



EPBC 2009/5050 Reference	Details of referral condition	How incorporated or considered in design
	retained and replaced and disturbed areas will be revegetated with local native grasses, sterile Rye and specifically Kangaroo grass (<i>Themeda australis</i>).	
12	Patch 4 (Annexure 1) will be rehabilitated to improve <i>Aprasia parapulchella</i> habitat value below the sewer alignment as per measure outlined in 11.2.	Not directly applicable to this proposed development.
12.1	All development other than the trunk sewer will avoid the rehabilitated portion of Patch 4 (Annexure 1) by a minimum buffer of 20m.	Not directly applicable to this proposed development.
13	A wildlife expert experienced with <i>Aprasia parapulchella</i> will check all potential habitat that is disturbed prior to construction. Any <i>Aprasia parapulchella</i> specimens found will be relocated to the nearest suitable habitat.	This measure will be included in the CEMP to be prepared by the Contractor for construction.
14	The above measures do not apply to the area identified as Patch 1 (Annexure 1), except for measures 10 and 13.	See responses above.

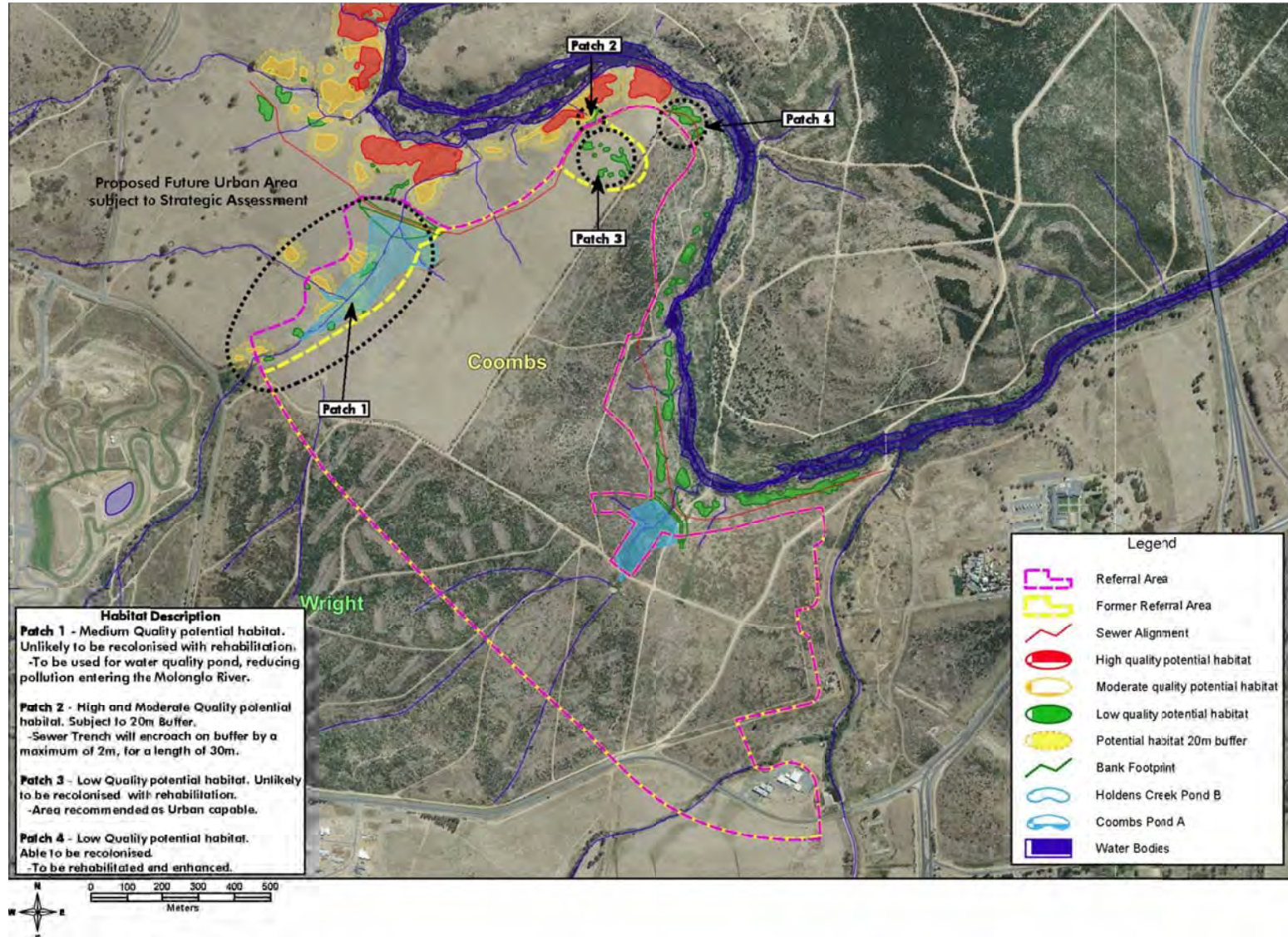


Figure 4 Pink-tailed Worm Lizard habitat assessed in the EPBC referral (EPBC 2009/5050)

This includes the area near Holdens Creek/proposed Coombs Pond (Patch 1) which will be impacted by JGD and associated infrastructure.



