CBH Kellerberrin Fixed Rail Siding Upgrade Project Native Vegetation Clearing Permit Application Supporting Document

CBH Group

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Template 2.8.1

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Abbreviations

Abbreviation	Description
ARMA	Avon River Management Authority
BAM Act	*Biosecurity and Agricultural Management Act 2007*
BC Act	Biodiversity Conservation Act
BoM	Bureau of Meteorology
CBH	Cooperative Bulk Handling Group
DAWE	Department of Agriculture, Water and the Environment
DBCA	Department of Biodiversity, Conservation and Attractions
DBH	Diameter at Breast Height
DCCEEW	Department of Climate Change, Energy, the Environment and Water
DoE	Department of the Environment
DPaW	Department of Parks and Wildlife
DPIRD	Department of Primary Industries and Regional Development
DSEWPaC	Department of Sustainability, Environment, Water, Population and Communities
DoW	Department of Water
DWER	Department of Water and Environmental Regulation
EP Act	*Environmental Protection Act 1986*
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
ESA	Environmentally Sensitive Areas
NVCP	Native Vegetation Clearing Permit
mbgl	Metres Below Ground Level
MNES	Matters of National Environmental Significance
PEC	Priority Ecological Community
TEC	Threatened Ecological Community
WRC	Waters and Rivers Commission

1. Introduction

1.1. Background

The Cooperative Bulk Handling Group (CBH) is proposing to implement the Kellerberrin Rail Project (the Proposal), which involves the extension of the existing CBH rail siding adjacent to the CBH Kellerberrin Grain Receival Site. The Proposal is located within the Kellerberrin township within the Wheatbelt region of Western Australia (Figure 1-1).

The 2022-2023 harvest delivered into the CBH system over 22.7 Mt of grain and the annual crop yields within the region are expected to increase. This has highlighted to CBH the need to improve the network to ensure grain can be moved efficiently to ports to meet market demand and maximise the economic output for the State and CBH grower members. The Proposal is being undertaken to expand the export capacity of the Kellerberrin facility and reduce the number of grain trucks required to travel between the facility and the port at Kwinana, where the grain is exported offshore.

1.1.1. Clearing overview

The Proposal will cover 6.04 ha (the Development Envelope) and require the clearing of a 6.01 ha area (the Disturbance Footprint), of which 1.48 ha contains native vegetation (Figure 1-1).

The Proposal has been designed to avoid and mitigate impacts to areas of native vegetation and fauna habitat as far as practicable. Following the analysis of the design options during the pre-feasibility stage, only a single viable option (the Proposal) remained after considering the operational and rail network constraints, combined with potential environmental and social impacts.

1.1.2. Purpose

This document has been prepared to support the granting of a Native Vegetation Clearing Permit (NVCP) for the Proposal under Part V Division 2 of the *Environmental Protection Act 1986* (EP Act). This NVCP application supporting report includes the following information:

- The justification for and a description of the Proposal
- An overview of the existing environmental conditions of the site
- An evaluation of the potential impacts of vegetation clearing
- Environmental mitigation and management actions
- An evaluation of compliance of the proposed clearing against the ten clearing principles listed under Schedule 5 of the EP Act
- Stakeholder consultation.

1.1.3. Other Approvals

The Disturbance Footprint contains Eucalypt Woodlands of the Western Australian Wheatbelt Ecological Community (herein 'Wheatbelt Woodlands TEC') and habitat for Carnaby's Black Cockatoo (*Zanda latirostris*). This community and species are listed as Critically Endangered and Endangered under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) respectively, and thus are considered Matters of National Environmental Significance (MNES). The proposed clearing has the potential to significantly impact Wheatbelt Woodlands TEC and Carnaby's Black Cockatoo. As a result,

the Proposal was referred under the EPBC Act to the Department of Climate Change, Energy, the Environment and Water (DCCEEW) for assessment in April 2025.

An application for Development Approval is currently in preparation and will be submitted to the Shire of Kellerberrin.

1.2. Location, Ownership and Zoning

The existing CBH Kellerberrin Grain Receival Site and Fixed Rail Loading Facility is located at 128 Mather Road, Kellerberrin, WA, 6410. The Development Envelope occurs slightly to the east of the facility and is bounded by Private Property to the north, Mather Road to the east and west and Great Eastern Highway to the south (Figure 1-1). The Development Envelope is located within the following land parcels:

- Private Property (Land ID: 1827268 and 1827269)
- Vacant Crown Land (Land ID: 3106899) – CBH (Perth Transport Authority Lease)
- Railway Corridor – Railway Reserve (Land ID: 3106898) – Perth Transport Authority Rail Reserve
- Public Road – Road Reserve, Shire of Kellerberrin (Land ID: 3747509) – Shire of Kellerberrin.

Under the Shire of Kellerberrin Local Planning Scheme No. 4 (District Scheme), the Development Envelope is zoned as 'Industrial' and 'Railway'. Certificates of Title are provided in Appendix A and 'Authorities to Act' are provided in Appendix B.

1.3. Proposal Description

CBH is seeking to improve the existing Kellerberrin rail infrastructure by extending the existing rail siding.

The Development Envelope will cover 6.04 ha and require the clearing of the 6.01 ha Disturbance Footprint, including 1.48 ha of native vegetation (Figure 1-1; Section 4).

Multiple concepts for the Proposal were explored in the early planning stages; however, most would result in operational constraints being placed on the rail mainline, impacting existing level crossings or increasing the level of noise experienced by residences within the Kellerberrin township. As such, the only viable option is the extension of the existing CBH siding to the east (away from the Kellerberrin township) to accommodate the storage and loading of an 88-wagon train within a single shunt without impeding the mainline (Figure 1-2).

The Proposal will initially require earthworks to be undertaken, which includes vegetation clearing, ground levelling and compaction to ensure that the rail line meets required construction standards and gradient constraints. Due to the proximity of the existing high usage rail mainline the Proposal is unlikely to require a large amount of cut and fill activities.

The construction of the rail line itself will require the laying of ballast, which will be transported to the site, followed by the installation and levelling of rain sleepers. The rails themselves will also be transported to the site in 20 m lengths and welded in place. The main access track will be unsealed, the width of a narrow single lane (5-6 m) and constructed from compacted sand material. Additional minor elements such as signage and rail signals will be installed as part of the Proposal.

Multiple existing drains and culverts exist within the rail corridor and along the existing access road to the CBH Kellerberrin site. The Proposal will require the construction of additional culverts and drains to assist with water management and tie in with the existing drainage network.

1.4. Proposal Benefits

CBH is Australia's largest cooperative and a leader in the Australian grain industry, with operations extending along the value chain from fertiliser to grain storage, handling, transport, marketing, and processing. Owned and controlled by approximately 3,700 Western Australian grain-growing businesses, the core purpose of CBH is to create and return value to growers sustainably. Its storage and handling system currently receives and exports around 90% of the Western Australian grain harvest, which itself typically makes up approximately 40% of the Australian grain harvest.

The implementation of the Proposal is required to cater for the growing quantities of grain received from the farms within the Kellerberrin area and surrounding grain catchment. This is being driven by improved cropping and farming techniques, and higher-yielding seed varieties. The reliance on rail will reduce trucking movements on both Local and State government roads, resulting in:

- Reduced road maintenance costs for Local and State governments
- Improved safety by eliminating rail-road interactions and significantly reducing the amount of shunting required
- Improved safety for the public by reducing tracks on the road as a significant shift in-out-loading from road to rail.

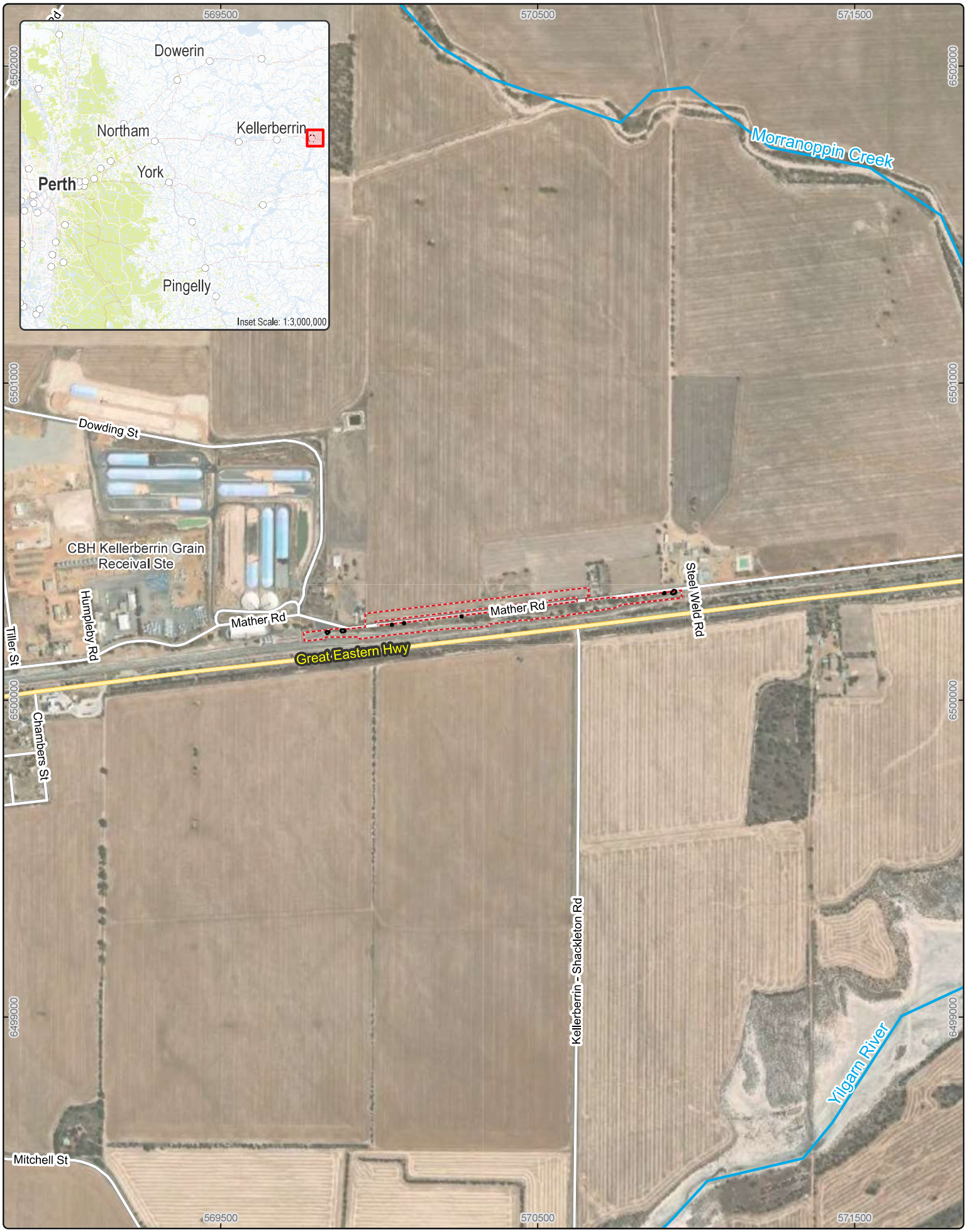

Figure 1-1: Proposal Location

- Development Envelope (6.04 ha) (CBH 2024)
- Disturbance Footprint (6.01 ha) (CBH 2024)
- Avoidance Area (0.03 ha) (CBH 2024)
- Rivers (DWER-031)
- Distributor Road (MRWA 2023)
- Access Road (MRWA 2023)

