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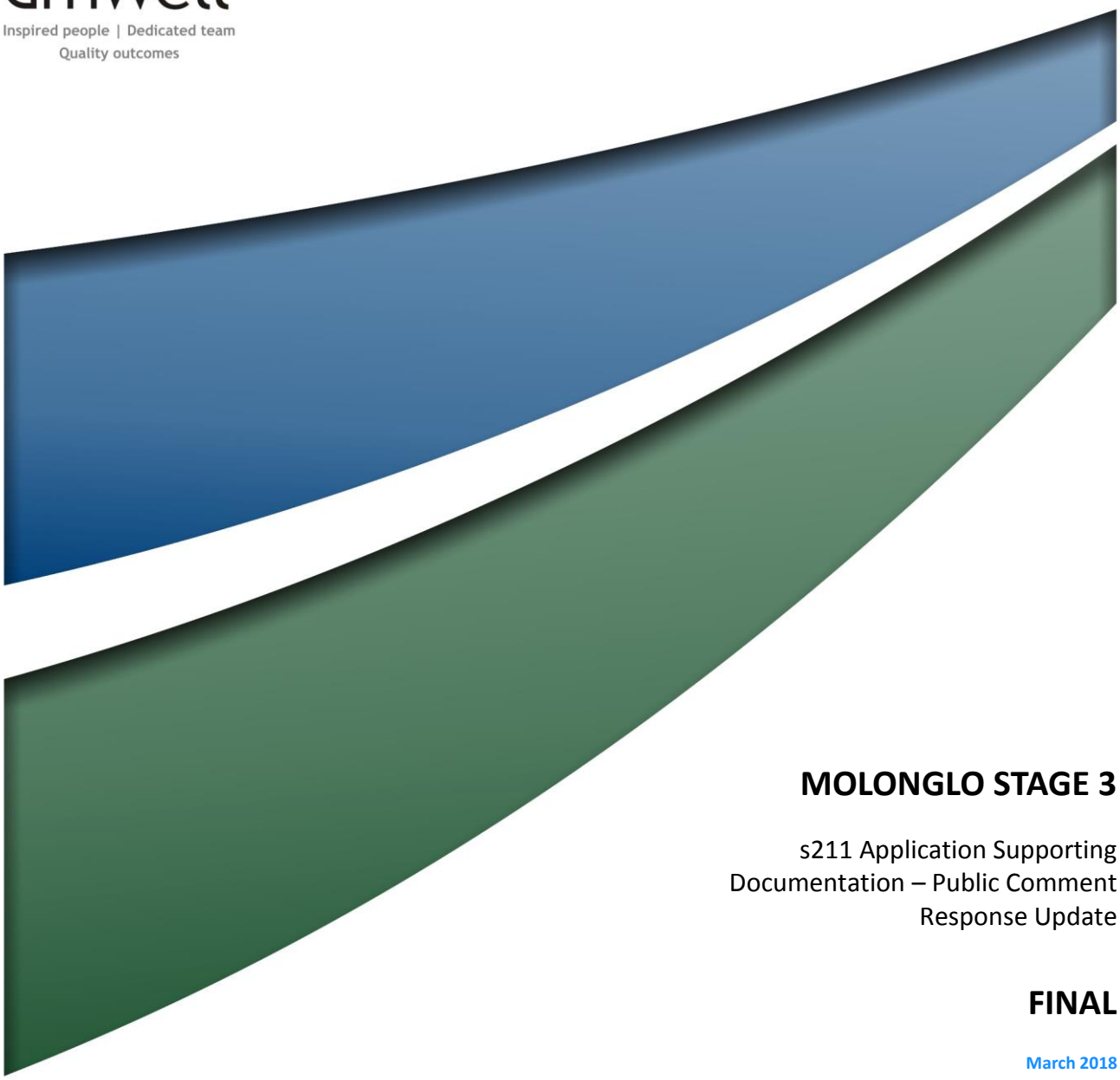

MOLONGLO STAGE 3

s211 Application Supporting Documentation – Public Comment Response Update

FINAL

March 2018

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FINAL

Prepared by
Umwelt (Australia) Pty Limited
on behalf of
ACT Environment, Planning and Sustainable Development Directorate

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6	K Carwardine	23/3/2018	K Carwardine	23/3/2018

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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) for the development of the Molonglo Stage 3 Urban Area (defined in **Section 2** below).

The application for exemption is made under Section 211 (s211) of the *Planning and Development Act 2007* (PD Act).

The application is sought on the basis that sufficient environmental research and studies have been undertaken, and these have adequately identified the potential environmental impacts of the development in the Molonglo Stage 3 Urban Area. Information presented in this document and the accompanying risk assessment matrix (**Appendix 1**) demonstrates the level of knowledge and comparative risk associated with any information gaps such that further research through an EIS would not be informative.

Information requirements to support the s211 Exemption Form 1M[1] are outlined in **Table 1.1** below.

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
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
3	A preliminary risk assessment (PRA) based on the guidance document.	Section 6, Appendix 1
4	A description of the natural conservation values of the site based on the considerations listed in the 'Preparation of an application for scoping and preparation of an ESO' guideline available from the EPSDD website (ACTPLA, undated).	Section 3
5	A description of measures within the proposal that seek to avoid and minimise (and as a last resort offset) impact on identified conservation values.	Section 5
6	Any decision made under the EPBC Act in relation to this proposal.	Section 4
7	For s211 applications only, the following additional information is required:	
i.	details of qualifications, expertise and experience of the person(s) who conducted previous studies supporting the application;	Section 7

[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 approved form AF2017-37 [online: http://www.legislation.act.gov.au/].

Required Information under Form 1M		Location in this Report
ii.	details of public consultation undertaken, as part of statutory requirement, for projects or previous studies included as supporting documentation undertaken. Details of public consultation not required for a statutory process should also be included;	
iii.	verification from a qualified person that the information in the previous studies supporting the application is still current.	

This document has been subject to public consultation and has been subsequently updated. A summary of the comments and responses is provided in **Appendix 2** and all changes to text within the document are marked in blue.

2.0 The Project

2.1 Objectives of the Project

The project is for development of the Molonglo Stage 3 Urban Area. Molonglo Stage 3 covers an approximate area of 800 hectares located north of the Molonglo River, bounded by the Tuggeranong Parkway and National Arboretum to the east, William Hovell Drive to the north, and Kama Nature Reserve to the west.

Urban development of the Molonglo Valley is a key component of the ACT Government's greenfield urban development program. The Government's intentions are reflected in the Indicative Land Release Program (CMTEDD, 2017) which identifies Whitlam, the first suburb in Molonglo Stage 3 for land release commencing in 2018–19.

Molonglo Stage 3 is the third and final stage in the Molonglo Valley urban development project. Stage 1 comprises the suburbs of North Weston, Coombs and Wright and is currently being developed and sold. Stage 2 is comprised of the suburbs of Denman, Prospect and Molonglo and is in its detailed planning phase. **Figure 2.1** shows the staged development of the Molonglo Valley. When fully developed, the Molonglo Valley is expected to accommodate approximately 55,000 people. **Figure 2.2** is an indication of the expected land uses within Molonglo Stage 3 and their boundaries, subject to the preparation of final estate development plans.

2.2 Description of the Project

Molonglo Stage 3 is expected to house approximately 27,000 people living in 11,000 dwellings by 2042 (GHD, 2014). The project would include all activities generally associated with the urban development of a greenfield site. Activities that would occur as part of the development phase would include (but not be limited to):

- land clearing and earthworks;
- contaminated land remediation;
- construction of storm water management infrastructure;
- construction of utility services;
- construction of roads and transport infrastructure[2] (including for pedestrian and cycle transport);
- construction of community facilities, commercial buildings, and infrastructure; and
- landscaping.

[2] **Note:** The construction of roads is not an applicable trigger under Part 4.2 of the PD Act as they will be within land designated as a future urban area.

All three stages of Molonglo Valley 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) (ACTPLA, 2011) gained approval in 2011 and describes the approach to development in accordance with the Molonglo Valley Structure Plan, in a manner that achieves defined outcomes for conservation of matters of national environmental significance (MNES). The NES Plan and associated documents (ELA, 2010; 2011) prepared as part of the Molonglo Valley Strategic Assessment consider all three stages of the development; however, under the Territory's PD Act, each stage has to be planned, assessed and approved separately with regard to the staged land release schedule.

This document seeks approval for residential, community and commercial development, open space and associated infrastructure within Molonglo Stage 3 within the footprint shown in **Figure 2.3**. It relates to the assessment of Stage 3 under the PD Act only.

It is noted that any development outside the NES Plan footprint such as road connections, electrical and water infrastructure, has not been considered under the EPBC Act, and would need to be assessed separately if it is likely to result in any significant impact to MNES.

Note: that all of the following planning figures are indicative only.

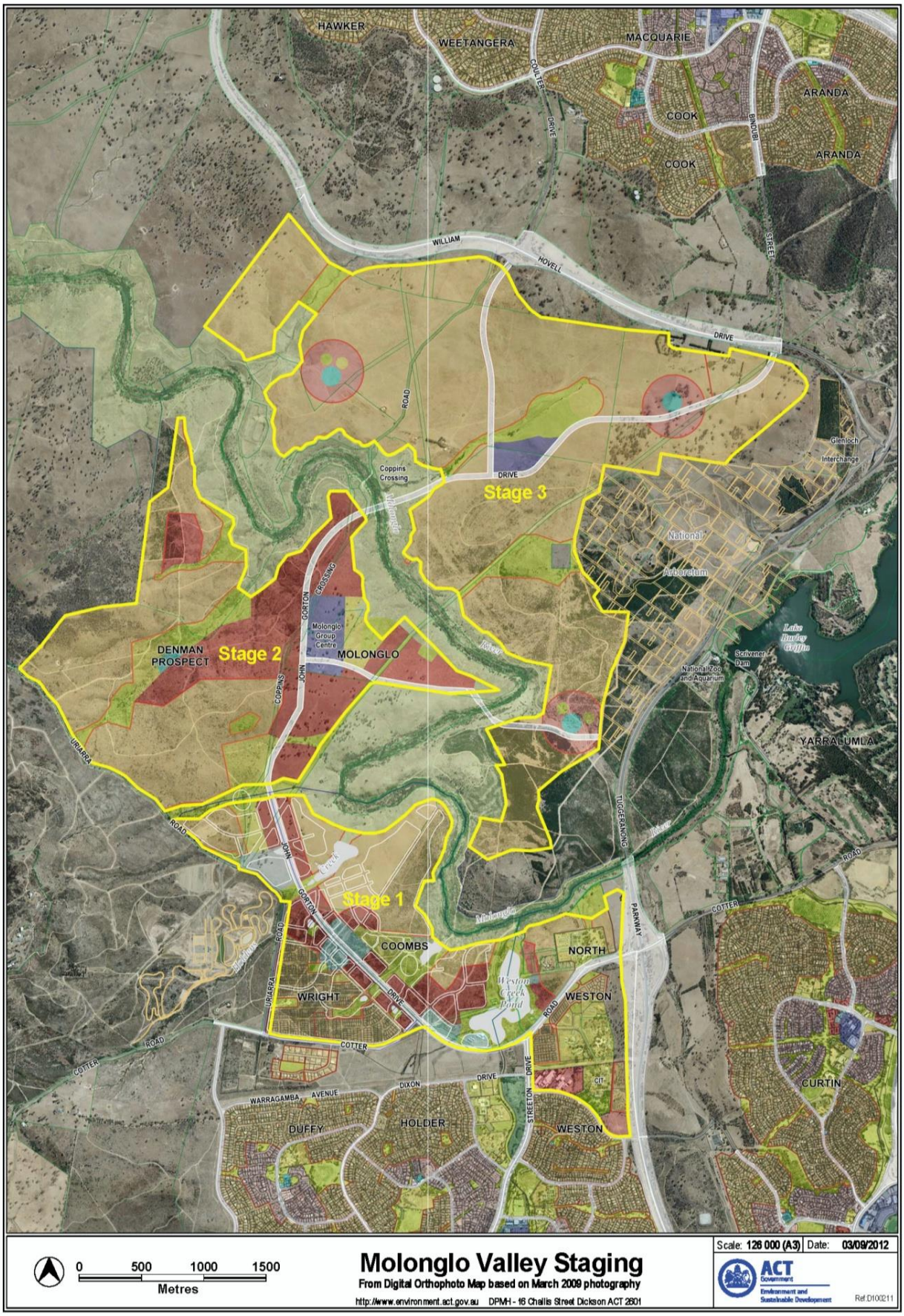

Figure 2.1 Molonglo Valley Staging Plan with Current Territory Plan

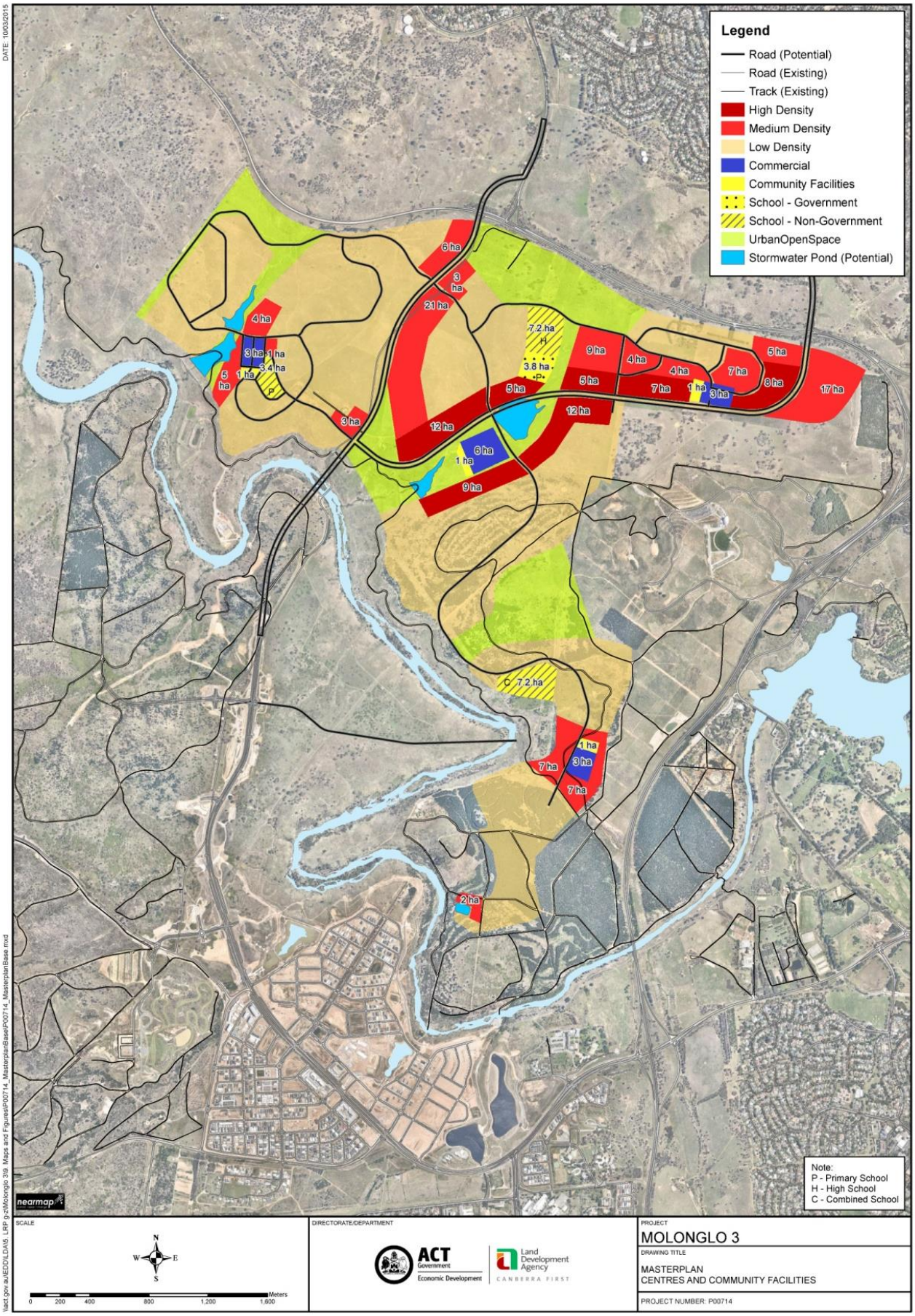

Figure 2.2 Molonglo Stage 3 Project Area *(Territory Plan layout)*

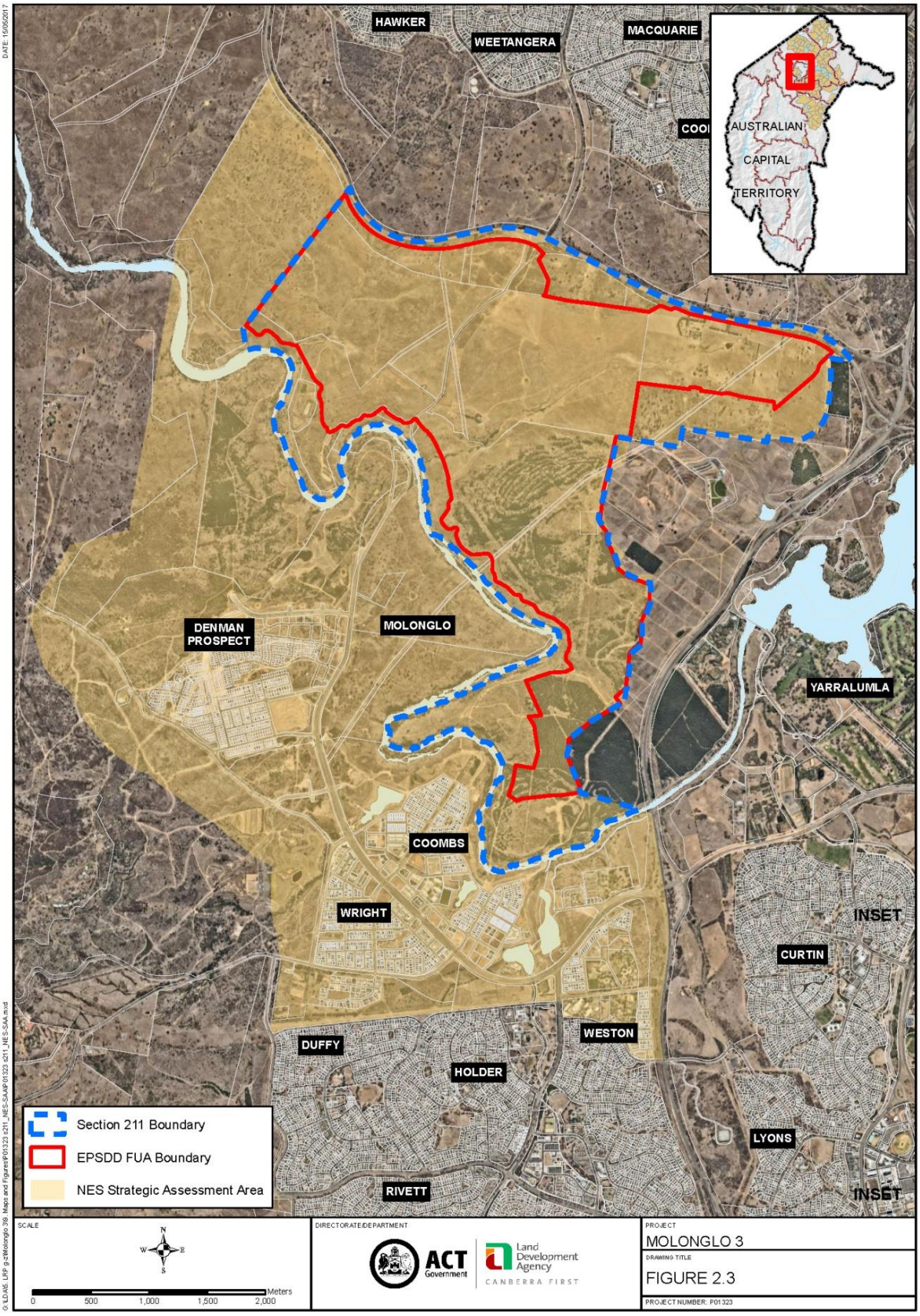

Figure 2.3 Area Subject to S211 Application (indicated by blue broken outline)

2.3 Planning and Development Act Triggers

During preparation of this document, a literature review of all available documentation relating to the area subject to the s211 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 potentially be, triggered by the development of Molonglo Stage 3 are listed in **Table 2.1**. This table does not include items that have been determined to be not applicable.

Note: The development of Molonglo Stage 3 does not allow for the construction of a dam. All urban stormwater will be captured in a series of ponds or the like.

Table 2.1 Relevant Schedule 4 of the PD Act Triggers

Part	Item	Trigger	Applicable?	Primary Information Source
4.2	2	proposal that involves— (a) electricity transmission line construction, including additions or realignment works, outside an existing easement or exceeding 500m in length, that are intended to carry underground or above-ground transmission lines with a voltage of 132kV or more	Yes Refer to **Section 2.3.1**	Molonglo 3 Major Electrical Infrastructure Relocation Concept Design Report (Calibre, 2015) including appendices B and B.K (L3D, 2014a; 2014b) NES Plan (ACTPLA, 2011)
4.3	1	proposal that is likely to have a significant adverse environmental impact on 1 or more of the following, unless the conservator of flora and fauna provides an environmental significance opinion indicating that the proposal is not likely to have a significant adverse environmental impact: (a) a critically endangered species; (b) an endangered species; (c) a vulnerable species; (d) a conservation dependent species; (e) a regionally threatened species; (f) a regionally conservation dependent species; (g) a provisionally listed threatened species; (h) a listed migratory species; (i) a threatened ecological community; (j) a protected native species; (k) a Ramsar wetland; (l) any other protected matter	Yes Refer to **Section 2.3.2**	Molonglo Stage 3 Vegetation Classification and Condition Assessment (Biosis, 2016) NES Plan and associated documents (ACTPLA, 2011; ELA, 2011; ELA, 2010) Molonglo Adaptive Management Strategy (TaMS, 2013) Kama Interface Management Strategy (Capital Ecology, 2016)

Part	Item	Trigger	Applicable?	Primary Information Source
4.3	2	proposal involving— (b) the clearing of more than 5.0ha of native vegetation in a native vegetation area, 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 Refer to **Section 2.3.3**	Molonglo Stage 3 Vegetation Classification and Condition Assessment (Biosis, 2016)
4.3	4	proposal that is likely to have a significant adverse environmental impact on— (c) a prescribed environmental value mentioned in the territory plan (water use catchment general code) of a natural waterway or aquifer	No Refer to **Section 2.3.4**	Molonglo River Park Concept Plan Report (Hassell, 2012)
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 *Heritage Act 2004*, unless— (a) the heritage council produces an environmental significance opinion that the proposal is not likely to have a significant adverse impact; or (b) the proposal is the demolition of a building that is affected residential premises, and the heritage council has approved a statement of heritage effect in relation to the proposal	Potential Refer to **Section 2.3.5**	Molonglo Stage 3 Future Urban Release: Sub Surface testing report and further studies (Biosis, 2013) Molonglo Stage 3 Additional Areas Cultural Heritage Assessment (Biosis 2014)
4.3	7	proposal involving land included on the register of contaminated sites under the *Environment Protection Act 1997*	No Refer to **Section 2.3.6**	Phase 2 Detailed Site Investigation Area A (WSP, 2016a) and Area B (WSP, 2016b), Molonglo Valley Stage 3 Site Audit Reports Area A (2017) and Area B (Zoic Environmental, 2017)

2.3.1 Part 4.2, Item 2 – Electricity Line Construction

Two 132kV steel tower transmission lines currently traverse the Molonglo Stage 3 area. These lines connect:

- the TransGrid Canberra 330/132kV Substation in Holt to the Woden Zone Substation in Lyons; and
- the Civic Zone Substation, at the base of Black Mountain to the Woden Zone Substation.

These lines are considered critical infrastructure that supply power to large areas of Canberra. The current 132kV power transmission lines are suspended on large steel lattice towers (**Figure 2.4**), on the alignment shown in **Figure 2.5**, and are each located on 30 metre wide reservations which converge at the southern end of Molonglo Stage 3 near the southern limit of the National Arboretum.

As a component of the Project, the infrastructure would be realigned with the proposed configuration of the urban area. The old lines will subsequently be decommissioned and demolished. A total of 8.4 kilometres of the existing 132kV transmission line would be removed, including 29 towers, and replaced with a currently undetermined length of 132 kV transmission line.

This application includes the relocation of transmission lines within the urban development boundary of Molonglo Stage 3. It does not include any activities to the north of William Hovell Drive or west of the proposed urban boundary, as the alignment of these sections are not sufficiently progressed at this stage. These excluded areas will be subject to a separate approvals process as required at a later date.

A detailed feasibility study (L3D, 2014a) and concept design report (Calibre, 2015) have been prepared for the realignment. A number of options are being considered in terms of existing and proposed infrastructure, access, land value, environmental and heritage constraints, and health impacts (i.e. potential electromagnetic radiation (EMR)). The preferred alignment will be identified through a triple bottom line assessment; considering social, economic and environmental factors as relevant throughout the design, construction and operation phases. The alignment would minimise the amount of developable land lost to easements, setbacks and maintenance tracks; construction access and operation requirements; minimise visual impacts from proposed community spaces; and not result in significant environmental or heritage impacts. Impacts to native flora and fauna as a result of this project component have been considered in the total development footprint in **Sections 2.3.3** and **2.3.4**.

The current preferred option is to use underground powerlines in order to reduce visual impacts and minimise required easements. In accordance with ActewAGL standards, these would be installed within a maximum 6.2 metre wide trench.

Detailed design of the powerlines, including alignment and construction type will be included in the Molonglo Stage 3 estate development plan (EDP) and assessed as part of the development application process.

Figure 2.4 Existing Steel Towers

2.3.1.1 Conclusion

It is considered that the options study and design reports completed for the proposed alignment (Calibre, 2015; L3D, 2014a) will adequately identify and mitigate the impacts associated with the infrastructure, including potential health risks associated with EMR, through the detailed design process. The final alignment option will be included in the EDP for Molonglo Stage 3 and all impacts assessed as part of the development application process.

As the alignment would be within the area assessed by the NES Plan and subsequent ecological assessments, it is considered to be within the scope of impact assessed for the development of Molonglo Stage 3. Any work on lines located outside the future urban area will be subject to the triggers and requirements for environmental impact assessment under the PD Act and the Territory Plan.

It is considered likely that the risks are well understood, and could be managed appropriately without the need for an EIS.

2.3.1.2 References

The following assessments were reviewed in consideration of the impacts as a result of works associated with 132kV transmission lines:

- Molonglo 3 Major Electrical Infrastructure Relocation Concept Design Report (Calibre, 2015);
- Molonglo 3 Major Electrical Infrastructure Relocation Feasibility Study (L3D, 2014a); and
- 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 (L3D, 2014b).

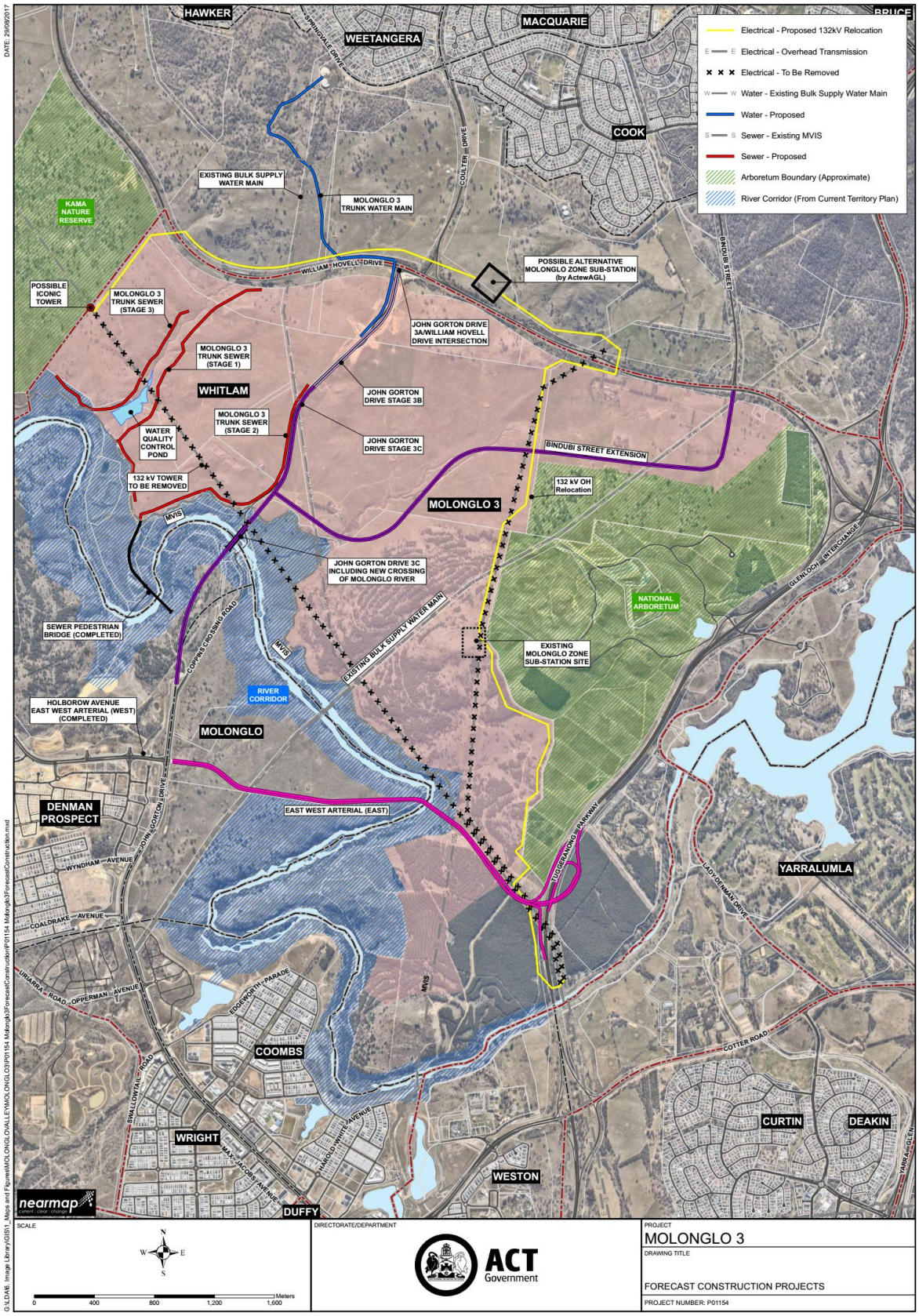

Figure 2.5 Services Construction Plan showing Electricity Line Relocation *(indicative only[3])*

[3] **Note:** The indicative proposed alignment (yellow) within Molonglo Stage 3 (pink) only is subject to this assessment. The length norther of William Hovell Drive is not included.