3.4.2 Traffic and transport

The current and projected traffic flows in adjacent arterial roads have been considered in the design of the road network for Molonglo and North Weston. Walking and cycle tracks have been incorporated into the design to allow easy access to places of interest and activity nodes. This meets the objectives of the Molonglo Structure Plan.

In addition, the proposed development has been designed to include the provision of alternative transport (bicycle lanes) as discussed throughout this report.

3.4.3 Hydrology and water quality

The Molonglo Valley slopes down to the Molonglo River, which becomes increasingly incised, developing into a gorge towards the Murrumbidgee River. The Molonglo River divides the Valley into a south-west and north-east landform. Slopes on the west of the River tend to be steep and sometimes precipitous while slopes on the east are longer and gentler. The Valley sides are dominated by low ridgelines which form a series of gully lines (Australian Bushfire Protection Planners 2006, in Ecological 2010). The major tributary creeks flowing to the Molonglo River downstream of Scrivener Dam include Yarralumla Creek (draining the Woden Valley), Weston Creek (draining the Weston Creek district), Holdens Creek, Coppins Creek, Deep Creek and Cliffs Creek. Surface flows in the Valley traverse into these tributaries and gully lines and drain into the Molonglo River (Ecological 2010).

The water quality in the Molonglo River between Scrivener Dam and Coppins Crossing is considered to be of the poorest quality within the ACT as a result of past and present activities in the catchment.

Downstream of Coppins Crossing, the riparian environment is of higher quality but water quality remains poor. The main contributor to the low water quality in the lower Molonglo River is the inflow of minimally treated stormwater from Yarralumla and Weston Creeks. Apart from one gross pollutant trap on each creek, there are no stormwater quality management measures in place in either catchment (ACT Government 2007, in Ecological 2010). Consequently the urban runoff is high in fine sediments and nutrients. Other contributors to the low water quality include cold water releases from Scrivener Dam, runoff from grazing land and former plantation forestry, as well as the residual effects of mining at Captains Flat.

Groundwater quality within the Molonglo Valley is generally high, with total dissolved solids measuring within the Australian guidelines for drinking water quality in most areas of the Valley (ACT Government 2007, in Ecological 2010). However, the potential for groundwater use in the future urban area of Molonglo is considered to be limited.

Water Sensitive Urban Design (WSUD), environmental considerations have been incorporated into the design of the proposed development. For example, the proposed development's design also includes filter strips (vegetated areas that filter overland flow) and vegetated swales are used to filter and deposit sediments. Where possible, stormwater will be directed across vegetated areas, to aid deposition of sediments.



Where this is not possible vegetated swale drains, of low gradient as possible with flow hindrances where required to minimise erosion, will be used to collect stormwater flows. The swales are wide, shallow, vegetated open drains, which are relatively flat and will encourage deposition of sediments and infiltration of water. The swales will be used to supply water to street trees through subsoil drains further improving the quality of water downstream of the project.

The use of sediment ponds to improve water quality is not considered necessary on this project as:

- ▶ Road catchment areas are small resulting in relatively low stormwater flows and low pollutant loads;
- ▶ Filter strips and swales are a very effective method of encouraging sediment deposition and runoff from the road which can be filtered before entering the Molonglo River.

3.4.4 Potential contaminated sites

A number of contamination sites and significant landfill sites have been identified within the Molonglo Valley. These include:

- ▶ four disused sewage sludge settlement ponds on the northern side of the lower Molonglo River, downstream of Coppins Crossing;
- ▶ the former Weston Creek sewage treatment plant;
- ▶ disused quarries, which are often used for uncontrolled landfill;
- ▶ six sheep dip sites (listed in the Contaminated Site Environment Protection policy as activities associated with land contamination (ACT Government 2007, in Ecological 2010); and
- ▶ the sullage disposal point at block 1203 Weston Creek.

Other potential areas of environmental concern associated with rural activities might also exist, such as potential fuel storage and dispensing facilities, waste disposal sites and hazardous material storage. An environmental assessment, remediation and validation of the site was completed by Robson Laboratories Pty Ltd and endorsed by Environment ACT in July 2003 found that the Molonglo Valley is suitable for unrestricted uses including standard residential development with the exception of the sullage disposal point and immediate surrounds (Ecological 2010).

Based on the results of investigations previously undertaken for the purposes of Environmental Assessment, the proposed JGD and associated infrastructure located within Stage 2 does not intercept any known contaminated sites within the Molonglo Valley.