N

0 140 280 560

Metres

Aerial Imagery of the Town of Kellerberrin, WA, ESRI, No Date, Retrieved February 2025

Datum/Projection:
GDA 1994 MGA Zone 50

23PER5988-JP Date: 5/03/2025

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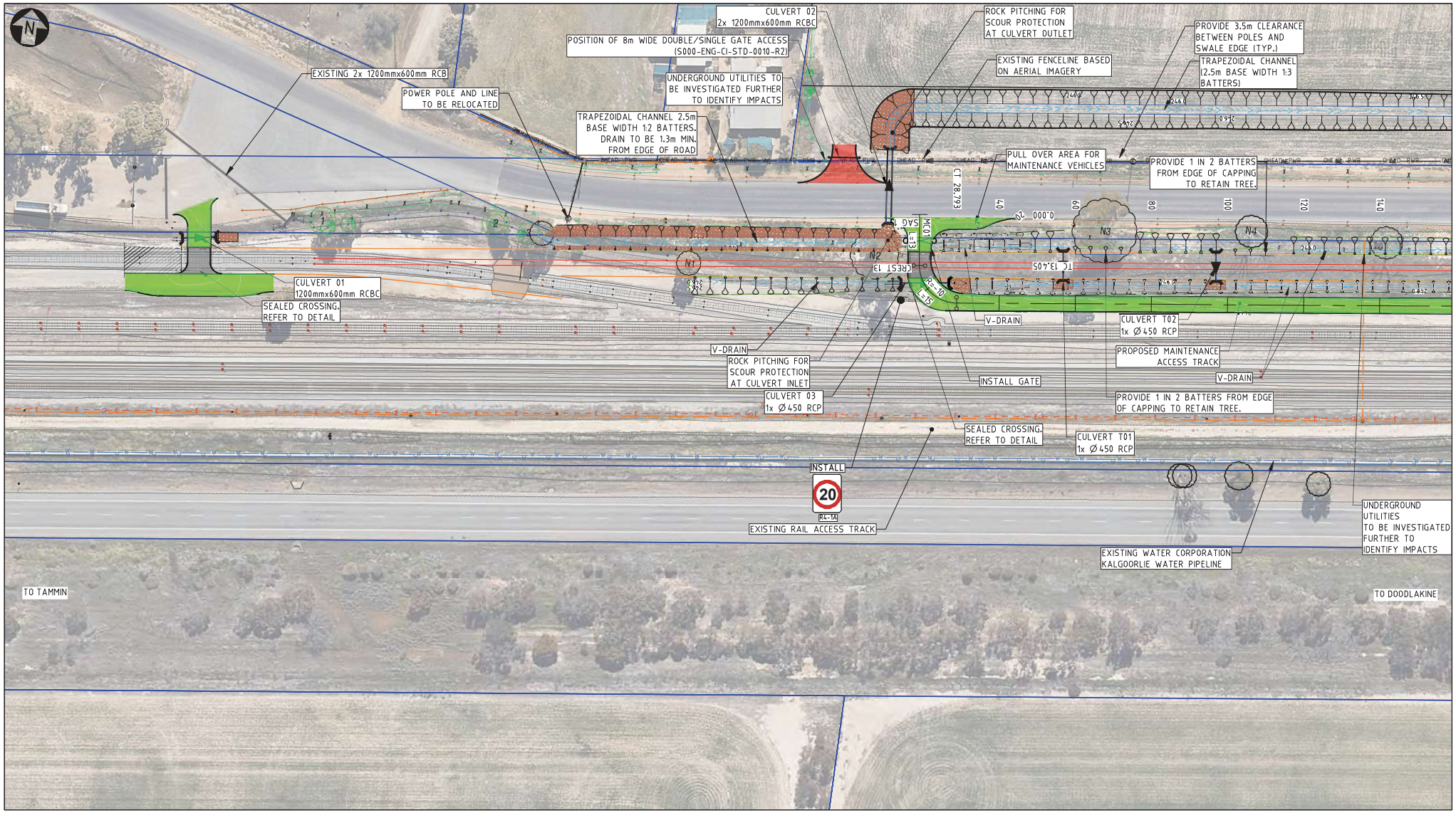

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				B	12.09.23	ISSUED FOR 30% DRAFT DESIGN	M.M	E.W	S.A
				A	14.08.23	ISSUED FOR 30% DRAFT DESIGN	M.M	E.W	S.A

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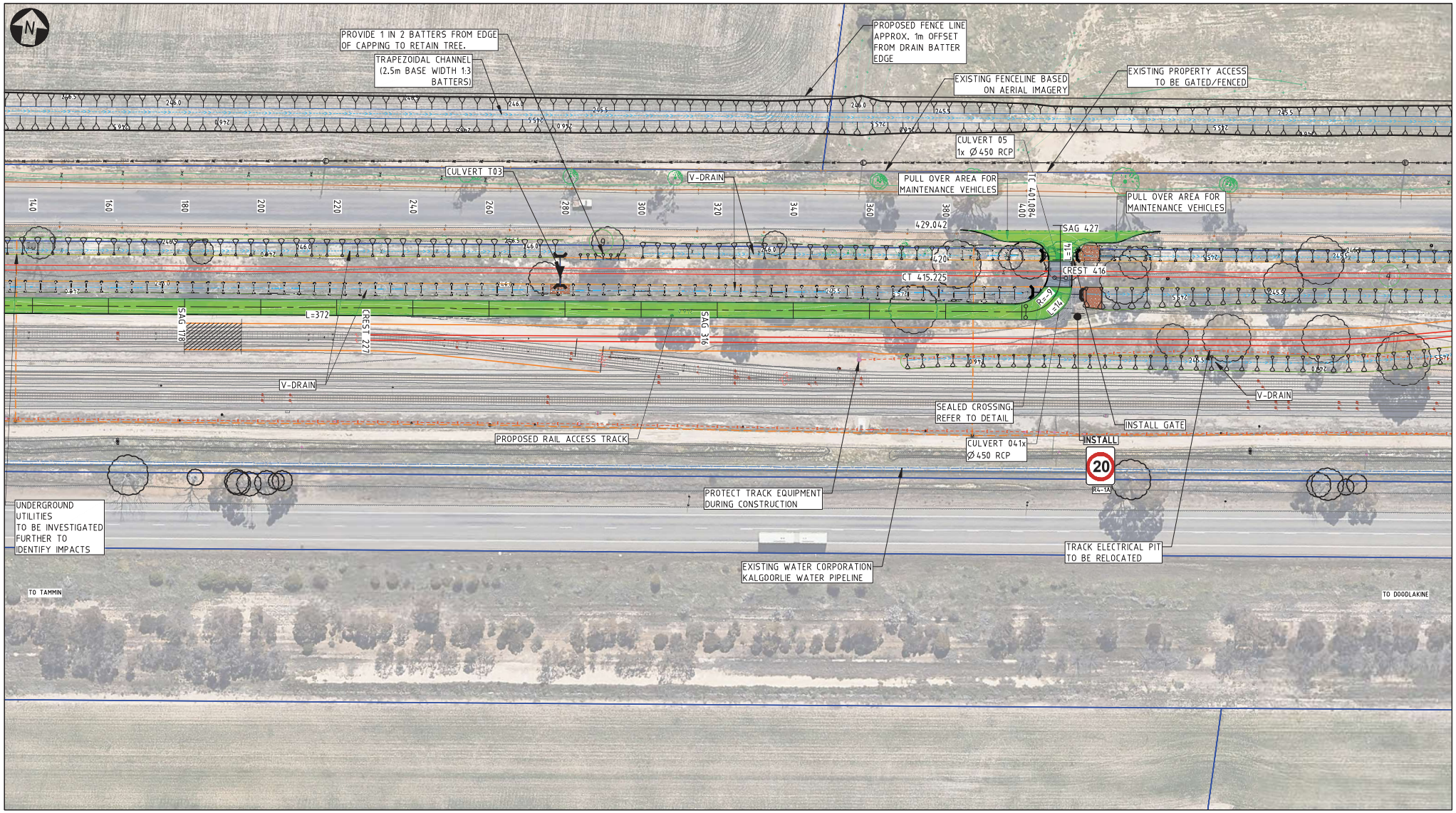
SHEET A1
PROJECT
CONTRACT No

DRAWN	A.UYAMMI	29.10.24
CHECKED	V.ABEYKOON	29.10.24
DESIGNED	A.ANTONYO	29.10.24
DESIGN APPR	B. VON BIBRA	29.10.24
PROJECT APPR	S.AYERS	29.10.24

TITLE
CBH KELLERBERRIN RAIL SIDING EXTENSION
DETAILED DESIGN
CIVIL AND DRAINAGE PLAN
SHEET 1 OF 4

DRG No 404-ENG-DR-DLP-0001
SHEET 1 OF 4
REV. D

Figure 1-2a: Proposal Indicative Site Development Plan



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A	14.08.23	ISSUED FOR 30% DRAFT DESIGN	M.M	E.W	S.A

