land use for Lot 221, and DWER Science and Planning–Contaminated Sites has no objection to the proposed clearing (DWER 2020). In addition, the site is not located within an area that is mapped as having a risk of encountering acid sulfate soils and no specific comment is required in relation to acid sulfate soil management (DWER 2020).

The application area is located in a *Rights in Water and Irrigation Act 1914* (RIWI Act) proclaimed groundwater area: the Goldfields Groundwater Area. The application area is ***not*** located within any RIWI Act surface water areas or irrigation districts, nor any *Country Areas Water Supply Act 1947* (CAWS Act) clearing control catchments, or Public Drinking Water Source Areas. Proposed works will not obstruct, interfere or destroy the beds or banks of any watercourse and additional permitting by DWER under the RIWI Act will not be required.

Native Title registered claims over the application area include Maduwongga (WAD186/2017), registered from 3/08/2017, and Marlinyu Ghoorlie (WAD647/2017), registered from 28/03/2019. No Aboriginal Sites of Significance are located within the application area, however, several Aboriginal Sites of Significance are located within the local area the closest of which are; Place ID 30638 (Mididja) located approximately 3.5 kilometres to the south, and Place ID 1476 (Muruntjarta) located approximately 5.2 kilometres to the north-west. It is the applicant's responsibility to comply with the *Aboriginal Heritage Act 1972* and ensure that no Aboriginal Sites of Significance are damaged through the clearing process.

Appendix A – Site characteristics

The information provided below describes the key characteristics of the area proposed to be cleared and is based on the best information available to DWER at the time of this assessment. This information was used to inform the assessment of the clearing against the Clearing Principles, contained in Appendix B.

1. Site summary

Site characteristic	Details
Local context	The application area is situated within the Coolgardie bioregion (COO) and Eastern Goldfields subregion (COO03) of Thackway and Cresswell (1995). Proposed clearing of approximately 0.96 hectares is required for a laydown area to support contract works required for an upgrade to the adjacent City of Kalgoorlie-Boulder Wastewater Treatment Plant (Figure 1). The application area is located entirely within Lot 221 on Deposited Plan 217615, on the Goldfields Road approximately two kilometres south of Boulder.
Vegetation description	Utilising the regional vegetation of Shepherd *et al*. (2001) the application area is mapped as vegetation association 540, which is described as a succulent steppe with open low woodland; sheoak over saltbush. However, regional mapping is of a coarse scale. Approximately 550 metres to the north-west of the application area, vegetation association 9 is mapped. That is, a medium woodland of Coral Gum *(Eucalyptus torquata)* and Goldfields Blackbutt *(E. lesoufii)*, with Gimlet *(E. salubris),* Red Mallee *(E. oleosa)* and Redwood *(E. transcontinentalis).* Photography of the application area provided by the City of Kalgoorlie-Boulder (2020a) (Appendix D) aligns more closely to vegetation association 9, with the native vegetation occurring over the application area an open woodland of *Eucalyptus spp*. over saltbush *(Atriplex spp*.) and bluebush *(Maireana spp.)*.
Vegetation condition	Photography of the application area (Appendix D) indicates vegetation condition rated at Good (Appendix C).
Soil description	The underlying geology of the Eastern Goldfields subregion (COO3) is of gneisses and granites eroded into a flat plane covered with tertiary soils and with scattered exposures of bedrock. Calcareous earths are the dominant soil group and cover much of the plains and greenstone areas (Cowan 2001). The application area incorporates open Eucalypt woodland on alluvial soils of broad valley floors and is located within the Soil Land System of Mx43, with soils mapped as 265Mx4, that is, gently undulating valley plains and pediments with some outcropping of basic rock. Chief soils are alkaline red earths (Gn2.13) with limestone or limestone nodules at shallow depth (<0.6 metres) on gently sloping slightly concave plains with low gentle rises of (Gc1.12) soils.
Land degradation risk	The Department of Primary Industries and Regional Development (DPIRD), provides a series of soil degradation risk mapping at the system level (DPIRD 2017). The project area is located within the Mx43 system, and the table below summaries the soil degradation risk within the application area. **Land Qualities summary - % Map Unit (column 1 most limiting, 4 least)**

		C1	C2	C3	C4
1	**pH**				
1	0-10 acidity	very strongly acid: 0 %	strongly acid: 0 %		
1	0-10 alkalinity	strongly alkaline: 0 %	alkaline: 25 %		
1	50-80 acidity	very strongly acid: 0 %	strongly acid: 0 %		

