



**MOLONGLO 132KV
TRANSMISSION LINES
RELOCATION**

EIS Exemption Application Supporting
Documentation

FINAL - REVISED

November 2020



MOLONGLO 132KV TRANSMISSION LINES RELOCATION

EIS Exemption Application Supporting
Documentation

FINAL - REVISED

Prepared by
Umwelt (Australia) Pty Limited
on behalf of
Calibre Group

Project Director: Karina Carwardine
Project Manager: Caitlin Adcock
Report No. 8139b/R01/V8
Date: November 2020



Canberra

2/99 Northbourne Avenue
Turner, ACT 2612

Ph. 1300 793 267

www.umwelt.com.au



Quality
ISO 9001

This report was prepared using
Umwelt's ISO 9001 certified
Quality Management System.

Disclaimer

This document has been prepared for the sole use of the authorised recipient and this document may not be used, copied or reproduced in whole or part for any purpose other than that for which it was supplied by Umwelt (Australia) Pty Ltd (Umwelt). No other party should rely on this document without the prior written consent of Umwelt.

Umwelt undertakes no duty, nor accepts any responsibility, to any third party who may rely upon or use this document. Umwelt assumes no liability to a third party for any inaccuracies in or omissions to that information. Where this document indicates that information has been provided by third parties, Umwelt has made no independent verification of this information except as expressly stated.

©Umwelt (Australia) Pty Ltd

Document Status

Rev No.	Reviewer		Approved for Issue	
	Name	Date	Name	Date
Final	Caitlin Adcock	27/11/2020	John Merrell	27/11/2020

Table of Contents

Glossary	7
Executive Summary	8
1.0 Introduction	10
2.0 Project Details	12
2.1 Overall Project Description	12
2.2 Works Exempted under the Existing s211 Exemption	14
2.3 Works subject to this s211 Exemption Application	14
2.3.1 Project Staging	15
2.4 Objectives of the Project	16
2.5 Planning Context	16
2.5.1 Statutory Requirements	18
3.0 Planning and Development Act Triggers	28
3.1 Electricity Transmission Line Construction	29
3.2 Clearing of Native Vegetation	31
3.3 Impacts to Heritage Places or Objects	34
4.0 Interaction with Existing Planning Approval Conditions	35
4.1 Decision under the Environment Protection and Biodiversity Conservation Act 1999	35
4.2 Decision under the Planning and Development Act 2007	35
4.3 Project's Consistency with Existing Approval Conditions	35
5.0 Preliminary Risk Assessment	37
6.0 Description of Nature Conservation Values	38
6.1 Importance of the Project Area for Existing Processes or Natural Systems of the ACT	38
6.2 Unusual Richness or Diversity of Flora, Fauna, or Landscapes	38
6.3 Uncommon, Rare, or Endangered Flora, Fauna, Communities, Natural Landscapes, or Phenomena	39
6.4 Location Important for Demonstrating Principal Characteristics of the Range of Landscapes, Environments, or Ecosystems Identified as Characteristic of their Class	39
6.5 Location Importance for Providing an Understanding of the ACT's Natural History	39
7.0 Measures to Avoid, Mitigate, and Offset	42
8.0 Additional Information Required	44
8.1 Currency of Supporting Documentation	44
8.2 Consultation	49

9.0	Conclusion	50
10.0	References	51

Glossary

Acronym	Definition
ACT	Australian Capital Territory
CEMP	Construction Environmental Management Plan
CHA	Cultural Heritage Assessment
DA	Development Application
EIA	Environmental Impact Assessment
EIS	Environmental Impact Statement
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth)</i>
EPSDD	Environment, Planning and Sustainable Development Directorate
FUA	Future Urban Area
LMPP	Landscape Management and Protection Plan
NC Act	<i>Nature Conservation Act 2014 (ACT)</i>
NES Plan	Molonglo Valley Plan for the Protection of Matters of National Environmental Significance
PD Act	<i>Planning and Development Act 2007 (ACT)</i>
PD Regulation	<i>Planning and Development Regulation 2008 (ACT)</i>
PRA	Preliminary Risk Assessment
RAO	Representative Aboriginal Organisation
TTMP	Traffic and Transport Management Plan
UTR	Utilities Technical Regulator

Executive Summary

This report represents supporting documentation for a request for an exemption from requiring an Environmental Impact Statement (EIS) under Section 211 of the *Planning and Development Act 2007* (ACT) (PD Act). The request is made in relation to portions of the proposed relocation of the existing overhead 132kV transmission lines in Molonglo, ACT, with regard to existing investigations and approvals applying across the majority of the proposed alignment. The existing overhead transmission lines are situated within the Molonglo Stage 3 Future Urban Area (FUA), which is designated for residential development over the next 25 years. The proposed new transmission lines will be entirely underground and along an alternate route, which will allow for future development in the area.

This EIS exemption application only applies to those portions of the proposed alignment that are outside the Molonglo Stage 3 FUA. The areas applying to this EIS exemption application are referred to in this document as the 'Project Area'. The Project Area is located within the existing road reserves for William Hovell Drive and Coulter Drive. The length of transmission line subject to this EIS Exemption is approximately 1050m.

Those portions of the alignments that are within the Molonglo Stage 3 FUA are subject to the Molonglo Stage 3 EIS Exemption and are not part of this application. The areas of proposed transmission line covered by this existing exemption are referred to as 'the FUA'. Also, the existing alignments are within the FUA and their demolition is explicitly included within the Molonglo Stage 3 EIS Exemption. As such, demolition of the existing transmission lines is not included in this application.

While in proximity to the Mount Painter Nature Reserve and Kama Nature Reserve which are protected for their high environmental values; the environment of the Project Area is highly modified from an historical, agricultural, forestry, and infrastructure use. The proposed alignments will not result in direct impacts on either nature

reserve. There is some pink-tailed worm-lizard habitat area and box gum woodland in the vicinity, however, the proposed alignment will avoid these areas entirely. It is estimated that approximately 1.8 hectares (ha) of native vegetation may be impacted by the proposed works (refer to **Section 3.2**). Where possible, trees will be demarcated and avoided during construction. Rehabilitation works including reseeding and replanting will also be undertaken post-construction, to be detailed within a Landscape Management and Protection Plan (LMPP). Weed management measures will also be included in the LMPP, for both during and post-construction.

A Cultural Heritage Assessment (CHA) (Umwelt, 2020) has been prepared for this EIS Exemption request (within the defined boundaries). Through onsite investigation and consultation with Representative Aboriginal Organisations (RAOs), a number of objects of low Aboriginal heritage significance were identified within the vicinity of the Project Area. The proposed works have been designed to avoid impact these objects. An unexpected finds protocol has been prepared so that any unidentified Aboriginal Heritage items are appropriately managed.

Temporary impacts to traffic along William Hovell Drive and Coulter Drive as a result of construction will be managed through an approved Traffic and Transport Management Plan (TTMP) by the contractor(s). This will include traffic management controls, such as signage and lane closures (if necessary), and details of access and egress to the Project Area.

All of these management plans will be included as sub-management plans to a Construction Environmental Management Plan (CEMP) so that the proposed works, both decommissioning and proposed realignment, are carried out according to industry-best practice and in line with the commitments of the Molonglo Stage 3 EIS Exemption. It is considered that any environmental impacts associated with the proposed works have been, or can be, sufficiently

managed or mitigated. The Project Area has been extensively investigated and that further assessment through an EIS is not required to determine environmental impacts. It is therefore requested by the Suburban Land Agency (SLA) that an EIS exemption is granted for these proposed works.

1.0 Introduction

This report is provided for the information of the Environment, Planning and Sustainable Development Directorate (EPSDD) as supporting documentation for a request for an exemption from requiring an Environmental Impact Statement (EIS) (hereafter referred to as the exemption application) under Section 211 of the *Planning and Development Act 2007* (ACT) (PD Act) for the relocation of a portion of the existing 132kV transmission lines in Molonglo (the Project, defined in **Section 2.0**). This application does not include the demolition of the existing transmission lines, which are entirely within the FUA.

Information presented in this document and the accompanying risk assessment matrix (**Appendix 1**) addresses the information requirements outlined in Section 9 of Form 1M 'Application For: EIS Scoping Document, Environment Significance Opinion, s211 Exemption from EIS'¹ and the associated guidelines (EPSDD, 2017) (summarised in **Table 1.1**).

Table 1.1 Form 1M Information Requirements

Required Information under Form 1M		Location in this Report
1	A statement outlining the objectives of the Project and why it is needed.	Section 2.4
2	A description of the nature/type of project proposed by providing location map(s) of the project site(s), preliminary design drawings and satellite/aerial photographs.	Section 2.0
3	A preliminary risk assessment (PRA) based on the guidance document for Proponents (EPSDD, 2017).	Section 5.0 Appendix 1
4	A description of the natural conservation values of the site based on the considerations listed in the guidance document for Proponents (EPSDD, 2017).	Section 6.0
5	A description of measures included within the Project that seek to avoid and minimise (and as a last resort, offset) impacts on identified conservation values.	Section 7.0
6	Any decision made under the <i>Environment Protection and Biodiversity Conservation Act 1999</i> (Commonwealth) (EPBC Act).	Section 4.1
7	Details of qualifications, expertise, and experience of the person(s) who conducted previous studies supporting the application.	Section 8.1
	Details of public consultation undertaken as part of statutory requirement or otherwise, for projects or previous studies included as supporting documentation undertaken.	Section 8.2

¹ Approved form AF2017-201, approved by Ben Ponton, *Chief Planning Executive*, Planning and Land Authority, on 29 September 2017 under section 425 of the *Planning and Development Act 2007* and revokes form AF2017-37.

Required Information under Form 1M		Location in this Report
	Verification from a qualified person that the information in the previous studies supporting the application is still current.	Section 8.1

2.0 Project Details

2.1 Overall Project Description

The 'Overall Project' includes the relocation of existing overhead 132kV transmission lines in Molonglo in the Australian Capital Territory (ACT) (**Figure 2.1**). The existing transmission lines are currently located within the Molonglo Stage 3 Future Urban Area (hereafter referred to as Molonglo Stage 3), proposed for residential development over the next 25 years (Umwelt, 2017). The new transmission lines will be located on a different alignment to the existing overhead lines, which is more conducive to the future development of Molonglo Stage 3 (**Figure 2.2**). The cost of the project is offset by the benefit the project delivers for urban development.

The existing transmission lines are above ground, supported by steel towers. The new transmission lines will consist entirely of underground cabling. Connection to the existing overhead transmission lines (to be retained) will occur at two Overhead to Underground (UGOH) sites, one to the east of Kama Nature Reserve (within Molonglo Stage 3), the other one at the south-eastern end of the alignment (at Tuggeranong Parkway). This is described further in **Section 3.1**.

Where the proposed alignment crosses William Hovell Drive and the Tuggeranong Parkway, existing, culverts or under-boring will be used to limit traffic disruptions and damage to road surfaces.

Specifically, the Overall Project includes the following activities:

- Construction of approximately nine kilometres of underground 132kV transmissions lines built to Evo Energy standards, along the alignment shown in **Figure 2.1**. This activity will include the following elements:
 - Installation of conduit and cables within temporarily open trenches (up to 10 metres disturbance width depending upon number of conduits laid). Trenches will be backfilled with thermally stabilised backfill (e.g. sand), topsoil, and revegetated;
 - Installation of numerous access points for ongoing maintenance access (not visible post construction); and
 - Construction of an access track, which will be around five to seven metres wide (excluding any required batters in steep areas) to be used for construction and ongoing maintenance access. Existing or proposed roads (e.g. within Whitlam) and tracks (e.g. Boundary Road within the Arboretum) will be used as the access track where possible.
- Decommissioning and removal of approximately nine kilometres of the existing overhead 132kV transmission lines, including 29 steel lattice towers, 18 of which are from the Canberra – Woden line.

The majority of these works are within the FUA and are covered by an existing EIS Exemption.



 Project Area
 Underground Transmission Line Alignment
 Existing Overhead Transmission Line Easement
 Mt Painter Nature Reserve
 Watercourse
 Dams
 Roads

Existing and Proposed Alignment Location

2.2 Works Exempted under the Existing s211 Exemption

All three stages of the Molonglo Valley FUAs were assessed and approved concurrently through a strategic assessment prepared under Part 10 of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The Molonglo Valley Plan for the Protection of Matters of National Environmental Significance (the NES Plan) received endorsement in 2011.

Subsequent to this, an EIS exemption application was lodged to the ACT Government for the development of the urban area of Molonglo Valley Stage 3 in 2017, including associated infrastructure, in accordance with the NES Plan. The EIS exemption was granted on 8 May 2018 (**Figure 2.2**).

This existing EIS exemption explicitly includes the relocation of the two existing 132kV steel tower transmission lines that traverse the Molonglo Stage 3 FUA. However, the EIS exemption did not include any activities to the north of William Hovell Drive, as the alignment of these sections had not sufficiently progressed at the time the EIS exemption was granted.

The alignment design has since been resolved, and as such, this EIS Exemption Application applies only to those sections of the alignment that are north of William Hovell Drive and within Territory Land.

2.3 Works subject to this s211 Exemption Application

For the purposes of this exemption application, the Project Area includes the portions of the alignments that are located within Territory Land, outside of the existing Molonglo Stage 3 FUA as shown in **Figure 2.3**. The Project Area, as assessed in this application, includes the maximum extent of works (approximately 1050m in length, as described below). This footprint has been defined to be larger than that required for the works so that all surrounding environmental values are captured in the assessment, and any minor changes to the alignment during detailed design are also captured. The actual impact area will be substantially smaller, limited to the following areas:

- Temporary disturbance from installation of one bank of six underground 132kV cables within conduits, in two 1-metre (m) wide trenches;
- Permanent access track (excluding batters) (five to seven metres wide), generally located on top of the trench however may deviate away in areas with steep slopes and drainage lines;
- Establishment of a 10 m easement / service corridor;
- Construction of two approximately 14 m x 4.6 m jointing pits
- Removal of fencing and filling of an existing rural dam (adjacent to Block 1587) as directed by the SLA's Rural Team and TCCS – Roads ACT
- Minor disturbance from stockpiles during trenching and vehicle parking (temporary).

A future substation is proposed by Evoenergy on Block 1587. This application is not applicable to works within Block 1587, which is subject to a separate National Capital Authority (NCA) Works Approval.

The Project Area is located within the existing road reserves for William Hovell Drive and Coulter Drive. While in proximity to the Mount Painter Nature Reserve and Kama Nature Reserve which are protected for their high environmental values; the environment of the Project Area is generally highly modified from historical agricultural, forestry and infrastructure use (Umwelt 2018; Umwelt 2017; and ELA 2011). It is noted that the proposed works will not enter into the Mount Painter Nature Reserve.

The existing stock underpass in Block 1548 will not be impacted by the proposed works, with the proposed alignment having been revised to exclude the proposed alignment crossing William Hovell Drive at its eastern end.

There is also an equestrian / horse trail that extends parallel to William Hovell Drive that will be impacted during construction. The Proponent has undertaken consultation with the ACT Equestrian Association. It was agreed that once the construction program is finalised, the Association will be notified of the works impacting the trail at least four weeks prior to works commencing.

It is noted that the EPSDD has undertaken contamination studies of the Project Area and its surrounds. A site audit has also been prepared and subsequently approved by the EPA. The proposed Project Area has been determined as suitable for the proposed works.

Soil landscapes within the Project Area include the colluvial Campbell soil landscape; transferral Williamsdale soil landscape; the erosional Burra soil landscape; and the alluvial Lower Molonglo Variant B (ACT Government, 2018). The topography of the Project Area generally slopes upwards to the north towards Mount Painter and the Pinnacle. A number of creek and drainage lines run generally south from the Project Area, tributaries to the Molonglo River. A farm dam also exists in Block 1492, directly north of the proposed alignment. No direct impacts to the dam are proposed, and any indirect impacts (e.g. sedimentation) will be managed throughout construction.

All disturbed areas will be reinstated following completion of construction. Refer **Section 7.0** of this report for further discussion on management and mitigation measures.

2.3.1 Project Staging

The Project will be relocating two existing 132kV alignments. These overhead alignments currently extend from:

- Kama Nature Reserve in the north-west, down across the FUA to Tuggeranong Parkway in the south-east – the Canberra - Woden line; and
- William Hovell Drive, south to Tuggeranong Parkway – the Civic - Woden line.

The Project will relocate these existing transmission lines through the following stages:

- Stage 1:
 - trenching and installation of conduit and cables for the Canberra - Woden line;
 - trenching and installation of conduit only for the Civic - Woden line; and
 - decommissioning of the current Canberra - Woden overhead lines.
- Stage 2:
 - Installation of cables into the already installed conduit for the Civic - Woden line; and
 - decommissioning of the Civic - Woden overhead line.

The first stage of the Project is set by the need to remove the Canberra - Woden overhead line as this line runs through the proposed Whitlam Stage 3 FUA. Whitlam Stage 3 is planned to commence in 2020.

Stage 2 of the relocation is anticipated to be completed by 2030, however, will be largely subject to the existing FUA Exemption.

2.4 Objectives of the Project

The primary objective of the Project is to allow for the residential development of Stage 3 of the Molonglo Valley. The location of the existing transmission lines conflicts with residential development due to the land take of the transmission lines, the devaluation of land values near transmission lines, and the constraints put on suburb design. The proposed location and the underground method of installation of the new transmission lines will result in greatly reduced impacts on the development and amenity of Molonglo Stage 3.

To enable construction of Whitlam Stage 3 to commence, Stage 1 of the Project needs to be completed by 2021.

2.5 Planning Context

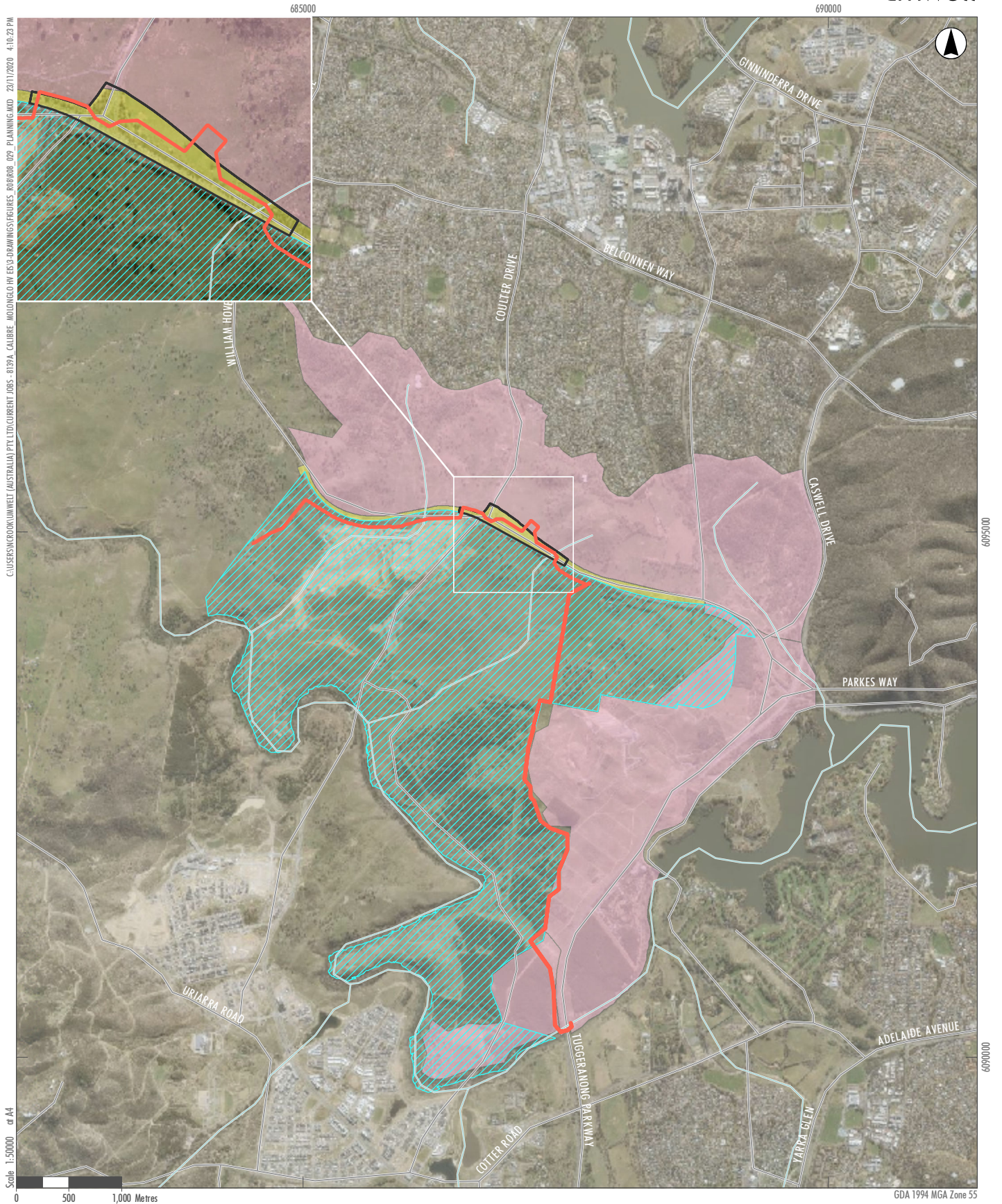
As linear infrastructure associated with an approved residential development, the Project is located across both Territory land and Designated Areas (see **Figure 2.2**). These two land designations are subject to the following separate approvals processes:

- Territory Land: approval from EPSDD under the *Planning and Development Act 2007* (PD Act); and
- Designated Area: Works Approval from the National Capital Authority (a Commonwealth Agency).

Furthermore, the vast majority of the Project occurs within the boundary of an existing EIS exemption approval and does not require further assessment under the Impact Track of the PD Act. The Molonglo Stage 3 EIS exemption was approved by the Minister for Planning and Land Management on 8 May 2018.

The Molonglo Stage 3 EIS exemption application documentation concluded that any residual impacts of the relocation of the transmission lines occurring within the FUA boundary had been considered and appropriately mitigated or offset by the commitments of the NES Plan (ACTPLA 2011) and outcomes of the 2015 feasibility study.

Accordingly, the exemption application applies to all portions of the Overall Project that occur outside the existing Molonglo Stage 3 EIS exemption boundary, within Territory Land (discussed above in **Section 2.3**). Remaining portions of the alignment within Designated Areas will be subject to a Works Approval to be submitted to the National Capital Authority.



Legend

- Underground Transmission Line Alignment
- Project Area
- Territory Land
- Designated Area
- EIS Exemption Approved
- Watercourse
- Roads

FIGURE 2.2

Planning Context for the Project

2.5.1 Statutory Requirements

2.5.1.1 Legislation

This EIS exemption has been prepared with consideration for the following relevant legislation:

ACT Legislation

- *Australian Capital Territory (Planning and Land Management) Act 1988*
- *Planning and Development Act 2007*
- *Planning and Development Regulations 2008*
- *Environment Protection Act 1997*
- *Emergencies Act 2004*
- *Heritage Act 2004*
- *Nature Conservation Act 1980*
- *Tree Protection Act 2005.*

Commonwealth Legislation

- *Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)*
- *Aboriginal and Torres Strait Islander Heritage Protection Act 1984*
- *Native Title Act 1993.*

Each of these instruments are considered in the table below.

Table 4.1 Statutory Legislation Considerations

Legislation	Explanation	Considered within this EIS Exemption
<i>Australian Capital Territory (Planning and Land Management) Act 1988</i>	The <i>Australian Capital Territory (Planning and Land Management) Act 1988</i> (PALM Act) provides that land used by or on behalf of the Commonwealth may be declared National Land, managed by the Commonwealth. The remaining lands of the Territory are Territory Land, managed by the ACT Government on behalf of the Commonwealth. In order to maintain a broad oversight of planning in the Territory as a whole, and to ensure its involvement in the planning, design and development of those areas having the special characteristics of the National Capital, the Commonwealth established the National Capital Authority to reflect its interests and carry out its intentions. Through the PALM Act, the ACT Legislative Assembly is required to make laws to establish a territory planning authority. The role of this authority is to prepare and administer a territory plan in respect of all land within the ACT, other than designated areas, in a manner that is not inconsistent with the National Capital Plan (NCP).	This project is within Territory Land.
<i>Planning and Development Act 2007</i>	The PD Act fulfils the requirements of the PALM Act in establishing the ACT planning and land authority currently known as the Environment, Planning and Sustainable Development Directorate (EPSDD). The EPSDD is responsible for approving development in all areas of the ACT other than designated areas. The EPSDD administers the Territory Plan, being the primary statutory planning document against which development proposals are assessed. The type of the approval process is dependent on the nature of the project and land use zone of the site as prescribed by the Territory Plan. Development applications are assessed in one of three tracks identified by the PD Act, being code, merit, or impact track.	This project falls under the EIS exemption process outlined within Section 211 of the <i>Planning and Development Act 2007</i> .

Legislation	Explanation	Considered within this EIS Exemption
<i>Planning and Development Regulations 2008</i>	The <i>Planning and Development Regulation 2008</i> provides the requirements associated with the preparation of EIS documentation, including relevant information requirements for EIS exemptions under Section 211 of the <i>Planning and Development Act 2007</i> .	This s.211 EIS exemption application has been prepared with consideration of the Regulation
<i>Environment Protection Act 1997</i>	The <i>Environment Protection Act 1997</i> was established to protect the environment from pollution and its effects, and to provide a regulatory framework to reduce and eliminate the discharge of pollutants into the air, land, and water. The Act also establishes the Environment Protection Authority (EPA) as the statutory decision-maker for environmental regulation and policy. The EPA administers legislation covering air and water quality, waste, contaminated land, noise, pesticides, and hazardous waste through the provisions of the Environment Protection Regulation 2005 (EP Regulation). The <i>Environment Protection Act 1997</i> also includes a number of detailed objectives designed to protect the environment; it recognises that environmental decision-making must have appropriate regard for economic and social considerations. The Act, when made in 1997, embodied the ecologically sustainable development principles endorsed by the Intergovernmental Agreement on the Environment, to which the ACT is a signatory.	Construction of the proposal will be undertaken in a manner consistent with the requirements of the EP Act.

Legislation	Explanation	Considered within this EIS Exemption
<i>Emergencies Act 2004</i>	The <i>Emergencies Act 2004</i> was developed in response to the Report of the McLeod Inquiry into the operational response to the January 2003 bushfires in the ACT. The Act consolidates all previous emergency legislation in the ACT, provides for different declarations in an emergency or impending emergency, and provides for the ACT Bushfire Council as an advisory body to the Minister for Police and Emergency Services. The ACT's primary bushfire planning instrument, the Strategic Bushfire Management Plan (SBMP) is administered under the <i>Emergencies Act 2004</i>. The SBMP establishes the basis and framework for the efficient, effective, and comprehensive management of fire and fire-related activities for protecting human life, property, assets and the environment.	Appropriate measures will be implemented during construction to limit the risk of fire occurring.
<i>Heritage Act 2004</i>	The purpose of the <i>Heritage Act 2004</i> is to provide for the recognition, registration and conservation of places and objects of natural and cultural significance in the ACT. The ACT Heritage Council is an independent body established under the Act, which has the role of providing advice on appropriate conservation of cultural, natural, and Aboriginal heritage places and objects throughout the ACT. Under the <i>Heritage Act 2004</i> the ACT Heritage Council is responsible for keeping a register of places and objects in the ACT which have heritage significance at the Territory level. A place or object must meet at least one of the heritage significance criteria outlined in the Act to be entered in the Heritage Register.	A detailed cultural heritage assessment has been undertaken to support this s.211 EIS exemption application.