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PROJECT
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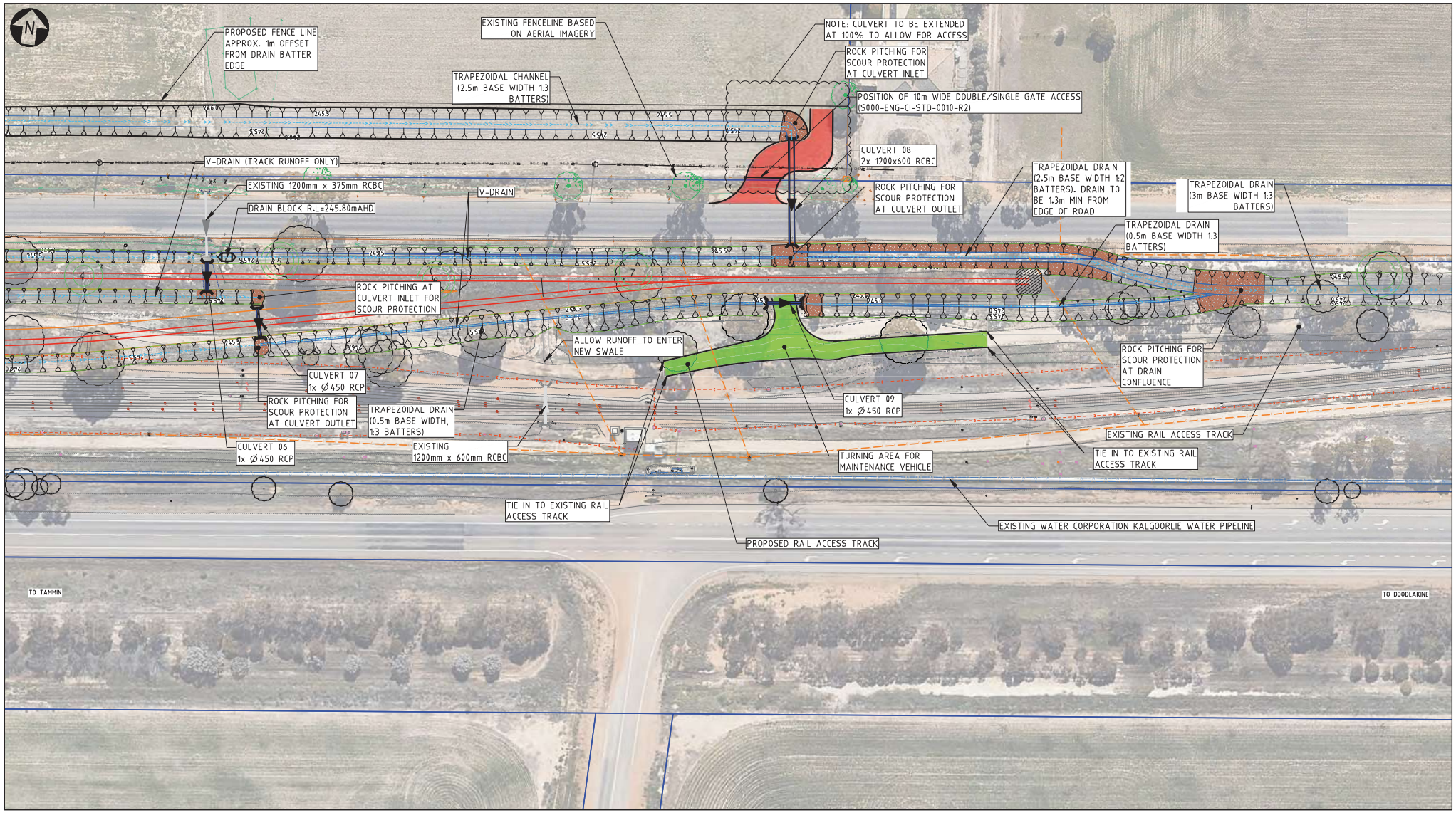
DESIGNED	A.ANTONYO	29.10.24
DESIGN APPR	B. VON BIBRA	29.10.24
PROJECT APPR	S.AYERS	29.10.24

TITLE
CBH KELLERBERRIN RAIL SIDING EXTENSION
DETAILED DESIGN
CIVIL AND DRAINAGE PLAN
SHEET 2 OF 4

ORG No 404-ENG-DR-DLP-0002 | SHEET 2 OF 4 | REV. D

Figure 1-2b: Proposal Indicative Site Development Plan



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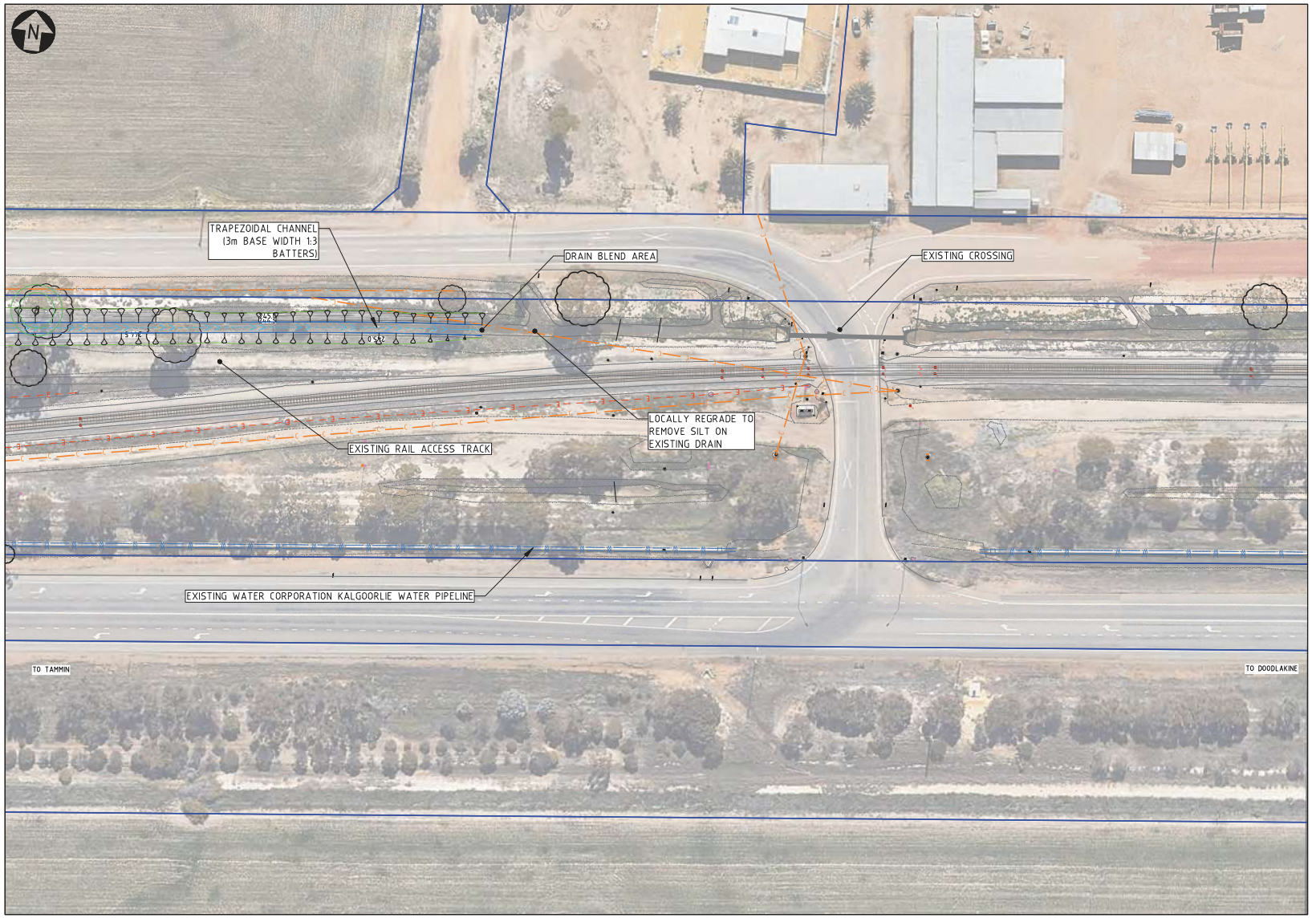
CBH KELLERBERRIN RAIL SIDING EXTENSION
DETAILED DESIGN
CIVIL AND DRAINAGE PLAN
SHEET 3 OF 4

DRG No 404-ENG-DR-DLP-0003
SHEET 3 OF 4
REV. D

Figure 1-2c: Proposal Indicative Site Development Plan



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PROJECT APPR	S.AYERS	29.10.24

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CBH KELLERBERRIN RAIL SIDING EXTENSION
DETAILED DESIGN
CIVIL AND DRAINAGE PLAN
SHEET 4 OF 4

DRG No 404-ENG-DR-DLP-0004
SHEET 4 OF 4
REV. D

Figure 1-2d: Proposal Indicative Site Development Plan

2. Physical Environment

2.1. Biogeographical and Regional Setting

The Development Envelope is located within the Avon-Wheatbelt Interim Biogeographical Regionalisation for Australia (IBRA) Bioregion and Merredin (AVW01) subregion (DAWE 2021).

The Avon Wheatbelt Bioregion is described as '*an area of active drainage dissecting a Tertiary plateau in Yilgarn Craton. Gently undulating landscape of low relief. Proteaceous scrub heaths, rich in endemics, on residual lateritic uplands and derived sandplains; mixed eucalypt, Allocasuarina huegeliana and Jam-York Gum woodlands on Quaternary alluvial and eluvial sediments'* (Beecham 2001).

The Merredin AVW01 subregion is represented by '*Proteaceous scrub heaths, mixed eucalypt, Allocasuarina huegeliana and Jam-York woodlands on Quaternary alluvial and eluvial soils'* (Beecham 2001).

2.2. Climate

The Avon Wheatbelt bioregion has a semi-arid (dry) and warm Mediterranean Climate (Beecham 2001).

Based on the Bureau of Meteorology (BoM) Kellerberrin weather station (station number 0073) located approximately 1.7 km north of the site, the area receives, on average, an annual total of 328.8 mm of rainfall, with most rainfall occurring during the winter months of June and July (52.4 mm and 51.2 mm, respectively [BoM 2025]).

The long-term mean minimum temperature for Station 0073 ranges from 5.3˚C (August) to 16.9˚C (February) and the long-term mean maximum temperature ranges from 16.5˚C (July) to 34.1˚C (January) (BoM 2023).

2.3. Geology, Landform and Soils

The Geological Survey of Western Australia 1:250,00 geology maps sheet for Kellerberrin (Sheet No. SH 50-15) shows the Kellerberrin CBH site overlies colluvium and minor alluvium, described as '*silt, sand and gravel derived from underlying and adjacent laterite and bedrock*', or alluvium, described as '*silt and sand in broad valley flats, extensively reworked by present drainage*'. These sediments are underlain by seriate adamellite, described as '*medium and coarse-grained, variable textures, locally porphyritic*', an Archaean era formation (Golder Associates 2018).

Soil landscapes and land system mapping of Western Australia describes broad soil and landscape characteristics from regional to local scales, ranging from 1:20,000 to 1:250,000 (DPIRD 2019a). The Development Envelope occurs within one land system; the Kellerberrin System (258Kb) which is described as '*Valley floors, in the central Zone of Ancient Drainage, with alkaline red shallow loamy duplex, alkaline grey sandy duplexes mainly in branch valleys (shallow and deep), calcareous loamy earth and hard cracking clay. Salmon Gum-Gimlet-Wand*.'

Department of Primary Industries and Regional Development's (DPIRD) broadscale salinity risk mapping indicates the Development Envelope is within a soil landscape map unit with a '30% moderate to extreme surface salinity risk' (DPIRD 2023a). Land Monitor remote sensing salinity mapping also shows

some small patches of potential salt-affected land occurring adjacent to the Development Envelope (DPIRD 2023a).

2.4. Hydrology

2.4.1. Legislated Areas

The Development Envelope does not occur within a Public Drinking Water Source Area proclaimed under the *Metropolitan Water Supply, Sewerage, and Drainage Act 1909* or the *Country Areas Water Supply Act 1947,* nor is it within a Groundwater Proclamation Area stipulated under the *Rights in Water and Irrigation Act 1914*. However, it does occur within the Avon River System Surface Water Proclamation Area, making it illegal for water to be taken from any surface water body without a licence or valid exemption.