2.3.2 Part 4.3, Item 1 – Impact to Threatened Species or Community

The development of Molonglo Stage 3 would have impacts on a number of threatened species and communities.

The NES Plan considered impacts to all MNES within the Strategic Assessment Area, and concluded that the unavoidable impacts were effectively mitigated and compensated for through the avoidance, mitigation and offset strategy described in the NES Plan. As illustrated in **Figures 2.6** and **2.11**, the MNES assessed as being significantly impacted under the EPBC Act by the NES Plan in Molonglo Stage 3 were:

- box gum woodland (a critically endangered ecological community);
- natural temperate grassland (a critically endangered ecological community);
- pink-tailed worm lizard habitat (*Aprasia parapulchella*) (a vulnerable species);
- superb parrot (*Polytelis swainsonii*) (a vulnerable species); and
- swift parrot (*Lathamus discolor*) (an endangered species).

Umwelt (2014) undertook a review of potential habitat for all ACT listed species within Molonglo Stage 3. A probability of likelihood was determined for the following species (**Table 2.2**), based on habitat availability within the FUA. Those species considered to have a moderate or high potential to occur by Umwelt (2014) are assessed in detail below.

Table 2.2 Likelihood of Occurrence of Species Not Considered in the NES Plan (Umwelt, 2014)[4]

Species	Status (Legislation)	Habitat	Likelihood of Occurrence
Birds			
Regent Honeyeater (*Anthochaera phrygia*)	Endangered (NC Act, EPBC Act) Migratory (EPBC Act)	Found in the northern ACT woodlands, open forest, and street plantings. Will occupy paddock trees in poor vegetation conditions. Preferably these woodlands have large numbers of matures trees, high canopy cover and an abundance of mistletoes.	Moderate potential to occur in box gum woodland where mistletoes are prevalent.
Plants			
Button Wrinklewort (*Rutidosis leptorrhynchoides*)	Endangered (NC Act, EPBC Act)	Occurs in box gum woodland, secondary grassland derived from box gum woodland or in natural temperate grassland. Occupies areas with little competition form herbaceous species in shallow, stony, red-brown clay loams. May colonise disturbed areas, though susceptible to grazing.	Moderate potential to occur in Kama Nature Reserve, generally at ecotones between natural temperate grassland and woodland. Unlikely to occur within FUA.

[4] All habitat information (unless otherwise specified is from OEH (2015) and EPSDD (2015).

Species	Status (Legislation)	Habitat	Likelihood of Occurrence
Canberra Spider Orchid (*Arachnorchis actensis*)	Endangered (NC Act, EPBC Act)	Occurs in transitional vegetation zones between open grassy woodland dominated by Blakely's red gum, yellow box, and snow gum and dry sclerophyll forest dominated by scribbly gum (*E. rossii*). It grows on shallow, gravelly, brown clay loam soils, often among rocks (DoE, 2014a).	Moderate potential to occur at ecotones between box gum woodland and dry sclerophyll forest in Block 1550, Belconnen. Unlikely to occur within FUA.
Small Purple Pea (*Swainsona recta*)	Endangered (NC Act, EPBC Act)	Occurs in the grassy understory or woodlands and forests dominated by Blakely's red gum, yellow box, candlebark (*Eucalyptus rubida)* and long-leaf box (*E. goniocalyx)*. Understory dominated by kangaroo grass, poa tussocks (*Poa* spp.), and spear-grasses.	Known to occur in Block 1550, Belconnen. Unlikely to occur within FUA.
Austral Toadflax (*Thesium australe*)	Vulnerable (NC Act, EPBC Act)	Occurs in grassland on coastal headlands or grassland and grassy woodland away from the coast. Often found in association with kangaroo grass. A root parasite that takes water and some nutrient from other plants, especially kangaroo grass.	Moderate potential to occur in natural temperate grassland and box gum woodland in Kama Nature Reserve and North of William Hovell Drive. Unlikely to occur within FUA.
Tarengo Leek Orchid (*Prasophyllum petilum*)	Endangered (NC Act, EPBC Act)	Grows in open natural temperate grasslands, grassy woodland with river tussock (*Poa labillardierei)*, black gum (*Eucalyptus aggregata)* and tea-trees (*Leptospermum* spp.), as well as the grassy understory of box gum woodland dominated by kangaroo grass. Generally occurs in high condition sites with a minimal grazing history.	Low potential to occur, given the grazing disturbance history of box gum woodland within the FUA.
Hoary Sunray (*Leucochrysum albicans* var. *tricolor*)	Endangered (EPBC Act)	Occurs in a wide variety of grassland, woodland and forest habitats, generally on relatively heavy soils. Plants can be found in natural or semi-natural vegetation and grazed or ungrazed habitat. Bare ground is required for germination (DoE, 2014b).	Moderate potential to occur in a variety of habitats within the FUA.

Since the completion of the NES Plan, a number of other studies have been conducted within Molonglo Stage 3 in relation to MNES. The conclusions and outcomes of these studies are discussed in the following sections as relevant to MNES that are also listed in the ACT under the *Nature Conservation Act 2014* (NC Act).

2.3.2.1 Box Gum Woodland

In this section, the following two listings of the box gum woodland threatened ecological community are discussed:

- yellow box/red gum grassy woodland (endangered ecological community under the NC Act); and
- white box – yellow box – Blakely's red gum grassy woodland and derived native grassland (critically endangered ecological community under the EPBC Act).

As described above, the NES Plan assessed impacts to Commonwealth box gum woodland as likely to be significant. As such, an offset strategy was developed and approved under the NES Plan. In 2013, the Adaptive Management Strategy (AMS) for the Project was prepared and subsequently supported by the Commonwealth. The AMS identified the baseline condition of box gum woodland throughout the Molonglo Stage 3 Area. Of note, Patch 'H' was identified as no longer being representative of either of the threatened ecological communities listed above.

In 2016, Biosis (2016) undertook a detailed assessment of vegetation and habitat within the Molonglo Stage 3 area. This provides an up to date assessment of the distribution and condition of ecological values likely to be impacted by the Project. Biosis (2016) re-assessed the vegetation present within patch 'H' (**Figure 2.6**) identified as box gum woodland in the NES Plan. Biosis (2016) concluded that the total area of box gum woodland within patch 'H' was 1.8 hectares, of which, 0.3 hectares occurs within the FUA (**Figures 2.7** and **2.8**). This box gum woodland was assessed as moderately modified and is consistent with both the Commonwealth and the ACT definitions of the threatened ecological community.

Whilst 0.3 hectares of this patch occurs within the FUA boundary, the entirety of patch 'H' (as defined in the NES Plan) will be included in Urban Open Space and managed in accordance with the commitments of the NES Plan under Management Plans which are to be developed by EPSDD in 2018.

Similarly, patch 'J' (**Figure 2.6**) identified as box gum woodland in the NES Plan was re-assessed by Umwelt (2013a). Umwelt (2013a) determined that the patch consisted of 2.3 hectares of low quality box gum woodland, compared with the 32.97 hectares originally classified. This patch was not re-surveyed by Biosis (2016).The offset strategy approved under the NES Plan included compensation for the loss of the entirety of patch 'J' (i.e. 32.97 hectares of box gum woodland) as a result of the development of Molonglo Stage 3.

Although the NES Plan (**Figure 2.6)** shows box gum woodland extending to the east of Kama Nature Reserve, this mapping has been superseded by more recent surveys (Capital Ecology, 2016; Umwelt, 2013a). Capital Ecology (2016) confirmed that while some of the vegetation would have originally been derived from box gum woodland, it now comprises exotic pasture with some remnant eucalypts and does not qualify as the listed community (**Figure 2.9**).

No additional box gum woodland (protected by the EPBC Act or NC Act) has been identified within Molonglo Stage 3 (Biosis, 2016; Capital Ecology, 2016; Umwelt, 2013a). Additional woodland classified as 'severely' or 'substantially' modified box gum woodland by Biosis (2016) is too degraded to meet the criteria of either the Commonwealth or ACT listed ecological community.

The commitments of the NES Plan allow for up to 110 hectares of box gum woodland to be impacted by the development. As of June 2016, 10.59 hectares had been impacted as a result of development within the Molonglo Valley (EPSDD, 2017). It is therefore considered that the outcomes of the NES Plan are sufficient for mitigating and compensating for these impacts and no further action under the PD Act is necessary.

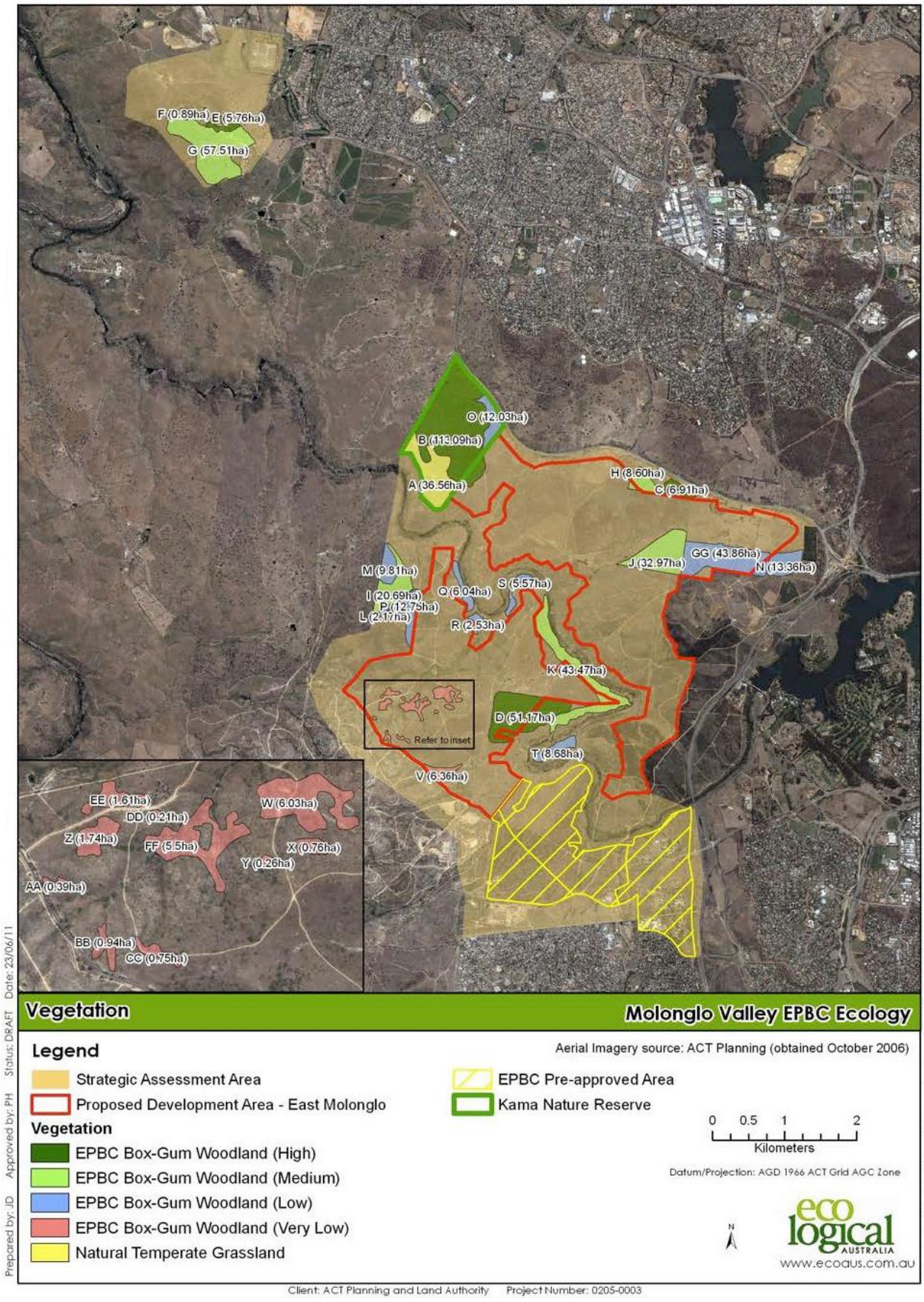

Figure 2.6 NES Plan: Box Gum Woodland and Natural Temperate Grassland (Source: ACTPLA, 2011)

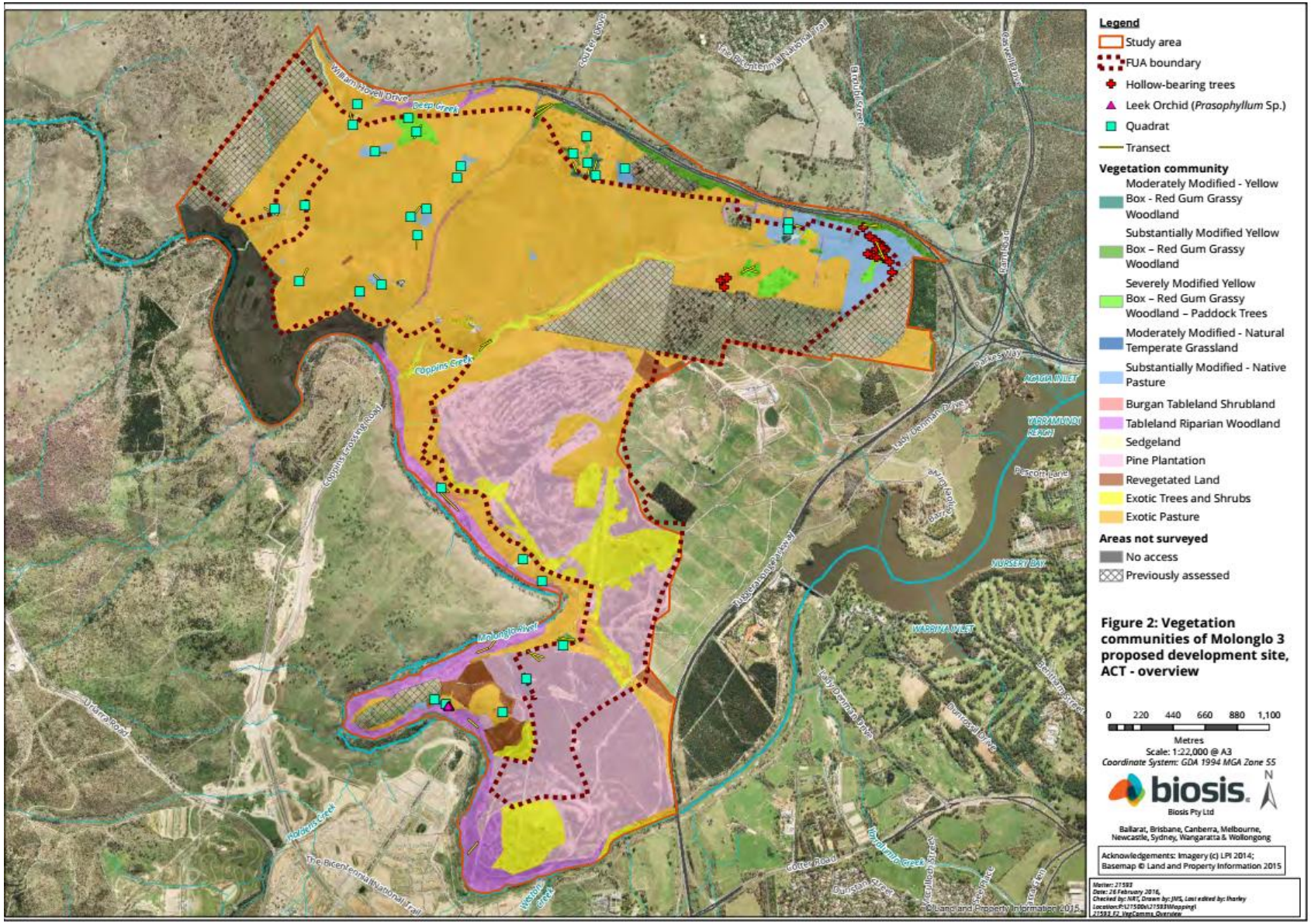

Figure 2.7 Vegetation Associations (Biosis, 2016)

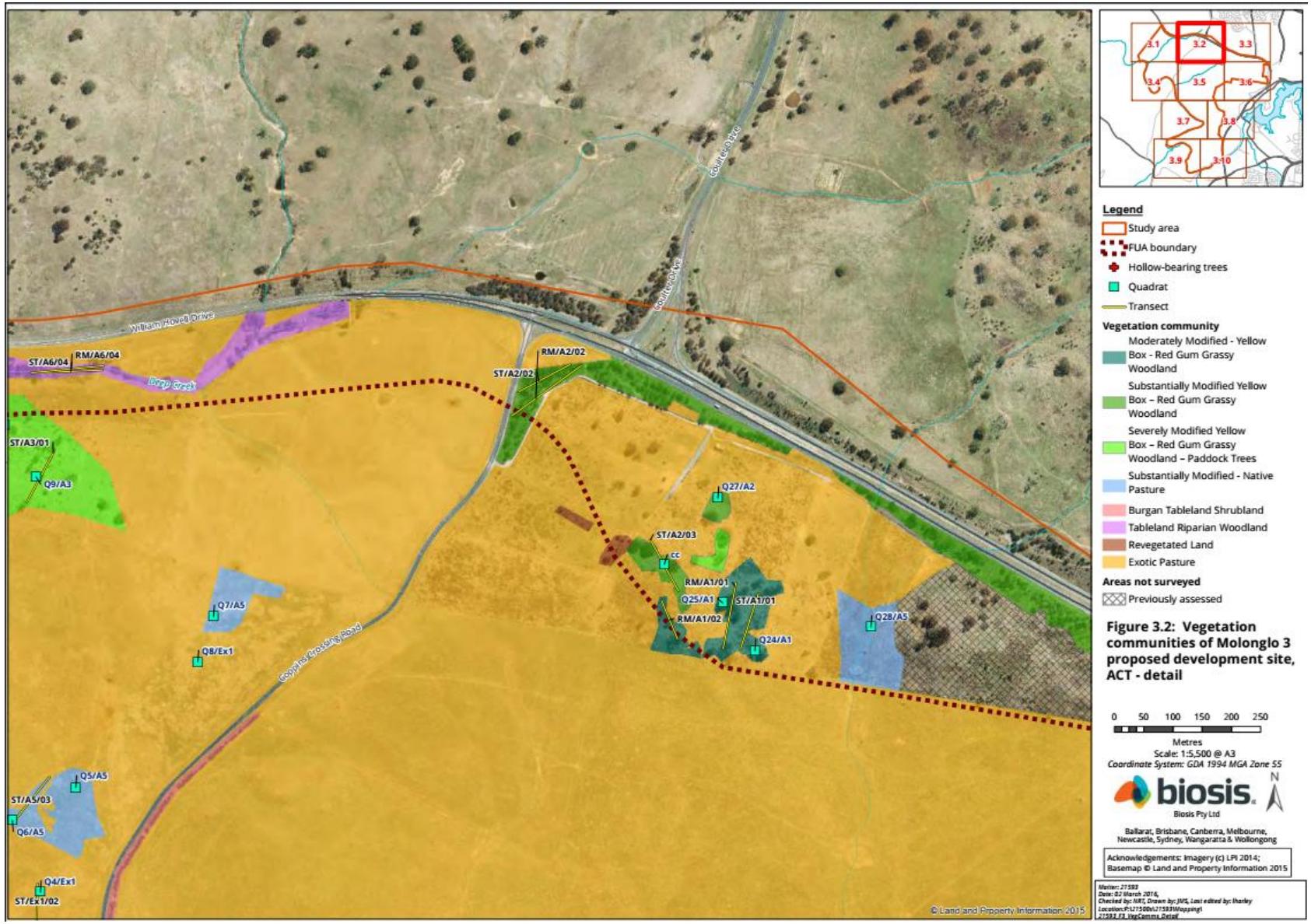

Figure 2.8 Vegetation Associations Inset – Box Gum Woodland (Biosis, 2016)

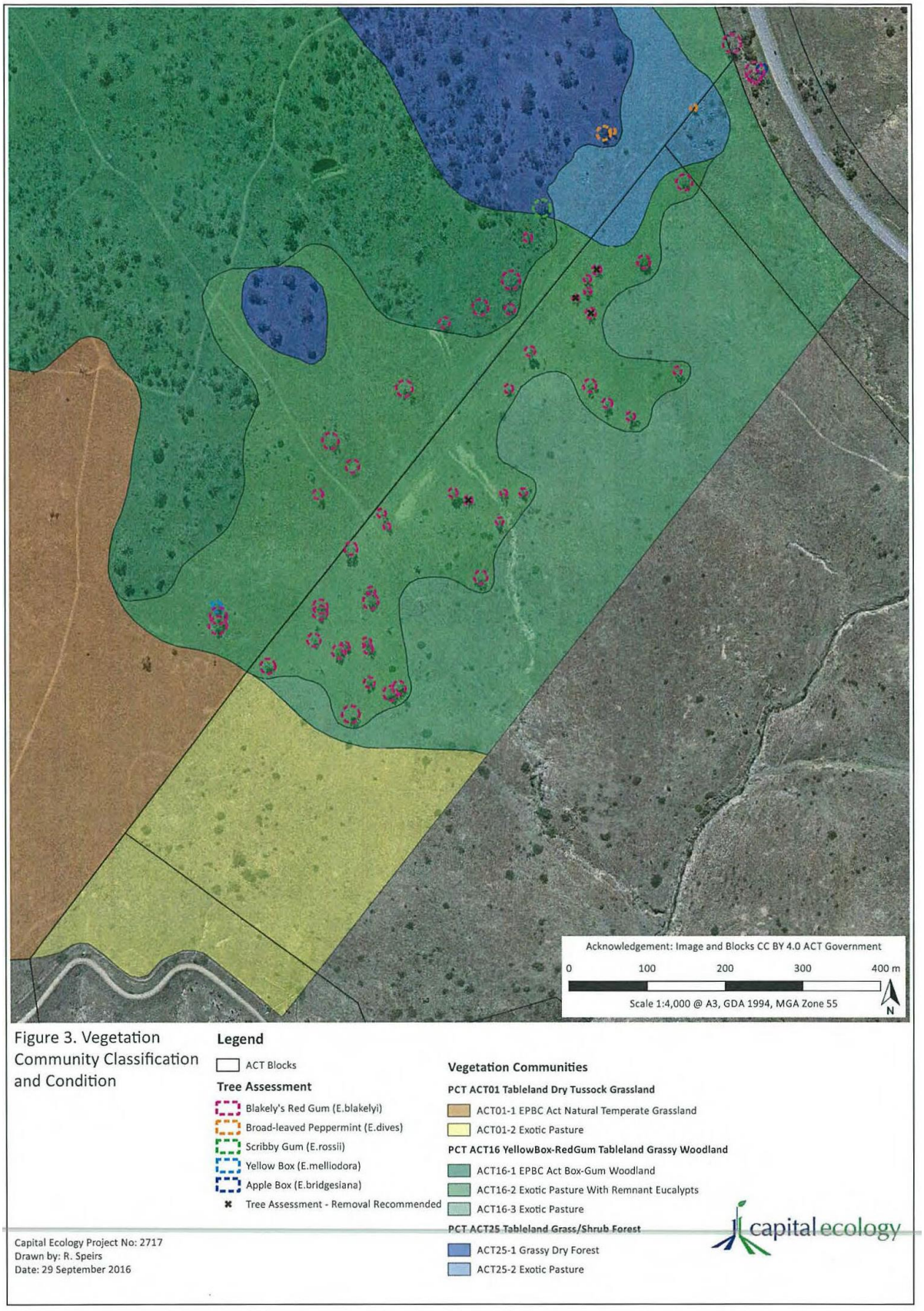

Figure 2.9 Vegetation Community Classification and Condition in the Kama Nature Reserve Buffer (Capital Ecology, 2016)

2.3.2.2 Natural Temperate Grassland

In this section, the following two listings of the natural temperate grassland threatened ecological community are discussed:

- natural temperate grassland (endangered ecological community under the NC Act); and
- natural temperate grassland of the South Eastern Highlands (critically endangered ecological community under the EPBC Act).

As described above, the NES Plan assessed impacts to Commonwealth natural temperate grassland as likely to be significant. As such, an offset strategy was developed and approved under the NES Plan. No natural temperate grassland was identified within the Molonglo Stage 3 FUA in the NES Plan.

Biosis (2016) identified three patches of natural temperate grassland, of which; a small patch (0.05 hectares) that met both the Commonwealth and ACT criteria for the threatened ecological community occurs in the south west of the FUA. Since the Biosis (2016) report, this community has been relisted under the EBPC Act and the updated conservation advice specifies that this patch is too small to qualify as Commonwealth natural temperate grassland ecological community (minimum patch size of 0.1 hectares) (TSSC 2016). Despite this, impact to this patch must be considered in the context of the ACT listed community as there is no minimum patch size for natural temperate grassland under the NC Act. It must be determined whether impact to this patch would constitute a significant adverse environmental impact as defined by the PD Act.

The 0.05 hectare patch of ACT natural temperate grassland that occurs within the FUA boundary is highly isolated and surrounded on all sides by exotic pasture and pine plantation, as shown in **Figure 2.10**. The patch occupies a rocky outcrop, which has provided some protection from livestock; however the absence of grazing sensitive species indicates moderate modification of the community from historical grazing. Biosis (2016) states that due to a moderate to high species diversity and low ingress of weeds, the patch would fall into a 'moderately modified' condition class.

The following assessment is based on the definition of a significant adverse environmental impact from section 124a of the PD Act. In deciding whether an adverse environmental impact is significant, the following matters must be taken into account (**Table 2.3**).

Table 2.3 Assessment of Significance – ACT Listed Natural Temperate Grassland

Consideration	Response
Part 1	
The kind, size, frequency, intensity, scope and length of the impact significant	The impact would be the permanent removal of a 0.05 hectare patch of moderately modified natural temperate grassland.
The sensitivity, resilience and rarity of the environmental function, system value or entity likely to be affected	The patch in question is very small, and isolated in the landscape, over a kilometre from any other natural temperate grassland, and surrounded by exotic pasture. It does not play a role in connectivity, nor is it likely to contribute to seed dispersal for other native grassland. Due to its size, and surrounding threats, it is considered to have low long term resilience. It is not considered to represent a unique example of the community within the local Molonglo area, with higher quality, larger patches protected within reserves established by the NES Plan.

Consideration	Response
	The patch is also not considered to represent a core conservation site for the community under the ACT's Grassland Conservation Strategy. While it may fall into 'Category 3: Landscape and Urban Sites', it is not listed in the associated grassland inventory. It also does not contain any known threatened flora or fauna species which would warrant it a conservation priority.
Part 2	
Is the environmental function, system, value or entity that might be adversely impacted significant?	Yes. Natural temperate grassland is listed as endangered under the NC Act. Without consideration of the quality or context of the patch, an endangered ecological community is considered a significant environmental entity.
Would the cumulative or incremental effect of development contribute to a substantial adverse impact on the environmental function, system, value or entity?	No. The impact of development would remove the patch, but due to its isolation from any other areas of the ecological community, and low likelihood of contributing to the wider community's gene pool or long term survival, its removal would not result in any significant adverse cumulative impacts to the natural temperate grassland ecological community in the local or wider area.

While acknowledging Biosis' (2016) assessment of the patch as being of 'moderately modified' quality with a high regeneration potential; the landscape context, isolation, and low potential for increasing the size of the patch, or eradicating the surrounding threats suggests that the patch does not represent a priority site for conservation, and minimal adverse impact to the community would result from its removal.

Removal of this ACT listed patch of natural temperate grassland in the context of the PD Act is considered unlikely to result in a significant adverse impact.