Site characteristic	Details

1	50-80 alkalinity	strongly alkaline: 5 %	alkaline: 65 %		
1	acidification risk	presently acid: 0 %	high: 0 %	moderate: 0 %	low: 100 %
2	**SALINITY**				
2	surface salinity	extreme: 0 %	high: 0 %	moderate: 0 %	slight to nil: 100 %
3	**SOME PLANT LIMITS**				
3	rooting depth	very shallow: 0 %	shallow: 0 %	moderately shallow: 5 %	v deep to moderate: 95 %
3	sub surface compact	high: 10 %	moderate: 85 %	low: 5 %	
3	water repel	high: 0 %	moderate: 0 %	low: 0 %	nil: 100 %
3	water storage	extremely low: 0 %	very low: 20 %	low: 0 %	high to moderate: 80 %

Waterbodies	The desktop assessment and aerial imagery indicated that no wetlands occur within, or in the immediate vicinity of, the application area. Minor ephemeral drainage lines occur approximately 290 metres to the north, 75 metres to the south, and 100 metres to the west of the application area (Figure 2).

Site characteristic	Details

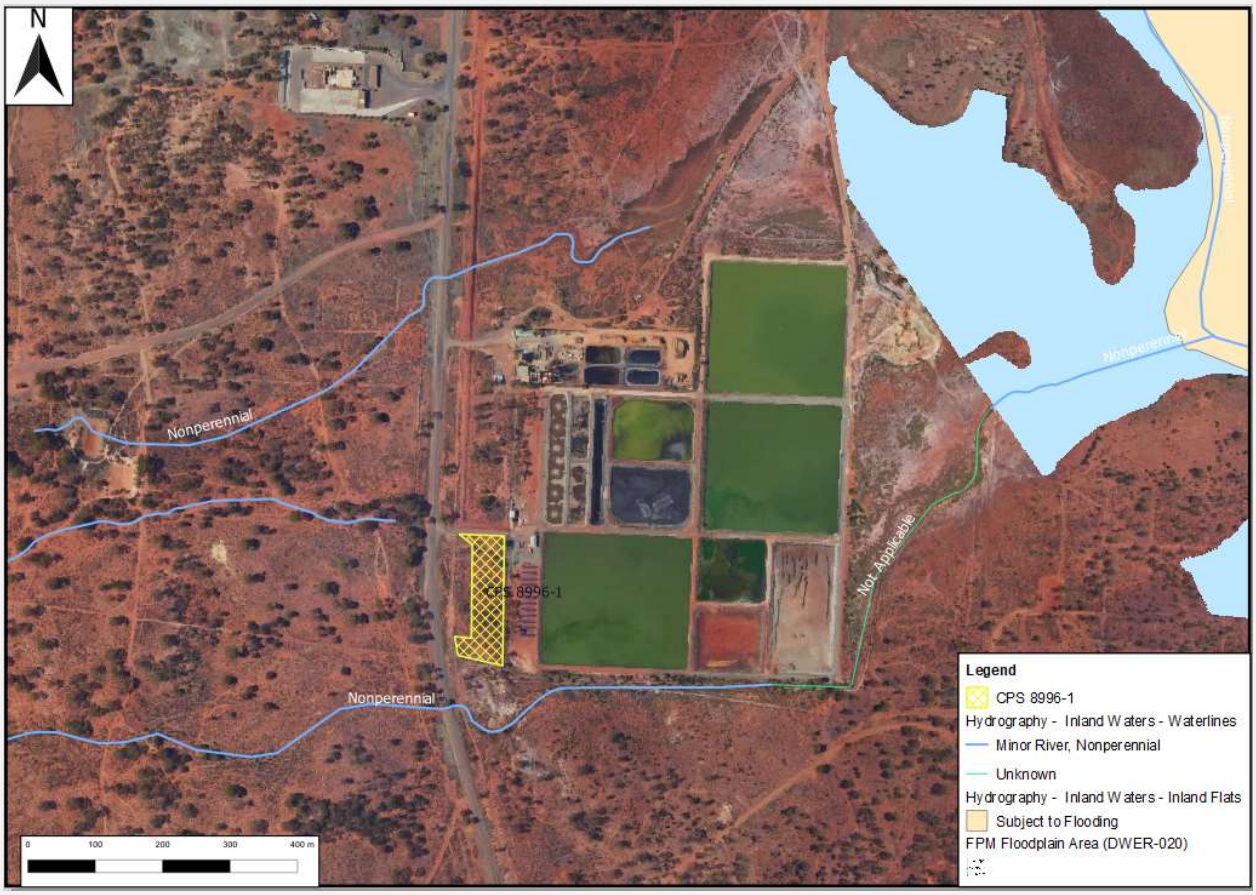



Figure 1. Surface hydrology in the vicinity of the application area	
Conservation areas	There are no lands managed for conservation purposes or Environmentally Sensitive Areas (ESAs) in the vicinity of the application area with the closest lands managed by the Department of Biodiversity, Conservation and Attractions (DBCA) approximately 7.1 kilometres distant.
Climate and landform	The climate of the Coolgardie bioregion is characterised as arid to semi-arid warm Mediterranean with rainfall predominantly in winter (McKenzie *et al.* 2002), with the average annual rainfall for Kalgoorlie-Boulder approximately 266 millimetres (BOM 2020). The Coolgardie bioregion is located within the Yilgarn Craton. Its granite basement includes Archaean Greenstone intrusions in parallel belts. Eucalypt woodlands occur on low greenstone hills, on alluvial soils on the valley floors, around the saline playas of the region's occluded drainage system, and on broad plains of calcareous earths (McKenzie *et al*. 2002). The application area incorporates open Eucalypt woodland on alluvial soils of the broad valley floors.

