ACTPLA MOLONGLO WORKING GROUP
Minutes
9.30am Tuesday 30 March 2010 @ L3 Sth Conference Room

PRESENT: Trina McFarlane (TM), Misha Beljic (MB), Chris Murray (CM), Stuart Mackenzie (SM), Jack Chu (JC), Patrick Paynter (PP), Annie Kentwell (AK)

APOLOGIES: Jack Garside (JG), Gay Williamson (GW), Harvey Chambers (HC), Adrian Milne (AM)

PREVIOUS MINUTES: Accepted.

ITEM (PROJECT MANAGER)	STATUS/DISCUSSION	ACTION
1. Infrastructure Policy projects		
1.1. Weston pond (MB)	SM reported that the memorial tree has been fenced off for protection during construction phase of Stage 1 road and pond. Since responsibility for this project is now with TAMS, can take off agenda for this meeting from now on.	TM to take this item off the next agenda.
1.2. Coombs pond (AM)	A workshop on landscape master plan for Coombs pond (pond A) was held to provide further direction to the consultants (Bill Guy) on landscaping. LDA need to factor in the oval into the preparation of the EDP.	SM/AM to contact LDA (Ivo Matesic) when AM returns from leave on 6 April to ensure LDA is factoring in the oval into the EDP.
1.3. Holdens Creek pond (AM)	Workshop for corridor was held, including discussion on horse trails and cycle paths.	
1.4. Molonglo roads and contamination issues (MB)	Tenders for north-south arterial Stage 1B construction were delayed and will now be advertised in April 2010.	
1.5. Stormwater management and triple bottom line study (PP)	Tenders closed on 8 April 2010. Fred Watman will manage this study from now on.	TM to invite FW to future working group meetings.
1.6. East-west arterial and arboretum boundary study (PP)	Feasibility study is scheduled to commence in July 2010.	
1.7. Molonglo transport model review (MB)	MB reported that tenders for this project close this week.	
1.8. Future capital works bids (JC)	Waiting for Budget announcements on 2010/11 business cases to be made during beginning of May 2010. No further questions have been asked of ACTPLA by Treasury.	
	North-south arterial road was due for construction in 2012/13, but has now been moved to 2011/12 due to accelerated land release program.	
2. Land Policy projects		
2.1. Molonglo strategic assessment (AK)	Public consultation on draft SAR and draft NES Plan commenced on 17 March and finished on 23 April 2010. Public information drop-in sessions are to be held on 7 and 13 April 2010. Offsetting is a key issue that needs to be resolved before the reports can be finalised and sent to the	

	Commonwealth Minister for endorsement.	

2.2. Background investigations consultancy (TM)	Tenders closed on 11 March and were assessed by the panel on 26 March. A preferred consultant will be recommended to the delegate soon. Discussion about whether this study should also include a bushfire assessment and tree survey.	TM to explore procurement options for a bushfire assessment and tree survey, either negotiate to do as part of this study with successful tenderer, or as separate studies.
2.3. Detailed heritage assessment consultancy (TM)	Tenders close on 30 March.	
2.4. Commercial land requirements consultancy (SM)	Consultant (CBRE) due to commence project soon.	
3. Design Policy projects	No Design Policy representative was in attendance to provide an update.	
4. Development Policy projects	Tenders closed on community facility and recreational needs assessment. Tenders to be assessed on 6 April.	
5. Matters for coordination/ further discussion in next fortnight	The need for a technical amendment (error) to the concept plan for Coombs and Wright has been identified to amend the Surge Protection Line (SPL). The amended line can be confirmed in 4-6 weeks, so the TA should be delayed until then. CM reinforced the need for PP to contact LDA to remind them to continue their planning/design work with the current SPL (PMF plus 3m) pro tem (until the correct SPL on the concept plan can be formalised through a TA).	PP to contact LDA to remind them to continue their planning/design work with the current SPL (PMF plus 3m) pro tem.
6. Budgets and program	Discussion about the accelerated land release program proposed by LaPS for Stage 2 (Suburbs 3, 4 and GC). Land Policy is proposing to engage a consultant for Stage 2 Phase 2 to prepare concept plan (rather than prepare in-house) to reduce time needed. The accelerated program has major implications for the north-south arterial (GHD is consultant), intersection/ underpass into the suburbs, feasibility study (commence July 2010), and the TBL study.	
7. Other matters	None.	

Meeting closed
10.40am

Next meeting
13 April 2010

ACTPLA MOLONGLO WORKING GROUP
Minutes
10:15am Tuesday 17 August 2010 @ L2 Nth Meeting Room

PRESENT: Misha Beljic (MB), Chris Murray (CM), Fred Watman (FW), Becky Smith (BS), Trina McFarlane (TM), Nicole Porter (NP), Stuart Mackenzie (SM), Chris Beer (CB), Jack Chu (JC), Patrick Paynter (PP), Annie Kentwell (AK), Harvey Chambers (HC)

APOLOGIES: Adrian Milne (AM)

PREVIOUS MINUTES: Accepted.

ITEM (PROJECT MANAGER)	STATUS/DISCUSSION	ACTION
1. Infrastructure planning items		
1.1 Coombs pond (AM)	Coombs pond DA lodged on 12 August 2010.	
1.2 Trunk sewer (AM)	Actew sewer and Pink-tailed Worm Lizard closer to Actew sewer than expected.	AM to confirm measurements and CM to talk to Chris Murphy from DEWHA.
1.3 North Weston intersections (MB)	Design of Kirkpatrick St/Cotter Rd is proceeding. Streeton Dr/Cotter Rd and Dixon Dr/Streeton Dr/Unwin Pl peer reviewed. ACTPLA was requested recently by Tony Gill from Roads ACT to redesign these 2 intersections. While there will be no critical impacts from the construction delays, there is concern that this issue was not raised by TAMS earlier in the process.	HC to discuss with Tony Gill.
1.4 Stormwater management and triple bottom line study (FW)	GHD is carrying out a literature review. Some components of the study relating to the large water body option will be accelerated. Next workshop will be held on 31 August 2010 to discuss assessment framework and criteria.	
1.5 Scrivener Dam Upgrade Feasibility Study	Workshop held late last week with NCA to discuss recent findings from SKM on the revised Molonglo River hydrology study, Scrivener Dam spillway discharge rating curve and the implications of these on dam safety. PP/FW are preparing Cabinet Submission.	
1.6 Molonglo transport model review (MB)	Decision was made at previous meeting to progress JGD road brief separately from PDF brief, and then closely coordinate both consultancies. A road concept is required early in the Draft PDF. A brief is being prepared by MB for review end of this week.	MB to progress road brief separately from PDF brief, and circulate for comment late in the week of 16-20 August 2010.
1.7 Electrical infrastructure (PP)	Draft brief was prepared for relocation of 132kV lines in north Molonglo. This project is being driven by the perceived need for another development front by LaPS and is not a high priority for ACTPLA.	
1.8 Capital works bids (JC)	No report.	

2. Land planning items		
2.1 Strategic assessment (BS)	Issues from workshop with Technical Working Group on 26 July 2010 are being resolved. Draft NES Plan is being prepared. Two issues to escalate – acquiring leases for offsets, and bushfire protection zones.	
2.2 Stage 2 Phase 1 - Background investigations consultancy (TM)	Draft report due to ACTPLA end August. Workshop with environmental stakeholder on 18 August 2010 and community information drop-in session on 25 August 2010 on initial findings.	
2.3 Stage 2 Phase 1 - Detailed heritage assessment consultancy (TM)	Draft report by BIOSIS submitted to ACTPLA on 11 August. Comments from Heritage Unit are being addressed by BIOSIS to finalise draft report and submit for Heritage approval.	
2.4 Stage 2 Phase 1 - Commercial land requirements consultancy (SM)	Commercial Advisory Group has had input. Final report by CBRE due to be submitted to ACTPLA in week of 16-20 August 2010.	
2.5 Stage 2 Phase 1 Place-making guide - (NP)	Draft guide is with Communications Team for editing and graphic layout. EPC presentation scheduled for 31 August 2010.	
2.6 Stage 2 Phase 1 Community facility and recreational needs assessment study (CB)	Comments on Elton's draft report were passed on to Elton. Revised report due with ACTPLA in the week of 23-27 August 2010.	
2.7 Stage 2 Phase 1 Public transport advice Jarrett Walker (SM)	Jarrett Walker can produce the next phase of advice by mid-September, including consultation with TAMS Kuga Kugathas.	
2.8 Stage 2 Phase 2 – Draft planning and design framework (TM)	Tenders close today - 17 August 2010. Tender evaluation panel includes CM, TM, SM and Ivo Matesic from LDA. Working group members requested to view tenders at some stage.	TM to ensure PP, CB and NP view the tender submissions short list and provide specialist advice.
3. Matters for coordination/ further discussion in next fortnight	Evaluation of tender submissions for Draft PDF.	
4. Budgets and program	Need to find a way forward on funding for JGD extension, and hydraulic masterplans ($0.5m – now $0.7m as $0.2m from 2009-10 unavailable). Letter was sent from Neil Savery to John Robertson at LDA seeking $0.3m.	
5. Other matters	Discussion about the need at some stage for a riparian management strategy for area adjacent to Stage 2. (Note quality issues and delays with completion of current riparian strategy adjacent to Coombs managed by LDA.) CM has discussed briefly with Rob Thorman LDA.	TM to set up a meeting with CM/SM and Rob Thorman to discuss future riparian management strategy (funding and management).

Meeting closed: 11:30am

Next meeting: 31 August 2010

MINUTES
MOLONGLO PROJECT REFERENCE GROUP

A5801667

Date	Tuesday 24 August 2010
Time	9:00 - 10:00 am
Venue	ACTPLA Ground Floor North Function Room
Chair	Trina McFarlane – ACTPLA Land Policy
Attendees	Sharon Lane / Trish Bootes – TaMS PCL Damien McNamara – LaPS Karl Cloos – TaMS Roads ACT Ian Baird – DECCEW Patrick Paynter / Misha Beljic / Fred Watman – ACTPLA Infrastructure Policy Trina McFarlane / Stuart Mackenzie / Peter Walsh – ACTPLA Land Policy
Apologies	Daniel Walters – DECCEW Tony Gill – Roads ACT TaMS Jim Corrigan / Gabriel Joseph – Asset Acceptance TaMS
Apologies (optional attendees)	Neil Savery – ACTPLA CPE Kelvin Walsh – ACTPLA Director Planning Services Chris Murray – ACTPLA Land Policy Harvey Chambers – ACTPLA Infrastructure Policy

1. Welcome and introductions – Trina McFarlane

- Introduced new staff assisting with Molonglo projects – Peter Walsh (planning) and Fred Watman (infrastructure).
- Reinforced the role of this group in receiving progress reports and providing comments on Molonglo, and the strong focus on Molonglo Stage 2 in the accelerated land supply program.

2. Previous minutes

- Accepted.

3. Update on Molonglo planning projects – Trina McFarlane

- Circulated Molonglo planning progress report.

Strategic Assessment

- Public comments have closed and are being assessed. There are substantial agency comments to be resolved including Box Gum Woodland and offsetting and impact on Pink-tailed Worm Lizard habitat.
- An Executive Steering Committee (ESC) was set up with ACTPLA, DECCEW and DEWHA senior officers to oversight the final stages of the project. The ESC is meeting on 25 August 2010.
- Sharon Lane questioned why Treasury and TAMS are not involved on the ESC, given financial and land management issues associated with strategic assessment. Neil Savery made the decision to invite only ACTPLA, DECCEW and DEWHA representatives on this group.
- The Draft NES Plan for protection of matters of national environmental significance will be presented to Chief Executives Land Supply Steering Group on 1 September 2010 and to DEWHA later in September 2010. A Cabinet Submission will be developed after positive clearance from DEHWA. Damien McNamara requested that the preferred solution, including off set and funding arrangements to be referred to the Chief Executives' Land Supply Steering Group to obtain a whole of government position prior to negotiating with DEWHA and stressed the need for a Cabinet Submission.

- Sharon Lane questioned how much flexibility there is within the structure plan to address matters of national environmental significance if a change in the plan is deemed necessary. ACTION

Stage 2 Phase 1 – Knowledge base projects

- A number of background investigations are currently underway as part of Stage 2 Phase 1 to form the knowledge base for further detailed planning in Phase 2 as part of the Draft PDF. These studies are all on track for completion by the end of September 2010, when the Draft PDF consultant is scheduled to start.
- Stuart Mackenzie gave a brief presentation on the findings of the CBRE commercial land requirements study for Molonglo. The recommendations are that it will be difficult to attract a large employer to Molonglo group centre, and the implications with dormitory suburbs where most of the population has to drive to other centres for employment. Damien McNamara highlighted the need to ensure there is some flexibility built into the planning of the group centre to allow for future office space if the demand arises.
- Sharon Lane raised the need for a bushfire risk assessment in the early planning stages. This is incorporated into the PDF brief.

Stage 2 Phase 2 – Draft planning and design framework

- Tenders for the Draft PDF closed on 17 August 2010. Twelve submissions were received and are currently being evaluated. Tender evaluation panel includes members from ACTPLA and Ivo Matesic from LDA. A consultant is currently scheduled to be engaged by end of September 2010.
- A range of complexities are involved throughout the process. Risks to the program are a significant concern, particularly the outcomes of the strategic assessment process, and need to be managed.

Infrastructure projects – Patrick Paynter

- Patrick Paynter gave a presentation on progress on Molonglo infrastructure projects, including roads, bridges, public transport routes, stormwater triple bottom line study, stormwater options, water supply and trunk sewer.
- Damien McNamara raised the need to update consultation with relevant parties on the rapid bus route proposed through the arboretum as indicated in the ACT Strategy Public Transport Network Plan (draft 2009).
- Trish Bootes highlighted the need to ensure water flow scenarios are considered in the stormwater TBL study. ACTION

4. Other matters

- Daniel Walters had raised the need to discuss air quality modelling for Molonglo prior to this meeting, but not was in attendance. A separate meeting will be arranged by ACTPLA to discuss this issue. ACTION

5. Next meeting

- 2 months and/or critical stage in project – this is likely to be mid-October 2010 after Draft PDF consultant has commenced.

ACTIONS:

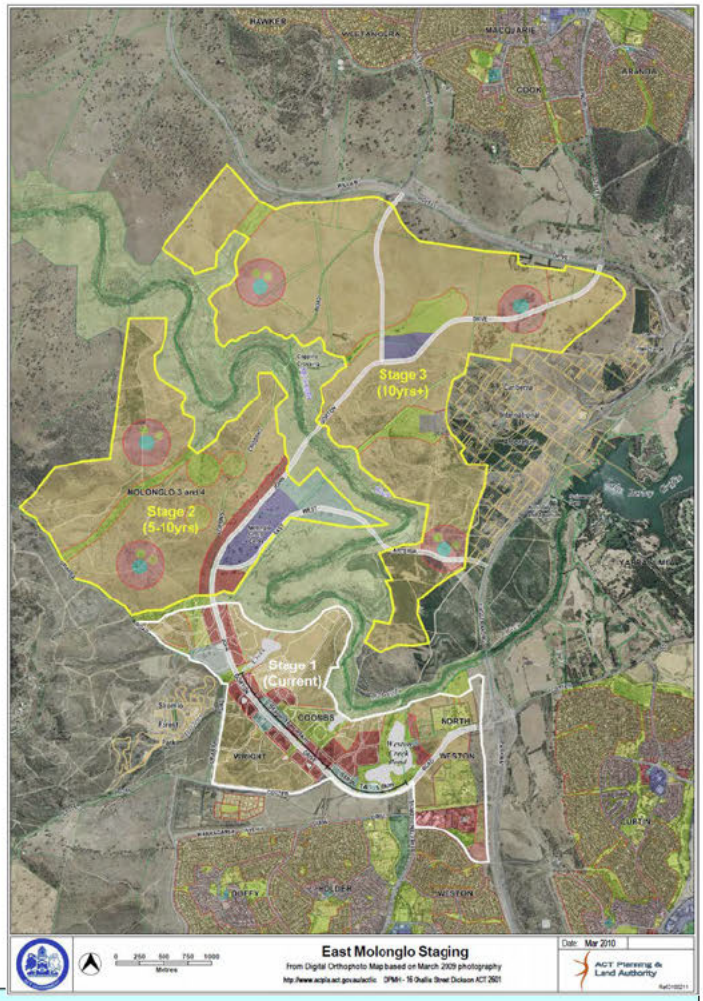
1. Ensure water flow scenarios are considered in the stormwater TBL study.	PP
2. Arrange a meeting to discuss the need to undertake air quality modelling.	TM
3. Confirm how much flexibility there is in the Structure Plan if changes are needed to protect matters of national environmental significance.	TM

MOLONGO PLANNING – PROGRESS REPORT
Molonglo Project Reference Group 24 August 2010

This report provides an overview of the key components of the Molonglo planning project at the current time, highlighting progress and key issues for further discussion and/or direction.

STAGING OF DEVELOPMENT

- ***Stage 1*** - Coombs, Wright and North Weston (1-5 years)
- ***Stage 2*** - Suburbs 3, 4 and Group Centre (5-10 years):
  - ***Phase 1*** - Knowledge base (background investigations)
  - ***Phase 2*** - Draft Planning and Design Framework (PDF)
  - ***Phase 3*** - Final PDF and estate development planning
- ***Stage 3*** - North Molonglo (10-15 years).



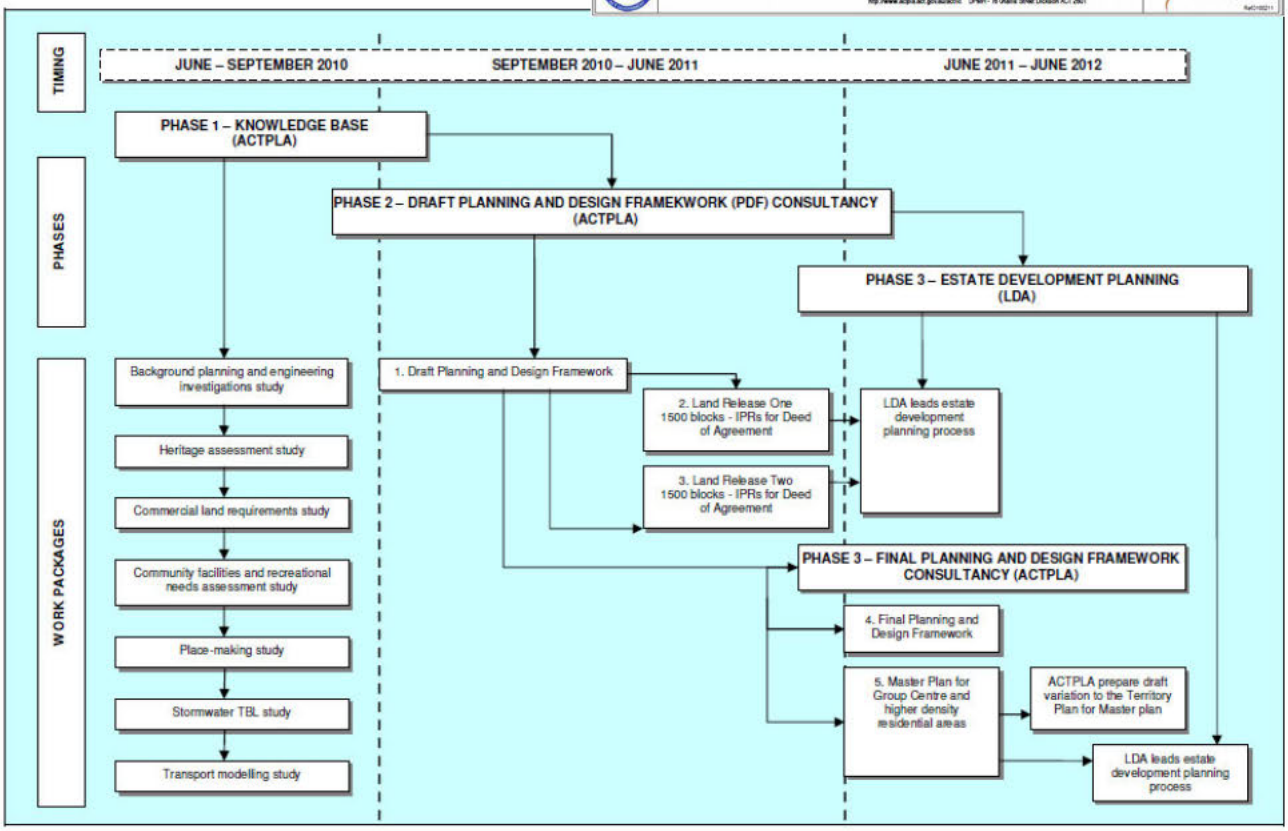
PROGRESS

Stage1

- Concept plans for Coombs and Wright complete.