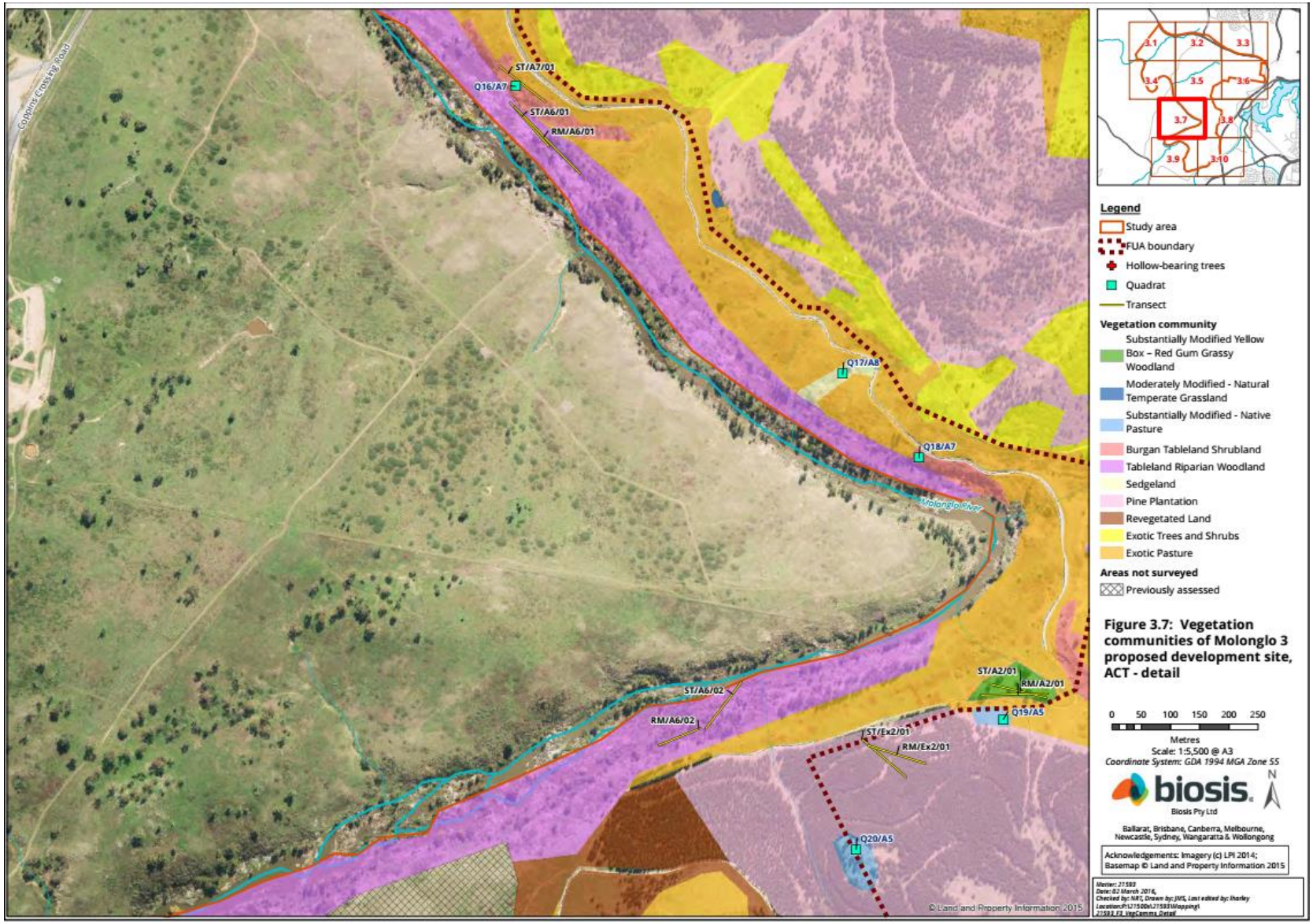

Figure 2.10 Vegetation Associations Inset –Natural Temperate Grassland (Biosis, 2016)

2.3.2.3 Pink-Tailed Worm-Lizard

The assessment of pink-tailed worm-lizard in the NES Plan was based on Wong and Osborne (2010) and Osborne and Wong (2010). These surveys targeted pink-tailed worm-lizard throughout the Strategic Assessment Area, including Molonglo Stage 3, to determine areas of potential pink-tailed worm-lizard habitat. Potential habitat was assessed as high, moderate, low, or unchecked in quality. Areas of low quality potential habitat were considered unlikely to support the species and moderate quality potential habitat was considered unlikely to entirely represent occupied habitat. Areas mapped as unchecked potential habitat are considered unlikely to support the species due to their location amongst grazing land and isolation from the main population within the Molonglo River Corridor (ELA, 2011).

The NES Plan therefore assessed impacts to high and moderate quality potential habitat areas.

Biosis (2016) provides a more recent assessment of pink-tailed worm-lizard habitat present within Molonglo Stage 3; however, the mapping is based on vegetation quality and the presence of broad habitat features, rather than targeted surveys. As such, the previous mapping by Osborne and Wong (2010) as presented in the NES Plan Supplementary Report (ELA, 2011), is still considered to represent the most comprehensive and recent species data to support this s211 application (**Figure 2.11**).

Table 2.4 summarises the quality of habitat that will be impacted by the plan.

Table 2.4 Pink-Tailed Worm-Lizard Habitat within the FUA (ACTPLA, 2011)

Quality	Area of Impact (ha)
Moderate – High	8.5
Low – Potential	9.1

The commitments of the NES Plan allow for up to 27 hectares of pink-tailed worm-lizard habitat to be impacted by development. This is monitored in the annual reporting process that is a condition of EPBC approval of the development. The latest report states that 0.47 hectares has been impacted to date (EPSDD, 2017). It is considered that the measures required for annual reporting and budgeting under the NES Plan are sufficient for compensating for any potential impacts to pink-tailed worm-lizard, and it is not considered further in this report.

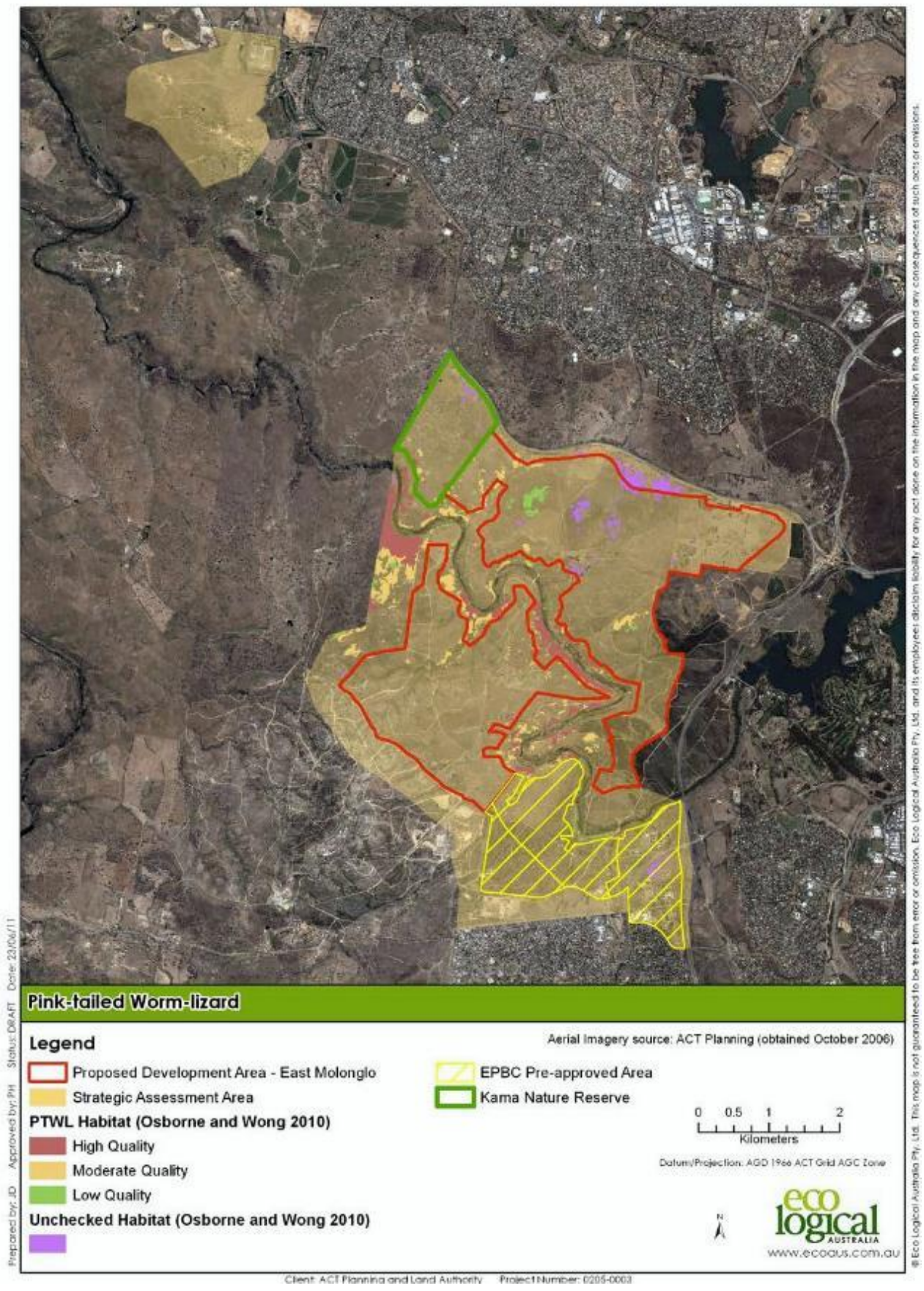

Figure 2.11 NES Plan: Pink-Tailed Worm-Lizard (Source: ACTPLA, 2011)

2.3.2.4 Superb Parrot and Swift Parrot

The NES Plan identified that remnant patches of box gum woodland may provide habitat for superb and swift parrots, therefore impact to these patches of box gum woodland would likely also result in impacts to these species. The NES Plan assessed this impact as likely to be significant, although concluded that the proposed offset strategy for box gum woodland would also sufficiently compensate for impacts to these threatened bird species.

Targeted superb parrot surveys in Central Molonglo (Umwelt, 2015) confirmed the presence of superb parrots to the west of Molonglo Stage 3 (ELA, 2014; Davey, 2012). It was concluded that while individuals may utilise box gum woodland within the Molonglo Stage 3 offset areas to forage, it is unlikely that any breeding occurs within these areas. Swift parrots do not breed in the ACT, however may utilise box gum woodland within the Molonglo Stage 3 offset areas for foraging.

The box gum woodland outside the offset areas, which will be impacted, is considered to be of lower quality and represent marginal habitat for these species. The box gum woodland present within Molonglo Stage 3 is not considered to represent important habitat to either of these species and any use is likely to be transitory and opportunistic. The proposed removal of box gum woodland within Molonglo Stage 3 is considered unlikely to result in a significant impact to either species.

2.3.2.5 Regent Honeyeater

Regent honeyeater relies on the presence of large numbers of mature trees with mistletoes or flowering eucalypts for foraging. The NES Plan determined that the development Plan was unlikely to result in a significant impact to regent honeyeater due to the limited potential for the species to occur within the Molonglo Valley.

Umwelt (2014) undertook a review of potential habitat for all ACT listed species within Molonglo Stage 3, particularly focussing on those not considered in the NES Plan. This study concluded that regent honeyeater had a moderate potential to occur in box gum woodland where mistletoes are prevalent as the species has been found to occupy a range of vegetation types and conditions so long as the required habitat features are present.

The majority of woodland with these characteristics has already been incorporated into the offsets established by the NES Plan. It is considered that the box gum woodland that would be impacted by the development of Molonglo Stage 3 is marginal in quality and would provide only potential opportunistic foraging habitat for the species.

Loss of habitat associated with the development of Molonglo Stage 3 would be unlikely to result in a significant impact to regent honeyeater.

2.3.2.6 Threatened Flora

There are five threatened flora with the potential to occur in close proximity to the project area (including north of William Hovell Drive or within Kama Nature Reserve) based on studies undertaken by Biosis (2016) and Umwelt (2014). Of these, only one (hoary sunray) is considered likely to occur within the FUA; all others (button wrinklewort, small purple pea, and austral toadflax) are considered unlikely to occur due to the landscape location of the FUA, grazing history, and small size of the remnant patch of ACT natural temperate grassland (Umwelt, 2014).

Hoary sunray occurs in a wide variety of grassland, woodland and forest habitats, generally on relatively heavy soils. Plants can be found in natural or semi-natural vegetation and grazed or ungrazed habitat (DoE, 2014b). Suitable habitat may occur in all areas containing native vegetation across the project area, particularly box gum woodland and natural temperate grassland.

In 2008, EcoLogical Australia (ELA) undertook targeted survey for button wrinklewort, hoary sunray, small purple-pea and Austral toadflax within the Molonglo NES Plan Area with no records being found (ELA 2009). Biosis (2016) also surveyed for threatened flora. They did not identify any of the species listed above, and concluded that no further targeted surveys for flora were required.

Loss of potential habitat associated with the development of Molonglo Stage 3 would be unlikely to result in a significant impact to these species.

2.3.2.7 ACT Listed Species

In addition to MNES assessed under the NES Plan, there are a number of matters of conservation significance that are protected under the NC Act, which must also be considered.

Umwelt (2014) undertook a review of potential habitat within Molonglo Stage 3 for all species listed in the ACT under the NC Act. A probability of likelihood was determined for the following species (**Table 2.5**) based on habitat availability within the FUA. Those species considered to have a moderate or high potential to occur by Umwelt (2014) are assessed in detail below.

Table 2.5 Likelihood of Occurrence of ACT Threatened Species (Umwelt, 2014)[5]

Species	Status (Legislation)	Habitat	Likelihood of Occurrence
Birds			
Little Eagle (*Hieraaetus morphnoides*)	Vulnerable (NC Act)	Open eucalypt forest, woodland or open woodland, and riparian areas throughout the entire ACT. Require tall, living trees for nesting. This may include paddock trees in poor vegetation conditions.	Known to occur in the Molonglo valley. Unlikely to nest within Molonglo Stage 3.
Brown Treecreeper (*Climacteris picumnus victoriae*)	Vulnerable (NC Act)	Dry woodlands and open forest below 1000m. Mainly woodlands dominated by stringybarks or other rough- barked Eucalyptus with an open grassy understory with few shrubs. Require hollow bearing trees, coarse woody debris, stumps or dead trees. Required land size is <5 hectares, though range may be as small as 1.1 hectares. No occupancy of poor quality vegetation.	Known to occur in Kama Nature Reserve, may occur in high quality red stringybark open forest north of William Hovell Drive. Opportunistically observed in 2013 in the Arboretum Woodland area (ELA, 2014). Unlikely to occur within FUA.

[5] All habitat information (unless otherwise specified is from OEH (2015) and EPSDD (2015).

Species	Status (Legislation)	Habitat	Likelihood of Occurrence
Hooded Robin (*Melanodryas cucullata cucullata*)	Vulnerable (NC Act)	Prefers lightly wooded country, usually open eucalypt woodland, Acacia scrub, and mallee. Often in or near open areas. Requires structurally diverse habitats with at least patches of dense midstorey. Does not occupy poor quality vegetation. Territories range from 10-30 hectares.	Moderate potential to occur in box gum woodland.
Painted Honeyeater (*Grantiella picta*)	Vulnerable (NC Act)	Migrant species found in boree, brigalow, and box gum woodlands, and box- ironbark forests to feed on mistletoes growing in these environments. It will occupy low vegetation condition areas with paddock trees.	Moderate potential to occur in box gum woodland where mistletoes are prevalent. Known to occur within the Molonglo River riparian corridor (Greening Australia, 2014).
Varied Sittella (*Daphoenositta chrysoptera*)	Vulnerable (NC Act)	Woodland and dry forests containing rough-barked species, mature smooth-barked gums with dead branches, mallee and Acacia woodland. A preference for red stringybark in the ACT region.	Known to occur in Kama Nature Reserve, may occur in high quality red stringybark open forest north of William Hovell Drive. Unlikely to occur within FUA.
White-winged Triller (*Lalage sueurii*)	Vulnerable (NC Act)	In the ACT it is found in or near open grassy woodland areas including yellow box (*Eucalyptus melliodora*), Blakely's red gum (*E. blakelyi*), apple box (*E. bridgesiana*), candlebark (*E. rubida)*, or less commonly snow gum (*E. pauciflora* subsp. *pauciflora*) woodlands. Lightly timbered, with an open mid-storey layer and grassy understory (Australian Museum, 2011).	Known to occur in Kama Nature Reserve, may occur in high quality red stringybark open forest north of William Hovell Drive. Unlikely to occur within FUA.
Invertebrates			
Perunga Grasshopper (*Perunga ochracea*)	Vulnerable (NC Act)	Found in grassland and open woodland which incorporates natural temperate grassland or secondary natural temperate grassland derived from box gum woodland. Dominate grass species include wallaby grasses, kangaroo grass, and spear grasses with forbs located in the inter-tussock spaces. May also be found in native pasture in areas of poor vegetation (AHE, 2006).	Known to occur in Molonglo River corridor; moderate in natural temperate grassland in Kama Nature Reserve. Unlikely to occur within FUA.

In addition, Biosis (2016) considered potential habitat for glossy black cockatoo (*Calyptorhynchus lathami*), which is listed as vulnerable under the NC Act. In the ACT, this species requires the presence of particular feed species, namely she-oaks (*Allocasuarina* spp.). A total of 56.03 hectares of potential foraging habitat for glossy black cockatoo was recorded in close proximity to the Molonglo Stage 3 Area ('Tableland Riparian Woodland' **Figure 2.7**); however none of this occurs within the FUA. Due to the highly specialised nature of the species, it is not considered likely to occur outside of these potential habitat areas and is not assessed further in this report.

Little Eagle

In 2005, a report into the potential impacts of proposed urban development on raptors in the Molonglo Valley was prepared in order to determine levels of sensitivity of raptor species in the ACT (Debus, 2005). This report identified that little eagles are known to breed in the Molonglo Valley. Following this, E.A. Systems (2006) completed a study into the location and characteristics of raptor nesting sites in the Molonglo Valley. This included two areas identified as potential raptor nesting sites north and west of Kama Nature Reserve, and adjacent to the river corridor.

The E.A. Systems (2006) study identified that there were potentially one or two breeding territories in the Molonglo Valley, representing at least two thirds, if not all, of the known ACT breeding pairs. E.A. Systems (2006) inspected the largest box gum woodland remnant in Molonglo Stage 3 as well as Kama Nature Reserve, finding no evidence of little eagle nesting sites. There have been no subsequent records of this species within the project area.

There are no currently known little eagle nesting sites within Molonglo Stage 3 and it is considered that should this species be present within the Molonglo Valley, it is likely to occur further to the west.

Little eagle are also generally excluded by competition from other raptors, in particular wedge-tailed eagles. Wedge-tailed eagles (along with numerous other raptor species) have been recorded throughout the Molonglo Valley area over a number of years. This includes the hills and woodland north-west of Molonglo Stage 3 Area (Davey, 2012); the Molonglo River Corridor (Taws, 2014), an opportunistic sighting at Spring Vale Farm (ELA, 2014) south west of the Project Area, and anecdotal evidence of a pair of wedge-tailed eagles occupying the hills and adjacent areas around Mount Painter and the Pinnacle (pers. obs. Peter Cowper, Umwelt). In addition, there is also evidence of wedge-tailed eagles nesting in Barrer Hill, in the north-eastern portion of Molonglo Stage 3 (Taws, 2017). This would also suggest the general absence of little eagles and probability that any occurrence by that species in the Molonglo Stage 3 area would be opportunistic. Any loss of this habitat within Molonglo Stage 3 would be unlikely to result in a significant impact to this species.

Woodland Birds

Five woodland bird species listed under the NC Act are likely to occur in close proximity to the project area (north of William Hovell Drive or within Kama Nature Reserve), however only two species have the potential to occur within the project area: hooded robin and painted honeyeater.

Both of these species are listed as vulnerable under the NC Act and not listed under the EPBC Act.

Certain habitat features are preferentially used by individual species:

- Hooded robin: woody debris, stumps, and patches of dense shrub cover.
- Painted honeyeater: mistletoes.

These habitat features are present in all woodland and open forest patches within the project area. The majority of woodland providing these habitat features is included within offsets established by the NES Plan, as such removal of habitat for these species would be minor. Loss of habitat associated with the development of Molonglo Stage 3 would be unlikely to result in a significant impact to these species.

2.3.2.8 Interface with Conservation Areas

The Kama Nature Reserve was established as an offset under the NES Plan. A commitment of the NES Plan was to ensure that an adequate buffer was established between the conservation area and the urban edge to prevent any long-term degradation of this area and associated MNES.

A 'Kama Interface Management Strategy' has been prepared by Capital Ecology (2016) to provide recommendations to the ACT Government on how this commitment can be achieved. The strategy includes the identification of key risks to the ecological values of the Nature Reserve and determination of interface characteristics and management actions required to mitigate these risks. The Strategy also made a number of design, mitigation, and management recommendations to minimise the impact of the urban interface on the reserve.

It is considered that suitable actions in regards to management and maintenance of the buffer would effectively reduce the risk of degradation of Kama Nature Reserve from the adjacent urban development, and as such, achieve the NES Plan's commitments. Design commitments will be incorporated into the EDP where appropriate.

In terms of the width of the buffer, Capital Ecology (2016) recommended a variable width buffer from about 200 metres in the northern section, tapering to 70 metres in the southern portion. The 200 metre width was determined primarily to provide setback to core woodland bird habitat identified within the north of Kama Nature Reserve. This recommendation has been considered and the treatment and boundary of the buffer within the future urban area will be consistent with the recommendations outlined in the Strategy, with final details defined at the EDP design stage.

2.3.2.9 Conclusion

In terms of the accuracy and certainty of information for Molonglo Stage 3, this section has identified a few inconsistencies with the NES Plan. The NES Plan has been tested a number of times, and has been found to have some issues, which are generally expected based on the broad scale of the original assessment. The scale of the NES Plan did not define vegetation boundaries at the accuracy necessary for detailed design, and as such some refinement has been required.

More recent studies have therefore been conducted at a finer scale and have greatly improved the understanding and knowledge of biodiversity within Molonglo Stage 3, to a level of detail appropriate for consideration under the Impact Track. The current state of knowledge is considered appropriate. These more recent studies utilised for this report are included the references list below, and provided as supporting documentation to this application.

The development of Molonglo Stage 3 would result in direct impact to up to 17.6 hectares of known and potential pink-tailed worm-lizard habitat, and 2.6 hectares of box gum woodland as originally proposed by the NES Plan. It may impact on small areas utilised for foraging by woodland birds (correlating with the impacted box gum woodland), however is unlikely to result in any significant impacts to these species. No threatened flora species are expected to be impacted by the project. It is also considered unlikely that the project area contains habitat critical to any ACT listed species.

These impact areas have been calculated based on the entire Molonglo Stage 3 FUA footprint (excluding offset areas identified by the NES Plan). This has assumed 100 per cent clearance of vegetation within the footprint (although some impacts may be further avoided through detailed design), and would allow for all development and associated infrastructure required within the FUA footprint. Impacts to these MNES are consistent with those identified and approved through the NES Plan.

The development of Molonglo Stage 3 would include actions to manage the urban interface with the Molonglo River Corridor, and Kama Nature Reserve, reinforcing the commitments made in the NES Plan.

In conclusion, it is considered that the impacts to protected matters listed under the EPBC and NC Acts are well understood for the project area. While some species may be present or utilise the site for foraging, the management and offset measures established under the NES Plan (see **Section 5**), particularly the retention and management of key areas of box gum woodland, would effectively mitigate impacts to these species.

2.3.2.10 References

The following assessments were reviewed in consideration of the impacts to threatened species and communities, studies marked with an asterisk (*) are included as supporting documentation to this application. References not asterisked have either been superseded, or have been reviewed for regional or local context, but do not provide any information material to the assessment:

- The NES Plan (ACTPLA, 2011);
- Molonglo Stage 3 Vegetation Classification and Condition Assessment (Biosis, 2016)*;
- Mapping of Vegetation Communities East and West of Coppins Crossing within River Corridor (Butler and Associates, 2012);
- Kama Interface Management Strategy (Capital Ecology, 2016)*;
- Molonglo NES Plan Superb Parrot Survey – Baseline Surveys 2013 (ELA, 2014)*;
- Molonglo Valley Ecological Study: EPBC Listed Flora, Ecological Communities and Golden Sun Moth Mapping in the Molonglo Valley (ELA, 2009);
- Molonglo Adaptive Management Strategy (TaMS, 2013);
- Molonglo Valley Vegetation Survey: Baseline Condition Assessment (ELA, 2013);
- Vegetation Mapping for Kama Nature Reserve, Molonglo (Umwelt, 2013a)*;
- Review of ACT Environmental Offsets Calculator Stage 2 (Umwelt, 2013b);
- Ecological Values of Block 1550, Belconnen (Umwelt, 2013c);
- Molonglo Stage 3: Major Electrical Infrastructure Relocation, Environmental and Heritage Constraints (Umwelt, 2014)*; and
- Monitoring of the 2014 Superb Parrot Breeding Event, Australian Capital Territory (Umwelt, 2015).

2.3.3 Part 4.3, Item 2 – Clearing of Native Vegetation

Development of Molonglo Stage 3 will result in the clearing of more than five (5) hectares of native vegetation as defined by the NC Act.

Biosis (2016) mapped the extent of native vegetation within the Molonglo Stage 3 project area (**Figure 2.12**). Molonglo Stage 3 has historically been managed as grazing land, which is apparent as the majority of the area is comprised of exotic pasture. A large proportion of the area to the south is pine plantation, also exotic. The majority of native vegetation would be protected within the offsets established under the NES Plan (**Figure 5.1**).

A total of 43 hectares of native vegetation would be impacted by the development of Molonglo Stage 3. The vegetation communities effected and the extent of the impact is outlined in **Table 2.6** below. Vegetation descriptions are from Biosis (2016).

Table 2.6 Native Vegetation within the FUA (Biosis, 2016)

Vegetation Type	Vegetation Description	Impact (ha)
Box Gum Woodland - Moderately Modified (Critically Endangered Ecological Community (CEEC))	The structural formation of the community consists of two well defined strata, a canopy layer of woodland trees up to 15 metres tall and an understorey layer comprising of herbs and grasses. A third under-developed strata was present within this community, consisting entirely of exotic shrubs. The canopy layer is dominated by yellow box (*Eucalyptus melliodora*) and Blakely's red gum (*Eucalyptus blakelyi*) interspersed with occasional apple box (*Eucalyptus bridgesiana*), all of which were mature. No juvenile eucalyptus species were evident within this community, demonstrating a lack of active recruitment. The community occurs in one medium sized patch atop a low hill located to the north of the eastern half of the project area. The patch is surrounded by a matrix of exotic pasture. Grazing impacts were evident throughout the margins of the community, generally being confined to the slopes and areas lacking rocky outcrops. The community contains potential habitat for threatened flora species, although none were detected during searches. It contains roosting, nesting and foraging habitat features, in addition to rocky outcrops that may be used by reptiles.	0.28
Box Gum Woodland - Substantially Modified (not CEEC)	The structural formation of the community consists of two well defined strata, a canopy layer of woodland trees up to 15 metres tall and an understorey layer comprising of herbs and grasses. The canopy layer is dominated by Blakely's red gum and brittle gum (*Eucalyptus mannifera*) interspersed with occasional yellow box, of which all were mature. No juvenile eucalypts were evident within this community, demonstrating a lack of active recruitment. Patches of the community were located throughout the northern and western half of the project area, in addition to the William	0.57

Vegetation Type	Vegetation Description	Impact (ha)
	Hovell Drive road reserve. Grazing impacts were evident throughout the margins of the vegetation patches surrounded by exotic pasture, whereas the vegetation existing in the roadside interface was highly edge affected. The community was considered too degraded to provide habitat for any threatened flora species. One hollow bearing tree, and some rocky outcrops were identified.	
Box Gum Woodland - Severely Modified (not CEEC)	The structural formation of the community consists of two well defined strata, a canopy layer of woodland trees up to 15 metres tall and an understorey layer comprising predominantly of grasses. The canopy layer is dominated by Blakely's red gum intermixed with the subdominant yellow box, all of which were mature. No juvenile eucalypts were evident within this community, demonstrating a lack of active recruitment. The understorey consists of a depauperate representation of native grasses which are severely impacted by competitive interactions with exotic species. Patches of the community were located within the central and eastern half of the project area. These patches are surrounded by a matrix of exotic pasture and evidence of grazing was evident throughout the entirety of this community.	11.96
Natural Temperate Grassland (Dry Themeda Grassland) - Moderately Modified (not CEEC)	The structural formation of the community consists of one well defined strata, a groundcover layer of native perennial grasses (approximately 40% cover) and herbs (approximately 60% cover) up to 0.5 metres tall. The groundcover layer supports native grasses such as Kangaroo grass along with co-dominants wild sorghum and red grass *Bothriochloa macra*. The patches of natural temperate grassland are in the moderately modified condition class as the community has been modified by sporadic grazing by livestock in the past, evident through the absence of more grazing sensitive species such as bulbine lily *Bulbine bulbosa* and common billy-buttons *Craspedia variabilis*. The community possesses a moderate to high species diversity and high cover of native species which includes some grazing sensitive species. The moderately modified – natural temperate grassland community contains low ingress of weed species along patch margins resulting from surrounding pastoral land use.	0.05
Native Pasture	This community comprises of multiple small, medium and large patches within a matrix of exotic pasture. All patches of the community are subject to an intense grazing regime primarily by cattle and sheep as well as native fauna such as the eastern grey kangaroo. The structural formation of the community essentially consists of	22.42

Vegetation Type	Vegetation Description	Impact (ha)
	two separate strata, an upper groundcover layer of native perennial grasses up to 1 metre tall and a lower groundcover layer of native perennial grasses (85%) and herbs (15%) up to 0.5 metres tall. The community possesses low species diversity although there is a high cover of native species. These patches display low regenerative potential and are unlikely to regain their former diversity in response to ecological restoration. The community contains some rocky outcrops, which may provide habitat for reptile species.	
Burgan Tableland Shrubland	This community was also found atop a hill located in the southern end of the eastern half of the project area, as secondary regrowth after prior vegetation clearance. The patches of Burgan Tableland Shrubland growing within the vicinity of the Molonglo River have been fenced off and are protected from livestock grazing. The structural formation of the community consists of two well defined strata, a midstorey layer of shrubs overtopping an understorey layer of native perennial grasses and herbs up to 0.7 metres tall. Burgan Tableland Shrubland within the project area is not considered to provide habitat for threatened flora species known or likely to occur within the locality and no threatened species were detected during the site assessment. It contains a variety of ecological features which may form habitat for generalist species.	1.4
Sedgeland	Sedgeland occurs as a linear strip lining the tributary of the Molonglo River traversing the project area adjacent to its western and northern perimeter. It was also found fringing a dam located in the western half of the project area. The structural formation of the community essentially consists of two separate strata, an upper groundcover layer of tall sedges and a lower groundcover layer of small sedges. The upper groundcover layer is dominated by common fringe-sedge (*Fimbristylis dichotoma*) and cumbungi (*Typha* spp.). The community is not considered to provide habitat for threatened flora species known or likely to occur within the locality and no threatened species were detected during the site assessment. It contains a variety of ecological features which may form habitat for generalist species.	0.95
Revegetated Land	There is approximately 17.15 hectares of land within the wider area which is currently undergoing a revegetation and ecological restoration program administered by Greening Australia. Of this, only 3.07 hectares of revegetated land occurs within the FUA	3.07

Vegetation Type	Vegetation Description	Impact (ha)
	boundary, in the south-west, adjacent to the Pine Plantation. Species used for revegetation in this area include broad – leaved peppermint (*Eucalyptus dives*), yellow box, Blakely's red gum, snow gum, red – stemmed wattle (*Acacia rubida*), silver wattle (*Acacia dealbata*), kangaroo grass, etc. These areas are not considered to provide habitat for threatened flora species and no threatened species were detected during the site assessment. The Revegetated Land contains very few ecological features which may form habitat for generalist species within the locality, mainly limited foraging habitat for eastern grey kangaroos and other opportunistic species.	