Legislation	Explanation	Considered within this EIS Exemption
<i>Nature Conservation Act 1980</i>	The <i>Nature Conservation Act 2014</i> is the primary legislation for the protection of native plants and animals in the ACT, and for the management of the conservation reserve network. The Act establishes the ACT Conservator for Flora and Fauna, the ACT Parks and Conservation Service and other various committees. The Act also lists threatened native species and ecological communities, outlines the requirement for action plans for declared threatened species and ecological communities, provides a regime for offences, licences, and penalties; and also outlines monitoring, compliance and enforcement activities.	A detailed ecological investigation has been prepared to support this s.211 EIS Exemption, with consideration for the NC Act.
<i>Tree Protection Act 2005</i>	The <i>Tree Protection Act 2005</i> sets out provisions for the protection of trees in the urban area. This Act contains provisions for: • establishment of a register of trees of high importance with appropriate levels of protection • establishment of comprehensive tree protection measures to be applied in areas where urban forest values are at risk of degradation • approval of tree damaging activities • approval of groundwork activities within the tree protection zone of a protected tree • approval of tree management plans • offence and enforcement provisions • ability for the Conservator of Flora and Fauna (the Conservator) to make directions with regard to tree protection matters • establishment of a Tree Advisory Panel (the Conservator is established under the <i>Nature Conservation Act 2014</i>).	A detailed ecological investigation has been prepared to support this s.211 EIS Exemption, with consideration for the TP Act.

Legislation	Explanation	Considered within this EIS Exemption
<i>Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)</i>	The Commonwealth EPBC Act provides a legal framework to protect and manage nationally and internationally important flora, fauna, ecological communities, and heritage places. Under the EPBC Act, approval is required from the Commonwealth Minister for the Environment where an action is: - likely to have a significant impact on a matter of national environmental significance (MNES); or - likely to have a significant impact on the environment in general (for actions by Commonwealth agencies or action on Commonwealth land) or the environment on Commonwealth land (for actions outside Commonwealth land). MNES include: - world heritage properties - national heritage properties - wetlands of international importance - nationally threatened species and ecological communities - migratory species - Commonwealth marine areas - The Great Barrier Reef Marine Park - nuclear actions (including uranium mining) - a water resource, in relation to coal seam gas development and large coal mining development.	A detailed ecological investigation has been prepared to support this s.211 EIS Exemption, with consideration for the EPBC Act. The Project Area was also subject to a Strategic Assessment under Part 10 of the EPBC Act (refer to Section 4.1).
<i>Aboriginal and Torres Strait Islander Heritage Protection Act 1984</i>	The <i>Aboriginal and Torres Strait Islander Heritage Protection Act 1984</i> (ATSIHP Act) allows the Commonwealth Minister for the Environment, on the application of an Aboriginal person or group of persons, to make a declaration to protect an area, object or class of objects from a threat of injury or desecration. The ATSIHP Act was passed to enable the Commonwealth an opportunity to intervene and, where necessary, preserve and protect areas and objects of particular significance to Aboriginal or Torres Strait Islander peoples.	There are no known Aboriginal heritage objects or places within the Project Area.

Legislation	Explanation	Considered within this EIS Exemption
<i>Native Title Act 1993</i>	The <i>Native Title Act 1993</i> aims to provide a national system for the recognition and protection of native title and for its co-existence with the national land management system. The purpose of Native Title is to recognise the rights and interests of Aboriginal and Torres Strait Islander people in land and waters according to their traditional laws and customs. Native Title only recognises the right to perform certain activities which come from traditional laws and customs but does not recognise those traditional laws and customs themselves. These activities may include the right to camp, hunt, use water, hold meetings, perform ceremony, and protect cultural sites.	There are no Native Title claims within the Project Area.

2.5.1.2 Policy and Plans

In addition, this EIS exemption has been prepared with consideration for the following policy and plans:

- Territory Plan
- National Capital Plan
- ACT Planning Strategy 2018
- ACT Climate Change Strategy 2019-2025
- Canberra's Living Infrastructure Plan (2019).

Plan	Description	Considered within EIS this Exemption
Territory Plan	The Territory Plan is the primary statutory planning document in the ACT. The purpose of the Plan is to manage land use change and development in a manner consistent with the strategic directions provided by the ACT Government, Legislative Assembly, and the community. The Territory Plan includes a statement of strategic directions, a map which sets out zones and precincts within the ACT, objectives and development tables applying to each zone, and a series of general, development and precinct codes.	The Project Area for this EIS exemption is entirely within the road corridor, being TSZ1 Transport Zone. The proposal is characterised as a major service conduit, which is permissible with development consent within the TSZ1 zone.

National Capital Plan	The NCP aims to ensure that development within Canberra and the ACT generally occurs in a manner that is appropriate to its role as the nation's capital. The NCP is the strategic plan for Canberra and the Territory to ensure that developments are planned in accordance with national significance recognising the unique purpose, setting, character and symbolism of Australia's national capital. The NCP seeks to provide a framework for development with regards to planning and design, while advancing those aspects of Canberra and the Territory that are important to the national role of Canberra. The NCP is administered by the NCA, and provides a framework for the Territory Plan, which provides more specific guidance on the development of the region. In accordance with s. 10 of the PALM Act, the Plan sets out the broad planning principles and policies for Canberra and the Territory, and detailed conditions of planning, design and development for the 'designated areas' because of their particular importance to the special character of the national capital. Any buildings, structures, demolition, landscaping, or excavation works in these designated areas require the prior written approval of the NCA.	It is noted that part of the proposed new alignment and the future substation (by others) will enter into a Designated Area. This will be subject to a separate Works Approval, to be submitted to the NCA.
ACT Planning Strategy 2018	The ACT Planning Strategy is a key strategic planning document within the ACT, providing a framework for spatially based development decision-making and identifying actions required to achieve its strategic goals over a 30-year period. The Strategy operates alongside the Territory Plan and the NCP, providing direction for land use and construction of capital works in the short, medium, and long term.	The proposed work is consistent with the themes of the ACT Planning Strategy, in particular, relating to a "Compact and Efficient City" and a "Liveable Canberra".
ACT Climate Change Strategy 2019-2025	The ACT Climate Change Strategy 2019-2025 brings together emission reduction, resilience and adaptation measures as part of a holistic response to climate change and, together with Canberra's Living Infrastructure Plan, replaces the previous ACT Climate Change Adaptation Strategy (2016). The ACT Climate Change Strategy 2019-2025 outlines the next steps the community, business and Government would take to reduce emissions by 50 to 60 per cent (below 1990 levels) by 2025 and establish a pathway for achieving net zero emissions by 2045. The Strategy sets out actions to reduce emissions and to build resilience to climate change impacts. From 2020, once the ACT is powered by 100 per cent renewable electricity, the next key	The proposed transmission lines are to be constructed underground to promote infrastructure resilience in the face of impacts relating to climate change. The proposed realignment will also ensure the transmission of renewable electricity to the future urban area.

	challenges would be reducing emissions from transport, gas, and waste.	
Canberra's Living Infrastructure Plan (2019)	Canberra's Living Infrastructure Plan provides strategic direction to help the city's expanding metropolitan areas become better prepared for and more resilient to climate change. The document sets out the ACT Government's firm commitment to maintain and improve living infrastructure in Canberra. Living infrastructure comprises vegetation, soils and water systems which provide shade and space for outdoor recreation, retain water in the landscape and support wildlife and biodiversity. The Plan recognises the critical role that living infrastructure plays in our city, and the increasingly important role it would play, particularly in cooling the city as the climate warms. The Plan identifies fifteen actions, including measures for the ACT Government to: • achieve 30 per cent tree canopy cover (or equivalent) and 30 per cent permeable surfaces in urban areas by 2045 • develop an Urban Forest Strategy • introduce landscape planning requirements for multi-dwelling, mixed-use and commercial developments • support community efforts to incorporate climate-wise landscaping principles and sustainability outcomes.	As noted above, the proposed transmission lines will be entirely underground, allowing for infrastructure resilience, as well as the opportunity for climate-wise landscaping within the future urban area.



FIGURE 2.3
Project Area Subject to this EIS
Exemption Application

3.0 Planning and Development Act Triggers

During preparation of this document, a literature review of all available documentation relating to the Project was completed. The findings of the literature review were compared against the triggers for Impact Track assessment under Schedule 4 of the PD Act. The items that will, or may, be triggered by the Project are listed in **Table 3.1**, noting that this table does not include items that have been determined to be not applicable to the Project.

Table 3.1 Schedule 4 Triggers Relevant to the Project

Part	Item	Trigger	Relevant	Report Section
4.2	2	Proposal that involves – (a) electricity transmission line construction, including additions or realignment works, outside an existing easement or exceeding 500 m in length, that are intended to carry underground or above-ground transmission lines with a voltage of 132kV or more.	Yes	Section 3.1
4.3	2	Proposal involving – (a) the clearing of more than 0.5ha of native vegetation in a native vegetation area, other than on land that is designated as a future urban area (FUA) under the territory plan, unless the conservator of flora and fauna produces an environmental significance opinion that the clearing is not likely to have a significant adverse environmental impact.	Yes	Section 3.2
4.3	6	Proposal that is likely to have a significant adverse impact on the heritage significance of a place or object registered under the <i>Heritage Act 2004</i> , unless – (a) The heritage council produces an environmental significance opinion that the proposal is not likely to have a significant adverse impact.	Potential	Section 3.3

3.1 Electricity Transmission Line Construction

The [Overall](#) Project involves the relocation of existing 132kV transmission lines by installing a new underground transmission line and removing the existing steel tower overhead lines. The objectives and detail of the Project are described in **Section 2.0**.

The two existing transmission lines currently connect the following:

- the TransGrid Canberra 330/132kV sub-station in Holt to the Woden zone sub-station in Lyons – the Canberra - Woden line; and
- the Civic zone sub-station (at the base of Black Mountain) to the Woden zone sub-station in Lyons – the Civic - Woden line.

These lines are critical infrastructure that supply power to large areas of Canberra and will support all three stages of the Molonglo development (Calibre 2019). The existing 132kV transmission lines are suspended on large steel lattice towers on the alignment shown in **Figure 2.1** and are each located on 40 metre wide easements that converge at the southern end of Molonglo Stage 3, near the southern limit of the National Arboretum.

Approximately 8.4 kilometres of the existing 132kV transmission line (including 29 towers) would be removed and replaced with approximately nine kilometres of underground transmission line. Evoenergy (then ActewAGL Distribution) has been consulted throughout the design process and the new transmission lines will be built to their engineering and safety standards (Calibre 2017). [These decommissioning works are subject to the existing FUA EIS Exemption.](#)

A detailed feasibility study and concept design report were prepared for the [Overall](#) Project. A preliminary stakeholder workshop was held on 12 June 2014 to discuss planning considerations for the [Overall](#) Project. Following this, 11 alignment options were developed for internal feasibility assessment by the Project Team. This stage identified six alignment options that were discussed at a second workshop in August 2014, which further refined the shortlist to four options plus the 'do-nothing' base option. These five short-listed options were subject to detailed design, cost-benefit-analysis, and triple bottom line analysis.

Since this time, the original assessment has been reviewed based on a more accurate estimate of the cost of undergrounding 132kV transmission lines. The review included new rounds of options assessment. The current design for the Project was identified as the preferred option in the triple bottom line assessment (CIE 2018).

Further refinement of the route for the 132kV relocation was triggered in 2018 as the previous route was inconsistent with the newly proposed widening of William Hovell Drive. Hence the Canberra - Woden line will be located within the existing William Hovell Drive road reserve, south of William Hovell Drive as far as possible. The Project design has been an iterative process that included consultation with key infrastructure providers (e.g. Roads ACT, Evoenergy), urban planners associated with the future development of Molonglo, and ecologists so that impacts to vegetation and future land uses have been minimised as much as possible.

The proposed alignment would maximise the amount of developable land located in the FUA otherwise lost to easements, setbacks, and maintenance tracks. CBRE (2017) valued the available land for each of the shortlisted alignment options. CIE used these values and their own research into land devaluation due to transmission lines to produce a triple bottom line report that indicated the relocation project had more benefits than costs.

The effects of electromagnetic fields (EMF) and electromagnetic radiation (EMR) from underground 132kV transmission lines were assessed by L3D (2014b), and subject to a peer review by GHD (2020). The following are extracts from that report:

A common concern with the operation of transmission assets is the effect of the electromagnetic fields produced by transmission lines and underground cable systems. Any device that produces a voltage and carries electric current will produce electric and magnetic fields. As well as electricity supply network assets, industrial, commercial equipment and household appliances also produce EMF and EMR. Electromagnetic fields are made up of two components – electric fields and magnetic fields. An electric field (kV/m) is produced by the network operating voltage and is not a concern in an underground cable installation because the field is completely contained within the underground cable.

A magnetic field is produced by the flow of electric current and is measured in gauss (G) or teslas (T). The EMR produced by underground cable installation will be greatest directly above the cable circuit, and will diminish as the distance increases away from the circuit. EMR levels will also vary depending on the load currents carried by the underground cable circuit.

The recommended Electromagnetic Radiation Levels (EMR) that the public can be exposed to, based on the Energy Networks Association Ltd (ENA) (NHMRC/ARPANSA) recommendations, are 1,000mG over a 24 hour period and 2,000mG levels for intermittent exposure.

As determined from the EMR levels calculated, residents living adjacent to the underground cable easement would not be exposed to high levels of EMR radiation that exceed the 24 hour exposure level of 1,000mG advised by the Energy Networks Association Ltd (ENA) based on ARPANSA and NHMRC Guidelines.

The maximum EMR exposure level at the edge of the cable easement is only 16% (158.83mG) of the 24 hour exposure level and where people are likely to reside the levels would be significantly lower the further they are away from the cable easement and would possibly be similar to EMR exposure levels found in the domestic environment.

GHD (2020) confirmed that the magnetic fields from the 132 kV cable arrangement would not exceed the 1000 mG or 2000 mG limits at any point above a height of 500 mm above ground level, when the 132 kV circuit is operating in peak, off peak normal or emergency load conditions. Therefore, should the 132 kV underground circuit arrangement be installed as described in this report, the allowable magnetic field limits are not exceeded anywhere within or outside the 132 kV easement.

The requirements and standards of Evoenergy have been considered over the life of this Overall Project to date. The Overall Project, including those portions subject to this application, has been designed to meet current and predicted future energy needs of Canberra and to fit with Evoenergy's existing and planned infrastructure.

Constructing the transmission lines underground substantially reduces the impacts associated with the Project; particularly visual and vegetation clearing. The majority of the Project impacts will be temporary, and limited to the construction period. These will be able to be managed through a standard construction environmental management plan (CEMP). Unavoidable and residual impacts to native vegetation and heritage values as a result of the Project are discussed in the following sections.

[Evoenergy has been in direct liaison with the Utilities Technical Regulator \(UTR\) to agree on further assessment, including the preparation of a Superconducting Magnetic Energy Investigation Report to assess and mitigate risks associated with the underground 132kV network.](#)

3.2 Clearing of Native Vegetation

The Project will not impact upon any threatened or protected species or ecological communities within Territory Land (outside the Molonglo 3 EIS exemption approval area); however will impact more than 0.5 hectares of vegetation defined as 'native' under the *Nature Conservation Act 2014* (NC Act) (ACT).

Umwelt (2018) mapped the extent of native vegetation within the Project Area. The vegetation communities affected, and the extent of impact is summarised in **Table 3.2** below and shown on **Figure 3.1**.

Table 3.2 Native Vegetation within the Project Area

Vegetation Type (Umwelt, 2018)	Vegetation Description	Impact (ha)
Plantings – Local Woodland	Woodland comprising a planted native canopy which includes yellow box and red box. The understorey is predominantly exotic, contains few native understorey non-grass species, and no important species.	0.2
Plantings - Mixed Local and Non-local	Woodland comprising a native canopy which includes yellow box, red box and Blakey's red gum. The understorey is predominantly exotic and contains few native understorey non-grass species.	0.4
Mixed Pasture	Mixed native and exotic pasture occurs primarily in the blocks north of William Hovell Drive. There is no significant canopy, with a sparse mid-storey of briar rose (<i>Rosa rubiginosa</i>). Understorey is co-dominated by native and exotic species.	1.2
Total		1.8

NB: Approximately 25m² of derived native grassland occurs on the far eastern boundary of the Project Area. Due to its small area and low likelihood of being impacted by the Project, it has not been included in the **Table 3.2** above.

The Project will result in two types of impacts to native vegetation:

- Temporary: from trenching works for the new transmission lines. The trenches will be dug, the conduits and lines placed, and the hole back-filled along the length of the proposed new alignment. In these areas the vegetation will be disturbed during the construction phase, however, will be re-seeded and rehabilitated post construction with an appropriate groundcover (e.g. native dryland grass mix).
- Permanent: from construction of access roads. These areas have been co-located with existing access tracks and roads wherever possible to minimise impacts to existing vegetation.

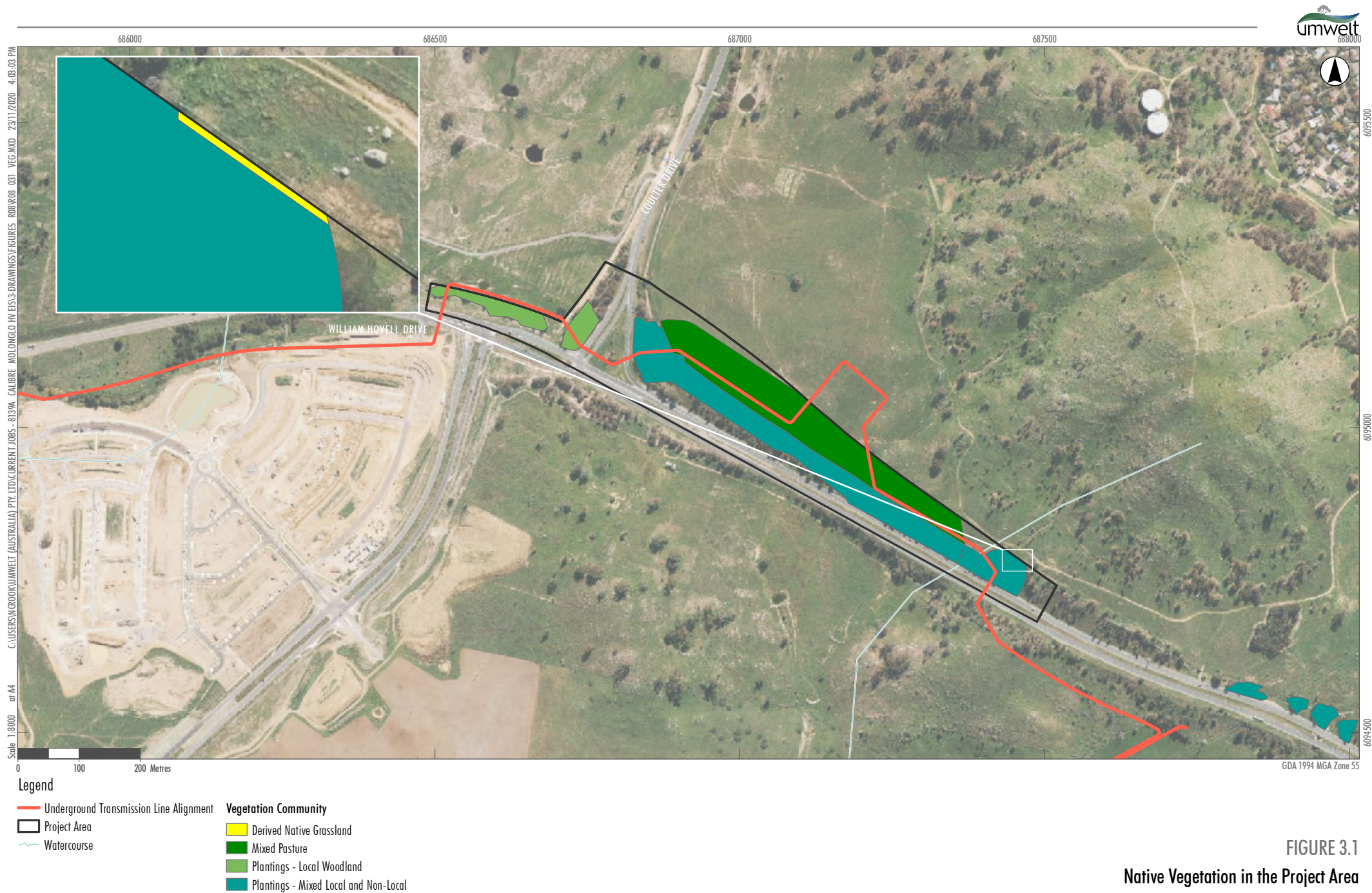


FIGURE 3.1
Native Vegetation in the Project Area

Clearing of native vegetation may impact upon local ecological values, and result in impacts to abiotic conditions such as soil and water. The impacts on native vegetation associated with this action are likely to result from:

- Removal of surface vegetation;
- Soil disturbance;
- Introduction of weeds due to construction activities and subsequent operational access; and
- Minor removal of over- and mid-storey vegetation.

It is noted that the over-storey vegetation in the Molonglo Valley is particularly important for habitat connectivity for bird species. The Project has been designed to minimise the number of trees that will be removed from the landscape; furthermore, where trees must be removed, this will be limited to a few individuals per stand. It is therefore not considered likely to affect the connectivity value of the landscape.

The decision to install the lines underground reduces the overall environmental impact of the Project. By underboring in key areas, environmentally sensitive locations are unlikely to be significantly impacted by the Project. In particular, habitat areas for pink-tailed worm lizard will be avoided.

The Project should also be considered in the broader context of the Molonglo Valley urban development. As portions of the broader Project are to occur on land subject to existing approval conditions (Commonwealth and ACT), with construction to be undertaken in line with a CEMP that will govern construction and post-construction rehabilitation and ensure mitigation measures are implemented so that indirect impacts into adjacent native vegetation areas are mitigated.

Mitigation measures for the entire Project will include:

- **construction:**
 - a Landscape Management and Protection Plan (LMPP) has been prepared for the Project prior to construction. The LMPP will outline rehabilitation requirements and weed controls;
- erosion and sedimentation control:
 - strip areas progressively and only where it is necessary for works to occur;
 - employ stabilisation methods such as matting, grassing or mulch;
 - place stockpiles uphill of open trenches;
- tree protection:
 - mark trees for protection prior to construction commencing and install temporary fencing;
 - avoid tree protection zones when trenching;
- rehabilitation:
 - undertake weed control on any Pest Plants prior to and following respreading of spoil for a set period of 24 months post-construction (e.g. 12 months); and

- respread topsoil and rehabilitate all disturbed areas progressively to minimise the time soil is exposed.

Refer to [Section 7.0](#) of this report for further discussion on proposed measures to avoid, mitigate and offset any potential environmental impacts.

3.3 Impacts to Heritage Places or Objects

The Project Area for this exemption application is located entirely within the William Hovell Drive and Coulter Drive road reserves. These areas are not identified as containing Places or Objects on the ACT Heritage Register (ACT Government 2018).

A number of listed heritage sites are located in close proximity of the project area, as listed below.

Table 3.3 Aboriginal Heritage Sites Listed in the Direct Vicinity of the Project Area (Umwelt, 2019)

Site Name	Heritage ID	Location ID	Recorded By
12B2	1172	1998	Bullbeck and Boot 1990
12B4	1172	868	Bullbeck and Boot 1990
12I1	1172	2499	Bullbeck and Boot 1990
BELC 22	1172	1422	Kabalia 1999
BELC 29	1172	2844	Kabalia 1999
CLB7	1162	2823	Knight 2003

The cultural heritage assessment (CHA) completed for this Project (Umwelt 2020; see [Appendix 2](#)) identified three newly identified isolated finds (MV-HVL-IF-1; MV-HVL-IF-2; MV-HVL-IF-3) within close proximity of the Project Area. These sites were assessed as having low scientific and cultural significance. No constraints within the Project Area itself were found.

Consultation with four Representative Aboriginal Organisations (RAOs) was undertaken to inform the CHA.

The CHA recommends a number of measures to ensure that the three newly identified sites are inspected and appropriately registered with ACT Heritage. However, no further Aboriginal or historical archaeological work is recommended for the area subject to this exemption application.

An unanticipated discovery plan has been prepared for use during construction. [The CHA has been attached to this s.211 EIS Exemption application in Appendix 2.](#)

4.0 Interaction with Existing Planning Approval Conditions

4.1 Decision under the Environment Protection and Biodiversity Conservation Act 1999

On 16 September 2008 the Federal Minister and the ACT Minister for Planning announced that a Strategic Assessment of the Molonglo and North Weston Structure Plan would be undertaken in accordance with Section 146 of the EPBC Act. The decision was amended to include the preparation and strategic assessment of 'Molonglo Valley Plan for the Protection of Matters of National Environmental Significance' (the NES Plan) (ACTPLA, 2011), so as not to unduly constrain the Structure Plan's implementation.

On 7 October 2011, the Federal Environment Minister endorsed the NES Plan. The endorsement of the NES Plan allowed the Federal Environment Minister to consider giving approval to actions or class of actions that are taken in accordance with the endorsed Plan. On 20 December 2011, the Federal Environment Minister approved actions associated with urban development in East Molonglo as described in the endorsed NES Plan.

The majority of the existing transmission lines, and a large proportion of the proposed alignment occur within the NES Plan area (refer to **Figure 2.2**). The impact area outside the boundary of the NES Plan has not been subject to assessment or approval under the EPBC Act.

4.2 Decision under the Planning and Development Act 2007

The ACT planning approvals process for the development of Molonglo was separated into the development stages. Molonglo Stage 3 was assessed under the PD Act, based on the extent of information collated as part of the EPBC Act strategic assessment, Molonglo Stage 2 planning processes (i.e. an EIS exemption was approved), and the completion of extensive due diligence assessments. The Molonglo Stage 3 EIS exemption was approved by the Minister for Planning and Land Management on 8 May 2018.

The Molonglo Stage 3 EIS exemption included all urban development (including electricity infrastructure) within the boundary shown in **Figure 2.2**.

4.3 Project's Consistency with Existing Approval Conditions

The following commitments and/or approval conditions from the above-mentioned approvals are relevant to the Project:

- No more than 110 hectares of EPBC Act listed White Box – Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland (box-gum woodland) critically endangered ecological community is to be impacted by development of the Molonglo Valley.
- No more than 27 hectares of pink-tailed worm-lizard (*Aprasia parapulchella*) (a vulnerable reptile) habitat is to be impacted by development of the Molonglo Valley.
- Construction will be subject to CEMPs that will include the following as a minimum:
 - Safeguards for controlling heavy machinery movement so that adjacent habitat areas are avoided;

- Erosion prevention and mitigation measures;
 - Weed and disease control measures;
 - Relocation of animals found within construction areas; and
 - Monitoring and reporting requirements.
- A buffer outside of Kama Nature Reserve will be established to protect the ecological values within the reserve. Specifically, this buffer will be between the proposed development area and Kama Nature Reserve and will allow for appropriate uses consistent with nature conservation for the reserve.