2. Ecosystem, flora, and fauna analysis

With consideration for the site characteristics set out above and relevant datasets (see Appendix F) the following conservation significant ecological communities, flora, and fauna species have been identified in the local area of a 20 kilometre radius of the application area.

2a) Ecological communities

There are no Threatened Ecological Communities (TECs) or Priority Ecological Communities (PECs) mapped within the local area.

2b) Flora

No Threatened flora taxa have been recorded within the local area.

Fifteen Priority flora taxa have been recorded within the local area (two P1, three P2, seven P3 and three P4).

Taxon	Status	No. of Records	Closest Record (km)	Comparable soil type and community	
Austrostipa sp. Carlingup Road (S. Kern & R. Jasper LCH 18459)	P1	2	17.6	No	Basalt / Claypans
Ptilotus procumbens	P1	1	3.3	No	Washouts – Deep red clays
Elachanthus pusillus	P2	1	9.1	No	Sandy clay loam
Eremophila praecox	P2	16	7.1	Possible	Undulating plain, red-brown sandy loam.
Goodenia salina	P2	1	8.2	Possible	Loamy, often gypseous soils
Alyxia tetanifolia	P3	5	6.0	Possible	Sandy clay, loam, concretionary gravel
Cyathostemon verrucosus	P3	1	11.5	No	Yellow sandy clay plain
Isolepis australiensis	P3	1	8.2	No	Silty sand, sandy clay. Lake margins
Lepidium fasciculatum	P3	1	8.4	Possible	Annual - Little information available
Melaleuca coccinea	P3	1	3.3	No	Sandy loam. Granite outcrops, sandplain
Notisia intonsa	P3	1	16.3	Possible	Little information available
Xanthoparmelia dayiana	P3	2	4.6	No	Exposed rock
Eucalyptus jutsonii subsp. *jutsonii*	P4	1	17.2	No	Red /pale orange deep sands and dunes
Eucalyptus x *brachyphylla*	P4	1	7.3	No	Sandy loam. Granite outcrops
Frankenia glomerata	P4	1	9.1	No	White sands

Note: Threatened and priority status retrieved from Species Profile and Threats Database (Department of the Environment, 2020), and FloraBase (Western Australian Herbarium 1998-).

2c) Fauna

Seven birds and three mammals of conservation significance have been recorded within the local area.

