

Offset Proposal

Byford Rail Signalling Upgrade (Byford)

19-Dec-2024

Offset Proposal

Signalling Upgrade (Byford)

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Executive Summary

The offset proposal is submitted in accordance the 2014 Western Australian (WA) Offset Guidelines 2014. Table 1 presents a summary of this offset proposal.

Table 1 Byford Rail Signalling Upgrade Offset Proposal summary

Item	Details
Title of proposal	Byford Rail Signalling Upgrade
Proponent name	Public Transport Authority of Western Australia (PTA)
Permit (under application)	CPS 10736/1
Purpose of this offset proposal	This offset proposal accompanies the Native Vegetation Clearing Permit (NVCP) application listed above.
Environmental objective	To offset the significant residual impact to 0.008 hectare (ha) of native vegetation (SCP3a <i>Corymbia calophylla</i> and <i>Kingia australis</i> woodlands on heavy soils) in Very Good condition (Keighery scale).
Proposed offset location	Brickwood Reserve (Reserve 17490)
Current scheme zoning	Parks and Recreation (Metropolitan Region Scheme)
Stakeholders	The Shire of Serpentine-Jarrahdale is responsible for the management of Brickwood Reserve. Curtin University undertaking research into the restoration of SCP 3a (refer to condition 6-5(1) of Ministerial Statement 1183).
Plans and policies	<ul style="list-style-type: none"> Serpentine-Jarrahdale Shire Local Biodiversity Strategy (2008) Shire of Serpentine-Jarrahdale Local Biodiversity Strategy Update Report (2019) Briggs Park and Brickwood Reserve Management Plan (2016-2026) Shire of Serpentine Jarrahdale Marri Woodland Management Plan (2024)
Timeline	5 years
Governance arrangement	The PTA is entering into a Memorandum of Understanding (MoU) with the Shire of Serpentine-Jarrahdale to manage a portion of Brickwood Reserve as an environmental offset. The PTA has entered into a grant agreement with Curtin University to undertake research into the restoration of SCP 3a.
Financial budget	\$100,000
Proposed Commencement	Mid-2025
Offset Management Plan (OMP)	An OMP will be prepared prior to implementation of the proposed offset.

1.0 Introduction

1.1 Background

The Public Transport Authority of Western Australia (PTA) (the Applicant) is upgrading the signalling system south of the new Byford Station, which involves installing approximately 1 kilometre (km) of above ground Main Cable Route (MCR) (the project). This will standardise the infrastructure extending into the Australind Line, used by TransWA services between Perth and Bunbury.

On 11 October 2024, the PTA submitted a Native Vegetation Clearing Permit (NVCP) application (CPS 10736/1) under Part V of the *Environmental Protection Act 1986* (EP Act) to the Department of Water and Environmental Regulation (DWER). The application seeks approval to clear up to 0.008 hectare (ha) of native vegetation, specifically the SCP3a *Corymbia calophylla* and *Kingia australis* woodlands on heavy soils, Threatened Ecological Community (TEC), listed as Critically Endangered under the *Biodiversity Conservation Act 2016* (BC Act).

DWER has requested that PTA offset significant residual impact to the SCP3a TEC (0.008 ha). This Offset Proposal outlines the proposed site for the offset and the management actions to achieve a net environmental gain.

1.2 Project Location

The clearing area encompasses 0.008 ha in the rail reserve, located approximately 26 km south of Perth Central Business District (CBD), in the Shire of Serpentine-Jarrahdale (Figure 1).

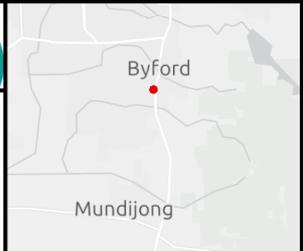
1.3 Objectives

The objective of this Offset Proposal is to demonstrate the improvement in environmental value of the proposed offset site, which will counterbalance the significant residual impact of the project. It includes details on the residual impacts, the environmental values of the offset site, and the proposed management actions that PTA will implement for the duration of the offset requirement period.

This Offset Proposal follows the 2014 Clearing of Native Vegetation Offsets procedure under the EP Act, as outlined by the Department of Environment Regulation (DER) (now DWER).