The Project has been designed to avoid impacts to box-gum woodland and pink-tailed worm-lizard where possible. Any residual impacts to box-gum woodland and pink-tailed worm-lizard within the Molonglo Stage 3 FUA will be appropriately reported and included as part of the maximum extent of the impacts.

The Project will be managed by a CEMP that will be consistent with the controls identified above. [It is considered that the likely impacts associated with construction of the alignment that is subject to this EIS exemption will be minor and can be sufficiently managed through an industry-best practice CEMP.](#)

Part of the proposed new transmission lines will be installed within the Kama Nature Reserve Buffer. This is required to connect with the existing overhead lines within the Kama Nature Reserve; and is consistent with the key objective of the Project to minimise impacts to the Molonglo Stage 3 development as whole.

Impacts as a result of the Project in the Kama Buffer include temporary impacts associated with the installation of new conduits and cables and the permanent impacts associated with a dirt access road and any new towers. The risks to the ecological values of the Kama Nature Reserve associated with weed incursion and other construction impacts would be mitigated by the CEMP.

The proposed alignment through the Kama Buffer has been determined in consultation with the Parks and Conservation Service.

5.0 Preliminary Risk Assessment

A Preliminary Risk Assessment (PRA) has been prepared and attached as **Appendix 1**. According to the 'Preparation of an Application for Scoping and Preparation of an ESO' guidelines (ACTPLA, undated, p.4), the purpose of a PRA is described below.

Identifying possible impacts requires the consideration of all of the likely activities that will be involved in the construction, operation and decommissioning of the project with further consideration given to all the impacts that these activities could lead to.

Based on this objective, the environmental risks during design, construction, and operation of the proposed transmission lines and the decommissioning of the existing transmissions lines have been identified and assessed. The risk assessment has been prepared identifying both unmitigated and mitigated risks.

The key risks identified in the PRA are as follows:

- Impacts to Molonglo Stage 3 land release program due to delayed construction of critical infrastructure;
- Delays and complications due to the cross-jurisdictional approvals required (EPSDD / NCA);
- Impacts to MNES (particularly box gum woodland and pink-tailed worm lizard);
- Impacts to greater than 0.5 hectares of native vegetation outside of a FUA;
- Risk of electromagnetic induction;
- Risk of bushfire from any construction activities;
- Risk of flooding or large rain events on the infrastructure and any surrounding natural features such as waterways during both construction and operation;
- Disruption to existing services;
- Risks of traffic disruptions to nearby roads including William Hovell Drive and Coulter Drive;
- Risks associated with handling of hazardous chemicals or materials, and waste disposal;
- Health and safety risks during installation and decommissioning of transmission lines; and
- Risks associated with staging the proposal, particularly surrounding the possibility of requiring further environmental assessment should this EIS exemption expire.

A large proportion of the risks identified are inherent to the design and construction aspects of the Project. These risks can be mitigated through standard management measures, such as the development and implementation of a CEMP.

By undergrounding the transmission lines, a large number of risks are also reduced in severity, as impacts will be restricted to the duration of construction. Following the application of mitigation measures, only risks associated with impacts to greater than 0.5 hectares of native vegetation outside of a FUA remain.

6.0 Description of Nature Conservation Values

This section describes the nature conservation values present within the Project Area with consideration of the guidance document for Proponents (EPSDD, 2017).

6.1 Importance of the Project Area for Existing Processes or Natural Systems of the ACT

The Project Area is a thin strip of land traversing the area north of the Molonglo River, the river system that runs through the centre of Canberra; and is within the vicinity of Kama Nature Reserve, Mount Painter Nature Reserve, Aranda Bushland Nature Reserve, and 'Patch GG' (an identified offset area for the NES Plan). On a landscape scale these areas are important natural systems in the ACT as they contain substantial ecological values and contribute to landscape connectivity throughout the region.

Notwithstanding the above, the Project Area is, in general, considerably degraded as a result of historic land use for agriculture, pine plantations, and the construction and operation of William Hovell Drive and the Tuggeranong Parkway.

The remnant native trees within the Project Area provide limited value as habitat for woodland birds as they move through the landscape. The remainder of the Project Area is not considered important in maintaining existing processes and does not contain any significant movement corridors or natural systems.

6.2 Unusual Richness or Diversity of Flora, Fauna, or Landscapes

Historically, much of the Molonglo Valley would have contained a range of woodland communities, including riparian shrubland and *Casuarina cunninghamiana* (river she-oak) open forest adjacent to the Molonglo River, and potentially natural temperate grassland at lower altitudes. These communities now persist in smaller, disturbed patches; generally interspersed by exotic pastoral grasslands or planted pine (Biosis, 2017).

Due to historic land clearing, only small patches of woodland remain, generally with a non-diverse native understorey; often forming a mosaic with annual or perennial exotic pasture grasses. Most open areas are dominated by *Phalaris aquatica* (phalaris), although patches dominated by native grasses persist in some areas (Umwelt 2017). Most of the Project Area is covered by exotic vegetation or existing infrastructure (i.e. roads). Areas of mixed vegetation are not considered diverse and do not add value to the floral, faunal, or landscape diversity of the ACT.

It should be noted that areas of high diversity, particularly box gum woodland, that persist in the Molonglo Valley have either been retained in Nature Reserves already, or have been considered as part of the Commonwealth and Territory approvals processes. These areas have generally been avoided, with the highest quality areas included as part of the NES Plan offset strategy. In the broader context of the Molonglo Valley, it is considered that these actions have preserved areas of greatest value to the ecological diversity of the ACT. Given these characteristics, the Project Area is not considered important in exhibiting unusual richness of flora, fauna, or landscapes.

6.3 Uncommon, Rare, or Endangered Flora, Fauna, Communities, Natural Landscapes, or Phenomena

The Molonglo Valley contains a number of threatened fauna species and vegetation communities that are protected at both Commonwealth and Territory levels. Of note, there is extensive habitat for pink-tailed worm-lizard, particularly associated with the Molonglo River corridor; and areas of box gum woodland. As discussed, many of these values have been considered and managed as part of the NES Plan and Molonglo Stage 3 EIS exemption.

Due to its history of disturbance, the Project Area has minor ecological value. Pink-tailed worm lizard habitat, and box gum woodland (Capital Ecology, 2015) has been identified north of William Hovell Drive, however this is [avoided entirely by the proposed alignment. As outlined in Section 3.2, the proposed tree clearing will only impact tree plantings, as opposed to trees forming part of any threatened ecological community. The proposed alignment will be entirely underground, with no significant impact to pink-tailed worm lizard or box gum woodland anticipated as a result of the proposed works subject to this EIS exemption request \(see Figure 6.1\).](#)

The grassland and grassy woodland vegetation within the Project Area may constitute marginal foraging habitat for little eagle (*Hieraaetus morphnoides*), as does all woodland vegetation in the Molonglo area. The remainder of the Project Area includes exotic or highly disturbed habitat that is not considered to constitute habitat for uncommon, rare, or threatened flora, fauna, or ecological communities.

6.4 Location Important for Demonstrating Principal Characteristics of the Range of Landscapes, Environments, or Ecosystems Identified as Characteristic of their Class

The broader Molonglo Valley is characterised by a sequence of vegetation that transitions from the dry forest and woodland communities on the upper slopes, through to box gum woodland, then natural grasslands on lower elevations, through to riparian shrubland and forests along the Molonglo River corridor. Historic land uses have resulted in expansive areas of pastoral land dissecting these remnant vegetation communities.

The Project Area is not considered important in demonstrating the principal characteristics of any landscapes, environments, or ecosystems. It contains some remnant woodland, however in general, is typical of the agriculturally modified landscape of the ACT and Southern Tablelands.

The more intact areas of native vegetation, which demonstrate the characteristics of the pre-European vegetation communities and landscapes, have been protected and avoided through the Canberra Nature Reserve system (e.g. Aranda Bushland Nature Reserve) and the commitments of the NES Plan (e.g. Molonglo River Corridor and Kama Nature Reserve). The Project Area therefore contributes little to these broader landscape values and vegetation sequences as it consists of areas of lower ecological value.

6.5 Location Importance for Providing an Understanding of the ACT's Natural History

The Project Area is not considered of any importance for contributing to a wider understanding of the ACT's natural history. The key areas of ecological and landscape value in the Molonglo Valley, namely the Kama Nature Reserve and the Molonglo River Corridor, are being conserved under the commitments of the NES Plan and Molonglo Stage 3 s211. It is not considered that the Project Area retains any representative natural history values that are not already represented within protected areas.

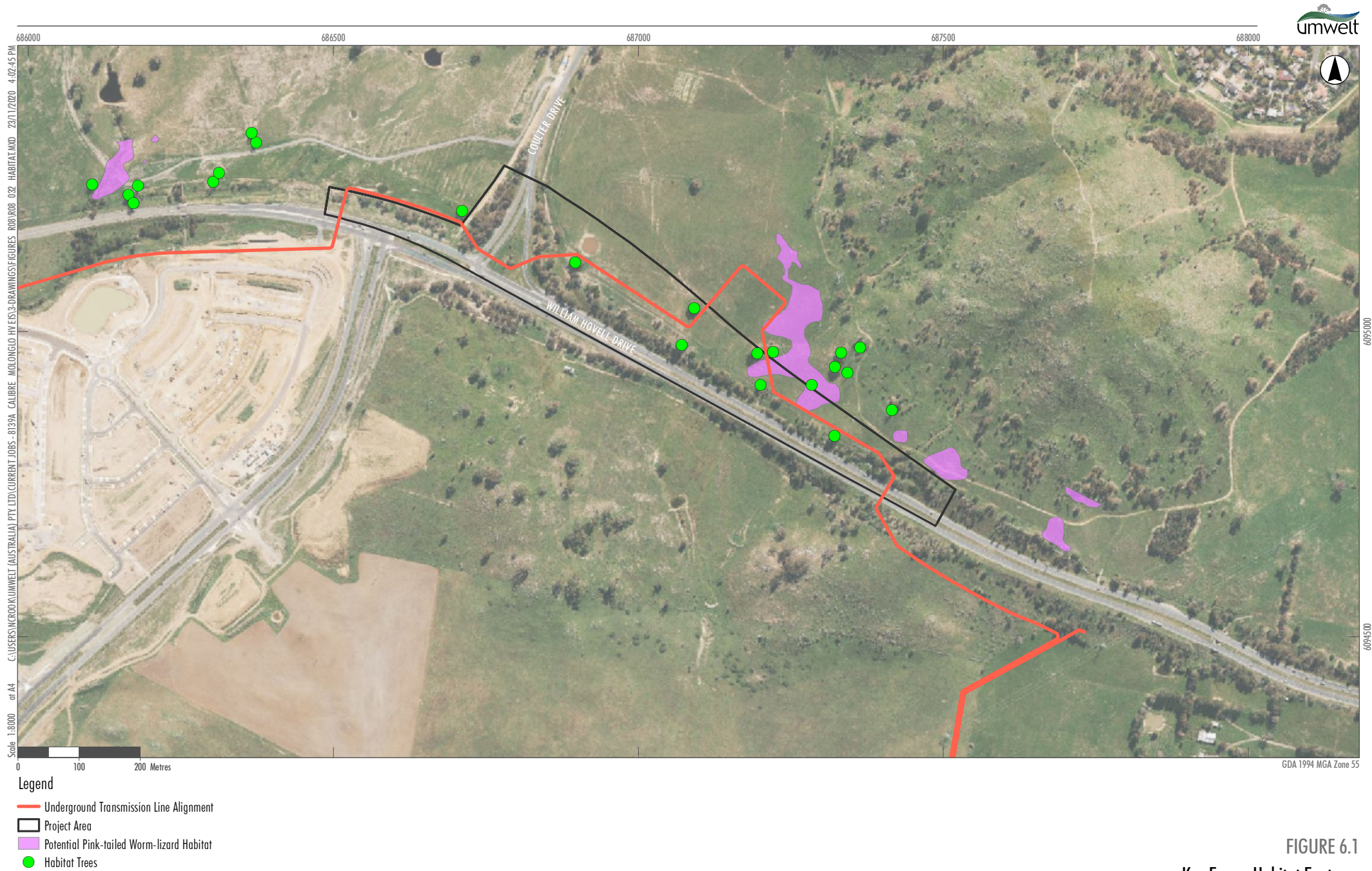


FIGURE 6.1
Key Fauna Habitat Features

7.0 Measures to Avoid, Mitigate, and Offset

Substantial work has been undertaken to design the transmission lines to avoid the majority of adverse impacts to the environment and community. By installing all lines underground impacts to land value and visual amenity, and perceived health and safety concerns are ameliorated. The Project is considered to improve visual amenity over the current situation by removing the existing towers and lines.

Impacts to environment and heritage are greatly reduced through the final proposed design. The design phase of the Project has been an iterative process taking into consideration the location of known ecological values and current and future land uses so that potential impacts to the environment and community are avoided.

Measures to mitigate the temporary impacts of construction on the environment are included in the attached Preliminary Risk Assessment (PRA) (**Appendix 1**) and summarised below:

- Construction will be subject to a Construction Environmental Management Plan (CEMP) that will include the following as a minimum:
 - Safeguards for controlling heavy machinery movement so that adjacent habitat areas are avoided, including:
 - If in the unlikely event that access via Mount Painter Nature Reserve is required, the following conditions will apply:
 - Prior to entering the reserve vehicles and machinery will be cleaned and free of any plant material or soil;
 - Access would be wholly contained to the existing tracks;
 - Any area impacted within the reserve will be restored, including follow up weed control, to the satisfaction of the PCS;
 - Any fencing removed will be managed appropriately to avoid access outside of construction hours, and must be replaced prior to the site being vacated at the end of works;
 - a LMPP outlining rehabilitation requirements (including reseeded and replacement trees and shrubs) and weed controls (both prior to and following completion of work);
 - Traffic and Transport Management Plan (TTMP) detailing access and egress to the Project Area, as well as including traffic management measures to minimise disruptions to the local road network;
 - Weed and disease control measures;
 - Waste Management Plan for all construction waste, noting that a separate waste management plan will be prepared for decommissioning works within the FUA;
 - Hazardous Chemicals and Material Handling Procedure, with input from Evoenergy according to their standard construction practices;
 - Relocation of animals found within construction areas; and
 - Monitoring and reporting requirements.

- Rehabilitation of temporary trenches, including undertaking weed control on any [Pest Plants](#) prior to and following respreading of soil and progressively rehabilitate disturbance areas.
- Erosion and sedimentation controls, including: strip areas progressively and only where it is necessary for works to occur, employ stabilisation methods such as matting, grassing or mulch, and place stockpiles uphill of open trench.
 - [In particular, these erosion and sedimentation control measures will be implemented for works adjacent to the existing drainage line and any other water features.](#)
 - [An Erosion and Sedimentation Control Plan \(ESCP\) will be prepared to support the CEMP.](#)
- Ensure environment protection areas (especially trees) are marked prior to construction commencing and avoid these areas during construction.
 - [Trenching around remnant trees will be avoided where possible.](#)
- [Any boulders and rocks over 80cm excavated during construction will be transported to the Molonglo River Reserve as directed by ACT Parks and Conservation Service \(PCS\).](#)
- [The ACT Equestrian Association will be notified of impacts to the existing trail along William Hovell Drive four weeks prior to works commencing.](#)
- All construction and decommissioning works will be undertaken in accordance with relevant health and safety requirements.
- All construction and decommissioning waste will be appropriately disposed of.

No offsets are required for this Project, as no significant impacts to threatened species or ecological communities would result.

[Based on the Preliminary Risk Assessment \(refer to **Section 5.0**\)](#), it is considered that the post-mitigation risks for the proposal are as low as reasonably practicable. As such, the proposed transmission line realignment is considered unlikely to result in a significant environmental impact.

8.0 Additional Information Required

8.1 Currency of Supporting Documentation

An EIS exemption application requires the following verification for source documents:

- details of qualifications, expertise and experience of the person(s) who conducted previous studies supporting the application; and
- verification from a qualified person that the information in the previous studies supporting the application is still current.

All primary sources cited in this exemption application and used as the basis for the attached PRA are listed in the references section of this report.

Section 50A of the *Planning and Development Regulation 2008* (PD Regulation) prescribes the criteria for a development application exemption from EIS with reference to Section 211 of the PD Act as follows:

The following criteria are prescribed:

- a) whether the study was conducted by an appropriately qualified person with relevant expertise and experience in relation to the environmental values of the land in the proposal;*
- b) if the study does not relate directly to the proposal—whether there is sufficient detail to allow assessment of the environmental impacts likely to occur if the proposal proceeds;*
- c) whether the part of the study relevant to the proposal required public consultation through a statutory process or as part of a government policy development;*
- d) that the study is not more than 5 years old;*
- e) if the study is more than 18 months old—that an appropriately qualified person with no current professional relationship with the proponent verifies that the information in the study is current.*

The following primary sources (**Table 8.1**) were utilised by Umwelt for the assessment of the Project.

Table 8.1 Information Sources Utilised

Source	Report Age	Principal Author (s)	Criteria					Verified as Current	
			✓	meets criteria					
			-	criteria not applicable					
			X	does not meet criteria					
A	B	C	D	E					
Centre for International Economics (CIE) (2018) Cost benefit analysis of proposed major electrical infrastructure relocation: Molonglo 3 in the Molonglo Valley ACT	2 years	The author and reviewer are considered to be appropriately qualified and experienced. Author: Ben McNair, Principal Economist No qualifications provided, however has 15 years’ experience applying economic analysis to the energy and water industries. Prior to joining The CIE in 2016, Ben was Principal Economist at ActewAGL Distribution (now Evoenergy). Reviewer: David Pearce, Executive Director No qualifications provided, however has over 30 years’ experience in a wide variety of economic analysis, including cost-benefit analysis in the utilities sector.	X	-	-	✓	-	N/A. Less than 18 months old at the time of impact assessment. Now provides an assessment relevant for the point in time at which it was prepared.	
CBRE (2017) Consultancy Report: Proposed Major Electrical Infrastructure Relocation Molonglo 3	2 years	The author is considered to be appropriately qualified and experienced. Author/Reviewer: Timothy Heaton Tertiary qualifications not provided. Certified Practicing Valuer, Australian Property Institute.	✓	-	-	✓	-	N/A. Less than 18 months old at the time of impact assessment. Now provides an assessment relevant for the point in time at which it was prepared.	

Source	Report Age	Principal Author (s)	Criteria					Verified as Current	
			✓	meets criteria					
			-	criteria not applicable					
			X	does not meet criteria					
A	B	C	D	E					
L3D (2014a) Molonglo 3 Major Electrical Infrastructure Relocation Feasibility Study	5 years	The author is considered to be appropriately qualified and experienced. Author/Reviewer: Neil Rendell Tertiary qualifications not provided. NSW Level 3 Accredited Service Provider No. 3750. (Accredited Class 3A ‘Design of overhead electricity reticulation’ and Class 3B ‘Design of underground electricity reticulation’).	✓	-	-	✓	-	Peer review for accuracy and currency provided by GHD in 2020. Completed by Martyn Costello, Technical Director – Electrical, who is appropriately qualified to undertake this review.	
L3D (2014b) Molonglo 3 132kV Transmission Line Relocations Options Study: Assessment of the Electro Magnetic Field (EMF) Profile Adjacent to the Proposed ActewAGL Distribution 132kV Transmission Line and Underground Cable Assets	5 years	The author is considered to be appropriately qualified and experienced. Author/Reviewer: As above.	✓	-	-	✓	-	Peer review for accuracy and currency provided by GHD in 2020. Completed by Martyn Costello, Technical Director – Electrical, who is appropriately qualified to undertake this review.	
Umwelt (2018) Ecological Assessment Molonglo Stage 3 132kV Transmission	18 months	The author is considered to be appropriately qualified and experienced. Author/Reviewer: David Moore, Principal Ecologist	✓	-	-	✓	-	N/A. Less than 18 months old.	

Source	Report Age	Principal Author (s)	Criteria					Verified as Current	
			✓	meets criteria					
			-	criteria not applicable					
			X	does not meet criteria					
A	B	C	D	E					
Line Relocation, Draft Report (August 2018)		- Master of Environmental Management and Development - Bachelor of Science (1st Class Honours), The Australian National University - Accredited BAM Assessor - Certified Environmental Practitioner (CEnvP) 10 years’ experience in ecological assessments, biodiversity offsetting, strategic environmental planning and ecological management advice.							
Umwelt (2019) Cultural Heritage Assessment Molonglo Stage 3 132kV Transmission Line Relocation, Final Report (October 2020)	<12 months	The author and reviewer are considered to be appropriately qualified and experienced. Author: Ashley O’Sullivan, Senior Archaeologist - Bachelor of Arts (Hons) – Archaeology and Anthropology - Native Title for Anthropologists 7 years’ experience in cultural heritage management and archaeology. Reviewer: Nicola Roche, Manager – Cultural Heritage - Bachelor of Anthropology (First Grade Honours) 13 years’ experience in Aboriginal cultural heritage and archaeological assessment, development and	✓	-	-	✓	-	N/A. Less than 18 months old.	

Source	Report Age	Principal Author (s)	Criteria					Verified as Current	
			✓	meets criteria					
			-	criteria not applicable					
			X	does not meet criteria					
			A	B	C	D	E		
		implementation of archaeological salvage and monitoring programs, and provision of expert advice.							

8.2 Consultation

Consultation with the following key stakeholders has been undertaken during the planning and design phase of the Project:

- Evoenergy;
- National Capital Authority;
- ACT Heritage Council;
- ACT Environment, Planning and Sustainable Development Directorate;
- [RAOs](#);
- [UTR](#);
- Roads ACT; and
- Icon Water.

As aforementioned, consultation with the ACT Equestrian Association has been undertaken. Notification of works impacting the existing trail will take place four weeks prior to works commencing.

[This EIS exemption application was submitted to EPSDD on 20 April 2020. Public consultation for the application commenced on the date of submission and closed on 10 June 2020. Feedback was received from EPSDD on 3 July 2020, along with submissions made from relevant entities and the public.](#)

[On 6 August 2020, the Proponent met with EPSDD and ACT Heritage to confirm the outcomes of entity and public submissions. Correspondence with EPSDD and ACT Heritage has been ongoing since this discussion. This report and the associated cultural heritage assessment have subsequently been updated to respond to the submissions received.](#)

9.0 Conclusion

As outlined in this exemption application, [the Project relates to part of a proposed relocation](#) of existing overhead 132kV transmission lines, that are currently located within the Molonglo Valley in the ACT (**Figure 2.1**). The proposed construction of the 132kV transmission lines along the new alignment is required to allow for the planned future urban development of Molonglo Stage 3. [The majority of this proposed alignment is within the purview of the Molonglo Stage 3 FUA EIS Exemption. Decommissioning of the existing transmission lines is also covered by this existing EIS Exemption.](#)

[This EIS Exemption application applies to those areas north of William Hovell Drive, which are situated beyond the boundary of the FUA. These areas outside of the FUA have been subject to](#) a detailed feasibility study, which assessed a number of options in a triple bottom line assessment. This assessment included infrastructure requirements, access, land value, environmental and heritage considerations and potential electromagnetic radiation (EMR). Since that time Calibre have undertaken further options analysis and have identified entirely underground cabling as being the preferred option. This substantially reduces the impacts associated with the project, particularly visual, vegetation clearing, and perceived health and safety issues. It is considered that the majority of the project impacts will be restricted to the construction period, and will be able to be managed through standard construction management plans.

An ecological assessment has been completed which has mapped in detail the ecological conditions of the project area. No threatened species or ecological communities would be impacted by the works.

No further Impact Track triggers apply to the Project Area.

It is considered that sufficient information is available to make a determination of the Project's impacts, without the requirement for an EIS.

10.0 References

ACT Government (2018) *ACTmap*, accessed online (July 2018): <http://www.actmap.act.gov.au/>.

ACT Planning and Land Authority (ACTPLA) (2011) *Molonglo Valley Plan for the Protection of Matters of National Environmental Significance (NES Plan)*, ACT Government, Canberra.

Arup (2015) *Molonglo 3 Major Electrical Infrastructure Relocation Feasibility Study: Input to Options Assessment*, Appendix D in Calibre (2015), prepared for Brown Consulting, Canberra.

Capital Ecology (2015) *William Hovell Drive Investigation Area – Pink-tailed Worm-lizard Survey and Habitat Mapping*, briefing note to Infrastructure Planning and Design, Chief Minister, Treasury and Economic Development Directorate, ACT Government, Canberra.

Calibre Consulting (2015) *Molonglo 3 Major Electrical Infrastructure Relocation: Concept Design Report*, unpublished report prepared for the ACT Chief Minister, Treasury and Economic Development Directorate, Canberra.

Calibre Consulting (2019) *PSP Report Molonglo 3 Major Electrical Infrastructure Relocation – Stage 2*, prepared for ACT Chief Minister, Treasury and Economic Development Directorate, Canberra.

CBRE (2017) *Consultancy Report: Proposed Major Electrical Infrastructure Relocation Molonglo 3*, prepared for Calibre Consulting, Canberra.

Centre for International Economics (CIE) (2018) *Cost benefit analysis of proposed major electrical infrastructure relocation: Molonglo 3 in the Molonglo Valley, ACT*, prepared for Calibre Consulting, Canberra.

ELA (2013) *Molonglo Valley Vegetation Survey: Baseline Condition Assessment*, prepared for Design & Development, Territory and Municipal Services Directorate, Canberra.

Environment, Planning and Sustainable Development Directorate (EPSDD) (2017) *Proponent's Guide to Environmental Impact Statement Exemptions*, ACT Government, Canberra.

GHD (2020) *Molonglo 132kV Line EMF Review – Peer Review*, prepared for Calibre Consulting, Canberra.