2.4.2. Surface Water

The Development Envelope does not intersect with any watercourse, wetland or riparian zone. The closest notable hydrological feature is the Yilgarn River, approximately 1.5 km to the south. This tributary of the Avon River occurs in the northern zone of ancient drainage, a landscape characterised by very low relief with broad, flat valley floors with drainage through chains of salt lakes (DoW 2008), typified by this watercourse. Flow along the waterways in this zone is infrequent, typically occurring only in very wet winters or following heavy summer rains associated with cyclones or rain-bearing depressions (WRC & ARMA 1999). A lower-order tributary of the Yilgarn River, Morranoppin Creek, lies approximately 1.2 km to the east of the Development Envelope, where it is bisected by the Great Eastern Highway.

The Development Envelope currently contains an open drain that runs between the existing railway corridor and Mather Road. This drain terminates at a culvert under an existing level rail crossing at the eastern end of the Development Envelope.

2.4.3. Groundwater

Groundwater was not observed to be present within the depths of boreholes (up to 2.6 m below ground level [mbgl]) installed for a geotechnical investigation of the existing CBH Kellerberrin Grain Receival Site (located to the north-west of the Development Envelope) conducted in January 2018 (Golder Associates 2018). Water at approximately 1 mbgl was observed in two small drainage ponds located in the centre of the existing Grain Receival Site.

Groundwater monitoring bores located around the Kellerberrin township show that over the last 20 years, there has been an overall downward trend in the height of the local groundwater (BoM 2024). The average height of the four closest bores to the Development Envelope (ARTP00KE01D, ARTP00KE15D, ARTP00KE20D and ARTPOOKE28D) in 2000 was 4.1 mbgl, whilst the average groundwater height across these four bores in 2020 was 5.7 mbgl (BoM 2024). This is likely reflective of the overall decline in annual rainfall experienced by this area over the same period (BoM 2025).

2.5. Broad-scale Vegetation

The Development Envelope occurs within one pre-European vegetation association – Mt Caroline (1049). This vegetation association is described as '*Medium woodland; Wandoo, York Gum, Salmon Gum, Morrel and Gimlet*'. Approximately 6.8% (56,618.30 ha of this vegetation association remains

within the Avon Wheatbelt IBRA bioregion and Statewide as of 2019, with 3,372.40 ha (6.0%) of its current extent protected in reserves (DBCA 2019).

This vegetation association is from a list and mapping covering WA developed by DPIRD (Shepherd et al. 2002) derived from 1:1,000,000 scale mapping originally undertaken at a regional scale by Beard (1978), who categorised vegetation into broad vegetation associations.

2.6. Areas of Conservation Significance

2.6.1. Environmentally Sensitive Areas

Environmentally Sensitive Areas (ESAs) are defined in the Environmental Protection (Environmentally Sensitive Areas) Notice 2005 under s 51B of the EP Act. ESAs include areas declared as World Heritage, on the Register of the National Estate, defined wetlands, and vegetation containing Rare (Threatened) flora and Threatened Ecological Communities (TECs) listed under the BC Act.

No ESAs occur within, or near, the Development Envelope. The nearest ESA, a population of Declared Rare Flora located approximately 16.9 km to the north-west of the Development Envelope (DWER 2021).

2.6.2. Nature Reserves and Conservation Estate

No nature reserves or conservation estates within or close to the Development Envelope.

The nearest conservation area, Mount Caroline Nature Reserve, is located approximately 18 km to the south-west of the Development Envelope (DBCA 2019).

3. Biological Environment

3.1. Ecological Surveys

CBH commissioned 360 Environmental to undertake a reconnaissance flora and vegetation, a basic fauna and a targeted black cockatoo survey in October 2021 (360 Environmental 2022 [Appendix C], 2023 [Appendix D]) within a 27.96 ha survey area ('360 Environmental Survey Area').

In October 2023, Bamford Consulting Ecologists (Bamford) undertook an updated targeted black cockatoo survey and a Trapdoor Spider assessment within a 14.61 ha survey area ('Bamford Survey Area'; Bamford 2024 [Appendix E]).

The location of the survey areas and Development Envelope is shown in Figure 3-1. A 2.12 ha section of the Disturbance Footprint located to the north of Mather Road was not included within the 360 Environmental or Bamford Survey Areas. This area consists entirely of cleared agricultural land and thus has been classified as 'Cleared'.

3.2. Flora and Vegetation

3.2.1. Flora

A total of 34 taxa from 19 genera and 12 families were recorded within the 360 Environmental Survey Area (360 Environmental 2022). The dominant families were Myrtaceae (15 species) and Poaceae (four species).

3.2.1.1. Conservation Significant Flora

A pre-survey desktop assessment identified the potential for 74 conservation significant species to occur within the 360 Environmental Survey Area. A total of 15 species were considered to have a high likelihood of occurring within this survey area, with one of these species, *Acacia cowaniana* (Priority 2), being previously recorded.

No endemic conservation significant flora species were observed during the field survey (360 Environmental 2022). One Priority species, *Eucalyptus brockwayi* (P3), was recorded within the 360 Environmental Survey Area, however, this species is endemic to the Eastern Mallee subregion and is likely to have been planted. Due to the planted status of the species, it is not regarded as a species of conservation significance in the context of the survey.

Acacia cowaniana (P2) had previously been recorded within the 360 Environmental Survey Area but outside the Development Envelope. The species is unlikely to still be present. This is due to the date of the record (1897) and historical imagery indicating that much of the 360 Environmental Survey Area, including the location of the previous record, has been cleared and highly disturbed since it was recorded 127 years ago (360 Environmental 2022).

3.2.1.2. Introduced Flora

Nine introduced (weed) species were recorded within the 360 Environmental Survey Area, representing 24% of the total number of species recorded. These included:

- *Avena* sp.- Wild Oat
- *Echium plantagineum* – Paterson's Curse
- *Ehrharta longiflora* – Annual Veldt Grass
- *Ficus* sp. – Fig
- *Lolium rigidum* – Rye Grass
- *Oncosiphon piliferum* - Globe Chamomile
- *Raphanus raphanistrum* – Wild Radish
- *Schinus mole* – Peppercorn Tree
- *Sonchus asper* – Rough Sowthistle.

Of these species, no Weeds of National Significance were recorded.

One, *Echium plantagineum,* is listed as a Declared Pest under the *Biosecurity and Agriculture Management Act 2007* (BAM Act) (DPIRD 2021).

The other recorded introduced species are listed as s11 (permitted) species under the BAM Act. The s11 (permitted) species category on the Western Australian Organism List database indicates that no specific management of these species is required.

3.2.2. Vegetation

The majority (19.56 ha [70.1%]) of the 360 Environmental Survey Area was devoid of vegetation and thus classified as Cleared.

Within the vegetated areas, ten vegetation types were mapped within the 360 Environmental Survey Area. Five of these vegetation types occur within the Disturbance Footprint:

- Three vegetation types were classified as containing native vegetation (1.48 ha) – ElEs, El and ES
- Two vegetation types were classified as containing non-native vegetation (1.23 ha) - Mixed Weeds and NeE.

The remainder of the Disturbance Footprint (3.27 ha) is classified as Cleared.

All the vegetation types mapped within the 360 Environmental Survey Area are described in Table 3-1. Vegetation types within the Disturbance Footprint are presented in Figure 3-2.

Table 3-1: Vegetation Communities within the 360 Environmental Survey Area / Disturbance Footprint

Vegetation Codes	Vegetation Type Descriptions	360 Environmental Survey Area (ha)	Disturbance Footprint (ha)
Native Vegetation			
ElEs	*Eucalyptus loxophleba* subsp. *loxophleba* low isolated trees over *Acacia leptopetala*, *A. hemiteles*, and *Rhagodia drummondii* low isolated shrubs over **Avena* sp., **Lolium rigidum,* and *Rytidosperma caespitosum* low sparse grassland over **Echium plantagineum* low isolated herbs.	1.74	1.46
Es	Isolated *Eucalyptus salmonophloia*	0.12	0.02
El	*Eucalyptus loxophleba* subsp. *loxophleba*	0.06	< 0.01
eE	Endemic Eucalypts	0.13	0.00
Allocasuarina sp.	Isolated *Allocasuarina*	0.03	0.00
Mixed endemic and non-endemic Eucalypts	Low open woodland of *Eucalyptus arachnaea* subsp. *arachnaea*, **Eucalyptus campaspe* and *Eucalyptus aspratilis* over isolated *Sclerolaena* sp. and mixed grasses	1.59	0.00
Non-Native Vegetation			
NeE	Non-endemic Eucalypts	1.41	0.01
Mixed Weed	Mixed weeds e.g., *Lolium rigidum*, *Avena* sp. herbs	1.77	1.22
Garden/Ne/NeEs	Mixed cultivated and irrigated gardens of non-endemic Eucalypts and other non-endemic trees and shrubs	1.42	0.00
Ne	Non-endemic trees	0.07	0.00
No Vegetation			
Cleared	Cleared	19.62	3.27
	Total	**27.96**	**6.01**

3.2.2.1. Conservation Significant Ecological Communities

Within the 360 Environmental Survey Area, four patches of the 'ElEs' vegetation type were identified as potentially being analogous with the federally listed Wheatbelt Woodland TEC (360 Environmental 2023; Appendix D). These patches were assessed against the diagnostic characteristics of the TEC as provided in the Approved Conservation Advice (DoE 2015). The assessment concluded that Patch 3 met key diagnostic and condition threshold criteria for a Category D Wheatbelt Woodlands TEC (360 Environmental 2023). This 1.46 ha patch is located within the Development Envelope (Figure 3-2). This community is listed as Priority 3 Priority Ecological Community (PEC) by Department of Biodiversity, Conservation and Attractions (DBCA).

3.2.2.2. Vegetation Condition

The vegetation condition within the 360 Environmental Survey Area ranges between Degraded or Completely Degraded, comprising 3.67 ha (13.1%) in Degraded condition and 4.68 ha (16.8%) in Completely Degraded condition. The remaining 19.6 ha (70.1%) of the 360 Environmental Survey Area is devoid of vegetation (Cleared).

Within the Disturbance Footprint, the majority (75.2%; 4.48 ha) is Completely Degraded and/or Cleared and contains no native vegetation, with the remainder (24.8%; 1.48 ha) containing native vegetation in Degraded condition (Figure 3-3). The sources of disturbance include weed infestation, littering and the historical clearing of vegetation for local infrastructure.