3.4.5 Heritage

The Molonglo Valley is part of the traditional lands of the Ngunnawal people (Tindale 1974). There are few historical references to traditional Aboriginal people in the Molonglo area. A comprehensive summary of heritage investigations undertaken in the

Molonglo Valley (Stage 1) has been prepared by Cultural Heritage Management Australian (2008). The area of road predicted to be in Stage 2 (approximately 220 m) has been surveyed as part of the study area for this investigation. Extensive test pitting based on predictive modelling and areas of identified PAD was undertaken covering large areas of the Wright and Coombs suburbs. The investigations revealed that across all investigations reviewed in the report, and additional investigations undertaken, that no heritage items, Indigenous or non-Indigenous are located within the proposed development area of JGD.

Appropriate recommendations for the management of Aboriginal and European heritage places and values have been prepared in the course of earlier assessments prepared by Australian Archaeological Survey Consultants (2006a; 2008) and Cultural Heritage Management Australian (2008) and these have been reviewed and endorsed by the ACT Heritage Council. None of the recommendations relate directly to any areas located within the proposed development area of JGD.

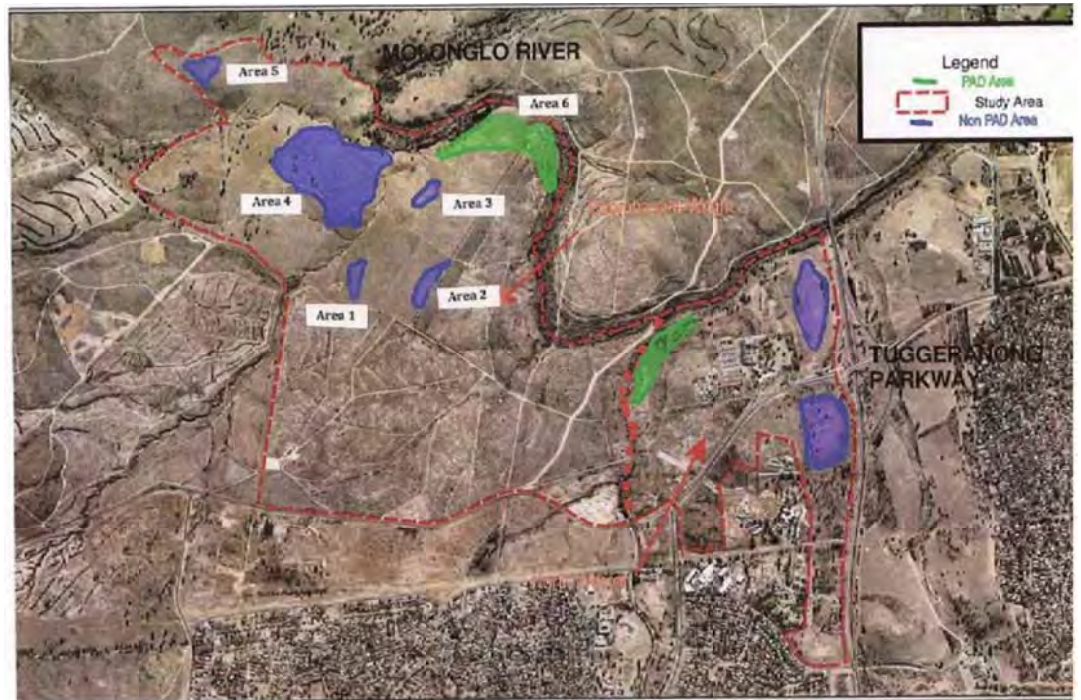


Figure 5 Location of the investigation areas in the Coombs Wright study area



Figure 6 Heritage sites located in the Coombs Wright study area

3.4.6 Air quality

A Molonglo Valley Air Quality Assessment has been undertaken by AECOM (2011) to assess the impact of the Molonglo Valley development on the air quality of the area, including the effects of increased vehicle traffic due to the construction of JGD. It was assessed that the existing air quality in the Molonglo Valley is considered to be quite good and that the proposed development will affect air quality in the local area by introducing pollutant sources, primarily from wood heaters (if installed) and bushfire (including back-burning/hazard reduction activities (AECOM, 2011). The impact of motor vehicle emissions was assessed; however was not considered a primary pollutant source likely to affect air quality. No specific mitigation measures were identified in relation to the management of air pollution resulting from the operation of JGD.



4. Consultation

4.1 Pre Application Consultation

A consultation process with relevant stakeholders has been implemented for the project, including:

4.1.1 ESDD

A pre- application meeting was held on 1st August 2011 with representatives from ESDD, Shared Services Procurement and GHD Pty Ltd in attendance. The context of the project was discussed as a whole, including the existing works being undertaken in Stage 1 of the Molonglo Valley development.

