**Due Diligence Environmental Advice**
**Horizon Project**
**Our Ref: J367_Decisive IT**

## Site Details

| | |
|---|---|
| Project: | Horizon Project |
| Site Address: | 13 locations through the Mid-West/Pilbara Regions |
| Client: | Decisive IT |
| Prepared By: | Klara Allsopp |

## Executive Summary

An environmental due diligence assessment has been undertaken for all thirteen project sites based on reports, draft drawings and GPS locations provided. The sites are largely located in, or immediately adjacent to disturbed road reserves, with no impacts on known contaminated sites, or disturbance of bed or banks. Discussion with the WA Department of Water and Environment (DWER) suggest that the majority of sites should be referred under the clearing permit process, to provide confidence that clearing permits for these structures are not required.

Christmas Creek is located within an Environmentally Sensitive Area, and a clearing permit is required. Marble Bar Road is located in good condition riparian vegetation and will require a clearing permit further details about the approvals strategy are located in **Table 4**.

Capricorn may be riparian vegetation. Additional photos provided by the client were insufficient to reduce the permitting requirement. If more photos can be obtained, a survey may not be required.

A summary of environmental recommendations for Construction Environmental Management Plans have been provided in **Table 5.** A flora and vegetation survey for Capricorn has not been costed, under the assumption of additional photos.

## Project Scope

Thirteen sites (**Figure 1**) have been selected for the installation of modules to sustain the operation of new fibre Cable Vocus is installing as part of its Project Horizon. The approximate site location/ names are detailed in **Table 1**.

**Table 1: Project sites, reference names and locations**

| Location | Short_Nm | Latitude | Longitude |
|---|---|---|---|
| Mullewa | MULL | -28.539907 | 115.500670 |
| Cue | CUET | -27.423324 | 117.895308 |
| Nannine | NANN | -26.990470 | 118.222634 |
| Meekatharra | MEEK | -26.591978 | 118.492818 |
| Mooloogool | MOOL | -25.942660 | 118.807491 |
| Plutonic | PLUT | -25.364420 | 119.312736 |
| Kumarina | KUMR | -24.712206 | 119.607358 |
| Capricorn | CAPC | -24.036534 | 119.725378 |
| *Marble Bar Road | MABL | -22.776490 | 119.999256 |
| Christmas Creek | CRCK | -22.361660 | 119.584670 |
| Bea Bea Creek | BEBE | -21.887845 | 118.959712 |
| Wodgina Mine | WODM | -21.104309 | 118.727054 |
| Port Hedland | PHCT | -20.308482 | 118.614727 |

**orange highlight denotes site location not finalised*

The purpose of the proposed CEV is to accommodate the necessary IT equipment to service the fibre route.

The proposed works are for the earthworks including access track, site preparation, installation, and commissioning of a Controlled Environment Vault (CEV) building, complete with (in the case of a solar powered site), a battery hut and solar array, supported by a self -contained, emergency diesel powered generator set on its own separate footing.

The site will be completed with a full-scale galvanised security fence surrounding the buildings and equipment.

Construction of the development includes the placement of temporary site huts, delivery via semi-trailer and on site craneage into position of the CEV and the Emergency Generator.


**Figure 1: Project locations based on coordinates provided. Scale 1:5,000,000, ESPG:3857**

## Construction Methodology

The proponent has provided a draft high-level construction methodology, summarised in a Plan in **Plate 1**.

- Contractor's surveyor to mark out site boundaries.
- Locate any existing services both above and below ground.
- Mark out access pathway, length and width.
- Mark out for temporary site security fence to define the 'work area', in accordance with Construction Site Plan
- Clear the construction site of vegetation (clearing permit required)
- Establish temporary access roadway, worker parking area, set-down area, truck turning area, crane manoeuvring area.
- Place temporary crib shed, amenities, first aid. Tie Down
- Undertake bulk earthworks, cut / fill, grading, compaction, dust suppression.
    - Equipment in use:
        - excavator / back-hoe.
        - dozer
        - compactor
        - 8t tipper truck
- Excavate trenches for electrical, communications. Install earth rods and connections.
- Excavate for CEV footings, generator slab with block outs, and solar power pole footing (if required)
- Install conduits for all in ground services.
- Form, reinforce and place concrete for footings, pads, slabs.
- Place crane in position for CEV lift.
- Receive CEV module on articulated semi-trailer
- Crane CEV into position in accordance with crane study. Tie Down
- Place crane in position for Emergency Generator lift.
- Receive Emergency Generator module on articulated semi-trailer
- Crane Emergency Generator into position in accordance with crane study. Tie Down
- Undertake surface treatment of flat level site in accordance bulk excavation and civil engineering design drawings.
- Articulated semi-trailer to enter and exit site in a forward direction.
- Connect electrical and fibre services.
- Excavate for Security Fence footings.
- Form, reinforce, place concrete for fence uprights.
- Construct fence infills and security screening in accordance with approved fence plan.
- Install fence signage.
- Undertake commissioning procedures.
- Complete all building works and site cleanup.
- Remove temporary construction fencing from site.
- Remove all traffic management items.

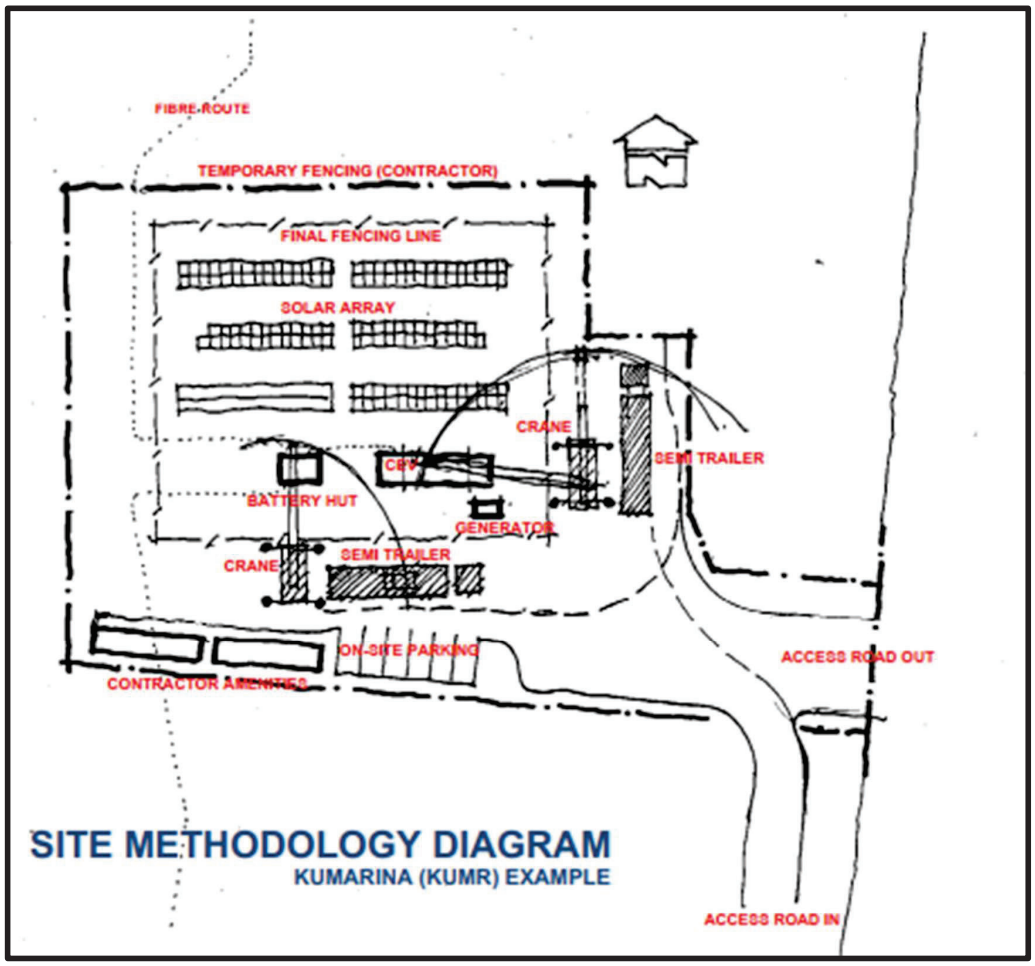



**Plate 1: Proposed site lay out and construction mobilisation plan**

## Environmental Approvals

### Commonwealth Environmental Protection and Biodiversity Conservation Act 1999 [EPBC Act 1999]

**The protected matters search tool was accessed on 8 April 2024 (Appendix 1).**

**Table 2 a-d: Summary of PMST Matters of National Environmental Significance [MNES] search results.**

| Matters of National Environmental Significance (MNES) | MULL | CUET | NANN | MEEK |
|---|---|---|---|---|
| World Heritage Properties | None | None | None | None |
| National Heritage Places: Wetlands of International Importance | None | None | None | None |
| Great Barrier Reef Marine Park | None | None | None | None |
| Commonwealth Marine Area | None | None | None | None |
| Listed Threatened Ecological Communities | 1 | None | None | None |
| Listed Threatened Species | 17 | 9 | 7 | 6 |
| Listed Migratory Species | 6 | 7 | 7 | 7 |

| Matters of National Environmental Significance (MNES) | MOOL | PLUT | KUMR |
|---|---|---|---|
| World Heritage Properties | None | None | None |
| National Heritage Places: Wetlands of International Importance | None | None | None |
| Great Barrier Reef Marine Park | None | None | None |
| Commonwealth Marine Area | None | None | None |
| Listed Threatened Ecological Communities | None | None | None |
| Listed Threatened Species | 6 | 5 | 7 |
| Listed Migratory Species | 7 | 6 | 6 |

| Matters of National Environmental Significance (MNES) | CAPC | MABL | CRCK |
|---|---|---|---|
| World Heritage Properties | None | None | None |
| National Heritage Places: Wetlands of International Importance | None | None | None |
| Great Barrier Reef Marine Park | None | None | None |
| Commonwealth Marine Area | None | None | None |
| Listed Threatened Ecological Communities | None | None | None |
| Listed Threatened Species | 12 | 12 | 13 |
| Listed Migratory Species | 7 | 9 | 9 |

| Matters of National Environmental Significance (MNES) | BEBE | WODM | PHTC |
|---|---|---|---|
| World Heritage Properties | None | None | None |
| National Heritage Places: Wetlands of International Importance | None | None | None |
| Great Barrier Reef Marine Park | None | None | None |
| Commonwealth Marine Area | None | None | None |
| Listed Threatened Ecological Communities | None | None | None |
| Listed Threatened Species | 12 | 12 | 39 |
| Listed Migratory Species | 9 | 10 | 56 |

## Matters of National Environmental Significance

For the purposes of this assessment all aquatic dwelling fauna has been excluded from consideration and no works will be undertaken in this habitat type.

A number of sites are located in or in close proximity to Matters of National Environmental Significance listed under the *EPBC Act 1999*.

Assessment of the potential likelihood and degree of impact against Threatened and Priority Flora and Fauna (under the EPBC Act 1999) have been included in **Appendix 2**. The scale and long-term impact of the works at each site is unlikely to have a significant impact on any of the identified species, however vegetation clearing and fauna movement around the sites should be managed through the development of a Construction Environmental Management Plan (CEMP).