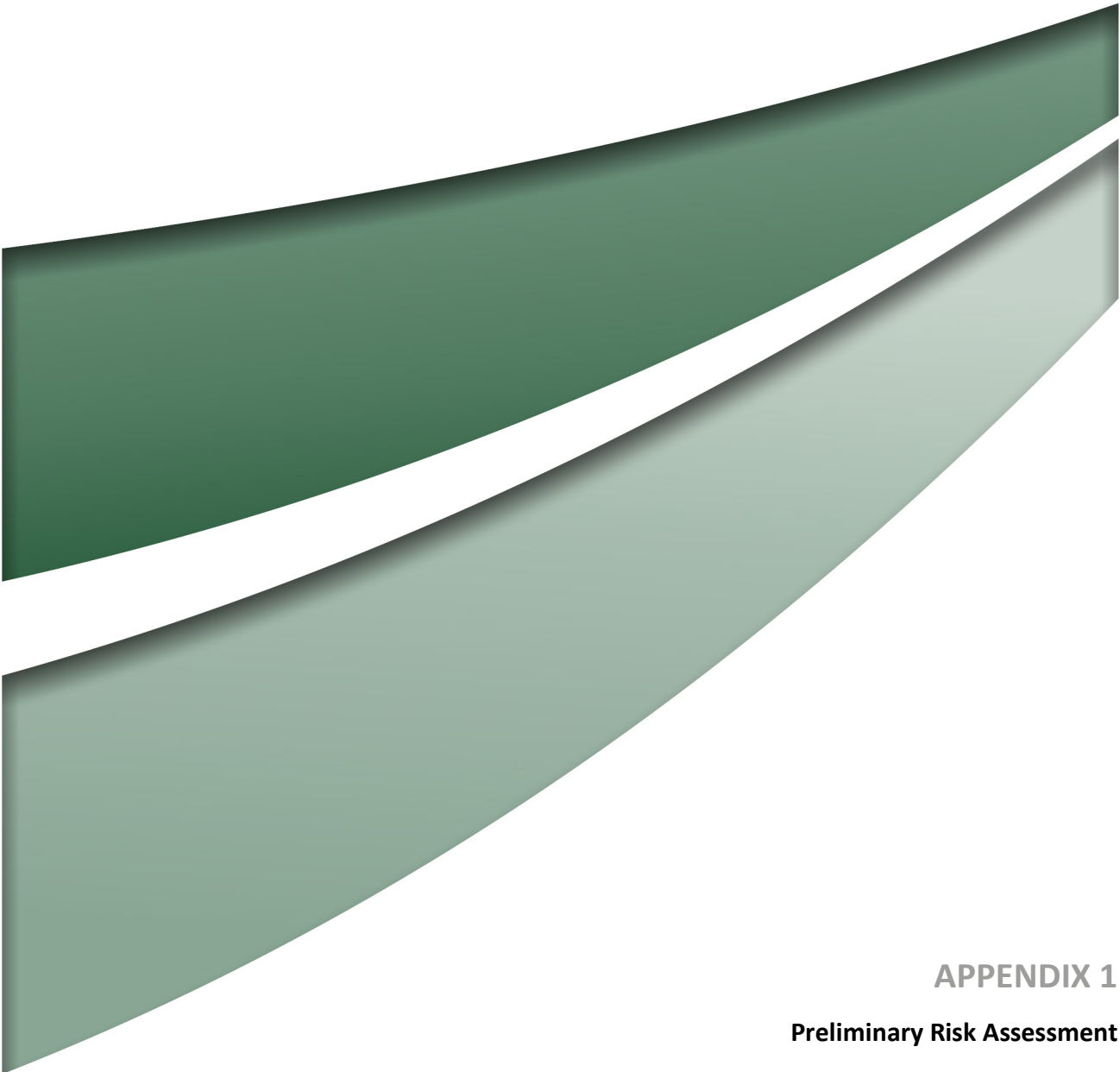
L3D (2014a) *Molonglo 3 Major Electrical Infrastructure Relocation Feasibility Study*, Appendix B in Calibre (2015), prepared for Brown Consulting, Canberra.

L3D (2014b) *Molonglo 3 132kV Transmission Line Relocations Options Study: Assessment of the Electro Magnetic Field (EMF) Profile Adjacent to the Proposed ActewAGL Distribution 132kV Transmission Line and Underground Cable Assets*, Appendix K in L3D (2014a), prepared for Bowen Consulting, Canberra.

Umwelt (2017) *Molonglo Stage 3 s211 Application Supporting Documentation*, prepared for the Land Development Project Group, ACT Environment, Planning and Sustainable Development Directorate, Canberra.

Umwelt (2018) *Ecological Assessment Molonglo Stage 3 132kV Transmission Line Relocation* (August, 2018), prepared for Calibre Group, Canberra.

Umwelt (2019) *Re-Location of 132kV Transmission Lines, Molonglo Stage 3 Urban Area: Supporting Documentation Cultural Heritage Assessment* (April, 2019), prepared for Calibre Group, Canberra.



APPENDIX 1

Preliminary Risk Assessment

CONSEQUENCE					
	Insignificant (F)	Minor (I)	Moderate (D)	Major (J)	Catastrophic / Significant (S)
Community Consequence Descriptions	Negligible complaints or concerns	Public concern limited to local complaints	Local public or media attention and complaints	Attention from media or heightened concern from community	Adverse national media or public attention
	People largely unaffected	Temporary and localised effects on peoples livelihoods	Widespread and temporary, or, localised and permanent effects on peoples livelihoods	Widespread and temporary, or, localised and permanent effects on livelihood and/or displacement of people	Entire villages, communities or groups are displaced and livelihoods are affected
Environmental Consequence Descriptions	Impacts such as localised or short term effects on habitat, species or environmental attributes.	Onsite release with minor environmental impacts.	Onsite release and some detrimental effects.	Resulting in off-site release and some detrimental effects.	Resulting in permanent offsite detrimental effect.
	Negligible environmental impacts	Localised, long term degradation of sensitive habitat, species or environmental attributes.	Localised and irreversible habitat damage or loss of habitat, species or environmental attributes.	Widespread and persistent changes to habitat, individual species or environmental attributes.	Loss of a significant portion of a valued species or loss of effective ecosystem function on a widespread scale.
Health /Safety Consequence Descriptions	No detectable change	Some minor detectable change	Change requiring basic treatment or medical attention	Change resulting in medical treatment and hospitalisation	Significant / life threatening change
	No Injuries	First Aid treatment	Medical treatment, lost time injuries, plant damage	Extensive injuries, plant damage	Multiple deaths or deaths, permanent significant injury
Economic	Minimal losses	Several thousand dollars lost revenue or remediation costs	Half million dollars in lost revenue or remediation costs	One million dollars in lost revenue or remediation costs	Several million dollars in lost revenue or remediation costs

Risk matrix and criteria for Likelihood and Consequence is derived from: ACTPLA (undated) *Preparation of an application for scoping; Preparation of an application for an Environmental Significance Opinion, A guide*

Online:
http://www.actpla.act.gov.au/__data/assets/pdf_file/0017/21617/Application_for_scoping.pdf

		CONSEQUENCE				
		Insignificant (F)	Minor (I)	Moderate (D)	Major (J)	Catastrophic / Significant (S)
LIKELIHOOD	Remote (R)	Negligible (N)	Negligible (N)	Very Low (L)	Low (W)	Medium (M)
	Unlikely (U)	Negligible (N)	Very Low (L)	Low (W)	Medium (M)	High (H)
	Possible (P)	Very Low (L)	Low (W)	Medium (M)	High (H)	Very High (V)
	Likely (L)	Low (W)	Medium (M)	High (H)	Very High (V)	Extreme (E)
	Almost Certain (C)	Medium (M)	High (H)	Very High (V)	Extreme (E)	Extreme (E)

Molonglo 132kV Lines PRA - Design

Phase of Development	Activity	Category of Risk	Effects Without the application of mitigation or management measures	Likelihood	Consequence	Risk Rating	Mitigation/Management Measures	Likelihood	Consequence	Risk Rating	Is the Residual Risk ALARP?
Approvals	Approvals	Project	Delays in approval decisions result in financial implications for the ACT Government and delays in the land release program as the infrastructure construction is not able to be commenced in a timely manner.	P	J	H	- Commence planning and approvals processes early. - Have realistic expectations of potential delays / length of time required for approvals to be appropriately considered and decisions made. - Undertake due diligence studies prior to commencing approvals processes to minimise scoping document requirements.	U	J	M	Yes
		Project	Existing EIS exemptions expire impacting the viability of the new EIS exemption	U	D	W	- Plan project according to EIS exemption expiry dates (completed)	R	D	L	Yes
		Project	Design timeframes are not met due to complications with consultation with the NCA and EPSDD regarding the siting of a Project that crosses multiple planning jurisdictions. Particularly in relation to the location of the sub-station and access roads.	P	I	W	- Engage in consultation with the NCA and EPSDD early, to ensure the alignment and sub-station are sited in a location suitable to all parties, and that the appropriate approvals pathway is taken. - Consider all planning requirements during the design and approvals stage and undertake works concurrently as much as possible.	U	I	L	Yes
		Ecology and Natural Environment	Risks are not adequately identified, resulting in an incomplete understanding of environmental constraints.	U	D	W	- Use the most up to date information to inform the preliminary risk assessment (completed).	R	D	L	Yes
Design	Design Development	Utilities and Infrastructure	The transmission lines will need to be overhead rather than underground due to a constraint not being appropriately considered during the design stage.	R	J	W	- Consider constraints, costs, and benefits of all alignment options early in the design process (completed). - Choose an alignment where impacts are minimised (completed).	R	D	L	Yes
		Ecology and Natural Environment	The alignment results in significant impacts to MNES without approval from the Commonwealth Minister for the Environment and Energy.	P	J	H	- Use the most up to date information available when designing the Project, including the consideration of known or potential MNES within the vicinity of the Project Area (completed). - Undertake ecological survey along the entire alignment, targeting the identification of MNES and their habitat in accordance with appropriate guidelines to improve the likelihood of MNES identification (completed). - Avoid known MNES and their habitat during the design phase (completed).	U	J	M	Yes
		Ecology and Natural Environment	The Project results in impacts to NC Act protected species and communities not considered in this EIS Exemption Application.	U	D	W	- Use the most recent, robust survey information available to inform the EIS Exemption Application (completed). - Use an iterative approach to design so that information gathered as part of the EIS Exemption Application process can inform the design (completed). - Take a precautionary approach in design by considering the largest possible Project footprint, incorporate buffers and other design mechanisms to avoid protected species and communities, and use a 'likelihood of occurrence' approach to assessing likely impacts to protected matters.	R	D	L	Yes
		Ecology and Natural Environment	The Project results in the loss of greater than 0.5 hectares of native vegetation.	C	I	H	- Avoid impacts to native vegetation where possible (completed). - Consider impacts to native vegetation in the EIS Exemption Application (completed), using a precautionary approach regarding the extent of impacts (completed).	C	F	M	Yes
		Heritage	The Project results in impacts to heritage values.	U	D	W	- Ensure appropriate heritage assessments are completed for the Project Area. - Consult with the ACT Heritage Council regarding the location and ongoing management of known sites within the surrounding area. - Develop an unanticipated discovery plan for implementation during construction. - Consult with RAOs to determine if any areas of Aboriginal cultural significance occur and are likely to be impacted by the Project. - Avoid any places of known heritage value.	R	D	L	Yes
		Utilities and Infrastructure	The proposed 132kV lines are not correctly designed to cope with the demand or to integrate with the existing infrastructure.	U	J	M	- Consider existing and future demand when designing the proposed 132kV lines (completed). - Consider and incorporate the existing infrastructure when designing the proposed 132kV lines, particularly where the proposed line is to connect to the existing infrastructure (completed). - Ensure that access and maintenance requirements are incorporated into the design (completed).	R	J	W	Yes
		Social	Electromagnetic radiation levels are not appropriately assessed during the design phase resulting in a sub-standard design that poses a risk to the health and safety of the public.	U	J	M	- Include an assessment of electromagnetic radiation risks associated with various alignment options (completed). - Consider the risk of electromagnetic radiation during the design phase and when deciding upon the final preferred alignment (completed). - Adhere to existing planning constraints that minimise the risk to the public of electromagnetic radiation.	R	J	W	Yes

Phase of Development	Activity	Category of Risk	Effects Without the application of mitigation or management measures	Likelihood	Consequence	Risk Rating	Mitigation/Management Measures	Likelihood	Consequence	Risk Rating	Is the Residual Risk ALARP?
		Social	Electromagnetic induction hazards can arise from normal load currents and especially when fault currents flows. The hazard can create dangerous high voltages on nearby metallic structures such as metallic pipelines, telecommunications cables, and unearthed wire fences (eg. fence wire on wooden posts), which can be hazardous to the impacted asset, workers and the public.	U	S	H	- Assessment of Electromagnetic Induction Hazards requires detailed design information. - Evoenergy has been in direct liaison with the UTR to agree on further assessment including site testing and earth fault modelling and finalising a report to assess and to mitigate risks associated with the underground 132kV network. - The impact of the Molonglo Zone Substation will be assessed separately by Evoenergy. - Electrification risk has been identified in the Safety In Design (SID) Risk Assessment, which is under further investigation by Evoenergy, noting the cables will be installed in conduits with appropriate backfill material etc. - Safety In Design Workshops have been undertaken at different stages of the project and can be provide to further support the resubmission. - A Subject Matter Expert is engaged to confirm that the earthing system for the proposed electrical design is compliant and will perform in reducing risk.	R	S	M	Yes
		Social	The community is not satisfied with the design of the connection between the proposed new transmission lines and existing transmission lines.	L	F	W	- Include consultation with relevant community stakeholders. - Consider visual impacts of the connections during the design phase (completed).	P	F	L	Yes
		Planning	The location of the proposed new transmission lines limits future land uses and management activities, hindering future development and use of the land.	U	D	W	- Consider surrounding land uses and potential future uses of land when deciding upon the final preferred alignment option (completed). - Consider the implications of future access to land (including adjacent land) as a result of the location of the transmission lines (completed).	U	I	L	Yes
		Traffic and Transport	The proposed crossing of William Hovell Drive causes traffic disruption and delays.	U	D	W	- Locate the crossings in existing culverts, reducing impacts on traffic and damage to pavement (completed). - Consider traffic disruptions when planning the construction staging. - Ensure a traffic and transport management plan is prepared as part of the CEMP prior to the commencement of work.	R	D	L	Yes
		Utilities and Infrastructure	The Project disrupts existing services and infrastructure.	P	D	M	- Consider existing infrastructure capabilities when designing the proposed 132kV lines (completed). - Consider end users when planning the staging of the Project, particularly when scheduling any shut-down requirements.	U	D	W	Yes
		Project	The Project exceeds its budget and delivery timeframe because all likely costs and requirements are not considered.	U	J	M	- Include lifetime costs and requirements in the options analysis (completed).	U	D	W	Yes
	Site Investigations	Ecology and Natural Environment	Uncontrolled access of vehicles and personnel during site investigations results in degradation of adjacent (unapproved) areas through soil compaction, weed introduction, vegetation removal etc. resulting in non-compliance with PD Act approval.	P	D	M	- Inform all contractors of any constraints associated with the site and the approval conditions that must be complied with. - Ensure contractors implement an environmental management plan for intrusive works on site.	U	D	W	Yes
		Utilities and Infrastructure	Subsurface conditions that may impact construction activities not identified and inappropriate design concepts developed as a result.	P	D	M	- Incorporate understanding of the geology and its effects on construction, costs, and timing into the options analysis. - Undertake contamination and geotechnical investigations and incorporate recommendations of contamination and geotechnical assessments into project planning decisions.	U	D	W	Yes

Molonglo 132kV Lines PRA - Construction

Phase of development	Activity	Category of Risk	Effects Without the application of mitigation or management measures	Likelihood	Consequence	Risk Rating	Mitigation / Management Measures	Likelihood	Consequence	Risk Rating	Is the Residual Risk ALARP?
Construction	Vegetation and Habitat Clearing	Ecology and Natural Environment	Clearing vegetation outside approved disturbance area results in non-compliance with PD Act approval.	P	D	M	- Establish no-go zones, site boundaries, and fences prior to construction commencing to prevent unauthorised access into adjacent areas. - Develop and implement a CEMP that identifies clearing limits. - Ensure all contractors are informed of the boundary and relevant approval conditions prior to construction commencing.	U	D	W	Yes
		Ecology and Natural Environment	Clearing vegetation outside approved disturbance area results in removal of avoided trees.	P	I	W	- Establish no-go zones, site boundaries, and fences prior to construction commencing to prevent unauthorised access into adjacent areas. - Develop and implement a CEMP that identifies clearing limits. - Ensure all contractors are informed of the boundary and relevant approval conditions prior to construction commencing.	U	I	L	Yes
		Ecology and Natural Environment	Existing environment is degraded by clearing associated with trenching activities.	P	D	M	- Implement a CEMP, including weed control, erosion and sediment control as required. - Reseed impacted areas once construct activities are complete as appropriate.	U	D	W	Yes
	Site Access and Management	Ecology and Natural Environment	Uncontrolled access by vehicles leads to dispersal of litter and other pollutants, damage to habitat in sensitive areas or areas to be retained, soil compaction, and spread of weeds.	U	D	W	- Establish no-go zones, site boundaries, and fences prior to construction commencing to prevent unauthorised access into adjacent areas. - Develop and implement a CEMP that identifies clearing limits. - Ensure all contractors are informed of the boundary and relevant approval conditions prior to construction commencing.	R	D	L	Yes
	General Construction Activities	Ecology and Natural Environment	Temporary construction areas are not appropriately rehabilitated following installation of the conduits and cables, resulting in increased indirect impacts to adjacent vegetation areas.	L	I	M	- Undertake weed control on any noxious weeds prior to and following respreading of soil. - Respread topsoil and rehabilitate areas progressively along the alignment.	P	I	W	Yes
		Soils and Landscapes	Discovery of previously unidentified contaminated soil during construction results in delays to program, increased costs due to remediation, or health and safety concerns.	U	D	W	- Implement the recommendations of Phase 1 contamination assessment conducted prior to construction commencing. - Develop and implement an Unexpected Finds Protocol for all earthworks and construction activities on site, including training personnel in the procedure.	R	D	L	Yes
		Heritage	Earthworks result in the destruction of previously unidentified Aboriginal or European cultural heritage items.	P	D	M	- Implement the recommendations of heritage assessments. - Develop and implement an Unanticipated Discovery Plan during clearing and construction activities, including training personnel in the procedure.	U	D	W	Yes
		Air Quality	Construction activities result in impacts to air quality (vehicle emissions, dust, etc.), reducing local amenity, potentially resulting in non-compliance with the EP Act.	P	I	W	- Develop and implement a CEMP that includes an air quality and dust management plan. - Identify sensitive receivers. - Conduct construction activities in accordance with Environment Protection Authority's requirements. - Maintain plant and equipment in accordance with manufacturers recommendations and best practice.	P	F	L	Yes
		Hazard and Risk	Sparks from machinery during construction may catch on dry grass and have the potential to start a bushfire.	U	S	H	- Implement an approved bushfire hazard management plan during construction. - Maintain plant and equipment in accordance with manufacturers recommendations and best practice. - Ensure fire fighting equipment is available and staff are trained in the appropriate use of equipment.	R	S	M	Yes
		Hydrology	Fuel or chemical spills or inappropriate material storage contaminates soil, ground water, and/or local waterways, which could result in fines under the EP Act and damage to nearby ecosystems.	P	D	M	- Develop and implement a CEMP that includes a waste management plan, including storage and stockpiling of raw materials, transport of materials to site, and disposal of materials. - Develop a spill management protocol and include in the site inductions.	U	I	L	Yes
		Hydrology	High intensity surface water runoffs from large open space catchments may cause flooding of the site and temporary access, bogging of vehicles and machines, personnel injury and drowning.	P	J	H	- Develop and implement a CEMP that includes an Erosion and Sediment Control Plan. - Adopt appropriate staging to limit maximum area disturbed and undertake progressive reinstatement of the site. - Ensure temporary tracks are established with all weather surface.	P	D	M	Yes
		Utilities and Infrastructure	Construction activities disrupt existing services and infrastructure, particularly electricity supply.	P	J	H	- Schedule all necessary disruptions during low demand times and at a time when the disruption will be as quick as possible. - Notify potentially affected premises within a suitable timeframe. - Identify and implement alternative service networks, if available and practical.	U	J	M	Yes
		Utilities and Infrastructure	Electrocution of workers from operating plant under overhead powerlines or energised metal fencing near the overhead powerlines	P	J	H	- Undertake works under or near the overhead powerlines in accordance with appropriate agency (i.e. Evo Energy) protocols. - Ensure sufficient clearance between the powerlines and excavation plant via the appropriate selection of plant. - If required, de-energise powerlines in off-peak seasons (Autumn and Spring) for 3-4 hours if arranged with Evo Energy. - Provide all temporary fencing adjacent to overhead powerlines with earthing.	U	J	M	Yes
		Social	Construction activities disrupt recreational amenity and access into Mount Painter Nature Reserve.	P	D	M	- Limit disturbed areas and disturbance time. - Identify alternative walking/cycling routes throughout the disturbance period. - Ensure noise works are conducted in accordance with the EPA's restrictions.	P	I	W	Yes

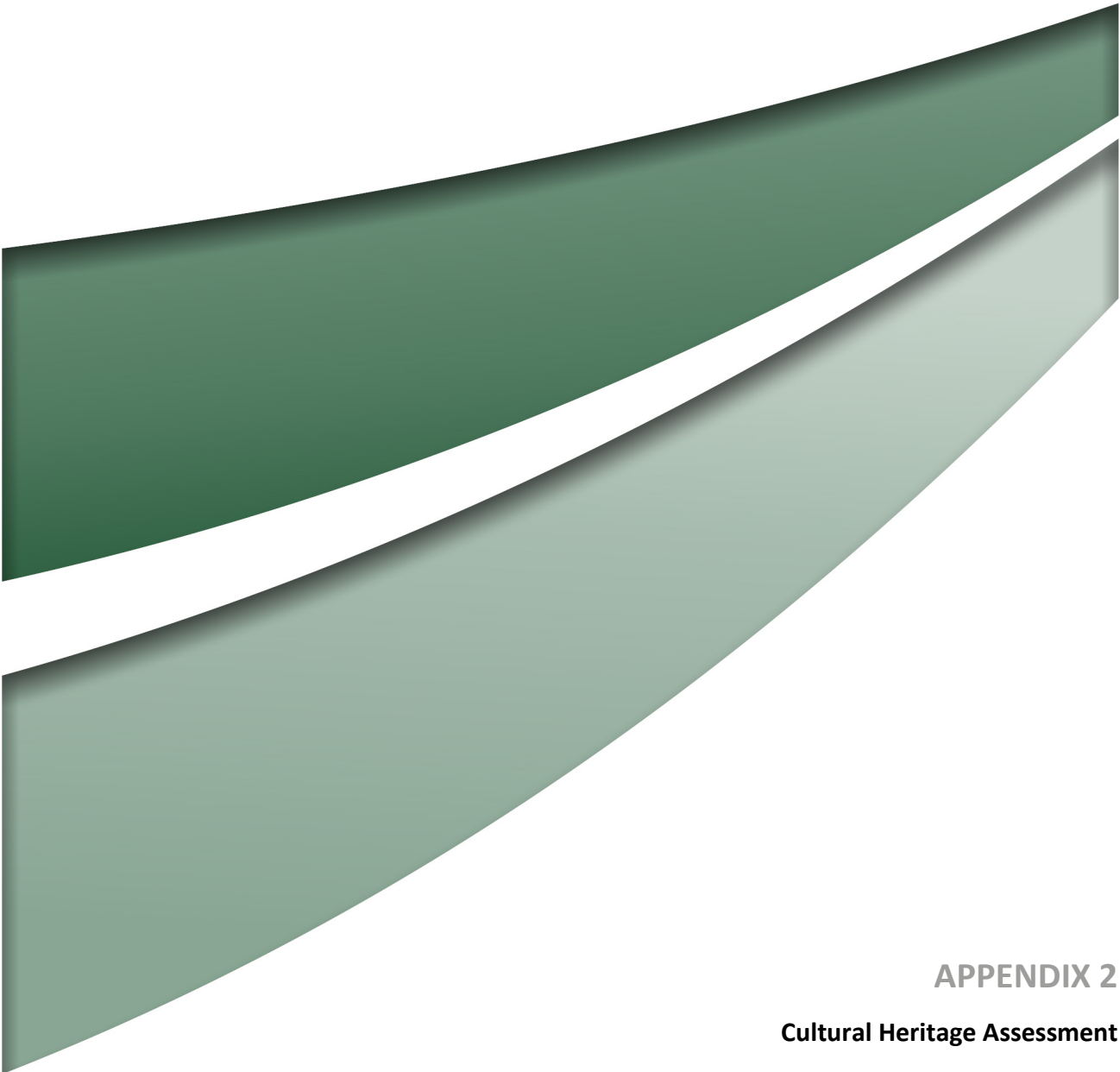
		Materials and Waste	Inappropriate identification, handling and transferring potentially contaminated materials. Risk to personal health, the environment and ecological assests.	P	J	H	- Undertake specific environmental assessment / EPA Site Audit to verify the presence of contaminants on-site and advise remediation / management requirements. - Develop and implement an Unexpected Finds Protocol. - Develop and implement CEMP that includes management of contaminated and hazardous materials.	U	D	W	Yes
		Traffic and Transport	Construction activities disrupt access and use of the leased land north of William Hovell Drive.	L	I	M	- Consult with the lessee prior to construction commencing. - Limit disturbed areas and disturbance time. - Ensure noise works are conducted in accordance with the EPA's restrictions.	P	I	W	Yes
	Health and Safety	Social	The installation of powerlines poses a risk to the health and safety of the people undertaking the work.	P	J	H	- Implement all relevant health and safety measures across the work site. - Ensure all staff are inducted and appropriately trained and experienced for the work they are required to complete. - Nominate a person to be responsible for oversight of all health and safety measures and of implementation of actions. - Ensure all equipment is maintained in working order and used per manufacturers guidelines. - Ensure the site is not accessible to the public or any unauthorised personnel. - Provide access to first aid and medical treatment in the event of an incident.	U	J	M	Yes
	Compliance	Ecology and Natural Environment	Construction activities result in environmental impacts that are not reported or otherwise acted upon adequately.	U	D	W	- Undertake works in accordance with relevant approvals and CEMP. - Ensure the CEMP has provisions for compliance, reporting, and auditing. - Incorporate relevant approval restrictions into the site induction process.	R	D	L	Yes
		Planning	CEMPs, including monitoring and auditing requirements, are not implemented effectively leading to various environmental, social, and economic impacts.	U	D	W	- Require, as a condition of consent, that contractors appoint an independent third party to conduct audits on environmental approvals and performance against criteria identified in the CEMP.	R	D	L	Yes

Molonglo 132kV Lines PRA - Operation

Phase of development	Activity	Category of Risk	Effects Without the application of mitigation or management measures	Likelihood	Consequence	Risk Rating	Mitigation / Management Measures	Likelihood	Consequence	Risk Rating	Is the Residual Risk ALARP?
Operational	Functionality of the transmission lines or the sub-station	Utilities and Infrastructure	New 132kV lines do not cope with the demand or integrate with the existing infrastructure.	U	J	M	- Conduct regular maintenance and checks on the transmission lines and sub-station. - Monitor the demand and use of the transmission lines and sub-station within the context of the broader ACT power network.	R	J	W	Yes
	Public health and safety	Social	Electromagnetic Radiation levels exceed those expected, resulting in a risk to the health and safety of the public.	U	D	W	- Operate transmission in accordance with relevant standards and guidelines. - Conduct regular maintenance and checks on the transmission lines and sub-station.	R	D	L	Yes
		Hazard and Risk	Inadvertent unearthing/cutting of underground powerlines during maintenance or future development results in a safety risk to workers.	U	J	M	- Construct and operate transmission in accordance with relevant standards and guidelines. - Ensure location of new transmission lines are lodged with the appropriate agency (i.e. EvoEnergy) so that they are identified as a constraint for future works. - Install warning signage along easement.	R	J	W	Yes
	Maintenance	Project	Maintenance is not completed effectively or appropriately over the life of the transmission lines, resulting in increased costs (e.g. remediation) and/or the system not operating efficiently or as designed.	U	J	M	- Ensure all scheduled maintenance activities are completed on time by a suitably qualified professional. - Conduct maintenance activities on a regular basis so that any issues may be identified and rectified early. - Conduct regular checks on the output and efficacy of the transmission lines to identify early if any unexpected changes to capacity occur.	R	J	W	Yes