Figure 3-1: Ecological Survey Areas

- Development Envelope (6.04 ha) (CBH 2024)
- Disturbance Footprint (6.01 ha) (CBH 2024)
- Avoidance Area (0.03 ha) (CBH 2024)
- Bamford Consulting Survey Area (14.61 ha) (Bamford Consulting 2024)
- 360 Environmental Survey Area (27.96 ha) (360 Environmental 2023)
- Distributor Road (MRWA 2023)
- Access Road (MRWA 2023)

0 112.5 225 450
Metres

Datum/Projection:
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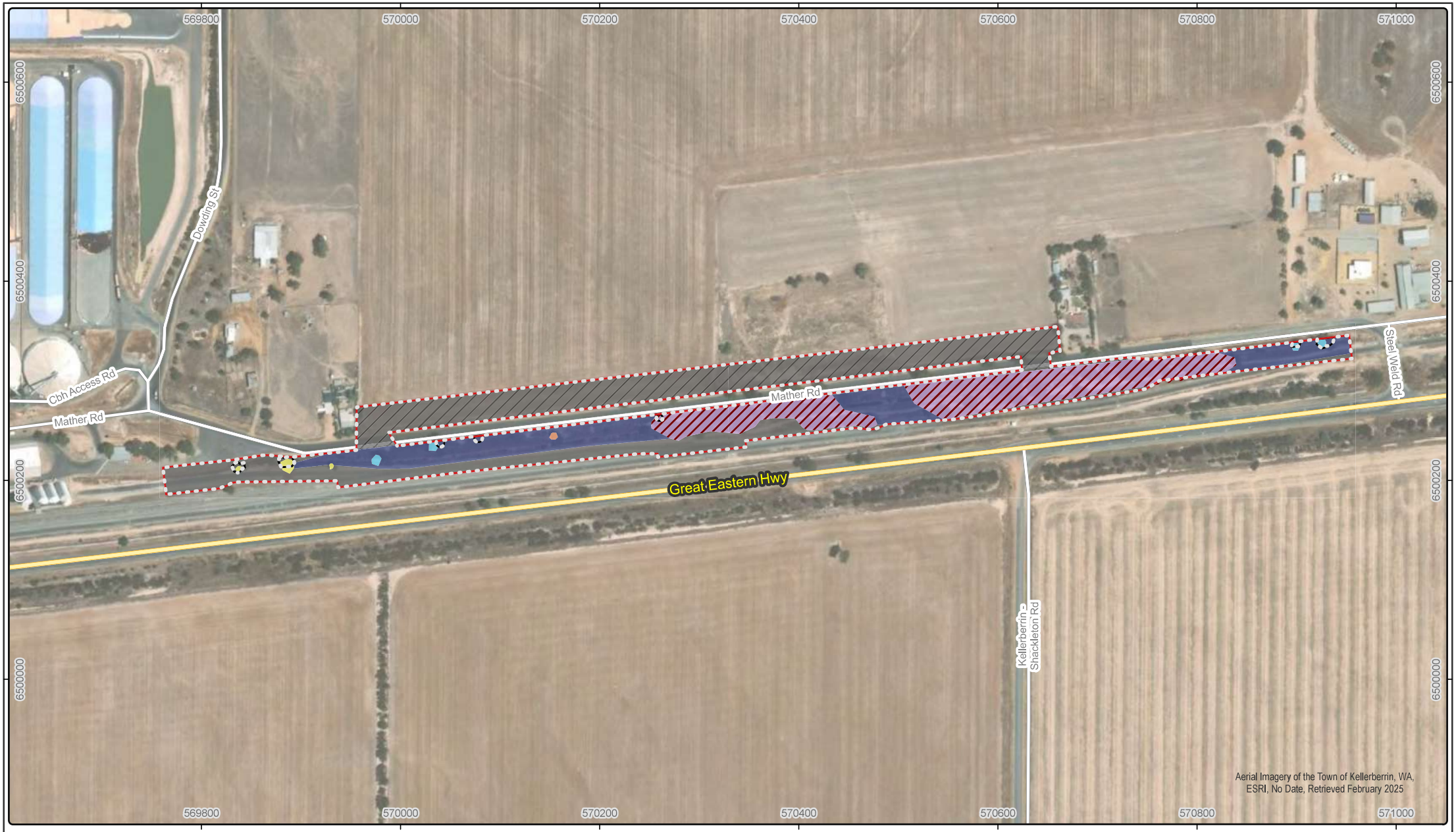

Figure 3-2: Vegetation Types within the Development Envelope

- Development Envelope (6.04 ha) (CBH 2024)
- Disturbance Footprint (6.01 ha) (CBH 2024)
- Avoidance Area (0.03 ha) (CBH 2024)
- Distributor Road (MRWA 2023)
- Access Road (MRWA 2023)
- Cleared (1.15 ha)
- Cleared (Extrapolated) (2.12 ha)

Vegetation Types (360 Environmental 2022)

- EI (<0.01 ha)
- EIEs (1.46 ha)
- Es (0.02 ha)
- Mixed weeds (1.22 ha)
- NeE (0.01 ha)

Wheatbelt Woodlands TEC (360 Environmental 2023)

- Wheatbelt Woodlands (1.46 ha)

0 45 90 180
Metres

Datum/Projection:
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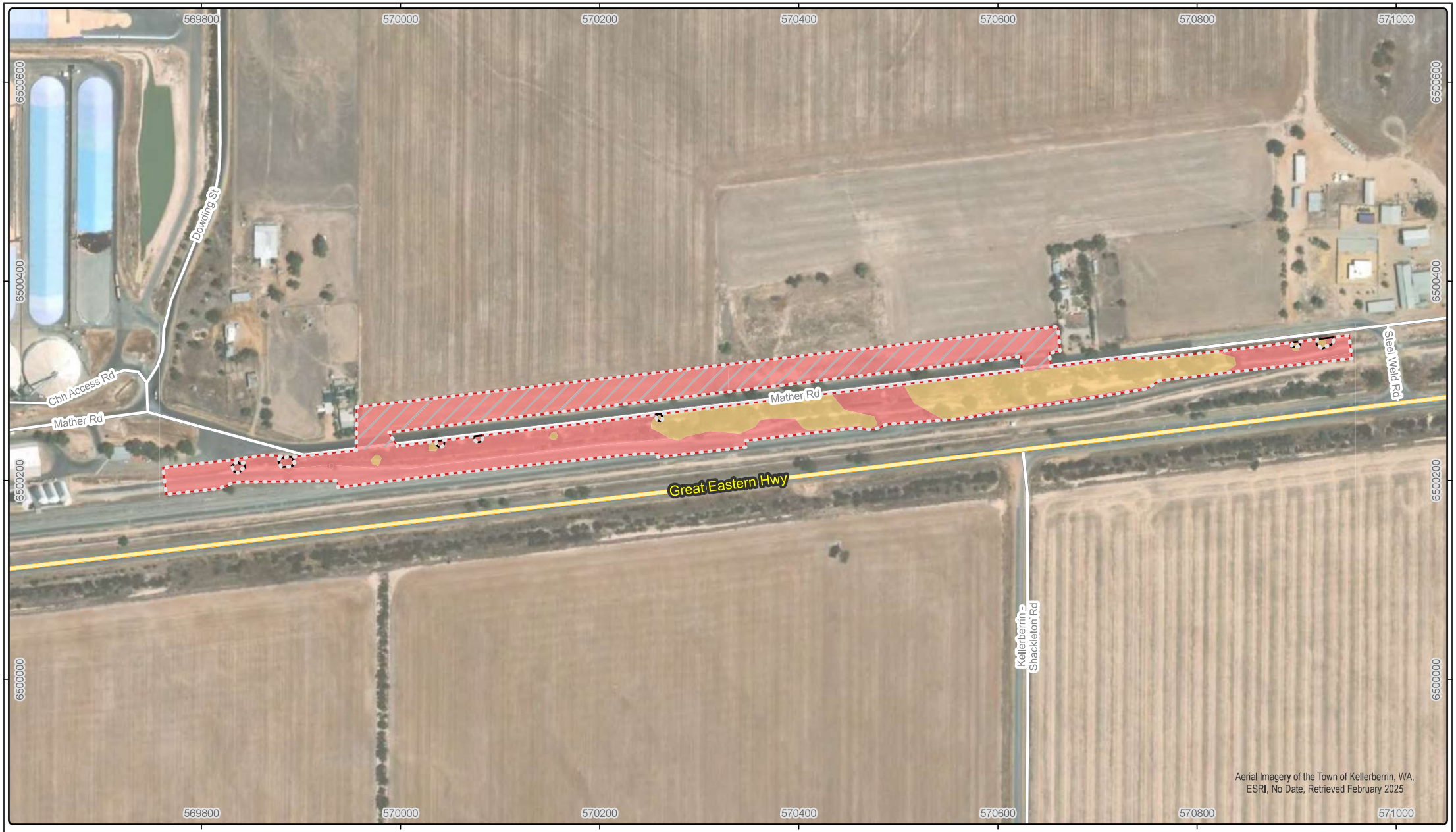

Figure 3-3: Vegetation Condition within the Development Envelope

- Development Envelope (6.04 ha) (CBH 2024)
- Disturbance Footprint (6.01 ha) (CBH 2024)
- Avoidance Area (0.03 ha) (CBH 2024)
- Distributor Road (MRWA 2023)
- Access Road (MRWA 2023)

Vegetation Condition (360 Environmental 2022)

- Degraded (1.48 ha)
- Completely Degraded (2.36 ha)
- Completely Degraded (Extrapolated) (2.12 ha)

0 45 90 180
Metres

Datum/Projection:
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3.3. Terrestrial Fauna

3.3.1. Terrestrial Fauna Habitat

Most (19.56 ha [70.1%]) of the 360 Environmental Survey Area was devoid of fauna habitat and thus classified as Cleared.

Three broad fauna habitat types were identified within the 360 Environmental Survey Area, with two occurring within the Development Envelope. One of these, Mixed endemic and non-endemic Eucalypt woodland (1.48 ha (24.9% of the Disturbance Footprint), was classified as native vegetation, while the other habitat type, Open weedy grassland (1.22 ha (20.3%) of the Development Envelope), was classified as non-native. The remaining 3.27 ha (54.7% of the Development Envelope) is Cleared.

All the habitat types mapped within the 360 Environmental Survey Area are described in Table 3-2. Fauna habitats within the Development Envelope are also presented in Figure 3-4.

Table 3-2: Fauna Habitat Types within the 360 Environmental Survey Area and Disturbance Footprint

Fauna Habitat Type	Description	360 Environmental Survey Area (ha)	Disturbance Footprint (ha)
Mixed endemic and non-endemic Eucalypt woodland	Open woodland of *Eucalyptus loxophleba, E. salmonophloia* and *E. camaldulensis* over sparse tussock grassland.	4.74	1.48
Garden, landscaping	Open woodland (introduced Eucalypts) over cultivated and landscaped shrubland and heathland over low sparse rushland and/or sedgeland	1.77	0.00
Open weedy grassland	Open tussock grassland and forbland	1.77	1.22
Cleared	Cleared	19.62	3.27
	Total	**27.96**	**6.01**

3.3.2. Terrestrial Fauna Species

A total of 21 fauna species, from 14 families, were recorded within the 360 Environmental Survey Area. All of the species recorded were avian, with no mammals, reptiles or amphibians being recorded (360 Environmental 2022).

A total of 11 bird species were opportunistically recorded during the Bamford (2023) survey, including two additional species not recorded during the 360 Environmental survey (360 Environmental 2022).

No EPBC Act, BC Act or DBCA Priority listed fauna species were recorded within or directly surrounding the Development Envelope during either survey.

The post-survey likelihood assessment (360 Environmental 2022; Appendix C) identified one conservation significant species, Carnaby's Black Cockatoo (*Zanda latirostris*; Endangered under the EPBC Act and BC Act), as having a high likelihood of occurrence within the Development Envelope.