*Mullewa: Eucalypt Woodlands of the Western Australian Wheatbelt Threatened Ecological Community*

The proposed works will require clearing a 4.8m x ~24m access track and 14.8 m x 17 m area for foundation and infrastructure. Reviewing aerial data and photos of the existing vegetation at the proposed site, the vegetation is mallee shrubland (**Plate 2**) and does not have the distinctive upper storey of Eucalyptus trees that is a defining feature of the TEC in the Conservation advice (DoE, 2015). Specifically, the Conservation advice notes that, "Many other eucalypt species may be present in association with the key species…In some instances, these associated species may occur as a lower subcanopy, particularly in the case of mallees. A mallee subcanopy may comprise one or more species…*Where the associated species occur individually or collectively as the dominant or co-dominant species, then this represents a different vegetation type to the WA Wheatbelt Woodlands ecological community. For instance a dominant cover of mallee species is properly regarded as a separate mallee woodland*." (DoE, 2015)


**Plate 2: Vegetation in the proposed clearing area. Low mallee scrubland with no evidence of the upper storey Eucalyptus species that typifies the TEC.**

Based on this analysis, the works will not have a significant impact on any matters of National Environmental Significance, and where impacts exist, they can be managed through standard best practice in a CEMP. There is no requirement to refer this project under the Cwth *EPBC Act 1999*.

## WA EP Act 1986 – Part IV, s38

Referral under s38 is only required if the impact of the works will significantly affect matters not managed under Part V of the WA *EP Act 1986*.

The proposed works are small scale with localised impacts that are unlikely to have significant impacts on the environment beyond some small-scale clearing in generally degraded to completely degraded vegetation adjacent to existing development and infrastructure.

## WA Biodiversity Conservation Act 2016

Proximity maps of each proposed development location are included in **Appendix 3**. For the purposes of this assessment all aquatic dwelling fauna has been excluded from consideration and no works will be undertaken in this habitat type. A summary of unattributed proximity searches is provided in the **Table 3**.

**Table 3: Review of proximity to State priority listed flora, fauna and ecological communities**

| Location | *Priority Flora | *Priority Fauna | TEC/PEC | Risk | Comments |
|---|---|---|---|---|---|
| MULL | P3<br>>1km SE | Migratory<br>>1.2 km NE | TEC<br>>15 km SE | Negligible | |
| CUET | P4<br>>200m S | Vulnerable<br>>1.4 km SSE | PEC<br>Intersects | Negligible | Works are being undertaken in town on existing hardstand. |
| NANN | P3<br>>20 km NE | P4<br>>3 km SW | PEC<br>>3 km W | Negligible | Surrounding area, excluding the road corridor is unmanaged R 7053 Type 3 |
| MEEK | P1<br>>2.3 km W | Specially Protected<br>>600 m NNE | PEC<br>>7 km NW | Negligible | Surrounding area, excluding the road corridor is unmanaged R 15815 Type 3 |
| MOOL | P4<br>>9 km W | Specially Protected<br>>9 km NE | PEC<br>>15 km SW | Negligible | Surrounding area, excluding the road corridor, is unmanaged R 15111 DPLH vested with Shire |

| Location | *Priority Flora | *Priority Fauna | TEC/PEC | Risk | Comments |
|---|---|---|---|---|---|
| PLUT | P4<br>>11 km W | Specially Protected<br>>16 km N | PEC<br>>13 km NW | Negligible | |
| KUMR | P1<br>>5 km W | Specially Protected<br>>14 km SW | PEC<br>>5 km S | Negligible | Surrounding area, excluding the road corridor, managed R 9700 DPLH vested with Shire – De Grey Peak Hill Stock Route |
| CAPC | P1<br>>24 km SSW | Migratory<br>>20 km N | PEC<br>>74 km S | Negligible | Riparian vegetation |
| MABL | P1<br>>7 km NE | Vulnerable<br>>9 km NW | PEC<br>>16 km NW | Negligible | Riparian vegetation |
| CRCK | P1<br>>13 km W | Specially Protected<br>>2 km SE | PEC, Intersects | Moderate | Located within a gazetted Environmentally Sensitive Area<br>Riparian vegetation |
| BEBE | P3<br>>29 km NE | Priority<br>>800 m N | PEC<br>>11 km SW | Low | Surrounding area, excluding the road corridor, is R 24122 Agricultural research Station, Reserve Class C |
| WODM | P3<br>>7 km W | Priority<br>>2.5 km SSE | PEC<br>>15km W | Negligible | |
| PHTC | P3<br>>10 km SW | Threatened<br>Intersects | PEC<br>>60 km S | Negligible | Works are being undertaken in town on developed land.<br>R 53212, Historical vesting on and around the site. |

**Proximity of the closest geolocated point to the site, does not exclude other recordings within 10 km of the project area*.

## WA EP Act 1986 – Part V – Clearing Permit

Each site has been assessed based on aerial photography, street view where available and documentation provided by Decisive IT. Clearing approval requirements have been provided site-by-site in the Table 4. Advice was obtained from the Department of Water and Environmental Regulation regarding the application of exemptions. The solar array structures do not meet the definitions of 'building' and 'structures' under Regulation 5, Item 1. Note that the clearing referral process allows the Department to review the proposed impact and chose not to assess the works further; this is likely to be the outcome for NANN, MOOL, PLUT, KUMR, BEBE and WODM.

**Table 4: Assessment of clearing approval requirements**

| Location | Clearing Approval | Notes |
|---|---|---|
| Mullewa | Exempt<br>Regulation 5, Item 1 | Clearing will be required for structure and access. Condition of vegetation appears '*Good*' to '*Very Degraded*' near the road.<br>Risk can be managed through a CEMP. |
| Cue | Not Required | Clearing not required. Works are on existing hardstand. |
| Nannine | Part V Clearing Referral Required | Clearing area < 2,000 $m^2$ required for structures and access track.<br>Condition of vegetation appears '*Degraded*', there are *completely degraded* areas that can be utilised for lay-down.<br>Risk can be managed through a CEMP. |
| Meekatharra | Exempt<br>Regulation 5, Item 1 | Clearing of an area < 700 $m^2$ will be required for structures and access tracks. Vegetation condition appears '*Degraded*'' with high weed load.<br>Risk can be managed through a CEMP. |

| Location | Clearing Approval | Notes |
|---|---|---|
| Mooloogool | Part V Clearing Referral Required | Clearing of < 2,000 $m^2$ will be required for the structures and access track.<br>Condition of vegetation looks 'Degraded'.to '*Completely Degraded*'' in sections.<br>Risk can be managed through a CEMP. |
| Plutonic | Part V Clearing Referral Required | Clearing of <2,000 $m^2$ will be required for structures and the access track.<br>Condition of vegetation looks '*Good*' to '*Degraded*.'<br>Risk can be managed through a CEMP. |
| Kumarina | Part V Clearing Referral Required | Clearing of <2,000 $m^2$ will be required for structures and the access track.<br>Condition of vegetation looks '*Good* to '*very degraded*.<br>Risk can be managed through a CEMP. |
| Capricorn | Part V Clearing Referral Required | Clearing of <3,000 $m^2$ will be required for structures and the access track. Vegetation is located in close proximity and would be considered riparian in nature. Riparian vegetation is not exempt from a clearing permit under Part V.<br>Condition of vegetation looks '*Good*' to '*Degraded*'.'<br>Detailed plans with construction footprint, final development footprint, lay-down and other temporary clearing areas will need to be provided as part of this.<br>Consider moving this site out of riparian zone. |
| Marble Bar Road | Part V Clearing Permit | Clearing of <2,000 $m^2$ will be required for structures and the access track. Proposed works are located within extensive floodplains and the vegetation would likely be considered riparian in nature. Riparian vegetation is not exempt from a clearing permit under Part V.<br>Condition of vegetation looks '*Very good*' to '*Good*'.' Detailed plans with construction footprint, final development footprint, lay-down and other temporary clearing areas will need to be provided as part of this.<br>Consider moving this site out of the riparian zone. |
| Christmas Creek | Part V Clearing Permit | Clearing of <2,000 $m^2$ will be required for structures, no access track was indicated on the plans provided.<br>Proposed works are located within an Environmentally Sensitive Area, and appears to be riparian in nature, this site is not exempt from obtaining a Part V Clearing Permit.<br>Condition of vegetation cannot be determined as the access road is mine access to Cloudbreak. |
| Bea Bea Creek | Part V Clearing Referral Required | Clearing of <2,000 $m^2$ will be required for structures, no access track was indicated on the plans provided.<br>Condition and nature of the vegetation could not be confirmed from the aerial information available. Vegetation is described as Hummock grassland with scattered shrubs or mallee *Triodia spp. Acacia spp., Grevillea spp. Eucalyptus spp* (DPIRD-006). Aerial imagery shows significant development in the area. It is likely the minimal clearing required will be exempt.<br>Risk can be managed through a CEMP. |
| Wodgina Mine | Part V Clearing Referral Required | Clearing of <2,000 $m^2$ will be required for structures, no access track was indicated on the plans provided.<br>Condition and nature of the vegetation could not be confirmed from the aerial information available. Vegetation is described as Hummock |

| Location | Clearing Approval | Notes |
|---|---|---|
| | | grassland with scattered shrubs or mallee *Triodia spp. Acacia spp., Grevillea spp. Eucalyptus spp* (DPIRD-006). Aerial imagery shows significant development in the area. It is likely the minimal clearing required will be exempt.<br>Risk can be managed through a CEMP. |
| Port Hedland | Local Government Approval may be required | The project location is within an existing developed site. A small amount of vegetation is located on road site of the site, that is remnant trees planted sometime between 19064 and 1995. The Local Government Authority may have requirements around offsets for tree removal. Any vegetation clearing required for site access would likely be exempt under State Legislation, but may require Local Approval. |

## WA EP Act 1986 – Part V – Licenced Premises

The proposed works are not categorised as a licensed premises under the WA *EP Act 1986.* A Works Approval application is not required.

## Permit to Disturb Bed and Banks [RiWi 1914, PDWSA and CAWS Catchments]

Proposed works are not disturbing the bed or banks of any *RiWi 1914* protected waterways. Approval is not required.

The proposed works are not located within any identified PDWSA areas or CAWS Catchments. Approval is not required.

## Licence to Take Water (Dewatering)

Trenching for conduits is estimated at 700 mm bgl. If dewatering is required at locations close or adjacent to waterways and drainage lines A License to Take ('*dewatering license*') will be required.

Geotechnical investigations of the sites will determine if the water table is encountered above 700 mm bgl. Key sites where encountering groundwater is possible would be: Capricorn, Marble Bar Road, Christmas Creek, Bea Bea Creek and Wodgina Mine.

## WA Contaminated Sites 2003

No known contaminated sites were identified from publicly available datasets ((DWER-059). Potential contamination risk can be managed through an *Unexpected Finds* Management Plan in the Construction Environmental Management Plan.

If there is concern regarding contamination at any particular site, a Contaminated Sites Form 2 enquiry can be submitted to the Contaminated Sites branch at the Department of Water and Environmental Regulation.

## Acid Sulfate Soils (ASS)

Proposed excavations are not more than 700 mbgl, its is unlikely that ASS will be encountered at these depths at most sites. Locations associated with wetlands and drainage are at a higher risk of encountering ASS within 3mbgl which includes; Capricorn, Marble Bar Road, Christmas Creek, Bea Bea Creek and Wodgina Mine. Geotechnical investigations would identify any potentially acid soils.

### Other Matters

Above ground storage of fuel located on the Port Hedland, should be stored with reference to Department of Mines, Industry Regulation and Safety, 2019, Dangerous Goods Safety (Storage and Handling of Non-explosives) Regulations 2007: Department of Mines, Industry Regulation and Safety, Western Australia, 59 pp.

As this is outside the scope of ordinary environmental assessment, we recommend that you liaise with the Department of Mines, Industry Regulation and Safety.