METRONET | Byford Rail Extension
 Figure 1 - Environmental values within Proposed Native Vegetation Clearing Permit CH37850



LEGEND

- Cadastre (Land) (LGATE218)
- Proposed Native Vegetation Clearing**
- Permit CH37850

- Native Vegetation FVC, 2022**
- TEC and PEC: FCT SCP 3a
- DBCA-046**
- Forrestfield Native Vegetation Complex
- DPLH-022**
- Bush Forever 2000 - Site no. 350

- Black Cockatoo Foraging Habitat AECOM, 2020**
- Baudin's Cockatoo - Very High Quality
 - Carnaby's Cockatoo - Very High Quality
 - Forest Red-tailed Black-cockatoo - High Quality
 - Baudin's Cockatoo - Low Quality
 - Carnaby's Cockatoo - Low Quality

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2.0 Offset requirement

2.1 Project Environmental Studies

The PTA has commissioned the following flora and fauna surveys in the clearing area and surrounds:

- Byford Depot (50.25 ha corridor) extending between Soldiers Road and the South Western Highway, from Abernethy Road to Cardup Siding Road (FVC 2022a).
- Cable Route, Byford (23.85 ha corridor) extending along the existing South Western Railway adjacent to Soldiers Road, from Cardup Siding Road to Mundijong Junction (FVC 2022b).
- MCR Environmental Surveys – Abernethy Road to Mundijong Junction (16.70 ha) (Natural Area 2024).

Through these assessments the following key environmental values were identified within the clearing area (Figure 1):

- SCP3a *Corymbia calophylla* - *Kingia australis* woodlands on heavy soils TEC, listed as Critically Endangered under the BC Act and as Endangered under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).
- Foraging habitat for three Threatened Black Cockatoo species, listed as Endangered and Vulnerable under the BC Act and EPBC Act.
- Native vegetation of the Forrestfield vegetation complex. Bush Forever site 350 – Byford to Serpentine Rail/Road Reserves and Adjacent Bushland.

FVC (2022a) recorded SCP3a within their survey area ranging from Completely Degraded to Excellent condition. The TEC was represented by the following vegetation types:

- Marri/Xanthorrhoea woodland (CcXp) - *Corymbia calophylla* Woodland over *Xanthorrhoea preissii* Sparse Shrubland over *Morelotia octandra* and *Mesomelaena tetragona* Sparse Sedgeland
- Marri/Hakea/Kingia/Xanthorrhoea woodlands (CcHtKaXp) - *Corymbia calophylla* Low Open Woodland over *Hakea trifurcata*, *Kingia australis* and *Xanthorrhoea preissii* Tall Open Shrubland over *Cyathochaeta avenacea* and *Mesomelaena tetragona* Sparse Sedgeland
- Kingia/Hakea/Kunzea shrubland (KaHtKr) - *Kingia australis*, *Hakea trifurcata* and *Kunzea recurva* Tall Open Shrubland over *Hypolaena exsulca* Sparse Bushland.

The clearing area includes 0.008 ha of CcHtKaXp vegetation type in Very Good condition (FVC 2022a).

2.2 Project Impact

The original scope of works included a traditional buried pit style pipe MCR, which would have required clearing a 5-meter (m) wide corridor along the 8 km route, totalling approximately 3.89 ha.

Due to the presence of TEC and Black Cockatoo habitat within the rail corridor, the PTA has made numerous concessions to their MCR standards and preferences. They have opted for a new above-ground MCR solution installed adjacent to the running line. The PTA has removed several under-bored crossings with buried pit transitions, Trackside Signalling Equipment Rooms (TSER), radio mast sites and access ways for construction crews from their scope of works. Additionally, the location of underground pits and access have been adjusted to fall within the least vegetated section of the TEC patch. The majority of the works will be completed using hi-rail machines (road rail vehicles), ensuring there is no additional vegetation being cleared for access or egress reasons.

The PTA has reduced the scope of work to the minimum required for the Australind rail service to resume in parallel with the electrified rail network delivered by the Byford Rail Extension (BRE) project, reducing the required clearing to just 0.008 ha (Figure 1).