Stage 2 Phases 1-3

- Project timing, phases and work packages:



Stage 2 Phase 1 – Knowledge base

A number of planning, environmental and engineering studies are underway due for completion by end September 2010 to will provide information base for Phase 2, including:

- Background investigations study (AECOM) - Traffic and transport, civil infrastructure, stormwater management, etc. Consultation during August. Draft report due end August 2010. Final report due end September. 2010
- Commercial/group centre land requirements (CBRE). Draft report submitted for agency comment. Presentation given to CAC. Final report due to be submitted 30 August 2010.
- Community facilities and recreational needs assessment (Elton). Draft report submitted for agency comment. Final report due end August 2010.
- Detailed heritage assessment (BIOSIS). Some delays to field survey work due to weather, car rally and additional test pitting required by ACT Heritage. Draft report submitted 10 August 2010. Final report due mid-September 2010.
- Place-making study (In-house by Design Policy). Draft report circulated within ACTPLA in June 2010. Final report due end August 2010.
- Additional studies required:
    - bushfire risk assessment (will be done as part of PDF brief)
    - vegetation mapping (currently underway).

Stage 2 Phase 2 and 3 – Planning and Design Framework and Estate Development Planning

- Tenders were called on 10 July 2010 for a multi-disciplinary consultancy to prepare a draft Planning and Design Framework (PDF) to respond to needs of the accelerated land release program. Estimated fee is in the order of $0.6-$0.8m (GST excl).
- Industry briefings were held on 17 June and 20 July 2010 and approximately 25-30 consultants attended each session. Twelve submissions were received at the close of tenders on 17 August 2010.
- The project is on-track to engage consultant by the end of September 2010 when Phase 1 studies are complete. The Draft PDF (Phase 2) would be complete by end of June 2011, and would include important planning requirements for the first 3000 blocks.
- There is an option for ACTPLA to continue the Phase 2 consultants (subject to performance) onto Phase 3 to finalise the PDF, and transfer the consultants to LDA ('novation' process) to prepare EDP.

Strategic Assessment

- Key dates are:
    - 23 August 2010 – ACTPLA/DEWHA fortnightly meeting. Draft NES Plan complete.
    - 25 August 2010 – Executive Steering Committee – DEWHA, ACTPLA and DECCEW to discuss strategic assessment infrastructure, offsetting, Pink-tailed Worm Lizard (PTWL) and way forward.
    - 1 September 2010 – Chief Executive Land Supply Committee – ACTPLA to circulate draft NES Plan to members before meeting.
    - 9 September 2010 – LDTACC – ACTPLA to present brief on leasing options and reconciliation for PTWL, bushfire management and urban development boundary.
    - September 2010 – Draft supplementary report addressing public comments.
    - September/October 2010 – Cabinet Submission to be prepared by ACTPLA after clearance from DEWHA.

PROJECT GOVERNANCE

- Molonglo Project Reference Group (ACTPLA, LAPS, TAMS, and DECCEW) met for the first time on 28 June 2010. The group will meet to review key look-in points of Phase 2 and Phase 3 (e.g. brief, tender evaluation, workshops, reports). The next meeting on 24 August 2010 will include a presentation on infrastrucutre, includingn the stormwater triple bottom line study.
- Ivo Matesic (LDA) was added onto ACTPLA Working Group for PDF and Greg Ellis (LaPS) was added as an observer.

RISKS

Key risks to the project are endorsement of strategic assessment by the Commonwealth (particularly for location of arterial roads and group centre), resourcing, and meeting the accelerated land release program. These risks are being actively managed.

Aloisi, Angelina

From: McFarlane, Trina
Sent: Friday, 22 October 2010 12:49 PM
To: [redacted]
Cc: [redacted]
Subject: ACTPLA comments: Refinement of Constraints Map
Attachments: 1020_Molonglo Stage 2 - Residual Land Area V2.pdf

[redacted]

Initial feedback on [redacted] work is set out below:

Two documents received:

- Booklet – Constrained Development Land Draft – Version 1 (18.10.10)
- Composite Plan - RESIDUAL LAND ANALYSIS (Recd 20.10.10)

This is useful initial work which will help us to be able to articulate a clear, rational, consistent approach to yield/population projections. Appreciate Rod's initial comments about early draft only. Important to work on refining and documenting the assumptions and parameters, and commitment to it as the single "model" for this aspect of the project (ie rationalising ACTPLAs earlier work with the current work). The question of constraints and yields is also on the agenda at senior executive level now - ie both critical and topical. So this work will become an important element of ensuring realistic ongoing dialogue there, minimising surprises etc.

Seems to be two components to the work to date:

1. Sifting Analysis (overlays) which lead to the latter drawing (20/10/10) and a conclusion that we target about 330ha of residual land available for development.

2. Spreadsheet to quantify variabilities and allow for sensitivity analysis – based on residual housing land, yield, occupancy rate assumptions.

Comments on Component 1

- We'll need to document the assumptions more explicitly to promote common understanding, including in discussions with other agencies, eg the large "white" areas in latter drawing – is this land steeper than 15% ?
- Are we clear on the basis of 497ha original area?
- What to do about the red stringybark area within the site bounds (western edge)?
- Bar scale would be helpful.
- There's the two different criteria for use of the term "unconstrained land", ie in 18/10/10 version the various non-residential land use constraints are factored in (and used in the various spreadsheet scenarios) and possibility of 250ha or less available Then the 20/10/10 composite plan, sets target of 330ha. Each approach requires different density assumptions of course.
- A bold assumption in composite plan with OAPZ to the west in area which has in part been included in the offset planning in NES.
- Don't mind this but just need to ensure we are comparing apples with apples, and adopt best and clearest modelling approach as we get to the important "Component 2" work.

There are no problems with current for early internal circulation – just positioning for the way forward.

Comments on Component 2

Appreciate that the numbers aren't intended to relate directly to the mapping yet. But note the following:

- ACTPLA's work to June 2010 has suggested a total of 9300 dwellings and popn of 18000 for Molonglo Stage 2. This is the position that has to date been circulated within and outside ACTPLA, most recently.
- As it stands the assumed occupation rate of 2.44 would seem too high based on the dwelling mix. Our demographers advise adoption of: 2.82, 1.94, 1.45 ppd for low, med, high density respectively
- How to factor in the solar access policy implications, and other significant policy areas.
- Suggest nominating an indicative margin for error?
- Continueng refinement to the spreadsheet to allow OAPZ overlapping with areas also identified for offset purposes in NES Plan.

Next Steps
We agree on importance of resolving critical constraints issues ASAP. But acknowledge the reality that process will take time and is also being worked through within government (through park concept plan for Molonglo River corridor and this will include the western edge as well). This work and the Draft PDF generally needs to accommodate the reality of the decision making setting, and can assist in bringing the decisions forward.

Thanks

Trina McFarlane
Team Leader Molonglo | Land Policy
p 6207 1920 | e trina.mcfarlane@act.gov.au | web www.actpla.act.gov.au

From:
Sent: Wednesday, 20 October 2010 3:15 PM
To: Mackenzie, Stuart; McFarlane, Trina; Walsh, Peter; Patrick Fensham; ; Tony Connell; Mark Kelly;
Subject: Refinement of Constraints Map

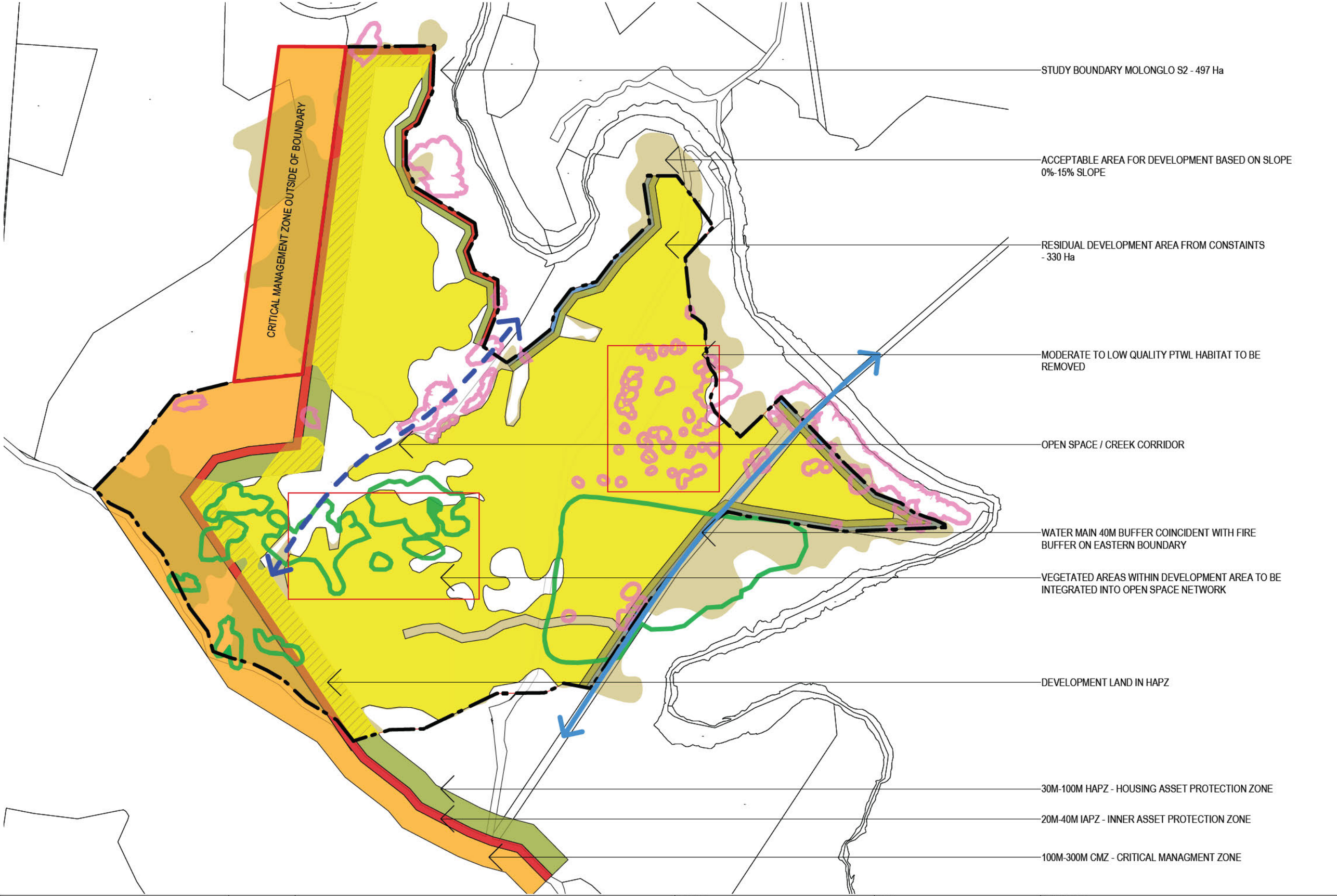
Hi all – Rod has done some further refinement of the constraints map for Stage 2 which now estimates around 330ha of residual land available for development.

This also shows clearly that the sooner we can clarify some of these constraints the better as yield is being impacted, which then flows onto a range of other issues (level of retail, range of community services etc).

I will take this map to the bushfire meeting tomorrow to help focus our discussion.

Thanks

SGS Economics and Planning Pty Ltd
Offices in Brisbane, Canberra, Hobart, Melbourne, Perth and Sydney
Canberra Office:
First Floor, Sparta Building
55 Woolley Street
DICKSON ACT 2602
Ph: +61 2 6262 7603
Fax: +61 2 6262 7564
Email:
Website: www.sgsep.com.au



simpson+wilson
architecture+urban design
1/102 alexander street crows nest 2065 www.sw.net.au
t: (02) 9439 3086 f: (02) 9439 0311 info@sw.net.au

N

REVISIONS:

CLIENT: ACTPLA

ADDRESS: MOLONGLO S2

DRAWING TITLE: RESIDUAL LAND ANALYSIS

SCALE: 1:15000 @ A3

DATE: 06.10.10

DRAWING NUMBER: 1020-C00-C01

Molonglo Stage 2 Draft Planning and Design Framework
Workshop (8/9 November 2010)

Additional Notes

Purpose:
a. to keep momentum going of the Draft PDF project and general project advancement;
b. to assist in preparing solutions, rather than taking issues/problems, for the paper to the Land Supply Work Group meeting (22 Nov) and the CE Steering Committee on Land Supply meeting (2 Dec);
c. General project update – cross issue communication – minimise surprises down the track;
d. Maximising our focus on, and our performance at CE meeting. CE meeting is a major opportunity to introduce project issues and intended approach to resolution (ie. to assist lead-in to signoff);
e. SGS Team positioning itself to present persuasively at the CE meeting;

Desired Outcomes of the workshop:
a. Understanding the constraints will help develop the 'base case' (i.e what the development will look like if al constraints are accepted). This may lead to some opportunity for change or negotiation of policy to achieve the project outcomes.
b. to get a good picture of what the base case is with most of the assumptions, including the various sub-options (Monday).
c. Work out some broad scenarios for the site, based on the assumptions and base case (Tuesday).

Key Issues:
2A Land Development Boundaries
An understanding of what's definite and what's not for boundaries, "chance to relook at offset areas", edge treatment, treatment of infrastructure within/across the river corridor, timing of RPCP, sign off, priority for action, etc

Update on status: Planning for River Corridor and Western Boundary, Bushfire, NES Plan

Points to discuss at workshop:
- PTWL and Box gum woodland - understanding constraints such as fencing, access, exclusion zones, Low/Med/High areas and treatment – Who makes these decisions?
- Bushfire – Impact of offset area on bushfire hazard and yield for Stage 2. Is there any chance for the offset area to be relooked at given it will have a financial cost on this development?
- River Park Concept Plan – defining the boundary, edge treatment, 'no go areas', access points, areas of high quality space, treatment of infrastructure across or in the river corridor, timing of plan and signoff – identifying priorities for action and what the best way forward is.

2B Yields and Housing Density
Points to discuss:
- **Site Analysis** – slope and yields, costs, relationship to current solar provisions. Yield, density parameters and consideration of target yields etc.

2C Arterial Road Corridors and Centre
Update on status: SMEC study (Browns already briefed)

Points to discuss:

- **Roads** – assumptions for modelling and alignment. Design, speed and function of road, earthworks, access roads to land release 1 and 2 and staging issues in the context of accelerated land release. (Brown's analysis of SMEC work).
- **Light Rail** – What should the assumptions be for light rail?
- **Group Centre** – earthworks, feasibility of the grading design for the group centre and NSA (ie. minimising cut and fill embankments and maximising flat areas to create developable accessible land adjoining the NSA), Cycleway and Sewerage Pipe, housing and scale options.

Secondary Issues:

3A Sustainability, Innovation and leading practise.

- Sustainable Transport (including active transport) – *public transport congestion, corridor width and pavement.*
- Stormwater and Water cycle – *stormwater management, third pipe, relationship to river park concept plan.*
- GHG emissions – *relationship to solar code, local generation, innovations*
- Social Issues – Housing affordability; Community Facilities; integration of community gardens and public art etc.

A suggested approach is to nominate each topic that discussion is needed and structure the information as follows:

	Issue (example: third pipe)
1. What are the facts/particulars?	(The Dept of Health says...)
2. What are the contentions?	(It is contended that the third pipe system should be used for these reasons...)
3. What is the way forward to put issue to CE group?	(We should form a working group with these terms of reference…)

3B Ideas, solutions and approaches *(Day 2 working session)*

- Urban design/layout – working in relationships with all edges, small centres, pedestrian and cycle links.

Aloisi, Angelina

From: McFarlane, Trina
Sent: Thursday, 11 November 2010 4:59 PM
To: McFarlane, Trina
Subject: SGS draft issues papers
Attachments: ELA Base analysis bushfire 011110.doc; ELA Base analysis eco 011110.doc; Base Analysis - Sustainable Development_draft.doc

Trina McFarlane
Team Leader Molonglo | Land Policy
p 6207 1920 | e trina.mcfarlane@act.gov.au | web www.actpla.act.gov.au

ACT Planning and Land Authority

From:

Sent: Thursday, 4 November 2010 2:26 PM
To: Walsh, Peter; McFarlane, Trina
Cc:
Subject: FW: Workshop with SGS Team Next Monday Tuesday

Hi Peter & Trina –

Ahead of Monday's meeting I thought it may be useful to circulate a couple of the draft issues papers on some of the topic areas - please note that these are draft only and SGS will compile these into one document for broader circulation and input . Some of the papers are still under preparation and others are being updated as new information is becoming available.

However these particular papers will provide some important information for the workshop discussion, especially the constraints maps:

- Bushfire
- Environment
- Options for sustainable development initiatives

Thanks

SGS Economics and Planning Pty Ltd
Offices in Brisbane, Canberra, Hobart, Melbourne, Perth and Sydney
Canberra Office:
First Floor, Sparta Building
55 Woolley Street
DICKSON ACT 2602
Ph: +61 2 6262 7603
Fax: +61 2 6262 7564
Email:
Website: www.sgsep.com.au

From: Walsh, Peter [mailto:Peter.Walsh@act.gov.au]
Sent: Thursday, 4 November 2010 12:57 PM
To: McFarlane, Trina; Garrett, Greg; McCabe, April; Mackenzie, Stuart; Matesic, Ivo; Paynter, Patrick; Patrick Fensham; Beljic, Miloje; Watman, Fred; Smith, Becky; [redacted];
[redacted]
Cc: Murray, Chris
Subject: Workshop with SGS Team Next Monday Tuesday

Agenda for session Monday and Tuesday next week - [redacted] can you please pass on to [redacted].
Regards
Peter Walsh

Molonglo Stage 2 Draft Planning and Design Framework

Base Analysis : Bushfire Management

Draft

October 2010

Eco Logical Australia

SGS Economics & Planning

1 Bushfire management – impact and linkages

Eco Logical Australia (ELA) has been engaged by SGS Economics and Planning to investigate bushfire issues for the design and development of Molonglo Stage 2. ELA is also responsible for preparation of an ecological issues paper for the Stage 2 development. Results of the integrated bushfire and ecological constraints assessment will help to determine the available land for development.