The Peregrine Falcon (*Falco peregrinus*; Specially Protected Fauna under the BC Act) was identified as having a medium likelihood of occurring within the Development Envelope (360 Environmental 2022).

A targeted survey (Bamford 2024) undertaken for the Shield-backed Trapdoor Spider (*Idiosoma nigrum*; Vulnerable under the EPBC Act and Endangered under the BC Act) determined the species was unlikely to occur within the Development Envelope.

3.3.2.1. Carnaby's Black Cockatoo

Two assessments of Carnaby's Black Cockatoo foraging, breeding and roosting habitat were undertaken within the Development Envelope; 360 Environmental (2022) and Bamford (2024). For the purposes of this document, only the data collected by Bamford (2024) will be referenced. This is because this data is more recent, and reviewed the data previously obtained by 360 Environmental (2022).

The Development Envelope only occurs within the modelled distribution of Carnaby's Black Cockatoo (DAWE 2022), so the species was the focus of the assessment. The survey was undertaken with reference to both the original Department of Sustainability, Environment, Water, Population and Communities (DSEWPaC 2012) referral guidelines and updated referral guidelines (DAWE 2022) and recommendations listed on the DCCEEW Species Profile and Threats Database (DCCEEW 2023a,b,c). Ecological values for black cockatoos within the site were based on the definitions of breeding, foraging and roosting habitat as per the DSEWPaC (2012) EPBC Act referral guidelines for black cockatoos. The foraging value of the vegetation was assessed by the type, density and condition of trees and shrubs in an area and took into account the site context (i.e. the availability of foraging habitat nearby [Bamford 2024]). Areas of similar vegetation were grouped together in Vegetation and Substrate Associations (VSA). Observations were also made of any Carnaby's Black Cockatoo foraging activity or feeding residue such as chewed cones, nuts or branch clippings, and any individuals within the survey area.

Potential breeding habitat for black cockatoos was also mapped in accordance with the DSEWPaC (2012) guidelines and consisted of recording trees of suitable species with a Diameter at Breast Height (DBH) greater than 500 mm or greater than 300 mm for Salmon Gum (*Eucalyptus salmonophloia*) and Wandoo (*Eucalyptus wandoo*) (DSEWPaC 2012). Trees with a DBH greater than 500 mm (or >300 mm for Salmon Gum and Wandoo) are large enough to potentially contain hollows suitable for nesting Carnaby's Black Cockatoo or have the potential to develop suitable hollows over the next 50 years. Trees were assigned a nest tree rank (1-5) by assessing (from the ground) for the potential presence/quality of nest hollows and the presence of signs of cockatoo use (Bamford 2024).

3.3.2.1.1. Foraging Habitat

Overall, the Development Envelope has a low foraging value for Carnaby's Black Cockatoo.

The highest foraging score was 4/10 (moderate foraging value) for the Eucalyptus Woodland VSA. This VSA received a relatively elevated value due to the moderate density of *Eucalyptus* species, including mature Salmon Gums and regrowth York Gums.

The Planted Trees VSA received a score of 3/10 (low to moderate foraging value), due to the low abundance of *Eucalyptus* species.

The Open Areas VSA received a score of 1/10 (negligible to low foraging value) due to the minimal foraging values for black cockatoos being present in the form of weeds such as *Raphanus raphanistrum* (Wild Radish).

The foraging value for each VSA within the Disturbance Footprint is provided in Table 3-3 and Figure 3-5. The Disturbance Footprint contained 3.39 ha of vegetation considered to be suitable foraging habitat for Carnaby's Black Cockatoo (Bamford 2024); of this area, 1.74 ha (51.3%) was of moderate value, 0.03 ha (0.9%) was of low to moderate value and 1.62 ha (47.8%) was of negligible to low value. The remaining 2.59 ha of the Disturbance Footprint had no foraging value, including the 2.12 ha northern section of the Disturbance Footprint, which was outside the Bamford Survey Area. This northern section consists entirely of cleared agricultural land.

Table 3-3: Carnaby's Black Cockatoo Foraging Habitat Quality within the Bamford Survey Area and Disturbance Footprint

Vegetation and Substrate Associations (VSAs)	Foraging Quality	Bamford Survey Area	Disturbance Footprint
		Total Area (ha)	Total Area (ha)
Eucalyptus Woodland	4/10	2.29	1.74
Planted Trees	3/10	0.31	0.03
Open Areas	1/10	6.14	1.62
Cleared	0/10	5.87	2.62
TOTAL		**14.61**	**6.01**

3.3.2.1.2. Breeding Habitat

There are no known breeding sites within 40 km of the Bamford Survey Area; the closest known Carnaby's Black Cockatoo breeding sites are 120 km west (Bamford 2024). Despite this, a total of 31 trees that met the potential breeding habitat criterion of DAWE (2022) and DSEWPaC (2012) were identified within the Bamford Survey Area (Figure 3-5) (Bamford 2024). Of these trees, eight occur within the Disturbance Footprint (one introduced *Eucalyptus sp.* and seven *E. salmonophloia*). Six of the potential breeding trees within the Disturbance Footprint contained hollows suitable for use by Carnaby's Black Cockatoo (nest tree rank 3); however, no evidence of current or historic Carnaby's Black Cockatoo breeding was observed in relation to these hollows (Bamford 2024).

The potential breeding trees recorded by 360 Environmental (2022) were reassessed by Bamford (2024). The second assessment found that for some trees, the trunks were branching just above 1.3 m from the ground into narrow stems (smaller than the minimum diameter required) and thus could not provide hollows of suitable size for black cockatoos even if those stems had been hollow. These trees were therefore not considered suitable for breeding.

3.3.2.1.3. Roosting Habitat

Nearby water sources are an important habitat feature for a Carnaby's Black Cockatoo roost (DAWE 2022). There are dams located nearby the Development Envelope (e.g. one is within approximately 200 m, others within approximately 2 km). The large *Eucalyptus* trees within the Disturbance Footprint therefore have the potential to offer suitable black cockatoo roosting habitat.

However, there are no known roosting sites within 40 km of the Bamford Survey Area (Bamford 2024). The closest unconfirmed roosting site for black cockatoos is approximately 50 km to the west; this site is suspected to be a roosting site, but this has not been confirmed, including when visited during the Great Cocky Count, an annual citizen science black cockatoo monitoring event run by BirdLife Australia (2024). The closest confirmed roosting site for white-tailed black cockatoos is approximately 94 km from the Bamford Survey Area; this site was last confirmed used in 2011 and has not been surveyed since 2016 (when no birds were counted here; Bamford 2024).

It was noted by Bamford (2024) that while Carnaby's Black Cockatoo could roost within the large Eucalypt trees within the Disturbance Footprint, the Disturbance Footprint is not a known night roost site.

3.3.2.1.4. Black Cockatoo Presence

There are at least four black cockatoo records within 15 km of the Development Envelope, the most recent being from 2020, located approximately 2 km south-west (Bamford 2024). Three additional locations occur within 40 km of the Bamford Survey Area. Despite these records, no Carnaby's Black Cockatoos were observed, nor was there any evidence of foraging recorded during the field surveys (360 Environmental 2022; Bamford 2024). Due to these factors, Carnaby's Black Cockatoo are likely to be irregular visitors to the Development Envelope as despite being within the species' range, the vegetation present is degraded and isolated (Bamford 2024).

3.3.2.2. Shield-backed Trapdoor Spider

The desktop assessment undertaken as part of the targeted trapdoor spider survey identified that four conservation-significant trapdoor spider species had been recorded within 40 km of the Bamford Survey Area; however, none of the records were within 15 km (Bamford 2024).

Three small shrubs within the Bamford Survey Area were identified as having the potential to create suitable leaf litter habitat and shelter for trapdoor spiders. All shrubs in the Bamford Survey Area were assessed for evidence of trapdoor spider burrows; however, no evidence was observed (Bamford 2024).

Given the Bamford Survey Area occurs within the Shield-backed Trapdoor Spider range and the abundance of previous records within 40 km, it is considered likely by Bamford (2024) that the Shield-backed Trapdoor Spider occurs within the vicinity of the Bamford Survey Area. However, the scarcity of suitable habitat (three small shrubs) and the absence of any evidence observed during the survey make it unlikely this species occurs within the Disturbance Footprint (Bamford 2024).

Figure 3-4: Fauna Habitat within the Development Envelope

Development Envelope (6.04 ha) (CBH 2024)
Disturbance Footprint (6.01 ha) (CBH 2024)
Avoidance Area (0.03 ha) (CBH 2024)

Fauna Habitat (360 Environmental 2022)

Cleared (1.15 ha)
Cleared (Extrapolated) (2.12 ha)
Mixed endemic and non-endemic Eucalypts (1.49 ha)
Weedy grassland (1.22 ha)

0 40 80 160
Metres

Datum/Projection:
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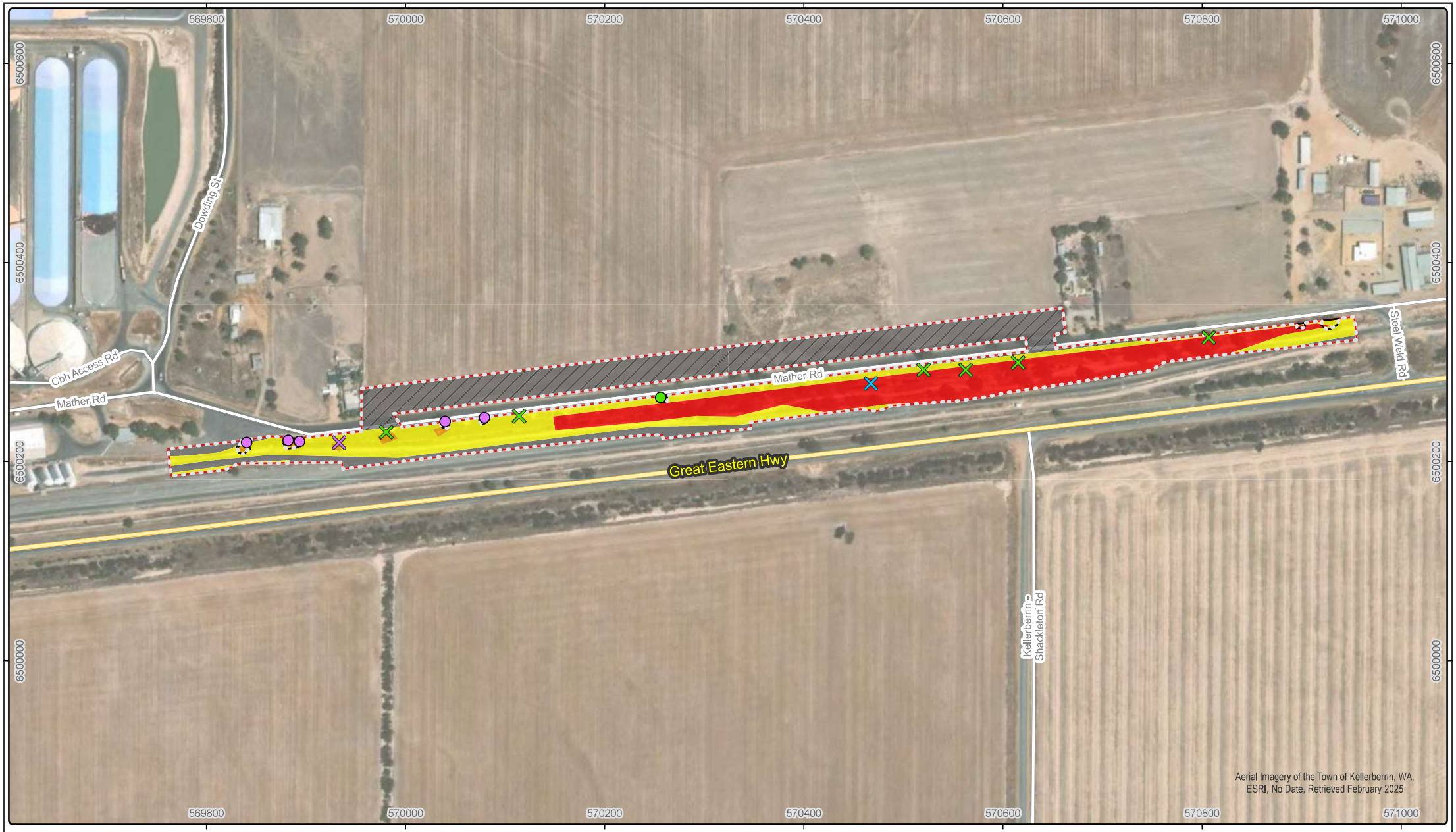