## Risk Summary

Overall, the works have been given an Environmental Complexity Rating of Medium/ Low based on:

- Clearing Approvals required
- Potential ASS at some sites
- Fauna egress/access to site

An environmental risk assessment has been completed for these works and is documented in summary of the environmental risks that require specific controls to be in place is shown in **Table 5.**

**Table 5 Summary of Environmental Risks and Suggested Mitigation Actions.**

| Risk | Activity | Risk | Mitigation |
|---|---|---|---|
| Fauna death or injury | Direct interaction by mobile plant or vehicles | Low | - If a distressed or injured animal is encountered the Site Supervisor will contact a suitably qualified fauna handler or the Wildcare helpline on (08) 9474 9055.<br>- Trenches and excavations should be checked in the morning prior to commencing activities and trapped fauna extracted by a licenced fauna handler.<br>- Where possible any stockpiled debris should be removed before night to prevent fauna from roosting in the debris. |
| Unauthorised Clearing | Clearing, rolling, pruning or damage to native vegetation not authorised by this clearing permit. | Med | - Clearing cannot commence at sites without required State approvals.<br>- Where clearing is permitted under exemption, the contract should demarcate areas of vegetation to be retained using flagging tape.<br>- No debris or cut/fill material will be stockpiled in the vicinity of native vegetation to be retained.<br>- Clearing should be managed in accordance with any approval conditions and a CEMP. |
| Wind / Air dispersal (e.g. noise, dust) | Plant and vehicle movements, desilting of assets.<br>Clearing activities<br>Desilting/ excavation in drier periods | Low | - Works will be carried out in accordance with environmental noise practices set out in Section 4 of AS 2436-2010 '*Guide to Noise and Vibration control on construction, maintenance and demolition sites.*'<br>- All works will be undertaken in accordance with the Local Government Authority Noise ordinance.<br>- Weather conditions at the nearest Bureau of Meteorology monitoring site will be monitored and standard dust suppression measures implemented as required. |
| Spills causing water and soil contamination | Plant equipment and vehicle storage and movements | Med | - Plant and equipment will be inspected daily for leaks and spills.<br>- A spill kit will be available at all times onsite during works.<br>- Plant and equipment will be stored on hardstand overnight. |
| Soil and water contamination | Disturbance of Potential or | Med | - Excavation depths are not more than 700mm bgl, it is unlikely that ASS will be encountered |

| Risk | Activity | Risk | Mitigation |
|---|---|---|---|
| | Actual acid sulphate soils | | - All project activities will be undertaken in accordance with the approved ASSMP.<br>- Geotechnical investigations will identify if ASS are encountered and a ASSMP is required. |
| Soil and water contamination | Above ground fuel storage at Port Hedland site | | - Client should seek advice from the relevant regulatory authority on the correct storage and clearances for above ground fuel storage tanks, Department of Mines, Industry Regulation and Safety.<br>- Appropriate impermeable bunding, to mange overflow and potential spills must be installed to Australian Standards.<br>- Appropriate operational monitoring and maintenance schedules should be implemented in an Operational Environmental Management Plan. |
| Spread of soil pathogens and weeds | Introduction or spread of soil pathogens and declared weeds. | Low | - The site is highly modified and degraded to completely degraded. Standard management processes will be implemented. All plant and equipment will be inspected and cleaned prior to site entry. |
| Dewatering | Drawdown impacts on surrounding vegetation | Med | - Based on current information, dewatering requirements are not known. Geotechnical investigations will identify if ground water is encountered at any location.<br>- If dewatering is required, a Dweatering management plan and application for a License to Take Water will be required. |
| Inappropriate waste management | Incorrect storage and/or disposal of waste resulting in contamination or amenity impacts | Med | - Contractor will dispose of all waste, and retain records of disposal.<br>- The site will be tidied, waste removed and the site reinstated at the completion of works. |

## Deliverables & Actions

The following deliverables have been identified as being required for this scope of work.

**Table 6: Approvals and Deliverables Schedule.**

| Action | Timing | Comment |
|---|---|---|
| Reconnaissance Flora and vegetation survey | Surveys for Eremaen Province should occur 6-8 weeks post west season (March-June)<br>*Subject to sub-consultant advice and availability*<br>8-10 weeks from award.<br>Sub-consultant $28,000 (excl GST)<br>RFF - $7,200 (excl GST) | Marble Bar Road and Christmas Creek<br>Suitably qualified botanist to be engaged for the works, their time and cost has been estimated.<br>*Note: Capricorn may require a survey if additional photos of vegetation cannot be provided.* |
| Part V Clearing Permits: Low risk sites | Submission will occur progressively, all by end of June 2024<br>RFF - $26,540 (excl GST) | NANN, MOOL, PLUT, KUMR, BEBE and WODM<br>Approvals obtained by September 2024 |

| Action | Timing | Comment |
|---|---|---|
| Part V Clearing Permits: Medium risk sites | *Submission will be dependant on field surveys and reporting, subject to sub-consultant availability and submitted progressively as completed.*<br>Target – all submitted by end of August 2024<br>RFF - $16,100 (excl GST) | Capricorn, Marble Bar Road and Christmas Creek<br>Approvals obtained by October 2024 |
| Geotechnical Investigations | To confirm presence/absence of groundwater and ASS. Subject to provision of reports by client.<br>RFF - $600 | To be organised by Principal, report to be provided for review. |
| Total | $79,040 (excl GST) | |

## Supporting Documentation

- MULLEWA CEV M15V Type 3.0_CD01 (1) Greg McKenzie
- CUE CEV M15V Type 3.1_CD01 (1) Greg McKenzie
- NANNINE CEV S5V Type 1.0_CD01 (1) Greg McKenzie
- MEEKATHARRA CEV M15V Type 3.0 _CD01 (1) Greg McKenzie
- MOOLOOGOOL CEV S5V Type 1.0 _CD01 Greg McKenzie
- PLUTONIC CEV S5V Type 1.0_CD01 Greg McKenzie
- KUMARINA CEV S5V Type 1.0_CD01 Greg McKenzie
- CAPC_S5V_Type 1.0_0001_ED04 (1) Greg McKenzie
- MARBLE_S5V_Type 1.0_0001_ED03 Greg McKenzie
- CRCK_S5V_Type 1.0_0001_ED01 Greg McKenzie
- BEBE_S5V_Type 1.0_0001_ED01 Greg McKenzie
- WODM_S5V_Type 1.0_0001_ED01 Greg McKenzie
- Email dated 09/04/2024 - PHCT_Client Advice About site_20240410

## Change Management

This assessment and the materials and methodology within are based on the reports and information provided by the Client. The following changes to locations, materials and methods would not invalidate this assessment:

- Changes to the materials that do not result in additional or different environmental impacts.
- Minor changes to method that do not result in lessened environmental monitoring and/or additional or different environmental impacts.

Changes to the locations, materials or methods that may result in reduced monitoring and/or cause as significant environmental impact should have their risk assessment reviewed through an adaptive management process.

All activities should be undertaken in compliance with legislation and regulations, including but not limited to those located in **Table 7** below.

**Table 7 – Register of Legal or Other Requirements.**

| Register of Legal and Other Requirements |
|---|
| Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) |

Due Diligence Environmental Advice
Horizon Project
Decisive IT

| Register of Legal and Other Requirements |
| --- |
| Environment Protection and Biodiversity Conservation Regulations 2000 (Cth) |
| Matters of National Environmental Significance – Significant Impact Guidelines 2013 (Cth) |
| Waterways Conservation Act 1976 (WA) |
| Waste Avoidance and Resource Recovery Act 2007 (WA) |
| Waste Avoidance and Resource Recovery Regulations 2008 (WA) |
| Soil and Land Conservation Act 1945 (WA) |
| Soil and Land Conservation Regulations 1992 (WA) |
| Environmental Protection Act 1986 (WA) (EP Act 1986) |
| Environmental Protection Regulations 1987 (WA) |
| Environmental Protection (Environmentally Sensitive Areas) Notice 2005 (WA) |
| Environmental Protection (Clearing of Native Vegetation) Regulations 2004 (WA) |
| Environmental Protection (Noise) Regulations 1997 (WA) |
| Environmental Protection (Unauthorised Discharges) Regulation 2004 (WA) |
| Conservation and Land Management Act 1984 (WA) |
| Conservation and Land Management Regulations 1992 (WA) |
| Contaminated Sites Act 2003 (WA) |
| Biodiversity Conservation Act 2016 (WA) |
| Biodiversity Conservation Regulations 2018 (WA) |
| Biosecurity and Agriculture Management Act 2007 (WA) |
| Bush Fires Act 1954 (WA) |

## References

Department of Environment (2013) *Matters of National Environmental Significance- Significant Impact Guidelines 1.1: Environmental Protection and Biodiversity Conservation Act 1999*. [Online 2020] https://www.environment.gov.au/epbc/publications/significant-impact-guidelines-11-matters-national-environmental-significance

Department of Environment Regulation (2014). *A Guide to the Assessment of Application to Clear Native Vegetation; under Part V Division 2 of the Environmental Protection Act 1986*. Department of Environment Regulation, December 2014

Department of Parks and Wildlife (2017). Priority ecological communities for Western Australia Version 27, 30 June 2017. Department of Parks and Wildlife, WA. https://www.dpaw.wa.gov.au/images/documents/plants-animals/threatened-species/Listings/priority_ecological_communities_list.pdf

Department of the Environment and Energy (2016) *Australia's 15 National Biodiversity Hotspots. Department of the Environment and Energy* https://www.environment.gov.au/biodiversity/conservation/hotspots/national-biodiversity-hotspots

Environmental Protection Authority (2020). *Technical Guidance – Terrestrial vertebrate fauna surveys for environmental impact assessment*, EPA, Western Australia.

Environmental Protection Authority and Department of Parks and Wildlife (2015). *Technical Guide – Terrestrial Flora and Vegetation Surveys for Environmental Impact Assessment* (eds. K Freeman, G Stack, S Thomas and N Woolfrey). Perth, Western Australia.

## Spatial References

Acid Sulfate Soil Risk Map, Swan Coastal Plain (DWER-055), https://catalogue.data.wa.gov.au/dataset/acid-sulphate-soil-risk-map-swan-coastal-plain-dwer-055

Cadastre (Polygon) (LGATE-217), https://catalogue.data.wa.gov.au/dataset/cadastre-polygon

Department of Biodiversity Conservation and Attractions, *Black Cockatoo Breeding Sites – Buffered* (DBCA-063), https://catalogue.data.wa.gov.au/dataset/black-cockatoo-breeding-sites-buffered. Last updated 07/08/2019.

Department of Biodiversity Conservation and Attractions, *Black Cockatoos Roosting Sites – Buffered* (DBCA-064), https://catalogue.data.wa.gov.au/dataset/black-cockatoo-roosting-sites-buffered. Last updated 07/08/2019.

Department of Biodiversity Conservation and Attractions, Carnaby's Cockatoo Confirmed Roost Sites Buffered 6km (DBCA-052), https://catalogue.data.wa.gov.au/dataset/carnabys-cockatoo-confirmed-roost-sites-buffered. Last updated 26/11/2018.

Department of Biodiversity Conservation and Attractions, Carnaby's Cockatoo Confirmed Roost Sites (DBCA-050), https://catalogue.data.wa.gov.au/dataset/carnabys-cockatoo-confirmed-roost-sites. Last updated 23/11/2018.

Department of Biodiversity Conservation and Attractions, DBCA - Lands of Interest (DBCA-012), https://catalogue.data.wa.gov.au/dataset/dbca-lands-of-interest. Last updated 11/09/2020.

Department of Biodiversity Conservation and Attractions, DBCA - Legislated Lands and Waters (DBCA-011), https://catalogue.data.wa.gov.au/dataset/dbca-legislated-lands-and-waters. Last updated 16/09/2020.

Department of Biodiversity Conservation and Attractions, Directory of Important Wetlands in Australia – Western Australia (DBCA-045), https://catalogue.data.wa.gov.au/dataset/directory-of-important-wetlands-in-western-australia. Last updated 27/04/2018.