1.1 What do we know about the current situation?

The Molonglo Valley is situated on the western side of the ACT. Catastrophic wildfires were experienced in this area in 2003. In September 2004, all parts of the ACT outside the defined urban area were designated as bushfire prone through the *Building Regulations*. The Molonglo Stage 2 study area is therefore recognised as bushfire prone, and development in this area is required to meet the provisions of the *Building Code of Australia* and *Australian Standard 3959 (construction of buildings in bushfire-prone areas)*.

At a landscape scale, the framework for bushfire planning in the ACT is primarily established through the:

- *Planning for Bushfire Risk Mitigation General Code* (ACTPLA 2008)
- *Strategic Bushfire Management Plan for the ACT (ESA 2009)* (SBMP)

1.1.1 Description of the Issue

A preliminary bushfire management zoning map has been prepared by TAMS and ESA for the Molonglo area (see following pages). Note these are drafts and a number of important points apply to the manner in which these maps have been prepared:

1. The urban edge classification is derived from the matrix identified in SBMP Version two, as follows:

	Length of Fire Run to Asset Interface (m)		
Aspect of Fire Run	**<100**	**100 - 350**	**>350**
N	secondary	primary	primary
NW	secondary	primary	primary
W	secondary	primary	primary
SW	lee	secondary	primary
S	lee	secondary	secondary
SE	lee	lee	lee
E	lee	lee	secondary
NE	lee	lee	secondary

2. In some locations, the classification has been increased where the nature of the river corridor, and wind terrain interactions may result in the lateral spread of head fire and embers.

3. The zoning likewise is derived from the SBMP as follows:

Vegetation type	Asset Interface Classification (As mapped)	Inner APZ	Outer APZ
		Width (m)	Width (m)
Forest and shrubland	primary	30	target 300, min. 200
	secondary	20	100
	lee	10	0
Grass and woodland	primary	30	100
	secondary	20	0
	lee	10	0

4. Further consideration of the width of zones will need to be undertaken – the only areas zoned under the forest standards in the map are on the western side, south of the river. There are likely to be other areas that may attract this classification, however this will required further assessment. These areas may include replanted or wilding plantation regrowth, areas of Casuarina along the river and areas of Stromlo Forest Park.
5. The zones have been applied consistent with default arrangements used in other developments – i.e. the inner APZ is within the development footprint and the Outer APZ is outside the footprint
6. Importantly, NO constraints have been applied in the location of the zones. PTWL and other conservation requirements, operational constraints or other commitments have not been used in establishing the locations of the zones – in that respect , the zones shown are more to provide an indication of what the required width is likely to be as opposed to the actual location.

This map will be refined by ELA in a process outlined in Section 1.3. The revised bushfire management zoning map will consider other constraints such as ecology and identify:

- Ember zones
- Inner asset protection zones (APZs) – refer to diagrams on the following page
- Outer APZs
- Strategic fire-fighting advantage zones
- Landscape fire management zones

ELA will focus on areas where there may be opportunities to better integrate ecological and bushfire management. These areas are likely to include:

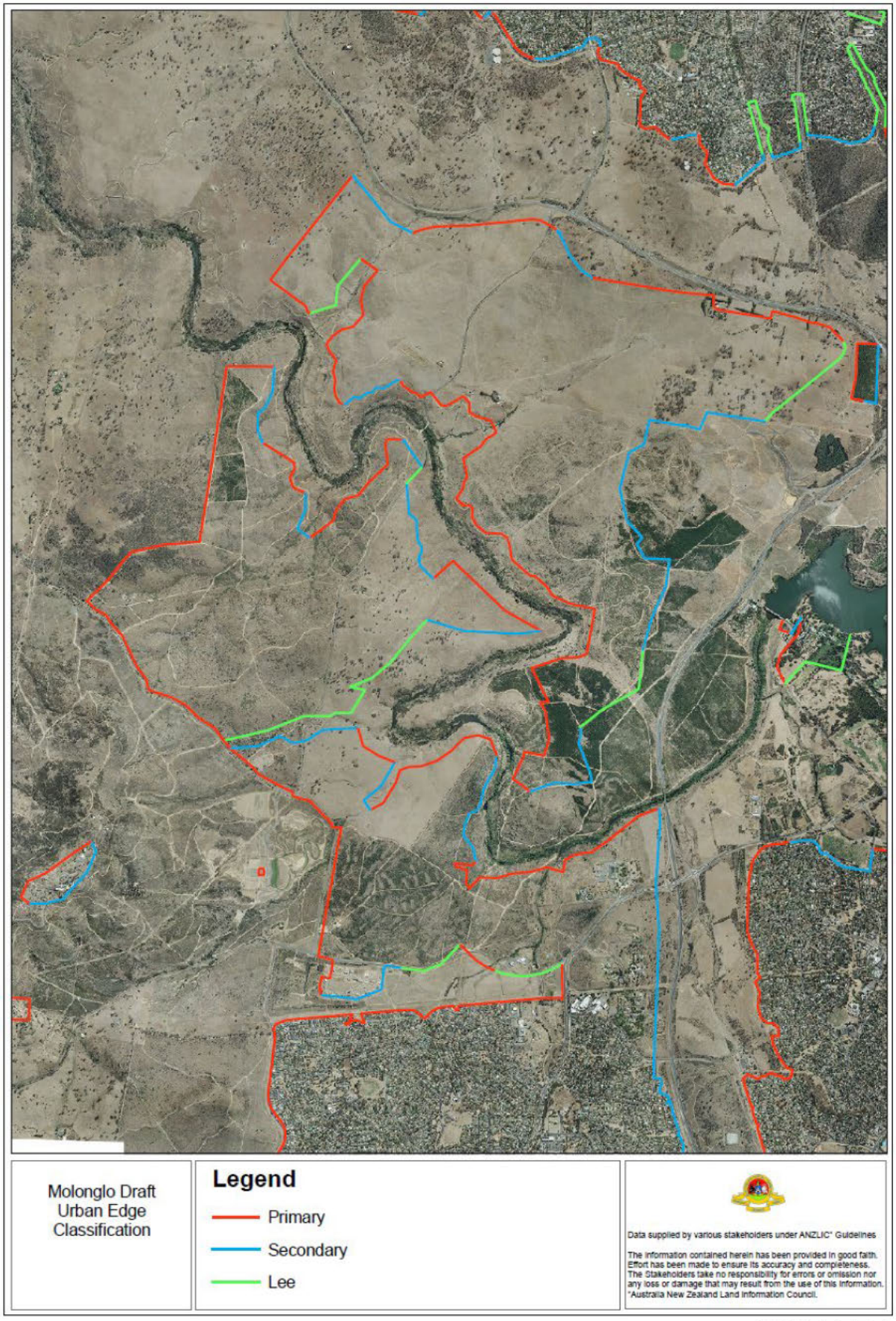
- Interface with the riparian corridor: Requires integration with environmental objectives and consideration of options for APZ management such as Water Sensitive Urban Design (WSUD), passive and active open space and access ways
- Remnant vegetation, threatened fauna habitat and wildlife corridors: Discussion on the spatial coverage, orientation and connectivity of conservation areas, parks and corridors with the aim to minimise risk and increase sustainable development yield

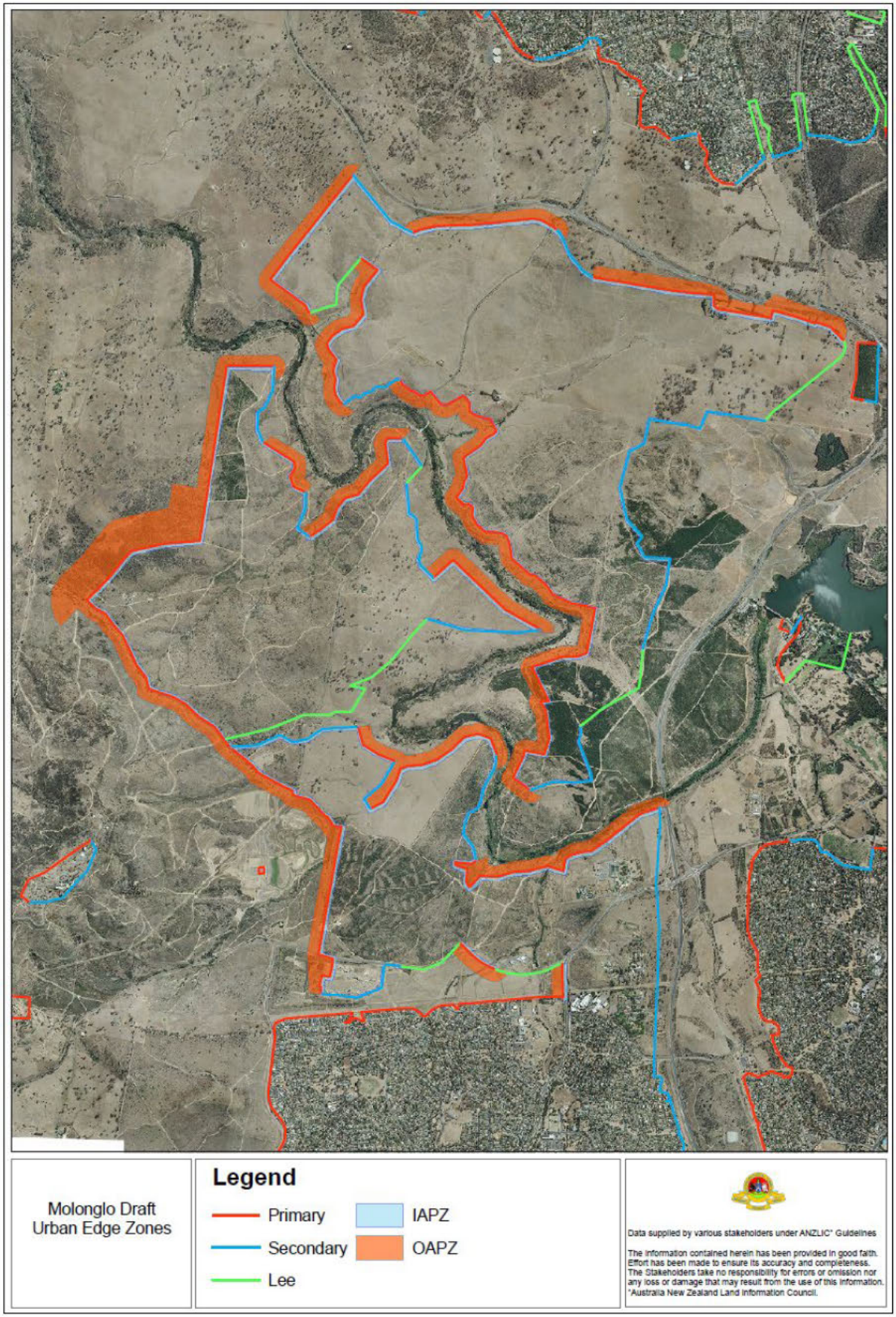
- Treatment of the western bushland interface: Careful selection of managed bushland separation zoning (APZ) to allow sustainable development with affordable bushfire protection and realistic ecological outcomes

1.1.2 Trends

The Fire Danger Index (FDI) relates to the potential bushfire behaviour, including its rate of spread, intensity and difficulty of suppression. The FDI is determined by considering soil moisture, temperature, relative humidity, weed speed and rainfall. These factors are expected to be affected by climate change. The SBFP states that 'it is predicted that days of >50 FDI[1] will increase in southern Australia, with a possible increase of the frequency of >70 FDI events to once every five years by 2020 and to more than once every two years by 2050.'

[1] Most uncontrollable bushfires occur when the FDI is over 50


Molonglo Draft
Urban Edge
Classification
Legend
Primary
Secondary
Lee
Data supplied by various stakeholders under ANZLIC* Guidelines
The information contained herein has been provided in good faith. Effort has been made to ensure its accuracy and completeness. The Stakeholders take no responsibility for errors or omission nor any loss or damage that may result from the use of this information.
*Australia New Zealand Land Information Council.


Molonglo Draft
Urban Edge Zones
Legend
Primary
Secondary
Lee
IAPZ
OAPZ
Data supplied by various stakeholders under ANZLIC* Guidelines
The information contained herein has been provided in good faith. Effort has been made to ensure its accuracy and completeness. The Stakeholders take no responsibility for errors or omission nor any loss or damage that may result from the use of this information.
*Australia New Zealand Land Information Council.

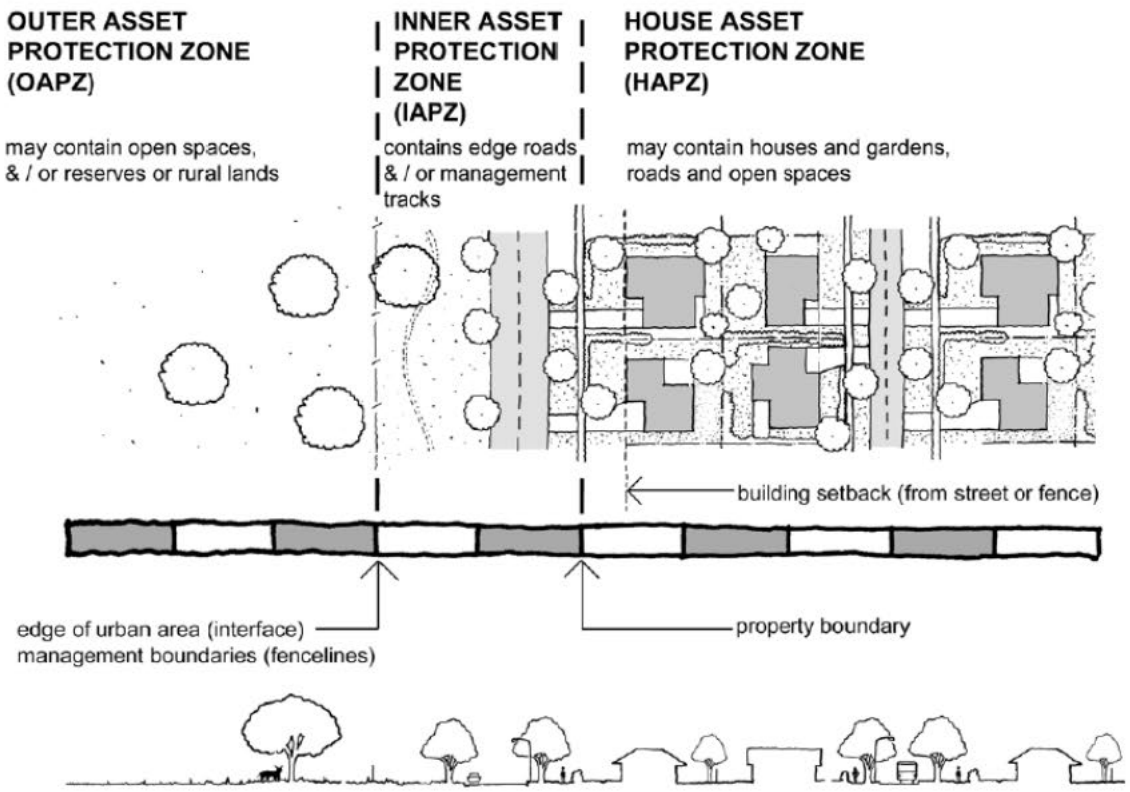


Figure: Asset Protection Zones (ACTPLA 2008)

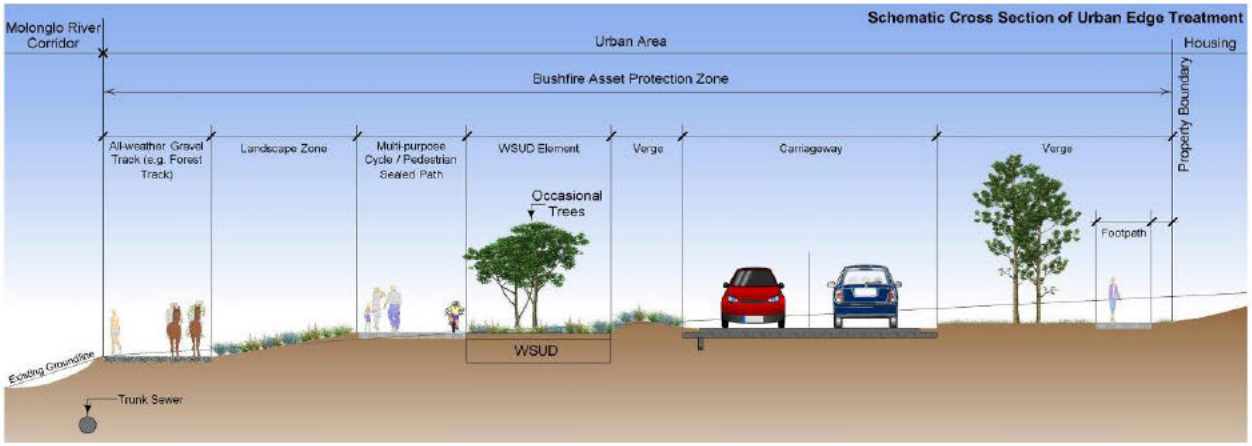


Figure: Schematic of typical inner APZ features

1.2 What are the key issues?

Issue 1.

Satisfy the aims and objectives of the SBMP – the goal of the SBMP is: 'through Government and the community working together, suppress bushfires and reduce their consequences on human life, property and the environment'

Issue 2.

Integration with ecological protection and management – the SBMP states that 'bushfire management recognises the dynamic nature of natural ecosystems, and requires clear objectives and an adaptive approach to environmental management. Fire managers will use the best available knowledge to identify appropriate fire management practices, including the desirable fire regimes necessary to maintain the ecological integrity of these systems.'

Issue 3.

Minimise maintenance costs – ongoing maintenance needs to be realistic, practical and achieved at minimum cost

1.3 How should development at Molonglo Stage 2 address the issues/opportunities?

The development footprint and design features need to allow for bushfire risk mitigation measures such as APZs and ongoing maintenance requirements. A process for addressing bushfire issues will require close consultation with key stakeholders to ensure that the following performance measures are achieved:

- Meet statutory obligations
- Integration of biodiversity and fire management objectives, with minimum land-take
- Define dimensions and allowed activities within bushfire management zones, including maintenance requirements
- Identify construction standards for bushfire protection

ELA has commenced the consultation process. Our first bushfire planning meeting was held on 21 October 2010 with representatives from ACTPLA, ESA, TAMS, LAPS and SGS. Minutes from this meeting indicate a pathway forward:

- ESA/TAMS to prepare a preliminary map of fire management zones on the study area boundaries
- ELA to overlay predicted vegetation formations (i.e. fuel potential) and slope to refine the map
- Buffer from vegetation formations to generate a map of fire management zones with APZs defined in accordance with the SBPM
- Integrate bushfire map with ecological features (such as Pink-tailed Worm Lizard habitat, Box-Gum Woodland, Stromlo Forest, the Molonglo River riparian corridor and ecological offsets to the west) to determine sections of the study area boundary that may require further investigation to meet the outcomes identified in Section 1.2
- Outline management options for 'flagged' areas (e.g. increase IAPZ and decrease OAPZ; integrate open space recreation features with APZs; improve PTWL habitat connectivity and reduce fire risk in some grassland areas by introducing/increasing suitable rocks)

Any variation to the bushfire management zone map will need to be approved by the ESA Commissioner.