Common Name	Scientific name	Status	No. of Records	Closest Record	Habitat available	
Birds						
Carnaby's Cockatoo	*Calyptorhynchus latirostris*	EN	4	6.6	Marginal	Eucalypt canopy
Malleefowl	*Leipoa ocellata*	VU	27	7.3	No	Shrubland
Sharp-tailed Sandpiper	*Calidris acuminata*	IA	3	10.0	No	Wetland
Sanderling	*Calidris alba*	IA	1	5.3	No	Wetland
Grey-tailed Tattler	*Tringa brevipes*	IA	1	9.3	No	Wetland
Wood Sandpiper	*Tringa glareola*	IA	3	0.6	No	Wetland
Glossy ibis	*Plegadis falcinellus*	IA	1	10.0	No	Wetland
Mammals						
Numbat	*Myrmecobius fasciatus*	EN	2	7.3	Marginal	Woodland
Bilby	*Macrotis lagotis*	VU	4	7.3	Marginal	Friable soils
Western False Pipistrelle	*Falsistrellus mackenziei*	P4	1	6.6	No	High rainfall forest
Invertebrates						
Arid Bronze Azure Butterfly	*Ogyris subterrestris petrina*	CR	17	8.0	Marginal	Population extinct
Desert Blue Butterfly	*Jalmenus aridus*	P1	5	10.6		

3. Vegetation extent

Coolgardie IBRA Bioregion	Pre-European Extent (ha)	Current Extent (ha)	Remaining %	IUCN I - IV in Current Extent (ha)	Current Extent Protected (IUCN I - IV) for Conservation %
Coolgardie Bioregion (COO)	12,912,204	12,648,491	98.0	1,403,513	10.9

Succulent steppe with open low woodland; sheoak over saltbush	Pre-European Extent (ha)	Current Extent (ha)	Remaining %	IUCN I - IV in Current Extent (ha)	Current Extent Protected (IUCN I - IV) for Conservation %
Association 540 (entire)	202,424	200,159	98.9	56,245	27.8
Association 540 in COO Bioregion	75,811	73,620	97.1		

Medium woodland; Coral Gum *(Eucalyptus torquata)* and Goldfields Blackbutt *(E. le soufii),* (also some e10,11)	Pre-European Extent (ha)	Current Extent (ha)	Remaining %	IUCN I - IV in Current Extent (ha)	Current Extent Protected (IUCN I - IV) for Conservation %
Association 9 (entire)	240,509	235,162	97.8	3,670	1.5
Association 9 in COO Bioregion	240,442	235,101	97.8	3,670	1.5

Remnant vegetation within twenty kilometres of the application area.

Remaining (ha)	Remaining (%)
121,757	96.1

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: No threatened flora, TECs or PECs mapped within 20 kilometres of the application area and none are likely to occur. The application area does not represent significant fauna habitat. Fifteen Priority flora taxa have been recorded within the local area (two P1, three P2, seven P3 and three P4). Five of these taxa may occur within soil types comparable to those occurring over the application area, however, the vegetation under application is not likely to comprise a high level of biodiversity, and significant flora taxa are unlikely to be impacted by the proposed clearing.	Not likely to be at variance	Further consideration required, see Section 3.2.1
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: Seven birds and three mammals of conservation significance have been recorded within the local area. No known roosts or breeding sites occur within the local area, and conservation significant fauna species are unlikely occur over the application area. Large areas of suitable habitat in better condition to the application area occur within the local area. The vegetation of the application area is not likely to comprise the whole or a part of a significant fauna habitat, nor is it necessary for the maintenance of a significant fauna habitat.	Not likely to be at variance	No further consideration required.
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 taxa have been recorded within the local area of a 20 kilometre radius from the application area. The vegetation of the application area is not likely to include Threatened flora taxa, nor is it necessary for the continued existence of Threatened flora.	Not likely to be at variance	No further consideration required.
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: No TECs endorsed by the Western Australian Minister for Environment have been mapped within 20 kilometres of the application area. The vegetation of the application area does not comprise the whole or a part of any TEC endorsed by the Western Australian Minister for Environment, nor is it necessary for the maintenance of any such TEC.	Not at variance	No further consideration required.
Environmental values: 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 application is mapped as vegetation association 540. Photography of the application area (Appendix D) aligns more closely vegetation association 9, with the native vegetation occurring over the application area an open woodland of *Eucalyptus spp.* over saltbush *(Atriplex spp*.) and bluebush *(Maireana spp.).* Vegetation association 9 (as well as vegetation association 540) retains over 97 per cent of its original vegetation cover (Appendix A3), consistent with the national objectives and targets for biodiversity conservation in Australia (Commonwealth of Australia 2001). Within the local area, approximately 96.1 per cent of the original extent remains. The application area is not significant as a remnant of native vegetation and is in within an area that has been extensively cleared.	Not at variance	No further consideration required.