Department of Biodiversity Conservation and Attractions, EPA Redbook Recommended Conservation Reserves 1976-1991 (DBCA-029), https://catalogue.data.wa.gov.au/dataset/epa-redbook-recommended-conservation-reserves-1976-1991. Last updated 02/10/2017.

Department of Biodiversity Conservation and Attractions, Ramsar Sites (DBCA-010), https://catalogue.data.wa.gov.au/dataset/ramsar-sites. Last updated 13/09/2017.

Department of Biodiversity Conservation and Attractions, Threatened Ecological Communities (DBCA-038), https://catalogue.data.wa.gov.au/dataset/threatened-ecological-communities. Last updated 05/05/2020.

Department of Biodiversity Conservation and Attractions, Threatened and Priority Fauna (DBCA-037), https://catalogue.data.wa.gov.au/dataset/threatened-and-priority-fauna. Last updated 11/05/2020.

Department of Biodiversity Conservation and Attractions, Threatened and Priority Flora (DBCA-036), https://catalogue.data.wa.gov.au/dataset/threatened-and-priority-flora. Last updated 10/09/2020.

Department of Biodiversity Conservation and Attractions, Regional Parks (DBCA-026), https://catalogue.data.wa.gov.au/dataset/regional-parks. Last updated 02/10/2017.

Department of the Environment (1998) Australia - Species of National Environmental Significance Database. Bioregional Assessment Source Dataset, http://data.bioregionalassessments.gov.au/dataset/4eff885b-0d68-45e8-b4b1-e3e5448354eb. Last updated 20/11/2019.

Department of the Environment (2015). Species Profile and Threats Database, Department of the Environment, Canberra. Threatened Species and Ecological Communities of National Environmental Significance. https://data.gov.au/data/dataset/threatened-species-state-lists

Department of Primary Industries and Regional Development. Native Vegetation Extent (DPIRD-005), https://catalogue.data.wa.gov.au/dataset/native-vegetation-extent. Last updated 13-05-2020

Department of Primary Industries and Regional Development. Pre-European Vegetation (DPIRD-006), https://catalogue.data.wa.gov.au/dataset/pre-european-dpird-006. Last updated 23/07/2019.

Department of Primary Industries and Regional Development. Soil Groups, Schoknecht and Pathan, 2013 (DPRID-079). https://catalogue.data.wa.gov.au/dataset/dominant-soil-groups-second-highest-probability. Last updated 19/10/2019.

Department of Primary Industries and Regional Development. Soil Systems [or Level 3 on ASRIS] (DPIRD-064) https://catalogue.data.wa.gov.au/dataset/soil-landscape-mapping-systems. Last updated 19/06/2018.

Department of Primary Industries and Regional Development. Soil Zones [or Level 2 on ASRIS] (DPRID-076) https://catalogue.data.wa.gov.au/dataset/soil-landscape-mapping-western-australia-attributed-by-wa-soil-group. Last updated 29/08/2019.

Department of Primary Industries and Regional Development. Soil landscape land quality - Phosphorus Export Risk (DPIRD-010), https://catalogue.data.wa.gov.au/dataset/soil-landscape-land-quality-phosphorus-export-risk. Last updated 29/07/2019.

Department of Water and Environmental Regulation. Acid Sulfate Soil Risk Map 50K (DWER-049), https://catalogue.data.wa.gov.au/dataset/acid-sulfate-soil-risk-map-50k-dwer-049. Last updated 19/12/2017.

Department of Water and Environmental Regulation. Acid Sulfate Soil Risk Map 100K (DWER-048), https://catalogue.data.wa.gov.au/dataset/acid-sulfate-soil-risk-map-100k-dwer-048. Last updated 19/12/2017.

Department of Water and Environmental Regulation. Acid Sulphate Soil Risk Map, Albany-Torbay (DWER-054), https://catalogue.data.wa.gov.au/dataset/acid-sulphate-soil-risk-map-albany-torbay-dwer-054. Last updated 19/12/2017.

Department of Water and Environmental Regulation. Acid Sulfate Soil Risk Map, Estuaries (DWER-050), https://catalogue.data.wa.gov.au/dataset/acid-sulfate-soil-risk-map-estuaries-dwer-050. Last updated 19/12/2017.

Department of Water and Environmental Regulation. Acid Sulfate Soil Risk Map, Geraldton (DWER-051), https://catalogue.data.wa.gov.au/dataset/acid-sulfate-soil-risk-map-geraldton-dwer-051. Last updated 19/12/2017.

Department of Water and Environmental Regulation. Acid Sulfate Soil Risk Map, Pilbara Coastline (DWER-053), https://catalogue.data.wa.gov.au/dataset/acid-sulfate-soil-risk-map-pilbara-coastline-dwer-053. Last updated 22/09/2014.

Department of Water and Environmental Regulation. CAWSA Part 2A Clearing Control Catchments (DWER-004), https://catalogue.data.wa.gov.au/dataset/cawsa-part-2a-clearing-control-catchments. Last Updated 18/06/2018.

Department of Water and Environmental Regulation. Clearing Regulations – Environmentally Sensitive Areas (DWER-046), https://catalogue.data.wa.gov.au/dataset/clearing-regulations-environmentally-sensitive-areas-dwer-046. Last updated 11/09/2020.

Department of Water and Environmental Regulation. Contaminated Sites Database (DWER-059), https://catalogue.data.wa.gov.au/dataset/contaminated-reported-sites-dwer-059. Last updated 25/10/2020.

Department of Water and Environmental Regulation. FPM 1 in 100 (1%) AEP Floodplain Development Control Area (DWER-003), https://catalogue.data.wa.gov.au/dataset/fpm-floodplain-development-strategy. Last updated 21/04/2020.

Department of Water and Environmental Regulation. FPM 1 in 100 (1%) AEP Floodway and Flood Fringe Area (DWER-014), https://catalogue.data.wa.gov.au/dataset/fpm-100-year-ari-floodway-and-flood-fringe-areas. Last updated 23/04/2020.

Department of Water and Environmental Regulation. FPM 1 in 100 (1%) AEP Floodway and Flood Fringe Line (DWER-015), https://catalogue.data.wa.gov.au/dataset/fpm-100-year-ari-floodway-and-flood-fringe-line-dow-043. Last updated 23/04/2020.

Department of Water and Environmental Regulation. FPM Bridges (DWER-016), https://catalogue.data.wa.gov.au/dataset/fpm-bridges. Last updated 20/04/2020.

Department of Water and Environmental Regulation. FPM Extent of Flooding (DWER-017), https://catalogue.data.wa.gov.au/dataset/fpm-extent-of-flooding. Last updated 20/04/2020.

Department of Water and Environmental Regulation. FPM Flood Level Contours (m AHD) (DWER-018), https://catalogue.data.wa.gov.au/dataset/fpm-flood-level-contours. Last updated 20/04/2020.

Department of Water and Environmental Regulation. FPM Floodplain Area (DWER-020), https://catalogue.data.wa.gov.au/dataset/fpm-floodplain-area. Last updated 20/04/2020.

Department of Water and Environmental Regulation. FPM Levee Banks (DWER-021), https://catalogue.data.wa.gov.au/dataset/fpm-levee-banks. Last updated 04/10/2018.

Department of Water and Environmental Regulation. Groundwater Salinity Statewide (DWER-026). https://catalogue.data.wa.gov.au/dataset/groundwater-salinity-statewide. Last Updated 19/06/2018.

Department of Water and Environmental Regulation. Hydrographic Catchments - Basins (DWER-027), https://catalogue.data.wa.gov.au/dataset/hydrographic-catchments-basins. Last Updated 19/06/2018.

Department of Water and Environmental Regulation. Hydrographic Catchments - Catchments (DWER-028), https://catalogue.data.wa.gov.au/dataset/hydrographic-catchments-catchments. Last updated 19/06/2018.

Department of Water and Environmental Regulation. Hydrographic Catchments - Divisions (DWER-029), https://catalogue.data.wa.gov.au/dataset/hydrographic-catchments-divisions. Last Updated 20/06/2018.

Department of Water and Environmental Regulation. Hydrographic Catchments - Subcatchments (DWER-030), https://catalogue.data.wa.gov.au/dataset/hydrographic-catchments-subcatchments. Last Updated 20/06/2018.

Department of Water and Environmental Regulation. Hydrography, Linear (Hierarchy) (DWER-031), https://catalogue.data.wa.gov.au/dataset/hydrography-linear-hierarchy. Last Updated 20/06/2018.

Department of Water and Environmental Regulation. Offsets Register - Offsets (DWER-078), https://catalogue.data.wa.gov.au/dataset/offsets-register-offsets. Last updated 19/10/2020.

Department of Water and Environmental Regulation. Offsets Register - Projects (DWER-079), https://catalogue.data.wa.gov.au/dataset/offsets-register-projects. Last updated 19/10/2020.

Department of Water and Environmental Regulation, Public Drinking Water Source Areas (DWER-033), https://catalogue.data.wa.gov.au/dataset/public-drinking-water-source-areas. Last updated 30/01/2020.

Department of Water and Environmental Regulation, RIWI Act, Groundwater Areas (DWER-034), https://catalogue.data.wa.gov.au/dataset/riwi-act-groundwater-areas. Last updated 20/06/2018.

Department of Water and Environmental Regulation, RIWI Act, Rivers (DWER-036), https://catalogue.data.wa.gov.au/dataset/riwi-act-rivers. Last updated 20/06/2018.

Department of Water and Environmental Regulation, RIWI Act, Surface Water Areas and Irrigation Districts (DWER-037), https://catalogue.data.wa.gov.au/dataset/riwi-act-surface-water-areas-and-irrigation-districts. Last Updated 20/06/2018.

Department of Water and Environmental Regulation. Surface Water Management Areas (DWER-041), https://catalogue.data.wa.gov.au/dataset/surface-water-management-areas. Last updated 20/06/2018.

Department of Water and Environmental Regulation. Waterways Conservation Act Management Areas (DWER-072), https://catalogue.data.wa.gov.au/dataset/waterways-conservation-act-management-areas. Last Updated 17/04/2018.

Department of Water and Environmental Regulation. WRIMS - Groundwater Resources (DWER-084), https://catalogue.data.wa.gov.au/dataset/wrims-groundwater-resources. Last updated 11/09/2020.

Department of Water and Environmental Regulation. WRIMS - Surface Water Areas (DWER-082), https://catalogue.data.wa.gov.au/dataset/wrims-surface-water-areas. Last Updated 11/09/2020.

Department of Water and Environmental Regulation. WRIMS - Surface Water Resources (DWER-081), https://catalogue.data.wa.gov.au/dataset/wrims-surface-water-resources. Last Updated 11/09/2020.

Interim Biogeographic Regionalisation for Australia (IBRA), Version 7 (Regions), http://www.environment.gov.au/fed/catalog/search/resource/details.page?uuid=%7B4A2321F0-DD57-454E-BE34-6FD4BDE64703%7D

Interim Biogeographic Regionalisation for Australia (IBRA), Version 7 (SubRegions), http://www.environment.gov.au/fed/catalog/search/resource/details.page?uuid=%7B8B9E3F42-9856-4487-AE9E-C76A322809A1%7D

Landgate. Cadastre (Polygon) (LGATE-217), https://catalogue.data.wa.gov.au/dataset/cadastre-polygon. Last updated 22/10/2020.

Landgate. Land Tenure (LGATE-226), https://catalogue.data.wa.gov.au/dataset/land-tenure. Last updated 22/10/2020.

Landgate. Localities (LGATE-234), https://catalogue.data.wa.gov.au/dataset/localities. Last updated 26/10/2020.

Landgate. Large Scale Topo Water (Line) (LGATE-167), https://catalogue.data.wa.gov.au/dataset/large-scale-topo-water-line-lgate-167. Last updated 09/07/2019.