1.3.1 Identify opportunities for innovation/change to be explored as part of the development

Opportunities for innovation will be explored through development of management options in 'flagged' areas, as outlined above.

1.3.2 What barriers need to be addressed?

Close consultation with key agencies (e.g. ESA and TAMS) will be essential to resolving issues relating the bushfire management at Molonglo. ELA is in a strong position to achieve this because of our recognised expertise in bushfire and ecological planning.

Aloisi, Angelina

From: McFarlane, Trina
Sent: Wednesday, 17 November 2010 2:06 PM
To: [redacted]
Cc: Smith, Becky; Mackenzie, Stuart; [redacted]
Subject: Molonglo 2 PDF - Constraints Mapping
Attachments: C10065#PDF001.pdf

[redacted]

Updated advice from Stuart Mackenzie and Becky Smith below in advance of the meetings tomorrow:

Stuart has discussed the fire boundary issues with TAMS (Jim Corrigan) and ESA (Nick Lhuede) on 16/11/10 in preparation for our meeting tomorrow (18/11/10) with the SGS team and a number of reps from ACT agencies including the CE's Working Group. We agreed that the additional urban land shown on the consutant's 'Revised Development Boundary and Constraints Map' extending into the high quality boxgum (Patch D) in the riparian corridor was not appropriate.

However, the other areas shown as 'additional land', where there are no environmental constraints, could be noted on the map as 'Potential additional area – subject to further investigation'. This responds to the government's desire to pick-up developable land to replace land conceded for enviromental values. The SGS team can make a recommendation on the fire/ecological issues to support the potential boundary in the *Draft* PDF, however it would be a matter for ACT agencies (and potentially the NCA) to finalise the altered boundaries (possibly *after* the Draft PDF).

The NES plan no longer stating that fire management needs to happen outside the PTWL buffer zones. [redacted] comment about the NES Plan requiring fire management activities to take place outside of the PTWL habitat and buffer, appears to be out of date. However, EcoLogical should provide recommendations on a fuel management regime that ensures that the ecological integrity of the habitat is preserved and not adversely impacted. As we know, ESA now consider the high quality habitat to be a low fuel/low risk environment and only light fuel reduction will be required – ie, potentially low impact on ecology. TAMS advise that weed invasion is potentially a bigger threat, and the buffers should be managed accordingly.

ESA believes the river corridor can be managed (while meeting ecological targets) as an outer protection zone.

The western edge is potentially more challenging. TAMS/ESA at this stage believe that the red stringy bark forest on the knoll can be managed with control burning (possibly 5 year frequency) and that the part of the forest within the urban boundary may be cleared. To the north, there is medium value box-gum which is C/wealth listed. OAPZ typically requires a 5 year control burn frequency, however, this may be adverse to the ecology which is suited to a 10yr+ frequency.

ESA has requested that the two fire maps of Urban Edge Classifications and Zones, that were given to the consultants, be considered preliminary advice only, prior to more detailed asssesment by the consultant being undertaken per their brief.

In summary, it appears that most of the urban development boundary can be held at this stage, with the biggest questions being asked along the western edge abutting the box gum. If this box gum is not managed as OAPZ, a large amount of developable land will be lost along the peninsula.

regards
Trina

From: [redacted]
Sent: Monday, 15 November 2010 10:04 AM
To: [redacted]
Cc: McFarlane, Trina; Mackenzie, Stuart; Smith, Becky
Subject: RE: Molonglo 2 PDF - Constraints Mapping

Hi all

ELA has reviewed the 'Revised Development Boundary and Constraints' map and have the following comments:

- The NES Plan is based on a defined urban boundary. If this boundary changes it may jeopardise the Commonwealth approvals process. This is especially the case if additional environmental impacts are likely (e.g. removal of Patch D Box Gum Woodland from the riparian corridor).

- The integration of bushfire management with ecological protection and management needs further consideration. For example, the NES Plan states that:

    - All fire management activities need to be undertaken outside of the protected high and moderate quality PTWL habitat and its associated buffer.

    - The application of fire within the river corridor will take into account ecological fire thresholds for Box-Gum Woodland, PTWL and Natural Temperate Grassland.

    - The application of fire and fire management activities within and adjacent to the offsets will need to take into account ecological fire thresholds for Box Gum Woodland and Natural Temperate Grassland. It will be necessary to ensure that fire management does not degrade the values of the offset areas.

We understand that Stuart Mackenzie is organizing a meeting to discuss bushfire/eco management. We will bring updated/additional bushfire maps and a list of management options to this meeting. It is hoped that the meeting will be held toward the end of this week, depending on the availability of relevant agency staff.

We anticipate that the meeting will help to resolve some of the uncertainties regarding the potential for development.

Regards

Senior Consultant

From:
Sent: Thursday, 11 November 2010 5:41 PM
To:
Cc: McFarlane, Trina; Mackenzie, Stuart; Smith, Becky;
Subject: Molonglo 2 PDF - Constraints Mapping

Team

Please find attached "Revised Development Boundary and Constraints" mapping that has been prepared from the butter papers worked up by and the group at last Tuesday's workshop.

The purpose of the map is to define the actual development boundary for Molonglo 2.

The revised development boundary is based on the following criteria:

- 20m offset from medium and high quality PTWL habitat

- No APZ setbacks from current or development boundary
- Incorporating land to EPBC box gum woodland near Coppins Crossing
- Deleting south facing 15%+ land adjacent west boundary

Other assumptions include

- PTWL habitat within development boundary can be extinguished
- EPBC woodland within the development boundary can be cleared
- 40m easement for ActewAGL bulk water mains
- Any EPBC woodland outside current boundary is retained but no setbacks
- Any cultural heritage to be incorporated into the development
- Contamination sites within development boundary are remediated
- Existing overhead 11kV and optic fibre are relocated and are not a constraint

We would like to bed down the development boundary so we can get on with the development planning. However we need to test the efficacy of the assumptions and some of the mapping before proceeding.

Everyone is encouraged to comment but we have some specific questions. We need to a make a realistic call on these questions now so we can proceed with the base case planning.

Ecological ( )

1. Can you please comment on the APZ's assumptions
2. Can you please comment on the adjusted boundary in the following areas
   a) SE corner where the boundary has been moved to the 20m buffer from the PTWL , however the land is high quality EPBC woodland and therefore this maybe not acceptable – are we overly optimistic here , or prejudicing approvals ?
   b) In the same area there is a pocket of PTWL habitat within the Molonglo 2 boundary – should this be removed from the development zone (as indicated in your draft base analysis report) ?
3. Any comments on the boundaries "ins and outs" along the northern frontage ?

ACTPLA (Trina, Stuart, Becky)

1. Any comments on boundary adjustments and particularly the on the reality to obtain the "extra" land ?

Next steps will be for s+w to progress on the town planning and yield calculations and Browns to progress on conceptual planning for stormwater and sewer and NS & EW arterials.

Any queries please call.

– please feel free to add any further questions ?

Regards

Brown Consulting (ACT) Pty Ltd
15 Hall St, Lyneham, ACT, 2602
PO Box 5004, Lyneham, ACT, 2602
P 02 6211 7100 **F** 02 6211 7199
E
W www.brownconsulting.com.au

Urban Development | Structures
Roads & Traffic | Water & Environment

Engineering innovative and sustainable environments with creativity, care and value

LEGEND

EXISTING SERVICES, HABITAT & VEGETATION

- MOLONGLO 2 BOUNDARY - TERRITORY PLAN
- MOLONGLO 2 BOUNDARY - REVISED DEVELOPMENT BOUNDARY
- WATER, 40m EASEMENT
- OPTIC FIBRE
- OVERHEAD ELECTRICITY
- SEWER TRUNK (MVIS)
- CONTOUR (5.0m INTERVAL)
- HIGH QUALITY HABITAT PINK TAILWORM LIZARD (PTWL)
- MODERATE QUALITY HABITAT PINK TAILWORM LIZARD (PTWL)
- VEGETATION EPBC - BOX GUM WOODLAND (HIGH)
- VEGETATION EPBC - BOX GUM WOODLAND (MEDIUM)
- VEGETATION EPBC - BOX GUM WOODLAND (LOW)
- FOSSILIFEROUS LIMESTONE OUTCROP
- LAND - DELETED (17.1ha)
- LAND - ADDITIONAL (27.0ha)
- STEEP SLOPE - VISUAL AMENTITY (31ha)

ASSUMPTIONS:

1. REVISED BOUNDARY BASED ON:
   - 20m offset from PTWL high and medium
   - No APZ setbacks or offsets from current or development boundary.
   - Incorporating land to EPBC Box Gum Woodland near Coppins Crossing.
   - Deleting southface 15% + sloping land adjacent west boundary near Uriarra road.
   - Deleting NH1 (Fossiliferous limestone outcrop)
2. PTWL HABITAT WITHIN DEVELOPMENT BOUNDARY CAN BE EXTINGUISHED (BY OFFSET AGREEMENT).
3. EPBC WOODLAND WITHIN DEVELOPMENT BOUNDARY CAN BE CLEARED (BY OFFSET AGREEMENT).
4. 40m EASEMENT FOR ActewAGL 1200mm AND 900mm DIA WATERMAINS.
5. ANY EPBC LISTED WOODLAND OUTSIDE CURRENT MOLONGLO 2 BOUNDARY IS RETAINED (NO SETBACKS).
6. CULTURAL HERITAGE TO BE INCORPORATED INTO DEVELOPMENT.
7. CONTAMINATION SITES WITHIN SITE BOUNDARY ARE REMEDIATED.
8. EXISTING OVERHEAD 11 kV AND OPTIC FIBRE TO BE RELOCATED AS PART OF DEVELOPMENT.

CULTURAL HERITAGE (BIOSIS)

MHS1 - Scarred tree (survey mark)

MHS2 - Remains of Cottage and Historic Trees

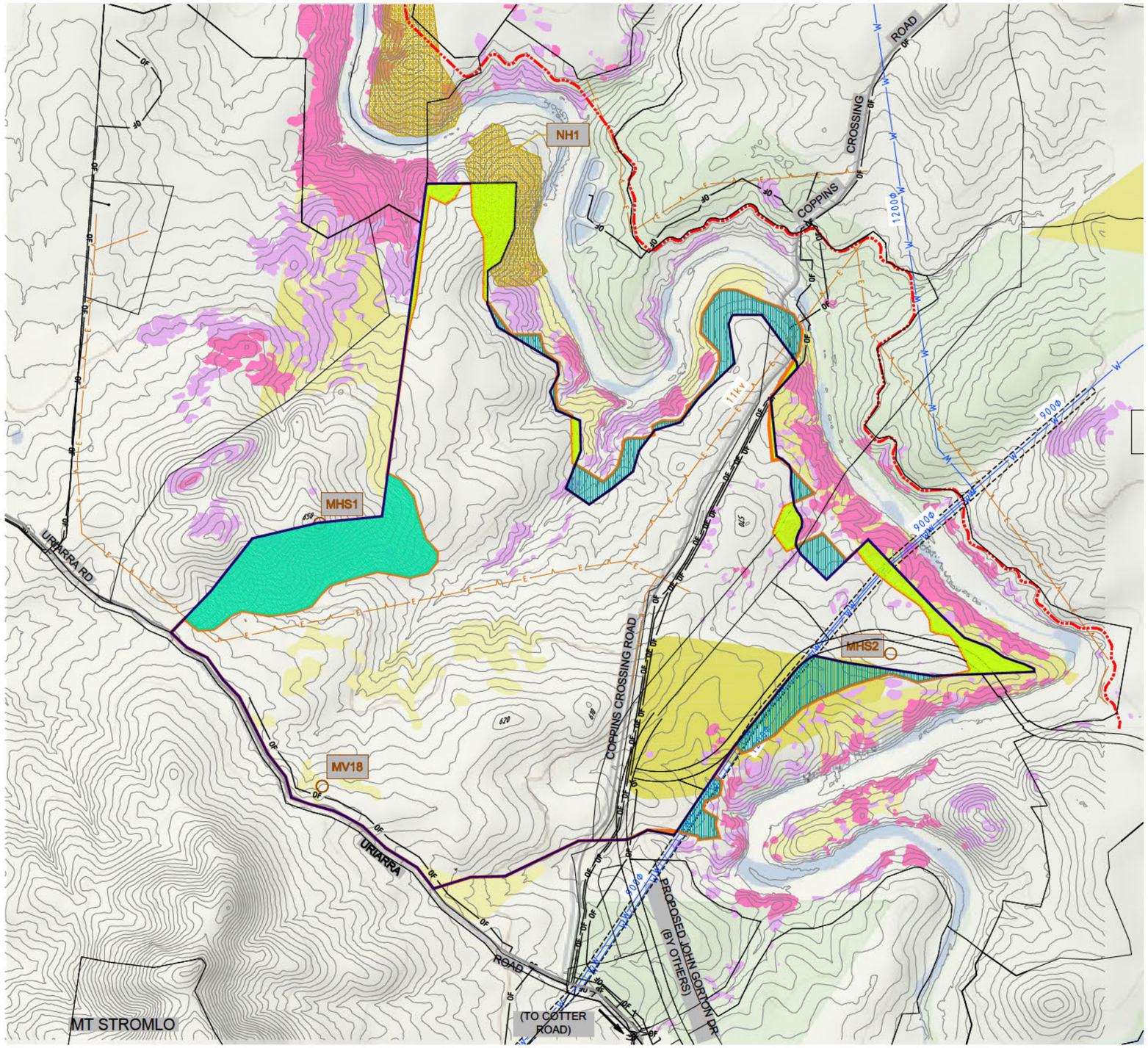
MV18 - Indigenous grinding tool

NATURAL HISTORY (AECOM)

NH1 - Fossiliferous Limestone Outcrop, comprising small fossil-bearing shale and siltstone outcrops approximately 300m wide, and some 700m north to south.

SOURCES:

Base and contours - ACTPLA Territory Plan
Pink Tailworm Lizard Habitat - ACTPLA (2010), Osbourne (2010)
Cultural Heritage - BIOSIS (2010)
Vegetation - Eco Logical Australia (2010)
Slope Analysis - BROWN CONSULTING (2010)
Services - AECOM, ActewAGL and Telstra
Geological Site - ACTPLA (2010), University of Canberra (2010) & Eco Logical Australia (2009)



100 50 0 100 200 300 400 500
1:10000 @ A1

KRC KRC 10/11/2010

BROWN CONSULTING

MOLONGLO VALLEY STAGE 2

PROJECT TITLE
REVISED DEVELOPMENT BOUNDARY & CONSTRAINTS
C10065#PDF001

Aloisi, Angelina

From: [redacted]
Sent: Wednesday, 17 November 2010 2:28 PM
To: McFarlane, Trina; [redacted]
Cc: Smith, Becky; Mackenzie, Stuart; [redacted]
Subject: RE: Molonglo 2 PDF - Constraints Mapping
Attachments: ELA integrated methodology 121110.pdf

Hi all

Please find attached a brief report outlining the key issues regarding ecology and bushfire management, with updated maps. This will provide further background for tomorrow's discussion.

The final section of the report outlines ELA's preferred strategy, which can be summarized as follows:

- Adaptive management of the outer APZ informed by a detailed understanding of site-specific conditions regarding fuel hazards, bushfire history and requirements for ecologically appropriate fire regimes. This will require ongoing monitoring and a mosaic pattern to on-ground management
- Increase the inner APZ width
- Higher construction standards in the lot layout

Additional measures could include:

- Increase areas of rocky PTWL habitat
- Implementation of a strategic firefighting zone to the west of the offset area

I will bring copies of the report to the meeting.

Regards

[redacted]

From: McFarlane, Trina [mailto:Trina.McFarlane@act.gov.au]
Sent: Wednesday, 17 November 2010 2:07 PM
To: [redacted]
Cc: Smith, Becky; Mackenzie, Stuart; [redacted]
Subject: Molonglo 2 PDF - Constraints Mapping

[redacted]

Updated advice from Stuart Mackenzie and Becky Smith below in advance of the meetings tomorrow:

Stuart has discussed the fire boundary issues with TAMS (Jim Corrigan) and ESA (Nick Lhuede) on 16/11/10 in preparation for our meeting tomorrow (18/11/10) with the SGS team and a number of reps from ACT agencies including the CE's Working Group. We agreed that the additional urban land shown on the consutant's 'Revised Development Boundary and Constraints Map' extending into the high quality boxgum (Patch D) in the riparian corridor was not appropriate.

However, the other areas shown as 'additional land', where there are no environmental constraints, could be noted on the map as 'Potential additional area – subject to further investigation'. This responds to the government's desire to pick-up developable land to replace land conceded for enviromental values. The SGS team can make a recommendation on the fire/ecological issues to support the potential boundary in the *Draft* PDF, however it would be a matter for ACT agencies (and potentially the NCA) to finalise the altered boundaries (possibly *after* the Draft PDF).

The NES plan no longer stating that fire management needs to happen outside the PTWL buffer zones. [redacted] comment about the NES Plan requiring fire management activities to take place outside of the PTWL habitat and buffer, appears to be out of date. However, EcoLogical should provide recommendations on a fuel management regime that ensures that the ecological integrity of the habitat is preserved and not adversely impacted. As we know, ESA now consider the high quality habitat to be a low fuel/low risk environment and only light fuel reduction will be required – ie, potentially low impact on ecology. TAMS advise that weed invasion is potentially a bigger threat, and the buffers should be managed accordingly.

ESA believes the river corridor can be managed (while meeting ecological targets) as an outer protection zone.

The western edge is potentially more challenging. TAMS/ESA at this stage believe that the red stringy bark forest on the knoll can be managed with control burning (possibly 5 year frequency) and that the part of the forest within the urban boundary may be cleared. To the north, there is medium value box-gum which is C/wealth listed. OAPZ typically requires a 5 year control burn frequency, however, this may be adverse to the ecology which is suited to a 10yr+ frequency.

ESA has requested that the two fire maps of Urban Edge Classifications and Zones, that were given to the consultants, be considered preliminary advice only, prior to more detailed asssesment by the consultant being undertaken per their brief.

In summary, it appears that most of the urban development boundary can be held at this stage, with the biggest questions being asked along the western edge abutting the box gum. If this box gum is not managed as OAPZ, a large amount of developable land will be lost along the peninsula.

regards
Trina

From: [redacted]
Sent: Monday, 15 November 2010 10:04 AM
To: [redacted]
Cc: McFarlane, Trina; Mackenzie, Stuart; Smith, Becky
Subject: RE: Molonglo 2 PDF - Constraints Mapping

Hi all

ELA has reviewed the 'Revised Development Boundary and Constraints' map and have the following comments:

- The NES Plan is based on a defined urban boundary. If this boundary changes it may jeopardise the Commonwealth approvals process. This is especially the case if additional environmental impacts are likely (e.g. removal of Patch D Box Gum Woodland from the riparian corridor).