Assessment against the Clearing Principles	Variance level	Is further consideration required?
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: There are no lands managed for conservation purposes or Environmentally Sensitive Areas (ESAs) in the vicinity of the application area with the closest lands managed by DBCA approximately 7.1 kilometres distant. The proposed clearing will not have an impact on the environmental values of any nearby conservation areas.	Not at variance	No further consideration required.
Environmental values: 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: There are no defined watercourses or wetlands within the application area, or within the immediate vicinity of the application area, with minor ephemeral drainage lines occurring approximately 290 metres to the north, 75 metres to the south, and 100 metres to the west (Figure 2). Proposed clearing will not impact riparian vegetation or hydrologic function. The vegetation under application is not growing in, or in association with, an environment associated with a watercourse or wetland.	Not likely to be at variance	No 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: The potential for acidification is low (DWER 2020) with a moderate risk of sub-surface compaction. Standard operational methodologies for the establishment of the laydown area will control any potential land degradation. Any impacts to surrounding landscapes, soils and drainage can also be managed through appropriate design. Based on the scale of proposed clearing and standard methodologies proposed, clearing is unlikely to cause appreciable land degradation. However, once the stated purpose of the laydown area has been completed the area may become subject to wind erosion and generate dust.	Not likely to be at variance	Further consideration required, see Section 3.2.2
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: There are no rivers or surface water areas in the vicinity of the application area. The application area is located within the Goldfields Groundwater Area proclaimed under the RIWI Act, and groundwater salinity is mapped at greater than 35,000 total dissolved salts (TDS) milligrams per litre (mg/L), that is, saline. The absence of waterbodies, watercourses or drainage lines within the application area, or within the immediate vicinity of the application area, and the shallow depth of clearing required indicates that the proposed clearing is unlikely to cause any deterioration in quality of surface or groundwater.	Not likely to be at variance	No further consideration required.
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: Flood risk is low with no floodplains or areas subject to flooding within 500 metres of the application area, with the Gribble Creek floodplain and inundation area approximately 700 metres to the north-east. Proposed clearing is not located within a mapped floodplain and there are no watercourses or drainage lines within the application area itself, or within the immediate vicinity of the proposed clearing. The application area is relatively small (0.96 hectares), and proposed clearing is unlikely to cause, or exacerbate, the incidence or intensity of flooding.	Not likely to be at variance	No further consideration required.

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.

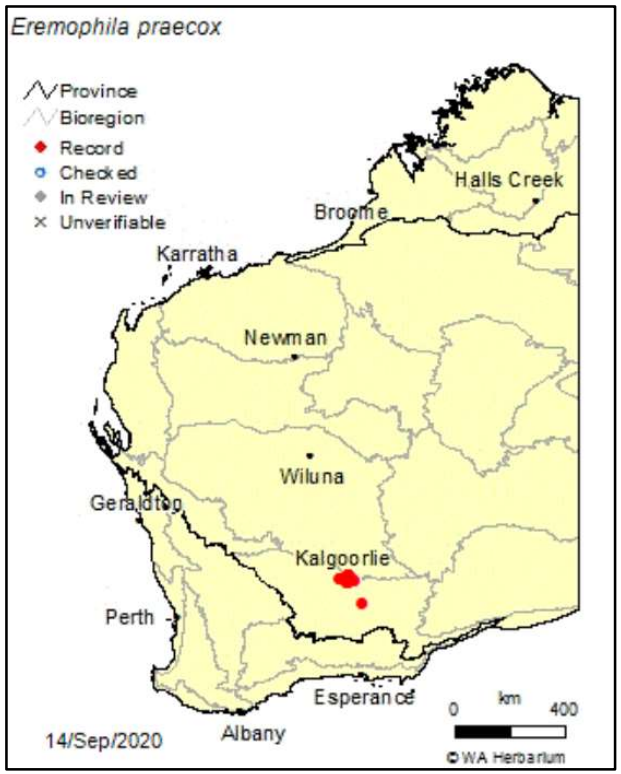
Measuring Vegetation Condition for the South West and Interzone Botanical Province (Keighery, 1994)