Development Track

From this meeting, there were detailed discussions regarding the development track of the proposed development. ESDD advised, confirmed in writing on 1st August 2011, the following options were available to the proposed development:

- ▶ *if as a result of the environmental investigations, it is determined that an EIS is not triggered under Schedule 4 of the Planning and Development Act 2007 for the section of road that is not covered by the S211 exemption, this section can be lodged in the Merit track without an Environmental Significance Opinion (ESO).*
- ▶ *The section of development within Stage 2 can be included as one application in the Impact track DA with a clear distinction of the environmental findings and assessment track requirement.*

As a result of this consultation, the proposed development has been lodged as one complete application. Please refer to Section 2.3 and 2.4 of this report for more detailed information regarding the Impact Track justification.

Environmental Design

During the pre- application meeting, ESDD requested that the demonstration of environmental considerations be incorporated into the design and demonstrated in the application. This has been included as Section 2.5.1 of this report.

4.1.2 Utilities

Coordination with all service authorities has been undertaken during the design phase to determine their requirements for new services along the JGD. The location of these services is indicated on the drawings in Appendix C of this report. Furthermore, a detailed assessment of the proposed new services has been included in Section 7.7.2.

All services are to have road crossings under the JGD provided as part of the road construction. As the development plans have not been finalised for the areas adjacent to Stage 1D, provision for services has been made that will have to be confirmed as the adjacent developments proceed.

The following entities have been consulted in relation to the proposed development:



- ▶ Jemena;
- ▶ ActewAGL;
- ▶ ICON;
- ▶ TransACT;
- ▶ AAPT –PowerTel
- ▶ Telstra;
- ▶ NBN Co; and
- ▶ Optus.



5. Statement against Territory Plan Requirements

5.1 Territory Plan Development Track

This development application has been lodged in the Impact Track. Sections 2.3 and 2.4 of this report highlight the impact track justification.

5.1.1 Definition of Development

Under the Territory Plan 2008, the following definitions have been found to be relevant to the proposed development:

Road means any way or street (so called), whether in existence or under reserve, open to the public which is provided and maintained for the passage of vehicles, persons and animals and which may include footpaths, community paths, bus lay-bys and turning areas, or traffic controls.

Major road means a road identified within the Transport Services Zone as shown on the Territory Plan Map.

Ancillary means associated with and directly related to, but incidental and subordinate to the predominant use.

The proposed development is located within the TZ1 – Transport Zone and is hence considered consistent with the definition for a Major Road under the Territory Plan 2008.

5.2 TSZ1 – Transport Zone

The proposed development is consistent with the zone objectives:

a) Make provision for a transport network that can provide for the efficient, safe and convenient movement of people and goods

Through the implementation of design to Australian Standards, the proposed development will provide efficient, safe and convenient movement of people and goods. For example, the proposed development involves the construction of dual lane carriageway road with three lanes and on-road cycling in each direction.

b) Ensure that major roads and transport infrastructure are developed in a comprehensive manner, including the provision of appropriate landscaping, street furniture and lighting, traffic control devices, and noise attenuation measures

The proposed development is consistent with this zone objective. For example, the proposed JGD has been comprehensively designed to include the provision of appropriate landscaping, pedestrian and cyclist pathways as well as lighting..

c) Make provision for public transport



The proposed development is consistent with this zone objective as JGD will eventually form part of the Intertown public transport network.

5.3 Transport and Services Zone Development Code

This Development Code applies to all development in the Transport and Services Zones identified in the zones' development tables as being within the code, merit and impact assessment tracks. The proposed development has been assessed against the **relevant** rules and criteria of this code and is addressed in Section 6 and Section 7 of this report.



6. Part A – Zone Specific Controls

6.1 Element 1: Restrictions on Use

6.1.1 Use and Form

Rules

There are no applicable rules.

Criteria

C1 – The proposal for the construction of the JGD Stage 1D in the Molonglo Valley provides for the inclusion of an Inter-town Public Transport Route and provides for the future provision of a separate right-of-way within the road reserve to accommodate this service.

The National Capital Plan provides for the continuation of urban development in the Territory as separate and distinct towns set in broad landscaped valleys, with the immediate hills, ridges, and other major open space and the Molonglo River Valley providing separation between towns and the distant mountains providing a natural landscape backdrop.



7. Part B – General Development Code

7.1 Element 1: Restriction on Use

7.1.1 Plans of Management

Rules

There are no applicable rules.

Criteria

C7 - There are no plans of management applicable to this Proposal; however the area is covered by the Molonglo Valley Structure Plan.

The Molonglo Valley Structure Plan (which includes Molonglo and North Weston development areas) responds to the strategic direction provided by The Canberra Spatial Plan, suitability assessments undertaken jointly by the ACT Planning and Land Authority and the National Capital Authority, and relevant assessments of the local and regional development context. Extensive public consultation was an integral part of the preparation of the structure plan.