- The integration of bushfire management with ecological protection and management needs further consideration. For example, the NES Plan states that:

    - All fire management activities need to be undertaken outside of the protected high and moderate quality PTWL habitat and its associated buffer.

    - The application of fire within the river corridor will take into account ecological fire thresholds for Box-Gum Woodland, PTWL and Natural Temperate Grassland.

    - The application of fire and fire management activities within and adjacent to the offsets will need to take into account ecological fire thresholds for Box Gum Woodland and Natural Temperate Grassland. It will be necessary to ensure that fire management does not degrade the values of the offset areas.

We understand that Stuart Mackenzie is organizing a meeting to discuss bushfire/eco management. We will bring updated/additional bushfire maps and a list of management options to

this meeting. It is hoped that the meeting will be held toward the end of this week, depending on the availability of relevant agency staff.

We anticipate that the meeting will help to resolve some of the uncertainties regarding the potential for development.

Regards

[redacted]

From: [redacted]
Sent: Thursday, 11 November 2010 5:41 PM
To: [redacted]
Cc: [redacted] McFarlane, Trina; Mackenzie, Stuart; Smith, Becky; [redacted]
Subject: Molonglo 2 PDF - Constraints Mapping

Team

Please find attached "Revised Development Boundary and Constraints" mapping that has been prepared from the butter papers worked up by Rod Simpson and the group at last Tuesday's workshop.

The purpose of the map is to define the actual development boundary for Molonglo 2.

The revised development boundary is based on the following criteria:

- 20m offset from medium and high quality PTWL habitat
- No APZ setbacks from current or development boundary
- Incorporating land to EPBC box gum woodland near Coppins Crossing
- Deleting south facing 15%+ land adjacent west boundary

Other assumptions include

- PTWL habitat within development boundary can be extinguished
- EPBC woodland within the development boundary can be cleared
- 40m easement for ActewAGL bulk water mains
- Any EPBC woodland outside current boundary is retained but no setbacks
- Any cultural heritage to be incorporated into the development
- Contamination sites within development boundary are remediated
- Existing overhead 11kV and optic fibre are relocated and are not a constraint

We would like to bed down the development boundary so we can get on with the development planning. However we need to test the efficacy of the assumptions and some of the mapping before proceeding.

Everyone is encouraged to comment but we have some specific questions. We need to a make a realistic call on these questions now so we can proceed with the base case planning.

Ecological ([redacted])

1. Can you please comment on the APZ's assumptions
2. Can you please comment on the adjusted boundary in the following areas
   a) SE corner where the boundary has been moved to the 20m buffer from the PTWL , however the land is high quality EPBC woodland and therefore this maybe not acceptable – are we overly optimistic here , or prejudicing approvals ?
   b) In the same area there is a pocket of PTWL habitat within the Molonglo 2 boundary – should this be removed from the development zone (as indicated in your draft base analysis report) ?

3. Any comments on the boundaries “ins and outs” along the northern frontage ?

ACTPLA (Trina, Stuart, Becky)

1. Any comments on boundary adjustments and particularly the on the reality to obtain the “extra” land ?

Next steps will be for s+w to progress on the town planning and yield calculations and Browns to progress on conceptual planning for stormwater and sewer and NS & EW arterials.

Any queries please call.

– please feel free to add any further questions ?

Regards

Brown Consulting (ACT) Pty Ltd
15 Hall St, Lyneham, ACT, 2602
PO Box 5004, Lyneham, ACT, 2602
P 02 6211 7100 **F** 02 6211 7199
E u
W www.brownconsulting.com.au

BROWN CONSULTING

Urban Development | Structures
Roads & Traffic | Water & Environment

Engineering innovative and sustainable environments with creativity, care and value

Molonglo Stage 2 Draft Planning and Design Framework

Integrated Eco & Bushfire Methodology

Draft

November 2010

Eco Logical Australia

SGS Economics & Planning

1 Introduction

This report presents information to help define ecological and bushfire constraints and integrate management requirements within the Molonglo 2 study area and surrounds. The assessment will help to determine the land available for development. It will also help to demonstrate if the Commitments in the NES Plan are being satisfied.

This report outlines:

- NES Plan requirements regarding bushfire management (Section 2)
- Classify and map urban interface as primary, secondary or lee in accordance with the *Strategic Bushfire Management Plan for the ACT* (SBMP) (Section 3 and Figure 1)
- Determine the expected future vegetation types (forest/shrubland or woodland/grassland) for areas on the perimeter of Molonglo Stage 2 (Figure 2)
- Determine requirements for inner and outer asset protection zones (APZs) and show on map (Figure 3)
- Identify ecologically appropriate fire regimes and management requirements (Section 4)
- Overlay map of APZs with key ecological features and consider options for integrated management (Figure 4 and Section 5)
- Outline the preferred option and next steps (Section 6)

2 NES Plan requirements

Key requirements from the NES Plan are:

- Establish a 20 m buffer around all high and moderate quality Pink-tailed Worm Lizard (PTWL) habitat
- Undertake all fire management activities outside of the protected high and moderate quality PTWL habitat and its associated buffer
- Establish and manage land offsets, and ensure that fire management does not degrade the values of the offset areas
- Take into account ecological fire thresholds for Box-Gum Woodland, PTWL and Natural Temperate Grassland in relation to the application of fire and fire management activities within the river corridor, and within and adjacent to the offsets

3 Bushfire management requirements

These management requirements are derived with reference to the SBMP.

Asset interface classification

Figure 1 shows how the urban edge of Molonglo Stage 2 has been classified by TAMS/ESA as primary, secondary or lee according to the aspect of potential fire run and length of potential fire run to the asset interface (refer to table below). In some locations, the classification has been increased where the nature of the river corridor, and wind terrain interactions may result in the lateral spread of head fire and embers.

	Length of Fire Run to Asset Interface (m)		
Aspect of Fire Run	**<100**	**100 - 350**	**>350**
N	secondary	primary	primary
NW	secondary	primary	primary
W	secondary	primary	primary
SW	lee	secondary	primary
S	lee	secondary	secondary
SE	lee	lee	lee
E	lee	lee	secondary
NE	lee	lee	secondary

Fuel management standards

Schedule C of the SBMP identifies fuel management standards for two vegetation types. The characteristics of these two types are as follows (pers. com Dylan Kendall 15/11/10).

- Forest and shrubland – trees with a shrubby and/or tussock grass understorey
- Grass and woodland – widely spaced or no trees with a grass understorey

According to these definitions Box Gum Woodland falls within the definition of 'forest and shrubland' (pers. com Dylan Kendall 15/11/10).

Vegetation types are expected to change in areas where offsets are proposed (western boundary) or where regeneration is expected (e.g. Stromlo Forest Park). The future distribution of vegetation types is mapped in Figure 2.

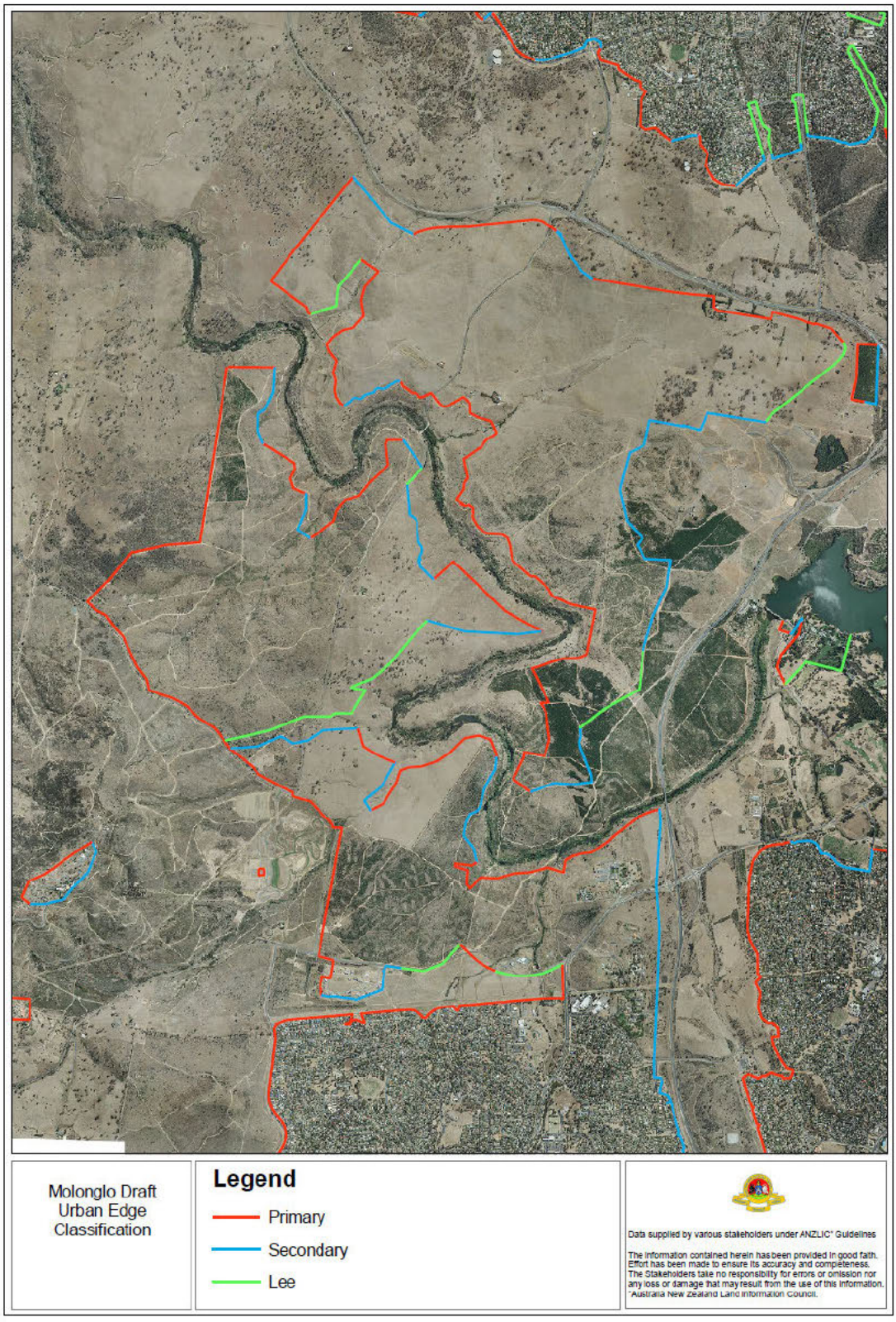


Figure 1: Urban edge classification as primary, secondary or lee

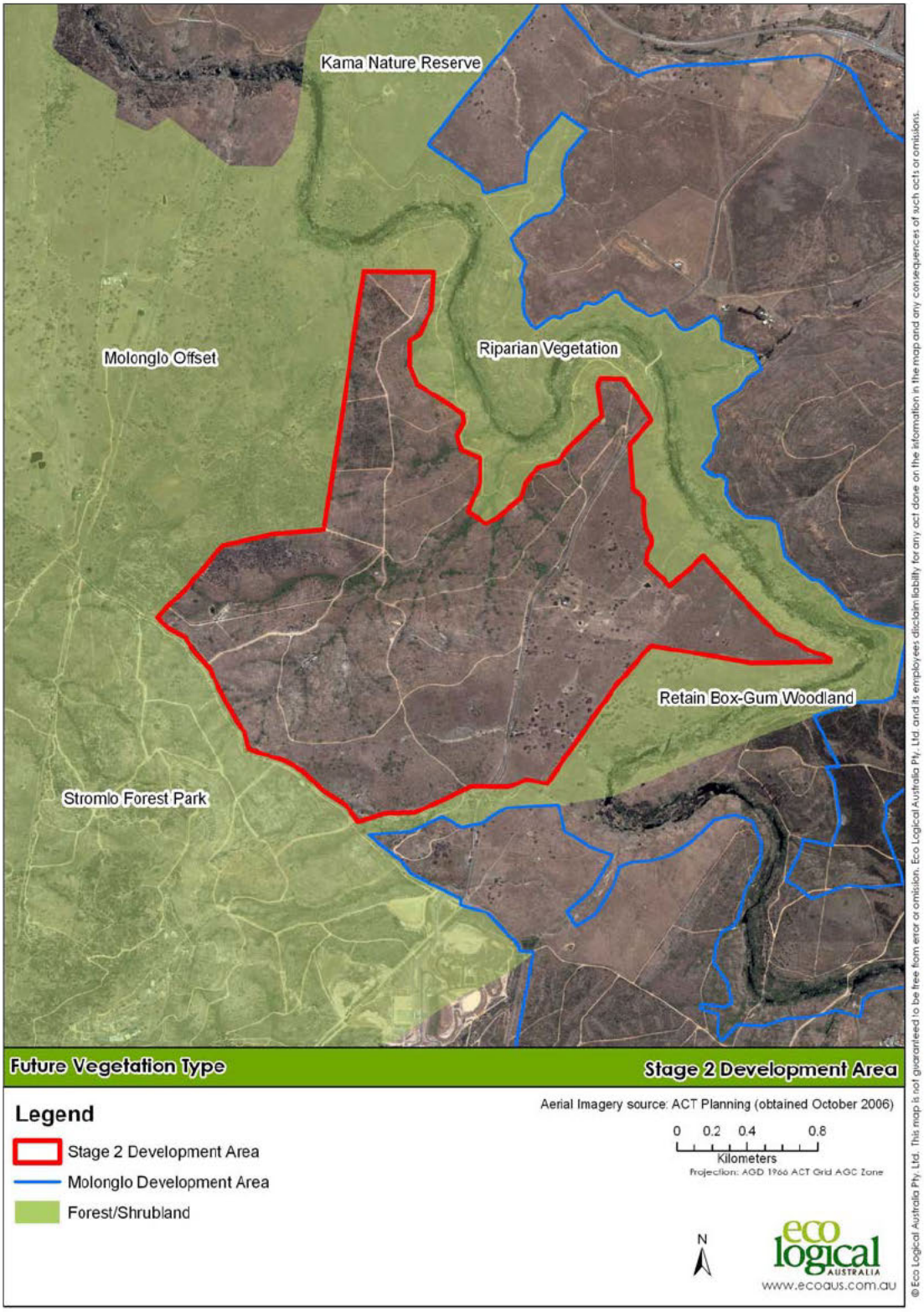


Figure 2: Future vegetation types for surrounding areas

Asset protection zones

The following table indicates acceptable widths for the inner and outer APZs for different vegetation types. Application of the following table indicates that the Outer APZ on the western boundary of Molonglo Stage 2, for example, would be 200-300 m wide. Figure 3 shows APZ widths in accordance with these guidelines.

Vegetation type	Asset Interface Classification	Inner APZ width (m)	Outer APZ width (m)
Forest and shrubland	primary	30	target 300, min. 200
	secondary	20	100
	lee	10	0
Grass and woodland	primary	30	100
	secondary	20	0
	lee	10	0

The following table indicates the fuel management requirements for vegetation types within the Inner APZ, Outer APZ and strategic firefighting advantage zone.

Zone	Vegetation Type	Fuel management standard
Inner APZ	Forest and shrubland	Maintained at an overall fuel hazard* ≤ low 3-5 m canopy separation or fuel gap to crown > 3 m maintained
	Grass and open woodland	Grassland maintained at < 0.2 m height when grassland curing ≥ 70%
Outer APZ	Forest and shrubland	Overall fuel hazard* ≤ moderate
	Grass and open woodland	Grassland fire hazard ≤ 35 when grassland curing ≥ 70% (i.e. grassland < 0.5 m height – *refer to Grassland Fuel Hazard table*)
Strategic firefighting advantage zone	Forest and shrubland	Overall fuel hazard* ≤ high
	Grass and open woodland	Grassland fire hazard ≤ 50 when grassland curing ≥ 70%
	Arterial roads and easements	Grassland fire hazard ≤ 35 when grassland curing ≥ 70%

* Overall Fuel Hazard = (the sum of the influences of) Bark Hazard + Elevated Fuel Hazard + Surface Fine Fuel Hazard (*Overall Fuel Hazard Guide* 3rd ed. Victorian Department of Sustainability and Environment 1999)

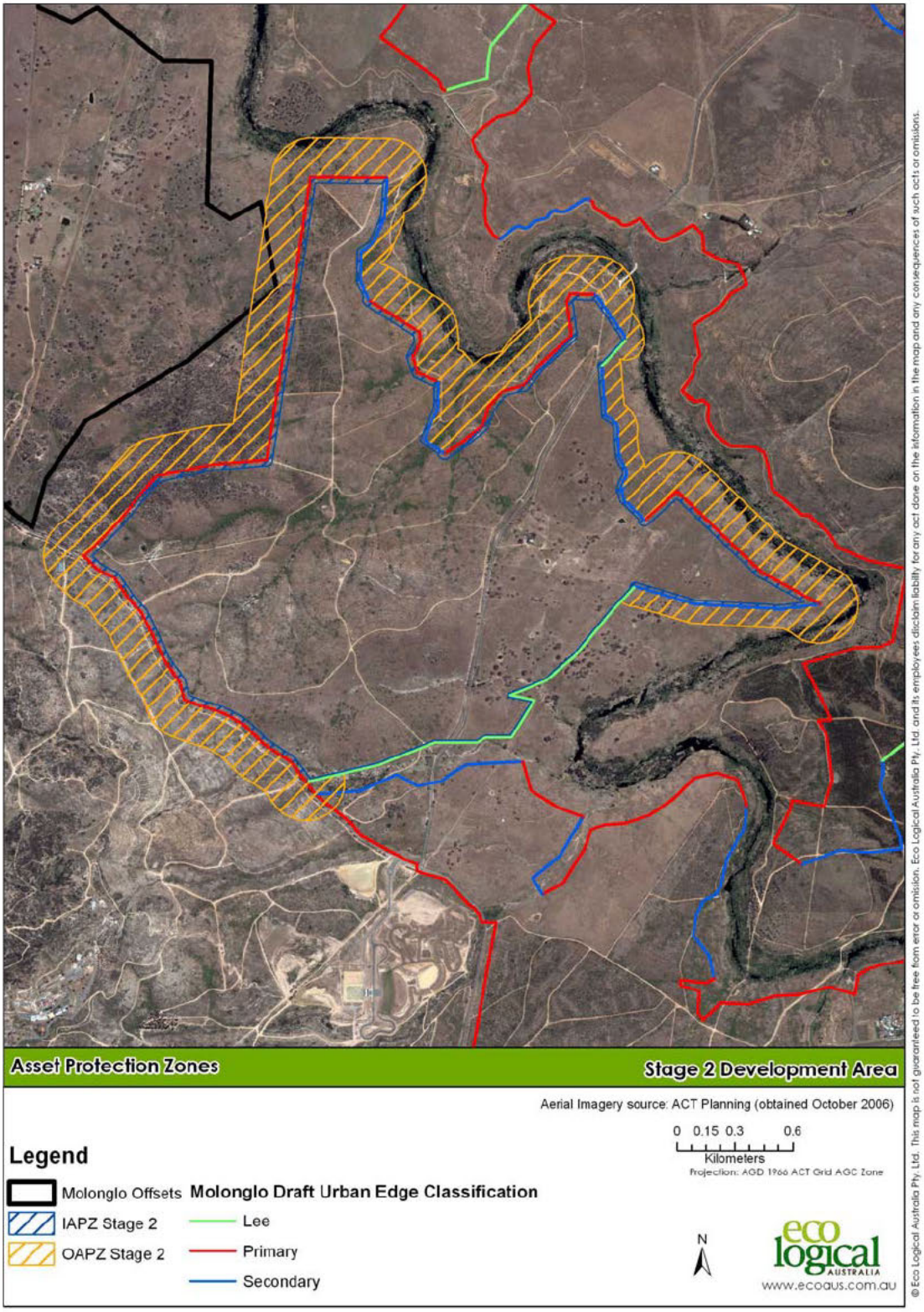


Figure 4 – Asset protection zones

4 Ecological management requirements

This section draws on scientific knowledge and bushfire guidelines to determine ecological management requirements for the study area relevant to bushfire issues.