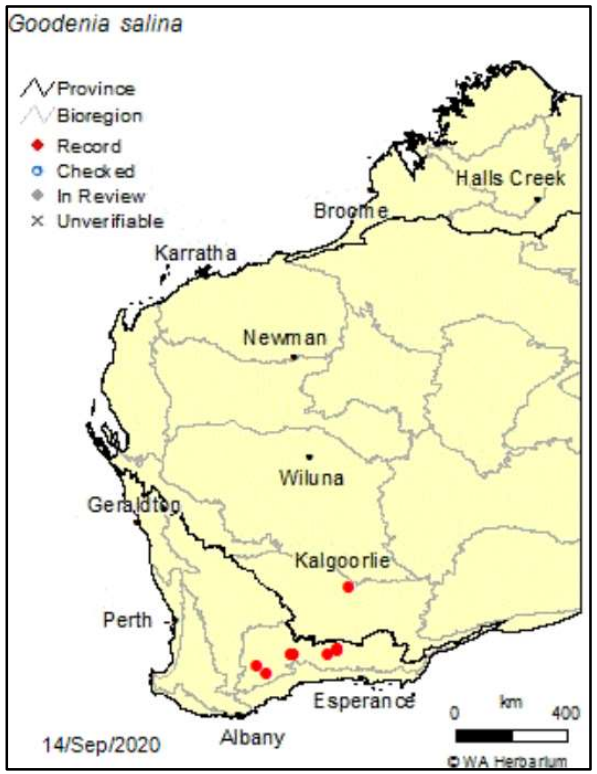
Condition	Description
Pristine	Pristine or nearly so, no obvious signs of disturbance.
Excellent	Vegetation structure intact, with disturbance affecting individual species; weeds are non-aggressive species.
Very Good	Vegetation structure altered, with obvious signs of disturbance. For example, disturbance to vegetation structure caused by repeated fires, the presence of some more aggressive weeds, dieback, logging and/or grazing.
Good	Vegetation structure significantly altered by very obvious signs of multiple disturbances. Retains basic vegetation structure or ability to regenerate it. For example, disturbance to vegetation structure caused by very frequent fires, the presence of some very aggressive weeds at high density, partial clearing, dieback and/or grazing.
Degraded	Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to a state approaching good condition without intensive management. For example, disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds, partial clearing, dieback and/or grazing.
Completely Degraded	The structure of the vegetation is no longer intact and the area is completely or almost completely without native species. These areas are often described as 'parkland cleared' with the flora comprising weed or crop species with isolated native trees or shrubs.

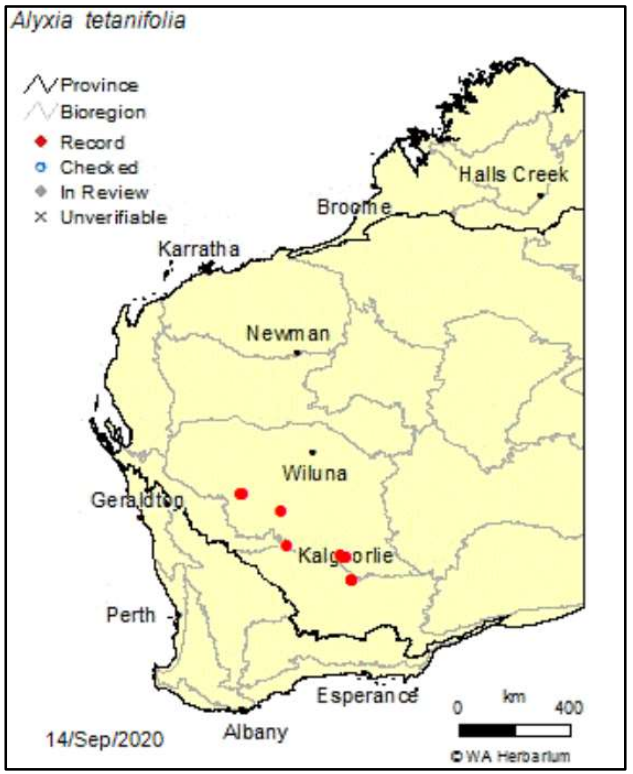
Appendix D – Photographs of the vegetation in the application area