Figure 3.5: Carnaby's Cockatoo Habitat within the Development Envelope

- Development Envelope (6.04 ha) (CBH 2024)
- Disturbance Footprint (6.01 ha) (CBH 2024)
- Avoidance Area (0.03 ha) (CBH 2024)
- Distributor Road (MRWA 2023)
- Access Road (MRWA 2023)

Carnaby's Black Cockatoo Potential Breeding/Roosting Trees (Bamford 2024)

Cleared

- Suitable Hollows (Rank 3)
- Unsuitable Hollows (Rank 4)
- No Hollows (Rank 5)

Retained

- Suitable Hollows (Rank 3)
- No Hollows (Rank 5)

Carnaby's Black Cockatoo Foraging Habitat (Bamford 2024)

- No Foraging Value (0.47 ha)
- No Foraging Value (Extrapolated) (2.12 ha)
- Negligiable to Low (1.62 ha)
- Low to Moderate (0.03 ha)
- Moderate (1.74 ha)

0 45 90 180
Metres

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4. Clearing of Native Vegetation

Excluding activities that are exempt under Schedule 6 of the EP Act or s 5 (Prescribed Clearing) of the Environmental Protection (Clearing of Native Vegetation) Regulations 2004, all native vegetation clearing should be done in accordance with an NVCP.

4.1. Proposed Clearing

The Proposal will include clearing up to 1.48 ha of native vegetation. Vegetation or habitat values that occur within the Development Envelope but outside the Disturbance Footprint (i.e. within the area avoided by the Proposal, the 'Avoidance Area'), including potential breeding/roosting trees for Carnaby's Black Cockatoo, will be managed to avoid and minimise indirect impacts (Section 4.2).

4.2. Measures to Avoid and Mitigate Clearing

4.2.1. Development Envelope alternatives, avoidance, and mitigation

Multiple concepts for the rail alignment were explored in the early stages of project development. Given the constraints in the area surrounding the existing Kellerberrin railway, alternative potential sites for the Proposal were extremely limited. These constraints included (but were not limited to):

- The location of existing Grain Receival Site and rail infrastructure
- Ensuring the new rail alignment was fit for purpose and could allow the targeted 88 train wagons to fit within a single shunt
- Technical rail considerations due to design criteria of rail infrastructure manager Arc Infrastructure
- Avoiding impacts to existing level crossings (Arc Infrastructure requirement)
- The inability to construct new level crossing by curving the rail siding to the north over Mather Road (Arc Infrastructure requirement)
- Difficulties associated with existing land ownership/acquisition.

In consideration of the above constraints, two options remained, extending the siding east, or west. The 27.96 ha 360 Environmental Survey Area (360 Environmental 2023) covered the areas considered for construction of the Proposal. The option to the west brought the noise from the rail operation closer to Kellerberrin town and caused the sensors for the level crossing boom gates to be activated by shunting. This was difficult to correct or avoid through design. The clearing of native vegetation was also required as part of the western option. After consideration of operational and rail network constraints and combined with potential environmental and social impacts, a single viable option (the Proposal) remained. The proposed Disturbance Footprint avoids 2.19 ha (59.7%) of the native vegetation located within the 360 Environmental Survey Area.

The proposed Disturbance Footprint also avoids 23 potential Carnaby's Black Cockatoo breeding trees, and 5.34 ha (61.1%) of the foraging habitat identified within the Bamford Survey Area (Bamford 2023). The Disturbance Footprint within the Development Envelope was intentionally reduced to avoid impacts to six potential Carnaby's Black Cockatoo breeding trees located in the Development Envelope; two

Eucalyptus salmonophloia, one *E. loxophleba* (a rank 3 tree containing a potentially suitable hollow) and three planted *E.* sp., which are located within the Avoidance Area. This was achieved by:

- Optimisation of the rail alignment and associated infrastructure south of Mather Road
- Minimising the extent of earthworks around potential habitat trees, as far as practicable
- Adjusting the drainage design, including minimising drainage infrastructure constructed to the south of Mather Road and instead constructing the majority to the north of Mather Road, within areas of cleared agricultural land (**Figure 1-2a-d)**.

Trees have only been proposed to be cleared where there is no ability for retention given their location as well as construction and operational constraints.

The Disturbance Footprint is inclusive of all areas that may be impacted by the Proposal. However, the final extent of vegetation clearing will be minimised as much as practicable during construction. The final length of the railway track will be the minimum required for operation and achievement of project technical specifications.

4.2.2. Construction Environmental Management Plan

A draft CEMP will be prepared and finalised before the commencement of vegetation clearing/construction to describe how the impacts of activities related to the construction phase of the Proposal will be managed to reduce potential direct and indirect impacts on the environment.

This document outlines management measures undertaken during the Proposal's construction (e.g. demarcation of clearing areas and timing of clearing), including a pre-clearance Carnaby's Black Cockatoo survey. To avoid potential impacts on breeding Carnaby's Black Cockatoo, if the Proposal is undertaken during the breeding season (July to January), within seven days before any clearing all potentially suitable breeding trees that may be cleared will be investigated for the presence of nesting Carnaby's Black Cockatoo. If cockatoo breeding is confirmed or suspected, the breeding tree will be marked with fencing and signage within 2 m of the base of the breeding tree. The breeding tree, or any vegetation within 10 m of the breeding tree will not be cleared until the hollow is no longer used by Carnaby's Black Cockatoo.

The CEMP also outlines other good practice construction environmental management requirements, for example, the appropriate storage and handling of chemicals and hydrocarbons, groundwater and surface water management, dust and weed management and other hygiene measures during the construction period.

5. Assessment against the Ten Clearing Principles

5.1. Comprises a High Level of Biological Diversity

A total of 34 flora taxa from 19 genera and 12 families were recorded during the 360 Environmental (2022) survey. The dominant families were Myrtaceae (15 species) and Poaceae (4 species). Of these species, nine are introduced (weeds), representing 24% of the recorded species within the 360 Environmental Survey Area.

Five vegetation types were mapped within the Disturbance Footprint (360 Environmental 2022); three of these vegetation types, ElEs, El and ES, were classified as containing native vegetation, while the other two, Mixed Weeds and NeE, were classified as containing non-native vegetation. Most of the Disturbance Footprint is devoid of native vegetation and thus classified as Completely Degraded and/or cleared (75.2%; 4.48 ha), with the remainder (24.8%; 1.48 ha) containing native vegetation in Degraded condition.

The average number of flora species, including weed species, recorded within the two 10 m x 10 m relevés within the 360 Environmental Survey Area was six (360 Environmental 2022). Comparatively, an average of 41 flora species were recorded across ten 10 m x 10 m quadrats set up in other areas of extant vegetation within the Kellerberrin Local Government Area (Western Australian Herbarium 2002, 2005a,b).

A total of 21 fauna species, from 14 families, were recorded within the 360 Environmental Survey Area. All of the species recorded were avian i.e. no mammals, reptiles or amphibians (360 Environmental 2022). No EPBC Act, BC Act or DBCA Priority listed fauna species were recorded within or directly surrounding the Disturbance Footprint.

One conservation significant fauna species, Carnaby's Black Cockatoo (Endangered under the EPBC Act and BC Act), was considered to have a high likelihood of occurrence. This is based on the availability of suitable habitats (360 Environmental 2022). The Disturbance Footprint contains 1.74 ha of moderate quality, 0.03 ha of low to moderate quality, and 1.62 ha of negligible to low quality foraging habitat, eight potential breeding trees (six of which contain suitable breeding hollows) and several trees that may provide suitable roosting habitat for Carnaby's Black Cockatoo (Bamford 2024). No evidence of use by this species was observed within the Disturbance Footprint or the 360 Environmental Survey Area or Bamford Survey Area (360 Environmental 2022; Bamford 2024).

One other species was assessed as having potential to occur, the Peregrine Falcon (Specially Protected Fauna under the BC Act). This species was identified as having a medium likelihood of occurrence on an occasional basis for hunting (360 Environmental 2022).

The absence of Threatened and Priority species within the Disturbance Footprint, and the significantly reduced average number of flora species indicates the biological diversity is less than in other areas of extant native vegetation within the local government area. The Disturbance Footprint is relatively small at 6.01 ha and has been mapped as Degraded to Completely Degraded condition. On this basis, the Disturbance Footprint is unlikely to contain a high level of biodiversity, and the proposed clearing is not expected to affect the biodiversity of the remaining vegetation within the local area.

5.1.1. Conclusion

Given the degraded and isolated nature of the vegetation within the Disturbance Footprint and its comparatively low number of flora and fauna species (including conservation significant species), the biological diversity of the Disturbance Footprint is likely to be low and unlikely to significantly affect the biological diversity of areas in proximity to the Disturbance Footprint. Therefore, the proposed clearing of 1.48 ha of native vegetation within the Disturbance Footprint is **unlikely** to be at variance with this Principle.

5.2. Potential Impact to any Significant Habitat for Fauna Indigenous to Western Australia

The Disturbance Footprint contains habitat for Carnaby's Black Cockatoo (Bamford 2024), including:

- 1.74 ha of moderate (4/10), 0.03 ha of low to moderate (3/10) and 1.62 ha of negligible to low-quality (1/10) foraging habitat
- Eight potential breeding trees (six of which contain suitable breeding hollows)
- Several trees that may provide suitable night roosting habitat.

No evidence for the utilisation of any of these habitats by Carnaby's Black Cockatoo was recorded during either survey (360 Environmental 2022; Bamford 2024).