Pink-tailed Worm Lizard

PTWL habitat in the ACT is characterised by hillsides that contain numerous scattered surface rocks which are well-weathered and partially embedded in the soil and grass. The habitat has a cover of predominantly native grasses (particularly kangaroo grass *Themeda australis*, red-leg grass *Bothriochloa macra* and *Lomandra filiformis*), with few or no trees. Healthy *T. australis,* for example, grows up to 1.2 m high.

To protect the PTWL, fire management should:

- Not disturb the scattered rocks
- Favour growth of native grasses
- Not be too frequent/infrequent or intense
- Be done in patches to allow recolonisation of burnt areas

Native Grassland

The following information is taken from the Commonwealth Department of Sustainability, Environment, Water, Population and Communities (DSEWPC) website[1]:

- Prior to European settlement, natural temperate grassland would have been adapted to a mosaic pattern of burning by Aborigines with patchy, low intensity fires in spring or autumn
- Fire can threaten grassland if areas are burnt too frequently or infrequently, too hot and/or at a sensitive stage of plant life cycles, or if entire remnants are burnt leaving no escape for native animals
- Small animals (e.g. lizards) that are relatively immobile and live in small grassland remnants are considered particularly at risk from frequent burning
- Species decline is likely to occur in response to frequent fires if those fires cause loss of topsoil or facilitate invasion by perennial weeds
- Fires may threaten endangered fauna associated with the grassland through heat stress or increased vulnerability to predators arising from loss of vegetative cover
- There is still considerable uncertainty about the use of fire as a management tool in native grasslands, including the extent to which the results of burning in one area can be extrapolated and applied to other areas
- Fire regimes need to allow grassland species to flower and set seed. Some species may require fire to enhance germination and establishment
- Best practice is not to adhere to a prescriptive fire frequency regime, but be guided by the level of grass biomass present and species' requirements
- The risk of post-fire weed invasion needs to be assessed

Box Gum Woodland

The following information is taken from the Commonwealth DSEWPC website[2] and the National Recovery Plan for White Box – Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland[3]:

[1] http://www.environment.gov.au/cgi-bin/sprat/public/publicshowcommunity.pl?id=14#Threats

Too frequent or extensive burning may limit recruitment of some species, cause local extinctions of fire sensitive species, facilitate the spread of some exotic species, reduce fauna habitat features (fallen logs, hollow trees, litter) and threaten fauna populations.

The general exclusion of fire from small fragments increases the likelihood that species which existed under a more frequent fire regime may be lost. Whereas fires most likely burnt in a mosaic in the past, as a result of fragmentation, unmanaged fires now tend to burn an entire patch at once, leaving no refuge for fire sensitive plants and animals to survive and subsequently recolonise.

According to NSW DECCW[4], measures needed to maintain or recover this vegetation community include (amongst others):

- Do not harvest firewood from remnants (this includes living or standing dead trees and fallen material)
- Leave fallen timber on the ground

Current best practice management for Box-Gum Woodland is as follows:

- Burning regimes will depend on the floristic composition of a remnant and research is continuing to determine appropriate fire regimes for Box-Gum Grassy Woodland in all its various condition states. For remnants dominated by Snow Grass and Kangaroo Grass autumn burning cycles approximately every 4-8 years are considered adequate for maintaining floristic diversity
- Any burning should be applied to remnants in mosaics (i.e. burning small areas at staggered intervals) to allow survival of soil and ground fauna (including invertebrates, amphibians and reptiles) and promote diversity in the states of the ecological community.
- Sites where burning is practiced should retain unburnt areas, to provide refuges for species of fauna and flora that may be intolerant of fire
- Timing of burns must be considered in relation to the flowering and seeding of native and exotic species. Where possible burns should be carried out after natives have seeded but before weeds flower and seed
- Be aware that some weed species increase with burning

Key threatening process

The threat posed by inappropriate fire regimes to Box Gum Woodland is recognised in Victoria with the listing of "High frequency fire resulting in the disruption of life cycle processes in plants and animals and loss of vegetation structure and composition" and "Inappropriate fire regimes causing disruption to sustainable ecosystem processes and resultant loss of biodiversity", as Potentially Threatening Processes under the FFG Act. Similarly in NSW, "High frequency fire resulting in the disruption of life cycle processes in plants and animals and loss of vegetation structure and composition" is listed as a Key Threatening Process under the TSC Act.

The DSEWPC has nominated5 'fire regimes that cause biodiversity decline' as a key threatening process under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The nomination includes reference to the White

[2] http://www.environment.gov.au/biodiversity/threatened/communities/pubs/box-gum.pdf

[3] http://www.google.com.au/search?hl=en&source=hp&q=White+Box+-+Yellow+Box+-+Blakely%27s+Red+Gum+Grassy+Woodlands+and+Derived+Native+Grasslands+bushfire&aq=f&aqi=&aql=&oq=&gs_rfai=

[4] http://www.threatenedspecies.environment.nsw.gov.au/tsprofile/profile.aspx?id=10837

[5] http://www.environment.gov.au/biodiversity/threatened/ktp/pubs/fire-regimes-nomination.pdf

Box – Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland ecological community, which is present within Molonglo Stage 2 and is listed as Endangered under the EPBC Act.

The listing of a key threatening process has no regulatory implications other than requiring the Minister to decide whether or not to have a threat abatement plan. If a threat abatement plan is considered appropriate, the plan would provide national guidelines to governments about possible ways to improve fire management to reduce potential negative impacts on biodiversity. The Threatened Species Scientific Committee is due to complete its assessment and provide the Minister with a recommendation by 31 March 2011.

5 Integrated management options

Figure 5 shows the main ecological features and required bushfire controls. The map highlights significant areas of overlap of the outer APZ and areas of ecological sensitivity. This is problematic because DSEWPC's requirements together with the bushfire guidelines cannot be met unless there is significant land take from the Stage 2 development area.

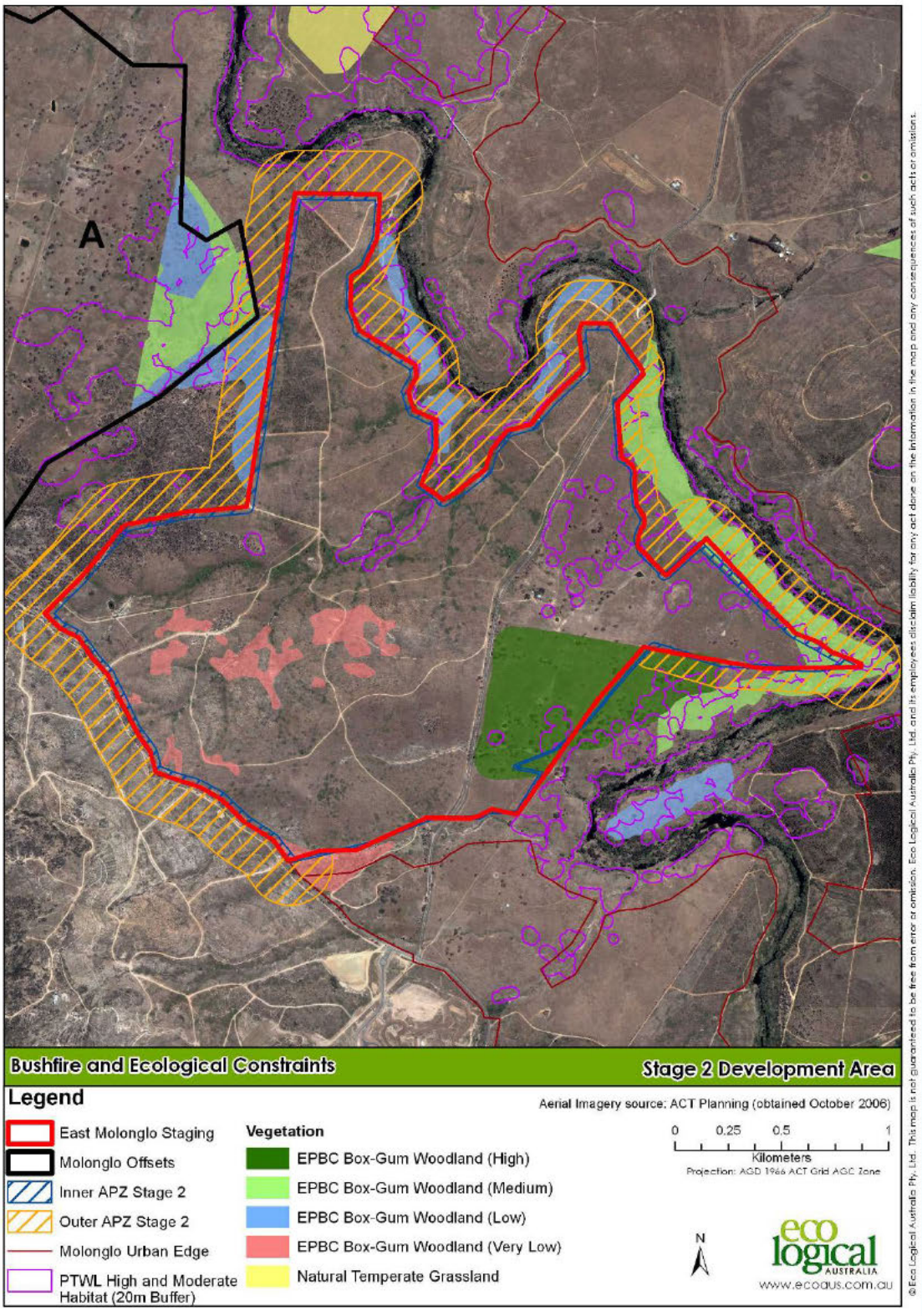


Figure 5: Combined ecological and (minimum) bushfire constraints

This section examines options to integrate bushfire and ecological management. It does not assume approval can be obtained from relevant agencies such as ESA, TAMS and DSEWPC.

Options	Pros	Cons
Increase the width of the IAPZ and decrease the width of the OAPZ	Reduce land take Reduce overlap of APZ with areas of ecological value	Larger IAPZ will require higher maintenance cost & effort
Manage the broader landscape (e.g. further west of the offset area) to reduce bushfire risk (e.g. strategic firefighting advantage zone or landscape fire management zone)	No impact on eco values Added protection against bushfire	Tenure arrangements
Increase rocky grassland (PTWL) habitat (where there is suitable geology) and decrease forest/shrubland vegetation types	Ecological improvement Reduced fire risk i.e. grassland/woodland rather than forest/shrubland vegetation type	Rocks need to be sourced from outside protected areas Eco burns still required
Crash grazing	Reduce fuel loads	Problems can include adverse impacts to ecology, water & soils; odour; stock movement; and public safety
Low rock walls to define management zones and improve PTWL habitat	Defined areas may be easier to manage e.g. burn areas; control public access/impact	High initial cost
Change the future vegetation types in surrounding areas i.e. more consistent with woodland/grassland than forest/shrubland	Reduce APZ requirements	Bush regeneration needed e.g. removing undesirable species/plants
Monitoring and adaptive management, including detailed investigation into the floristics and burning requirements of site-specific conditions	Consistent with best practice Consistent with the intent of eco & bushfire statutory obligations and strategies/guidelines Specific to site and changing conditions	Ongoing cost for detailed monitoring & planning
Slashing	Reduce fuel loads	Only possible in non-rocky areas High cost if done over large area May not be compatible with ecological requirements
Apply other bushfire standards e.g. Australian or NSW guidelines	Illustrate different approaches Less land take	Not compliant with ACT guidelines

6 Recommended management

Features of the recommended management strategy are:

- Adaptive management of the outer APZ informed by a detailed understanding of site-specific conditions regarding fuel hazards, bushfire history and requirements for ecologically appropriate fire regimes. This will require ongoing monitoring and a mosaic pattern to on-ground management
- Increase the inner APZ width
- Higher construction standards in the lot layout

Additional measures could include:

- Increase areas of rocky PTWL habitat
- Implementation of a strategic firefighting zone to the west of the offset area

Compared to a strict interpretation of the bushfire guidelines and NES Plan, the recommended approach would manage the risk of bushfire while:

- Minimising land-take
- Minimising maintenance cost
- Improving opportunities for multi-use at the urban edge within the inner APZ (e.g. recreational space)
- Improving/maintaining the ecological health of threatened species and communities
- Providing a buffer to protect ecological values
- Enhancing the area of 'defendable space'
- Being specific and responsive to changing site conditions

In-principle support for the recommended approach, as well as commitment to ongoing monitoring and maintenance, will be needed from relevant agencies (ESA and TAMS).

Next steps will be:

- Meet with DSEWPC to seek Commonwealth support
- Prepare detailed site management plan to reflect species composition/location and fuel loads, with recommendations for mosaic burning regimes. Plan to outline requirements for monitoring and adaptive management
- Implement burns, ongoing monitoring and adaptive management

Molonglo Stage 2 Draft Planning and Design Framework

Base Analysis

Version 6

ACT Planning and Land Authority December 2010

This Report has been prepared for:
ACT Planning & Land Authority

This report has been prepared by:
SGS Economics and Planning Pty Ltd
ACN 007 437 729
Unit 1 55 Woolley Street
DICKSON ACT 2602
P: + 61 2 6262 7603
F: + 61 2 6262 7564
E: sgsact@sgsep.com.au
W: www.sgsep.com.au
Offices in Brisbane, Canberra, Hobart, Melbourne, Perth, Sydney

In association with

simpson+wilson
architecture+urban design
102 Alexander Street
Crows Nest NSW 2065
P: + 61 2 9439 3086
W: www.sw.net.au

Kinesis
Level 2
255 Riley Street
Surry Hills NSW 2010
Sydney Australia
P: +61 2 8005 4290
W: www.kinesis.net.au

Brown Consulting (ACT) Pty Ltd
15 Hall Street
PO Box 5004
LYNEHAM ACT 2602
P: (02) 62117100
F: (02) 6211 7199
W: www.brownconsulting.com.au

GTA Consultants
PO Box 1109
Civic Square ACT 2608
P: +61 2 62434826
F: +61 2 62434848
W: www.gta.com.au

Beaconhill Consulting
Level 5, 1 Farrell Pl
CANBERRA ACT 2601
P: +61 2 62983755
F: +61 2 62983732
W: www.beaconhill.net.au

eco logical Australia
GPO Box 1558
Level 2, 11 London
Circuit Canberra, ACT
2601
P: (02) 6103 0145
F: (02) 6103 0148
W: www.ecoaus.com.au

Enviro Links Design PTY Ltd
Unit 5, 61 Dundas Court
Phillip ACT 2606
AUSTRALIA
P: +61 2 6281 6066
F: +61 2 6281 6055
W: www.envirolinks.com.au

Version Control

Version	Date	Change	Authorisation
1	17 November 2010	Input from project team members	
2	26 November 2010	SGS edit	
3	2 December 2010	Revisions from project team members	
4	3 December 2010	SGS QA	

Table of Contents

Tables

Figures

6.3 Bushfire

The Molonglo Valley is situated on the western side of the ACT. Catastrophic wildfires were experienced in this area in 2003. In September 2004, all parts of the ACT outside the defined urban area were designated as bushfire prone through the *Building Regulations*. The Molonglo Stage 2 study area is therefore recognised as bushfire prone, and development in this area is required to meet the provisions of the *Building Code of Australia* and *Australian Standard 3959 (construction of buildings in bushfire-prone areas)*.

The section presents a preliminary bushfire risk assessment prepared in accordance with:

- *Planning for Bushfire Risk Mitigation General Code* (ACTPLA 2008); and
- *Strategic Bushfire Management Plan for the ACT (ESA 2009)* (SBMP).

The methodology used to prepare the assessment is summarised as follows:

- The urban interface was classified and mapped as primary, secondary or lee in accordance with the SBMP
- Expected future vegetation types (forest/shrubland or woodland/grassland) were determined for areas on the perimeter of Molonglo Stage 2
- Requirements for inner and outer asset protection zones (APZs) were determined

6.3.1 Asset interface classification

Figure 12 shows how the urban edge of Molonglo Stage 2 has been classified by TAMS/ESA as primary, secondary or lee according to the aspect of potential fire run and length of potential fire run to the asset interface (refer to table below). In some locations, the classification has been increased where the nature of the river corridor, and wind terrain interactions may result in the lateral spread of head fire and embers.