In addition to these areas, **Figure 2.12** shows a number of 'previously assessed' areas. The hatched zone east of Kama Nature Reserve was previously mapped by ELA (2013), while the area to the west of Offset GG (refer **Figure 5.1** for offset location) was mapped by Umwelt (2013b).

ELA (2013) determined that the area east of Kama Nature Reserve was comprised exotic pasture, dominated by *Phalaris*, which is consistent with the adjacent vegetation mapped by Biosis (2016).

Umwelt (2013a) found the area to the west of Offset GG comprised approximately 31 hectares of exotic pasture, also dominated by *Phalaris*, and 2.3 hectares of low quality box gum woodland. This area would be consistent with the 'Box Gum Woodland - Moderately Modified CEEC' community in **Table 2.5**, and has been included in the overall determination of native vegetation to be impacted. This area has also been included in the impact assessment of MNES in **Section 2.3.2**.

No other areas mapped as 'previously assessed' by Biosis (2016) are within the S211 development boundary.

This clearing of native vegetation may impact upon ecological values, diversity and species habitat and foraging opportunities. It may also reduce habitat connectivity and result in impacts to abiotic conditions such as soil and water.

The impacts associated with this action may include:

- removal of over- and mid-storey vegetation;
- removal of hollow-bearing trees;
- removal of surface vegetation;
- soil disturbance and surface rock collection;
- introduction of weeds due to construction activities and subsequent occupation of urban areas; and
- modification of retained vegetation for the ongoing management of open space and bushfire asset protection zones.

Biosis (2016) identified the presence of hollow-bearing trees in their study. Hollows are known to provide important habitat features for birds, reptiles and arboreal mammals. Their removal has been considered as part of the total loss of habitat in this report.

The conservation actions, mitigation measures (including CEMPs), and offsets committed to by the NES Plan will minimise indirect impacts to adjacent native vegetation and systems, and will also protect the highest quality vegetation in the area.

The following actions will benefit native vegetation, species and ecosystems in the Molonglo District:

- weed control;
- erosion and sedimentation protection for the river corridor;
- habitat improvement and rehabilitation in proposed offset areas;
- relocation of habitat features, including rocks and logs; and
- restoration and management in river corridor.

2.3.3.1 Conclusion

Impacts to threatened ecological communities have been considered, mitigated and offset in the NES Plan. Impacts to the general environment and non-threatened flora would be managed through a CEMP to address avoidable impacts to retained and adjacent areas, minimise the spread of weeds, and prevent harm to fauna during construction. Management of environmental values during the post construction phase would be guided by operational plans implemented by the EPSDD in relation to the Molonglo River Park and Kama Nature Reserve, as well as management of urban areas in accordance with obligations under the NES Plan and ACT legislation as appropriate.

The non-threatened woodland, native pasture and riparian vegetation are not considered to represent critical vegetation for maintaining species diversity or connectivity in the region, nor do they provide important habitat for fauna species. As such, no significant adverse impacts to native vegetation are expected as a result of the project that have not already been assessed and approved under the EPBC Act.

It is considered that the outcomes of the NES Plan appropriately account for losses to native vegetation and species.

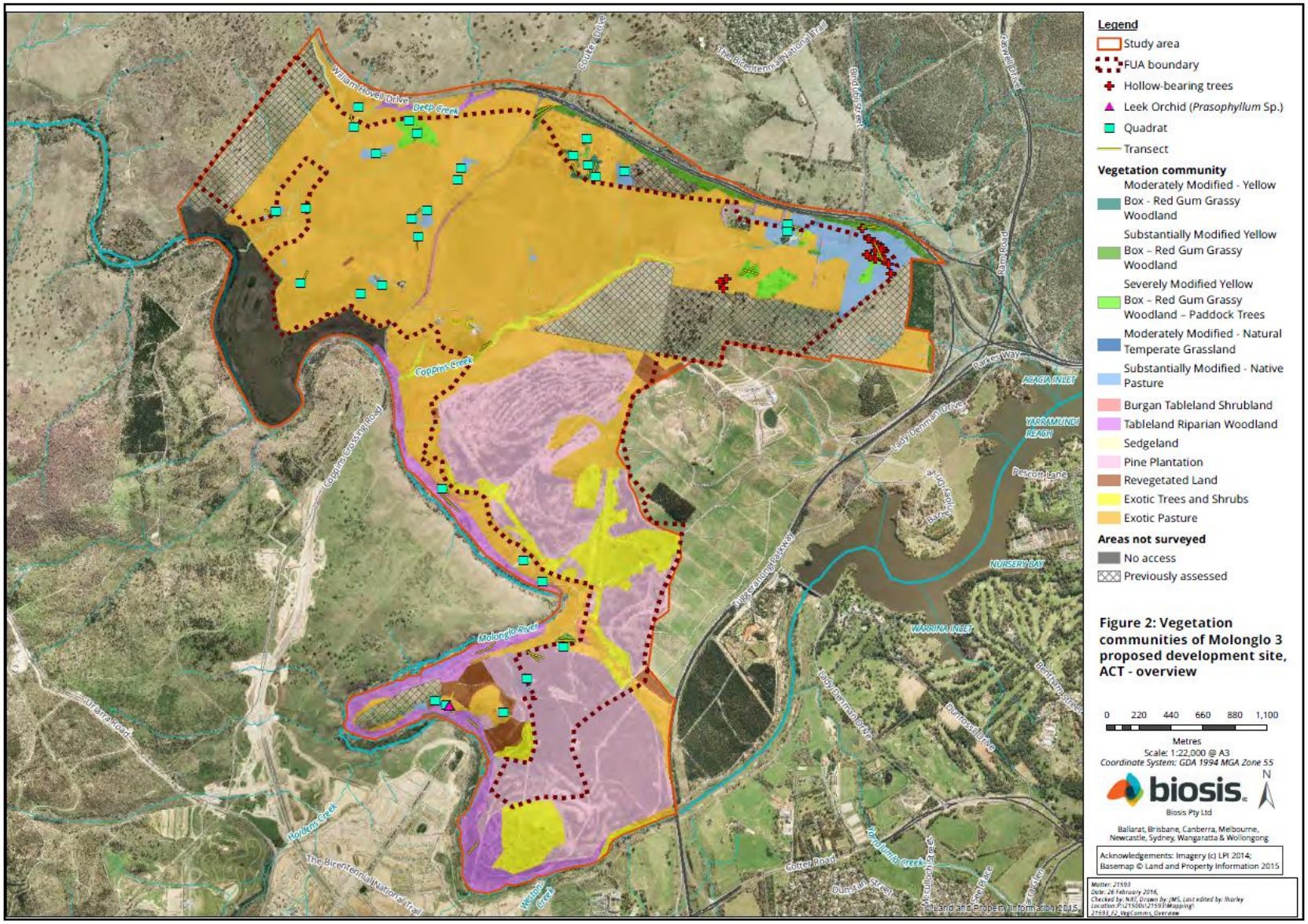

Figure 2.12 Molonglo Stage 3 Vegetation Classification (Biosis, 2016)

2.3.3.2 References

The following assessments were reviewed in consideration of the impacts to native vegetation. Studies marked with an asterisk (*) are included as supporting documentation to this application. References not asterisked have either been superseded, or have been reviewed for regional or local context, but do not provide any information material to the assessment:

- Molonglo Stage 3 Development Area: Vegetation Classification and Condition Assessment (Biosis, 2016)*;
- Bushfire Risk Strategy Molonglo Stage 3, Denman Prospect and The Molonglo River Corridor, prepared for the Land Development Agency, Canberra (ABPP, 2016)*;
- The NES Plan (ACTPLA, 2011)*;
- Mapping of Vegetation Communities East and West of Coppins Crossing within River Corridor (Butler and Associates, 2012);
- Molonglo Valley Ecological Study: EPBC Listed Flora, Ecological Communities and Golden Sun Moth Mapping in the Molonglo Valley (ELA, 2009);
- Molonglo River Corridor Boundary Study for the NCA (Red Gum Consulting, 2007);
- Molonglo Adaptive Management Strategy (TaMS, 2013)*;
- Review of ACT Environmental Offsets Calculator Stage 2 (Umwelt, 2013a)*;
- Vegetation Mapping for Kama Nature Reserve, Molonglo (Umwelt, 2013b)*; and
- Ecological Values of Block 1550, Belconnen (Umwelt, 2013c).

2.3.4 Part 4.3, Item 4 – Impact on Environmental Value of a Natural Waterway

Development of Molonglo Stage 3 has the potential to trigger Item 4 of Part 4.3 (PD Act), by having a 'significant adverse environmental impact on a prescribed environmental value mentioned in the territory plan (water use catchment general code) of a natural waterway or aquifer'.

This trigger was identified in the Preliminary Risk Assessment for Molonglo Valley Urban Development Stage 2 and Supporting Infrastructure (NGH, 2011), however was not assessed in the s211 applications for the Molonglo Valley ('Molonglo Urban Land Development and Associated Works' (Stage 1) or 'Molonglo Valley Stage 2 – Urban Development, Infrastructure and Link Bridge'). Regardless, it has been discussed below.

The Molonglo River from Scrivener Dam to Lower Molonglo Water Quality Control Centre (LMWQCC) has the following water use/environmental values listed in the Territory Plan:

- STOCK (water supply);
- VIEW (Passive recreation);
- AQUA/2 (Aquatic habitat – lowland stream);
- Discharge – storm water;

- REC/2 (Water based recreation – boating); and
- IRRIG (Irrigation Water Supply).

The Molonglo River Corridor would be protected and enhanced under the development of Molonglo Stage 3, based on commitments made in the NES Plan.

The urban development of the Molonglo Valley would, however have impacts on the use of the river for agricultural and irrigation purposes, due to the loss of rural land.

Stormwater runoff and discharge into the river would be managed during design of the suburb, with the use of water sensitive urban design (WSUD) principles and water quality ponds. The principles of WSUD including the protection of natural systems, water quality, and reducing runoff (and maintaining pre-development flows) would be met through effective design. Any runoff during construction and operation would be captured and/or treated as per ACT Government requirements, and is not expected to significantly impact aquatic habitat.

Passive and active recreation in the context of environmental values listed in the Territory Plan is expected to increase and improve with the establishment of the River Corridor Park.

2.3.4.1 Conclusion

With appropriate design, construction, and operation in accordance with ACT legislation and policy, it is considered that the development of Molonglo Stage 3 is unlikely to have significant adverse impacts on the prescribed environmental values of the Molonglo River under the Territory Plan, in fact, the treatment of runoff, and active erosion management may result in some localised improvements to water quality.

2.3.4.2 References

The following assessments were reviewed in consideration of the impacts to the environmental values of a natural waterway. Studies marked with an asterisk (*) are included as supporting documentation to this application. References not asterisked have either been superseded, or have been reviewed for regional or local context, but do not provide any information material to the assessment:

- The NES Plan (ACTPLA, 2011)*;
- Preliminary Risk Assessment Molonglo Valley Urban Development Stage 2 and Supporting Infrastructure (NGH, 2011);
- Molonglo River Park Concept Plan Report (Hassell, 2012);
- Waterways Water Sensitive Urban Design General Code (ACTPLA, 2009).

2.3.5 Part 4.3, Item 6 – Impact on a Heritage Place or Object

The Molonglo Stage 3 FUA has been assessed from a heritage perspective in two separate stages. Biosis (2012 and 2013) assessed the majority of the FUA, which was summarised by Umwelt (2014). Biosis then assessed the eastern part of the FUA, Blocks 6 and 7 Molonglo, in 2014. The results of these three assessments are compiled below. These assessments also refer to a previous study (Molonglo Valley Heritage Review, 2006) undertaken by the Australian Archaeological Survey Consultants of the entire Molonglo Valley area for the ACT Government following the 2003 bushfires.

The ACT Heritage Register identifies four Aboriginal archaeological sites that have management constraints within or in the vicinity of the project area; in addition to four artefact scatters and two scarred trees (**Figure 2.13**). Two previously recorded isolated finds MVF1 and MVF2 have been salvaged and no heritage constraints remain and have therefore not been mapped or described.

Biosis (2014) noted the registered artefact scatters CLB5 and CLB6 from their search of the Heritage Register; however, these sites could not be relocated during a targeted field survey.

Biosis (2014) also identifies an Aboriginal site extent listed on the Heritage Register outside the eastern edge of the FUA (**Figure 2.13**), however provides no information on the significance of this site. This area would be outside the development area, and as such, impacts could be avoided.

The ACT Heritage register lists one historic structure in close proximity to the project area, Riverview (Isaac and Emily Blundell hut), which is within the Molonglo Stage 2 boundary. A second historic structure, the Kallenia Woolshed, is located within the FUA, however this woolshed has been determined to not meet any of the listing criteria for registration under the *Heritage Act 2004* (ACT Heritage Council, 2015).

A further two areas are listed on the ACT Heritage Register near the project area; Kama Nature Reserve and Lower Molonglo Geological Site, Stromlo. The Kama Nature Reserve is listed due to native species diversity and the endangered ecological communities present. The Lower Molonglo Geological Site is an outcrop of limestone that includes specimens of Middle Silurian (425 million BP) marine fossils. Heritage guidelines under the *Heritage Act 2004* are applicable to this site, with the guiding conservation objective being 'the site shall be conserved and appropriately managed in a manner respecting its heritage significance, and any works that have a potential impact on it shall be guided by a professionally documented assessment and conservation policy'. The Geological Site is outside the Molonglo Stage 3 area, and would not be impacted by the project. These sites are shown in **Figure 2.13**.

In addition to sites on the Heritage Register, Biosis (2012) identified 17 previously recorded, 33 new Aboriginal archaeological sites including artefact scatters and isolated finds, and 9 new PADs within their project area.

Biosis (2014) identified an additional four artefact scatters (G29 – G32) and one isolated find (G27) in Block 6 during their site surveys. These were all assessed as being of low conservation value.

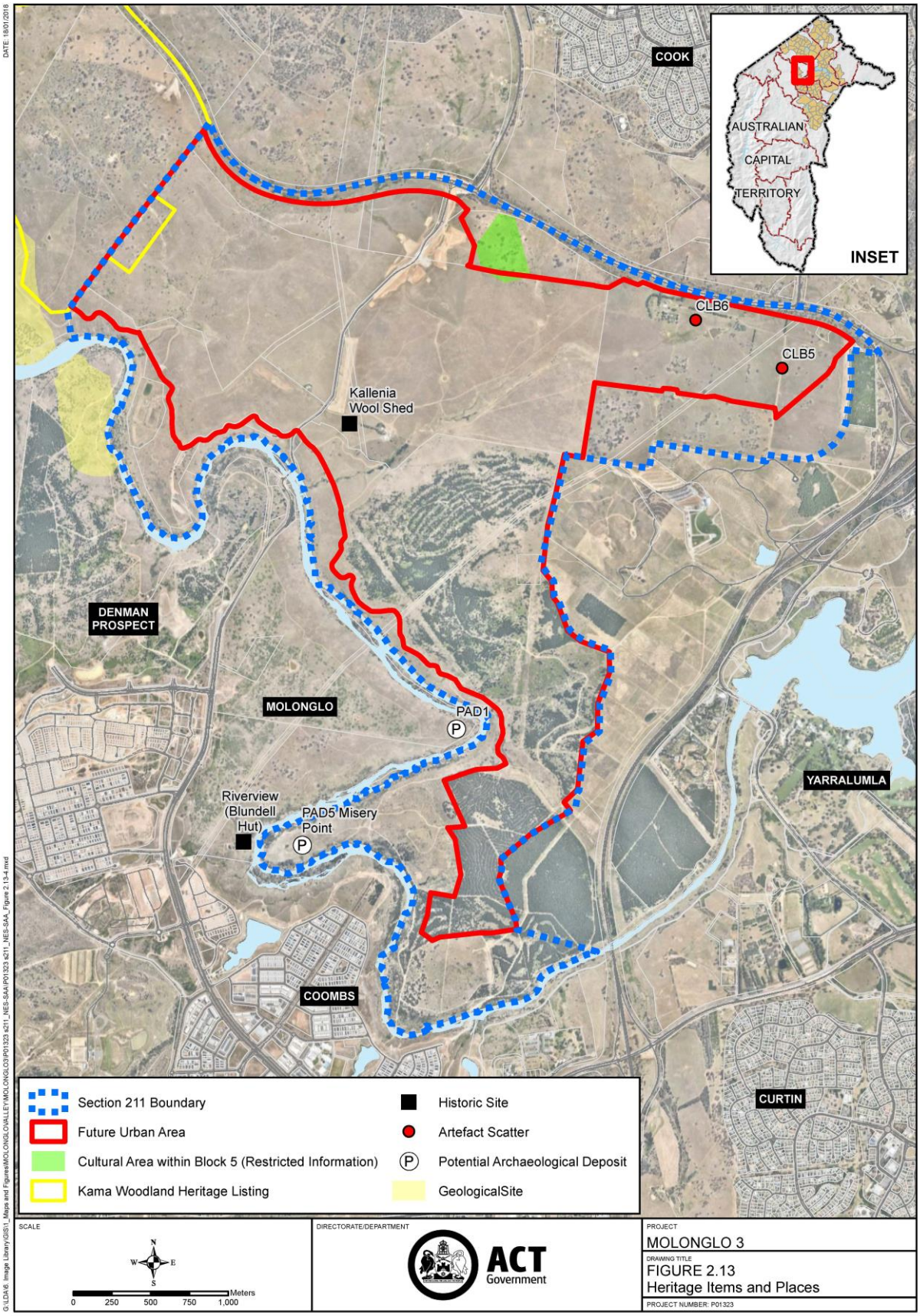

Figure 2.13 Heritage Items and Places

Biosis (2013) undertook detailed sub surface testing for the project area and made a number of conclusions regarding the management of sites within Molonglo Stage 3:

- All identified Aboriginal Cultural Heritage sites located within the project area have been the subject of archaeological salvage. There are no further requirements for these sites.

- Consultation with the Aboriginal community has identified a Cultural Area within Block 5 that requires additional management considerations due to cultural values. This area poses an area of constraint on the development and impacts to this area should be avoided. In the event that impacts to the cultural area cannot be avoided advice should be sought from the ACT Heritage Unit. Information regarding this site is restricted and confidential due to cultural sensitivities.

- If previously unidentified archaeological artefacts or sites are located during the course of development within the project area, the process outlined in the Unanticipated Discovery Plan (UDP) should be followed.

While a Historical and Aboriginal Cultural Heritage Assessment has been undertaken on Blocks 6 and 7, to the east of Molonglo 3, some further assessment and salvage may still be required. This work will be undertaken and submitted to the ACT Heritage Council in 2018. This will complete the Molonglo 3 heritage assessment process. Refer to **Figure 2.14**.

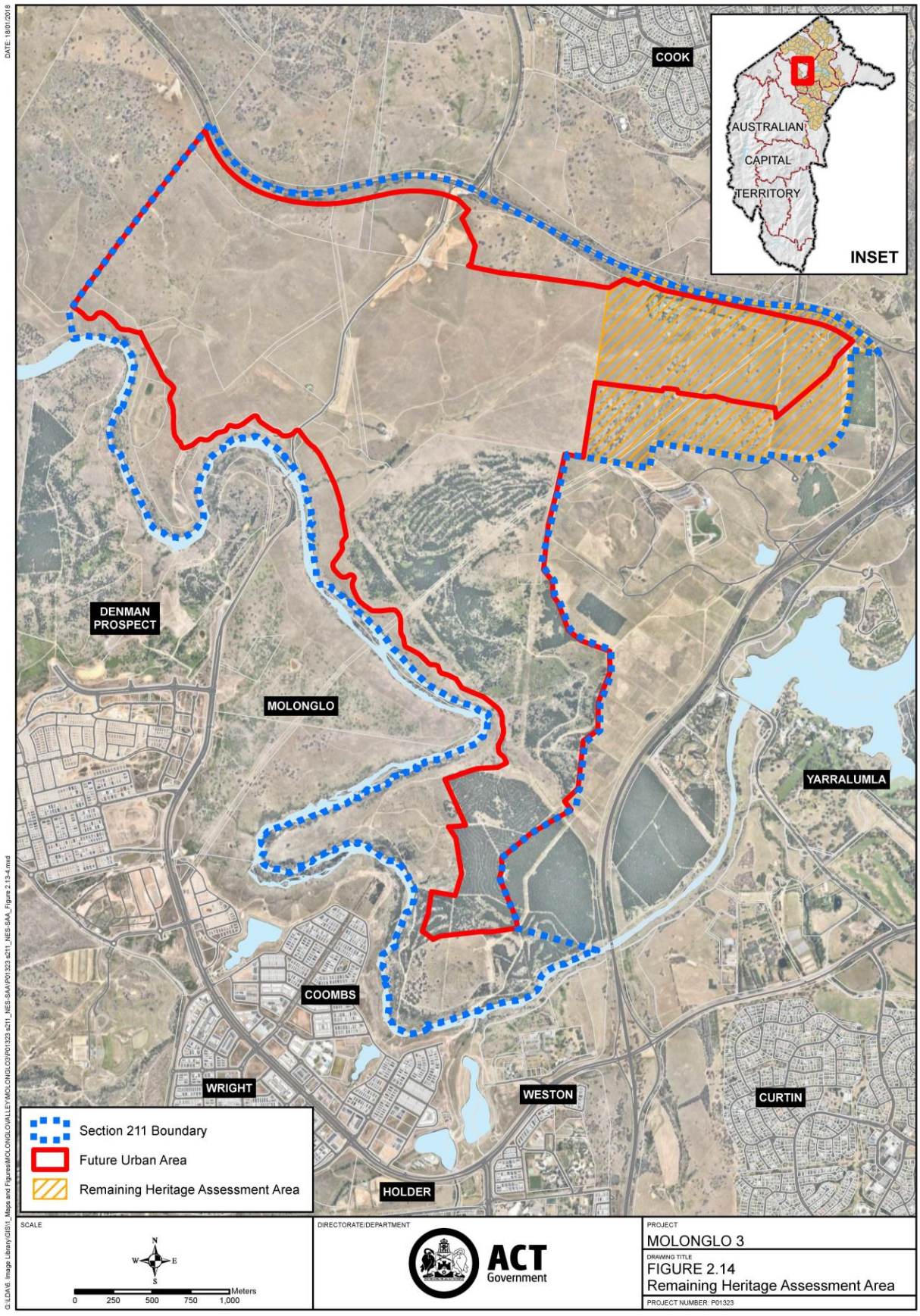

Figure 2.14 Location of Further Heritage Area (Note: the remaining area above includes Patch GG, which has been transferred to the Arboretum and is no longer part of the FUA)

2.3.5.1 Conclusion

Based on the available information, two previously identified items listed on the ACT Heritage Register, located in Block 6, would be impacted by the development of Molonglo Stage 3. These were initially identified in 2003, yet have not been relocated in more recent surveys. Advice would need to be sought from the Heritage Council regarding the management of impact to these sites, however based on the information available, it is considered that an appropriate salvage or management program could be implemented to mitigate any potential impact associated with the removal of these two artefact scatters.

There are other heritage constraints that need to be considered during design and construction. Based on the current master plan, the Cultural Area within Block 5 (Biosis, 2013) would be located within open space (**Figure 2.13**). No direct impact is proposed to occur within this area; however, construction activities in proximity should be guided by a site-specific conservation management plan to prevent indirect impacts. No-go zones should also be implemented during construction, and any ongoing management of the site should involve consultation with the Representative Aboriginal Organisations (RAOs).

Should any impact to this site be required to occur, consultation would be undertaken with the Heritage Unit and RAOs prior to any works being undertaken.

All other archaeological scatters have been identified and salvaged, and an unexpected discovery plan will be implemented during construction to mitigate risk to any remaining items or sites.

The development of Molonglo Stage 3 is unlikely to result in any significant adverse impacts on items or places listed on the Heritage Register following the application of mitigation and management recommendations.

2.3.5.2 References

The following assessments were reviewed in consideration of the impacts to heritage places or objects. Studies marked with an asterisk (*) are included as supporting documentation to this application. References not asterisked have either been superseded, or have been reviewed for regional or local context, but do not provide any information material to the assessment:

- Molonglo Valley Heritage Review (Australian Archaeological Survey Consultants, 2006);
- Molonglo Stage 3 Detailed Heritage Assessment: Aboriginal and Historic Heritage (Biosis, 2012);
- Molonglo Stage 3 Future Urban Release: Sub Surface testing report and further studies (Biosis, 2013)*;
- Molonglo Stage 3 Additional Areas Cultural Heritage Assessment (Biosis, 2014)*; and
- Molonglo Stage 3: Major Electrical Infrastructure Relocation, Environmental and Heritage Constraints (Umwelt, 2014)*.

2.3.6 Part 4.3, Item 7 – Land on the Register of Contaminated Sites

Numerous environmental site assessments have been completed within the Molonglo Stage 3 area as part of the site's due diligence assessments. The site has generally been assessed in two parts: 'Area A' – the southern half (**Figure 2.15**), and 'Area B' – the northern half (**Figure 2.16**).

A number of blocks within Molonglo Stage 3 have previously been listed on the Environmental Protection Authority's (EPA) Register of Contaminated Sites, including:

- Block 16, Molonglo Valley, which contains a sheep plunge dip; and
- Block 10, Molonglo Valley, which contains a number of disused sewage treatment ponds.

However since initial preparation of this document, these sites have been removed. Currently there is no land on the register of Contaminated Sites within Molonglo Stage 3.

However, there are numerous Areas of Environmental Concern (AECs) associated with the area's long use as rural land and adjacency to forestry. These are discussed below and are shown in the following **Figures 2.15**, **2.16** and **2.17**.