Landgate. Medium Scale Topo Water (Line) (LGATE-018), https://catalogue.data.wa.gov.au/dataset/medium-scale-topo-water-line-lgate-018. Last updated 18/10/2020.

Landgate. Reserves (LGATE-227), https://catalogue.data.wa.gov.au/dataset/reserves. Last updated 22/10/2020.

Landgate. Roads (LGATE-012), https://catalogue.data.wa.gov.au/dataset/roads-lgate-012. Last updated 18/10/2020.

Landgate. State Forests (LGATE-246), https://catalogue.data.wa.gov.au/dataset/state-forests. Last updated 22/10/2020.

Landgate. Townsites (LGATE-248), https://catalogue.data.wa.gov.au/dataset/townsites. Last updated 22/10/2020.

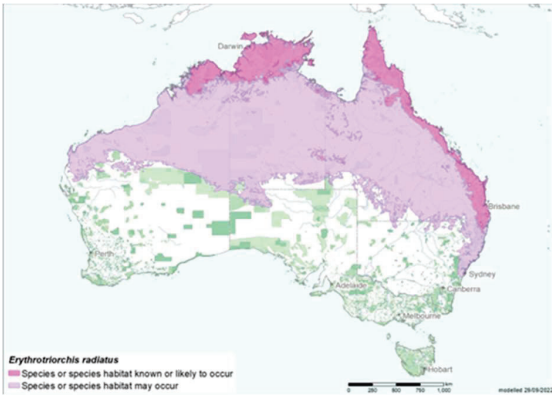
Landgate. WA Regional Aerial Photography Mosaic, https://catalogue.data.wa.gov.au/dataset/wa-regional-aerial-photography-mosaic. Last updated 18/01/2020.

WA Regional Aerial Photography Mosaic (WMS Feed), https://catalogue.data.wa.gov.au/dataset/wa-regional-aerial-photography-mosaic

# Appendix 1 – MNES Protected Matters Search Tool Reports

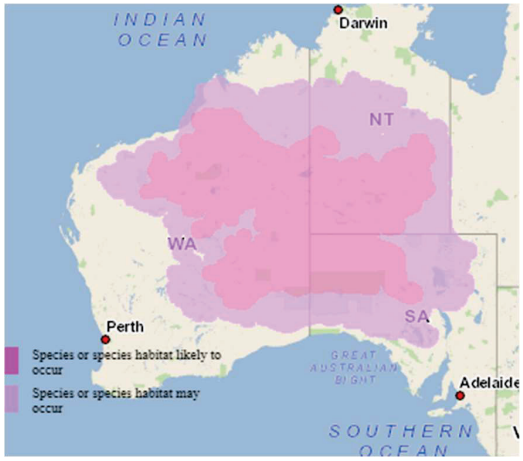
# Appendix 2 – Assessment of Impacts on Flora and Fauna listed as Matters of National Environmental Significance

| Threatened Fauna | Assessment |
|---|---|
| Southern Whiteface<br>*Aphelocephala leucopsis* | Vulnerable listed the species population has declined substantially, by an estimated 30-50% every 10 years. There is an estimated 477,000 mature adults in the wild. The clearing area is in road-side degraded vegetation. This species is unlikely to occur in habitat that is cleared, fragmented or degraded. The small scale of clearing is unlikely to significantly impact the ongoing survival and distribution of the species. |
| | Locations: MULL, CUET, NANN, MEEK, MOOL, PLUT, KUMR, CAPC |
| Ruddy Turnstone<br>*Areanarai interpres* | This species was listed as vulnerable from 5/01/2024. Ruddy turnstones are 22–24 cm long, have a wingspan of 50–57 cm, and weigh approximately 115g. During the austral summer non-breeding season, the ruddy turnstone is widespread within Australia (Bamford et al. 2008). The species is found in most coastal regions, with occasional records of inland populations (Higgins & Davies 1996). It strongly prefers rocky shores or beaches where there are large deposits of rotting seaweed. The proposed works will not be undertaken within or adjacent to the preferred habitat of this species, it is unlikely that this project will have any measurable impact on the survival or distribution of this species. |
| | Locations: PHCT |
| Sharp-tailed Sandpiper<br>Calidris acuminata | Vulnerable listed species effective Jan 2024. This is a migratory species that travels from Siberia to Australia, and this is the non-breeding continent for the species. The species is common in coastal areas and widely, but sparsely scattered inland. They are found primarily in the south-east of the continent. The proposed works will not be undertaken within or adjacent to the preferred habitat of this species, it is unlikely that this project will have any measurable impact on the survival or distribution of this species. |
| | Locations: MULL, CUET, NANN, MEEK, MOOL, PLUT, KUMR, CAPC, MABL, CRCK, BEBE, WODM, PHCT |
| Red Knot, Knot<br>*Calidirs canutus* | Global distribution, migratory species that breeds in Siberia, less numerous in South-west Australia. Proposed works will be undertaken within existing cleared areas, and will not be adjacent to a wetland or waterway.; The proposed works are unlikely to have any measurable impact on this species survival or distribution. |
| | Location: PHCT |
| Curlew Sandpiper<br>*Calidris ferriuginea* | Critically endangered, migratory water bird found in coastal wetlands. They are found erratically in interior Australia, and it is unlikely that any birds present would be unable to move offsite during works. The proposed works will not be undertaken within or adjacent to the preferred habitat of this species, it is unlikely that this project will have any measurable impact on the survival or distribution of this species. |
| | Locations: MULL, CUET, NANN, MEEK, MOOL, CAPC, MABL, CRCK, BEBE, WODM |
| Great Knot<br>*Calidris tenuirostris* | This species was listed as vulnerable from 5/01/2024. Great knots are 26 – 28 cm long, have a wingspan of approximately 58 cm, and weigh around 155 g. They are a medium sized, bulky shorebird. The great knot has been recorded around the entirety of the Australian coast, with a few scattered records inland. The proposed works are localised and small in extent, it is unlikely this project will have any measurable impact on the survival or distribution of this species. |
| | Locations: PHCT |

| Threatened Fauna | Assessment |
|---|---|
| Greater Sand Plover, Large Sand Plover<br>*Chaaradrius leschenaultii* | This species was listed as Vulnerable effective 18/12/2023. The greater sand plover is 22-25 cm long, have a wingspan of 53-60 cm, and weight around 75100 g. Approximately 68 percent of the Flyway population spends the non-breeding season in Australia (Weller et al. 2020). Whilst in Australia, the species occurs in coastal areas of all the states, but most individuals occur along the north-west coast. In general, the distribution of this species is widespread between North West Cape and Roebuck Bay, Western Australia. They are also occasionally recorded along the coast of southern Western Australia. The proposed works will not be undertaken within or adjacent to the preferred habitat of this species, it is unlikely that this project will have any measurable impact on the survival or distribution of this species. |
| | Location: PHCT |
| Lesser Sand Plover, Mongolian Plover<br>*Charadrius mongolus* | This species is currently listed as Endangered. The lesser sand plover is a small to medium-sized (18 - 21 cm in length and 56 - 71 g in body mass) grey-brown and white shorebird. Within Australia, the lesser sand plover is widespread in coastal regions and has been recorded in all states. It mainly occurs in northern and eastern Australia, in south-eastern parts of the Gulf of Carpentaria, western Cape York Peninsula, islands in Torres Strait, and along the entire east coast. The proposed works will not be undertaken within or adjacent to the preferred habitat of this species, it is unlikely that this project will have any measurable impact on the survival or distribution of this species. |
| | Location: PHCT |
| Red Goshawk<br>*Erthrotriorchis radiatus* | The species was listed as Endangered in March 2023. This is a large hawk, in rufous-brown colour growing 45-60cm in length. They are currently known to breed from the Kimberley, east to Cape York Peninsula, and on the Tiwi Islands.<br>The species inhabits coastal and sub-coastal tall open forests and woodlands, tropical savannahs traversed by wooded or forested rivers and edges of rainforests. Favoured areas appear to contain permanent water. Whilst the species may traverse the proposed works location, it is unlikely to form breeding habitat, and the scale and localised impact is unlikely to have a significant impact on resources for the species.<br>  |
| | Location: CAPC, MABL, CRCK, BEBE, WODM, PHCT |
| Grey Falcon<br>*Falco hypoleucos* | Vulnerably listed species. The Grey Falcon occurs at low densities across inland Australia, and is known almost entirely from anecdotal and opportunistic sightings. The species is known to frequent timbered lowland plains, particular acacia shrublands that are crossed by tree-lined courses. The species generally nests in the tallest trees along water courses. The degraded nature of the proposed site, particularly the lack of trees, indicates that this site is unlikely to form critical breeding habitat for the species, thus the proposed works are unlikely to significantly impact the species. |

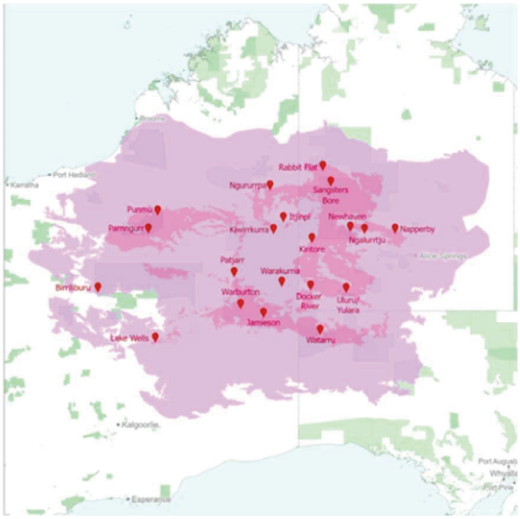
| Threatened Fauna | Assessment |
|---|---|
| | Locations: MULL, CUET, NANN, MEEK, MOOL, PLUT, KUMR, CAPC, MABL, CRCK, BEBE, WODM, PHCT |
| Asian Dowitcher<br>*Limnodromus semipalmatus* | This species is listed as Vulnerable effective 5/01/2024. Asian dowitchers are 33–36 cm long, have a wingspan of approximately 59 cm, and weigh approximately 180–190 g. The Asian dowitcher is only a regular visitor to coastal areas between Broome and Port Headland (Rogers et al. 2000, 2020; Weller et al. 2019) and the Port McArthur tidal wetlands in the Gulf of Carpentaria (Barden et al. 2021). Elsewhere, the species' occurrence is sporadic and rare, typically only appearing along the northern and eastern Australian coastline. The proposed works will not be undertaken within or adjacent to the preferred habitat of this species, it is unlikely that this project will have any measurable impact on the survival or distribution of this species. |
| | Location: PHCT |
| Northern Siberian Bar-tailed Gotwit, Russkoye Bar-tailed Gotwit<br>*Limosa lapponica menzbieri* | Listed as Endangered from 5/01/2024. Yakutian bar-tailed godwits are 37 – 39 cm long, have a wingspan of 62 – 75 cm, and weigh 250 – 450 g. The subspecies is characterised by a long neck, and a very long, upturned bill which has a dark tip and yellow-pink base. During the non-breeding season, the distribution of L. l. menzbieri is predominantly in the north of Western Australia and in south-eastern Asia (Bamford et al. 2008). In Western Australia it is widespread around the coast, from Eyre to Derby (Higgins & Davies 1996). The proposed works will not be undertaken within or adjacent to the preferred habitat of this species, it is unlikely that this project will have any measurable impact on the survival or distribution of this species. |
| | Location: PHCT |
| Black-tailed Godtwit<br>*Limosa limosa* | Listed as Endangered effective 5/01/2024, Black-tailed godwits are 40–44 cm long, have a wingspan between 63–75 cm, and weigh between 200–300 g. During the austral summer non-breeding season, black-tailed godwits are found in all states and territories of Australia; however, coastal regions support the highest densities of the species. The largest populations are found on the north coast between Darwin and Weipa. The species is generally found in small numbers elsewhere, including scattered inland records. The proposed works will not be undertaken within or adjacent to the preferred habitat of this species, it is unlikely that this project will have any measurable impact on the survival or distribution of this species. |
| | Location: PHCT |
| Southern Giant-Petrel<br>*Macronectes giganteus* | Listed as Endangered. This is a coastal shore-bird species and the proposed works will not be undertaken within or adjacent to the preferred habitat of this species, it is unlikely that this project will have any measurable impact on the survival or distribution of this species. |
| | Location: PHCT |
| Malleefowl<br>*Leipoa ocellata* | The Malleefowl is found in semi-arid to arid shrublands and low woodlands, especially those dominated by mallee and/or acacias.<br>Prefers areas with dense understorey. Majority of this area is cleared for agriculture, with a few patches of isolated trees. The proposed works are unlikely to have any measurable impact on the species |
| | Locations: MULL, CUET, NANN, MEEK |