2.3 SCP3a Offset Proposal

2.3.1 SCP3a Description

The SCP3a TEC occurs on the eastern side of the Swan Coastal Plain, between Waroona and Forrestfield. It is known from 10 occurrences in Western Australia, with approximately 83.35 ha remaining (English & Blyth 2000). The largest remaining intact patch of SCP3a TEC occurs within Brickwood Reserve vested in the Shire of Serpentine-Jarrahdale.

The community is typically dominated by *Corymbia calophylla* (Marri) with shrubs like *Dryandra nivea*, *Eriostemon spicatus*, *Kingia australis* and *Xanthorrhoea preissii* and herbs such as *Cyathochaeta avenacea*, *Dampiera linearis*, *Haemodorum laxum*, *Loxocarya fasciculata*, *Mesomelaena tetragona* and *Tetraria octandra*. Major threats to the community include clearing and fire.

Specific recovery actions identified for the TEC include (English & Blyth 2000):

- Development and implementation of fire management plans.
- Weed control and dieback hygiene management.
- Fencing at specific occurrences.
- Monitoring of flora and weed species.
- Rehabilitation through reintroduction of local native species.

2.3.2 Offset Proposal

The PTA is proposing a like-for-like offset for clearing of up to 0.008 ha of SCP3a TEC in Very Good condition. The PTA has identified a portion of Brickwood Reserve for use as an offset site for the BRE project, as required under Ministerial Statement 1183 condition 6-1. The PTA proposes to increase the area of the managed offset at Brickwood Reserve to include the offset requirement for this project.

The PTA will enter a Memorandum of Understanding (MoU) with the Shire of Serpentine-Jarrahdale to manage a portion of Brickwood Reserve as an environmental offset. The PTA will provide funding to the Shire to undertake on-ground management measures consistent with those identified in the Interim Recovery Plan for the SCP3a TEC. The PTA has also entered into a grant agreement with Curtin University to undertake research into the restoration of SCP3a, which is proposed to be extended to Brickwood Reserve.

Due to the TEC's Critically Endangered status, other offset types were not considered suitable for this project (Table 2).

Table 2 Suitability of offset options

Offset type	Suitability
Like for similar	A similar vegetation type would not provide net environmental value, due to the extensive clearing that has occurred for SCP3a.
Revegetation	Due to the complexity of vegetation communities, the confidence in successful revegetation is unlikely to be robust enough to confirm net environmental value.
Financial contribution	Given the scarcity of SCP3a, DWER is not accepting a financial contribution for acquisition.

3.0 Proposed offset site

3.1 Offset Calculator inputs

The proposed offset will compensate 100% of the significant residual impacts to the SCP3a TEC through land management and restoration. The DWER environmental offsets calculator was used to assess the suitability of the identified offset site to counterbalance the project's significant residual impact.

Table 3 details the calculator inputs to determine the significant residual impact of the project.

Table 3 Project's significant residual impact

Attribute	Significant residual impact
Description	Clearing 0.008 ha of SCP3a TEC at Rail reserve - Land ID 3557417 (adjacent to Soldiers Road).
Type of environmental value	Ecological community
Conservation significance of environmental value	Threatened Ecological Community (TEC) Critically Endangered under the BC Act.
Conservation significance score	6.8%
Significant impact (ha)	0.008 ha
Quality (scale)	6/10 (Very Good)

3.2 Offset Site Description

Brickwood Reserve is bounded by Mead Street, Turner Road and Orton Road in Byford, approximately 300 m west of the clearing area, and 26 km south of the Perth CBD. The reserve (ID 17490) is Crown land managed by the Shire of Serpentine-Jarrahdale.

Brickwood reserve is zoned as Parks and Recreation under the Metropolitan Regional Scheme (MRS) and is designated as a Bush Forever site 321 - Brickwood Reserve and Adjacent Bushland, Byford.

A portion of Brickwood Reserve is currently proposed for use as an offset for the BRE project, as required under Ministerial Statement 1183 condition 6-1. PTA proposes to increase the area of the managed offset at Brickwood Reserve to include the offset requirement for this project.

The PTA commissioned FVC (2022c) to undertake a flora, vegetation and weed assessment of Brickwood Reserve (56.59 ha). Six vegetation types were recorded within the reserve, listed in Table 4 below. Cleared areas represented 11.08 ha.