The structure plan shows three major areas for the proposed development, identified as East Molonglo (which includes North Weston), Central Molonglo and West Molonglo. East and Central Molonglo could ultimately house up to 73,000 people. West Molonglo is being considered for peri-urban uses, which could include educational facilities, agricultural establishments and animal care facilities, rather than broadscale residential development. East Molonglo (including North Weston) would be the first area for land release due to its close proximity to Civic and South Canberra, as well as making use of existing infrastructure. Further land releases would then proceed northwards.

The structure plan is guided by five key ecologically sustainable development principles:

- ▶ development should distribute benefits widely to the population;
- ▶ new areas of Molonglo and North Weston should yield environmental benefits;
- ▶ development should respond to local features and needs;
- ▶ development should pay tribute to the past and present in creating the future; and
- ▶ design and development should be of a high quality.

The structure plan identifies an urban lake on the Molonglo River as the most viable stormwater management option at this time, and shows the general alignment of the required transport routes through Molonglo. Also included are open space networks, areas that promote ecological connectivity, neighbourhood areas, a major group centre in the south, a minor group centre in the north, local centres and a range of neighbourhood activity nodes.



7.2 Element 2: Building and Site Controls

7.2.1 Demolition

Rules

R9 – Minor demolition of existing road features will occur as part of the proposed development. This will include the removal of some road signs, barriers and pavement as well as associated demolition at Coppins Crossing Road. This is not considered to be a significant part of the development.

A plan showing all network infrastructure on or immediately adjacent to the site has been identified on the plans provided.

GHD understands that the application may be referred to the relevant utilities providers in accordance with the *Planning and Development Act 2007*.

7.2.2 National Capital Plan

Rules

There are no applicable rules.

Criteria

C10 – The National Capital Plan provides for the continuation of urban development in the Territory as separate and distinct towns set in broad landscaped valleys, with the immediate hills, ridges, and other major open space and the Molonglo River Valley providing separation between towns and the distant mountains providing a natural landscape backdrop. The proposal is consistent with the provisions of the National Capital Plan.

7.3 Element 3: Built Form

7.3.1 Materials and Finish

Rules

There are no applicable rules.

Criteria

C11 & C12 – Not applicable to this Proposal as development is not a building.

The main feature associated with the Proposal is the Holdens Creek Bridge. The bridge features concrete (per-cast or cast in situ) panels on the bridge abutments next to the path as well as a hand railing. The current proposals involve incorporating special form-liner finishes to the visible faces of the abutments and retaining walls, together with special finishes to the steel pedestrian railings. None of these details have been finalised to date.



Drawing MISC-HOLDENS CREEK BRIDGE ARTWORK REVISED CONCEPT-01 provides the current panel design. The agreed form-liner proposal is for 20mm deep impressions, which will involve designing the front face of the walls for nominal cover required for durability, plus the 20mm imprint depth. At the time of writing, although noted on the drawing, no colours are to be included on the panels. The design will be an imprint on the panels and will be the same colour as the concrete.

The bridge also contains a pedestrian railing running on either side of the bridge. The railing materials and finish are yet to be finalised; however will be consistent with Roads ACT guidelines and colour palettes. ACT Urban Services drawing DS7-06 Pedestrian Bridge Barrier Railings (August 2002), was used for the standard railing detail.

The bridge deck is a nominal 200 mm thick in situ reinforced concrete slab, made composite with the precast girders. The deck is surfaced with 75 mm of Asphaltic Concrete surfacing and a waterproof membrane. The following finishes and materials will be used on the remaining areas of the bridge:

- ▶ Abutments, retaining walls, footpath faces of concrete vehicle barriers, pedestrian railing plinths – to receive anti-graffiti coating to 3 m above footpath levels, and to tops of walls accessible from earthworks slopes or paths, where specified.
- ▶ Vehicle barriers, pedestrian railing plinths, girder fascias, tops of walls, buried elements, to be smooth-faced concrete finish
- ▶ Exposed faces of abutment walls and retaining walls (as shown on Wellspring Art & Design drawings) shall be subject to a special form-liner finish.
- ▶ Footpaths should be constructed from a brushed finished concrete, with an integral oxide pigmentation, grey in colour equal to Colour Concrete Systems 'Onyx', to reduce glare

The road pavement designs have been carried out in accordance with the 2008 edition of the Austroads Pavement Structural Design Guide (AGPT02/08) and the ACT Pavement Design Edition 1 Revision 0 (undated).

The lamp (and luminaire) types proposed are:

- ▶ Vehicular road - 250 W High pressure sodium twin arc (Sylvania Roadster Aeroscreen);
- ▶ Underpasses – 2 x 24 W fluorescent luminaire (Versalux Rhino); and
- ▶ Cyclist pathways – 42 W compact fluorescent luminaire (Sylvania Urban Aeroscreen).

All other materials to be used are consistent with the construction of a road and pedestrian and cycle paths.

7.3.2 Crime Prevention through Environmental Design

Rules

There are no applicable rules.