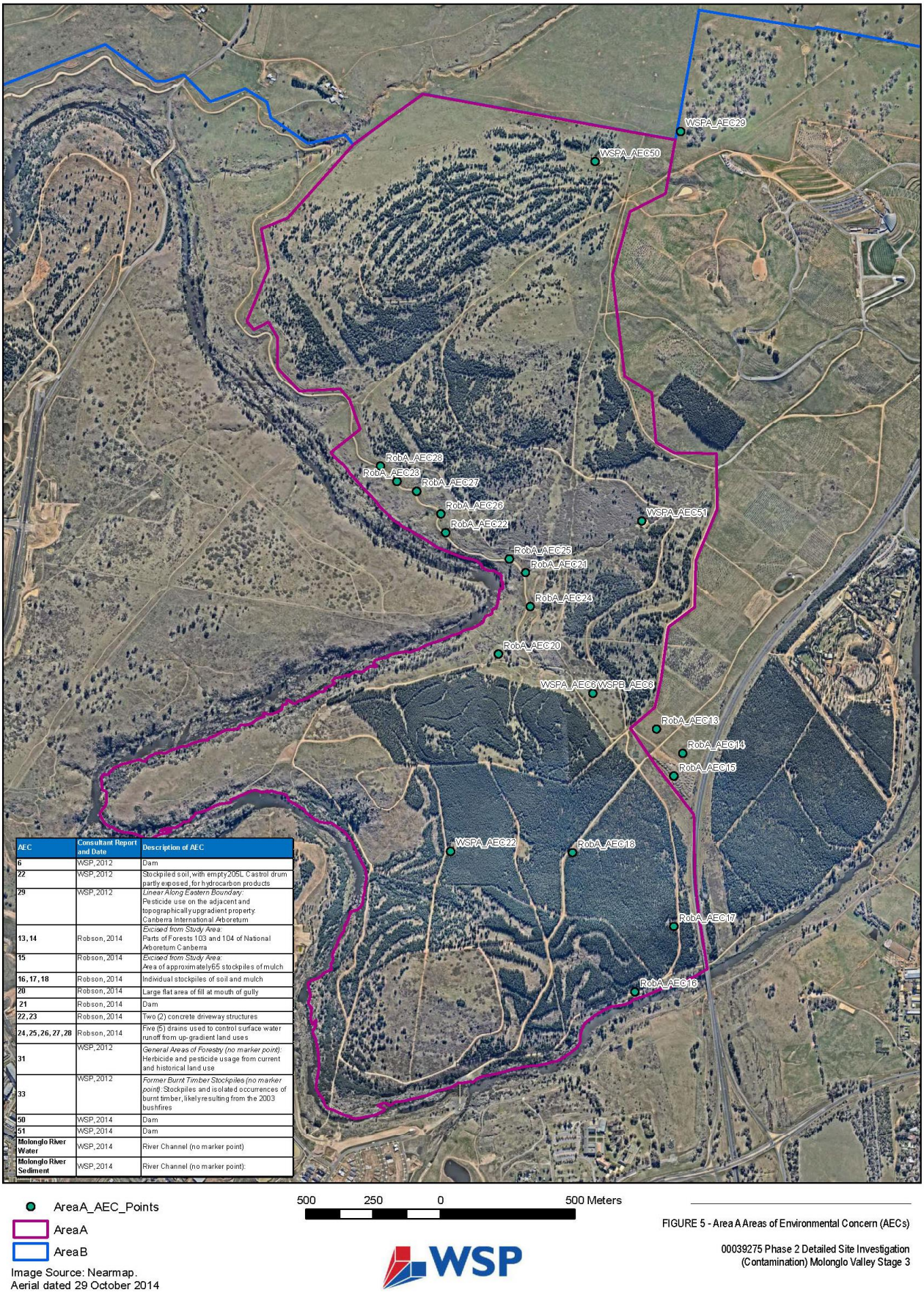

Figure 2.15 Areas of Environmental Concern (AECs) (Areas A) (WSP, 2016a)

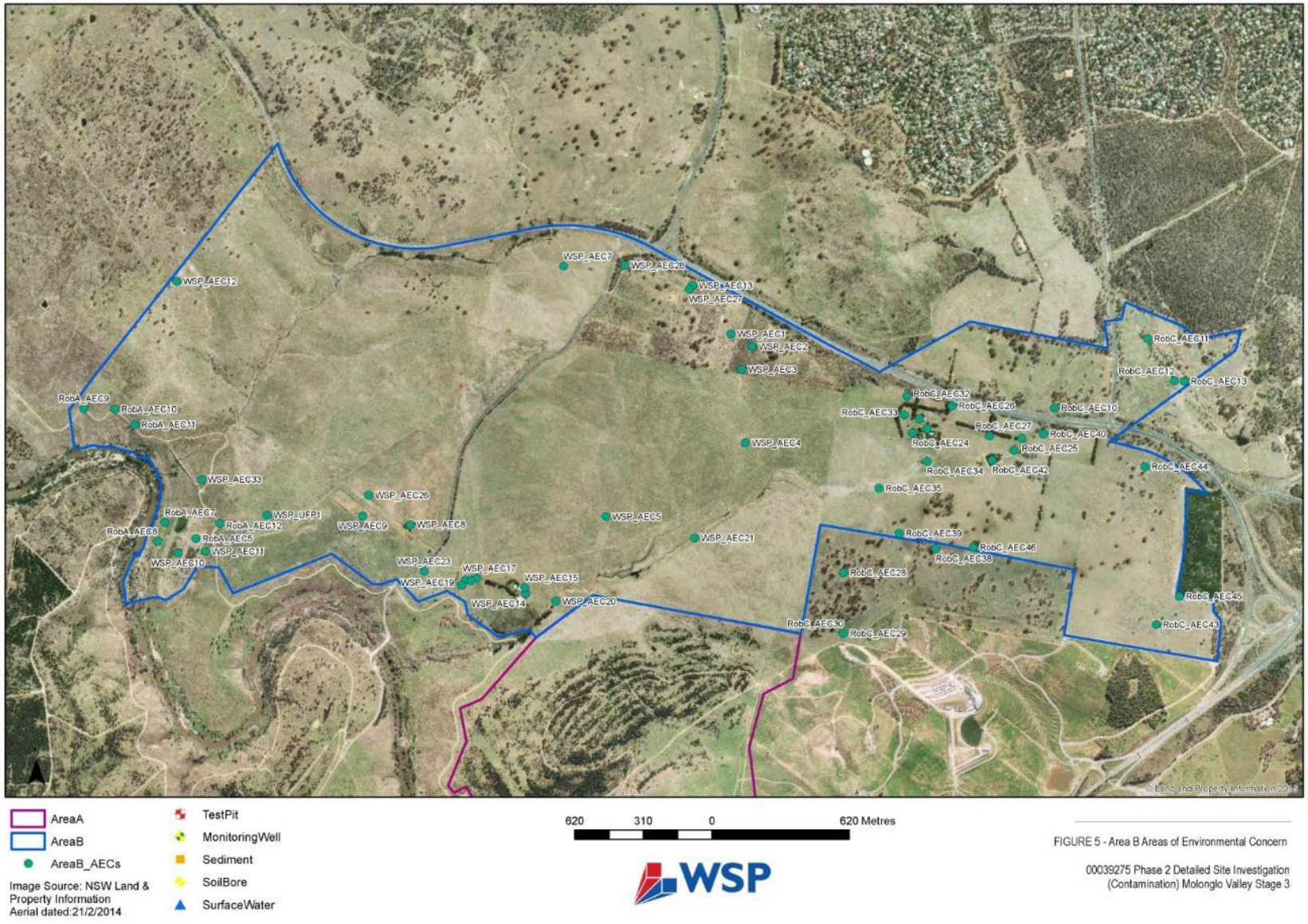

Figure 2.16 Areas of Environmental Concern (AECs) (Area B) (WSP, 2016b)

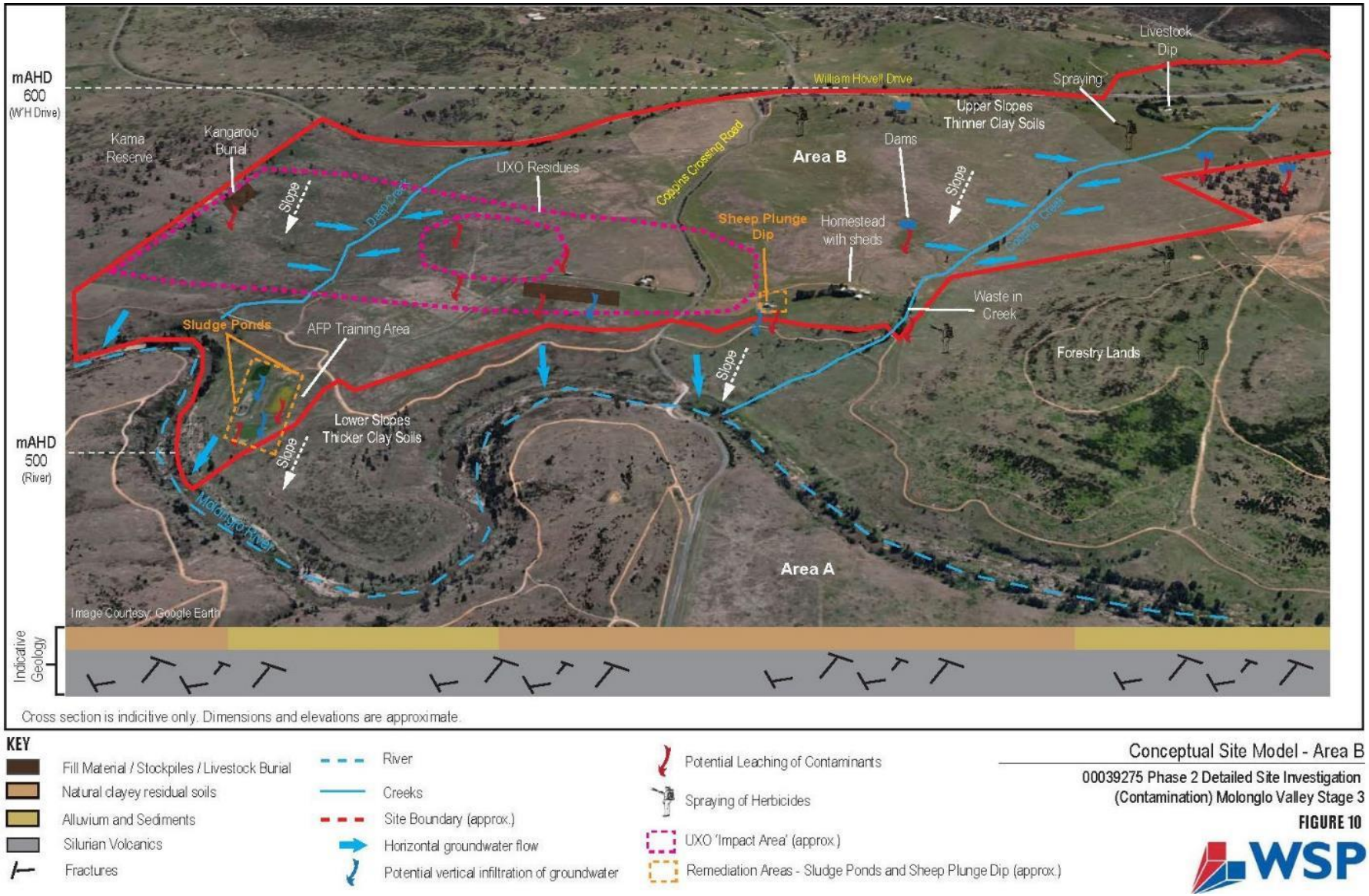

Figure 2.17 Conceptual Site Model (WSP, 2015)

2.3.6.1 Investigations Completed

Numerous contamination investigations have been completed across the Molonglo Stage 3 Area.

Phase 2 Detailed Site Investigations (DSI) have been completed for both 'Area A' (WSP, 2016a) and 'Area B' of the FUA (WSP, 2016b). Further soil investigations were undertaken in the area around the 'Glenoch Property Sheep Dip' (RobC_AEC22) following the DSI (WSP, 2016c).

A site audit statement and report has been prepared for both Areas A (Zoic, 2017a) and B (Zoic, 2017b). These audits considered all works undertaken at the site and relevant Remedial Action Plans and Unexpected Finds Management Plans. Area B includes three areas that require remedial action due to elevated heavy metals (such as arsenic) and petroleum hydrocarbons (WSP, 2016b) (noting the conclusions regarding RobC_AEC22 reflect the soil investigations conducted subsequent to the DSI (WSP, 2016c)):

- WSP_AEC10: former sludge ponds;
- WSP_AEC18:former livestock plunge dip and yards; and
- RobC_AEC22 Glenloch Sheep Dip.

It is noted that the contaminated sludge ponds are situated within the existing river corridor, and are, therefore, not within the FUA. The auditor concluded that following remediation, these sites can be used for the proposed residential land uses (Zoic, 2017b).

The auditor considers the works completed adequately identify all areas of concern and the remedial options provided are practical and able to enable the site to be made suitable for the proposed future residential development (Zoic, 2017a,b).

The Auditor recommended that a CEMP with an Unexpected Finds Protocol be prepared to manage areas of anthropogenic fill, contamination associated with localised surface staining, and any additional fill that may be encountered during the construction phase. A CEMP was prepared for Area A to manage soil aesthetic issues and potential for unexpected finds during the future earthworks and development of Molonglo Stage 3.

The Auditor stated that Area B must be remediated in line with the endorsed remedial action plan (RAP)(WSP, 2017), and a number of additional conditions (Zoic, 2017b).

The overarching conclusion was that Molonglo Stage 3 could be made suitable for future urban use and open space along the Molonglo River riparian corridor subject to these actions.

Molonglo Stage 3 also may contain unexploded ordnance (UXO) and explosive ordnance waste (EOW) associated with historical Department of Defence field firing ranges dating to the First World War period. A UXO Assessment was undertaken (Milsearch, 2014), which recommended the completion of a 100 per cent geophysical UXO survey and remediation prior to site works commencing. Subsequently a geophysical survey and remediation of UXO was undertaken across 195 hectares of the FUA, which was considered to meet this recommendation (Milsearch, 2015). A small number of areas were not included in the survey and remediation works due to access restrictions. These areas would be assessed and remediated prior to any construction activities commencing. Furthermore, an Unexpected Finds Management Plan (relating to UXO and EOW) has been prepared and endorsed by the EPA (Zoic, 2017).

2.3.6.2 Current Risk and Status

No remediation is proposed to be completed prior to development, as it will be included as part of the civil works program. However, small areas excluded from previous UXO assessments UXO will require final clearance at the pre-development earthworks stage.

Given remediation has not been completed, the PRA in **Appendix 1** reflects that this is a current risk, which will need to be managed during design and construction. Following implementation of all recommended remediation and mitigation measures, the residual risk is expected to be low.

2.3.6.3 Conclusion

The trigger for impact track assessment related to contaminated sites is based on presence of areas listed on the register of contaminated sites. As the Molonglo Stage 3 area no longer contains sites listed on the register, it does not trigger this item.

However, this assessment has been retained to demonstrate the extensive assessment that has been completed within Molonglo Stage 3 in regards to this contamination risk. It is considered that risks are well understood, and remediation actions are planned which will result in the area being made suitable for urban use.

Management plans have been prepared, or are in preparation to minimise any ongoing risk during construction of the project.

There are not considered to be any major information gaps associated with this item, and it is considered that the risk would not be further reduced by the preparation of an EIS.

Site Audit Reports for both Areas A and B (Zoic 2017) state that with the recommended management and remedial actions, the land will be made suitable for the proposed residential use.

2.3.6.4 References

The following assessments were reviewed in consideration of the impacts on contaminated land. Studies marked with an asterisk (*) are included as supporting documentation to this application. References not asterisked have either been superseded, or have been reviewed for regional or local context, but do not provide any information material to the assessment:

- Site Audit Report: Molonglo Valley Stage 3 Future Urban Area: Area B (Zoic, 2017)*;
- Site Audit Report: Molonglo Valley Stage 3 Future Urban Area: Area A (Zoic, 2017)*;
- Phase 1 Environmental Site Assessment: Areas A and B, Molonglo Valley Stage 3, ACT (Robson, 2014a);
- Phase 1 Environmental Site Assessment: Area C, Molonglo Valley Stage 3, ACT (Robson, 2014b);
- Phase 1 Environmental Site Assessment, Molonglo Valley Stage 3 (WSP, 2012a);
- Phase 2 Environmental Site Assessment, Molonglo Stage 3 Infrastructure Corridor (AECOM, 2013);
- Post Activity Report UXO Remediation and Contamination Assessment Survey: Molonglo Development Stage 3 Priority Works (Milsearch, 2013);

- Post Activity Report UXO Contamination Assessment: Molonglo Development Stage 3 (Milsearch, 2014);
- Post Activity Report, Molonglo Stage 3 Urban Development: Geophysical Survey and Remediation of Unexploded Ordnance (Milsearch, 2015);
- Molonglo Valley - Preliminary Geotechnical and Environmental Constraints Study (Coffey, 2005);
- Sampling and Analysis Quality Plan (SAQP) for Phase 2 ESA Molonglo Valley Stage 3, ACT (WSP 2012b);
- Molonglo Valley Stage 3 (Area B) Stage 2 Detailed Site Investigation (WSP, 2015);
- Molonglo Valley Stage 3 (Area A) Stage 2 Detailed Site Investigation (WSP, 2016a);
- Molonglo Valley Stage 3 (Area B) Stage 2 Detailed Site Investigation (WSP, 2016b)*; and
- Letter Report on Investigation of Soils around the Glenoch Property Sheep Dip located within Molonglo Valley Stage 3 Future Urban Area ("Area B"), Block No. 6 (WSP, 2016c).

3.0 Description of Nature Conservation Values

3.1 Is the Location Important in Maintaining Existing Processes or Natural Systems of the ACT?

The project area is located directly to the north of the Molonglo River, the major river system that runs through the centre of Canberra, which is an important natural system in the ACT. It is also located directly adjacent to Kama Nature Reserve to the west. Both the Molonglo River corridor and Kama Nature Reserve contain substantial ecological values and contribute to landscape connectivity, as illustrated in the modelling commissioned by the ACT Government (Barrett and Love, 2012) in **Figure 3.1**.

The project area in isolation is not considered particularly important in maintaining existing processes, and does not contain any significant movement corridors or natural systems. Its proximity and contribution to the larger landscape of the Molonglo River Corridor warrants management and protection during construction and operation. This can be managed through the existing requirement for CEMPs on all construction sites.

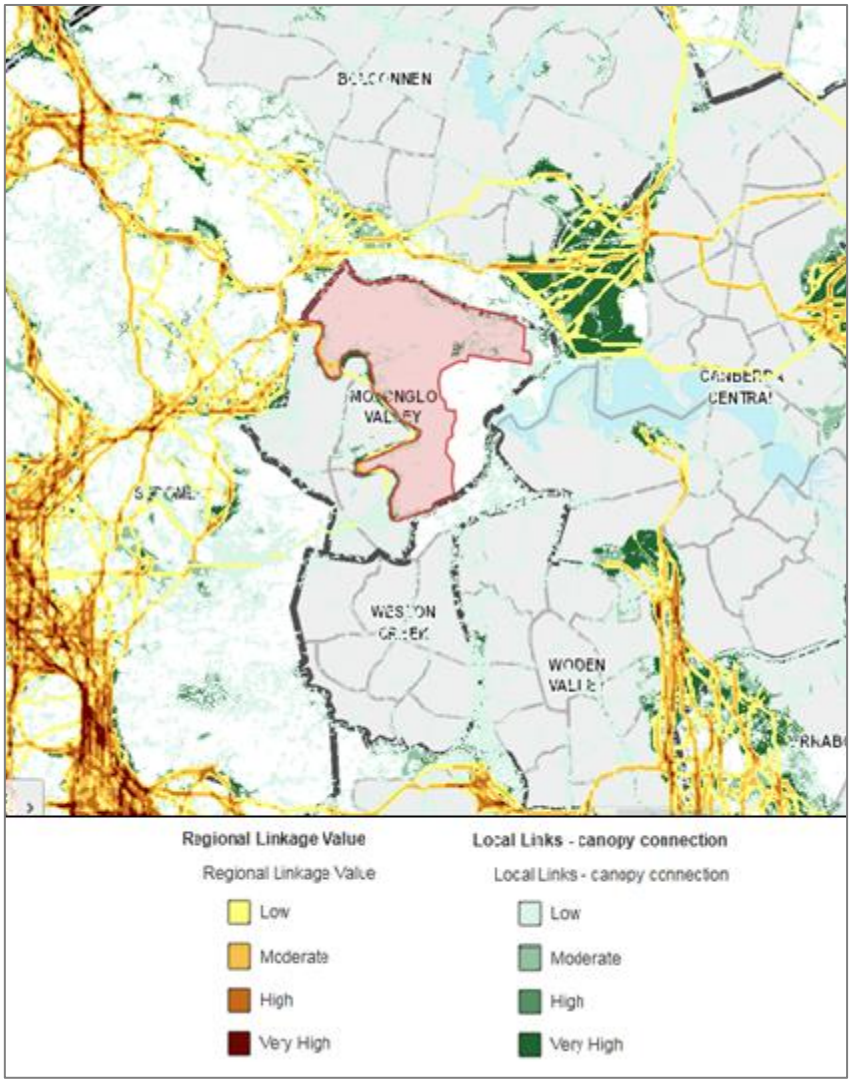

Figure 3.1 Regional and Local Connectivity (Source: ACTMAPi, 2014)

3.2 Is the Location Important in Exhibiting Unusual Richness of Diversity of Flora, Fauna or Landscapes?

Historically, much of the Molonglo Stage 3 area would have contained a range of woodland communities and at lower altitudes, potentially areas of natural grasslands. Directly adjacent to the Molonglo River, riparian shrubland and river she-oak (*Casuarina cunninghamiana*) open forest communities were dominant; which now persist in a disturbed state in a mosaic with exotic riparian vegetation such as crack willow (*Salix fragilis*).

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 (*Phalaris aquatica*), although patches dominated by native grasses persist in some areas.

Given these characteristics, the project area is not considered important in exhibiting unusual richness of flora, fauna or landscapes.

3.3 Is the Location Important in its Possession of Uncommon, Rare or Endangered Flora, Fauna, Communities, Natural Landscapes or Phenomena?

The project area contains a number of endangered fauna species, and vegetation communities as discussed in **Section 2.3.2**.

There are a number of rocky outcrops in the project area which are considered to represent pink-tailed worm lizard (*Aprasia parapulchella*) habitat of various qualities.

Patches of remnant native vegetation, including degraded box gum woodland, scattered throughout the FUA also provide potential habitat for a number of additional flora and fauna species.

The most valuable areas in the Molonglo Valley were, however, identified and set aside as offsets or avoidance areas under the NES Plan, and it is considered that the remaining areas of Molonglo Stage 3 are highly modified from their agricultural use, and despite the presence of uncommon species, do not represent an important location for their conservation.

Development in accordance with the NES Plan has been determined to represent an appropriate balance between biodiversity conservation and urban intensification. Accordingly, those areas affected by the urban footprint are not considered important with respect to its characteristic biological and natural landscape characteristics or other related phenomena.

3.4 Is the Location Important in Demonstrating the Principal Characteristics of the Range of Landscapes, Environments or Ecosystems, the Attributes of which Identify them as being Characteristic of their Class?

Molonglo Stage 3 is not considered important in demonstrating the principal characteristics of any landscapes, environments or ecosystems. It contains some remnant woodland community, however in general, is typical of the agriculturally modified landscape of the ACT and southern tablelands in general.

The broader area within which the project area is situated is characterised by a sequence of vegetation that transitions from the dry forest / woodland communities on the upper slopes through to box gum woodland, then natural grasslands on lower elevations. Dissecting these otherwise natural areas are expansive areas of pastoral land that has been affected to varying degrees by vegetation removal, principally trees, in addition to pasture improvement in places. This sequence of vegetation communities and modified landscapes has become increasingly uncommon as a result of fragmentation and past removal of native vegetation for pastoral activities. The more intact areas of native vegetation demonstrating a catenary sequence of vegetation community transitions have already been retained or avoided in the conservation reserve or offset network associated with the broader Molonglo valley NES Plan.

The project area contributes only a limited extent to this by containing fragmented remnants of native vegetation. Development within Molonglo Stage 3 would not affect the current vegetation community sequence demonstrated within largely intact sequences such as within the Pinnacle - Kama Nature Reserve corridor.

3.5 Is the Location Important for Information Contribution to a Wider Understanding of the ACT's Natural History, by Virtue of its use as a Research Site, Teaching Site, Type Locality, Reference or Benchmark Site?

The site is not considered of particular 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. It is not considered that the area of Molonglo Stage 3 retains any representative natural history values, not already represented within protected areas.

4.0 Decision under the EPBC Act

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), so as not to unduly constraint 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.

Any activities outside the NES Plan Area, including road realignments, transmission line realignments and pipelines on land to the north of William Hovell Drive have not been subject to assessment or approval under the EPBC Act, and as such are not currently included within the scope of this assessment. A self-assessment can be completed for these activities once sufficient detail has been gathered to allow consideration of ecological and heritage matters, to determine whether a separate EPBC Referral and/or Impact Track assessment is required.

5.0 Measures to Avoid, Mitigate and Offset

The net impact of development on the biodiversity of Molonglo Stage 3 was considered under the NES Plan, as part of avoidance, mitigation and offset measures for MNES.

The Kama Nature Reserve, the Molonglo River Corridor, and 'Block GG' (**Figure 5.1**) were established as offsets under the NES Plan. These offsets, and those located south of the river in Molonglo 2 were established to compensate for the unavoidable impacts from the development of the entire Molonglo Valley development.

The following conservation measures (**Table 5.1**) were also identified in the NES Plan to mitigate, manage and maintain/improve ecological values within the Molonglo Valley.

Table 5.1 Conservation Outcomes from the NES Plan (ACTPLA, 2011)

MNES	Conservation Outcomes from the NES Plan
Box Gum Woodland	• Impacts to Box Gum Woodland will be limited to a maximum of 110 hectares and a range of measures will be implemented to minimise this area of impact. • Three offset sites will be established within the strategic assessment area (Kama Nature Reserve, Molonglo River Park, Patch GG) that will provide for the long term protection of 234 hectares of Box Gum Woodland. The three offset sites will be adaptively managed to maintain and enhance the ecological condition of the Box Gum Woodland that occurs there. • Adaptively manage 28 hectares of Box Gum Woodland within the strategic assessment area to maintain and enhance its ecological condition. This will be made up of patches C, H and N. • Adaptively manage 45.4 hectares of Box Gum Woodland within the strategic assessment area to maintain its ecological condition. This will be made up of patches I, L, M and P. • Maintenance and enhancement of the Box Gum Woodland that occurs within the West Molonglo component of the strategic assessment area. • Improving and applying the knowledge about the management of Box Gum Woodland.
Natural Temperate Grassland	• No direct or indirect impacts to natural temperate grassland. • Adaptive management of the natural temperate grassland that occurs within the Kama Nature Reserve to maintain and enhance its ecological condition.
Pink Tailed Worm Lizard	• Impacts to high and moderate quality PTWL habitat will be limited to a maximum of 27 hectares and a range of measures will be implemented to minimise this area of impact. • Two offset sites will be established within the strategic assessment area (Kama Nature Reserve and the Molonglo River Park) that will provide for the long term protection of 66 hectares of high and moderate quality PTWL habitat. These areas will be adaptively managed to maintain and enhance the ecological condition of the PTWL habitat that occurs there.

MNES	Conservation Outcomes from the NES Plan
	• Continued protection of 28.1 hectares of high and moderate quality PTWL habitat within the Lower Molonglo Nature Reserve. These areas will be adaptively managed to maintain the ecological condition of the PTWL habitat that occurs there. • Protection of an additional 23.3 hectares of high and moderate quality PTWL habitat within the strategic assessment area outside of the development and offset areas. These areas will be adaptively managed to maintain and enhance the ecological condition of the PTWL habitat that occurs there. • Improving and applying the knowledge about the management of PTWL.
Superb Parrot and Swift Parrot	The most important conservation outcome for these species is the protection and ongoing management of the Kama Nature Reserve which includes approximately 117 hectares of Box Gum Woodland. Most of the Box Gum Woodland in the reserve includes a healthy and diverse overstorey which provides potential habitat for the Superb and Swift Parrots.
General Environmental Impacts	• Develop construction environmental management plans (CEMPs) to manage indirect impacts of construction • Develop and implement conservation management plans • Fund and undertake research projects.

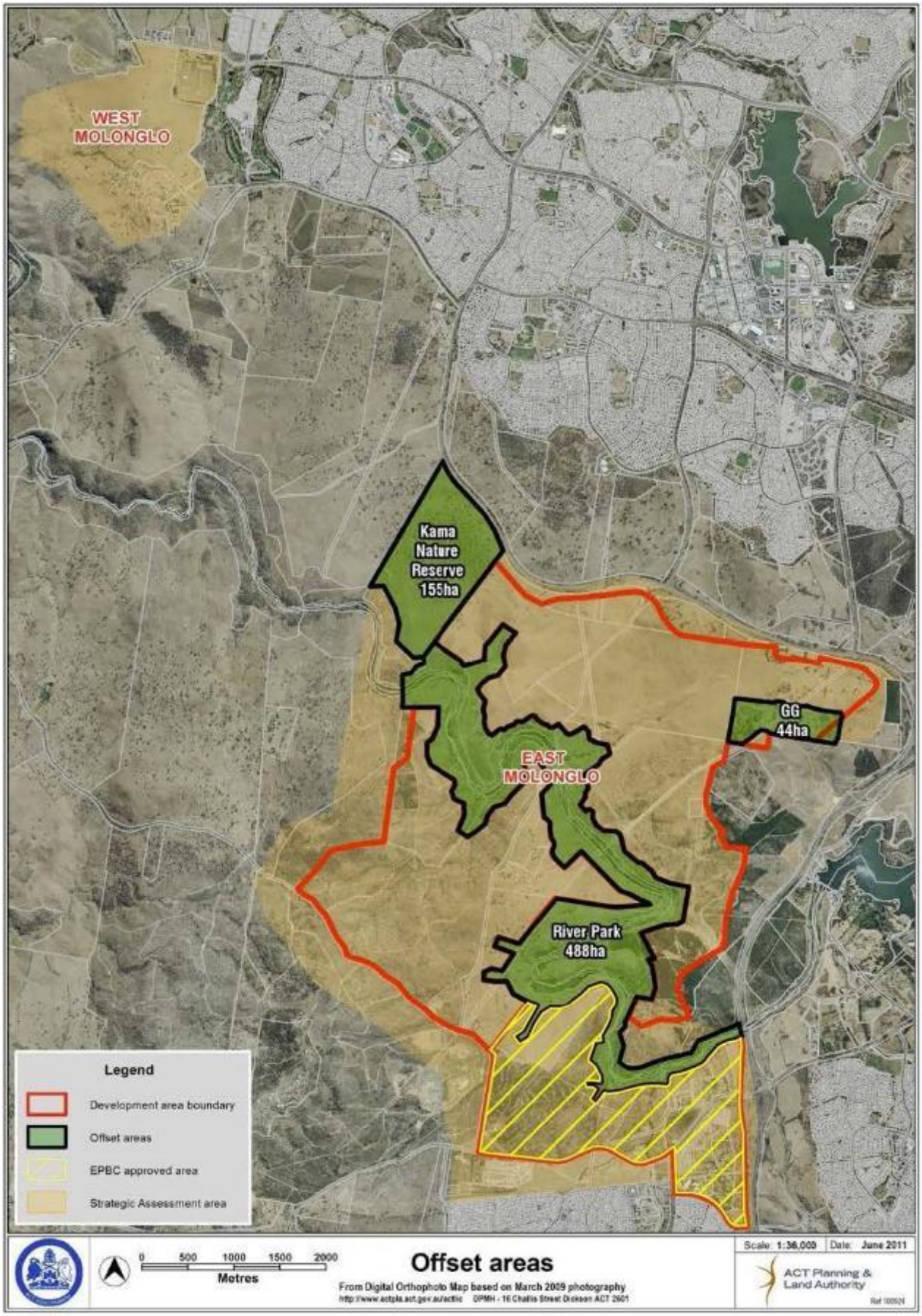

Figure 5.1 NES Plan: Offset Areas (Source: ACTPLA, 2011)

In addition to biodiversity, this report considers impacts to heritage, general environmental values (clearing of native vegetation, contaminated sites, amenity and waterways), and potential impacts due to the type of development proposed. Mitigation and management measures for design, construction and operational phases of the project for all environmental aspects are identified in the PRA attached as **Appendix 1**. The majority of impacts can be mitigated through environmental management to be implemented during construction as discussed in the PRA. High level mitigation will also be realised through detailed design.