Molonglo 132kV Lines PRA - Decommissioning

Phase of development	Activity	Category of Risk	Effects Without the application of mitigation or management measures	Likelihood	Consequence	Risk Rating	Mitigation / Management Measures	Likelihood	Consequence	Risk Rating	Is the Residual Risk ALARP?
Decommissioning	General Decommissioning	Ecology and Natural Environment	Uncontrolled access by vehicles leads to dispersal of litter and other pollutants, damage to habitat in sensitive areas or areas to be retained, soil compaction, and spread of weeds.	P	D	M	- Establish no-go zones, site boundaries, and fences prior to decommissioning commencing to prevent unauthorised access into adjacent areas. - Prepare and implement an access management plan to manage decommissioning activities and assign responsibilities for environmental management and monitoring. - Ensure all contractors are informed of the boundary and relevant approval conditions prior to decommissioning commencing.	U	D	W	Yes
		Ecology and Natural Environment	Decommissioning requires additional vegetation clearing and/or impact that was not anticipated during the design and planning phase of the Project.	P	D	M	- Undertake works within the existing easement as far as practicable. - Prepare and implement a management plan for decommissioning activities that includes avoidance and measures to minimise environmental risks (e.g. sedimentation, erosion, weeds, storm water runoff etc.). - Ensure all disturbance areas are appropriately remediated in a timely manner.	U	D	W	Yes
		Heritage	Earthworks result in the destruction of previously unidentified Aboriginal or European cultural heritage items.	R	D	L	- Implement the Unanticipated Discovery Plan during decommissioning works.	R	D	L	Yes
		Lighting and vibration	Decommissioning activities result in amenity, noise and vibration impacts, reducing local amenity, potentially resulting in non-compliance with the EP Act.	P	D	M	- Identify sensitive receivers. - Conduct decommissioning activities in accordance with Environment Protection Authority's requirements.	P	I	W	Yes
		Social	Decommissioning activities disrupt recreational amenity and access (e.g. into nearby Nature Reserves).	P	D	M	- Limit disturbed areas and disturbance time. - Identify alternative walking/cycling routes throughout the disturbance period. - Ensure noise works are conducted in accordance with the EPA's restrictions.	P	I	W	Yes
		Hazard and Risk	Sparks from machinery may catch on dry grass and have the potential to start a bushfire.	U	S	H	- Implement an approved bushfire hazard management plan during decommissioning. - Maintain plant and equipment in accordance with manufacturers recommendations and best practice. - Ensure fire fighting equipment is available and staff are trained in the appropriate use of equipment.	R	S	M	Yes
	Electricity Supply	Utilities and Infrastructure	Electricity supply is disrupted whilst lines are decommissioned.	U	J	M	- Schedule all necessary disruptions during low demand times and at a time when the disruption will be as quick as possible. - Notify potentially affected premises within a suitable timeframe. - Identify and implement alternative service networks, if available and practical.	U	J	M	Yes
	Disposal of Waste	Materials and Waste	The decommissioned lines are not disposed of appropriately.	P	D	M	- Identify the appropriate method of disposal for decommissioned lines and associated infrastructure, including recycling of components where possible. - Implement a waste management plan as part of the CEMP	U	D	W	Yes
	Health and Safety	Hazard and Risk	Discovery of previously unidentified contaminated soil during decommissioning results in delays to program, increased costs due to remediation, or health and safety concerns.	U	D	W	- Implement the Unexpected Finds Protocol for all earthworks and construction activities on site, including training personnel in the procedure.	R	D	L	Yes
		Hydrology	Fuel or chemical spills, or inappropriate material storage contaminates soil, ground water and/or local waterways, which could result in fines under the EP Act and damage to nearby ecosystems.	P	D	M	- Develop a spill management protocol and include in the site inductions.	U	I	L	Yes
		Social	The decommissioning of existing powerlines poses a risk to the health and safety of the people undertaking the work.	P	J	H	- Implement all relevant health and safety measures across the work site. - Ensure all staff are inducted and appropriately trained and experienced for the work they are required to complete. - Nominate a person to be responsible for oversight of all health and safety measures and of implementation of actions. - Ensure all equipment is maintained in working order and used per manufacturers guidelines. - Ensure the site is not accessible to the public or any unauthorised personnel. - Provide access to first aid and medical treatment in the event of an incident.	U	J	M	Yes



APPENDIX 2

Cultural Heritage Assessment

**RE-LOCATION OF 132KV
TRANSMISSION LINES,
MOLONGLO STAGE 3 URBAN
AREA: SUPPORTING
DOCUMENTATION**

Cultural Heritage Assessment

DRAFT

December 2020



RE-LOCATION OF 132KV TRANSMISSION LINES, MOLONGLO STAGE 3 URBAN AREA: SUPPORTING DOCUMENTATION

Cultural Heritage Assessment

DRAFT

Prepared by
Umwelt (Australia) Pty Limited
on behalf of
Calibre Consulting

Project Director: Karina Carwardine
Project Manager: Amanda Mulherin
Technical Director: Nicola Roche
Technical Manager: Ashley O'Sullivan
Report No. 8139/R03/V5
Date: December 2020



Canberra

2/99 Northbourne Avenue
Turner ACT 2612
PO Box 6135
O'Connor ACT 2602

T | 1300 793 267
E | info@umwelt.com.au

www.umwelt.com.au



This report was prepared using
Umwelt's ISO 9001 certified
Quality Management System.

Disclaimer

This document has been prepared for the sole use of the authorised recipient and this document may not be used, copied or reproduced in whole or part for any purpose other than that for which it was supplied by Umwelt (Australia) Pty Ltd (Umwelt). No other party should rely on this document without the prior written consent of Umwelt.

Umwelt undertakes no duty, nor accepts any responsibility, to any third party who may rely upon or use this document. Umwelt assumes no liability to a third party for any inaccuracies in or omissions to that information. Where this document indicates that information has been provided by third parties, Umwelt has made no independent verification of this information except as expressly stated.

©Umwelt (Australia) Pty Ltd

Document Status

Rev No.	Reviewer		Approved for Issue	
	Name	Date	Name	Date
V1	Nicola Roche	11 September 2018	Nicola Roche	11 September 2018
V2	Ashley O'Sullivan	12 April 2019	Ashley O'Sullivan	12 April 2019
V3	Ashley O'Sullivan	18 October 2019	Ashley O'Sullivan	18 October 2019
V4	Ashley O'Sullivan	9 November 2020	Ashley O'Sullivan	9 November 2020
V5	Ashley O'Sullivan	2 December 2020	Ashley O'Sullivan	2 December 2020

Executive Summary



Umwelt (Australia) Pty Ltd (Umwelt) has been engaged by Calibre Professional Services on behalf of the Suburban Land Agency to prepare an Aboriginal Cultural Heritage Assessment (ACHA) to support planning approvals for the relocation and undergrounding of the 132kV transmission lines currently located through the Molonglo Stage 3 Urban Area (**Figure 1.1**). The project area is within the north side of the Molonglo River Corridor. A number of heritage assessments have been previously undertaken for the Molonglo Stage 3 Urban Area, which the majority of the project falls within. The area is within the traditional lands of the Ngunawal people.

This assessment has been undertaken to determine the potential for Aboriginal and/or historic heritage sites to occur within the portion of the project area that has not previously been subject to an Aboriginal Cultural Heritage Assessment using both our existing understanding of the environmental, archaeological and cultural context and the outcomes of the current project area survey.

Archaeological site patterning throughout the Molonglo Valley area suggests that there is potential for Aboriginal and historic heritage sites within the project area. Generally, the following Aboriginal site types have the potential to occur:

- Artefact scatters and isolated finds are moderately likely to occur within the project area, predominantly in exposed or eroded areas. Parts of the project area are in proximity to a major watercourse (either Deep Creek or Molonglo River). Archaeological patterning for the region indicates that areas in close proximity (generally less than 200m) to reliable water sources retain the highest potential for these sites to occur.

Impacts from European occupations such as vegetation clearance and topsoil removal for roads and tracks may have affected this potential in some areas.

- Scarred trees are unlikely to occur, but may exist if unidentified old growth trees or remnant woodland are present in the project area.
- Grinding grooves may be present within the project area, but given that outcrops or large boulders of sandstone are generally uncommon across the soil landscapes that make up the project area, these are unlikely to occur.
- While one piece of flaked glass has been identified within the region, this is the only evidence for post-contact archaeology and as a result this type of artefact is unlikely to occur within the project area.
- Based on the regional model, other site types are unlikely to occur within the project area.

With regarding to historic heritage, the following site types have potential to occur:

- Remains of nineteenth century structures, such as dwellings, stock yards and other rural farm use items. These items may remain as intact structures, ruins or archaeological deposits
- Fence lines, that may be found along site boundaries or stock yard borders
- Early tracks, stock routes and roads
- Early survey markers, such as trigonometric stations.

The landscape of the project area was generally undulating lower slopes, with exposed areas present within existing tracks and eroded slopes. Field investigation undertaken as part of this assessment resulted in the identification of three previously unidentified Aboriginal objects (all isolated artefacts). No areas of potential archaeological deposit (PADs) or historic heritage items were identified within the project area. All three sites identified are considered to have low scientific significance. This is primarily due to the low research potential and low rarity value of the sites, as they were found in highly eroded or disturbed contexts and are a common site type within the Molonglo Valley area. Based on feedback provided by one of the Registered Aboriginal Organisations (ROA), all the sites that were located during the survey are culturally significant and important for Ngunawal people's connection to Country.

The recommendations below are made to ensure that the proposed construction of new high voltage transition lines minimises impact on Aboriginal cultural heritage where possible and complies with all relevant legislative requirements. We highlight that the preferred heritage outcome is to avoid impacts to heritage items.

- The newly identified site in proximity to the proposed works, MV-HVL-IF-1 should be inspected and fenced off prior to construction beginning (**Figure 6.1**). This fencing should give each site a 5m perimeter, to ensure that no direct or indirect impacts can occur during construction. Upon completion of construction, the fencing should be removed.
- No further Aboriginal or historical archaeological work is recommended, and the project may proceed with caution. Should unanticipated discoveries be made during construction, work should cease and follow the protocols provided in **Section 9.0 – Unanticipated Discovery Plan**.
- The three newly identified sites (MV-HVL-IF-1, MV-HVL-IF-2 and MV-HVL-IF-3) will be registered with ACT Heritage.
- Following finalisation, a copy of this report should be provided to ACT Heritage for their review and approval.

Table of Contents

Executive Summary	i
1.0 Introduction	1
1.1 Project Description	1
1.2 Project Area	1
1.3 Project Methodology	1
1.3.1 Background Research	1
1.3.2 Field Investigation	2
1.3.3 Report Production	2
1.4 Project Team	2
2.0 Heritage Register Searches	4
2.1 Commonwealth Registers	4
2.1.1 Australian Heritage Database	4
2.1.2 National Native Title Register	4
2.2 ACT Heritage Register	4
2.3 Non-Statutory Register	5
2.3.1 The National Trust of Australia (ACT)	5
3.0 Representative Aboriginal Organisation Consultation	6
3.1 ACT Heritage Consultation	6
3.2 Consultation with the RAOs	6
4.0 Environmental Context	8
4.1 Geology	8
4.2 Soils	8
4.3 Hydrology	9
4.4 Past Vegetation	9
4.5 Existing Disturbance	9
5.0 Archaeological and Cultural Background	13
5.1 Ethnographic Background	13
5.2 Information Provided by the RAOs	13
5.3 Regional Aboriginal Archaeological Background	14
5.4 Regional Historic Archaeological Background	14
5.5 Local Archaeological Studies	16
5.6 Predictive Model	20
5.6.1 Aboriginal Archaeology	20
5.6.2 Historical Heritage	20
6.0 Field Investigation	21
6.1 Survey Methodology	21

6.2	Project Team and Participation	21
6.3	William Hovell Drive Survey Area	21
6.3.1	MV-HVL-IF-1	22
6.4	Tuggeranong Parkway Survey Area	24
6.4.1	MV-HVL-IF-2 and MV-HVL-IF-3	24
7.0	Significance Assessment	28
7.1	Principles and Evaluation Criteria	28
7.1.1	ACT Heritage Criteria	28
7.2	Assessment of Significance	29
7.2.1	Heritage Significance	29
7.2.2	Scientific Significance	29
7.3	Aboriginal Community Cultural Significance	29
7.4	Significance of the Newly Identified Sites	30
8.0	Management Strategy and Conclusions	31
8.1	Management Strategy and Recommendations	31
8.1.1	Recommendations from Registered Aboriginal Organisations	31
9.0	Unanticipated Discovery Plan (UDP)	33
10.0	References	36

Figures

Figure 1.1	Project Area Location	3
Figure 4.1	Geology	10
Figure 4.2	Soil Landscapes	11
Figure 4.3	Hydrology	12
Figure 5.1	Weetangera Parish Maps, 1912	15
Figure 5.2	Previous Studies	19
Figure 6.1	Northern Project Area Archaeological Survey	26
Figure 6.2	Southern Project Area Archaeological Survey	27

Plates

Plate 6.1	Existing sheep track and general grass coverage in the southwest of the William Hovell Drive survey area.	23
Plate 6.2	General grass coverage along an existing drainage line, looking east on the south side of William Hovell Drive.	23
Plate 6.3	View across heavily disturbed area in the centre of the roadway..	23
Plate 6.4	Example of the grass coverage and track exposures in the north eastern part of the William Hovell Drive survey area.	23
Plate 6.5	Location of MV-HVL-IF-1 (pink, centre of track) along cut and exposed track. Looking west, towards proposed impact area.	23

Plate 6.6	MV-HVL-IF-1	23
Plate 6.7	View east across fire trail within project area, on the banks of the Molonglo River.	25
Plate 6.8	View west across fire trail within project area, on the banks of the Molonglo River.	25
Plate 6.9	Example of the heavily eroded track, looking towards project area / Molonglo River.	25
Plate 6.10	Location of MV-HVL-IF-2 and MV-HVL-IF-3 on heavily eroded track, facing south towards the Molonglo River (not visible).	25
Plate 6.11	MV-HVL-IF-3	25
Plate 6.12	MV-HVL-IF-3	25

Tables

Table 2.1	Aboriginal sites or areas of archaeological potential identified in proximity to the project area	5
Table 3.1	Representative Aboriginal Organisation consultation during this project	6
Table 5.1	Studies undertaken in close proximity to the current project area	16
Table 6.1	Artefacts in proximity to the William Hovell Drive survey area	22
Table 6.2	Aboriginal sites identified in proximity to the Tuggeranong Parkway survey area	24
Table 7.1	Significance Assessment of the three sites identified	30
Table 9.1	Process for Discovery of Aboriginal Places, Objects or Features	34
Table 9.2	Process for Unanticipated Discovery of Skeletal Material	35

Appendices

Appendix 1	Comments Received by Buru Ngunawal Aboriginal Corporation
------------	---

1.0 Introduction

1.1 Project Description

Umwelt (Australia) Pty Ltd (Umwelt) has been engaged by Calibre Professional Services on behalf of the ACT Government, Suburban Land Agency (SLA) to undertake an Aboriginal Cultural Heritage Assessment (ACHA) to support planning approvals for the relocation and undergrounding of the 132kV transmission lines currently located through the Molonglo Stage 3 Urban Area (**Figure 1.1**). This report is provided for the information of the SLA as supporting documentation for an amendment to an existing exemption made under Section 211 (s211) of the *Planning and Development Act 2007* (PD Act).

The purpose of this assessment is to undertake desktop and field investigation to determine if the realignment of the proposed 132kV transmission lines will impact any previously unidentified historical or Aboriginal cultural heritage items.

1.2 Project Area

The project area is primarily located with the Molonglo Valley, which is approximately 15km west of the Canberra City centre, following the lower reaches of the Molonglo River. Cultural heritage assessments have been undertaken throughout the Molonglo Valley (Stage 1, 2 and 3) in recent years to support the development of a new urban area that will house 55,000 people. These cultural heritage assessments have informed our understanding of the Molonglo Valley as a whole, identifying numerous sites that were not otherwise registered and increasing our knowledge on Aboriginal utilisation of the area.

This current project area is made up of portions of the proposed transmission line footprint that has not previously been subject to an Aboriginal Cultural Heritage Assessment (refer to **Figure 1.1**). For the purposes of the survey, the project area was broken into the William Hovell Drive Survey Area and Tuggeranong Parkway Survey Area. However, updates to the design since the time of original survey have resulted in the Tuggeranong Parkway Survey Area no longer forming part of the s211 exemption application. Results of the survey in this location are still provided **Section 6.4**, given the presence of isolated Aboriginal objects within the survey unit.

1.3 Project Methodology

The project methodology was designed by Umwelt, in accordance with the project brief provided by Calibre Professional Services and included input from the ACT Heritage Unit and Registered Aboriginal Organisations (RAOs). The methodology was designed to fulfil the primary aims of the heritage assessment, and is split into three stages: Background Research; Field Investigation; and Report Production.

1.3.1 Background Research

A search was undertaken of the ACT Heritage Register and copies of relevant reports requested from the ACT Heritage Unit to ensure that all background information for the project (including previous assessments, previously recorded sites) was available for this assessment. All previous assessments available were summarised and provided in this report. Further to this, a search of the ACT National Trust Register and the Register of the National Estate was undertaken to ensure that no previously recorded historical archaeological sites occurred within the project area.

1.3.2 Field Investigation

After review of all relevant documentation and land access arrangements, field investigation of the project area was undertaken. The investigation focused on the identification of any landforms of archaeological interest and previously unidentified Aboriginal sites / potential archaeological deposits (PADs). Further information on the detailed survey methodology for the project can be found in **Section 6.1**.

1.3.3 Report Production

The background research and outcomes of the field investigation for the project area have been compiled and provided in this report, clearly presenting the findings.

1.4 Project Team

This assessment has been prepared by Ashley O’Sullivan (Senior Archaeologist) and Steph Howden (Senior Consultant) with technical direction provided by Nicola Roche (Manager – Cultural Heritage), Caitlin Adcock (Senior Environmental Planner), Amanda Mulherin (Environmental Scientist) and Karina Carwardine (Principal – Environmental Impact Assessment, ACT).

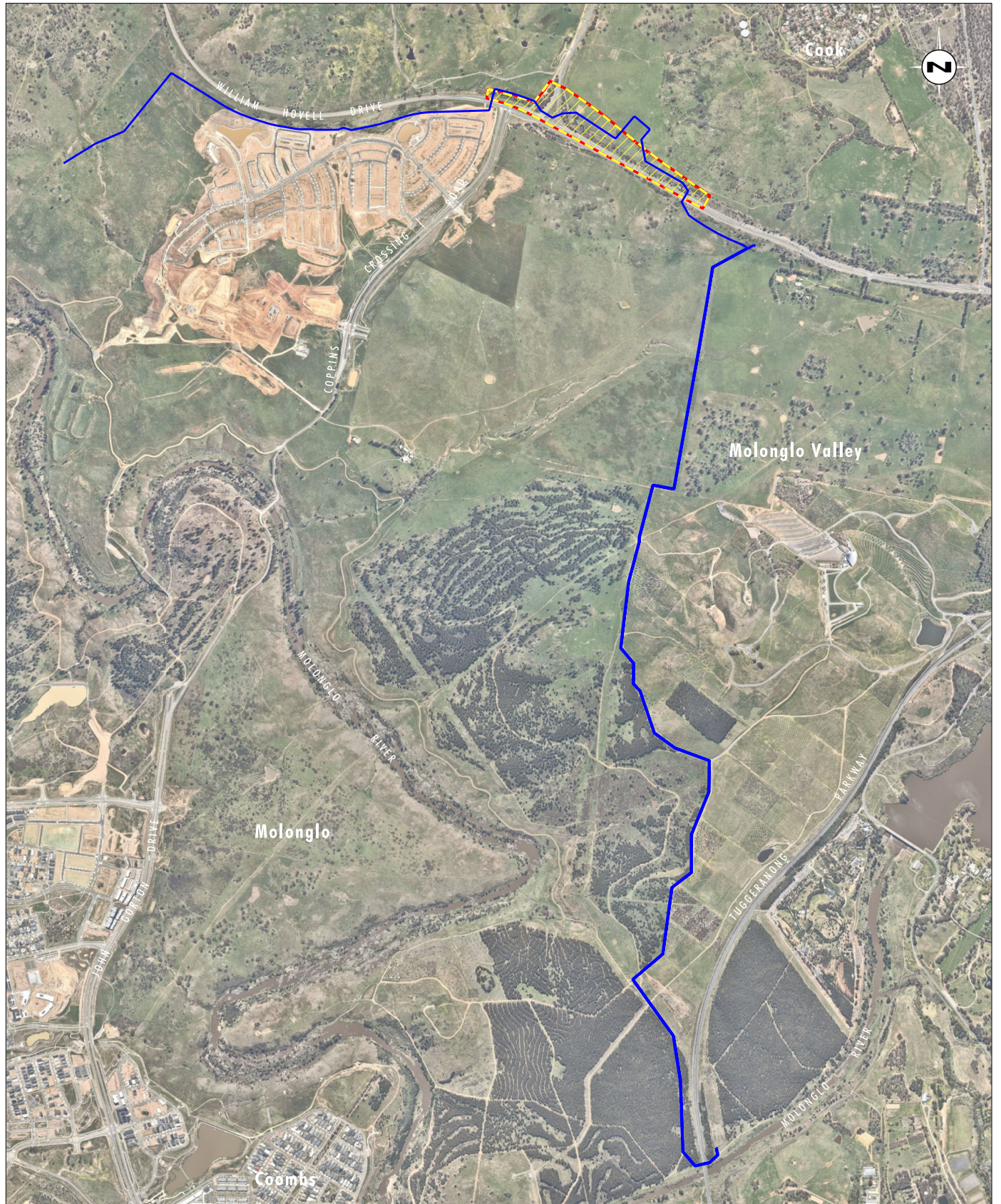


Image Source: Nearmap (2020)
Data Source: Calibre (2018)

0 0.5 1.0 1.25 km
1:25 000

Legend

- Project Area
- Underground Transmission Line Alignment
- - - S211 Exemption Boundary

FIGURE 1.1

Project Area Location

2.0 Heritage Register Searches

The following sections provide the results of the desktop analysis drawn from the searches of the statutory and non-statutory heritage registers, schedules and databases and the review of other existing heritage information available for the project area.

2.1 Commonwealth Registers

2.1.1 Australian Heritage Database

A search of the Australian Heritage Database, incorporating the Commonwealth Heritage List, National Heritage List, Register of the National Estate (RNE) and World Heritage List was undertaken on 22 September 2020.

No items are listed on the Commonwealth Heritage Register or National Heritage List for the Project area.

The RNE was closed in 2007 and is no longer a statutory list. The RNE is now an archive of 13,000 places in Australia that includes places of local and state significance. Many places in the RNE are now included in other statutory lists, such as state heritage lists, or local government heritage registers. As a result, those places receive protection under the relevant federal, state, territory or local legislation. RNE places can be protected under the EPBC Act if they are included in another Commonwealth statutory heritage list or are owned by the Commonwealth.

There are no items within the project area listed on the RNE. A cork oak plantation listed on the RNE is located approximately 1.6 kilometres to the east of the 132kV transmission line, adjacent to the Glenloch Interchange.

2.1.2 National Native Title Register

A search of the National Native Title Tribunal's online database was undertaken on 22 September 2020 and showed no Indigenous Land Use Agreements, Native Title Applications, Registrations or Determinations in the ACT.

2.2 ACT Heritage Register

The Heritage Register is a public list containing registration details of each recognised heritage place or object in the ACT, including natural, indigenous and built. Records of provisionally registered, as well as nominated places and objects are maintained on the register by the Heritage Council.

An updated search of the ACT Heritage Register was undertaken on 23 September 2020. The search identified four Potential Archaeological Deposits with management constraints within the project area. Sites and PADs listed below in **Table 2.1** have been recorded within the vicinity of the project area.

Table 2.1 Aboriginal sites or areas of archaeological potential identified in proximity to the project area

Site Name	Site Type	Description	Recorded By
CLB7	Artefact	Artefact site located to the east of Deep Creek, in close proximity to the southern edge of William Hovell Drive.	Knight 2003
WHDPAD1	Potential Archaeological Deposit	Low spur rest line overlooking Deep Creek, to the north of William Hovell Drive. This PAD area is located to the west of the current project area, along the banks of Deep Creek.	Past Traces 2018
WHDPAD2	Potential Archaeological Deposit	200m x 40m on terrace along the southern edge of Deep Creek, on the southern side of William Hovell Drive. This PAD area is located to the west of the current project area, along the banks of Deep Creek.	Past Traces 2018
WHDPAD3	Potential Archaeological Deposit	40m x 25m on terrace along the southern edge of Deep Creek. This PAD area is located to the west of the current project area, along the banks of Deep Creek.	Past Traces 2018
WHDPAD4	Potential Archaeological Deposit	45m x 25m on southern edge of Deep Creek in bend of creek line. This PAD area is located to the west of the current project area, along the banks of Deep Creek.	Past Traces 2018
WHDPAD5	Potential Archaeological Deposit	90m x 45m, large flat area on northern side of Deep Creek on the southern side of William Hovell Drive. This PAD area is located to the west of the current project area, along the banks of Deep Creek.	Past Traces 2018

2.3 Non-Statutory Register

2.3.1 The National Trust of Australia (ACT)

The National Trust of Australia (ACT) Heritage Register is not a statutory list. Furthermore in 2004 the *National Trust Act* ceased classifying heritage sites and instead nominates them to the ACT Heritage Register (local), National Heritage List (national significance) and Commonwealth Heritage List (heritage sites controlled by Commonwealth Government).

No items are listed on the National Trust of Australia (ACT) Heritage Register for the project area or within the immediate vicinity.