Table 12 Length of Fire Run to Asset Interface (m)

	Length of Fire Run to Asset Interface (m)		
Aspect of Fire Run	**<100**	**100 - 350**	**>350**
N	secondary	primary	primary
NW	secondary	primary	primary
W	secondary	primary	primary
SW	lee	secondary	primary
S	lee	secondary	secondary
SE	lee	lee	lee
E	lee	lee	secondary
NE	lee	lee	secondary

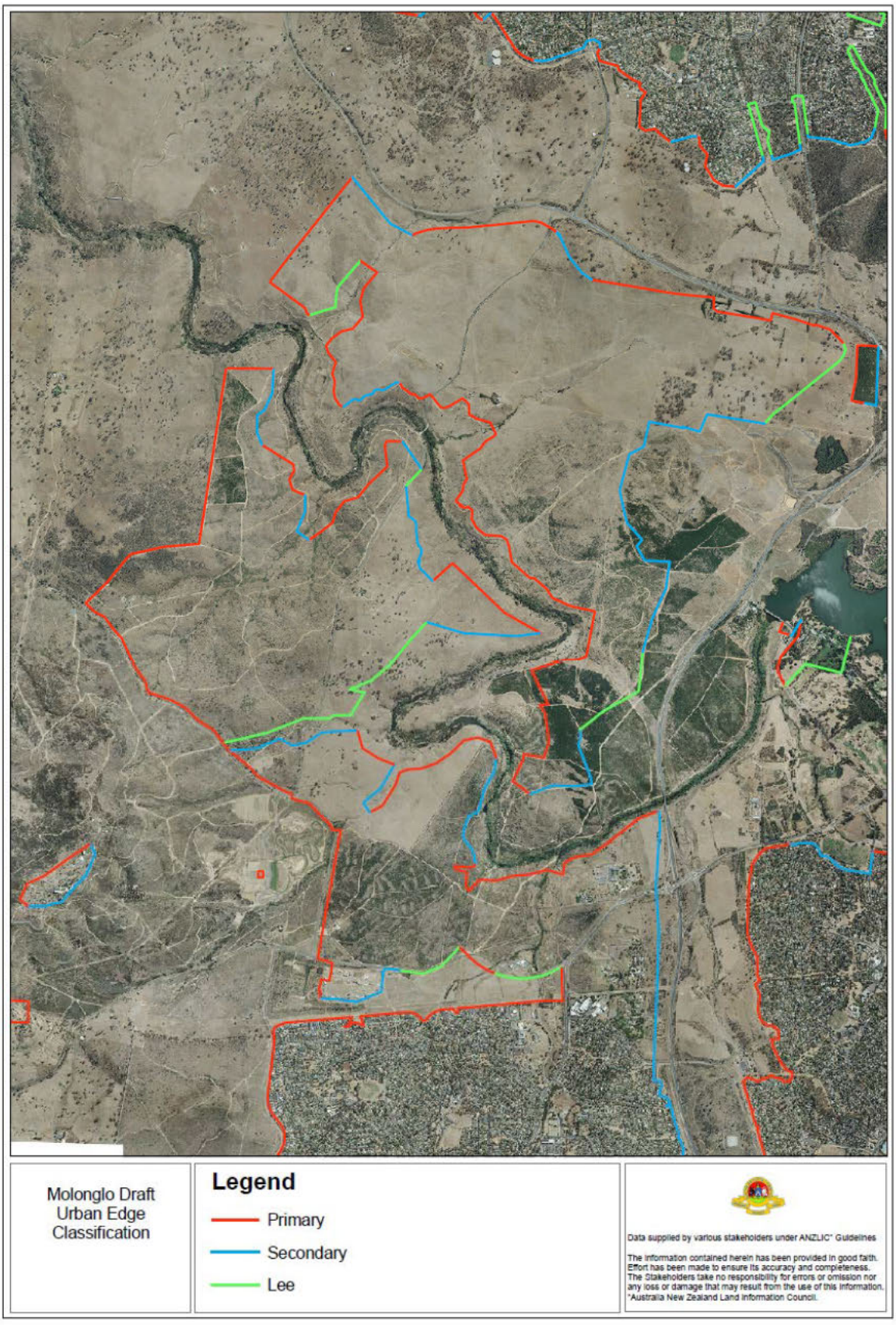


Figure 12 Urban edge classification as primary, secondary or lee (Source: TAMS/ESA)

6.3.2 Fuel management standards

Schedule C of the SBMP identifies fuel management standards for two vegetation types. The characteristics of these two types are as follows.[21]

- Forest and shrubland – shrubby understorey with or without tree canopy; tussock grass understorey with shrubs and/or tree canopy.
- Grass and woodland – widely spaced or no trees with a grass understorey.

Vegetation types are expected to change from current conditions in areas where offsets are proposed (western boundary) or where regeneration/revegetation is expected (e.g. Stromlo Forest Park, riparian corridor).

Initially, the project team and agencies considered a 'worst case' scenario of the entire Stage 2 area being surrounded by forest or shrubland vegetation types. However, this scenario is not considered realistic because it does not reflect observed conditions or expected management regimes. A more likely scenario is shown in Figure 13 and described as follows:

- Molonglo offset – Box Gum Woodland i.e. grass with scattered trees, no understorey;
- Riparian corridor – rocky grassland (Pink-tailed Worm Lizard habitat) on the slopes, narrow band of Casuarina trees adjacent to the river, shrubs and scattered trees on alluvial flats, pockets of cleared grass for picnic areas; and
- Stromlo Forest Park – planted/regenerated forest.

[21] pers. com Dylan Kendall 15/11/10

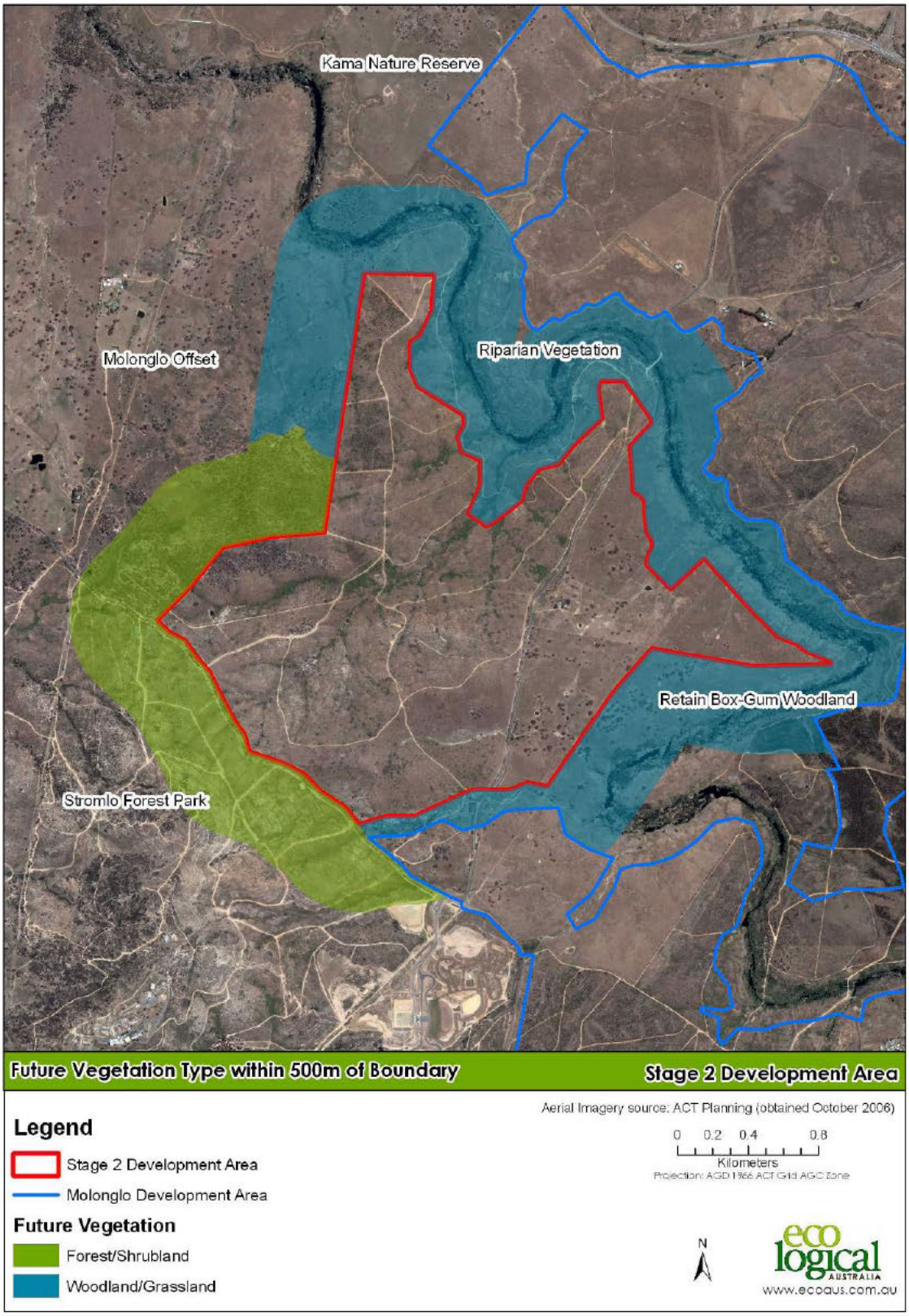


Figure 13 Future vegetation types for surrounding areas

6.3.3 Asset protection zones

The following table indicates acceptable widths for the inner and outer APZs for different vegetation types. This indicates that the outer APZ on the western boundary of Molonglo Stage 2, for example, would need to be 200-300 m wide. Table 13 shows APZ widths in accordance with these guidelines.

Table 13 Vegetation Type - widths for the inner and outer APZs

Vegetation type	Asset Interface Classification	Inner APZ width (m)	Outer APZ width (m)
Forest and shrubland	primary	30	target 300, min. 200
	secondary	20	100
	lee	10	0
Grass and woodland	primary	30	100
	secondary	20	0
	lee	10	0

The following table indicates the fuel management requirements for vegetation types within the inner APZ, outer APZ and strategic firefighting advantage zone.

Table 14 fuel management requirements for vegetation types

Zone	Vegetation Type	Fuel management standard
Inner APZ	Forest and shrubland	Maintained at an overall fuel hazard* ≤ low 3-5 m canopy separation or fuel gap to crown > 3 m maintained
	Grass and open woodland	Grassland maintained at < 0.2 m height when grassland curing ≥ 70%
Outer APZ	Forest and shrubland	Overall fuel hazard* ≤ moderate
	Grass and open woodland	Grassland fire hazard ≤ 35 when grassland curing ≥ 70% (i.e. grassland < 0.5 m height – *refer to Grassland Fuel Hazard table*)
Strategic firefighting advantage zone	Forest and shrubland	Overall fuel hazard* ≤ high
	Grass and open woodland	Grassland fire hazard ≤ 50 when grassland curing ≥ 70%
	Arterial roads and easements	Grassland fire hazard ≤ 35 when grassland curing ≥ 70%

* Overall Fuel Hazard = (the sum of the influences of) Bark Hazard + Elevated Fuel Hazard + Surface Fine Fuel Hazard (*Overall Fuel Hazard Guide* 3rd ed. Victorian Department of Sustainability and Environment 1999)

Typical features of the inner and outer APZ are illustrated in **Figures 12** and **13.**

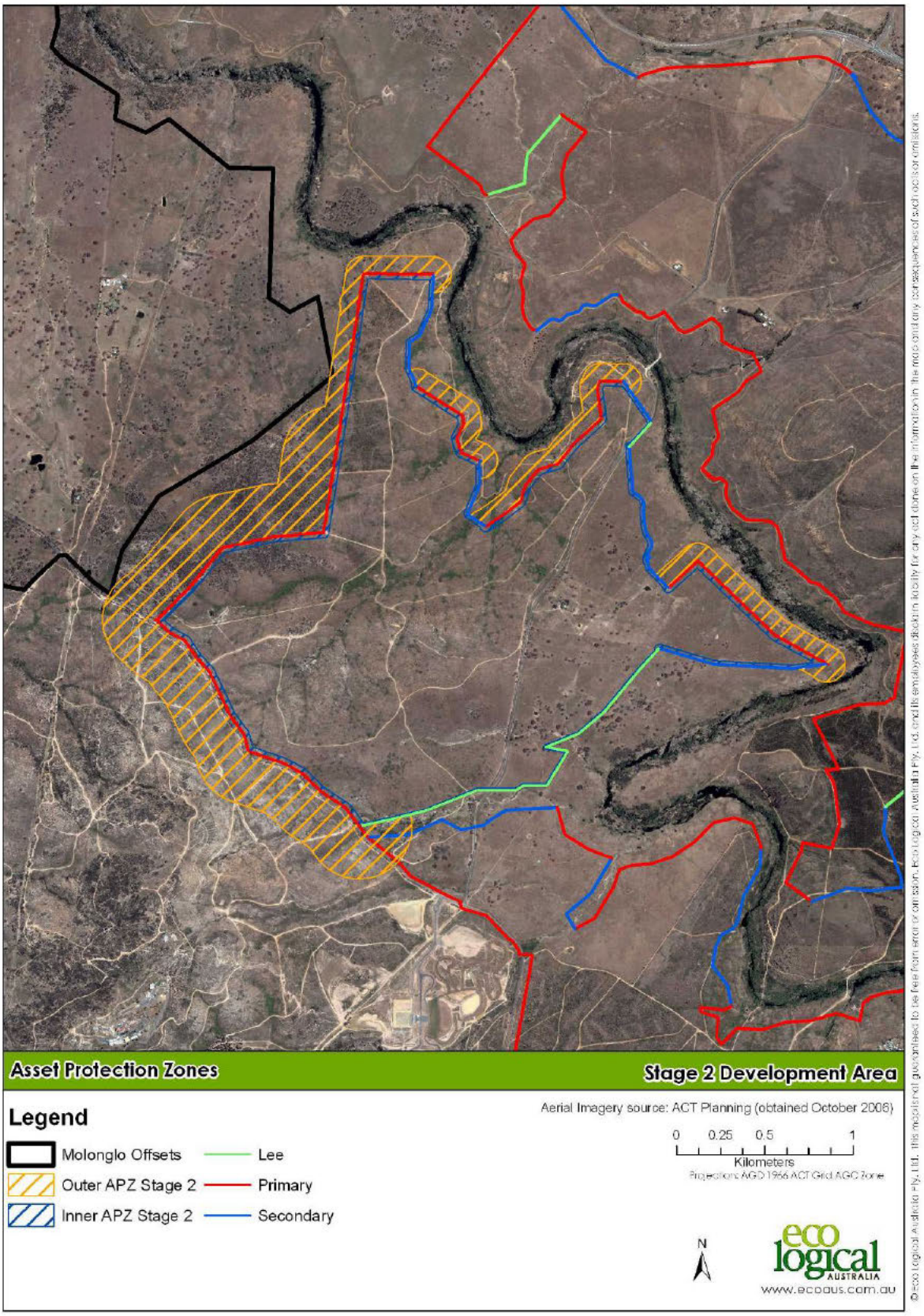


Figure 14 Required inner and outer asset protection zones

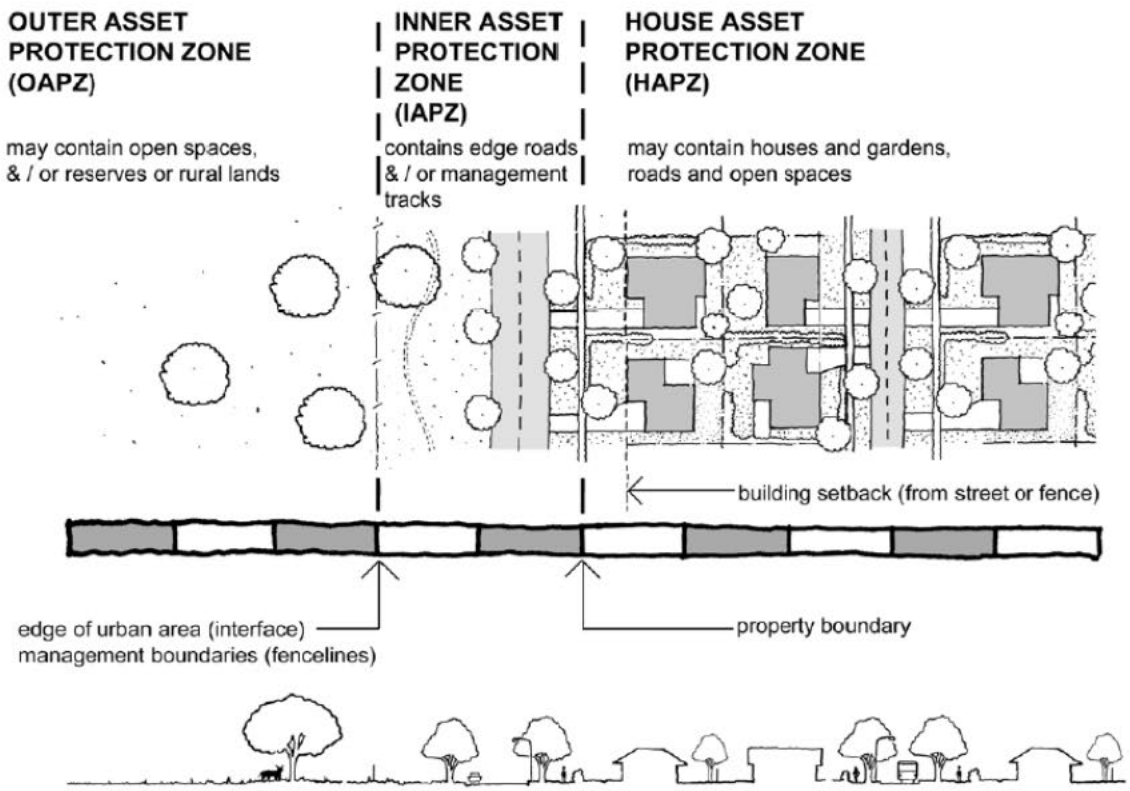


Figure 15 Asset Protection Zones (ACTPLA 2008)

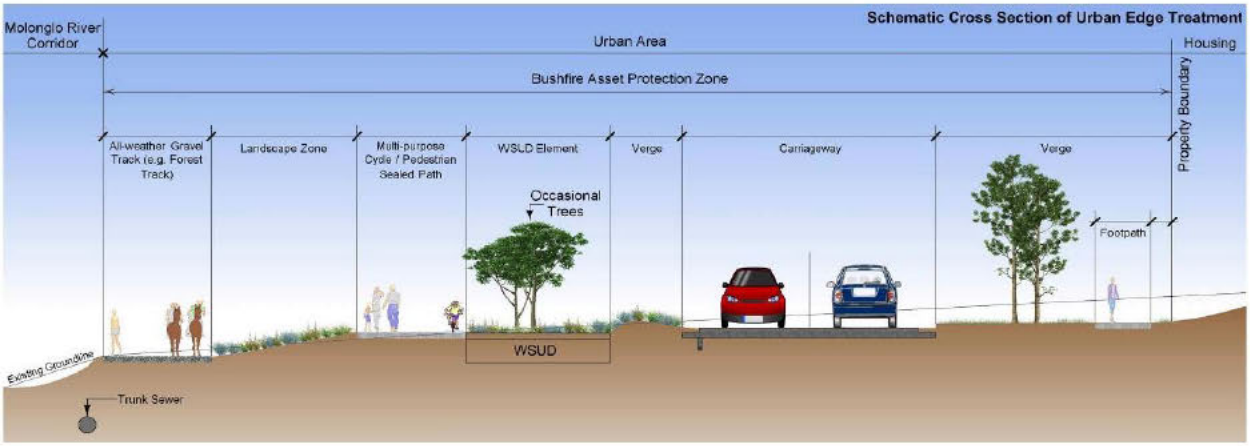


Figure 16 Schematic of typical inner APZ features

6.3.4 What are the key issues?

Issue 1.
Satisfy the aims and objectives of the SBMP – the goal of the SBMP is: 'through Government and the community working together, suppress bushfires and reduce their consequences on human life, property and the environment.

Issue 2.
Integration with ecological protection and management – the SBMP states that 'bushfire management recognises the dynamic nature of natural ecosystems, and requires clear objectives and an adaptive approach to environmental management. Fire managers will use the best available knowledge to identify appropriate fire management practices, including the desirable fire regimes necessary to maintain the ecological integrity of these systems.

Issue 3.
Minimise maintenance costs and effort – ongoing maintenance needs to be realistic, practical and achieved at minimum cost.

6.3.5 How should development at Molonglo Stage 2 address the issues/opportunities?

The development footprint and design features need to allow for bushfire risk mitigation measures such as APZs, and water supply and access for fire-fighting. A process for addressing bushfire issues will require close consultation with key stakeholders (e.g. ESA and TAMS) to ensure that the following performance measures are achieved:

- Meet statutory obligations;
- Integration of biodiversity and fire management objectives, with minimum land-take;
- Define the urban edge and allowed activities within bushfire management zones, including maintenance requirements;
- Identify construction standards for bushfire protection.