The key risks (rated 'high' or above) prior to the application of mitigation measures, associated with the development are outlined in the following **Tables 5.2**, **5.3** and **5.4**.

Table 5.2 Summary of Key Risks: Design Phase

Activity	Risk	Mitigation (Summary)
Design Development	Development footprint exceeds the approved Strategic Assessment Area, resulting in potential non-compliance with EPBC Approval.	• identify any required works (including services) to be undertaken outside Strategic Assessment Area, or within areas protected in the NES Plan • seek EPBC Approval for any additional significant impacts to MNES (or implement adaptive management strategy)
	Changes to surface drainage result in changes to the water quality of the Molonglo River	• incorporate Water Sensitive Urban design (WSUD) principles and water quality considerations in drainage design • design stormwater system to ensure site runoff does not flow across retained areas of pink-tailed worm lizard habitat • treat stormwater prior to entering Molonglo River
	Treatment of ecological buffer between Kama Nature Reserve and urban area is not adequate, and results in adverse impacts to the value of the conservation area	• final urban edge treatment and design of Molonglo 3 will be consistent with Emergency Services ACT (ESA) Bushfire Management Standards (as incorporated into the ACT Strategic Bushfire Management Plan), the outcomes of the Capital Ecology (2016) Strategy and consultation with relevant agencies at EDP stage
	Design of urban area results in loss of pink-tailed worm-lizard habitat	• gain approval under EPBC Act for impacts to pink-tailed worm-lizard (complete) • implement and monitor the 'impact budget' as approved under the EPBC Act (underway) • gain approval under PD Act for impacts to pink-tailed worm-lizard (underway) • implement avoidance and mitigation measures specified in NES Plan • compensate for unavoidable impacts through offsets identified by the NES Plan
	Design of urban area results in loss of box gum woodland	• gain approval under EPBC Act for impacts to box gum woodland (complete) • implement and monitor the 'impact budget' as approved under the EPBC Act (underway) • gain approval under PD Act for impacts to box gum woodland (underway) • implement avoidance and mitigation measures specified in NES Plan • Compensate for unavoidable impacts through offsets identified by the NES Plan

Activity	Risk	Mitigation (Summary)
	Design of urban area results in the loss of native vegetation	• gain approval under PD Act for impacts to native vegetation (underway) • minimise clearing footprints in areas of native vegetation • manage urban interface with retained natural areas to prevent flow-on impacts • Compensate for unavoidable impacts through offsets identified by the NES Plan
	Design of urban area results in loss of habitat for woodland birds	• implement avoidance and mitigation measures specified in NES Plan • Compensate for unavoidable impacts through offsets identified by the NES Plan
	Integration of heritage values of Cultural Area into urban landscape not appropriate and results in adverse impacts to the value of the site	• consult with Heritage Unit regarding ongoing management of site and surrounding areas • develop a conservation management plan and unanticipated discovery plan for implementation during construction • engage with RAO's if any impact likely to occur
	Design of facilities and urban development adjacent to the river corridor and western edge results in adverse impacts to otherwise avoided or retained ecological values prescribed in the NES Plan	• Masterplan to be considerate of ecological values in adjacent areas, including sympathetic adjacent land uses and adequate open space buffers
	Alignment of powerline infrastructure results in loss of developable land for easements and setbacks	• undertake detailed design and options analysis of powerline alignment to ensure that loss of developable land is minimised (underway)
	Location of urban edge requires bushfire mitigation works outside of the Kama Nature Reserve, with potential impacts on conservation values	• Design should involve consultation with relevant emergency services agencies and land managers responsible for implementing post-construction obligations under the NES Plan at EDP stage with reference to the ESA Bushfire Management Standards as incorporated into the ACT Strategic Bushfire Management Plan and the Bushfire Risk Strategy – Molonglo Stage 3, Denman Prospect & the Molonglo River Corridor (ABPP, April 2016). • appropriate management regimes and bushfire asset protection zones to be established within and around urban area with consideration to conservation values in Kama NR

Activity	Risk	Mitigation (Summary)
	Management of Strategic Fire fighting Advantage Zones (SFAZ) in Kama Nature Reserve	• implement the Kama Operation Plan for any bushfire or maintenance works required within the reserve • establish sensitive mowing regime to be undertaken
Engineering Inspections, Service Location and Site Selection	Water infrastructure (including ponds and water main) are located within areas avoided by the NES Plan, or outside the strategic assessment area, potentially resulting in additional impacts to MNES and non-compliance with EPBC Approval	• consult with C'wlth (DoEE) for any impacts (permanent or temporary) within areas protected by the NES Plan • gain EPBC Approval for any impacts outside the approved area if MNES are identified • seek approval under PD Act for any infrastructure outside the scope of this S211
	Siting of powerlines result in aesthetic impacts to the future residential areas	• undertake detailed design and options analysis of powerline alignment to ensure that visual impacts and encroachment on urban area is minimised (underway)
	Existing road network does not have capacity to service new development	• undertake traffic planning studies early in design process to ensure capacity of roads to handle additional traffic • implement recommendations of studies prior to occupation of suburbs
	Subsurface conditions that may impact construction activities (contamination and UXO) not identified and inappropriate design concepts developed as a result	• implement recommendations of site auditor prior to construction commencing • include provision for remediation in project budget
	Placement of ventilation and odour control structures associated with sewer infrastructure results in aesthetic and public health and safety concerns	• undertake detailed design and options analysis to ensure visual impacts, odour impacts, and encroachment on urban area is minimised • undertake separate approvals process for any works outside S.211 footprint
Approvals	Approval process delays construction of critical road infrastructure and connections required to service Molonglo 1 and 2	• consult with EPSDD during design development to ensure clear communication of project timeframes and needs • consider assessing critical roads separately if delays are expected

Table 5.3 Summary of Known Risks: Construction Phase

Activity	Risk	Mitigation (Summary)
Vegetation and Habitat Clearing	Vegetation clearing results in the loss of pink-tailed worm lizard habitat, box gum woodland, potential threatened bird and flora habitat, and native vegetation	• implement mitigation measures in NES Plan, including preparation of a CEMP, weed control, and erosion and sediment control • undertake habitat improvement and rehabilitation within offset areas, relocation of habitat features and restoration and management within river corridor • prevent indirect additional impacts through comprehensive construction management plans • monitor for any unanticipated impacts to MNES within the Annual Reporting process, and manage within the 'impact budget' as appropriate
	Edge impacts or unauthorised clearing to vegetation communities adjacent to project area (e.g. in Kama Nature Reserve or the River Corridor) increases extent of MNES disturbed and requires additional restoration / remediation works	• clearly mark limits for clearing prior to any construction commencing • develop and implement industry best practice CEMP • reseed disturbed areas with native grass mix where possible, particularly adjacent to areas of box gum woodland • develop and implement management plans to avoid or minimise environmental risks (e.g. sedimentation, erosion, weeds, storm water runoff, etc.) • monitor adjacent areas of box gum woodland during the construction phase
	Vegetation clearing results in a loss of visual amenity, particularly related to the prescribed environmental values of the Molonglo River	• develop and implement industry best practice CEMP which includes rehabilitation/landscaping plan • incorporate landscaping buffers and visual screens into design/construction • plan for early establishment of landscaping features • implement concepts in the Molonglo River Park Concept Plan Report (Hassell, 2012)
Site Access and Management	Increased volumes of construction traffic on William Hovell Drive and construction of road connections results in traffic disruptions	• develop and implement industry best practice CEMP which includes construction traffic management plan

Activity	Risk	Mitigation (Summary)
General Construction Activities	Discovery of previously unidentified contaminated soil during construction results in delays to program or increased costs due to remediation	• undertake remediation of contaminated sites, as part of the Civil Works Contract in line with the RAP prior to development • develop and implement an Unexpected Finds Protocol for all earthworks and construction activities on site, including training personnel in the procedure
	Construction activities impact upon the Aboriginal Cultural Area	• implement conservation management plan and unanticipated discovery plan for implementation during construction • define boundaries and no-go zones during construction
	Discovery of previously unidentified UXO during construction results in delays to program, increased costs due to remediation, and health and safety risks to personnel	• implement recommendations of UXO assessment prior to construction commencing • develop and implement an unexpected finds procedure for use during construction, and include training in site inductions and toolbox talks
	Sparks from machinery during construction may catch on dry grass and have the potential to start a bushfire	• observe seasonal and daily fire hazard warnings issued by the ACT Emergency Services Agency. Do not work on extreme fire danger days • implement an approved bushfire hazard management plan during construction and operation • include fire prevention and fire control instructions in site inductions
Sustainability	Earthworks, vegetation clearing and construction activities result in release of sequestered carbon and greenhouse gases	• include an assessment of carbon balance in environmental assessment to identify appropriate offsetting measures to be incorporated into the project design or managed separately • consider carbon offsetting measures if appropriate
	Decommissioned power poles not disposed of appropriately	• ensure decommissioning process has associated disposal plan, including recycling and reuse of components where possible to minimise waste to landfill

Table 5.4 Summary of Key Risks: Operational Phase

Activity	Risk	Mitigation (Summary)
Public Health and Safety Concerns	Contamination not fully remediated	• undertake all necessary contamination assessments and remediation to ensure area is appropriate for proposed land use (complete and/or underway) • engage a site auditor to have oversight of contamination remediation
	Health impacts result from high voltage powerlines in urban area	• undertake an electromagnetic radiation (EMR) study to ensure that health limits would not be exceeded for the powerline alignment (completed)
	Placement of ventilation and odour control structures associated with sewer infrastructure results in long term concerns over public health and amenity	• undertake all necessary options analysis to ensure placement is appropriate prior to construction (underway) • undertake regular maintenance to ensure well-functioning odour control system
Maintenance	Increased run off from impervious surfaces, such as car parks and roads, as well as landscaped areas impacts on water quality of Molonglo River	• maintain water treatment systems during operation to ensure water quality entering Molonglo River is within EPA guidelines
	Commitments for habitat improvement and management of adjacent areas made in NES Plan are not achieved	• undertake habitat improvement and rehabilitation within offset areas, relocation of habitat features and restoration and management within river corridor • ensure ongoing management in line with conservation commitments
	Management of open space area impacts on Aboriginal Cultural Heritage Area	• incorporate recommendations from conservation management plan into operational management plan • engage with RAO's and/or Heritage Unit regarding long-term management of the site
	Fire hazard management conducted at an inappropriate interval and intensity leading to loss of biodiversity in retained areas of vegetation, and adjacent to the site (e.g. Kama NR)	• following construction, operational management plans should be implemented to manage maintenance operations, particularly in conservation areas of box gum woodland and pink-tailed worm lizard habitat
Flow on Impacts to Adjacent Areas	Residents of Molonglo Stage 3 rely on community facilities in adjacent suburbs until fully developed resulting in increased demand for services (Positive)	• ensure recommendations made in the Study of Community, Sport and Recreation Facilities (GHD, 2014) are continually implemented based on their assigned priorities (short/medium/long term)

Activity	Risk	Mitigation (Summary)
	Occupation of suburb results in increased numbers of domestic animals in adjacent nature reserves, impacting native fauna	• implement a cat containment policy for the new suburb, particularly along the urban edge • include management of urban birds, such as common myna in operational management plans

In summary of the above tables, the key risks for the development of Molonglo Stage 3 are considered to be:

- Ensuring compliance with the NES Plan and EPBC Act, particularly with the installation of any infrastructure outside the Strategic Assessment Area footprint;
- Managing the effects of the urban edge against ecologically valuable areas, including Kama Nature Reserve and the Molonglo River corridor;
- Managing the interface between the urban area, and areas retained for their cultural heritage values;
- Balancing bushfire management requirements with conservation outcomes;
- Managing known contamination risks;
- Lengthy approvals program delaying the construction of infrastructure critical to servicing other parts of the Molonglo Valley;
- Maintaining water quality in the Molonglo River during construction and operation;
- Ensuring adequate capacity of existing road network for construction and operational traffic; and
- Risks inherently associated with design and construction projects (bushfire, sustainability, and amenity).

The following summarise the key management components (i.e. measures to avoid and mitigate) described in the PRA:

- Design of urban area to minimise impacts to retained values (e.g. through the placement and management of urban open space) and character of the region;
- Development and implementation of a construction environmental management plan (CEMP) and associated sub plans to minimise impacts during land clearing and construction;
- Undertaking contamination remediation as part of the civil works contract;
- Undertaking research into optimal management solutions for balancing conservation and bushfire outcomes, as well as the urban interface;
- Ongoing operational management of culturally significant areas;
- Ensuring best practice design (including safety, amenity and water quality) in key aspects of urban design;
- Development and implementation of an operational management plan to provide ongoing management for the urban interface at Molonglo River and Kama Nature Reserve; and
- Implementation of the recommendations of due diligence studies completed for the project area.

Management of the interface between Molonglo Stage 3, Kama Nature Reserve and the River Corridor will be paramount during design, construction and operation. The following measures are considered key to minimise impacts to landscape function and the connectivity value of the Molonglo River:

- The urban interface with the Molonglo River Park should be designed to minimise adverse environmental impacts, such as weed invasion and other edge effects, in addition to eutrophication, sedimentation, erosion and stormwater runoff;

- The connectivity between Kama Nature Reserve, the Molonglo River and the Arboretum should be enhanced by landscaping and planting within urban open space to maintain movement corridors and landscape values;

- The urban interface with Kama Nature Reserve will need to be designed and managed to avoid indirect and edge impacts to the natural values reserved within as a commitment of the NES Plan, including deterring the establishment of weeds and urban fauna species; and

- The proposed urban edge buffer and operational management plan for Kama will minimise the likelihood of any detrimental impacts of management within the Nature Reserve required to maintain bushfire protection for the future urban area.

6.0 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), the purpose of a PRA is described as:

'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, environmental risks during design, construction, and operation have been identified and assessed. Decommissioning was not considered relevant for the proposed development.

The key risks identified (rated as 'high' or above) were highlighted in **Section 5** above. It is not considered that these 'high' risks represent a major gap in understanding, or will have a high residual risk following the application of mitigation measures.

A large proportion of the risks identified are inherent to design and construction projects. These risks can be mitigated through standard management measures, such as the development and implementation of a CEMP, as demonstrated by the residual risks calculated in the PRA.

It is considered that the proponent has developed a thorough understanding of the environmental, heritage and engineering conditions and constraints of Molonglo Stage 3. This is demonstrated through the extent of background studies undertaken to date in addition to experience gained in the implementation of Stages 1 and 2 as well as selected infrastructure projects such as the southern alignment of John Gorton Drive.

There are no significant gaps remaining in understanding the condition of environmental values in the Project area.

7.0 Additional Information Required

Form 1M 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 application for exemption 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 7.1**) were utilised by Umwelt for the assessment of the Molonglo Stage 3 project. These are limited to the reports highlighted with an asterisk in **Section 2.3** as the primary sources used to inform the assessment.

Note: the report ages stated in **Table 7.1** were correct at the time of submission of this document for public notification (October 2017). They have not been updated since this time.

Table 7.1 Information Sources Utilised

Source	Report Age	Principal Author (s)	Criteria ✓ meets criteria - criteria not applicable x does not meet criteria					Verified as Current
			A	B	C	D	E	
Bushfire Risk Strategy Molonglo Stage 3, Denman Prospect and The Molonglo River Corridor (ABPP, 2016)	<18 months	The authors and reviewer are identified in the report and on the understanding of the author of this report, they are considered to be appropriately qualified and experienced.	✓	-	-	-	-	N/A. Less than 18 months old.
NES Plan (ACTPLA, 2011)	5 years	The author(s) is not individually named in the report, however it is a publically released ACT Government report.	✓	-	✓	✓	-	Yes. Statutory document. Has been through public consultation and is now policy.
Molonglo Stage 3 Future Urban Release: Sub Surface testing report and further studies (Biosis, 2013)	4 years	The author is identified as Lyn O'Brien and on the understanding of the author of this document, they are considered to be appropriately qualified and experienced.	✓	-	-	✓	✓	Yes. This assessment has been endorsed by the ACT Heritage Council, and is considered the most up to date information on the area.
Molonglo Stage 3 Additional Areas Cultural Heritage Assessment (Biosis 2014)	3 years	The author is identified as Lyn O'Brien and on the understanding of the author of this document, they are considered to be appropriately qualified and experienced.	✓	-	-	✓	✓	Yes. This assessment has not yet been endorsed by the ACT Heritage Council, subject to a number of minor changes requested on the draft report, however is considered the most up to date information relating to this area. As no activities have been undertaken on the ground within the area subject to the assessment since the time of its completion, it is considered to remain current.

Source	Report Age	Principal Author (s)	Criteria ✓ meets criteria - criteria not applicable X does not meet criteria					Verified as Current
			A	B	C	D	E	
Molonglo Stage 3 Vegetation Classification and Condition Assessment (Biosis 2016)	<18 months	The authors and reviewer are identified in the report and on the understanding of the author of this report, they are considered to be appropriately qualified and experienced	✓	-	-	✓	-	N/A. Less than 18 months old.
Molonglo 3 Major Electrical Infrastructure Relocation Concept Design Report (Calibre, 2015)	<18 months	The authors and reviewer are identified in the report and on the understanding of the author of this report, they are considered to be appropriately qualified and experienced.	✓	-	-	-	-	N/A. Less than 18 months old.
Kama Interface Management Strategy (Capital Ecology, 2016)	<18 months	The authors and reviewer are identified in the report and on the understanding of the author of this report, they are considered to be appropriately qualified and experienced.	✓	-	-	-	-	N/A. Less than 18 months old.
Molonglo Valley Vegetation Survey: Baseline Condition Assessment (ELA 2013)	4 years	The authors and reviewer are identified in the report and on the understanding of the author of this report, they are considered to be appropriately qualified and experienced.	✓	-	-	✓	✓	Yes. The information used to support this S211 application was collected using current best practice ecological survey guidelines. As no activities have been undertaken on the ground within the area subject to the assessment since the time of its completion, it is considered to remain current, with the acknowledgement that seasonal variation and temporal fluctuations in vegetation community species composition and

Source	Report Age	Principal Author (s)	Criteria ✓ meets criteria - criteria not applicable x does not meet criteria					Verified as Current
			A	B	C	D	E	
								distribution in response to climatic conditions would be expected.
Molonglo NES Plan Superb Parrot Survey – Baseline Surveys 2013 (ELA, 2014)	3 years	The authors and reviewer are identified in the report and on the understanding of the author of this report, they are considered to be appropriately qualified and experienced.	✓	-	-	✓	✓	Yes. The information used to support this S211 application was collected using current best practice ecological survey guidelines. As no activities have been undertaken on the ground within the area subject to the assessment since the time of its completion, it is considered to remain current, with the acknowledgement that seasonal variation and temporal fluctuations in vegetation community species composition and distribution in response to climatic conditions would be expected.
Molonglo Adaptive Management Strategy (TaMS, 2013)	4 years	The author(s) is not individually named in the report however it is a publically released ACT Government report.	?	✓	✓	✓	-	Yes. This report provides a baseline assessment relevant for the point in time at which it was prepared, and has been utilised as such. It was subject to public consultation, and is part of the Molonglo Strategic Assessment documents.
Vegetation Mapping for Kama Nature Reserve, Molonglo (Umwelt, 2013a)	4 years	The authors and reviewer are identified in the report and on the understanding of the author of this report, they are considered to be appropriately qualified and experienced.	✓	-	-	✓	✓	Yes. The information used to support this S211 application was collected using current best practice ecological survey guidelines. As no activities have been undertaken on the ground within the area subject to the assessment

Source	Report Age	Principal Author (s)	Criteria ✓ meets criteria - criteria not applicable x does not meet criteria					Verified as Current
			A	B	C	D	E	
								since the time of its completion, it is considered to remain current, with the acknowledgement that seasonal variation and temporal fluctuations in vegetation community species composition and distribution in response to climatic conditions would be expected.
Review of ACT Environmental Offsets Calculator Stage 2 (Umwelt 2013b).	3 years	The authors and reviewer are identified in the report and on the understanding of the author of this report, they are considered to be appropriately qualified and experienced.	✓	-	-	✓	✓	Yes. The information used to support this S211 application was collected using current best practice ecological survey guidelines. As no activities have been undertaken on the ground within the area subject to the assessment since the time of its completion, it is considered to remain current, with the acknowledgement that seasonal variation and temporal fluctuations in vegetation community species composition and distribution in response to climatic conditions would be expected.
Molonglo Stage 3: Major Electrical Infrastructure Relocation, Environmental and Heritage Constraints (Umwelt, 2014)	3 years	The authors and reviewer are identified in the report and on the understanding of the author of this report, they are considered to be appropriately qualified and experienced.	✓	✓	-	✓	✓	Yes. This report is still considered relevant, as was compiled as a literature review of other verified sources in this table.

Source	Report Age	Principal Author (s)	Criteria ✓ meets criteria - criteria not applicable X does not meet criteria					Verified as Current
			A	B	C	D	E	
Molonglo Valley Stage 3 (Area A) Stage 2 Detailed Site Investigation (WSP 2016).	< 12 months	The authors and reviewer are identified in the report and on the understanding of the author of this report, they are considered to be appropriately qualified and experienced.	✓	-	-	✓	-	Yes. Less than 18 months old.
Molonglo Valley Stage 3 (Area B) Stage 2 Detailed Site Investigation (WSP 2016b)[6].	< 18 months	The authors and reviewer are identified in the report and on the understanding of the author of this report, they are considered to be appropriately qualified and experienced.	✓	-	-	✓	-	Yes. Less than 18 months old.
Site Audit Report: Molonglo Valley Stage 3 Future Urban Area: Area A (Zoic, 2017a)	<18 months	The authors and reviewer are identified in the report and on the understanding of the author of this report, they are considered to be appropriately qualified and experienced.	✓	-	-	-	-	N/A. Less than 18 months old.
Site Audit Report: Molonglo Valley Stage 3 Future Urban Area: Area B (Zoic, 2017b)	<18 months	The authors and reviewer are identified in the report and on the understanding of the author of this report, they are considered to be appropriately qualified and experienced.	✓	-	-	-	-	N/A. Less than 18 months old.

[6] Included in this table as a primary source, however not provided as supporting document due to size. All relevant findings and recommendations are provided in Site Audit Reports (Zoic 2017b).

8.0 References

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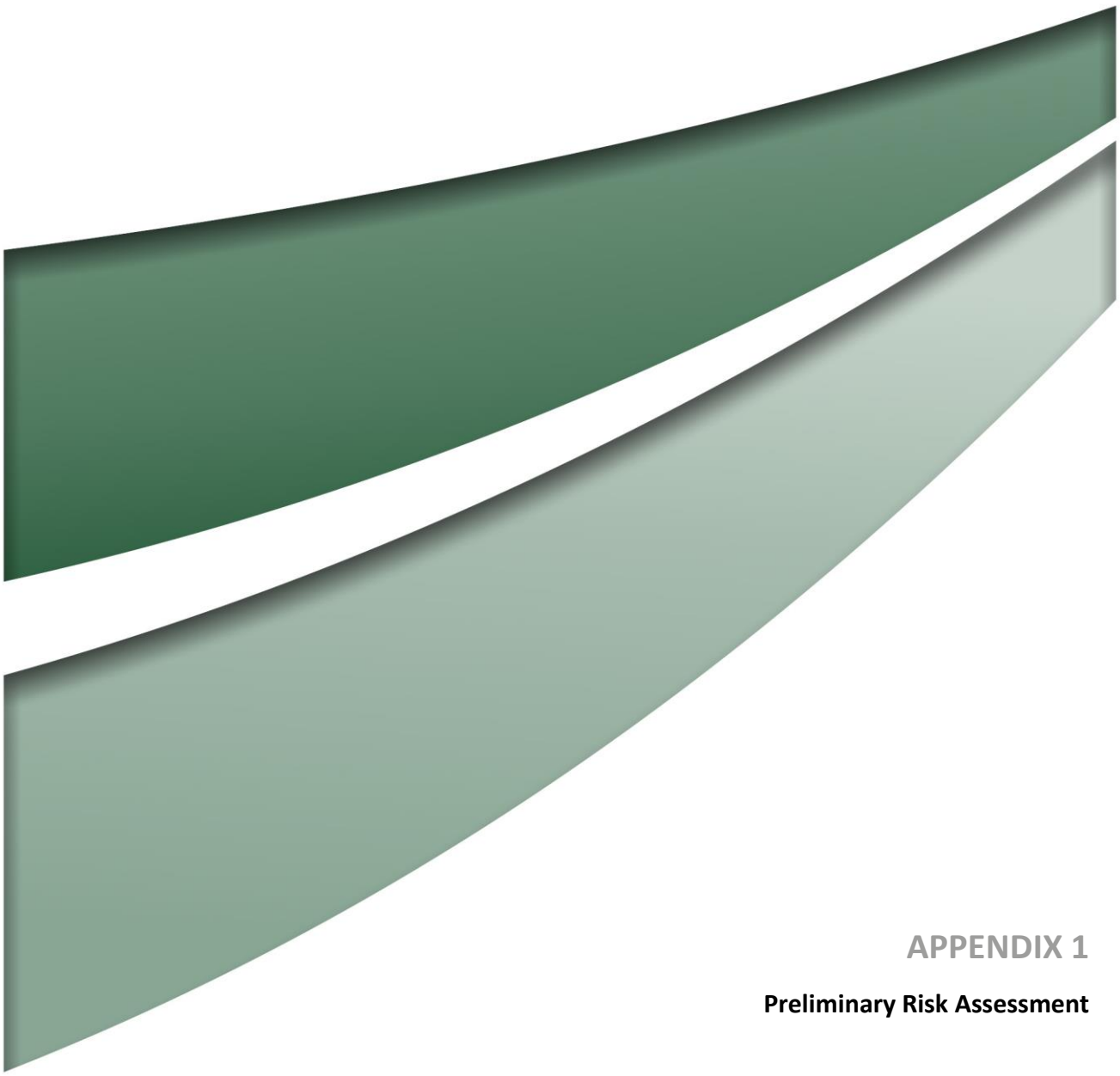


APPENDIX 1

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

LIKELIHOOD	
Remote (R)	Extremely rare or previously unknown to occur
Unlikely (U)	Unlikely to occur during the Project
Possible (P)	Possible under exceptional circumstances
Likely (L)	May occur during the Project or beyond the Project
Almost Certain (C)	Expected to occur during the Project or beyond the Project

		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 3 PRA

Phase of Development	Activity	Effects Without the application of mitigation or management measures	Category of Risk	Likelihood	Consequence	Risk Rating	Mitigation/Management Measures	Complexity, implementation risk	Residual		
									Likelihood	Consequence	Risk Rating
Design	**Design Development**	Development footprint exceeds approved Strategic Assessment Area (e.g. water supply infrastructure) resulting in potential non-compliance with EPBC Approval	Various	**L**	**D**	**H**	- confirm footprint and required services / infrastructure - gain EPBC Approval for any impacts outside the approved area if MNES are identified - establish no-go zones, site boundaries and fences (where required) prior to construction commencing to prevent unauthorised access into protected areas, particularly offsets, the river corridor and Kama NR	Moderate	**P**	**D**	**M**
		Design of surface drainage results in changes to hydrology and nutrient levels in river corridor and areas of retained MNES habitat	Ecological	**P**	**J**	**H**	- incorporate Water Sensitive Urban design (WSUD) principles and water quality considerations in drainage design - design stormwater system to ensure site runoff does not flow across protected areas of pink-tailed worm lizard habitat or native vegetation communities - treat stormwater prior to entering Molonglo River	Moderate	**U**	**J**	**M**
		Design of ecological buffer between Kama Nature Reserve and urban area not appropriate, and results in adverse impacts to the value of the conservation area	Ecological	**P**	**J**	**H**	- final urban edge of Molonglo 3 to be determined at EDP stage, in consultation with relevant Government agencies - design of street layouts, lighting and urban edge infrastructure to consider the recommendations of Capital Ecology (2016)	Moderate	**U**	**J**	**M**
		Design of urban area results in loss of up to 17.6 (8.5 hectares confirmed habitat; 9.1 potential habitat) hectares of habitat for pink-tailed worm-lizard	Ecological	**C**	**J**	**E**	- gain approval under EPBC Act for impacts to pink-tailed worm-lizard (complete) - implement and monitor the 'impact budget' as approved under the EPBC Act - gain approval under PD Act for impacts to pink-tailed worm-lizard (underway) - implement avoidance and mitigation measures specified in NES Plan - *compensate for unavoidable impacts through offsets identified by the NES Plan*	Moderate	**C**	**J**	**E**
		Design of urban area results in loss of up to 0.3 hectares of box gum woodland within patch 'H'	Ecological	**C**	**D**	**V**	- gain approval under EPBC Act for impacts to box gum woodland (complete) - implement and monitor the 'impact budget' as approved under the EPBC Act - gain approval under PD Act for impacts to box gum woodland (underway) - implement avoidance and mitigation measures specified in NES Plan - *compensate for unavoidable impacts through offsets identified by the NES Plan*	Moderate	**C**	**D**	**V**
		Design of urban area results in loss of habitat for woodland birds	Ecological	**L**	**D**	**H**	- implement avoidance and mitigation measures specified in NES Plan - *compensate for unavoidable impacts through offsets identified by the NES Plan*	Moderate	**L**	**D**	**H**
		Design of urban area results in loss of threatened flora species	Ecological	**P**	**D**	**M**	- minimise impact to potential habitats through avoidance of woodland offset areas identified by the NES Plan	Low	**P**	**F**	**L**
		Design of urban area results in the loss of >5 hectares of native vegetation	Ecological	**C**	**J**	**E**	- gain approval under PD Act for impacts to native vegetation (underway) - minimise clearing footprints in areas of native vegetation	Moderate	**C**	**D**	**V**
		Integration of heritage values of the Cultural Area into urban landscape not appropriate and results in adverse impacts to the value of the sites	Various	**P**	**J**	**H**	- consult with Heritage Unit regarding ongoing management of site and surrounding area - develop a conservation management plan and unanticipated discovery plan for implementation during construction - engage with RAO's if any impact likely to occur	Moderate	**U**	**J**	**M**