Criteria

C13 – The development meets the requirements of the Crime Prevention through Environmental Design General Code. The pedestrian accesses under the road have been paid particular attention in the design to improve the safety of people using the underpasses. The underpasses have been widened to improve visibility and reduce the confinement of the area and extra lighting has been applied.

7.3.3 Access and Mobility

Rules

There are no applicable rules.

Criteria

C14 – The development meets the requirements of the Access and Mobility General Code.

7.4 Element 4: Parking and Site Access

7.4.1 Traffic Generation

Rules

There are no applicable rules.

Criteria

C15 – Complies. The construction of JGD will facilitate the projected traffic increases generated by proposed subdivision development in the Molonglo Valley.

7.4.2 Pedestrian Movement

Rules

There are no applicable rules.

Criteria

C18 – Safe and convenient movement of public transport passengers, pedestrians and cyclists is provided through the provision of a pedestrian pathway, underpasses under JGD as well as the provision of on-road cycling. Bus stops have been designed to provide safe access to and from and on and off buses.

On Road Cycling

JGD is likely to be a major commuter route for cyclists and therefore has been designed include a 2m wide cycle lane in both directions. The standard arrangements for cyclists will be provided through the signalised intersections.

It is proposed that buses will stop to pick up and drop off passengers by pulling into the cycle lane. This will leave a large proportion of the bus only lane (approximately 3m)



available for cyclists to overtake the stationary bus. Alternatively cyclists may stop in the cycle lane behind the bus and wait for the bus to recommence its journey.

Off Road Cycling

Ultimate Alignment

Planning of the off road cycling network in Molonglo is being undertaken by ESDD.

It is not proposed that a shared path is constructed along the full length of the JGD as a shared path along the proposed development would require the path to run along the outside verge of the service roads which provide access to residential blocks. For safety reasons it is considered that crossing a large number residential accesses is inconsistent with the purpose and likely level of use of a major shared path.

The construction of a future narrower (1.5m) path is allowed for in the design along the full length of both sides of JGD and this will be available for use by recreational cyclists.

Pedestrians/Equestrians

Planning of the pedestrian path network in Molonglo is being undertaken by ESDD. Shared paths are a minimum of 2.5m wide.

Provision is made for pedestrians, cyclists and horse riders to use the underpass at Ch 13470 and for pedestrians, cyclists and equestrians to pass beneath the bridge at Holdens Creek.

Off road cyclists will also be able to safely cross JGD at the signalised intersection.

7.5 Element 5: Amenity

7.5.1 Lighting

Rules

R19 – External lighting is provided to the road, intersections and path in accordance with AS1158.1.3 Pedestrian Lighting. Further details of the proposed lighting has been included in Section 2.5.7 of this report. Please see the design drawings in Appendix C for location and description of the proposed lighting.

R20 – Not applicable to Proposal.

Criteria

C19 – External Lighting is provided in accordance with the Crime Prevention through Environmental Design General Code.

C20 – Not applicable to Proposal.

7.5.2 Signs

Rules

There are no applicable rules.



Criteria

C21 – The Proposal only includes road signs. Signs comply with the Signs General Code.

7.6 Element 6: Environment

7.6.1 Assessment of Environmental Effects

Criteria

An Assessment of Environmental Effects addressing the criteria (C22) listed in below must accompany the development application. This has been included in Section 8 of this report.

7.6.2 Water Sensitive Urban Design – Mains Water Consumption

Rules

R23 – Under the contract, mains water will not be used during the construction of the road. Water for construction purposes will be used from alternative sources in line with the Water Use and Catchment General Code.

Although this is a mandatory requirement, as the Proposal is a road (capital works), mains water will not be used during the operational phase, therefore evidence that the development achieves a minimum 40% reduction in mains water consumption cannot be shown.

7.6.3 Water Sensitive Urban Design – Stormwater Quality

Rules

R25 – The water quality on the site will be managed in accordance with the Waterways: Water Sensitive Urban Design General Code.

The main source of pollutants on the project after the completion of construction will be oils, nutrients and heavy metals from the road. These pollutants are mainly transported through their attachment to sediments. Removal of the sediments will assist in removing the pollutants.

It is proposed that filter strips (vegetated areas that filter overland flow) and vegetated swales are used to filter and deposit sediments. Where possible, stormwater will be directed across vegetated areas, to aid deposition of sediments. Where this is not possible vegetated swale drains, of as flat gradient as possible with flow hindrances where required to minimise erosion, will be used to collect stormwater flows. The swales are wide, shallow, vegetated open drains, which are relatively flat and will encourage deposition of sediments. The swales will be used to supply water to street trees through subsoil drains further improving the quality of water downstream of the project.

The use of sediment ponds to improve water quality is not considered necessary on this project as:



- ▶ Road catchment areas are small resulting in relatively low stormwater flows and low pollutant loads;
- ▶ Filter strips and swales are a very effective method of encouraging sediment deposition and runoff from the road which can be filtered before entering the Molonglo River.