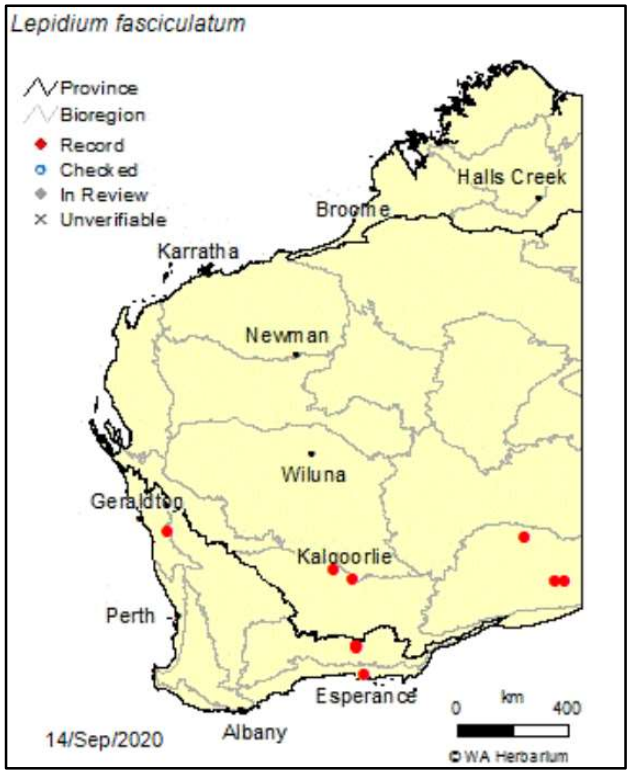
Representative photographs of the vegetation within the application area (City of Kalgoorlie-Boulder 2020a).

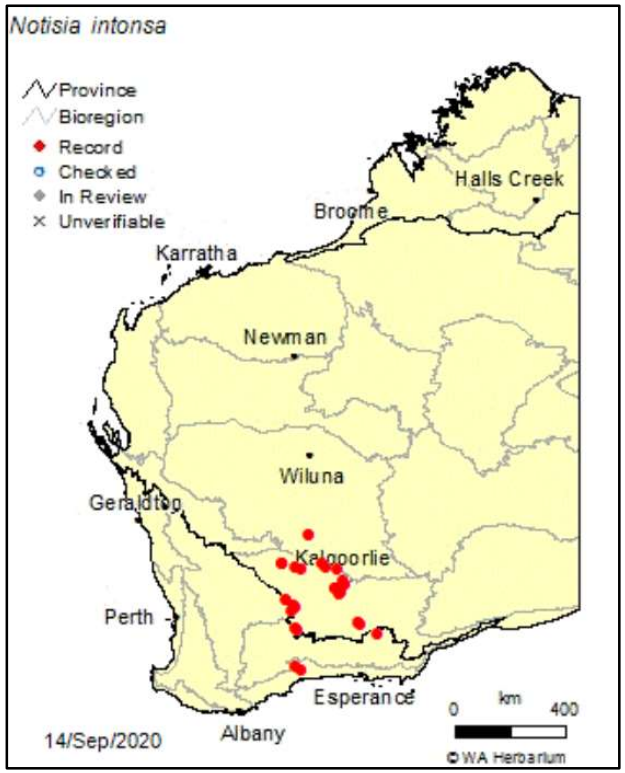
Appendix E – Distribution maps of Priority flora (WAH 1998-).








Lepidium fasciculatum
Province
Bioregion
Record
Checked
In Review
Unverifiable
Halls Creek
Broome
Karratha
Newman
Wiluna
Geraldton
Kalgoorlie
Perth
Esperance
Albany
0
km
400
14/Sep/2020
© WA Herbarium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Record
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In Review
Unverifiable
Halls Creek
Broome
Karratha
Newman
Wiluna
Geraldton
Kalgoorlie
Perth
Esperance
Albany
0
km
400
14/Sep/2020
© WA Herbarium

Appendix F – References and databases

1. References

Burbidge AA, McKenzie NL. (1989) Patterns in the modern decline of western Australia's vertebrate fauna: causes and conservation implications. Biological Conservation. 1989;50:143–198. doi: 1016/0006-3207(89)90009-8.

Bureau of Meteorology (BOM) (2020) Climate classification maps. Available from: http://www. bom.gov.au/ jsp/ ncc/climate_ averages/climate-classifications/index.jsp?maptype=kpn#maps

City of Kalgoorlie-Boulder (2020a) Supporting Information for clearing permit application CPS 8996/1. City of Kalgoorlie-Boulder. Received by DWER on 4 August 2020 (DWER Ref: A1934533; DWER Ref: A1928290).