Phase of Development	Activity	Effects Without the application of mitigation or management measures	Category of Risk	Likelihood	Consequence	Risk Rating	Mitigation/Management Measures	Complexity, implementation risk	Residual		
									Likelihood	Consequence	Risk Rating
		Design of facilities and urban development adjacent to the river corridor and western edge results in adverse impacts to otherwise avoided or retained ecological values prescribed in the NES Plan	Ecological	P	J	H	- Masterplan to be considerate of ecological values in adjacent areas, including sympathetic adjacent land uses and adequate open space buffers	Moderate	U	J	M
		Management of Strategic Firefighting Advantage Zones (SFAZ) in Kama Nature Reserve is not appropriate for the ecological values present	Ecological	L	D	H	- implement the Kama Operation Plan for any bushfire or maintenance works required within the reserve - establish sensitive mowing regime to be undertaken outside the reserve to manage potential weed infestation	Moderate	U	D	W
		Location of urban edge requires substantial bushfire mitigation works outside of the Kama Nature Reserve, with potential impacts on conservation values	Ecological	L	D	H	- establish a (minimum) 60 metre inner asset protection zone - development to be designed in consultation with emergency services and land managers responsible for implementing post-construction obligations under the NES Plan and EDP stage - appropriate management regimes and bushfire asset protection zones to be established within and around urban area with consideration to conservation values in Kama NR	Moderate	U	D	W
		Opportunities for public transport and pedestrian access not fully realised in suburb design, resulting in car dependency and poor suburb functionality	Community	U	J	M	- implement recommendations made in the Study of Community, Sport and Recreation Facilities (GHD, 2014) based on their assigned priorities (short/medium/long term) - undertake community consultation to ensure community desires are incorporated into the design	Low	U	D	W
		Loss of developable land and additional planning requirements from implementation of the NES Plan have financial implications on ACT Government	Financial	P	D	M	- ensure commitments made in NES Plan are understood prior to detailed design to minimise any non-compliances - ensure requirements under NES Plan are communicated to all contractors working on design and site investigation studies	Moderate	P	I	W
		Buffers around existing water main and sewer trunk main assets is not incorporated into the design, impacting upon existing infrastructure.	Infrastructure/ Engineering	L	D	H	- Ensure existing infrastructure is considered throughout the design stages of the proejct. - Consult with relevant infrastructure providers and managers to ensure the most up to date information is considered and design strategies implemented are appropriate and feasible.	Low	U	D	W
	Site Investigations	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 EPBC Approval	Ecological	P	D	M	- establish no-go zones for site investigation studies - inform all contractors of constraints associated with the site, and approval conditions which must be complied with - ensure contractors implement an environmental management plan for intrusive works on site	Low	U	D	W
		Subsurface conditions that may impact construction activities not identified and inappropriate design concepts developed as a result	Infrastructure/ Engineering	P	J	H	- incorporate recommendations of contamination and geotechncial assessments into project planning decisions	Moderate	U	J	M
		UXO investigations identify that significant remediation is required to make site safe	Infrastructure/ Engineering	P	J	H	- implement recommendations of assessment prior to construction commencing - include provision for remediation in project budget	Moderate	U	J	M

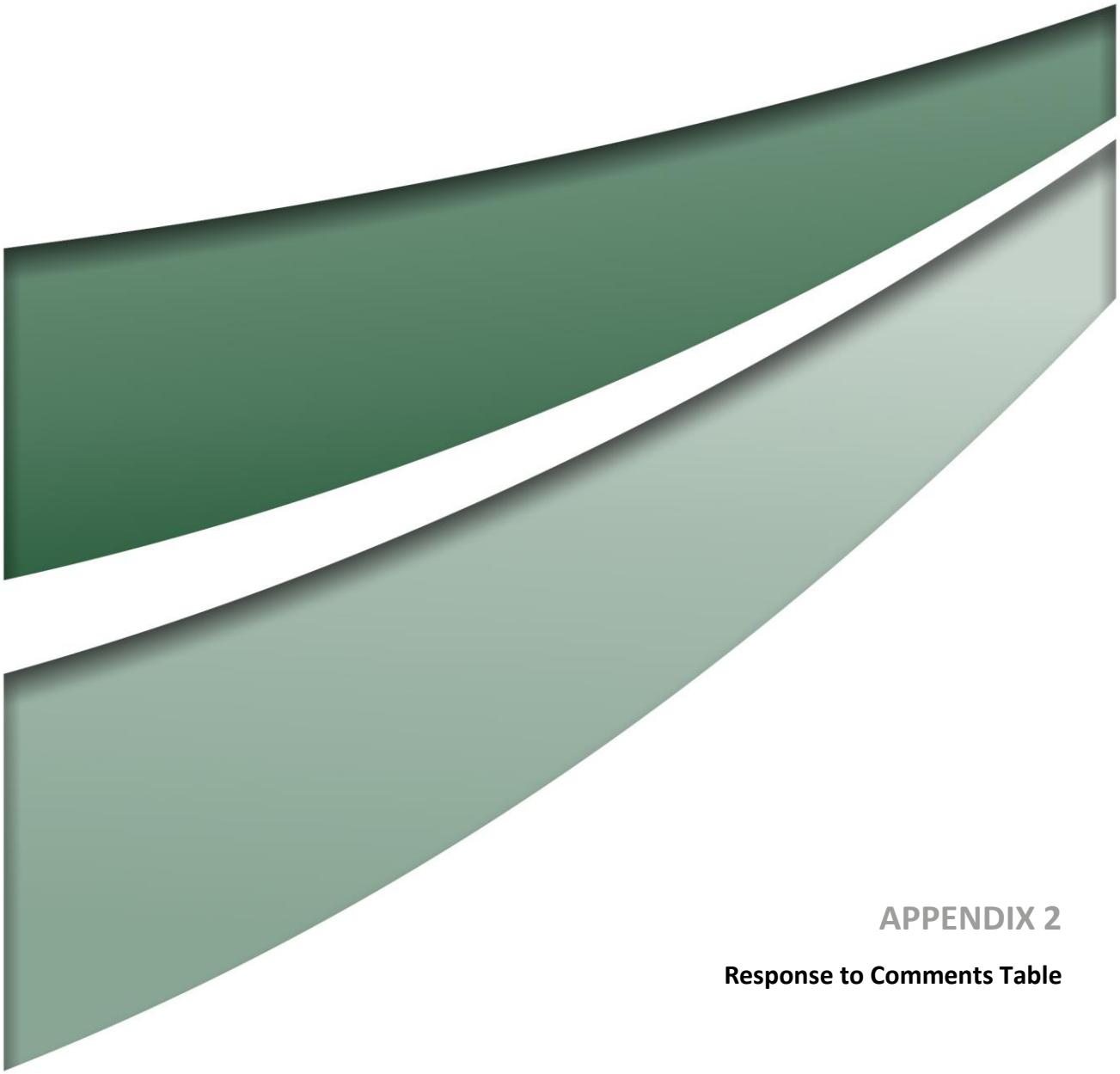
Phase of Development	Activity	Effects Without the application of mitigation or management measures	Category of Risk	Likelihood	Consequence	Risk Rating	Mitigation/Management Measures	Complexity, implementation risk	Residual		
									Likelihood	Consequence	Risk Rating
	Engineering inspections, service location and siting	Water infrastructure (e.g. ponds or water main) are located within areas avoided by the NES Plan, or outside the strategic assessment area, potentially resulting in additional impacts to MNES and non-compliance with EPBC Approval	Ecological	**P**	**J**	**H**	- consult with the C'wlth (DoEE) for any impacts (permanent or temporary) within areas protected by the NES Plan - gain EPBC Approval for any impacts outside the approved area if MNES are identified and seek approval under PD Act for any infrastructure outside of this scope	Moderate	**P**	**D**	**M**
		Odour and visual impacts from the sewer vents result in amenity impacts, potential reduction in value of some residential areas, and health concerns	Various	**P**	**D**	**M**	- minimise visual impacts of sewer vents during design, in particular, height of vents - incorporate best practice odour mitigation practices into design and construction of sewer vents	Low	**U**	**D**	**W**
		Alignment and design of sewage odour control system for existing Molonglo Valley Interceptor Sewer results in loss of developable land and easements for setbacks	Infrastructure/ Engineering	**P**	**J**	**H**	- undertake detailed design and options analysis to ensure visual impacts, odour impacts, and encroachment on urban area is minimised	Moderate	**P**	**I**	**W**
		Existing Liquid Waste Receival Facility is not decommissioned ahead of development and requires ongoing access and use for disposal of septic wastes into the sewerage system.	Various	**P**	**D**	**M**	- undertake consultation to agree schedule and funding for commencement of new facility at LMWQCC and decommissioning of the existing facility	Moderate	**P**	**I**	**W**
		Existing road network does not have capacity to service new development	Infrastructure/ Engineering	**P**	**J**	**H**	- undertake traffic planning studies early in design process to ensure capacity of roads to handle additional traffic - implement recommendations of studies prior to occupation of suburbs	Moderate	**P**	**D**	**M**
Approvals	**Approvals**	Delays in approval decisions result in financial implications for the ACT Government, and delays in the land release program	Service Delivery	**L**	**D**	**H**	- commence planning and approvals processes early - have realistic expectations of potential delays / length of time required for approvals - undertake due diligence studies prior to commencing approvals processes to minimise scoping document requirements	Low	**P**	**D**	**M**
		Approval process delays construction of critical road infrastructure and connections required to service Molonglo 1 and 2	Service Delivery	**L**	**D**	**H**	- consult with EPD during design development to ensure clear communication of project timeframes and needs - consider assessing critical roads separately if delays are expected	Low	**P**	**D**	**M**
		Construction of powerlines requires standalone Impact Track Assessment which results in time delays and additional project costs	Service Delivery	**L**	**J**	**V**	- undertake early consultation regarding environmental impact assessment requirements for the powerlines - include time and cost provisions in planning considerations - undertake constraints and impact analysis during design to fully understand impacts of alignment to support a S211 process	High	**L**	**D**	**H**
		Land acquisition process results in delays and community complaints	Service Delivery	**L**	**D**	**H**	- commence negotiations with landholders as soon as possible	Low	**L**	**I**	**M**
	Offset	Additional offsets may be determined to be required due to impacts outside the original approval area which are difficult to find and/or cause delays for development	Various	**P**	**D**	**M**	- determine whether additional MNES would be impacted by works - prepare an EPBC Referral if required - identify suitable offset and commence process if determined to be required	Low	**U**	**D**	**W**

Phase of development	Activity	Effects Without the application of mitigation or management measures	Category of Risk	Likelihood	Consequence	Risk Rating	Mitigation / Management Measures	Complexity, implementation risk	Residual		
									Likelihood	Consequence	Risk Rating
Construction	**Vegetation and Habitat Clearing**	Clearing vegetation outside approved disturbance area due to unclear demarcation of boundaries results in non-compliance with EPBC approval	Ecological	**U**	**J**	**M**	- establish no-go zones, site boundaries and fences prior to construction commencing to prevent unauthorised access into adjacent areas - inform DoE immediately if any impacts outside approved area occur	Low	**R**	**J**	**W**
		Edge impacts to vegetation communities adjacent to project area (in Kama Nature Reserve or the River Corridor) increases extent of MNES disturbed and requires additional restoration / remediation works	Ecological	**P**	**J**	**H**	- clearly mark limits for clearing prior to any construction commencing - develop and implement industry best practice CEMP - reseed disturbed areas with native grass mix where possible, particularly adjacent to areas of box gum woodland - develop and implement management plans to avoid or minimise environmental risks (e.g. sedimentation, erosion, weeds, storm water runoff, etc) - monitor adjacent areas of box gum woodland during the construction phase	Moderate	**U**	**J**	**M**
		Vegetation clearing results in the loss of pink-tailed worm lizard habitat, box gum woodland, potential threatened bird and flora habitat, and native vegetation	Ecological	**L**	**J**	**V**	- implement mitigation measures in NES Plan, including preparation of a CEMP, weed control, and erosion and sediment control - undertake habitat improvement and rehabilitation within offset areas, relocation of habitat features and restoration and management within river corridor - prevent indirect additional impacts through comprehensive construction management plans - monitor for any unanticipated impacts to MNES within the Annual Reporting process and manage within the 'impact budget' as appropriate	Moderate	**L**	**I**	**M**
		Vegetation clearing results in a loss of visual amenity, particularly related to the prescribed environmental values of the Molonglo River	Various	**L**	**D**	**H**	- develop and implement industry best practice CEMP which includes rehabilitation/landscaping plan - incorporate landscaping buffers and visual screens into design/construction - plan for early establishment of landscaping features - implement concepts in the Molonglo River Park Concept Plan Report (Hassell, 2012)	Low	**L**	**I**	**M**
	Site Access and Management	Uncontrolled access by vehicles leads to dispersal of litter and other pollutants, damage to habitat in sensitive areas or areas to be retained, pollution of the Molonglo River, soil compaction, and spread of weeds resulting in larger area of impact to that approved	Environmental	**P**	**D**	**M**	- establish no-go zones, site boundaries and fences prior to construction commencing to prevent unauthorised access into adjacent areas - implement CEMP to manage construction activities and assign responsibilities for environmental management and monitoring	Low	**U**	**D**	**W**
		Increased occurrence of exotic and pest animals resulting from waste generated during construction degrade remaining habitat values	Ecological	**P**	**D**	**M**	- develop and implement management plans as appropriate - manage waste during construction to deter pest animals - manage weed infestations as required	Low	**U**	**D**	**W**
		Increased volumes of construction traffic on William Hovell Drive and construction of road connections results in traffic disruptions	Community	**L**	**D**	**H**	- develop and implement industry best practice CEMP which includes construction traffic management plan	Low	**L**	**I**	**M**
	General Construction Activities	Discovery of previously unidentified contaminated soil during construction results in delays to program or increased costs due to remediation	Various	**P**	**J**	**H**	- undertake remediation of contaminated sites, as part of the Civil Works Contract in line with the RAP prior to development - develop and implement an Unexpected Finds Protocol for all earthworks and construction activities on site, including training personnel in the procedure	High	**P**	**D**	**M**

		Discovery of previously unidentified UXOs during construction results in delays to program, increased costs due to remediation, and health and safety risks to personnel	Various	**P**	**J**	**H**	- implement recommendations of UXO assessment prior to construction commencing - develop and implement an unexpected finds procedure for use during construction, and include training in site inductions and toolbox talks	High	**P**	**D**	**M**
		Earthworks result in the destruction of previously unidentified Aboriginal or European cultural heritage items	Community	**P**	**D**	**M**	- implement recommendations of heritage assessment - develop and implement an Unanticipated Discovery Plan during clearing and construction activities, including training personnel in procedure	Moderate	**P**	**I**	**W**
		Construction activities impact upon the Aboriginal Cultural Area	Community	**P**	**J**	**H**	- implement conservation management plan and unanticipated discovery plan for implementation during construction - define boundaries and no-go zones during construction	Low	**U**	**J**	**M**
		Construction activities result in noise and vibration impacts, reducing local amenity, potentially resulting in non-compliance with EP Act, or impacting on local fauna	Environmental	**L**	**I**	**M**	- develop and implement industry best practice CEMP which includes a noise and vibration management plan - identify sensitive receptors - conduct construction activities in accordance with EPA requirements - maintain plant and equipment in accordance with manufacturers recommendations and best practice.	Low	**P**	**I**	**W**
		Construction activities result in impacts to air quality (vehicle emissions, dust, etc.), reducing local amenity, potentially resulting in non-compliance with EP Act	Environmental	**L**	**I**	**M**	- develop and implement industry best practice CEMP which includes an air quality and dust management plan - identify sensitive receptors - conduct construction activities in accordance with EPA requirements - maintain plant and equipment in accordance with manufacturers recommendations and best practice.	Low	**P**	**I**	**W**
		Sparks from machinery during construction may catch on dry grass and have the potential to start a bushfire	Various	**P**	**J**	**H**	- maintain plant and equipment in accordance with manufacturers recommendations and best practice - observe seasonal and daily fire hazard warnings issued by the ACT Emergency Services Agency. Do not work on extreme fire danger days - implement an approved bushfire hazard management plan during construction and operation - keep vehicles on formed roads and paths, and away from long grass where possible - provide appropriate parking areas for personnel that are away from long grass and other ignition sources - avoid unnecessary idling of vehicles - equip all vehicles on site with fire extinguishers - include fire prevention and fire control instructions in site inductions - do not undertake hotworks outside designated workshop areas	Low	**U**	**J**	**M**
		Fuel or chemical spills or inappropriate material storage contaminates soil, ground water and/or local waterways, which could result in fines under EP Act and damage to aquatic ecosystems	Financial	**P**	**D**	**M**	- develop and implement industry best practice CEMP which includes waste management plan, including storage and stockpiling of raw materials, transport of materials to site and disposal of materials - identify location of site sheds / storage areas and construction vehicle parking in CEMP away from sensitive areas - develop a spill management protocol - include spill management protocol in site inductions	Low	**U**	**D**	**W**
		Existing infrastructure (such as water and sewer mains) are damaged as a result of construction activities.	Infrastructure/ Engineering	**L**	**D**	**H**	- Ensure that all contractors are made aware of the location of all existing infrastructure prior to construction commencing. - Ensure that appropraite avoidance measures are undertaken (including signage and inductions as required) whenever construction works is occuring in the vicinity of the existing infrastructure.	Low	**U**	**D**	**W**
	Compliance	Construction activities result in environmental impacts that are not reported or otherwise acted upon adequately	Environmental	**P**	**D**	**M**	- appoint a third party to conduct audits on environmental approvals and performance against criteria identified in the NES Plan and CEMP - results of audits are to be reported back to the ACT planning approval authority and other agencies (such as DoE) as appropriate - refer to requirements of DoE approval under EPBC Act for other monitoring and reporting obligations for associated offsets	Moderate	**U**	**D**	**W**

		CEMPs, including monitoring and auditing requirements, are not implemented effectively leading to various environmental, social and economic impacts	Various	**P**	**D**	**M**	- 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 - results of audits are to be reported back to the ACT planning approval authority and other agencies as appropriate	Low	**U**	**D**	**W**
		Risk not adequately identified resulting in incomplete understanding of environmental constraints	Various	**P**	**D**	**M**	- update PRA as additional information becomes available - use most up to date information to inform risk assessment	Low	**U**	**D**	**W**
	Sustainability	Earthworks, vegetation clearing and construction activities result in release of sequestered carbon and greenhouse gases	Environmental	**L**	**D**	**H**	- include an assessment of carbon balance in environmental assessment to identify appropriate offsetting measures to be incorporated into the project design or managed separately - consider carbon offsetting measures if appropriate	Moderate	**L**	**I**	**M**

Phase of development	Activity	Effects Without the application of mitigation or management measures	Category of Risk	Likelihood	Consequence	Risk Rating	Mitigation / Management Measures	Complexity, implementation risk	Residual		
									Likelihood	Consequence	Risk Rating
Operational	**Functionality of suburb, community needs and expectations**	Occupation of suburb increases vehicle traffic on local network resulting in traffic congestion, wear on local roads and increases in accidents	Infrastructure/ Engineering	**P**	**D**	**M**	- amend road upgrade schedule to manage increased traffic	Low	**P**	**I**	**W**
		Development does not satisfy community's expectations for employment, entertainment and community requirements	Community	**U**	**J**	**M**	- undertake a community needs analysis - ensure recommendations made in the Study of Community, Sport and Recreation Facilities (GHD, 2014) are implemented based on their assigned priorities (short/medium/long term)	Moderate	**R**	**D**	**L**
	Public health and safety	Contamination not fully remediated resulting in health and safety impacts	Community	**P**	**J**	**H**	- undertake all necessary contamination assessments and remediation to ensure area is appropriate for proposed land use (complete and/or underway)	High	**U**	**J**	**M**
		Health impacts result from high voltage powerlines in urban area	Community	**P**	**J**	**H**	- undertake an electromagnetic radiation (EMR) study to ensure that health limits would not be exceeded for the powerline alignment (completed)	Moderate	**P**	**D**	**M**
		Placement of ventilation and odour control structures associated with sewerage infrastructure results in long term concerns over public health and amenity	Community	**L**	**D**	**H**	- undertake all necessary options analysis to ensure placement is appropriate prior to construction (underway) - undertake regular maintenance to ensure well-functioning odour control system	Moderate	**P**	**D**	**M**
	Maintenance (bushfire mgmt, landscape mgmt etc)	Management of asset protection zones impacts on retained areas of woodland, grassland and heritage sites	Various	**P**	**D**	**M**	- develop and implement an operational management plan to ensure site and adjacent areas (particularly the urban interface) are managed consistently with EPBC Approval conditions and ACT Government requirements - maintain implementation of adaptive management principles committed to under the NES Plan	Moderate	**U**	**D**	**W**
		Management of open space area impacts on Aboriginal Cultural Heritage Area	Community	**P**	**J**	**H**	- incorporate recommendations from conservation management plan into operational management plan - engage with RAO's and/or Heritage Unit regarding long-term management of the site	Low	**U**	**J**	**M**
		Management of ecological buffer between Kama Nature Reserve and urban area not appropriate, and results in adverse impacts to the value of the conservation area	Ecological	**P**	**J**	**H**	- implement recommendations from buffer area study into ongoing maintenance and management of buffer area - establish 60 metre inner asset protection zone within the urban area - implement Kama Operations Plan for managing activities within the reserve	Moderate	**U**	**J**	**M**
		Fire hazard management conducted at an inappropriate interval and intensity leading to loss of biodiversity in retained areas of vegetation, and adjacent to the site	Ecological	**P**	**J**	**H**	- following construction, operational management plans should be implemented to manage maintenance operations, particularly in adjacent areas of box gum woodland and pink-tailed worm lizard habitat	Moderate	**U**	**J**	**M**
		Commitments for habitat improvement and management of adjacent conservation areas made in NES Plan are not achieved	Ecological	**P**	**J**	**H**	- undertake habitat improvement and rehabilitation within offset areas, relocation of habitat features and restoration and management within river corridor, and weed management within the urban interface buffer - ensure ongoing management in line with conservation commitments	Moderate	**U**	**J**	**M**
		Increased run off from impervious surfaces, such as carparks and roads, as well as landscaped areas impacts on water quality of Molonglo River	Environmental	**P**	**J**	**H**	- maintain water treatment systems during operation to ensure water quality entering Molonglo River is within EPA guidelines	Low	**P**	**I**	**W**
	Flow on impacts to adjacent areas	Development of community facilities in Molonglo 3 draws business away from nearby areas of Belconnen resulting in economic impacts to established suburbs	Financial	**P**	**D**	**M**	- consider flow on effects to adjacent suburbs when undertaking community needs analysis	Moderate	**P**	**I**	**W**
		Residents of Molonglo 3 rely on community facilities in adjacent suburbs until fully developed resulting in increased demand for services	Financial	**L**	**D**	**H**	- ensure recommendations made in the Study of Community, Sport and Recreation Facilities (GHD, 2014) are implemented based on their assigned priorities (short/medium/long term)	Moderate	**P**	**D**	**M**
		Occupation of suburb results in increased numbers of domestic animals in adjacent nature reserves, impacting native fauna	Ecological	**L**	**D**	**H**	- implement a cat containment policy for the new suburb, particularly along the urban edge - include management of urban birds, such as common myna in operational management plans	Moderate	**P**	**D**	**M**
		Occupation of suburb results in increased pedestrian access in Kama Nature Reserve, impacting native flora and fauna	Ecological	**L**	**D**	**H**	- implement recommendations of Capital Ecology (2016) for the appropriate establishment of pedestrian paths, access points and signage to minimise potential damage from uncontrolled access	Moderate	**P**	**D**	**M**



APPENDIX 2

Response to Comments Table

Table 2 Summary of Response to Public Comments

Issue	Submission Ref.[7]	Response Summary	Relevant Report Section
Offset and Reserve Management			
The development proposes the use of offsets, which do not have the level of accountability to guarantee the stated desired outcome of no net loss of biodiversity.	2	The offsets included in this report were planned and designed under the Molonglo Strategic Assessment (NES Plan) which was approved under the Commonwealth EPBC Act. The approval of the NES Plan under the EPBC Act confirmed the appropriateness of the offsets for the Molonglo Development. As Molonglo Stage 3 is consistent with the development approved under the NES Plan, no additional offsets are required. The s211 report does not seek to, nor is required to reassess the adequacy of the offsets established by the Molonglo Strategic Assessment. There are provisions under both the NES Plan and the EPBC Act to ensure that the ACT Government's commitments are complied with, including annual reports and audits.	Not addressed further in the s211 report.
Existing reserve areas cannot be considered to provide for offsets for any loss or impact to box gum woodland as they are already protected.	3	The 'existing reserve areas' were identified as offsets under the NES Plan for the entire Molonglo Development, including Molonglo Stage 3. The offsets were established following the approval of the NES Plan, prior to construction commencing. The use of advanced offset sites is an approved component of the offset policies at both the Commonwealth and Territory level.	Not addressed further in the s211 report.
There is no plan of management for the Molonglo River Reserve, Kama Nature Reserve, or patch GG. Nor, have they been made public, or have the public been consulted properly. They were due for finalisation in November 2014. Without management plans, it cannot be properly determined whether the proposed modifications to the development will impact the natural values of the offset sites. What measures would be taken to prevent impacts from the recreational use of areas near the development? How will these be monitored and evaluated, including time periods? What remediation measures will be implemented if impacts exceed those expected?	2, 3, 8, 10, 11, FOG	There is currently a Molonglo River Reserve (Kama) Operational Plan in place, and the Molonglo River Corridor Management Plan has been drafted and is to undergo a statutory public consultation process prior to seeking formal endorsement (expected early 2018). Patch GG has been incorporated into the National Arboretum and an Operational Plan was completed in June 2014. All operational plans for the Molonglo Valley offsets have been prepared with the final development concept in mind, therefore impacts from the surrounding urban development and recreational use are the fundamental aspects being managed. All operational plans include monitoring and adaptive management processes to ensure the offsets are managed in a responsive manner. These operational plans are not publicly available. The s211 does not seek to, nor is required to assess their adequacy.	Relevant requirements of the management plans are discussed in various places in Section 2.3.2 and 2.3.3 as they relate to the PD Act triggers.
Development should not occur unless areas of natural value have been identified and measures put in place for their protection. River corridors are natural wildlife corridors, and should be afforded additional protection. Even if degraded, they should be priorities for rehabilitation, not for large-scale development. Destruction of riparian habitats is inconsistent with the ACT Government's own strategies (e.g. Action Plan 29).	4	The purpose of the NES Plan was to identify and protect the areas of highest ecological values of the Molonglo Valley. This included the Molonglo River Corridor, areas of quality habitat, and Kama Nature Reserve. The values of the river corridor are managed under the Molonglo River Reserve (Kama) Operational Plan, which was prepared as an outcome of the NES Plan, and in the context of the entire Molonglo Development. In the future, the river corridor will also be subject to the Molonglo River Reserve Management Plan.	Section 3 provides details on the natural values present within the s211 Application Area. No further amendments to the report have been made.
Access should be limited in reserve areas as this has proven to degrade environmental values in other areas. Noting the ACT Government has few resources to ensure compliance with management measures. Allowing public access into offset land would lead to increased degradation of PTWL habitat as people steal rocks, displace rocks, and catch reptiles for personal use. Furthermore, the design of construction (assumed to be Molonglo 2) and the re-colonisation' zone for PTWL promotes stealing of rocks for gardens. It is a known issue that PTWL are targeted by poachers, and it is well known that they occupy the area.	4, 8	The PRA in the s211 report identifies unrestricted public access is a key risk to conservation values, and proposes education, signage, limited access gates, and formal pedestrian paths to minimise damage. It is agreed that it would also be appropriate to restrict public access entirely in areas of sensitive PTWL habitat. The draft plan of management for the Molonglo River Corridor is understood to already include measures to limit public access to areas of conservation significance, which would address this concern. Also, through the Molonglo River Reserve Management Plan, the Territory Plan zoning for the corridor will be re-zoned from 'Pd' (special purpose reserve) to predominantly 'Pc' (nature reserve).	Relevant requirements of the management plans are discussed in various places in Section 2.3.2 and 2.3.3 as they relate to the PD Act triggers. No amendments have been made to the PRA or s211 report.

[7] Reference number refers to the submission number used in the consolidated comments from EPSDD, entity comments include an 'E' at the front of the relevant number, and EPSDD comments are also separated out. 'FOG' relates to the comments made by Friends of Grassland on their website. It is noted that FOG did not submit their comments through the appropriate statutory channels, but they have made their response public on their website.