| Threatened Fauna | Assessment |
|---|---|
| Eastern Curlew, Far Eastern Curlew<br>*Numenius madagascariensis* | Listed as Critically Endangered effective 18/12/2023, Far eastern curlews are the largest migratory shorebird species in the world. They are 60–66 cm long, have a wingspan of approximately 110 cm and weigh around 900 g. During the austral summer non-breeding season, most (estimated at 73 percent) of the species' population occurs in Australia (Bamford et al. 2008; Hansen et al. 2016). Within Australia, far eastern curlews have a mostly coastal distribution; they are rarely recorded inland. |
| | Location: PHCT |
| Night Parrot<br>*Pezoporus occidentalis* | A Critically Endangered species known from a number of discreet populations, although the exact distribution of the species is not fully described in the literature. Only two areas (western Queensland and the Pilbara) have reliable records confirming populations. Most habitat records are of Triodia (Spinifex) grasslands and/or chenopod shrublands in the arid and semi-arid zones. Roosting and nesting sites are consistently within clumps of dense vegetation. Often found close to inland wetland systems, FMG has confirmed a population near the Cloudbreak mine. There are no recorded sightings of the species within close proximity to the majority of sites, excluding Christmas Creek the works are being undertaken in areas of existing disturbance, and there are no georeferenced Critically Endangered or Endangered Fauna species located within existing DBCA-037 datasets. |
| | Locations: CUET, NANN, MEEK, KUMR, MABL, CRCK, BEBE, WODM, PHCT |
| Red-tailed Tropicbird, Indian Ocean Red-Tailed Tropicbird<br>*Phaerhon rubricauda westralis* | Species listed as Endangered effective 21/12/2023. The Indian Ocean red-tailed tropicbird is a medium-sized seabird with a body length of around 100 cm (including central rectrices projection of around 35 cm), wingspan of around 115 cm, and weight between 600g to 1kg. Breeding generally occurs on islands off the coast of WA, including Christmas Is., Cocos Is, Bedwell Is, West, Middle and East Islands od Ashmore Reef and Rottnest Is. The proposed works will not be undertaken within or adjacent to the preferred habitat of this species, it is unlikely that this project will have any measurable impact on the survival or distribution of this species. |
| | Location: PHCT |
| Grey Plover<br>*Pluvialis squatarola* | This species was listed as Vulnerable effective 5/01/2024. Grey plovers are medium-sized, long-legged plovers with a large head and large, dark eyes. They are 27–31 cm in length, have a wingspan between 71–83 cm, and weigh approximately 250 g. During the austral summer non-breeding season, the grey plover is a regular migrant to Australia. The species has been recorded throughout all states around Australia but is primarily found along the west and south coasts. The largest populations are found between the Coorong and western beaches of the Eyre Peninsula in South Australia, and along the coast of Western Australia between Albany and the northern Kimberley. The proposed works will not be undertaken within or adjacent to the preferred habitat of this species, it is unlikely that this project will have any measurable impact on the survival or distribution of this species. |
| | Location: PHCT |

| Threatened Fauna | Assessment |
|---|---|
| Princess Parrot, Alexandra's Parrot<br>*Polytelis alexandrae* | Vulnerably listed in 2018. The princess parrot irregularly occurs across the arid zone from near Oodnadatta in South Australia, west to near Coolgardie and the east Murchison River in Western Australia, and north to near the Fitzroy River in Western Australia and to Howell Ponds in the Northern Territory. The princess parrot is usually recorded from shrubland in swales between sand dunes, with occupied sites typically having a variety of shrubs (including Grevillea, Hakea, Cassia and Eremophila species) among scattered emergent trees, with a ground-cover of spinifex Triodia species.<br>Whilst the species may occur at this site, the minimal clearing and localised impacts of the works are unlikely to impact the survival and distribution of this species.<br>  |
| | Location: CAPC, MABL, CRCK, BEBE, WODM |
| Common Greenshank<br>*Tringa nebularia* | Listed as Endangered as of 5/01/2024. This species is widely spread in coastal regions, and occurs in all types of wetlands, with one of the widest distributions of any shorebird in Australia. In WA the species is generally absent from the Western Deserts mainly occurring around the coast from Cape Arid in the south to Carnarvon in the north-west. The proposed works are largely occurring in inland locations, which the species is unlikely to utilise extensively. The proposed works are unlikely to have a significant impact on the distribution or survival of this species. |
| | Location: CUET, PHCT |
| Australian Painted Snipe<br>*Rostratula australis* | Endemic to wetlands of all States, but most common in Eastern Australia. The Typha removal will be undertaken in an agricultural drain in extensively cleared farmland. The proposed works are largely occurring in inland locations, which the species is unlikely to utilise extensively. The proposed works are unlikely to have a significant impact on the distribution or survival of this species. |
| | Location, MULL, MABL, CRCK, BEBE, WODM, PHCT |

| Threatened Fauna | Assessment |
|---|---|
| Terek Sandpiper<br>*Xenus cinereus* | This species was listed as Vulnerable effective 5/01/2024. Terek sandpipers are 22–24 cm in length, have a wingspan of 36–45 cm, and weigh approximately 95 g. In Western Australia, the bird is rarely seen on the south coast: occasionally around Eyre and several records around Albany. On Swan River plain, it has been recorded between Bunbury and the mouth of the Moore River. The species is widespread in the Pilbara region and Kimberley Division, from Dampier to Wyndham, with occasional records around Shark Bay. The proposed works are largely occurring in inland locations, which the species is unlikely to utilise extensively. The proposed works are unlikely to have a significant impact on the distribution or survival of this species. |
| | Location: PHCT |
| Carnaby's Black Cockatoo<br>*Zanda latirostris* – Listed as *Calyptorthynchus latirostris* | Carnaby's cockatoo is endemic to the south-west of Western Australia, with a widespread distribution. The species is highly mobile and displays a seasonal migratory pattern that is linked to breeding (Saunders 1980, 1990; Berry 2008). Breeding takes place between late July and December and most breeding occurs in the inland parts of its distribution, in areas receiving between 300 and 750 mm of annual average rainfall (Saunders 1974). During the non-breeding season (January to July) the majority of the birds move to the higher rainfall coastal regions of their range including the midwest coast, Swan Coastal Plain and south coast (Saunders 1980, 1990; Berry 2008; Saunders et al. 2011b; Johnstone et al. 2011).<br>There are no identified suitable nesting or roosting trees proposed for clearing. |
| | Location: MULL |
| Northern Quoll, Digul, Wijingadda, Wiminji<br>*Dasyurus hallucatus* | Vulnerable listed terrestrial carnivore with a large range, shy of development. The proposed development footprint is within degraded land, although contiguous with vegetation patches. The extent of clearing is unlikely to significantly impact the survival or distribution of the species, but appropriate management measures should be implemented during construction to manage fauna access and egress during works. |
| | Location: MULL, CAPC, MABL, CRCK, BEBE, WODM, PHCT |
| Greater Bilby<br>*Macrostis lagotis* | A Vulnerable listed species that is medium-sized, solitary, burrowing animal that shelters during the day. They are found in The Gibson Desert, Little Sandy Desert, Great Sandy Desert and parts of the Pilbara and Southern Kimberley. The remaining populations of the greater bilby occupy three main habitats: open tussock grassland on uplands and hills, *Acacia aneura* (mulga) woodland/shrubland growing on ridges and rises, and hummock grassland in plains and alluvial areas.<br>There are no records of Threatened or Priority Species at the development location. The localised impact of the works are unlikely to impact the species survival or distribution. |
| | Location: PLUT, KUMR, CAPC, MABL, CRCK, BEBE, WODM, PHCT |
| Ghost Bat<br>*Macroderma gigas* | Vulnerable listed species, listed as threatened under State legislation. The species is currently distributed in geographically disjunct colonies in the Pilbara. Only 14 breeding sites are currently known, and the proposed work will not impact these areas. The majority of known roost sites are known from 6 historical mines; Bamboo Creek, Bulletin, Comet, Klondyke Queen, Lalla Rookh and All Nations Mines. 2/3 of the remaining population are located in the Kimberley region. The lack of nearby caves or under ground mines, and small extent of clearing is unlikely to have a measurable impact on the survival and distribution of this species. |
| | Location: MULL, CAPC, MABL, CRCK, BEBE, WODM, PHCT |

| Threatened Fauna | Assessment |
|---|---|
| Pilbara Leaf-nosed Bat<br>*Rhinonicteris aurantia* | Listed as vulnerable, the Pilbara form of this species that has seen a greater than 30% decline in population. They rely on underground roosts supporting warm, humid microclimates found in relative deep, complex caves and disused underground mines. Proposed works are occurring above ground, and localised in extent and impact. This species survival and distribution is unlikely to be impacted by the proposed works. |
| | Location: KUMR, CAPC, CRCK, BEBE, WODM |
| Pilbara Olive Python<br>*Liasis olivaceus barroni* | Listed as Vulnerable, this species is known only from ranges within the Pilbara region. It is known to occur at 21 locations within the Pilbara including populations at Pannawonica, Millstream, Tom Price and Burrup Peninsula. The Olive Python (Pilbara subspecies) prefers deep gorges and water holes in the ranges of the Pilbara region. The proposed works will not be occurring within preferred habitat and the localised impact is unlikely to have a measurable impact on the survival or distribution of the species. |
| | Location: MABL, CRCK, BEBE, WODM, PHCT |
| Western Spiny-tailed Skink, Baudin Island Spiny-tailed Skink<br>*Egernia stokesii badia* | Vulnerable listed species is known to have occurred on nine islands of the Abrolhos Archipelago off Geraldton on the mid-west coast of Western Australia. It remains extant on Tattler, Seagull, Oystercatcher, Pigeon, East and West Wallabi in the Wallabi Group, and Middle and Murray in the Pelsaert Group. The species also occurs on the mainland in open eucalypt woodlands and Acacia-dominated shrublands in semi-arid to arid areas of south-western WA (Geraldton Sandplains and Yalgoo IBRA) around Shark Bay including Peron Peninsula, Edel Land and Dirk Hartog Island.<br>The “black form” occurs in an area approximately bounded by Yalgoo, Mt. Magnet, Cue and Murchison Settlements. It lives on granite outcrops and ironstone breakaways and shelters in horizontal crevices.<br>It is possible that this species may occur on the site, however the scale and extent of works are unlikely to significantly impact the species |
| | Location: MULL, CUET |