Table 4 Vegetation types within Brickwood reserve (FVC 2022c)

Vegetation unit	Extent and condition	Threatened or Priority Ecological Community
Banksia Woodland (BaBm)	2.11 ha, Very Good-Excellent to Excellent condition	SCP20b <i>Banksia attenuata</i> and/or <i>Eucalyptus marginata</i> woodlands of the eastern side of the Swan Coastal Plain, Endangered under the BC Act.
Marri / Jarrah Woodland (CcEmXp)	3.35 ha, Very Good-Excellent to Excellent condition	SCP3a TEC
Marri / Kingia / Xanthorrhoea Woodland (CcKaXp01)	25.71 ha, Completely Degraded-Degraded to Excellent	
Marri / Kingia / Xanthorrhoea Woodland (CcKaXp02)	12.32 ha, Degraded to Very Good-Excellent	

Vegetation unit	Extent and condition	Threatened or Priority Ecological Community
Melaleuca Shrubland (MiSL)	1.95 ha, Good-Very Good to Very Good-Excellent	SCP09 Dense shrublands on clay flats, Vulnerable under the BC Act
Nuytsia Woodland (NfHt)	0.06 ha, Excellent	N/A

3.3 Suitability of site as an offset

The proposed site is suitable to offset the NVCP application (CPS 10736/1) as a like-for-like offset that aims to replace the area to be cleared with equal or better vegetation.

The clearing is at variance with Clearing Principles d) and e), described below:

- Principle d) native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of a Threatened Ecological Community.
- Principle e) native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been significantly cleared.

The factors considered to address these clearing principles are listed below:

- Principle d)
 - Vegetation similarity: The vegetation present in Brickwood Reserve is SCP3a TEC, with similar dominant species to those within the clearing area.
 - Condition: The majority of SCP3a TEC within Brickwood Reserve is in comparable or better condition than the clearing area (Very Good to Excellent condition).
 - Recovery: The SCP3a Interim Recovery Plan identifies weed control, dieback management, fencing and rehabilitation as priority actions, which will be implemented at Brickwood Reserve.
- Principle e)
 - Zoning: Brickwood Reserve is zoned as Parks and Recreation under the MRS and is a Bush Forever site. Allocating part of the site as an environmental offset will list it on the Offsets Register, informing future applications and reducing the risk of future clearing. The Shire of Serpentine-Jarrahdale has also committed to 'environmental conservation' purpose for Brickwood Reserve.
 - Connectivity: Brickwood Reserve contains a large patch of SCP3a TEC with a high level of connectivity. In contrast, SCP3a TEC in the clearing area is highly fragmented by roads and the existing rail line.
 - Historic disturbances: Brickwood Reserve has been subject to historic disturbances and has pockets of high weed infestation particularly along tracks and around the boundary, which has potential to be improved through the environmental management of this offset.
 - Risk of future loss: A low risk of future loss of 10% without the offset has been applied on the basis of Brickwood Reserve's reservation as Parks and Recreation under the MRS, its listing as a Bush Forever site (BF 321) and that it contains TEC and significant flora taxa. There is evidence that clearing has occurred within Brickwood Reserve within the last 5 years and there is potential for future clearing, unless it is registered as an offset.

Implementation of the proposed offset is scheduled to commence in mid- 2025, pending a Memorandum of Understanding (MoU) with the Shire of Serpentine Jarrahdale. The estimated cost of establishing, maintaining, and monitoring the offset over 5 years is \$100,000.

3.3.1 Offset Calculator

Using the DWER environmental offsets calculator, it was determined that 0.10 ha portion of Brickwood Reserve, containing SCP3a TEC vegetation in Very Good condition would be suitable to counterbalance the significant residual impacts of the project.

The outputs of the DWER environmental offsets calculator are presented in Appendix A and Table 5 details the calculator inputs.