7.6.4 Water Sensitive Urban Design – Stormwater Quantity

Rules

R26 –

A drainage master plan is included in the drawings in Appendix C of this report. The existing drainage on the site is as follows:

- ▶ The terrain within the vicinity of the project slopes east towards the Molonglo River.
- ▶ A water course, Holdens Creek, crosses the JGD at approximately Ch 12650. Holdens Creek also drains eastwards into the Molonglo River.
- ▶ The JGD crosses the ridge lines of these draining watercourses.

In general the drainage for the project has been designed to the following principles:

- ▶ Cross drainage is designed to carry 100 year ARI flows and to have 600mm freeboard.
- ▶ At least one lane to be open in each direction during 50 year ARI flows for longitudinal drainage design.
- ▶ The new drainage system will not significantly change the flows downstream of the JGD from those of the existing drainage system.
- ▶ Water sensitive urban design (WSUD) principles have been adopted for the project.

The drainage master plan shows the following proposed drainage for the site:

- ▶ The eastwards draining watercourses will cross the JGD in pipe culverts and in channels at the pedestrian underpass and Holdens Creek bridge.
- ▶ Cut off drains and table drains will be located as appropriate at the tops of cuts and toes of fills to guide water to the crossing points.
- ▶ Kerbs, pits and piped drainage will be constructed to drain the JGD and the intersections.

A shared path/ equestrian crossing adjacent to the abutment and shared path crossing on the northern side are proposed under the Holdens Creek Bridge.

Criteria

C26 – No applicable criterion.



7.6.5 Heritage

Rules

R27 – This element is covered by the Molonglo Urban Development Section 211 EIS Exemption. There are no identified heritage items in the area that will be impacted by the proposed works. Please see the information provided in Section 3.4.5 relating to heritage within Stage 2.

GHD understands the application may be referred to the Heritage Council in accordance with the *Planning and Development Act 2007* if deemed necessary by ESDD.

7.6.6 Contamination

Rules

R28 – The potential for land contamination has been assessed in accordance with the *ACT Strategic Plan Contaminated Sites Management 1995* and the *ACT Environment Protection Authority Contaminated Sites Environmental Protection Policy 2009*. Any material used for the construction of the development will be managed in accordance with an approved Remedial Action Plan (RAP) and in accordance with the ACT EPA Guidelines for the disposal and re-use of material.

The wider Molonglo Valley has been assessed for any past land uses which may potentially have caused contamination. These include disused quarries used as uncontrolled landfill, rural activities (fuel storage, chemicals and hazardous material storage) and building materials such as asbestos. In addition, chemicals may have also been used in any former forestry plantation areas (Coffey 2005).

Based on previous investigations undertaken, it is not anticipated that any known contaminated sites will be encountered by the proposed development.

GHD understands that the application may be referred to Environment ACT in accordance with the *Planning and Development Act 2007* if deemed necessary by ESDD.

7.6.7 Trees

Rules

R29 – As the Proposal requires groundwork close proximity to trees and involves the removal of some trees, GHD has prepared a Tree Management Plan in accordance with Section 148 of the *Planning and Development Act 2007*. An exceptional tree survey has been undertaken for the Molonglo Valley. No exceptional trees are located within the area for the proposed work; however a number of protected trees (meeting height and circumference criteria) have been identified on the site.

Criteria

C29 – The Tree Management Plan has been prepared in accordance with the Department of TAMS Guidelines for Preparing a Tree Management Plan.



7.6.8 Erosion and Sediment Control

Rules

R31 – As the site is greater than 0.3 hectare, an Erosion and Sediment Control Plan has been prepared in accordance with the Environment ACT's Environmental Guidelines for Construction and Land Development in the ACT 2007 but has not been referred to the ACT EPA for endorsement. Please see Appendix C.

GHD understands that the Erosion and Sediment Control Plan will be referred to the ACT EPA for endorsement in accordance with the requirements of the *Planning and Development Act 2007*.

7.7 Element 7: Services

7.7.1 Waste Management

Rules

R33 – A Waste Management Plan has been prepared in accordance with the Development Control Code for Best Practice Waste Management in the ACT 1999. The completed ACT NoWaste Waste Management Plan for this Proposal can be found in Appendix D for referral to TAMS in accordance with the *Planning and Development Act 2007*.

7.7.2 Utilities

Rules

R35 – A statement of compliance has not been sought from each utility provider. Please see information provided below. GHD understands that the application may be referred to the relevant agency in accordance with the requirements of the Planning and Development Act 2007.

Existing Services

Trunk Water Mains

Two trunk water mains cross JGD at approximately Ch13300. They consist of one 1200 diameter steel pipe and one 900 diameter steel pipe. The water mains were potholed to confirm line and level and ActewAGL was consulted to determine its requirement for protection of the mains. ActewAGL required concrete slabs to be placed over each of the mains for the extent of the road carriageways. The design of the concrete slabs is detailed on the approved water main drawings.