City of Kalgoorlie-Boulder (2020b) City of Kalgoorlie-Boulder website - up-coming works & projects. Accessed September 2020. https://www.ckb.wa.gov.au/Services/Water-Services/Up-Coming-Works-and-Projects

Commonwealth of Australia (2001) National Objectives and Targets for Biodiversity Conservation 2001-2005, Canberra.

Commonwealth of Australia (2017) Revised draft referral guideline for three threatened black cockatoo species: Carnaby's Cockatoo, Baudin's Cockatoo and the Forest Red-tailed Black Cockatoo.

Cowan, M. (2001) A Biodiversity Audit of Western Australia's 53 Biogeographical Regions in 2001. Coolgardie 3 (COO3 – Eastern Goldfields subregion). Department of Conservation and Land Management. Perth. WA.

Department of Biodiversity, Conservation and Attractions (DBCA) (2018) Threatened and Priority Flora List 05. December, 2018. Perth, WA.

Department of Biodiversity, Conservation and Attractions DBCA (2020). Guideline for the survey of arid bronze azure butterfly (ABAB) in Western Australia. Version 1.0 September 2020.

Department of Primary Industries and Regional Development (DPIRD) (2017). *NRInfo Digital Mapping*. Accessed at https://maps.agric.wa.gov.au/nrm-info/ Accessed September 2020. Department of Primary Industries and Regional Development. Government of Western Australia.

Department of Water and Environmental Regulation (2019). *Native vegetation clearing permits Application, assessment, and management requirements under Part V Division 2 of the Environmental Protection Act 1986*. Department of Water and Environmental Regulation, Western Australia.

Department of Water and Environmental Regulation (DWER) (2014). *A guide to the assessment of applications to clear native vegetation Under Part V Division 2 of the Environmental Protection Act 1986*. Department of Water and Environmental Regulation, Western Australia.

Department of Water Environmental Regulation (DWER) (2020). Memorandum Advice Request – Clearing Permit Application Amendment 8996/1 Lot 221 on Deposited Plan 217615. From Science and Planning – Contaminated Sites to Native Vegetation Regulation. 21 September 2020. File No. DEC12933/1 (DWER Ref: A1936200).

Government of Western Australia. (2019). 2018 Statewide Vegetation Statistics incorporating the CAR Reserve Analysis (Full Report). Current as of March 2019. WA Department of Biodiversity, Conservation and Attractions. https://catalogue.data.wa.gov.au/dataset/dbca-statewide-vegetation-statistics

Keighery, B.J. (1994) *Bushland Plant Survey: A Guide to Plant Community Survey for the Community*. Wildflower Society of WA (Inc). Nedlands, Western Australia.

McKenzie, N.L., May J.E., and McKenna S. (2002) Bioregional Summary of the 2002 Biodiversity Audit for Western Australia. A contribution to the development of Western Australia's biodiversity conservation strategy. Department of Conservation and Land Management. Perth. WA. 2002.

Mawson, P. (2003) Translocations and fauna reconstruction sites: Western Shield Review - Conservation Science Western Australia. Vol 5. 2004/12/01. 108. February 2003.

Richards, G.C., Hall, L.S., and Parish, S. (photography) (2012). A natural history of Australian bats: Working the night shift. CSIRO Pub. pp. 40. 41, 159. ISBN 9780643103740

Shepherd, D.P., Beeston, G.R. and Hopkins, A.J.M. (2001) *Native Vegetation in Western Australia, Extent, Type and Status.* Resource Management Technical Report 249. Department of Agriculture, Western Australia.

Thackway, R and Cresswell, I.D. (eds) (1995) An interim biogeographical regionalisation of Australia. Australian Nature Conservation Agency (now Department of Environment and Energy), Canberra.

Western Australian Herbarium (WAH) (1998-). FloraBase - the Western Australian Flora. Department of Biodiversity, Conservation and Attractions. https://florabase.dpaw.wa.gov.au/ Accessed May 2018.

2. GIS datasets

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

- Aboriginal Heritage Places (DPLH-001)
- 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)
- IBRA Vegetation Statistics
- Local Planning Scheme – Zones and Reserves (DPLH-071)
- Regional Parks (DBCA-026)
- Soil and Landscape Mapping – Best Available (DPIRD 2018)

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
- Threatened Ecological Communities and Priority Ecological Communities (Buffers)