| Threatened Fauna | Assessment |
|---|---|
| Great Desert Skink, Tjakura, Warrarna, Mulyarmiji, Tjalapa, Nampu<br>*Liopholis kintorei* | Listed as Vulnerable this species has many names by First Nations People across Australia. This is a burrowing skink endemic to the arid zones of Australia. The species can occur from the Broome region in the north-west across the Great Sandy Desert and Tanami Deserts to Tennant Creek in the north-east, Wiluna in the south-west and east across the Gibson and Great Victoria Deserts.<br>Important habitat is lateritic sand plains with both gummy spinifex and or lobed spinifex on a palaeodrainage line. Based on existing survey data, it is unlikely that the species occurs at the proposed works location.<br>  |
| | Location: MOOL, KUMR, CAPC, MABL, CRCK |
| Shield-backed Trapdoor Spiders, Black Rugose Trapdoor Spider<br>*Idiosoma nigrum* | A vulnerable listed vertebrate species typically inhabits heavy clay soils in areas of open *Eucalyptus loxophleba, E. salmonophloia* and *E. capillosa* woodland, where Acacia acuminata forms a sparse understorey, relying heavily on leaf-litter and twigs to build its burrow. Females spend their entire life in the burrow, males seek females within a not greater than 500 m range. The species is dormant from November to February. Clearing, vibration, dust, salinsation and inappropriate fire-regimes are likely to impact the species.<br>*The species may occur in this area, but is unlikely to be significantly impacted by the scale and extent of the proposed clearing.* |
| | Location: MULL, NANN |

| Threatened Flora | Assessment |
|---|---|
| Native Foxglove<br>***Dasymalla axillaris*** | **Native Foxglove is endemic to Western Australia. It is known from eight populations in the Morawa area, approximately 200 km south-east of Geraldton (DEC, 2009). The extent of occurrence of the species is approximately 30 km$^2$ and its area of occupancy is less than 1 km$^2$ (DEC, 2009). This site is not located within the known extent of this species, and the proposed works are unlikely to have any measurable impact on this species.** |
| | **Location: MULL** |

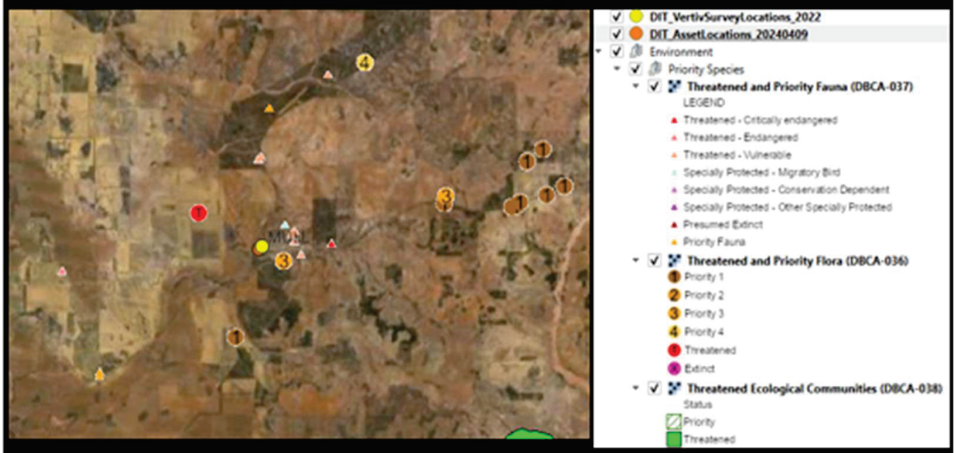
| Threatened Flora | Assessment |
|---|---|
| Silky Eremophila<br>*Eremophila nivea* | Listed as Endangered, this is an erect compact shrub with lilac-coloured flowers. The species is known from six locations occurring over a range of less then 5 km to the north of Three Springs, in the Moora district. The proposed works are being undertaken >100 km north of Three Springs and is unlikely to impact the survival or distribution of the species. |
| | Location: MULL |
| Beaked Eremophila<br>*Eremophila rostrata* | Listed as Critically Endangered this species is known from two subpopulations that occur north-east of Geraldton, in Cue, that flower from June to July, and two sub-populations that occur southeast of Geraldton that flower from September to October. The populations are located approximately 280 km apart. The population in Cue grows on stony, buff coloured saline clays at the base of quartzite hills in open shrubland of Acacia and Eremophila species over open low shrubs of *Ptilotus polakii.*<br>If clearing is not undertaken at this location, there should be no need to undertake surveys.<br>Proposed works will be undertaken in existing cleared and degraded areas. This species survival and distribution is unlikely to be impacted by proposed works. |
| | Location: CUET |
| **Varnish Bush**<br>***Eremophila viscida*** | An endangered species, to the north and east of Southern Cross. The critical habitat for Eremophila viscida comprises the area of occupancy of the known population; similar habitat within 200 metres of the known population; remnant vegetation that links subpopulations. Given the degraded condition of the site, it is unlikely that this species would occur on site, and it is unlikely that the proposed works would have a significant impact on the species. |
| | Location: MULL |
| Beard's Mallee<br>*Eucalyptus beardiana* | An endangered species endemic to Western Australia and is known from 23 populations over the Northampton, Shark Bay and Mullewa areas. 10 are on pastoral stations, one on Main Roads road reserve, one in a nature reserve, one on private property and 10 in a national park. The species occurs on red or yellow sand ridges in tree heath or tall open shrubland.<br>This species may occur within the proposed clearing footprint, although the closest recorded Threatened or Specially Protected flora are located within 1 km of the site. If clearing is required it is recommend a Reconnaissance survey is undertaken to determine the presence/absence of the species within the development footprint. |
| | Location: MULL |
| Pythara Gervillea<br>*Grevillea pythara* | An Endangered upright shrub, producing plants from root-suckers. Flowers are red with blue-black border on the tepal margins, flowering mainly in July and December. There is only one known population restricted to Pithara, south-west of Dalwallinu, over less than 1km of road verge. The proposed is located >200 km north of the known population, and the proposed works are unlikely to impact the survival or distribution of this species. |
| | Location: MULL |

| Threatened Flora | Assessment |
|---|---|
| Net-veined Gyrostemon<br>*Gyrostemon reticulatus* | A Critically Endangered species known from two fragmented populations near Tardun in the northern Wheatbelt. The two populations are found in remanent vegetation on private property, separated by cleared paddocks. The extent is less than 2km2. The proposed works are located > 35 km north of Tardun, and the location and extent of clearing is unlikely to have an impact on the survival or extent of the species. |
| | Location: MULL |
| Mt Augustus Foxglove<br>*Pityrodia augustensis* | A Vulnerable listed species grows on rocky hillsides in the Mt Augustus area, north-east of Carnarvon, and Mt Fraser in the Robinson Range, north of Meekatharra. The proposed works are very small scale, and unattributed DBCA Threatened Species data indicates that the threatened flora and fauna are located to the north-east of the proposed site. If works remain within the disturbed road corridor, it is unlikely the proposed works would have a significant impact on the survival or distribution of the species. |
| | Location: MOOL, NANN, PLUT |

# Appendix 3 – Proximity to Threated and Specially Protected Flora, Fauna and Ecological Communities

| Location | Latitude | Longitude |
|---|---|---|
| Mullewa | -28.539907 | 115.500670 |

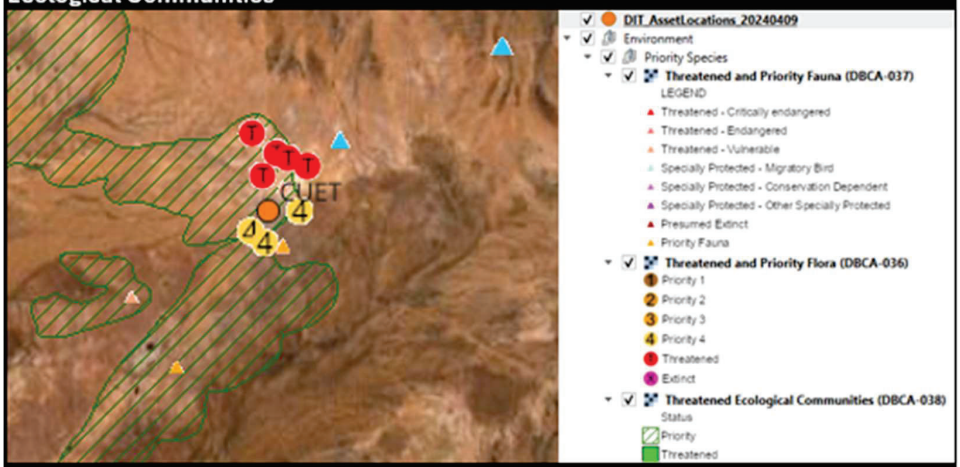
**Mullewa: Location of Threatened and Priority Listed Flora, Fauna and Threatened Ecological Communities**




Prepared by RFF for Environmental due diligence.
Source: DBCA-036, DBCA-037 and DBCA-038, Online 10/04/2024

| Location | Latitude | Longitude |
|---|---|---|
| Cue | -27.423324 | 117.895308 |

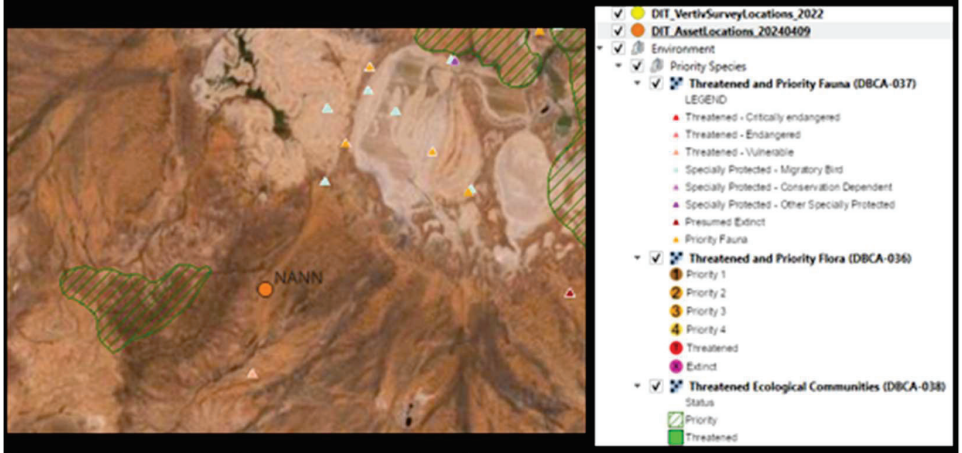
**CUE: Location of Threatened and Priority Listed Flora, Fauna and Threatened Ecological Communities**




Prepared by RFF for Environmental due diligence.
Source: DBCA-036, DBCA-037 and DBCA-038, Online 10/04/2024

| Location | Latitude | Longitude |
|---|---|---|
| Nannine | -26.990470 | 118.222634 |

**Nannine: Location of Threatened and Priority Listed Flora, Fauna and Threatened Ecological Communities**




Prepared by RFF for Environmental due diligence.
Source: DBCA-036, DBCA-037 and DBCA-038, Online 10/04/2024

| Location | Latitude | Longitude |
|---|---|---|
| Meekatharra | -26.591978 | 118.492818 |

**Meekatharra: Location of Threatened and Priority Listed Flora, Fauna and Threatened Ecological Communities**


Prepared by RFF for Environmental due diligence.
Source: DBCA-036, DBCA-037 and DBCA-038, Online 10/04/2024