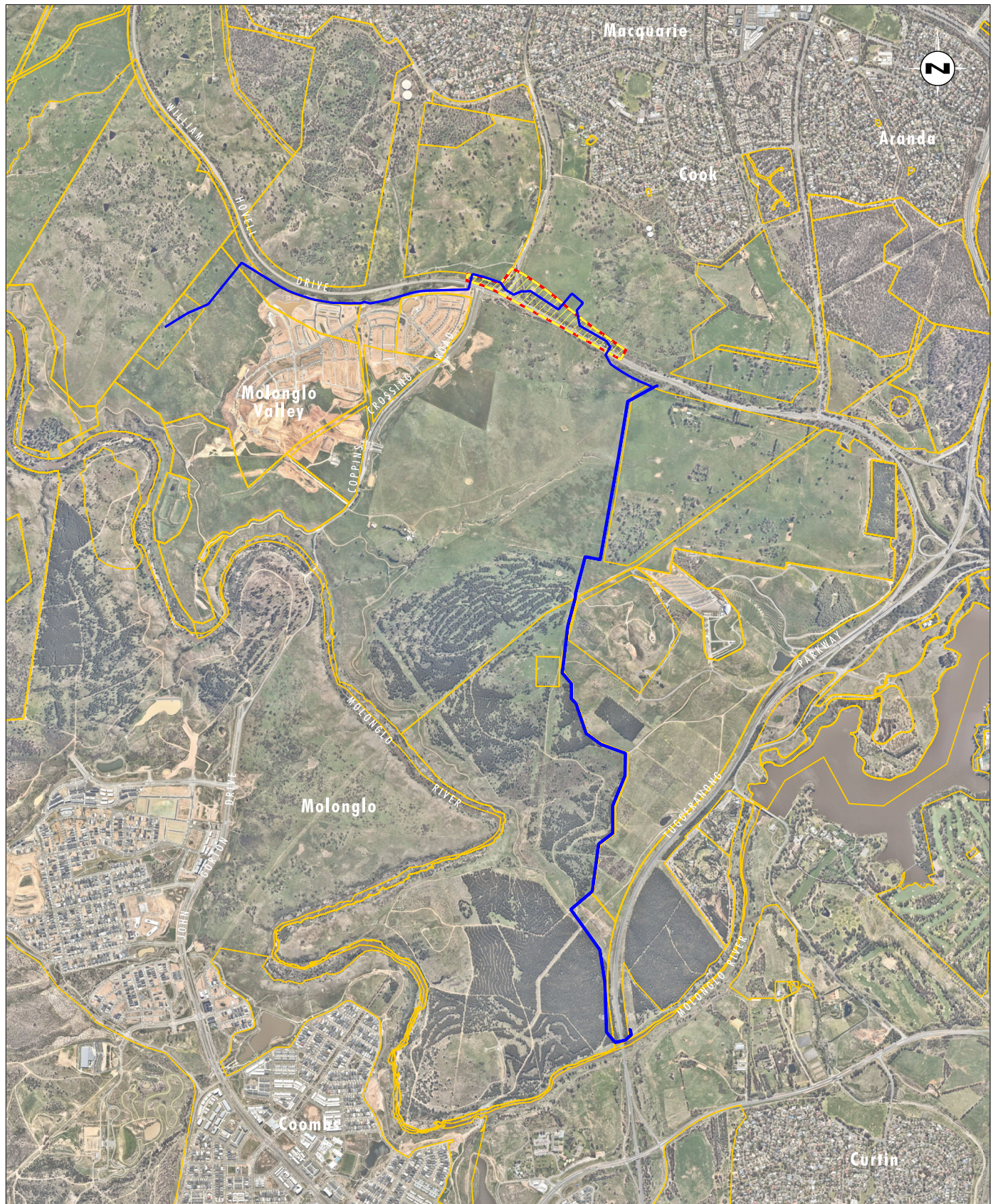


Image Source: Nearmap (SEP 2020)
Data Source: Calibre (2018)

0 0.5 1.0 2.0 km
1:35 000

Legend

- Project Area
- Underground Transmission Line Alignment
- - - S211 Exemption Boundary
- Heritage Site Area

FIGURE 2.1

Heritage Sites

3.0 Representative Aboriginal Organisation Consultation

3.1 ACT Heritage Consultation

During the course of the project, consultation with ACT Heritage has been ongoing.

3.2 Consultation with the RAOs

Representative Aboriginal Organisation (RAO) consultation for this project has been undertaken in accordance with ACT Heritage recommendations. The four RAOs registered with ACT Heritage were contacted and invited to participate in development of the methodology and field investigation. These organisations were:

- Buru Ngunawal Aboriginal Corporation (BNAC)
- King Brown's Tribal Group (KBTG)
- Mirrabee (formerly Little Gudgenby River Tribal Council (LGRTC))
- Ngarigu Currawong Clan (NCC).

Consultation with all the RAOs listed above was undertaken during this project. **Table 3.1** provides a detailed breakdown of RAO consultation undertaken.

One comment was provided by the ROAs on the final draft report (refer to **Appendix 1**).

Table 3.1 Representative Aboriginal Organisation consultation during this project

Phase of Consultation	RAO	Contact Person	Response	Date Undertaken
Notification of project and invitation to participate in development of methodology and field investigation.	BNAC	Mr Wally Bell	Happy with methodology and available to undertake field investigation.	21 August 2018
	KBTG	Mr Carl Brown	Happy with methodology and available to undertake field investigation.	21 August 2018
	LGRTC	Ms Matilda House	Did not respond.	21 August 2018
	NCC	Mr James Mundy	Did not respond.	21 August 2018
Field investigation	BNAC	Mr Justin Bell	Participated in field investigation and provided input on archaeological and cultural heritage value of the project area.	29 August 2018
	KBTG	Mr Carl Brown	Was unable to participate in field investigation due to clashing commitments.	29 August 2018

Phase of Consultation	RAO	Contact Person	Response	Date Undertaken
<i>Report Review</i>	<i>BNAC</i>	<i>Mr Wally Bell</i>	Did not respond.	20 March 2019 – 10 April 2019
	<i>KBTC</i>	<i>Mr Carl Brown</i>	Did not respond.	20 March 2019 – 10 April 2019
	<i>LGRTC</i>	<i>Ms Matilda House</i>	Did not respond.	20 March 2019 – 10 April 2019
	<i>NCC</i>	<i>Mr James Mundy</i>	Did not respond.	20 March 2019 – 10 April 2019
<i>Updated Report Review and Opportunity for Further Comment</i>	<i>BNAC</i>	<i>My Wally Bell</i>	Letter response received on 20 May 2020. The draft report and recommendations were deemed appropriate for the protection and preservation of Ngunawal culture. Further details have been included in Section 5.2 and recommendations have been included in Section 8.1.1 .	22 April 2020 – 13 May 2020
	<i>KBTC</i>	<i>Ms Tina Brown</i>	Did not respond.	22 April 2020 – 13 May 2020
	<i>Mirrabee (formerly LGRTC)</i>	<i>Ms Matilda House</i>	Did not respond.	22 April 2020 – 13 May 2020
	<i>NCC</i>	<i>Mr James Mundy</i>	Did not respond.	22 April 2020 – 13 May 2020

4.0 Environmental Context

4.1 Geology

The project area is located within the Mount Painter Volcanic groups, dating to the late Silurian period. The Mount Painter Volcanics found in the project area are primarily acidic, with types of volcanic rock including ignimbrites, siltstones and tuff. Typically, due to the deep soils and topographic landscape, there are few rock outcrops associated with this geological process. Exception to this geological practice are found in close proximity to major waterways, with shallow topsoil deposition and rock exposures created by the fast moving waterways. Where present, fine-grained materials such as silcrete, tuffs and high quality quartz are found throughout the project (and general) area, and would have been utilised by Aboriginal people (**Figure 4.1**).

4.2 Soils

The project area is located upon two soil landscapes, the Burra and Williamsdale groups, with the northern part (William Hovell Drive survey area) in close proximity to the Campbell soil landscape and the southern part (Tuggeranong Parkway survey area) in close proximity to the Lower Molonglo Variant B (**Figure 4.2**). The northern part of the project area (William Hovell Drive survey area) is located entirely upon the Burra soil landscape, while the southern portion (Tuggeranong Parkway survey area) is located entirely upon the Williamsdale soil landscape (Jenkins 2000).

The Burra soil landscape is described as complex, primarily due to the steeply dipping landscape and its broad coverage area. The variance of the upper soil profile is found across four primary landscape features: crest and upper slopes, midslopes, lower slopes and open depressions. Crests and upper slopes generally consist of deposits less than 50cm, open depressions are generally 50-100cm with midslopes and lower slopes between 50cm -150cm. The Burra soil landscape has been subject to typically extensive disturbance and alteration of landscape, soils and drainage networks within suburban areas. Within rural contexts, minor sheet erosion and moderate gully erosion is widespread.

The Williamsdale soil landscape often has considerable changes in soil profile within its vast coverage area, and as such is considered to have a widely variable soil profile. Generally found on lower slopes and in close proximity to drainage lines, deposits of this soil profile range from 50-150cm. This profile is highly susceptible to erosional processes (both water and wind) across all different land use types, including cultivation, grazing and urban development.

The Campbell soil landscape is a collection of erosional remnants of various volcanic blocks that form the generally isolated ridges, hills and mountains of the Canberra lowlands. Soils consist of generally shallow (<50cm), well drained materials formed on the crests and upper slopes with deeper topsoils (50-150cm) generally found in mid to lower slopes. This soil profile is generally subject to high or very high erosion, due to historic vegetation clearance. In some areas, revegetation has been undertaken to attempt to control the high erosion levels.

Lower Molonglo Variant B soil landscape (not shown in **Figure 4.2**, but contained within the Molonglo River) generally consists of exposed bedrock with little soil development apart from patches of shallow sand veneers in hollows of the rocky streambed. It is distinguished by larger, high-energy watercourses with incised channels, but little or no sand bar development. This profile is restricted to the streambed and banks of the lower reaches of the Molonglo River (as the soil landscape name suggests), between Lake Burley Griffin and the Molonglo River's confluence with the Murrumbidgee River. The land this soil landscape is formed on is generally unused due to severe flood risk and erosion hazard.

4.3 Hydrology

The closest substantial water course to the project area is the Molonglo River, with the Tuggeranong Parkway section of the project area located on the banks of the Molonglo River (**Figure 4.3**). The Molonglo River is part of the Murrumbidgee catchment within the Murray-Darling basin, and feeds Lake Burley Griffin to the west of the project area. Deep Creek, a first order tributary that runs to the north of the Molonglo River, cuts through the northern part of the study area. A number of other minor tributary creek lines run in close proximity to the project area. As a reliable source of fresh water and associated resources, the Molonglo River would have been a focal point of Aboriginal occupation of the Molonglo Valley. Other, less reliable water courses would also periodically provided an attractive camping location. Generally, land within proximity to reliable water courses is identified as having high potential for Aboriginal objects or sites, as these areas were of high value to Aboriginal people.

4.4 Past Vegetation

Vegetation within the project area has been impacted by historical clearance by early European settlers, for farming and agricultural practices. Eucalyptus open woodland would have been the dominant vegetation type across the two parts of the project area, with the species most likely to occur including *Eucalyptus blakeyi* (Blakely's Red Gum), *Eucalyptus bidgesiana* (Apple Box) and *Eucalyptus melliodora* (Yellow Box). Any remaining original vegetation is now generally isolated to remnant stands of Eucalypts and associated species on ridgelines. Grassland coverage would have primarily comprised of *Themeda*, *Austraodathonia*, *Austrostipa* and *Poa* species, with these species generally still present today.

4.5 Existing Disturbance

Historical and recent development of the project area can impact the potential for Aboriginal objects or sites to occur throughout. The project area is generally within a part of the Canberra area that has not been subject to extensive disturbance through urban development.

However, as described above, the area would have been subject to historical clearance of vegetation, with this generally impacting the erosional process across the area and likely minimising the potential for culturally scarred trees to occur. Some revegetation has occurred across nearby ridgelines to assist in managing sediment movement down these slopes into drainage lines and other water courses.

Road, drainage and electrical infrastructure has had the largest impact on areas within or near to the project area, with the construction of William Hovell Drive, Coulter Road, Coppins Crossing Road and Tuggeranong Parkway likely removing any remnant topsoil. Associated drainage works bordering the roadways further minimises the likelihood of the original soil profile remaining, and as a result any areas within the road reserve generally have a low to nil likelihood of Aboriginal objects or sites remaining. In some cases, these items can be identified in heavily disturbed contexts, but will generally not have any associated sub-surface potential. Impacts associated with existing electrical infrastructure within the general locality include the installation of poles and wires and ongoing clearance and vehicle movements within the easement.

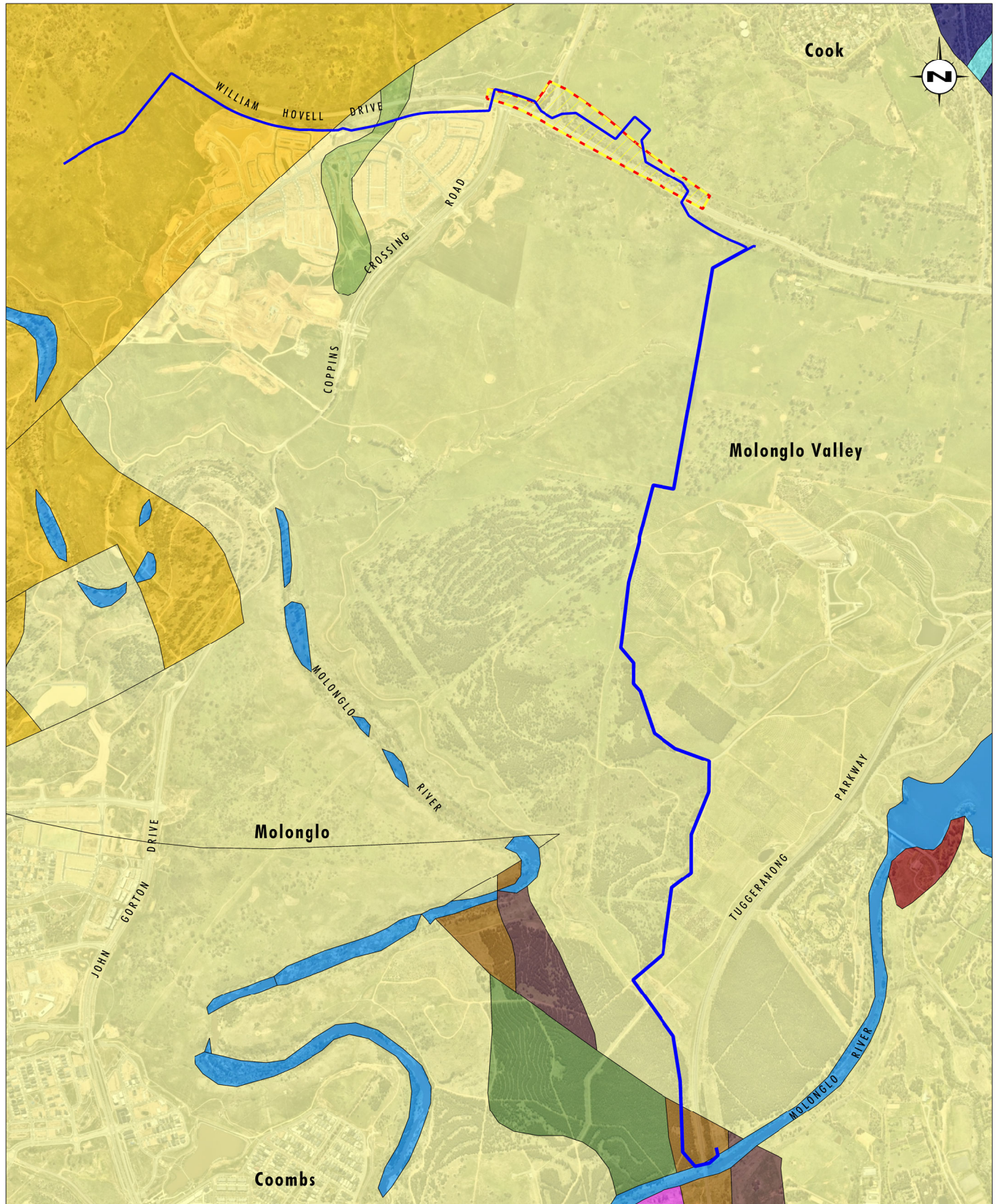


Image Source: ACT Government (2016)
Data Source: Calibre (2018)

0 0.5 1.0 1.25 km
1:25 000

Legend

- Project Area
- Underground Transmission Line Alignment
- S211 Exemption Boundary
- Conglomerate
- Ignimbrite
- Ignimbrite, tuff
- Mudstone, siltstone
- Sandstone
- Sandstone, mudstone, shale, quartzite, phyllite, slate
- Sandstone, siltstone
- Shale
- Tuff, ashstone
- Tuff, sandstone, shale, ashstone
- Water

FIGURE 4.1

Geology

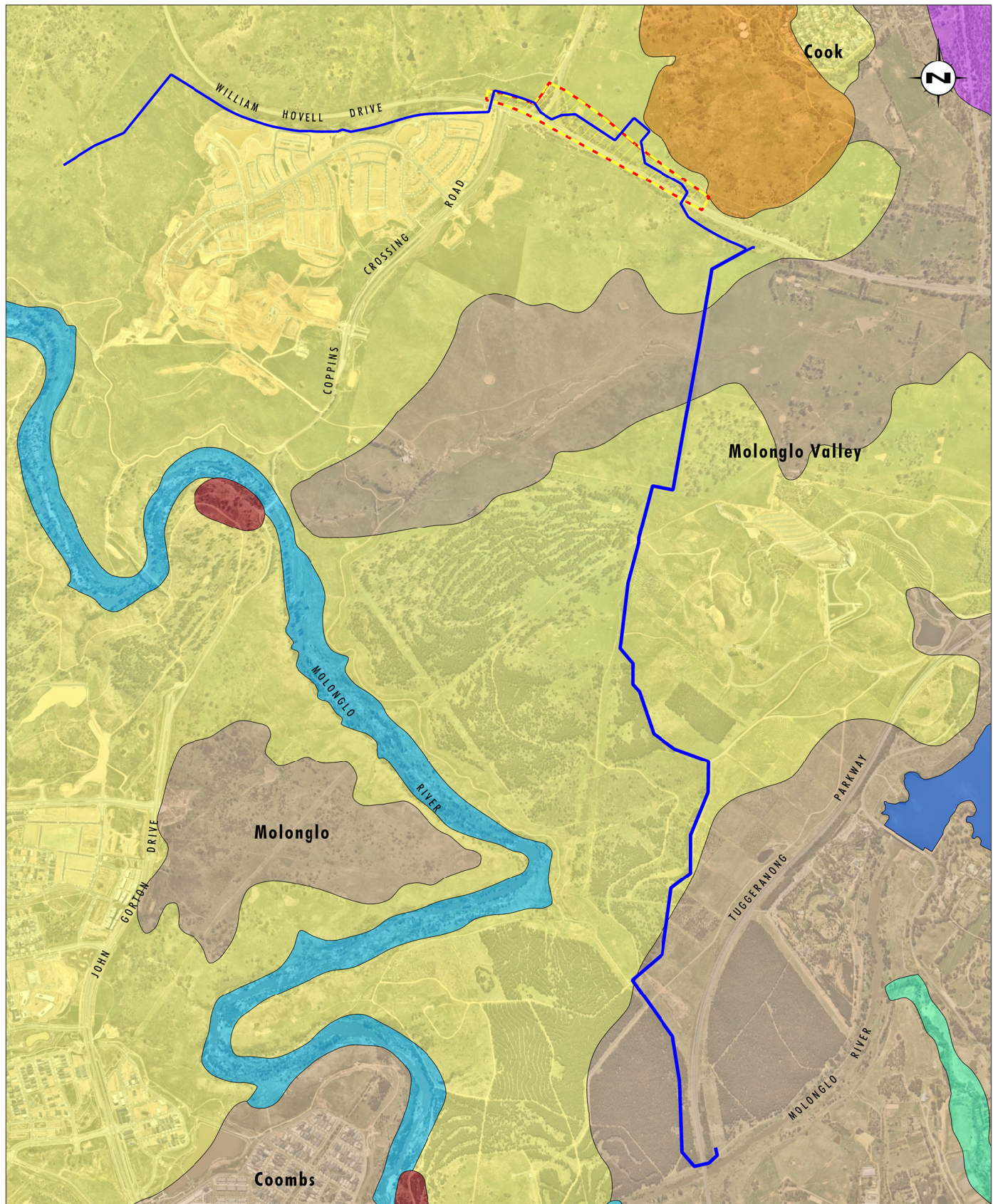


Image Source: ACT Government (2016)
Data Source: Calibre (2018)

0 0.5 1.0 1.25 km
1:25 000

Legend

- | | |
|---|---|
| --- Project Area | ■ Piallige Variant b |
| --- Underground Transmission Line Alignment | ■ Ainslie |
| --- S211 Exemption Boundary | ■ Water |
| ■ Burra | ■ Williamsdale |
| ■ Campbell | |
| ■ Ginninderra Creek | |
| ■ Paddy's River Variant b | |

FIGURE 4.2
Soil Landscapes

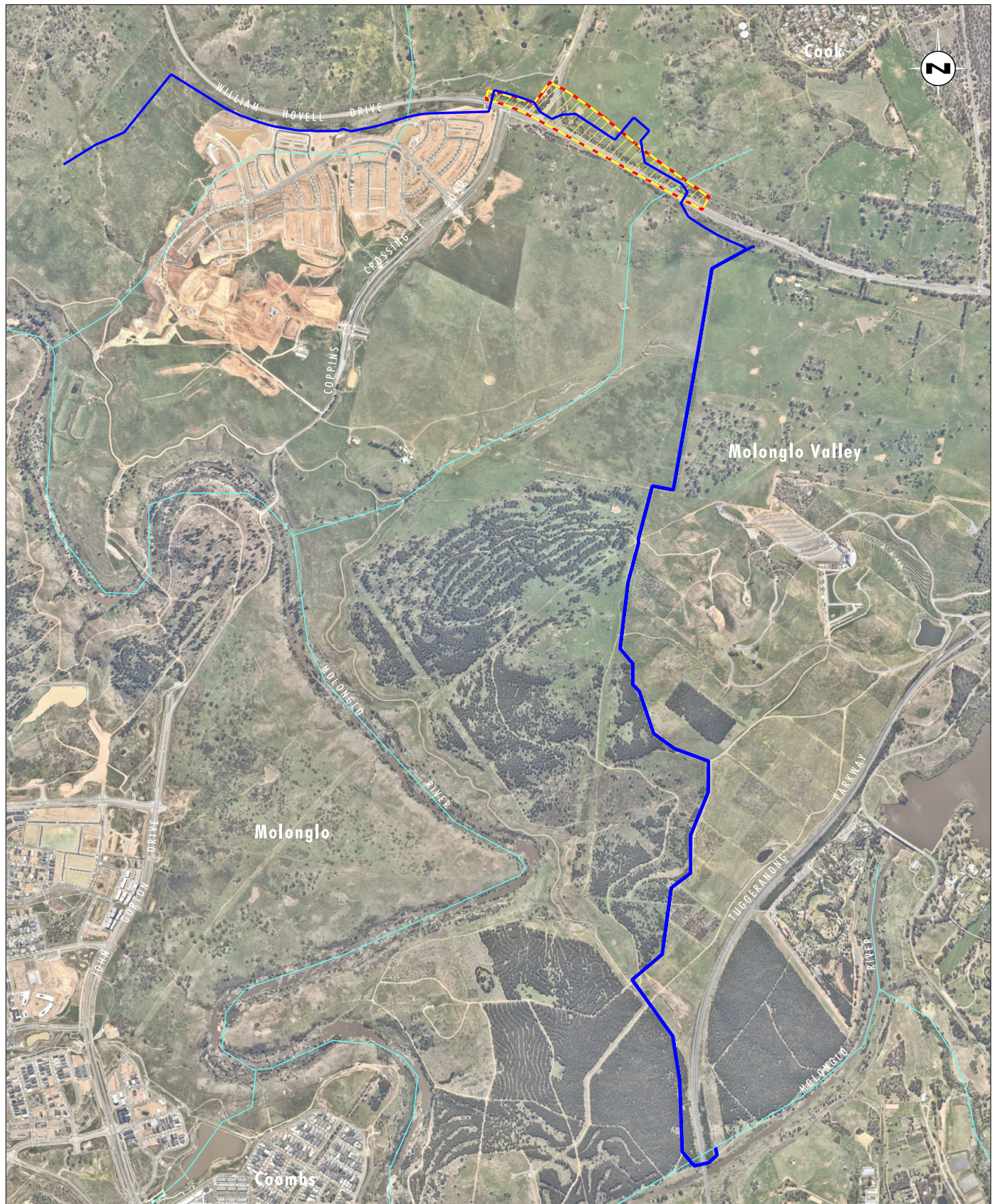


Image Source: ACT Government (2016)
Data Source: Calibre (2018)

0 0.5 1.0 1.25 km
1:25 000

Legend

- Project Area
- Underground Transmission Line Alignment
- S211 Exemption Boundary
- Drainage Line

FIGURE 4.3
Hydrology

5.0 Archaeological and Cultural Background

5.1 Ethnographic Background

Understanding of the organisation (both socially and by language group) of Aboriginal people in the Canberra region is limited to a small number of written and oral history documents (primarily Avery 1994, Flood 1980, Gillespie 1984). Through dispossession of land and the subsequent loss of these histories, historians/ethnographers have only been able to put together small parts of the story of Aboriginal life and custom through nineteenth century ethnographic accounts.

Similarly to distribution across other parts of Australia, Aboriginal people generally identified tribal territories through drainage basins, major waterways or other geographical landmarks, with this evident in the southern uplands (Flood 1980). As described above in the environmental section, the local relief throughout this area creates significant drainage basins with clearly identifiable major waterways (such as the Murrumbidgee and Molonglo Rivers) and would have signified tribal boundaries in the past. These areas were used seasonally, with the major waterways acting as guidelines to return to different areas throughout the seasons. These waterways also acted as communication lines, with groups that were present within a catchment area generally sharing common language and beliefs.

Flood (1980) identified that the Bogong moth was of great important to Aboriginal people in the area. It inhabits the mountain areas, and was an important food source for communities who are believed to have travelled a great distance to exploit this resource and partake in associated ceremonial activities. This also would have led to trade and exchange of other items / ceremonial practices during the spring and summer months, with Aboriginal people from as far as the coast participating in these trade networks (Avery 1994).

First contact between Aboriginal people of this area and Europeans is likely to have occurred in the 1820s, through explorers such as Throsby, Smith, Vaughn and Wild. While they did not directly interact with Aboriginal people, fires in the distance were observed and suggestions of Aboriginal campsites are made (Gillespie 1984). Early accounts of interaction between Aboriginal groups and early pastoralists were documented, predominantly near Yass and Lake George. These interactions generally led to violence between the two groups, as Aboriginal people fought to keep their traditional hunting grounds from being cleared for stock grazing and agriculture. In some cases, there are examples of Aboriginal people utilising resources from these early pastoral areas, through various methods (either by force, in exchange for work or given freely).

Gillespie (1984) suggested that not all relationships between Aboriginal people and early pastoralists led to violence, with the Palmer, Davis and Wright families having amicable relationships with Aboriginal people they employed and the wider community. Another example is Ginninderra Station, which had a number of Aboriginal people playing on their cricket team.

5.2 Information Provided by the RAOs

Mr Wally Bell provided comments on the draft Cultural Heritage Assessment report on behalf of Buru Ngunawal Aboriginal Corporation (BNAC) on 20 May 2020 (refer to **Appendix 1**). The recommendations proposed in **Section 8.1** were deemed appropriate for the three sites located during the survey. However, based on their experience working on large scale construction projects four additional recommendations were provided to ensure the protection of cultural heritage during the construction of the project(refer to **Section 8.1.1**).

5.3 Regional Aboriginal Archaeological Background

Through recent development of the Canberra area, and specifically the recent project planning for the Molonglo Valley Stages 1, 2 and 3, a number of archaeological assessments have been undertaken that have further informed our understanding of how Aboriginal people used the local landscape.

One of the first and most significant assessments of the Canberra region was undertaken by Flood (1973, 1980), who documented in great detail the available information on the Aboriginal inhabitants of the area. Flood documented a site on the slopes of Black Mountain Peninsula, which consisted of a large, high density artefact scatter. Prior to the formation of Lake Burley Griffin, Black Mountain Peninsula was a deep bend in the Molonglo River recognised as a good source of fish and other river subsistence. Barz (1985) undertook an assessment in close proximity to the peninsula for an extension to the National Botanic Gardens, identifying four Aboriginal sites and further confirming the importance of Black Mountain to Aboriginal people.

Another significant assessment undertaken to further our understanding of Aboriginal land use and site patterning across the area was Bulbeck and Boot (1990), who were engaged by ACT Forests to survey the Stromlo Pine Forest. Through the findings of this assessment, they identified that Aboriginal people generally favoured the occupation of lower spurs overlooking water courses. The site patterning also identified that while not as commonly used, intermediate slopes were utilised due to their ease of access. Steep terrain and areas further away from water courses were generally not considered favourable for Aboriginal people.