Telstra

Optic-fibre and copper lines cross the proposed road reserve at several locations. Telstra has been consulted to seek its intentions for the services and to provide it an opportunity to either protect or relocate the services. At the time of the report Telstra was continuing to investigate these options.



New Services

Coordination with all service authorities has been undertaken during the design phase to determine their requirements for new services and conduits along the JGD. The location of these services is indicated on the drawings. There are no dependencies between the proposed development and other service authority services. Furthermore, there are existing power and communications services available.

All services are to have road crossings under the JGD provided as part of the road construction. As the development plans have not been finalised for the areas adjacent to Stage 1D, provision for services has been made that will have to be confirmed as the adjacent developments proceed.

Gas

- ▶ Jemena has provided a location for its 160 PE gas main along the western verge of Stage 1D adjacent to the Wright Residential Estate. The gas main will be located in a ST4 trench alongside conduits for electrical cables. 225 conduits are required for all road crossings.

Electricity

Development Supply

- ▶ Provision for 6 x 125mm conduits is made in the western verge of JGD in a ST4 trench adjacent to the 160 PE gas main. Coordination is ongoing with ActewAGL to confirm this location and the location of road crossings. Road crossings are to be provided at each intersection. The road contractor will trench and lay the conduits for ActewAGL to pull the cables through at a later date.

Street Lighting

- ▶ A separate network will be located in the verge and median to supply the streetlights. The final alignment of this network will be determined in consultation with ActewAGL.

Communications

- ▶ All communications will be laid in a shared trench. The road contractor will be responsible for trenching, laying the conduits and backfilling as necessary.

ICON

- ▶ ICON requires a maximum of 2xP100mm conduits with at least 600mm cover along the alignment of the new arterial and is agreeable to sharing a trench with other communications services.

Transact

- ▶ Transact requires 1xP100mm conduits along the alignment of the JGD. All Transact cables will require 600mm cover.



AAPT-PowerTel

- ▶ AAPT-PowerTel has indicated that they do not require any new conduits along the JGD.

Telstra

- ▶ Telstra requires 4xP100 conduits along the eastern alignment of the JGD with provision for crossings at each intersection for 2xP100 conduits. Telstra requires a minimum of 600mm cover.

Optus

- ▶ Optus has indicated that they do not require any conduits along the JGD.

Water

- ▶ The design for the 300mm diameter water main along the eastern verge of and the 150 main along the western verge JGD has been submitted to ActewAGL for its acceptance.
- ▶ The road contractor will be responsible for supplying, trenching, laying the pipe and backfilling.

Sewer

- ▶ There are two sewer crossings of JGD that will be constructed in this contract.

7.7.3 Storage

Rules

R36 – Sites have been allocated for site compounds for storage of material, machinery and other items during construction.

Criteria

C36 – The site compound has provided for the outside storage of material and includes appropriately bunded areas where required.



8. Assessment of Environmental Effects

In accordance with Section 120f of the *Planning and Development Act 2007* the following responds to the requirement of the Transport and Services Zone Development Code, Element 6, 6.1 Assessment of Environmental Effects (Criterion C22). The below should be read in conjunction with the environmental information in Section 3.4 of this report.

a) *appropriate measures to soften the impact of development on the landscape*

There have been a number of appropriate measures undertaken to soften the impact of the proposed road development on the landscape. Not only has visual intrusion been mitigated through sympathetic design but any disturbed areas will be restored to their original condition and the proposed development includes the provision street trees and other associated landscaping. Canberra's tradition of wide leafy boulevards, implemented in the sections of JGD, has been implemented for the proposed development. For example, the approved design responds to local climate and environmental conditions through the provision of large, closely planted street trees, with continuous canopies. The close lineal spacing (generally 10m) will frame the travel corridor, retain iconic views to Black Mountain, screen adjacent proposed residential development and contribute to the reduction of local heat sink effects generated by such a large carriageway.

The design provides a distinctive seasonal aesthetic and manageable selection of native and exotic deciduous tree species planted within the central and side medians, verges, cross roads and side streets. The street trees generally form five (5) rows even in some sections where the service roads are provided. When established these large trees will complement the scale of natural and constructed urban elements in the area. Consideration of the urban landscape context, in relation to existing suburbs, the International Arboretum and the Canberra Nature Park, is also given. Trees species were selected from the list specifically developed for this project

b) *impacts on the character and appearance of any building, area of architectural, historic, aesthetic or scientific interest, or other object or place of special cultural or heritage value*

The Proposal will not impact on the character and appearance of any building, area of architectural, historical, aesthetic or scientific interest, or other object or place of special cultural or heritage value. The Proposal is a road that has been deemed capital works.

c) *impacts on public health and safety, including crime prevention*

The development meets the requirements of the Crime Prevention through Environmental Design General Code. The pedestrian accesses under the road