The Development Envelope does not contain known significant habitat for any other indigenous fauna species.

5.2.1. Conclusion

Despite no current or historical evidence of Carnaby's Black Cockatoo utilising any of the habitats within the Disturbance Footprint, the habitat has the potential to be utilised in the future for breeding, roosting or foraging activities by this Endangered species. Thus, the proposed clearing of 1.48 ha of native vegetation within the Disturbance Footprint is **likely** to be at variance with this Principle.

5.3. Potential Impact on any Rare Flora

No flora species listed as Threatened under the EPBC Act or BC Act, or Priority flora species listed by DBCA, were recorded or considered likely to occur within the 360 Environmental Survey Area (360 Environmental 2022). This was due to the lack of suitable habitat present, lack of species detection despite adequate survey effort during flowering season, or lack of nearby records (360 Environmental 2022).

No endemic conservation significant flora species were observed during the field survey (360 Environmental 2022). One Priority species, *Eucalyptus brockwayi* (P3), was recorded within the 360 Environmental Survey Area; however, this species is endemic to the Eastern Mallee subregion and is likely to be planted. Due to the planted status of the species, it is not regarded as being a conservation significant flora species in the survey context.

Whilst the *Acacia cowaniana* (P2) species had previously been recorded within the 360 Environmental Survey Area, it is considered unlikely to still be present. This is due to the date of the record (recorded back in 1897) and historical imagery indicating that much of the 360 Environmental Survey Area, including the location of the previous record, has been cleared and highly disturbed since the date of the recording.

5.3.1. Conclusion

No Rare Flora were recorded or are considered likely to occur within the Disturbance Footprint. Thus, the proposed clearing of 1.48 ha of native vegetation within the Disturbance Footprint is **not** at variance with this Principle.

5.4. Potential of any Threatened Ecological Communities

None of the vegetation types meet the diagnostic criteria of any TECs listed under the BC Act (360 Environmental 2023). The 1.46 ha patch of ElEs vegetation within the Disturbance Footprint is considered to meet the key diagnostic and condition threshold criteria for Category D Wheatbelt Woodlands TEC as listed under the EPBC Act. This community is identified as a Priority 3 PEC by DBCA.

5.4.1. Conclusion

No TECs listed under the BC Act were recorded or considered to possibly occur, thus the proposed clearing of 1.48 ha of native vegetation within the Disturbance Footprint is **not** at variance with this Principle.

5.5. Significance as a Remnant of Native Vegetation in the Area That Has Been Extensively Cleared

The Proposal occurs within the Avon Wheatbelt IBRA Bioregion, which has been extensively cleared for agriculture with more than 80% of the native vegetation being cleared since European settlement (DBCA 2019). The previous National Objectives and Targets for Biodiversity Conservation 2001–2005 (Department of Environment and Heritage 2001) recognised that the retention of 30% or more of the pre-clearing extent of each ecological community is necessary for the protection of Australia's biological diversity, and this is broadly reflected in the new Australian Strategy for Nature 2024-2030 (DCCEEW 2024), that aims to protect and conserve at least 30% of Australia's terrestrial and inland water areas.

The Disturbance Footprint overlies on the pre-European vegetation association, Mt Caroline (1049), as mapped by Beard (1978) and refined by Shepherd et al. (2022). Approximately 6.8% (56,618.3 ha) of this vegetation association remains within the Avon Wheatbelt IBRA Bioregion and Statewide (DBCA 2019), and 6.0% (3,372.40 ha) of its current extent is protected in reserves. The 1.48 ha of native vegetation within the Disturbance Footprint is fragmented and in a Degraded condition, representing 0.003% of the remaining extent within the Mt Caroline (1049) vegetation association within the Avon Wheatbelt Bioregion.

5.5.1. Conclusion

The proposed clearing will impact a vegetation association, Mt Caroline (1049), that has approximately 6.8% of its original extent remaining. Although the proportion of impact is, in some respects, negligible (<0.01% of the remaining extent) and the remnants of this vegetation association within the Disturbance Footprint are also fragmented and in a Degraded condition, given the low proportion remaining intact and in reserves, the proposed clearing of 1.48 ha of native vegetation within the Disturbance Footprint is **likely** to be at variance with this Principle.

5.6. Impact on Any Watercourse and/or Wetlands

No wetlands or riparian vegetation were recorded in the Disturbance Footprint (360 Environmental 2022). The closest notable hydrological feature is the Yilgarn River, approximately 1.5 km to the south.

5.6.1. Conclusion

There is no riparian vegetation, wetland, or watercourse present within or near the Disturbance Footprint. Thus, the proposed clearing of 1.48 ha of native vegetation within the Disturbance Footprint is **not** at variance with this Principle.

5.7. Potential to Cause Appreciable Land Degradation

The soil underlying the Disturbance Footprint has been mapped as having a '30% moderate to extreme surface salinity risk', with some small patches of potentially salt-affected land already occurring adjacent to the Disturbance Footprint (DPIRD 2023a). However, based on observations made by local monitoring and geotechnical bores, the local groundwater table currently occurs at approximately 5.7 mbgl. This is outside the high-risk groundwater level (<2 mbgl) for dryland salinity, beyond which the effects of salinity start to occur through capillary action and waterlogging occurs as the watertable gets close to or is at the surface. Additionally, the bores show a downward trend in groundwater height around the Disturbance Footprint in the last 20 years (BoM 2024), further reducing the likelihood of dryland salinity occurring in the future. Thus, removing several trees within the Disturbance Footprint is not expected to alter the groundwater level to such an extent that it would potentially cause dryland salinity.

The Disturbance Footprint is located within the Water Erosion Risk area mapped as 'L1' (<3% of map units have a high to extreme water erosion risk; DPIRD 2019b) and the Wind Erosion Risk area mapped as 'L1' (3% of map units has a high to extreme wind erosion risk; DPIRD 2019c). Given this risk profile, the flat terrain and the restricted extent of proposed clearing are not expected to result in significant water or wind erosion.

5.7.1. Conclusion

The Proposal is not expected to cause land degradation from wind or water erosion. The land unit underlying the Disturbance Footprint has an inherent low erosion risk. The Proposal is also not expected to cause land degradation from increased salinity. The local groundwater table occurs approximately 3.7 m below the high-risk groundwater level (<2 m bgl) for dryland salinity. Thus, removing several trees is not expected to alter the groundwater level. Additionally, the downward trend in groundwater height observed around the Disturbance Footprint in the last 20 years, further reduces the likelihood of dryland salinity occurring in the future. As such, the proposed clearing of 1.48 ha of native vegetation within the Disturbance Footprint is not expected to lead to dryland salinity effects and is **unlikely** to be at variance with this Principle.

5.8. Potential to Impact on the Environmental Values of Adjacent or Nearby Conservation Areas

The Disturbance Footprint is not located within or adjacent to a conservation area. The nearest conservation area is the Mount Caroline Nature Reserve located 18 km to the south-west.

5.8.1. Conclusion

Due to the distances separating the Disturbance Footprint from the nearest conservation area, the Proposal is not expected to impact on the environmental values of any conservation areas. As such, the proposed clearing of 1.48 ha of native vegetation within the Disturbance Footprint is **not** at variance with this Principle.

5.9. Potential Deterioration in the Quality of Surface or Underground Water

The Disturbance Footprint does not directly intersect any wetlands or drainage lines. The closest notable hydrological feature is the Yilgarn River, approximately 1.5 km to the south. Given the separation distance between this ancient drainage line and the Disturbance Footprint, and the inherent properties of the salt lake chain that characterises the watercourse, the Proposal is unlikely to result in the deterioration of water quality.

The Proposal is not located within a Public Drinking Water Source Area (DWER 2022).

Groundwater was not observed to be present within the 17 test pits drilled 1.7-2.6 mbgl during the geotechnical investigation of the CBH Kellerberrin site (Golder Associates 2018). However, data collected from groundwater monitoring bores in proximity to the Disturbance Footprint indicate that, as of 2020, the average height of the local groundwater was approximately 5.7 mbgl (BoM 2024). The Proposal will not require a large amount of cut-and-fill earthwork and is not expected to interfere significantly with the quality of surface water or groundwater during construction.

Management of water quality and hydrocarbon/chemical storage will be consistent with CBH Environmental Management Standards which outlines minimum requirements for water quality, management of spills, and other mandatory water management measures that must be implemented. There are multiple existing drains and culverts present within the rail corridor and along the existing access road to the CBH Kellerberrin site. The Proposal will require the construction of additional culverts to assist with water management and will tie in with the existing drainage network. The drainage infrastructure to be constructed to the south of Mather Road has been minimised to reduce environmental impacts and will instead be mainly constructed to the north of Mather Road within areas of cleared agricultural land.

5.9.1. Conclusion

The proposed clearing and development within the Disturbance Footprint is unlikely to have any impact on surface water or groundwater resources as no significant drainage lines dissect the Disturbance Footprint and the Proposal will not require any substantial cut and fill earthworks. As such, the proposed clearing of 1.48 ha of native vegetation within the Disturbance Footprint is **unlikely** to be at variance with this Principle**.**

5.10. Potential of Clearing to Cause, or Exacerbate, the Incidence of Flooding

There are no natural surface water features or wetlands present within or immediately adjacent to the Disturbance Footprint and the scale of the clearing is unlikely to result in significant changes to the surface water flow patterns and seepage rates. There are multiple existing drains and culverts present within the rail corridor and along the existing access road to the CBH Kellerberrin site. The Proposal will require the construction of additional culverts to assist with water management and will tie in with the

existing drainage network. The drainage infrastructure to be constructed to the south of Mather Road has been minimised to reduce environmental impacts, and will instead be mainly constructed to the north of Mather Road within areas of cleared agricultural land.

5.10.1. Conclusion

The proposed clearing of vegetation from within the proposed development footprint is unlikely to cause, or exacerbate, the incidence or intensity of flooding. As such, the proposed clearing of 1.48 ha of native vegetation within the Disturbance Footprint is **not** at variance with this Principle.

6. Stakeholder Consultation

CBH undertook consultation with the Shire of Kellerberrin in February 2022, presenting the Shire with an overview of the Proposed Action, the benefits of the Proposed Action to the local community and CBH's long term outlook for operations within the Shire. The overall response from the Shire was positive, with some concerns being raised about the potential for the Proposed Action to damage the existing roads. However, these concerns were addressed by CBH's commitment to address any potential damage caused. CBH undertook further consultation with the Shire in January 2025 in anticipation of lodging an application for Development Approval. The Shire were again supportive of the Proposal with no major concerns.

Consultation was also undertaken with the South West Aboriginal Land and Sea Council in June, July and October 2022. An archaeological and ethnographical survey of the Development Envelope was undertaken in November 2022 with Traditional Owners nominated by the Ballardong Cultural Advice Committee. The survey found no new culturally significant sites, and the Traditional Owners gave their support for the Proposal, with a recommendation that monitoring should be conducted by Ballardong elders during ground disturbance activities (Archae-Aus 2022).

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