Navin Officer has undertaken a wide array of assessments in the region and throughout Canberra, including assessments for West Belconnen Urban Land Releases, the National Botanic Gardens, development of fire trails within all Canberra nature parks, Black Mountain, and ActewAGL development of the northern bank of the Molonglo River, all of which have relevance to the current assessment. The works at West Belconnen (Navin Officer 1995, in 2003a) identified four scarred trees and six artefact scatters (all low density), with all scatters located adjacent to major creek lines. The assessment undertaken for the National Botanic Gardens (Navin Officer 1995), confirmed the results of the Barz assessment and further identified one potentially scarred tree. Navin Officer (2003a) undertook survey and excavation along fire trails within all of Canberra's nature parks, including Black Mountain, O'Connor Ridge, Bruce Ridge, Aranda Bushland, Rob Roy Range and Gungahlin Hill. Areas of highest archaeological sensitivity were landscape features such as low gradient spurs, lower slopes, and flats adjacent to major drainage lines and water courses.

Generally, Aboriginal sites across the region have been found on mid-lower slopes and creek flats in proximity to major water courses (generally <100m). The Molonglo River and associated tributaries are the most likely water resources within the region for Aboriginal people to utilise, and lower slopes in close proximity to this resource have been proven to contain Aboriginal cultural deposits.

5.4 Regional Historic Archaeological Background

Historical research has been undertaken to gain an understanding of the regional context and how the project area relates to early European land use patterns, and any non-visible or sub-surface disturbance that can be identified.

The project area was entirely located in the Parish of Weetangera (**Figure 5.1**). In 1912, the western extent of the William Hovell Drive survey area was owned by GE Shumack and J Kinlyside and the land was divided in to quite small holdings (between 40 and 69 acres). The other portion of the William Hovell Drive survey area was entire owned by Donald McDonald, across two separate 100 and 160 acre leases. The Tuggeranong Parkway survey area was entirely contained within the Yarralumla / Yarrowlumla property, held by Francis Mowatt. This property was successively owned after Mowatt by the Murray, Gibes and Campbell families (Coulthard-Clark 1988).

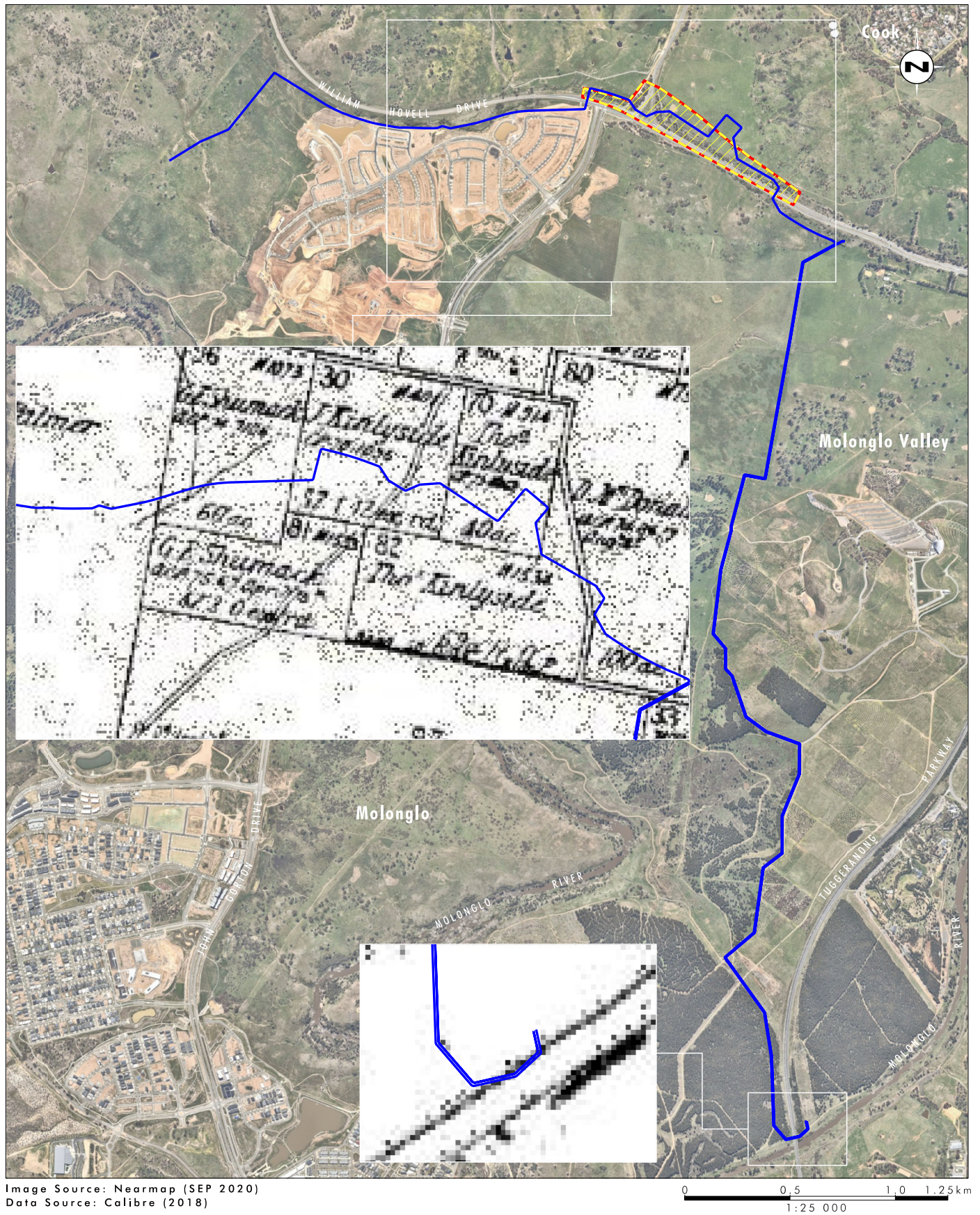


Image Source: Nearmap (SEP 2020)
Data Source: Calibre (2018)

Legend

- Project Area
- Underground Transmission Line Alignment
- - - S211 Exemption Boundary

FIGURE 5.1
Parish Map

5.5 Local Archaeological Studies

Table 5.1 below describes a number of studies undertaken in proximity to the current project area. The location of these studies in relation to the project area is shown in **Figure 5.2**.

Table 5.1 Studies undertaken in close proximity to the current project area

Assessment	Author	Summary
William Hovell Drive Duplication – Bindubi Street to Coulter Drive – Cultural Heritage Assessment	Navin Officer 2002	This assessment was undertaken to determine if there were heritage constraints for the proposed duplication of William Hovell Drive, between Bindubi Street and Coulter Drive (including areas that are within the boundary of the current assessment). At this time, there were no previously recorded or heritage listed Aboriginal or historic sites or features within the project area. A predictive model for this area suggested that given the location of the roadway within the general landscape, there was some potential for artefact scatters or isolated finds. It was determined that this area was unlikely to contain significant or high density Aboriginal cultural deposits, as there were more favourable areas for Aboriginal people within the locality. The field investigation did not identify any Aboriginal or historic heritage sites or objects within the project area. The assessment recommended that the work proceed with an unexpected finds procedure put in place.
National Arboretum Proposed Sewerage Pipeline: Artefact Salvage Program	CHMA 2011	This assessment was undertaken as part of a salvage of three Aboriginal sites (SP1, SP2 and SP3) identified along a proposed sewerage pipeline easement, located to the southwest of the Canberra International Arboretum and Gardens (and to the east of the current project area). This assessment formed part of a larger overarching assessment prepared by CHMA (2008, in 2011) and Australian Archaeological Survey Consultants (2005, 2008 in CHMA 2011) for the Arboretum and Gardens, North Weston and Weston Creek residential developments. The 2005 AASC assessment across the Arboretum and Gardens identified six Aboriginal heritage and two non-Aboriginal heritage sites, which were salvaged during a 2008 assessment. The CHMA 2011 assessment salvaged the three sites identified along the proposed sewerage easement. Site types salvaged across the area generally were made up of artefact scatters, with some of these sites isolated finds. Of note was the presence of a flaked glass artefact, identified during the sewerage pipeline salvage, which demonstrates the potential for post-contact archaeology in the area. Based on the outcomes of this assessment, all sites identified in association with the Canberra International Arboretum and Gardens have been subject to archaeological salvage.

Assessment	Author	Summary
Molonglo Stage 3 Future Urban Releases: Detailed Heritage Assessment – Aboriginal and Historical Heritage	Biosis 2012	This assessment was undertaken for the proposed Stage 3 Molonglo Valley Future Urban releases on the north side of the Molonglo River (primarily to the south and west of the current project area). Predictive modelling suggested that the potential for Aboriginal sites within the project area was high, and likely to be dominated by low density stone artefact scatters on lower lying areas with larger sites situated on elevated terraces or slopes adjacent to water courses. Scarred trees were likely to occur where remnant woodland and old growth trees remained. The potential for historical sites to occur was also identified, related to the early pastoral settlement of the Molonglo Valley. Field investigation identified 33 previously unrecorded sites consisting of artefact scatters and isolated finds. Nine Potential Archaeological Deposits (PADs) were identified, all in conjunction with artefact scatters. One new historical heritage site was identified, consisting of the Kallenia Rivers Woolshed. This was determined to meet the criteria for nomination to the ACT Heritage Register. This assessment recommended that surface collection of the identified sites be undertaken, and test excavation of the PAD areas (as well as areas outside the PAD to test the predictive model) be undertaken.
Molonglo Stage 3 Future Urban Releases: Subsurface Testing Report and Further Studies	Biosis 2013	This assessment is the follow up to the Biosis 2012 report, and undertook surface collection and test excavation of the identified Aboriginal sites and PADs (plus testing outside of the PAD areas) and undertook further research and material analysis of the Kallenia Rivers Woolshed. A total of 147 test pits were excavated across the nine PAD areas and outside of the PAD areas. Surface collection resulted in 335 Aboriginal objects being recovered from across the 33 sites. Test excavation provided unexpected results, with the predictive model suggesting that sub-surface deposits would be identified in gently sloping elevated areas above the Molonglo River. However, these PADs returned little to no Aboriginal cultural materials during the sub-surface testing. More generally, the PAD testing returned very little cultural material when compared to the surface scatters. The presence of surface scatters, but no distinct sub-surface deposits suggests that these areas were most likely used transiently by Aboriginal people. This is further suggested by the lack of flaking or knapping floors present in the scatters. This lack of sub-surface deposits may also reflect the level of disturbance across the area that was not previously identified. With regard to the Kallenia Rivers Woolshed, it was assessed as having high significance and recommended that it be maintained and a site specific CMP be developed to assist in the long-term curation and management of this site.
Molonglo Stage 3 Additional Areas Cultural Heritage Assessment	Biosis 2014	This assessment was undertaken for the proposed Molonglo Stage 3 Residential Development Area C, situated to the east of the current project area. Predictive modelling suggested that open camp sites (artefact scatters) and isolated finds are the most common site types likely to occur, with scarred trees likely in areas with remnant woodland and old growth trees. The potential for historical sites to occur was also identified, related to the early pastoral settlement of the Molonglo Valley. Field investigation identified 32 previously unrecorded and one previously recorded Aboriginal cultural heritage site, with all but one being low density artefact scatters. A number of Potential Archaeological Deposits (PADs) were identified during the assessment, commonly in association with the artefact scatters. From a historical perspective, one previously unrecorded historical site was identified (a bottle dump).

Assessment	Author	Summary
William Hovell Drive Duplication – Aboriginal and Historical Cultural Heritage Assessment	Past Traces 2018	Past Traces were engaged by WSP to undertake Aboriginal and Historical archaeological assessment of the proposed duplication of William Hovell Drive (located within and west of the current project area). The survey identified one Aboriginal object (located outside the current project area) and a number of Potential Archaeological Deposits (PADs) associated with Deep Creek (located on the south and north sides of William Hovell Drive, to the west of Coppins Crossing Road). While no impact to the PADs was identified by the proposed road duplication, should impacts be necessary to these areas in the future, archaeological test excavations would be necessary. It is noted that these PAD areas are located in proximity to the project area, however the proposed works will not impact any of the curtilages of these PAD areas.

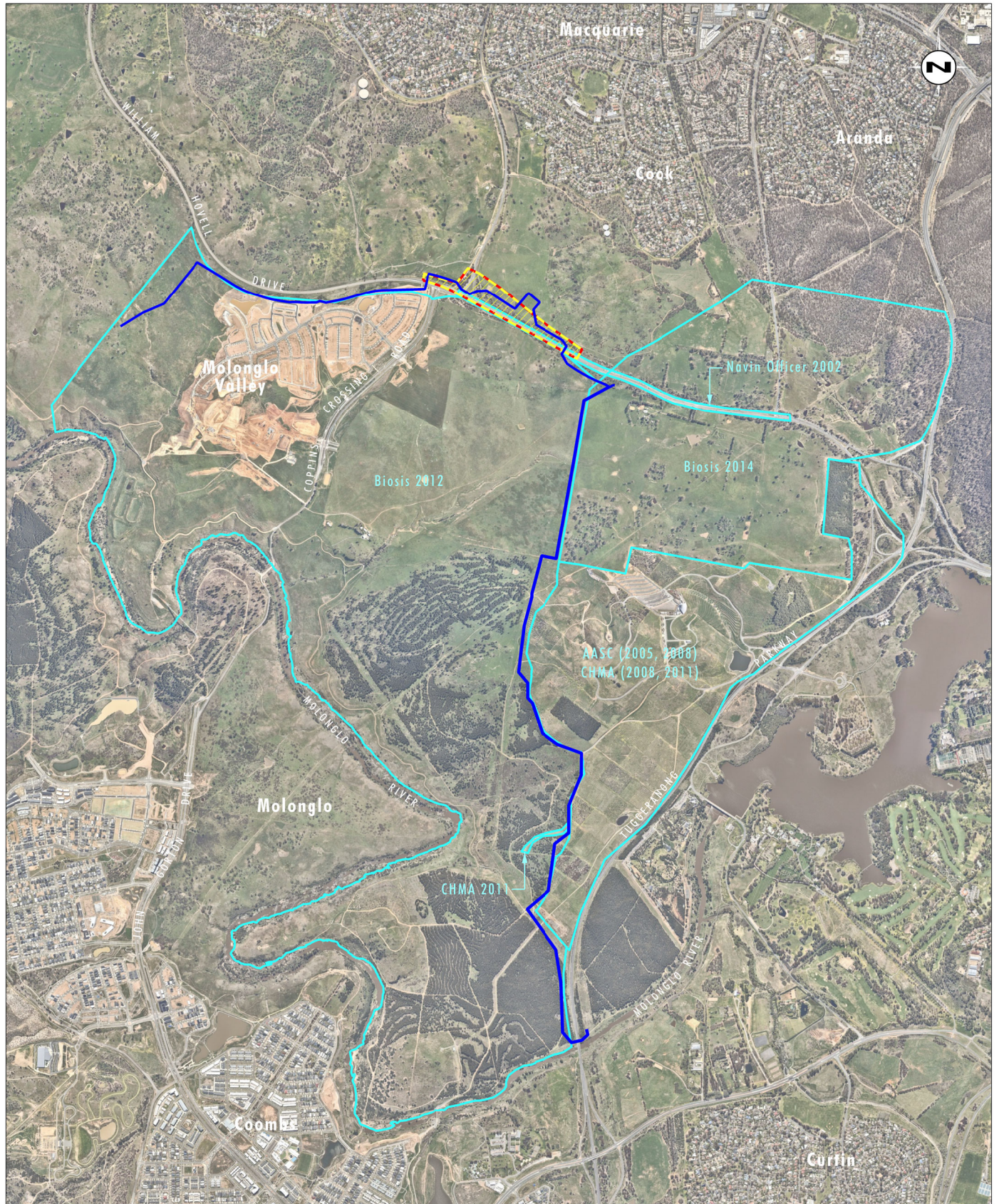


Image Source: Nearmap (SEP 2020)
Data Source: Calibre (2018)

0 0.5 1.0 2.0 km
1:35 000

Legend

- Project Area
- Underground Transmission Line Alignment
- - - S211 Exemption Boundary
- Previously Assessed Area

FIGURE 5.2

Previous Studies

5.6 Predictive Model

The following archaeological predictive models have been formulated based on the results of the desktop assessment that identified a number of Aboriginal and historic heritage sites across in the local and regional context. This site patterning has been broken down and compared directly to the characteristics present within the current project area.

5.6.1 Aboriginal Archaeology

The environmental, ethnographic and archaeological background of the project area suggests that Aboriginal people would have likely used this area in some way, whether it is through transient movement or more established campsites. Archaeological assessments undertaken in proximity to the current project area suggest that if Aboriginal cultural heritage items are to remain, they will most likely come in the form of surface scatter or isolated finds in exposed or eroded areas (such as existing tracks or eroded slopes). The following broad model can be suggested for the project area:

- Artefact scatters and isolated finds are moderately likely to occur within the project area, predominantly in exposed or eroded areas. Given parts of the project areas are in proximity to watercourses (either Deep Creek or Molonglo River or associated tributaries), areas in close proximity (generally less than 200m) are retain the highest potential for these sites to occur. Impacts from European occupations such as vegetation clearance and topsoil removal for roads and tracks may have removed this potential in some areas.
- Areas of potential archaeological deposits (potentially associated with surface artefacts) may occur in landforms with direct access to water resources and where topsoil deposits remain extant. The presence or absence of PADs will be closely linked to the extent of disturbance.
- Scarred trees are unlikely to occur, but may exist if unidentified old growth trees or remnant woodland are present in the project area.
- Grinding grooves may be present within the project area, but given that outcrops or large boulders are generally uncommon across the soil landscapes that make up the project area, these are unlikely to occur.
- While one piece of flaked glass has been identified within the region, this is the only evidence for post-contact archaeology and as a result this type of artefact is unlikely to occur within the project area.
- Based on the regional model, other site types are unlikely to occur within the project area.

5.6.2 Historical Heritage

Based on the land use history of the project area and surrounding region, potential heritage features may include:

- Remains of nineteenth century structures, such as dwellings, stock yards and other rural farm use items. These items may remain as intact structures, ruins or archaeological deposits;
- Fence lines, that may be found along site boundaries or stock yard borders;
- Early tracks, stock routes and roads;
- Early survey markers, such as trigonometric stations.

Given the location of the project areas and based on the results of previous assessments, it is unlikely that historical heritage items will be found during field investigation for this assessment.

6.0 Field Investigation

6.1 Survey Methodology

The main aims of the field investigation were to:

- Identify any Aboriginal objects or sites present within the project area through visual inspection.
- Identify any potential deposits or landforms of archaeological interest that may be present within the project area.
- Identify evidence of previous and existing disturbance that may have impacted any Aboriginal objects that may have been present.
- Discuss and identify any cultural values of the project area with the Representative Aboriginal Organisations.

The survey methodology involved the field team traversing the project area, which covers a number of landforms and road corridors. Due to the size of the project area, coverage of the entire area was possible through distribution of the team. Generally, the field investigation team walked between 5 – 10 metres apart, and covered all areas twice to allow for maximum opportunity to identify Aboriginal stone artefacts, or the potential for these to occur. Any areas with good ground exposure were examined for archaeological evidence such as stone artefacts scatters or isolated finds. Where identified, ground surfaces and cuttings were also examined to document landscape configuration, soil profiles, soil disturbance, erosion and potential for subsurface archaeological deposits.

The survey was split into a northern survey parcel (William Hovell Drive survey area), and a southern survey parcel (Tuggeranong Parkway survey area). Results will be provided as such below.

6.2 Project Team and Participation

The field investigation was conducted by Ashley O’Sullivan (Senior Archaeologist) accompanied by Justin Bell (Buru Ngunawal Aboriginal Corporation).

6.3 William Hovell Drive Survey Area

Generally, this part of the project area was covered with medium to dense grass coverage, with the only clear ground surface visibility available on existing tracks or eroded patches on hill slopes. Vegetation varied across this survey area, with the area to the south of William Hovell Drive covered with dense grass and both areas to the north of William Hovell Drive (either west or east of Coulter Drive) covered with a finer grass and much better for ground surface visibility. The only visibility available on the south side of William Hovell Drive was a cutting that has been made for sheep movement under William Hovell Drive (**Plate 6.1**). Also, on the south side of William Hovell Drive is a small drainage line that runs directly in to Deep Creek (**Plate 6.2**). This part of the survey area was at the lower edge of a gentle slope that continues north to the other side of the William Hovell Drive, and follows the reaches of Deep Creek.

This area has been identified as containing areas of potential archaeological deposit (PAD) by Past Traces (2018). While the extent and nature of the PADs were not assessed as the time of field investigation (due to these sites being recorded after the completion of this survey). As noted in **Section 5.3**, the PADs are located outside of the curtilage of the current s211 exception application and these areas of archaeological potential will not be impacted by the proposed works.

The north side of William Hovell Drive to the west of Coulter Drive had generally fair visibility with some exposures present amongst the consistent grass coverage. The land in this part of the survey area was generally quite flat and one of the lowest points in the general area. These features suggest that it would not have been the most appropriate location for Aboriginal occupation or use, as other more favourable elevated areas occur to the north (outside of the project area).

An area that forms a traffic island at the intersection of Coulter Drive and William Hovell Drive was also surveyed to determine if there were any Aboriginal objects in this disturbed context, but none were found (**Plate 6.3**).

Similarly, the part of the survey area to the east of Coulter Drive and north of William Hovell Drive had fair visibility, with a number of tracks and slope erosion providing the best opportunity to assess the soil profile (**Plates 6.4 and 6.5**). The existing tracks in this area are heavily eroded / graded, and indicate that topsoil in this area is generally quite thin. While some of the landforms in this area are of a type associated with artefact scatters in other areas, they are heavily disturbed and contain limited depth of topsoil. Only one isolated find (MV-HVL-IF-1) was identified in this portion of the project area within a heavily disturbed context.

No scarred trees, potential archaeological deposits (PADs), historic heritage sites or other site types were observed within the William Hovell Drive survey area. The lack of potential archaeological deposits identified throughout this survey area is generally attributed to the lower slopes present throughout this survey area being subject to erosion from vegetation clearance on upper slopes, and topsoil removal in key areas to create tracks. In undisturbed areas, topsoil depth identified was quite low and not conducive to sub-surface archaeological deposits.

6.3.1 MV-HVL-IF-1

This site was identified on a track, at the top of a low gradient crest to the east of the project area (**Plates 6.5 and 6.6**). Visibility immediately surrounding the isolated artefact was good, with no further Aboriginal cultural material identified. Given the site's location on a heavily eroded track, no further sub-surface potential was identified in association with the isolated find.

Table 6.1 Artefacts in proximity to the William Hovell Drive survey area

Grid Reference	Artefact	Material	Size (mm)
687526, 6094761	MV-HVL-IF-1	IMTC	20 x 10 x 7



Plate 6.1 Existing sheep track and general grass coverage in the southwest of the William Hovell Drive survey area.

© Umwelt, 2018



Plate 6.2 General grass coverage along an existing drainage line, looking east on the south side of William Hovell Drive.

© Umwelt, 2018



Plate 6.3 View across heavily disturbed area in the centre of the roadway..

© Umwelt, 2018



Plate 6.4 Example of the grass coverage and track exposures in the north eastern part of the William Hovell Drive survey area.

© Umwelt, 2018



Plate 6.5 Location of MV-HVL-IF-1 (pink, centre of track) along cut and exposed track. Looking west, towards proposed impact area.

© Umwelt, 2018



Plate 6.6 MV-HVL-IF-1

© Umwelt, 2018

6.4 Tuggeranong Parkway Survey Area

At the time of survey, this area formed part of an area that would be subject to s211 Exemption application. However, this area is no longer part of the s211 Exemption application due to necessary design changes. Given the undertaking of survey effort and identification of Aboriginal sites, this information will remain part of the assessment.

Given the proximity of this survey area to the Molonglo River, prior to survey this area was anticipated to have the highest potential to contain Aboriginal objects. The visibility across the survey area was generally good, with a number of heavily eroded tracks / fire trails present. The fire trail along the banks of the Molonglo River provided an indication of the level of previous disturbance that has occurred in this area (**Plates 6.7** and **6.8**), with the track removing much of the subsurface potential. Further to this disturbance, impacts from the development of the bridge (**Plate 6.8**) and erosion from a rough track were observed (**Plates 6.9** and **6.10**).

The lower slope that extends north in the eastern part of this survey area was heavily eroded, likely due to light vehicle movement. A number of naturally occurring cobbles were identified in this area, with signs of recent fracture due to this vehicle movement however these did not exhibit diagnostic features indicative of stone artefact manufacture. In a heavily eroded part of this track to the north of the project area, two isolated finds were identified (MV-HVL-IF-2 and MV-HVL-IF-3).

No scarred trees, potential archaeological deposits (PADs), historic heritage sites or other site types were observed within the Tuggeranong Parkway survey area. The lack of potential archaeological deposits in this area can be attributed to the heavy erosion present on the lower slope identified, and the impacts from the creation of the fire trail. These two locations would have previously had archaeological potential, but with these impacts (both natural and recent), this sub-surface potential no longer remains.

6.4.1 MV-HVL-IF-2 and MV-HVL-IF-3

The two sites were identified on a heavily eroded track, near a slope crest (**Plates 6.10 – 6.12**). Visibility immediately surrounding the isolated artefacts was good, with no further Aboriginal cultural material identified. Given the sites location on a heavily eroded track, no further sub-surface potential was identified in association with the isolated finds.

Table 6.2 Aboriginal sites identified in proximity to the Tuggeranong Parkway survey area

Grid Reference	Artefact	Material	Size (mm)
687526, 6090413	MV-HVL-IF-2	Quartz	12 x 10 x 8
687527, 6090417	MV-HVL-IF-3	Volcanic	25 x 15 x 6



Plate 6.7 View east across fire trail within project area, on the banks of the Molonglo River.

© Umwelt, 2018



Plate 6.8 View west across fire trail within project area, on the banks of the Molonglo River.

© Umwelt, 2018



Plate 6.9 Example of the heavily eroded track, looking towards project area / Molonglo River.

© Umwelt, 2018



Plate 6.10 Location of MV-HVL-IF-2 and MV-HVL-IF-3 on heavily eroded track, facing south towards the Molonglo River (not visible).