Issue	Submission Ref.[7]	Response Summary	Relevant Report Section
Concern that the planned restoration of PTWL won't work, despite the recent success of direct seeding.	4	All relevant management plans will include adaptive management measures. If monitoring results determine PTWL habitat and/or populations are declining, then management measures will be modified appropriately.	Not addressed further in the s211 report.
Without careful management, there will be erosion issues on land near the river due to its steepness and people walking down to the river. Such close proximity to the river also means rubbish/nutrient pollution/invasive/domestic animals will be a problem. Hard surfaces from residential development also create surplus run-off into the Molonglo River Reserve.	4	These concerns are identified in the PRA in the s211 Report. Runoff from residential areas will be minimised through best practice design including the use of water quality ponds and WSUD. Impacts from erosion, rubbish, invasive flora and fauna, and domestic animals within the river corridor would be managed through the Molonglo River Corridor Management Plan. A draft of the Molonglo River Corridor Management Plan has been prepared and is subject to the statutory processes prior to seeking formal endorsement (expected in early 2018).	Relevant requirements of the management plans are discussed in various places in Section 2.3.2 and 2.3.3 as they relate to the PD Act triggers. No amendments have been made to the PRA or s211 report.
According to the NES Plan, box gum woodland patches C and H are to be adaptively managed to maintain and enhance their ecological condition. The exemption report repeats this aim but designates these areas as urban open space. This gives no surety of the retention of values into the future and implies that it will be managed by Transport Canberra and City Services (TCCS) and not Parks and Conservation Service (PCS) whom have a demonstrated history of managing such ecosystems. Patch N is also to be adaptively managed. It is unclear how this is to occur. Omission of any operational plan for it is totally unacceptable. For adaptive management to occur, operational plans must first be developed and implemented.	FOG (not submitted)	Box gum woodland patches C, H, and N are not offset areas, and as such it is not inappropriate that they are included as open space. They will be managed in accordance with management plans to be prepared by EPSDD in 2017-18. These management plans will be subject to all relevant statutory processes. All management plans prepared under the NES Plan include adaptive management processes, which allow activities to be modified should monitoring indicate a decline in quality. Patch N is currently being managed by the Suburban Land Authority for weeds, pests, and bushfire fuel load monitoring.	Information on the proposed management of box gum woodland patches C, H, and N are addressed in Section 2.3.2.1. The remainder of this comment is not addressed further in the s211 report.
Development Buffers			
Cannot expect that urban areas and natural systems can co-exist. Sufficient buffers are required, away from roads and suburbs.	9	This risk is identified in the PRA. The values of the relevant natural systems in the Molonglo Valley (e.g. Kama Nature Reserve and the Molonglo River Corridor) have been and will continue to be considered during the design phase. Buffer distances will be set during the EDP stage. Management of buffers will be incorporated into the relevant management plans.	Section 2.3.2.3
The same issue (i.e. relating to the identification and management of buffers) pertains to the protection of the natural values within the Molonglo River Reserve, where the future urban area boundary has been extended towards the Molonglo River.	FOG (not submitted)	The southern FUA boundary along the Molonglo River Corridor has been defined by block boundaries and the MVIS access road, as in previous studies. It is understood that the reference to the FUA boundary being 'extended towards Molonglo River' refers instead to the minor change to the boundary surrounding Deep Creek. This change has been made to ensure the commitments of the NES Plan (i.e. that WSUD measures will occur within the Future Urban Area) are met. This change in boundary will not have any impact on MNES or other protected values and is not inconsistent with the NES Plan. Final subdivision boundaries to Molonglo River corridor will be determined at subdivision and EDP/DA stage.	Not addressed further in the s211 report.
Non-compliance with the EPBC Act due to not identifying the Kama Buffer. The NES Plan states that the buffer will be developed as part of the final Planning and Design Framework for stage 3. The buffer is intended to protect those values from the impact of urban development. The width and use of the buffer around Kama Reserve needs to be described and identified on maps, to ensure MNES requirements are met as development proceeds. It is not adequate to state that further assessment of impacts will be conducted at EDP stage of the process. It is misleading (due to a lack of transparency).	2, 8, 10, 11, EPSDD	The buffer adjacent to the Kama Nature Reserve will be consistent with that recommended in the Capital Ecology (2016) Strategy. The treatment and mitigation of impacts will reflect the ESA Bushfire Strategy. This information will also be documented in the Planning and Design Framework (PDF) for Molonglo Stage 3, which is a requirement of the NES Plan.	Section 2.3.2.3

Issue	Submission Ref.[7]	Response Summary	Relevant Report Section
The limited buffer of urban open space for Kama Nature Reserve, as outlined in the s211 application, is not considered sufficient or justified. The documentation does not deal adequately with the buffer issue requirement to mitigate urban edge effects. The buffer should be larger than 60 metres (the minimum for fire management and mitigation). Kama is currently known breeding habitat for several threatened and/or declining woodland birds (brown treecreeper, varied sittella, white-winged triller, scarlet robin, diamond firetail, and speckled warbler). Research has shown than 40% of the bird species observed in Molonglo were not seen in or within a few hundred metres of the suburbs. COG is of the view that there should be no housing in the block down to Deep Creek. There should be a minimum of 300 metres allowed within the buffer block for any bushfire asset protection measures. Some of the nearest housing blocks beyond the creek could be used for appropriate broadacre uses (e.g. community hall, recreation area for residents). The Conservator will support the exemption for all development east of Deep Creek. Development west of Deep Creek should be subject to the recommendations of the Capital Ecology report.	8, E6, FOG	The treatment and boundary of the buffer within the future urban area will be consistent with the recommendations outlined in the Capital Ecology (2016) Strategy. Further discussion about threatened woodland birds has also been provided.	Section 2.3.2.1, 2.3.2.2, 2.3.2.3
There is no supporting study in the application which determines what this buffer should be or what considerations this is based on. The s211 EIS Exemption Application does not include, nor is consistent with, the findings of a recent study that addressed the expected impacts of the development on Kama Nature Reserve.	8, 10, FOG	The report prepared by Capital Ecology (2016) Strategy will be supplied with the amended s211 report. The buffer adopted will be consistent with the Capital Ecology (2016) Strategy. Further detail on this matter is provided in the s211 report.	Section 2.3.2.3
Within the area that has been mapped in previous studies as potential buffer to the east of Kama Nature Reserve, there is a patch of woodland as well as scattered trees. In Ecological Australia (2013) part of this was identified as meeting criteria for box gum woodland. Biosis (2016) indicated that it didn't at that time meet the criteria for box gum woodland. However, it contains old growth trees that should be managed within the urban footprint.	FOG (not submitted)	The Capital Ecology (2016) Strategy recommends the retention of a number of trees within the buffer zone. This is included as a recommendation of the s211 report. However, retention of trees must also be compliant with the recommendations and requirements of the bushfire management plan.	Section 2.3.2.6
Threatened Species			
Recent research on the habitat requirements of superb parrot has been completed since the NES Plan was completed. Has this information been included in the s211 EIS Exemption Application?	5	The s211 report has included the following references regarding superb parrot: • Molonglo NES Plan Superb Parrot Survey – Baseline Surveys 2013 (ELA, 2014). • Monitoring of the 2014 Superb Parrot Breeding Event, Australian Capital Territory (Umwelt, 2015). • Davey (2012) Distribution, Abundance and Breeding Status of the Superb Parrot (Polytelis swainsonii) during the 2011-12 Breeding Season Central and Lower Molonglo Valley, ACT. No further discussion has been provided in regard to superb parrot, as any impacts have been addressed by the NES Plan, and the Molonglo Adaptive Management Strategy under the NES Plan allows for new information to be incorporated into management plans as relevant.	Not addressed further in the s211 report.
The proposal would traverse the habitat of PTWL.	2	Impacts to PTWL were assessed under the NES Plan. There are no requirements under ACT legislation to re-assess impacts to MNES if they have been included in EPBC Approvals. The commitments of the NES Plan are considered satisfactory, and further assessment is not required.	Not addressed further in the s211 report.

Issue	Submission Ref.[7]	Response Summary	Relevant Report Section
The area is highly sensitive, used by endangered or declining species, including little eagle, white-fronted chat, swift parrot, superb parrot, and PTWL. Should be considering species not yet listed, as it is our responsibility to prevent the list of threatened species from getting longer.	4	Impacts to little eagle are discussed and addressed in Section 2.3.2.2 of the s211 report. As MNES, swift parrot, superb parrot, and PTWL were assessed in the NES Plan and are not considered in detail in the s211 report. There is no statutory obligation for species not listed under the EPBC Act or the NC Act to be considered either in an EIS or a s211 exemption application. Non-listed species are not considered further in the s211.	Not addressed further in the s211 report.
Biosis (2016) identifies the potential removal of 17 hollow bearing trees, a nominated threatening process in the ACT. In view of this, FOG disagrees with the statement that impacts to threatened ecological communities have been considered, mitigated and offset in the NES Plan. We believe the impact of this threatening process has not been included adequately in the NES plan and should be given further consideration.	FOG (not submitted)	The removal of hollow bearing trees has been nominated, but not listed as a threatening process in the ACT under the NC Act. There is no statutory obligation to consider nominated threatening processes in an EIS or a s211 exemption application. The nominated threatening process of the removal of hollow bearing trees will not be considered in detail in this report. The impact of the removal of habitat trees has otherwise been captured through the discussion of removal of native vegetation and the assessment of woodland birds.	Further clarification has been added to Section 2.3.3.
This proposal should provide explicit guidelines as to how patches of trees and individual mature trees will be retained in the urban landscape. In particular, Biosis (2016) indicates that 80% of the hollow-bearing trees are in the far north-east corner of the urban area, lying within 150 m of the edge line (Figs 3.3 and 3.6 (Biosis 2016)). Figure 2.2 in Umwelt (2017) shows that this zone is intended for medium density housing, so presumably all, or the majority, of these trees will be destroyed. FOG recommends that the edge shape be investigated to see whether hollow-bearing trees can be retained in an urban park. We are aware that there would need to be a detailed assessment of the total impact on all paddock trees before this should be done.	FOG (not submitted)	This assessment assumes the functional loss of all habitat within the FUA, as detailed design has not been completed. It is probable that individual trees or patches of trees would be retained within the FUA, however this would be defined at the EDP stage, as is standard. This is a finer scale of assessment than has been undertaken for the s211 report. Any retention of hollow bearing trees within urban parks would be subject to an arboricultural assessment to ensure public safety.	Not addressed further in the s211 report.
Temporal and cumulative impacts need to be considered on a number of threatened species and their habitats: • Little eagle future nesting sites, as affected by the loss of trees that when mature, will provide nesting habitat for the species in the future. • Swift and superb parrot habitat within the Molonglo River Corridor. Impacted by the loss of vegetation, introduced urban lighting, pets, human recreational activity. • Formal assessment is needed to consider cumulative impacts from other nearby developments together with this proposed development, to avoid 'death by a thousand cuts'. COG is of the view that the urban development in the Molonglo Valley is one of the worst examples in terms of detrimental environmental impacts on birds. It has already destroyed the richest birds of prey area in the ACT, including loss of habitat for little eagle and a number of other raptor species. The EIS should take into account the incremental destruction of habitat that has occurred across the Canberra region and the subsequent importance of remaining areas as refuges.	3, 8	Temporal and cumulative impacts to MNES (including swift parrot and superb parrot) were considered and assessed under the NES Plan. The NES Plan not only assessed the impacts of Molonglo Stage 3, but also Stages 1 and 2, enabling assessment of the cumulative impacts of all three stages of the development. The NES Plan, as approved under the EPBC Act retains important movement corridors and patches of habitat. All reserve management plans will include adaptive management strategies to assist with the ongoing management of impacts. Impacts to little eagle are discussed further in the s211 report.	Section 2.3.2
Ensure mitigation measures have been provided for all ACT threatened species not considered in the NES Plan.	EPSDD	The s211 report addresses all ACT threatened species that are not considered in the NES Plan. The relevant sections of the s211 report have been updated to further clarify this.	Section 2.3.2

Issue	Submission Ref.[7]	Response Summary	Relevant Report Section
The block directly east from Kama Nature Reserve contains a small area of mapped box gum woodland which should also be fenced and allowed to regenerate for incorporation into the reserve.	8	The NES Plan shows box gum woodland extending east of the Kama Nature Reserve boundary; however, this has been superseded by mapping from Umwelt (2013a) and Capital Ecology (2016) which describes the area as 'exotic pasture with some remnant eucalypts'. The Molonglo Adaptive Management Strategy (2013), a Commonwealth supported document, also identified this patch as no longer meeting the criteria for the threatened ecological community. This is clarified in the report and an additional figure has been included (**Figure 2.9**).	Section 2.3.2.1
The Project Area has critical habitat and there are potential impacts for two ACT listed species: brown treecreeper and superb parrot. There is a lack of detail on these matters. Both species rely on hollow-bearing eucalypts across the landscape. The Molonglo Valley has had what was thought to be the largest population of Brown treecreeper remaining in the peri-urban area. A report by O'Sullivan and Beitzel (2006) concluded that the development would likely result in the local extinction of Brown Treecreeper. Disagree with the conclusion made by Umwelt in the s211 and have little confidence in the mitigation of impacts from a large urban area so close to the Molonglo River Corridor, Kama Nature Reserve, and central Molonglo. Confirm the presence of potential brown treecreeper and varied sittella habitat within the Project Area. If so, provide a discussion on the impacts and proposed mitigation measures.	8, EPSDD	The s211 report has been updated to include greater detail on the potential impacts to ACT threatened woodland bird species.	Section 2.3.2
Inconsistency on the figures reported for PTWL impact within Molonglo 3. The Biosis report (2016) states 22.42ha of non-listed NTG in small patches. However, there is also 36.7ha of foraging, breeding and dispersal habitat for PTWL, which is not addressed (see p. 6 of the Biosis report). Not clear whether NES Plan 'unchecked' habitat has been checked in preparation for the s211 EIS Exemption Application. See Figure 4 of the NES Plan. The Biosis (2016) report identified further PTWL habitat but did not undertake targeted surveys for the species. This has not been accounted for in the exemption report. These additional impacts need to be considered and assessed, in addition to the conclusions of the NES Plan.	5, FOG	Further detail has been provided in the s211 report, including clarification of why some of the Biosis (2016) results were not used.	Section 2.3.2
Inconsistency between the s211 report and the Biosis (2016) report regarding the total amount of box gum woodland to be impacted (2.6ha vs. 12.53ha+.28ha). This also affects impacts to woodland bird species. There are previously undetected areas of box gum woodland within the proposed urban area. They are not covered by the NES Plan mitigation actions and should be considered further.	EPSDD, FOG (not submitted)	Further detail has been provided in the s211 report, including clarification of why some of the Biosis (2016) results were not used.	Section 2.3.2
There is a small (0.05 ha) area of Natural Temperate Grassland within the proposed urban area, near the pipeline track (see Figure 3.7 in Biosis 2016). Biosis (2016) recommends that it should be offset. This is not followed through in the Exemption Report, and it is not clear from Figure 2.2 (Umwelt 2017) whether the 0.05 ha area lies inside an area of urban open space or inside the urban development area. Given the critically endangered status of this community, FOG's view is that all	FOG (not submitted)	This patch of natural temperate grassland does not meet the Commonwealth criteria for the critically endangered ecological community as it does not meet the minimum patch size for the community. It does meet ACT criteria for the endangered ecological community under the NC Act. Additional information has been provided in the s211 report, including an assessment of significance of the impact.	Section 2.3.2 and Section 2.3.2.5

Issue	Submission Ref.[7]	Response Summary	Relevant Report Section
such patches should be conserved. If not, at the very least offsets should be offered.			
Native Vegetation and Non-listed Species			
There will be substantial clearing of native vegetation within a native vegetation area.	2	This is acknowledged in **Section 2.3.3** of the s211 report. The non-threatened woodland, native pasture, and riparian native vegetation are not considered to represent critical vegetation for maintaining species diversity or connectivity in the region, nor do they provide important habitat for fauna species. As such, no significant adverse impacts to native vegetation are expected as a result of the project. No further change to the s211 report is considered necessary.	Not addressed further in the s211 report.
After the tragic 2003 Canberra bushfires, many native creatures such as kangaroos, wallabies and wombats now live in the area proposed for development. The new development will have a direct impact on the number of these animals and the ecology of the area.	7	These species are highly mobile, and in some cases considered overabundant in the Canberra region (e.g. kangaroos). As generalist species, they are able to occupy a range of habitat types and do not rely on the habitats within the Molonglo Valley for survival. Conclusions relating to native vegetation are considered appropriate for these species and for maintaining the diversity of other native species. They will not be considered further.	Not addressed further in the s211 report.
The EIS should consider ways to maintain existing ecological communities, including habitat and corridors. The Molonglo Valley is an important environmental area, particularly the movement of birds and other wildlife from the Belconnen hills to Mount Stromlo and the Murrumbidgee River. These connections should be maintained and they become increasingly important as species and ecological communities shift as the climate changes.	9, 10	Noted. The NES Plan, which forms the basis for the protection of high value areas within the Molonglo Valley, aims to maintain and enhance important corridors, including the Molonglo River Corridor, and the corridor formed by Kama Nature Reserve from the Pinnacle Reserve. The development of Molonglo Stage 3 is consistent with the NES Plan, and will not impact upon any of these important connections.	Not addressed further in the s211 report.
The removal of the pine trees from around the arboretum will impact upon yellow-tailed cockatoo. They are not yet listed, but prevention is better than cure. The pine trees are an important stepping stones in the region as the species moves along the waterways. The removal of these trees will coincide with the removal of pine trees at Corin Forest. An EIS must take these sorts of effects into account.	4, 6, 9	As yellow-tailed cockatoos are not listed under Territory or Commonwealth legislation they do not require further consideration under the PD Act. Habitat for the species will be retained in the Molonglo River corridor and in the north-west, near Kama Nature Reserve. Pine plantations will also remain south of the National Zoo and Aquarium. Furthermore yellow-tailed cockatoos are highly mobile and are considered likely to relocate to other habitat in the region.	Not addressed further in the s211 report.
The Exemption Report concludes on page 31 that "This clearing of native vegetation may impact upon ecological values, diversity and species habitat and foraging opportunities. It may also reduce habitat connectivity and result in impacts to abiotic conditions such as soil and water". The use of the word "may" is quite misleading. It is clear from the environmental information provided that the impact of this proposal <u>will</u> impact on ecological values, species habitat and foraging opportunities, and habitat connectivity, and that not all of these impacts were included in the original Molonglo Strategic Assessment.	FOG (not submitted)	Wording has been amended to improve clarity. It is also noted that the impacts described in the s211 report that are associated with the removal of native vegetation are considered standard impacts of development. These impacts are implicit in the intent of the NES Pan.	Section 2.3.3.1

Issue	Submission Ref.[7]	Response Summary	Relevant Report Section
Heritage			
The Heritage Council is satisfied that those heritage areas within the EIS boundary are adequately dealt with by the management recommendations contained within those reports, which includes possible further works within the Molonglo Valley Rural Blocks 6 and 7. The Heritage Council is supportive of the exemption, provided the management recommendations are adhered to for any works to be carried out within the proposed EIS Exemption Area.	E7	Noted. It is confirmed that management recommendations will be adhered to as appropriate.	Not addressed further in the s211 report.
It's not clear that Aboriginal and non-Aboriginal heritage is adequately respected and protected. It appears little consideration has been given to the findings of the Molonglo Stage 3 Additional Areas Cultural Heritage Assessment, which found 'the potential for heritage sites to be found within the Project Area was considered high'.	2, 7	**Section 2.3.5** states that advice will be sought from the ACT Heritage Council regarding the impacts to heritage values. The ACT Heritage Council has stated that heritage concerns (including Aboriginal) have been adequately addressed in the s211 report. The recommendations regarding further investigations in any areas of uncertainty (including the additional area the north east where further assessment is required) will be implemented. More generally, it is considered that an appropriate salvage or management program could be implemented to mitigate any potential impacts associated with the removal of Aboriginal heritage items, if discovered in the course of development. Construction Environment Management Plans (CEMPs) would be used to manage potential impacts to the identified Cultural Area in the north of Molonglo 3, during construction. All other archaeological scatters have been identified and salvaged, and an Unexpected Discovery Plan will be implemented during construction.	Not addressed further in the s211 report.
River corridors were Aboriginal pathways, an EIA is needed to ensure that there are no heritage concerns. The Project Area is located near to Black Mountain, an area known to hold cultural significance to the Ngunnawal people and a focus of ceremonial activity. Developing this area would have a drastic impact to Canberra and the Ngunnawal people, thus this area should be preserved.	4, 7	Numerous surveys targeting Aboriginal heritage (including cultural heritage) have been conducted within Molonglo 3 (see **Section 2.3.5** for references). No concerns regarding the cultural values of Black Mountain have been raised by Representative Aboriginal Organisations consulted as part of these relevant heritage surveys. It is considered that these reports adequately assess the presences and/or likelihood of Aboriginal heritage matters within the area. The ACT Heritage Council has stated that heritage concerns (including Aboriginal) have been adequately addressed.	Not addressed further in the s211 report.
The pine forest and woodlands in the proposed area have become an integral component of the Canberra legacy and culture. Destroying this area, we believe will insight heated passion and debate amongst locals that would have ramifications legally, politically, socially, and economically.	7	Notwithstanding individual concerns, the pine forests are not recognised by the ACT Heritage Council as being of significant heritage value to the Canberra community. They are therefore not considered in the s211 report as there is no statutory requirement to do so.	Not addressed further in the s211 report.
Bushfire Management			
No fire management buffer for residences built in proximity of the Molonglo River Reserve. This would require bushfire management to occur within the River Corridor posing a risk to remaining vegetation as understorey and trees are removed, grass mown, and weed species introduced. A fire management buffer would reduce conflict between fire management methods and environmental restoration methods. This is both an environmental and social issue.	4	The recommendations regarding the size and management of fire zones from the ABPP (2016) report will be incorporated into the EDP, and the Molonglo River Corridor Management Plan. All inner asset protection zones will be within the urban development area and outside of the river corridor, and activities within the river corridor would not be inconsistent with management for its natural values. This is not addressed further in the s211 report.	Not addressed further in the s211 report.

Issue	Submission Ref.[7]	Response Summary	Relevant Report Section
Contamination			
The final s211 documentation does not accurately reflect the audits into contamination studies and incorrectly identifies sites as being on the Register of Contaminated Sites. The report should be updated and re-submitted to the EPA.	E4	The Site Audit Reports for Areas A and B have been provided and referenced in the s211. See amendments in the s211 report to reflect the additional information.	Section 2.3.6
Infrastructure			
The design of stormwater management and road hierarchy is dependent on the extent and quantity of development (or yield) and further work is recommended to determine the full extent of development west of Deep Creek.	E6	Noted. This will occur as part of the EDP stage, once the Kama Buffer location has been finalised.	Not addressed further in the s211 report.
There are extensive water and sewer assets within the project area. Consultation on this matter does not appear to have been reflected in the s211 documentation. The Appendix 1-02 should recognise the: • Existing Molonglo Valley Interceptor Sewer, including vent stacks and sewer entry points. • Existing 950mm water mains. • Existing Liquid Waste Receival Facility. The development will need to ensure buffers for protection of existing water main and sewer trunk main assets.	E5	Noted. Figure 2.5 has been updated to show the location of water and sewer assets within Molonglo 3. Detailed design and construction management will ensure that adequate buffers are enforced for protection of existing water main and sewer trunk main assets. No further update is provided in the report.	Figure 2.5 and Appendix 1:PRA
The existing Liquid Waste Receival Facility is an additional Area of Environmental Concern (AEC) that should be described and listed in Figures 2.11-2.13.	E5	The location of the Liquid Waste Receival Facility that is still in operation has been noted. It is understood that any assessment and decontamination works related to this facility (and associated services nearby) will be addressed when relocation of this facility is to take place. Icon Water will be responsible for the assessment of the site and any remediation if required.	Not addressed further in the s211 report
Add additional risks to the risk table, relating to infrastructure. • Alignment and design of sewage odour control system for existing Molonglo Valley Interceptor Sewer results in loss of developable land and easements for setbacks. *Mitigation: undertake detailed design and options analysis to ensure visual impacts, odour impacts, and encroachment on urban area is minimised*. • Existing Liquid Waste Receival Facility is not decommissioned ahead of development and requires ongoing access and use for disposal of septic wastes into the sewerage system. *Mitigation: Undertake consultation to agree schedule and funding for commencement of new facility at LMWQCC and decommissioning of the existing facility*.	E5	The preliminary risk assessment and Tables 5.2 and 5.4 have been updated as suggested.	Section 5 and Appendix 1: PRA
Urban Design			
Figure 2.2 shows the development occurring on National Land. If this is to occur, planning approval from the National Capital Authority is required.	E3	It is noted that there are 'Designated Areas' of land. Based on discussions with the ACT Government, no changes were added to the report. It is confirmed that all appropriate approvals will be sought from the National Capital Authority prior to any development occurring.	Not addressed further in the s211 report.
Confirm that there is a provision for a connection between the National Arboretum and Mt Stromlo; as shown in Figure 2.2 as Urban Open Space.	E3	Noted. The provision for connectivity between the National Arboretum and Mt Stromlo via a network of Urban Open Space is confirmed. The layout shown in **Figure 2.2** is indicative of this and the exact layout is to be confirmed at EDP stage.	Not addressed further in the s211 report.

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The area proposed for development provides much needed nature and space, which the current suburb design does not allow for. This affects: • the physical and mental health of the residents; and • social service delivery and the economy.	7	The development of the Molonglo Valley has considered public recreation opportunities. In particular, it is noted that the public will be able to access the Molonglo River Corridor and nearby Mount Stromlo for recreational activities. The Molonglo 3 concept design also includes urban open space for public use. GHD (2014) undertook a study of community, sport and recreation facilities for Molonglo 3 and this has been considered in the design of the development. It is considered that the proposed design does allow sufficient space for recreation and open space.	Not addressed further in the s211 report.
The development will impact upon the views of the bushland and forest which are a major pull for investors in the area. The development will have a direct impact on the unimproved land value in the area (and thus the rates) as potential residents will avoid the area as the natural beauty is compromised and the area too congested.	7	Molonglo 3 is designated as a Future Urban Area, and has been identified as a component of the Molonglo Valley development since its inception. The Planning Design Framework and associated EDPs will establish the urban design and visual amenity features of the suburb in line with the Territory Plan Development Codes. The Territory Plan ensures the protection of the bushland vista through preventing development on the surrounding hills and ridges, and numerous areas of open space and nature reserves, including Kama and the Molonglo River Corridor will be maintained within the urban area.	Not addressed further in the s211 report.
Don't want a re-run of Molonglo 1 and 2. Want to ensure the correct decisions are made in the first instance.	9	Molonglo Stage 3 will be subject to the ACT's Planning and Design Framework, including the preparation of EDPs and extensive stakeholder and entity consultation.	Not addressed further in the s211 report.
General Process			
Generally supportive, acknowledging that adequate studies have been undertaken and sufficient documentation has been prepared.	E1, E2, E3	Noted.	Not addressed further in the s211 report.
An EIS exemption should not be granted in the interest of transparent processes and to enable the public to have faith that the development will cause minimal environmental and social harm. An EIS should be completed, and should consider social, cultural, and economic impact to the Molonglo Valley residents and broader Canberra community.	4, 7	The s211 report provides a comprehensive summary (including references) of a number of studies completed to date which relate to the relevant triggers of the PD Act. The EIS exemption has been applied for on the basis that these studies are relevant, current, and sufficiently detailed that further assessment via an EIS would not provide any additional information.	Not addressed further in the s211 report.
A summary document should be provided in order to clarify the s211 process. Referring to how and where decisions were made within the supporting documentation.	5	The EPSDD website provides a summary of works completed for the Molonglo development as part of the planning and approvals process. Accessible here: https://www.planning.act.gov.au/topics/current_projects/studies/molonglo_valley_stage_2_planning_project Once the initial approvals stage has been undertaken, development information will be available through the Suburban Land Agency (SLA) website. The s211 process is explained here: http://www.planning.act.gov.au/topics/design_build/da_assessment/environmental_assessment/exemption_from_requiring_and_eis_s211	Not addressed further in the s211 report.
The Exemption Report identifies approximately 17.15 hectares of land within the wider area which is currently undergoing a revegetation and ecological restoration program administered by Greening Australia. Of this, 3.07 hectares of revegetated land occurs within the FUA boundary (south-west adjacent to the pine plantation). At best, the treatment of the 3.07 hectare portion is an expensive planning backflip; at worst it is a contravention of the NES Plan, even if the area eventually sits within urban open space.	FOG	It is assumed that this is in reference to the Barrer Hill restoration works. At this site, Greening Australian encroached the FUA inner asset protection zone without referencing the appropriate Inner and Outer Asset Protection Zone requirements. This matter will be considered in the Planning and Design Framework and any future EDP for this area of Molonglo 3.	Not addressed further in the s211 report.
Before any plans of development are finalised I propose a survey of the Molonglo Valley residents be conducted to ascertain a clear picture of local concerns.	7	For greenfield sites, a public notification period is the main statutory process for obtaining public comments. All statutory public consultation has been conducted and will occur as part of the approvals and development process.	Not addressed further in the s211 report.
The application modifies and increases the development/urban area, which means the NES Plan conditions, cannot be met. The application appears to be in breach of a number of NES Plan	8	The FUA boundary change is not inconsistent with the NES Plan, and impacts approved under the NES Plan were approved as an overall envelope approach. Generally, the urban edge boundaries can be different, so long as impacts to MNES are not increased and commitments are met. There	Not addressed further in the s211 report.

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conditions/requirements.		are no MNES present within areas subject to the FUA boundary change, therefore it does not contravene the NES Plan.	
Inadequate sediment traps upstream (Gungahlin developments) have seen regular pulses of turbid water flush downstream at Umbagong.	4	Influence of the other developments on the current water quality of the Molonglo River is not within the scope of the s211 report, nor would it be under an EIS. Appropriate mitigation strategies will be implemented to ensure that the proposed development will not result in reduced water quality within the River, in accordance with the ACT Water Sensitive Urban Design Guidelines.	Not addressed further in the s211 report.
No information is provided about the actual areas of grassy ecosystems and habitat that have already been destroyed in stages 1 and 2 of the Molonglo development. Consequently it is difficult to tell if the areas being impacted in stage 3 are covered completely by the Strategic Assessment, or whether in fact the total loss is more than stated in the Strategic Assessment – a concern since some areas of previously undetected grassland community and PTWL habitat have been found.	FOG (not submitted)	The Annual Reporting requirements under the NES Plan provide information regarding the impacts on MNES to date. These reports will be incorporated and referenced in the s211 report as relevant.	Sections 2.3.2.1 and 2.3.2.3

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