Table 5 DWER offset calculator values

Attribute	Brickwood Reserve
Conservation Significance Score	
Offset Description	Proposed rehabilitation actions in Brickwood Reserve.
Residual Impact	0.008 ha of SCP3a TEC (Critically Endangered)
Conservation significance score	6.8%
Offsets	
Proposed offset area (hectares)	0.10 ha
Current quality of offset site (Keighery scale)	6/10 (Very Good)
Future quality WITHOUT offset	6/10 (Very Good)
Future quality WITH offset	7/10 (Very Good – Excellent)
Duration of offset implementation	5 years
Time until offset site secured (years)	The PTA will enter a MoU with the Shire of Serpentine-Jarrahdale for the management of a portion of Brickwood Reserve as an environmental offset for this project as well as the BRE.
Time until ecological benefit (years)	4 years
Risk of future loss WITHOUT offset (%)	A prediction of 10% for the risk of future loss without offset, has been applied on the basis of Brickwood Reserve's reservation as Parks and Recreation under the MRS, its listing as a Bush Forever site (BF 321) and that it contains TEC and significant flora taxa. There is evidence that clearing has occurred within Brickwood Reserve within the last 5 years and there is potential for future clearing.
Risk of future loss WITH offset (%)	A prediction of 10% for the risk of future loss with offset, has been applied. PTA considers the risk of loss reduced with the offset management, however, clearing may occur after offset implementation or the site may be impacted by bush fire.
Confidence in offset result (%)	80%
Offset value	108%

4.0 Management Framework

4.1 Objectives

An Offset Management Plan (OMP) will be developed following issue of the NVCP, for approval by DWER. The OMP will confirm the exact location of the offset area within Brickwood Reserve, based on the advice of Curtin University researchers and in agreement with the Shire of Serpentine-Jarrahdale. A baseline flora and vegetation survey will be undertaken to inform restoration and management measures. The OMP will detail the management activities to achieve conservation gains through the protection and improvement of the condition and environmental values of the offset site, especially for SCP3a TEC.

4.2 Responsibility

The PTA is responsible for the implementation of the offset and OMP. The management of the offset area will be governed by the MoU signed by the Shire of Serpentine-Jarrahdale and PTA. At the end of the MoU period, provided the completion criteria outlined in the OMP have been met, the ongoing management of the site will be undertaken by the Shire as part of their regular conservation management program.

4.3 Management Actions

The management actions will be finalised in the OMP, and are likely to include the following:

- Strategically manage fire to reduce risk.
- Controlling invasive weed species to reduce non-native understory dominance.
- Preventing the spread of dieback.
- Planting mid-level and understorey species.
- Addressing other threatening processes that may occur on site (e.g. grazing).
- Monitoring of flora and weed species cover/count over time.

The PTA will fund all management actions within the offset area. The management actions are likely to be undertaken by the Shire, Curtin University researchers and experienced contractors.

Curtin University has been engaged by PTA to undertake research into the restoration of SCP3a TEC, pursuant to condition 6-5(1) of Ministerial Statement 1183). Curtin University has significant research capacity in restoration and conservation, including seed production and germination for restoration plantings. Environmental specialists at Curtin University hold tertiary qualifications in environmental science or other relevant discipline(s).

Management measures will be implemented in tandem with those outlined in the BRE Offset Management Strategy and Plan for the Brickwood Reserve offset site, resulting in cumulative benefits of managing a larger area of bushland.

4.4 Monitoring

The PTA will engage Curtin University or suitable consultant to undertake a monitoring program at the offset site and reference location. This monitoring program will collect data such as:

- Native vegetation cover over time (particularly understorey improvement).
- Weed cover.
- Number of species planted.
- Number of individuals planted.
- Survival percentage of planted tube stock.
- Changes of current Keighery scale rating.

- Weather conditions at time of monitoring event.

An initial site survey will determine a reference community, revegetation locations and species mix/densities for infill planting. Monitoring is proposed to occur every 6 months to assess the revegetation and weed control success. The PTA will ensure that all personnel involved have any required licenses (e.g. license to collect seed) prior to commencing management actions.

Total management and monitoring cost over 5 years: approximately \$100,000 AUD.

4.5 Reporting

Reporting will occur in accordance with the requirements of the CPS 10736/1, once approved by DWER. The PTA proposes to submit progress reports annually and a final report at the end of the 5 year term.

4.6 Completion Criteria

Completion criteria will be determined in the OMP, following completion of site selection, baseline survey and reference site survey. This may include the following attributes:

- Native vegetation cover (particularly understorey).
- Weed cover.
- Number of species planted.
- Number of individuals planted.
- Survival of planted tube stock.

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