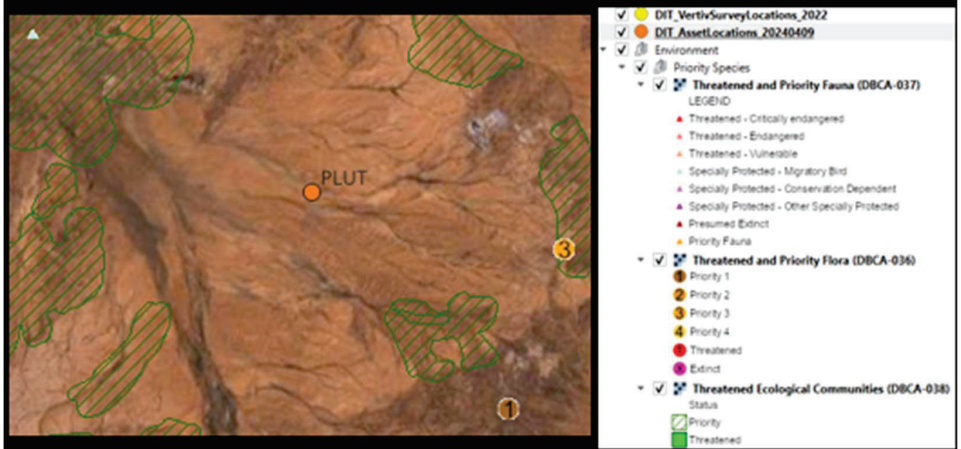
| Location | Latitude | Longitude |
|---|---|---|
| Mooloogool | -25.942660 | 118.807491 |

**Mooloogool: Location of Threatened and Priority Listed Flora, Fauna and Threatened Ecological Communities**


Prepared by RFF for Environmental due diligence.
Source: DBCA-036, DBCA-037 and DBCA-038, Online 10/04/2024

| Location | Latitude | Longitude |
|---|---|---|
| Plutonic | -25.364420 | 119.312736 |

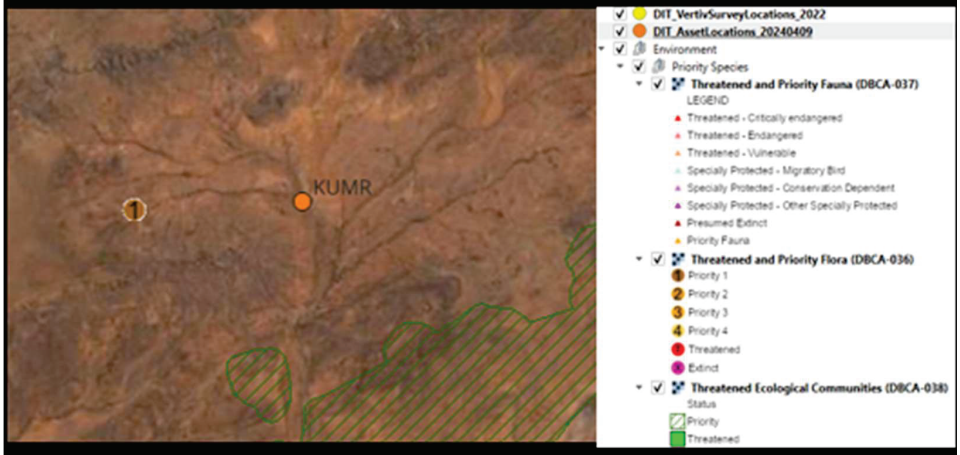
**Plutonic: Location of Threatened and Priority Listed Flora, Fauna and Threatened Ecological Communities**




Prepared by RFF for Environmental due diligence.
Source: DBCA-036, DBCA-037 and DBCA-038, Online 10/04/2024

| Location | Latitude | Longitude |
|---|---|---|
| Kumarina | -24.712206 | 119.607358 |

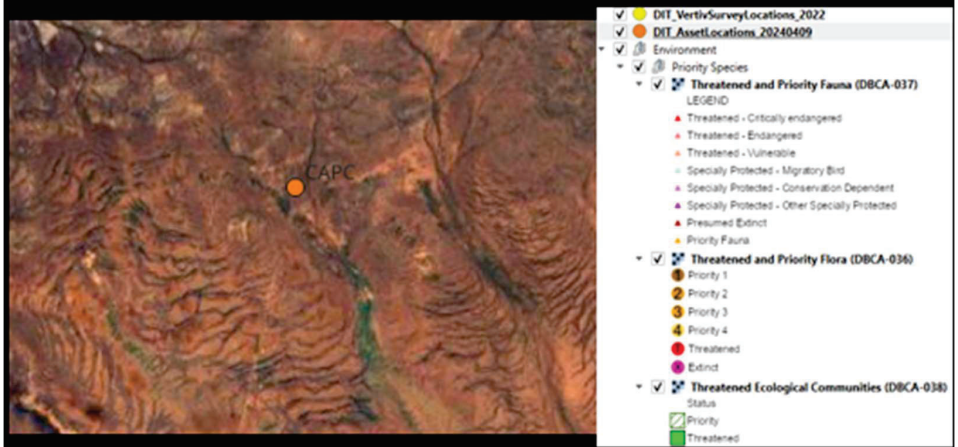
**Kumarina: Location of Threatened and Priority Listed Flora, Fauna and Threatened Ecological Communities**




Prepared by RFF for Environmental due diligence.
Source: DBCA-036, DBCA-037 and DBCA-038, Online 10/04/2024

| Location | Latitude | Longitude |
|---|---|---|
| Capricorn | -24.036534 | 119.725378 |

**Capricorn: Location of Threatened and Priority Listed Flora, Fauna and Threatened Ecological Communities**




Prepared by RFF for Environmental due diligence.
Source: DBCA-036, DBCA-037 and DBCA-038, Online 10/04/2024

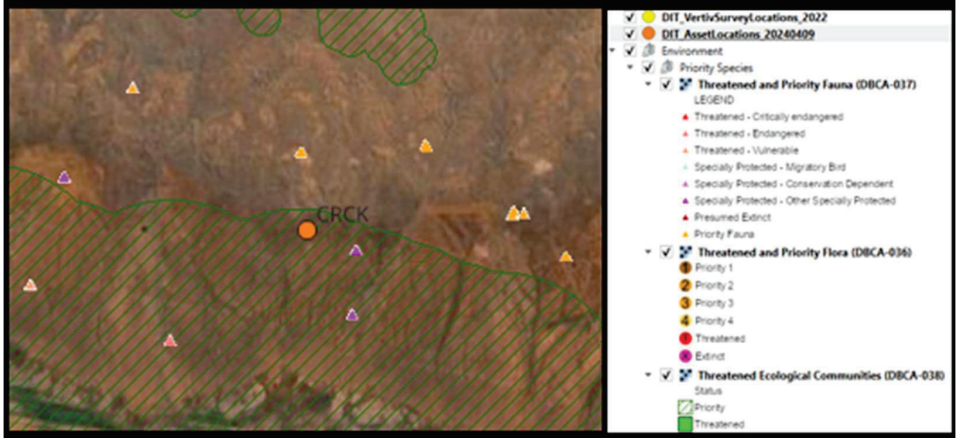
| Location | Latitude | Longitude |
|---|---|---|
| Mable Bar Road | -22.776490 | 119.999256 |

**Marble Bar Road: Location of Threatened and Priority Listed Flora, Fauna and Threatened Ecological Communities**


Prepared by RFF for Environmental due diligence.
Source: DBCA-036, DBCA-037 and DBCA-038, Online 10/04/2024

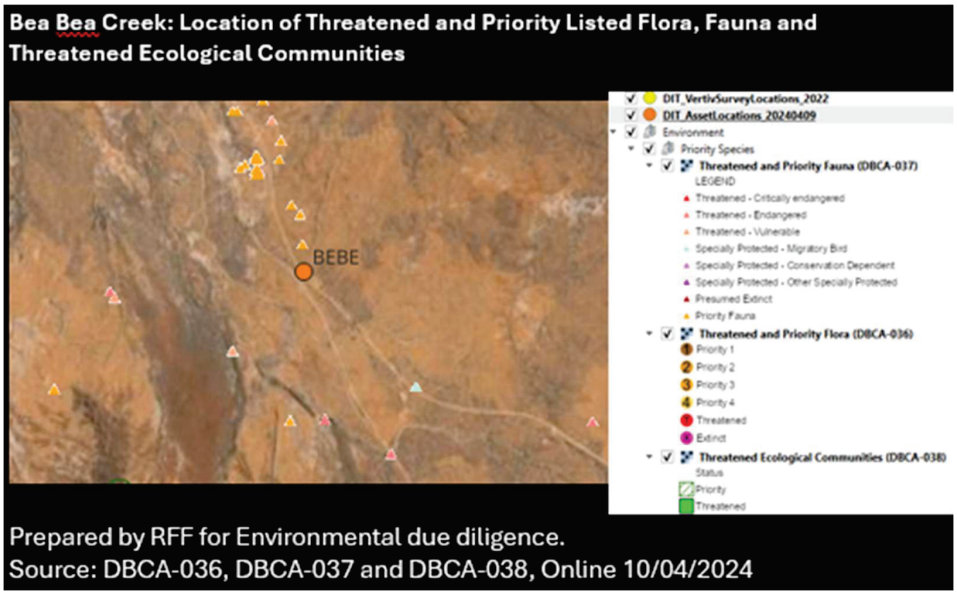
| Location | Latitude | Longitude |
|---|---|---|
| Christmas Creek | -22.361660 | 119.584670 |

**Christmas Creek: Location of Threatened and Priority Listed Flora, Fauna and Threatened Ecological Communities**

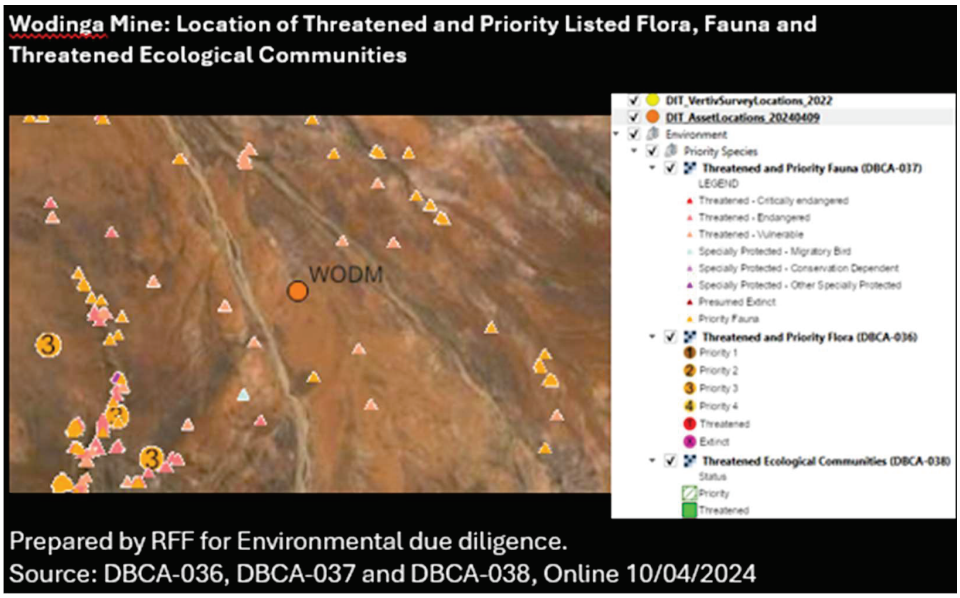



Prepared by RFF for Environmental due diligence.
Source: DBCA-036, DBCA-037 and DBCA-038, Online 10/04/2024

| Location | Latitude | Longitude |
|---|---|---|
| Bea Bea Creek | -21.887845 | 118.959712 |




| Location | Latitude | Longitude |
|---|---|---|
| Wodinga Mine | -21.104309 | 118.727054 |



| Location | Latitude | Longitude |
|---|---|---|
| Port Hedland | -20.308482 | 118.614727 |

**Port Hedland: Location of Threatened and Priority Listed Flora, Fauna and Threatened Ecological Communities**


Prepared by RFF for Environmental due diligence.
Source: DBCA-036, DBCA-037 and DBCA-038, Online 10/04/2024