© Umwelt, 2018



Plate 6.11 MV-HVL-IF-3

© Umwelt, 2018



Plate 6.12 MV-HVL-IF-3

© Umwelt, 2018



Image Source: Nearmap (SEP 2020)
Data Source: Calibre (2018)

0 100 200 400m
1:7 500

Legend

- ▬ Project Area
- ▬ Underground Transmission Line Alignment
- ▬ S211 Exemption Boundary
- Identified Isolated Find

File Name (A4): R03/8139_010.dgn
20191018 14.56

FIGURE 6.1

Northern Project Area
Archaeological Survey

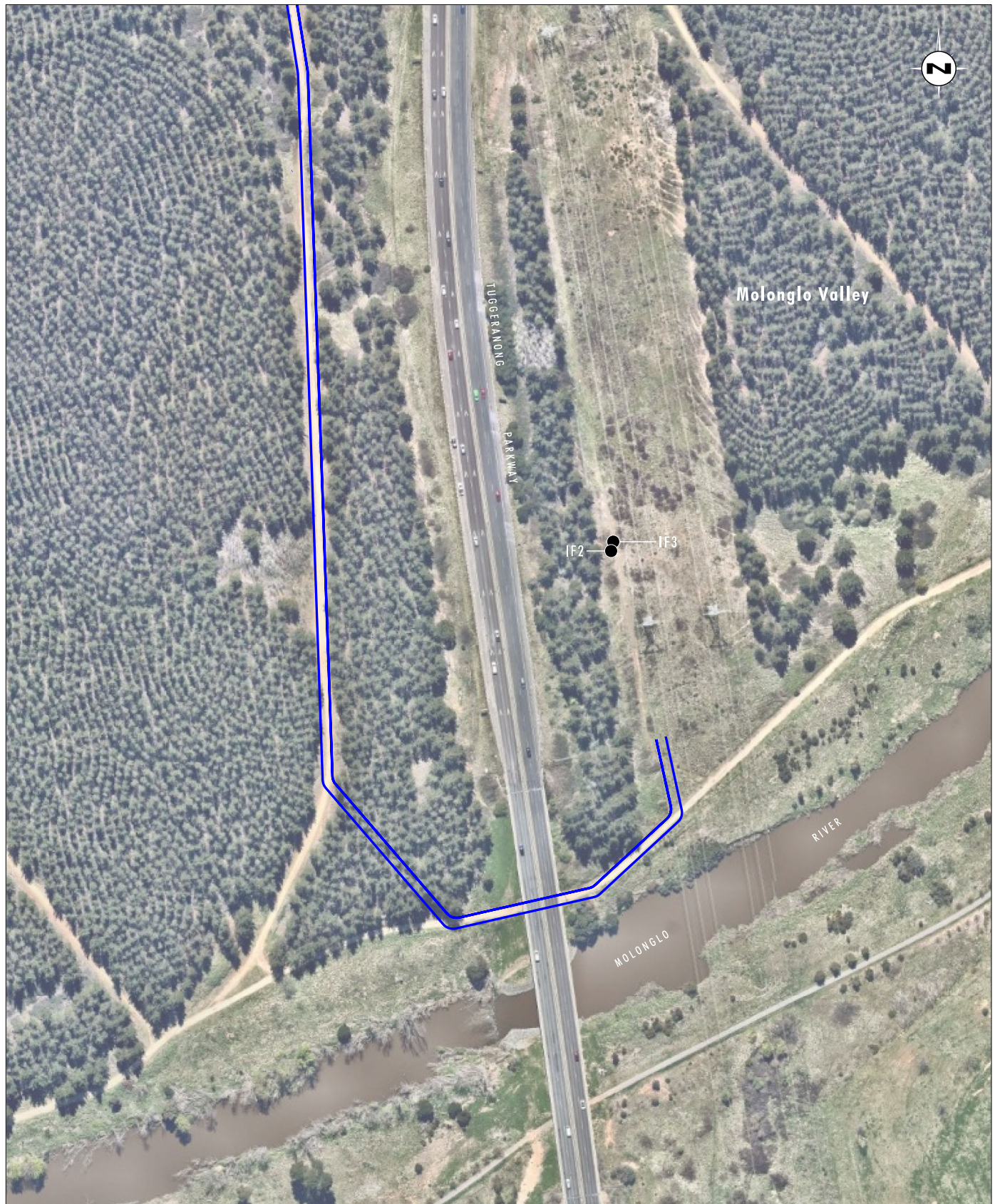


Image Source: Nearmap (SEP 2020)
Data Source: Calibre (2018)

0 25 50 100m
1:2 500

Legend

- Underground Transmission Line Alignment
- Identified Isolated Find

FIGURE 6.2

Southern Project Area
Archaeological Survey

7.0 Significance Assessment

7.1 Principles and Evaluation Criteria

7.1.1 ACT Heritage Criteria

The *ACT Heritage Act 2004* (s.10) specifies that a place or object has heritage significance if it meets one or more of the following criteria:

- a) Importance to the course or pattern of the ACT's cultural or natural history;
- b) Has uncommon, rare or endangered aspects of the ACT's cultural or natural history;
- c) Potential to yield important information that will contribute to an understanding of the ACT's cultural or natural history;
- d) Importance in demonstrating the principal characteristics of a class of cultural or natural places or objects;
- e) Importance in exhibiting particular aesthetic characteristics valued by the ACT community or a cultural group in the ACT;
- f) Importance in demonstrating a high degree of creative or technical achievement for a particular period;
- g) Has a strong or special association with the ACT community, or a cultural group in the ACT for social, cultural or spiritual reasons;
- h) Has special association with the life or work of a person, or people, important to the history of the ACT.

While other criteria may in cases be applicable, criteria c, d and g generally apply to Aboriginal heritage places or objects located within the ACT.

Further to the definition of heritage significance, the Heritage Act specifies criteria for natural heritage significance (s.10A(1)) and cultural heritage significance (s.10B).

A place or object has natural heritage significance if it –

- a) Forms part of the natural environment (i.e. native flora, native fauna, geological formations or any other naturally occurring element); and
- b) Has heritage significance primarily because of the scientific value of its biodiversity, geology, landform or naturally occurring elements.

A place or object has cultural heritage significance if it –

- a) Is –
 - (i) Created or modified by human action; or
 - (ii) Associated with human activity or a human event; and
- b) Has heritage significance.

7.2 Assessment of Significance

7.2.1 Heritage Significance

Key to the assessment of significance is the relationship between a place or object and its broader natural, Aboriginal cultural and/or historic context. To assist in applying the Heritage Act criteria, a range of themes can be identified specific to the ACT. The ACT Heritage Council's *Heritage Assessment Policy* (AHC 2018) provides a list of ACT specific aspects, along with a number of general themes that can be applied. The themes of the ACT (AHC 2018:5):

'are those that have shaped the broad pattern and evolution of the ACT, distinguishing its history in the context of other Australian states and territories, providing its significant character and identity. These themes include its history prior to the declaration of the Federal Capital Territory in 1911, and subsequent to it.'

The level of significance is also a factor to be considered. A place or object's level of significance is determined by its historical and geographical context and the group of people that the place or object has significance or meaning (AHC 2018). The levels include personal, interest group, local, state, national and world. To be included on the ACT Heritage Register, the place or object must have Territory-level significance (or above).

7.2.2 Scientific Significance

Scientific significance is determined by assessing the research potential, educational value, rarity and representativeness of archaeological sites. Research potential considers the contents of the site and the condition of the site, with sites that contain a large range of cultural materials that are in excellent condition valued inherently higher than those with little to no cultural material. Given that the three sites identified during this assessment are all isolated finds within disturbed contexts, their research potential is low. The education value of the sites identified generally ties to their identification within the disturbed contexts, and not necessarily through future research outcomes. As a result, while there is educational value in these sites, it only adds a small amount of value to the overall archaeological picture. Representativeness relates to the regional distribution of site types, and how the site being assessed relates to that. The three sites identified were all isolated finds, a common site type throughout the local and regional area and do not present any different information to our understanding of Aboriginal people's use of the landscape. This also ties into the rarity aspect of significance, as this is a common site type, it is not considered rare within the local area.

As a result, all three isolated artefact sites are considered to have low scientific significance.

7.3 Aboriginal Community Cultural Significance

Sites of potential antiquity and which contain cultural material are frequently identified as of importance to Aboriginal people, and as such the site can be considered to have associated cultural values. As part of the consultation undertaken for this assessment, the RAOs have been asked to provide any comment on the cultural value of the sites identified or the project area more generally.

On site discussions with Justin Bell of BNAC reflected that more significant sites were identified to the south of the current project area (when discussing the William Hovell Drive survey area), as part of the Biosis (2014) assessment. The landforms in this area more closely match those identified in the predictive model, and this land falls closer to Molonglo River. He also discussed that important sites were found in other areas nearby and that the area surveyed was likely to have been used transiently rather than for long-term camps as there was no major watercourse.

BNAC highlighted, as the Traditional Custodians for the ACT and surrounding area, that:

'all sites, objects and lands within our tribal boundary do hold a very significant spiritual and cultural importance to us as a direct cultural heritage link to Country'.

7.4 Significance of the Newly Identified Sites

Table 7.1 presents the significance assessment for the three newly identified sites in close proximity to the project area.

Table 7.1 Significance Assessment of the three sites identified

Site Name	Scientific Significance	Cultural Significance	Level	Heritage Register Criteria
MV-HVL-IF-1	Low	Low	Local	a, c, g
MV-HVL-IF-2	Low	Low	Local	a, c, g
MV-HVL-IF-3	Low	Low	Local	a, c, g

8.0 Management Strategy and Conclusions

8.1 Management Strategy and Recommendations

The development of heritage management recommendations in the context of the proposed impacts in the project area are based on the significance or heritage values of the area, the relevant legislative protection and the feasibility of avoiding impacts to heritage items.

Based on the findings of this report, the project area is best described as having low potential for Aboriginal objects or sites within the curtilage. The northern part of the project area is generally on the lower parts of low gradient slopes, and has been subject to various impacts including damming of Deep Creek, road infrastructure development and various horse trail impacts (construction of fence lines, tracks, etc). The southern part of the project area has been subject to impacts through the development of fire trails, the bridge across the Molonglo River and existing high voltage infrastructure. Three previously unrecorded Aboriginal sites were identified in proximity to the project area, and their management should form part of the overall project approvals. As they are outside the project area and will not be subject to impact by the project, these artefacts can remain in situ and protective measures can be adopted to ensure that the artefacts come to no harm during construction.

No historical heritage items or potential for these to occur was observed during the field investigation.

While no Aboriginal or historical heritage sites were identified within the project area, this does not preclude the potential for unanticipated discoveries occurring during construction.

The recommendations below are made to minimise the impact of the project on Aboriginal cultural heritage and to ensure compliance with relevant legislative requirements. We highlight that the preferred heritage outcome is to avoid impacts to heritage items.

- The newly identified site in proximity to the proposed works, MV-HVL-IF-1 should be inspected and fenced off prior to construction beginning (**Figure 6.1**). This fencing should give each site a 5m perimeter, to ensure that no direct or indirect impacts can occur during construction. Upon completion of construction, the fencing should be removed.
- No further Aboriginal or historical archaeological work is recommended, and the project may proceed with caution. Should unanticipated discoveries be made during construction, work should cease and the protocols provided in **Section 9.0 – Unanticipated Discovery Plan** should be followed.
- The three newly identified sites (MV-HVL-IF-1, MV-HVL-IF-2 and MV-HVL-IF-3) will be registered with ACT Heritage.
- Following finalisation, a copy of this report should be provided to ACT Heritage for their review and approval.

If further changes are made to the project which require impacts outside of areas previously investigated or the project area assessed in this report, further assessment should be undertaken to identify and appropriately manage Aboriginal and Historic heritage objects/sites/place that may occur within any additional areas.

8.1.1 Recommendations from Registered Aboriginal Organisations

BNAC recommended that:

- Documented measures are put in place to clearly define work areas as part of the site inductions.

- Develop and provide [to personnel] a more in-depth understanding of the sensitivity and significance of sites and the legislative obligations to preserve objects/sites from damage.
- Vehicle and equipment access, laydown areas and site offices should be located within the disturbance footprint that has already been surveyed or it will require additional cultural survey works.
- Calibre Consulting / SLA consider providing opportunities to the RAOs to undertake the fencing of cultural heritage sites (namely MV-HVL-IF-1), as it is essential in maintaining culturally appropriate engagement with Ngunawal people in managing cultural sites.

9.0 Unanticipated Discovery Plan (UDP)

No Aboriginal archaeological sites have been discovered in the project area. Although there is a low potential that Aboriginal archaeological material will be discovered during construction works, it is possible that Aboriginal archaeological material may be present.

Based on current understanding of archaeological sites in this landscape generally, such sites are likely to be low density scatters of artefacts (densities <2 artefact/m²). This site type is generally classified as being of low significance and conservation value.

If previously unrecorded Aboriginal archaeological material is exposed during the construction works, work in the vicinity of the archaeological objects must cease and the site must be reported to the ACT Heritage Council. The ACT Heritage Council will determine any additional requirements.

Unanticipated discoveries include all Aboriginal site types (although most site types are considered to be very unlikely, refer **Section 5.6.1**). This includes (but may not be limited to), low, moderate to high density artefact scatters, scarred trees, stone procurement (quarry) sites, ochre deposits and skeletal remains (burials).

Please Note: There are two different processes presented for the mitigation of these anticipated and unanticipated discoveries. The first process applies for the discovery of Aboriginal or historic places, objects or features (refer to **Table 9.1**), which include all site types mentioned above, with the exception of skeletal remains (burials). The second process applies exclusively to the discovery of skeletal remains (burials) (refer to **Table 9.2**). There are very strict protocols for the discovery of human skeletal material. Human skeletal remains are considered to be a potential crime scene until it is confirmed by police that this is not the case.

Table 9.1 Process for Discovery of Aboriginal Places, Objects or Features

Step	Details
1	If any project personnel, contractors or subcontractors believe that they have discovered or uncovered Aboriginal or historical places, objects or features, the individual should notify the person in charge of the activity (Site Supervisor) that is currently under way. The Site Supervisor is to inform operators that are working in the general vicinity of the area that earth disturbance works should stop immediately. Remember health and safety requirements when approaching machinery operators.
2	A buffer protection zone of 20 m x 20 m should be established around the suspected Aboriginal or historical places, objects or features. No unauthorised entry or earth disturbance will be allowed within this 'archaeological zone' until such time as the suspected Aboriginal places, objects or features have been assessed, and appropriate mitigation measures have been carried out.
3	The discovery must be reported to the ACT Heritage Council within five working days (in accordance with Section 51 of the <i>Heritage Act 2004</i>). The Site Supervisor should do this. The Site Supervisor should also contact a qualified archaeologist to conduct a heritage assessment of the material.
4	A heritage assessment should be conducted by a qualified archaeologist in consultation with the RAOs (in accordance with Section 75 of the <i>Heritage Act 2004</i>). If possible, this assessment should be completed within 1 working week of the discovery.
5	Based on the findings of the assessment, appropriate management recommendations should be developed for the Aboriginal places, objects or features. These recommendations should be submitted to the ACT Heritage Unit for review and endorsement.
6	Once endorsement has been obtained, the prescribed management recommendations should be carried out by the appropriate personnel. If salvage collection or excavation of archaeological material is required, the work is to be done in accordance with the regulations set out in the <i>Heritage Act 2004</i> and with appropriate archaeological procedure. The archaeologist may retain custody of salvaged Aboriginal archaeological material for up to three months for analysis. If a longer time is needed, the archaeologist must consult with the RAOs and seek approval from the ACT Heritage Council. When analysis is complete, all material, labelled, bagged and catalogued is to be provided to ACT Heritage of the RAOs, together with a management plan for where it will be placed.
7	On the completion of the prescribed works, the relevant authorities (ACT Heritage Unit) should advise the Site Supervisor (or other Project Personnel) that construction works may recommence in the 'archaeological zone'. If there are further constraints to construction works in the 'archaeological zone', then the Site Supervisor should be informed of these. It is the responsibility of the Site Supervisor to inform construction crews of these constraints. Generally, construction work may recommence within an area of exclusion when: • The appropriate protective measures have been implemented • Relevant archaeological material recording forms have been completed • All parties agree there is no other prudent or feasible course of action • Any relevant disputes have been resolved

Table 9.2 Process for Unanticipated Discovery of Skeletal Material

Step	Details
1	Under no circumstances should the suspected skeletal remains be touched or disturbed. If these are human remains, then this area potentially is a crime scene. Tampering with a crime scene is a criminal offence.
2	Any person discovering suspected skeletal remains should notify operators that are working in the general vicinity of the area that earth disturbing works should stop immediately. Remember health and safety requirements when approaching machinery operators. The person who discovers the suspected skeletal remains must inform the Site Supervisor immediately.
3	A buffer protection zone of 50 m x 50 m should be established around the suspected skeletal remains. No unauthorised entry or earth disturbance will be allowed within this buffer zone until such time as the suspected skeletal remains have been assessed.
4	The relevant authorities (ACT Police and Coroner's Office) are to be contacted and informed of the discovery. If there is reason to believe that the remains are Aboriginal, the Site Supervisor must also notify ACT Heritage Council and RAOs. If the skeletal remains are suspected to be of Aboriginal origin, the authorities may decide to seek the advice of an archaeologist or appropriate expert in relation to the discovery. No media is to be contacted in regard to the discovery of human remains. No photos of human remains are to be taken without appropriate approval of the RAOs.
5	Should the skeletal remains be declared an Aboriginal burial site, the following procedures will be implemented: • An archaeologist, in consultation with the RAOs should carry out an assessment of the skeletal remains • Based on the findings of the assessment, appropriate management recommendations should be developed. These recommendations should be submitted (in the form of a Conservation and Management Plan) to the ACT Heritage Unit and the Heritage Council for review and endorsement • Once endorsement has been obtained, the prescribed management recommendations should be carried out by the appropriate personnel • The treatment of salvaged Aboriginal human skeletal remains must be in accordance with the direction of the RAOs and Act heritage Council. • On the completion of the prescribed works, the relevant authorities (ACT Heritage Unit) should advise the Site Supervisor (or other Project Personnel) that construction works may recommence in the 'archaeological zone'. If there are further constraints to construction works in the 'archaeological zone', then the Site Supervisor should be informed of these. It is the responsibility of the Site Supervisor to inform construction crews of these constraints. • As noted for non-skeletal finds, certain criteria must be met before works can recommence.

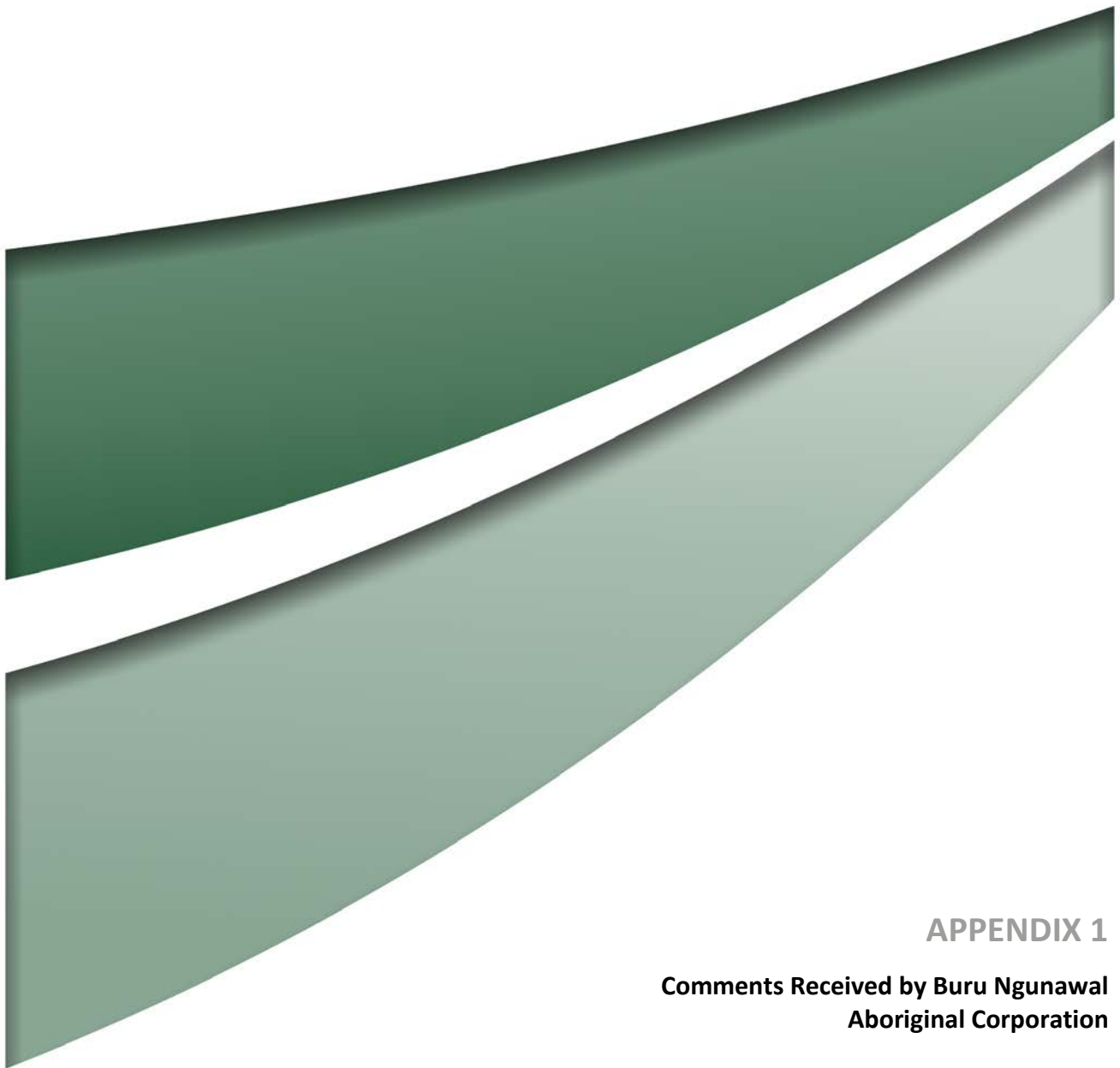
10.0 References

- Avery, S. (1994). *Aboriginal and European Encounter in the Canberra Region: a question of change and the archaeological record*. Canberra ACT: Attorney Generals Dept.
- Barz, R. (1985). An Archaeological Survey of the Site of the Proposed Extension to the Australian National Botanic Gardens, Canberra. Report to NCDC.
- Biosis. (2012). Molonglo Stage 3 Future Urban Releases: Detailed Heritage Assessment -Aboriginal and Historical. Report to Environment and Sustainable Development Directorate.
- Biosis. (2014). Molonglo Stage 3 Future Urban Releases: Archaeological Investigations -Aboriginal and Historical. Report to Environment and Sustainable Development Directorate.
- Bulbeck, D. & Boot, P. (1990). Stromlo Forest Cultural Resource Survey and Conservation Plan. Report to ACT Parks and Conservation Service.
- Coulthard - Clark, C. (1988). *Gables, Ghosts and Governor Generals: The Historic House at Yarralumla, Canberra*. Sydney: Allen and Unwin.
- Cultural Heritage Management Australia. (2008). Coombs, Wright and Environs Detailed Heritage Assessment Report No 0901. Report to ACT Planning and Land Authority.
- Cultural Heritage Management Australia. (2011). National Arboretum Sewerage Pipeline Extension Conservation Management Plan. Report to Dept. of Land and Property Services.
- Flood, J. (1973). *The Moth Hunters - Investigations towards a prehistory of the South Eastern Highlands of Australia*. Canberra: PHD Thesis.
- Flood, J. (1980). *The Moth Hunters: Aboriginal Prehistory of the Australian Alps*. Australian Institute of Aboriginal and Torres Strait Islander Studies.
- Gillespie, L. (1984). *Aborigines of the Canberra Region*. Canberra: Lyell Gillespie.
- Jenkins, J. (2000). Soil Landscapes of the Canberra 1:100 000 Sheet. Queanbeyan: Department of Land and Water Conservation.
- Kabaila, P. (1997). *Belconnens Aboriginal Past: A glimpse into the Archaeology of the Australian Capital Territory*. Canberra: Black Mountain Projects.
- Navin Officer Heritage Consultants. (1991). West Belconnen Urban Release Area Archaeological Assessment. Report to Kinhill Pty Ltd.
- Navin Officer Heritage Consultants. (2002). Gungahlin Drive Extension, ACT: Cultural Heritage Assessment. A report to WP Brown and Partners for the ACT Dept of Urban Services.
- Navin Officer Heritage Consultants. (2003a). A Cultural Heritage Assessment of some proposed Gungahlin Drive Extension Easements in the Glenloch Interchange Area. Report to ACT Roads.
- Navin Officer Heritage Consultants. (2003b). Investigations of Aboriginal Places along Fire Trails in Canberra Nature Parks. Report to ACT Heritage Unit.

Navin Officer Heritage Consultants. (2004). Gungahlin Drive Extension Tree Clearing and Ground Disturbance Heritage Protocol Report. Report to ACT Roads.

Navin Officer Heritage Consultants. (2011). Relocation of Emergency Services Agency Sites. Report to peckvonhartel.

Past Traces. (2018). William Hovell Drive Duplication - Aboriginal and Historical Cultural Heritage Assessment.



APPENDIX 1

**Comments Received by Buru Ngunawal
Aboriginal Corporation**



ABN : 24 059 704 833

Umwelt (Australia) Pty Limited
75 York Street
Teralba, NSW 2284

Att: **Ashley O'Sullivan**
Senior Archaeologist

139c Re-location of 132kV Transmission Lines, Molonglo Stage 3 Urban Area

Thank you for your correspondence in which you provided a report on the above requesting input from Buru Ngunawal Aboriginal Cultural Consultancy (BNACC) as the Representative Aboriginal Organisation under ACT Government Heritage legislation.

BNACC members are the Traditional Custodians for the ACT and surrounding areas in NSW. We would like to point out that all sites, objects and lands within our tribal boundary do hold a very significant spiritual and cultural importance to us as a direct cultural heritage link to Country.

In response to the documentation provided, BNACC having participated in the onsite consultations would like to request that because of the presence of Aboriginal cultural sites within the vicinity, experience with working with large scale construction works such as this also indicates that disturbance does occur outside the proposed project footprint. BNACC would like to have some documented measures in place to clearly define work areas as part of the site inductions. This is a management tool to prevent these sorts of impacts from occurring. There remains a requirement to provide and develop a more in-depth understanding of the sensitivity and significance of sites and the legislative obligations to preserve such objects/sites from damage.

New recent changes to the ACT Heritage Act provide details of the financial repercussions of damaging cultural sites/objects.

The draft report and the provision of the recommendations for the protection and preservation of our Ngunawal culture is greatly appreciated.

BNACC considers the recommendations as proposed at 8.1 Management Strategy and Recommendations are appropriate for the three sites. BNACC would also like it noted that vehicle and equipment access, laydown areas and site offices be located within the footprint of the area already surveyed or it will require additional cultural survey works to be conducted.

BNACC would appreciate, as a gesture of goodwill, being involved in any fencing exercise as it is essential in maintaining a culturally appropriate engagement with Ngunawal people in managing cultural sites.

BNACC looks forward to progressing the requests made above and to be actively involved in working towards a healthy and productive process in developing a better understanding of Aboriginal cultural significance and its connection to Country and provide an avenue to progress the reconciliation process.

Thank you for the opportunity to provide comment.

Yours faithfully

A handwritten signature in black ink, appearing to read 'Wally Bell'.

Wally Bell (Ngunawal TC)

Chair

20 May 2020





Newcastle

75 York Street
Teralba NSW 2284

Ph. 02 4950 5322

Perth

PO Box 783
West Perth WA 6872
First Floor
7 Havelock Street
West Perth WA 6005

Ph. 1300 793 267

Canberra

PO Box 6135
56 Bluebell Street
O'Connor ACT 2602

Ph. 02 6262 9484

Sydney

50 York Street
Sydney NSW 2000

Ph. 1300 793 267

Brisbane

Level 11
500 Queen Street
Brisbane QLD 4000

Ph. 1300 793 267

www.umwelt.com.au