Any variation to the bushfire management zone map will need to be approved by the ESA Commissioner.

6.3.6 NES Plan requirements

Integrated ecological and bushfire management needs to comply with obligations made to the Commonwealth Government under the NES Plan. The NES Plan requires ecologically appropriate fire regimes to be applied to protect matters of NES (i.e. Box Gum Woodland, Natural Temperate Grassland, Pink-tailed Worm Lizard, Superb Parrot and Swift Parrot). The following section outlines ecologically appropriate fire regimes.

Key phrases from the NES Plan of relevance to bushfire/ecological management are as follows.

- Undertake all fire management activities consistent with the protected high and moderate quality Pink-tailed Worm Lizard habitat and its associated 20 m buffer.
- Appropriate fire management. The application of fire and other fuel mitigation measures within the river corridor will take into account ecological fire thresholds for Box-Gum Woodland and Pink-tailed Worm Lizard.
- Appropriate fire management. The application of fire and fire management activities within and adjacent to the offsets will need to take into account ecological fire thresholds for Box-Gum Woodland and Natural Temperate Grassland. It will be necessary to ensure that fire management does not degrade the values of the offset areas.
- Appropriate grazing management to avoid overgrazing of the offset areas.
- Bush regeneration activities to improve the condition of Box-Gum Woodland, including:
    - retaining all standing trees and timber (dead and alive);
    - retaining all fallen timber, branches and leaf litter;
    - eliminating high threat woody weeds and control of pest animals; and
    - undertaking supplementary planting of indigenous species to improve the condition of Box-Gum Woodland

6.3.7 Ecologically appropriate fire regimes

This section draws on scientific knowledge and bushfire guidelines to determine ecological management requirements for the study area relevant to bushfire issues.

Pink-tailed Worm Lizard

Pink-tailed Worm Lizard (PTWL) habitat in the ACT is characterised by hillsides that contain numerous scattered surface rocks which are well-weathered and partially embedded in the soil and grass. The habitat has a cover of predominantly native grasses (particularly kangaroo grass *Themeda australis*, red-leg grass *Bothriochloa macra* and *Lomandra filiformis*), with few or no trees. Healthy *T. australis,* for example, grows up to 1.2 m high.

To protect the PTWL, fire management should:

- not disturb the scattered rocks;
- favour growth of native grasses;
- not be too frequent/infrequent or intense; and
- be done in patches to allow recolonisation of burnt areas.

Native Grassland

The following information is taken from the Commonwealth Department of Sustainability, Environment, Water, Population and Communities (DSEWPC) website.[22]

- Prior to European settlement, natural temperate grassland would have been adapted to a mosaic pattern of burning by Aborigines with patchy, low intensity fires in spring or autumn.
- Fire can threaten grassland if areas are burnt too frequently or infrequently, too hot and/or at a sensitive stage of plant life cycles, or if entire remnants are burnt leaving no escape for native animals.
- Small animals (e.g. lizards) that are relatively immobile and live in small grassland remnants are considered particularly at risk from frequent burning.
- Species decline is likely to occur in response to frequent fires if those fires cause loss of topsoil or facilitate invasion by perennial weeds.
- Fires may threaten endangered fauna associated with the grassland through heat stress or increased vulnerability to predators arising from loss of vegetative cover.
- There is still considerable uncertainty about the use of fire as a management tool in native grasslands, including the extent to which the results of burning in one area can be extrapolated and applied to other areas.
- Fire regimes need to allow grassland species to flower and set seed. Some species may require fire to enhance germination and establishment.

[22] Department of Sustainability, Environment, Water, Population and Communities (2010). Natural Temperate Grassland of the Southern Tablelands of NSW and the Australian Capital Territory in Community and Species Profile and Threats Database, Department of Sustainability, Environment, Water, Population and Communities, Canberra. Available from: http://www.environment.gov.au/sprat. Accessed 2010-11-24T12:15:56.

- Best practice is not to adhere to a prescriptive fire frequency regime, but be guided by the level of grass biomass present and species' requirements.
- The risk of post-fire weed invasion needs to be assessed.

Box Gum Woodland

The following information is taken from the Commonwealth DSEWPC website[23] and the National Recovery Plan for White Box – Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland[24].

Too frequent or extensive burning may limit recruitment of some species, cause local extinctions of fire sensitive species, facilitate the spread of some exotic species, reduce fauna habitat features (fallen logs, hollow trees, litter) and threaten fauna populations.

The general exclusion of fire from small fragments increases the likelihood that species which existed under a more frequent fire regime may be lost. Whereas fires most likely burnt in a mosaic in the past, as a result of fragmentation, unmanaged fires now tend to burn an entire patch at once, leaving no refuge for fire sensitive plants and animals to survive and subsequently recolonise.

According to NSW DECCW[25], measures needed to maintain or recover this vegetation community include the following (amongst others).

- Do not harvest firewood from remnants (this includes living or standing dead trees and fallen material).
- Leave fallen timber on the ground.

Current best practice management for Box-Gum Woodland is as follows.

- Burning regimes will depend on the floristic composition of a remnant and research is continuing to determine appropriate fire regimes for Box-Gum Grassy Woodland in all its various condition states. For remnants dominated by Snow Grass and Kangaroo Grass autumn burning cycles approximately every 4-8 years are considered adequate for maintaining floristic diversity.
- Any burning should be applied to remnants in mosaics (i.e. burning small areas at staggered intervals) to allow survival of soil and ground fauna (including invertebrates, amphibians and reptiles) and promote diversity in the states of the ecological community.
- Sites where burning is practiced should retain unburnt areas, to provide refuges for species of fauna and flora that may be intolerant of fire.

[23] Advice to the Minister for the Environment and Heritage from the Threatened Species Scientific Committee (TSSC) on Amendments to the List of Ecological Communities under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act). Viewed 24 November 2010.

http://www.environment.gov.au/biodiversity/threatened/communities/pubs/box-gum.pdf

[24] Department of Environment, Climate Change and Water NSW. 2010. Draft National Recovery Plan for White Box - Yellow Box - Blakely's Red Gum Grassy Woodland and Derived Native Grassland. Department of Environment, Climate Change and Water NSW, Sydney. Viewed 24 November 2010. http://www.google.com.au/search?hl=en&source=hp&q=White+Box+-+Yellow+Box+-+Blakely%27s+Red+Gum+Grassy+Woodlands+and+Derived+Native+Grasslands+bushfire&aq=f&aqi=&aql=&oq=&gs_rfai=

[25] Department of Environment, Climate Change and Water NSW – Threatened Species – Box-Gum Woodland Profile. Viewed 24 November 2010. http://www.threatenedspecies.environment.nsw.gov.au/tsprofile/profile.aspx?id=10837

- Timing of burns must be considered in relation to the flowering and seeding of native and exotic species. Where possible burns should be carried out after natives have seeded but before weeds flower and seed.
- Be aware that some weed species increase with burning.

Key threatening process

The threat posed by inappropriate fire regimes to Box Gum Woodland is recognised in Victoria with the listing of "High frequency fire resulting in the disruption of life cycle processes in plants and animals and loss of vegetation structure and composition" and "Inappropriate fire regimes causing disruption to sustainable ecosystem processes and resultant loss of biodiversity", as Potentially Threatening Processes under the Victorian *Flora and Fauna Guarantee Act 1988*. Similarly in NSW, "High frequency fire resulting in the disruption of life cycle processes in plants and animals and loss of vegetation structure and composition" is listed as a Key Threatening Process under the NSW *Threatened Species Conservation Act 1995*.

The DSEWPC has nominated[26] 'fire regimes that cause biodiversity decline' as a key threatening process under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The nomination includes reference to the White Box – Yellow Box – Blakely's Red Gum Grassy Woodland and Derived Native Grassland ecological community, which is present within Molonglo Stage 2 and is listed as Endangered under the EPBC Act.

The listing of a key threatening process has no regulatory implications other than requiring the Minister to decide whether or not to have a threat abatement plan. If a threat abatement plan is considered appropriate, the plan would provide national guidelines to governments about possible ways to improve fire management to reduce potential negative impacts on biodiversity. The Threatened Species Scientific Committee is due to complete its assessment and provide the Minister with a recommendation by 31 March 2011.

[26] Department of Sustainability, Environment, Water, Population and Communities (2010). EPBC Nomination to list Fire regimes that cause biodiversity decline as a key threatening process. Viewed 24 November 2010. http://www.environment.gov.au/biodiversity/threatened/ktp/pubs/fire-regimes-nomination.pdf

6.4 Ecological and bushfire constraints

Figure 10 shows the main ecological constraints and APZs. The map highlights significant areas of overlap of the outer APZ (which is shown outside the urban boundary) and areas of ecological sensitivity. Overlap is a problem because of the different management requirements for ecology and bushfire (discussed previously).

ELA's approach to resolving management conflict is to have informed and constructive negotiations with relevant agencies. As outlined in the next section, we have developed strategies for managing the outer APZ within the riparian corridor and in Stromlo Forest Park. However, management conflict on the western boundary is still unresolved and will be investigated further in consultation with representatives from ESA, TAMS and ACTPLA on 2 December 2010. Issues and processes to resolve conflict on the western boundary are represented diagrammatically in **Figure 14**.

To allow for ecological and bushfire constraints on the western side of Molonglo Stage 2, there is a possibility that there could be a reduction in the area of available land for development. If the outer and inner APZs are positioned inside the development area (as illustrated in **Figure 15**), the 'peninsula' and steep vegetated slopes would not be available for urban development.

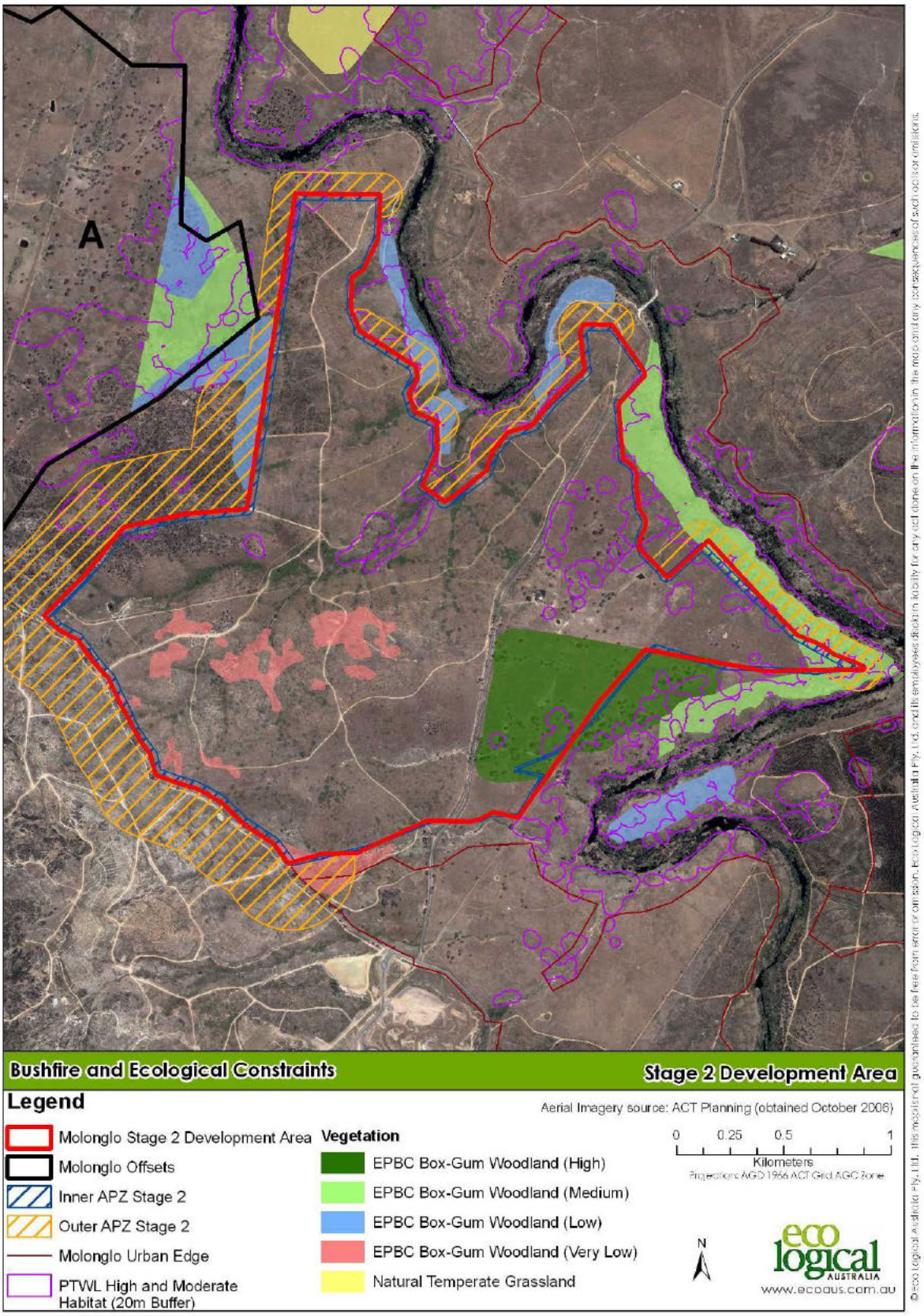


Figure 17 Bushfire and Ecological Constraints (External Outer APZs)

Figure 18 Process to Resolve Western Edge Issues

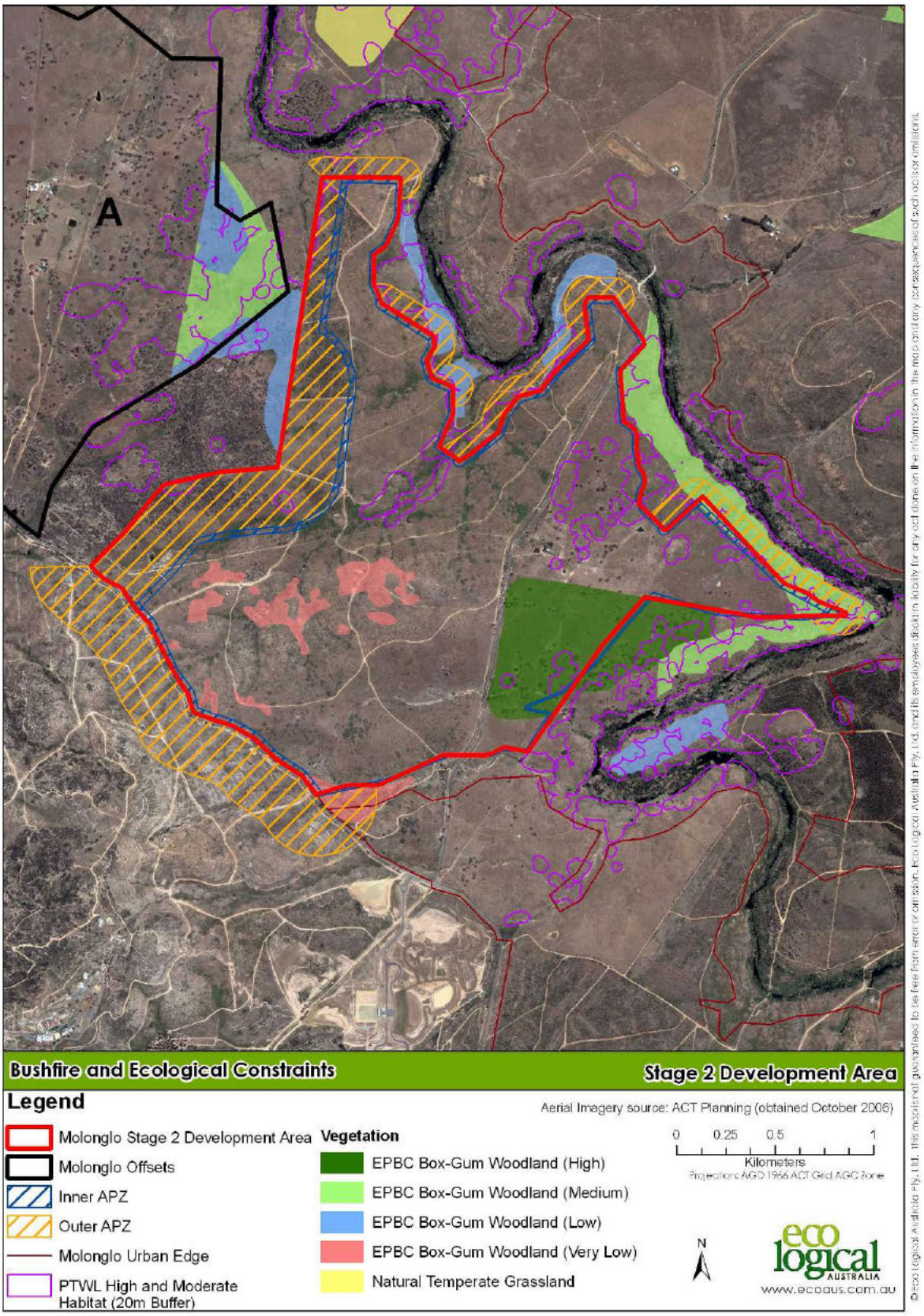


Figure 19 Constraints with Western Boundary APZs Inside Development Area

6.4.1 Recommended strategy

Features of the recommended management strategy are tabulated below. In-principle support for the recommended approach, as well as commitment to ongoing monitoring and maintenance, will be needed from relevant agencies (e.g. ESA, TAMS and DSEWPC).

Strategy	Description
Defining the urban edge	The urban edge can be broadly described in three parts (riparian corridor, western boundary and Stromlo Forest Park) according to the required ecological and bushfire management regime on the outer side of the boundary. The following recommendations are made regarding the urban edge boundary: • Riparian corridor boundary to be slightly modified to protect high & moderate quality PTWL habitat plus 20 m buffer in the riparian corridor; • Current boundary with Stromlo Forest Park is considered acceptable; and • Further investigation of the western boundary is needed (refer to last item in this table). Further minor refinements to the urban boundary will be needed in response to detailed on-ground survey and assessment as part of the future development process.
Adaptive management of the outer APZ in areas of ecological sensitivity	Consistent with best practice ecological and bushfire management, it is recommended that site-specific conditions in the outer APZ area be assessed in detail regarding floristics, fauna habitat value, fuel hazards, bushfire history and requirements for ecologically appropriate fire regimes. An adaptive management approach is recommended that will require monitoring, ongoing bush regeneration (or similar) and a mosaic pattern to fire management. This will allow site managers to be specific and responsive to changing site conditions, and differs from a more prescriptive approach (e.g. burn every three years).
Stromlo Forest Park outer APZ	There are two options for management of the outer APZ on the Stromlo Forest Park boundary. • 100 m outer APZ to be established and maintained within Stromlo Forest Park. Planting types, densities etc within and adjacent the outer APZ to be consistent with grassland/woodland vegetation type. • Alternatively, maintain a 300 m outer APZ where the vegetation is consistent with a forest/shrubland vegetation type. These should be discussed with representatives from Stromlo Forest Park and the ESA to determine the preferred approach.
Increase proportion of high quality habitat in the riparian corridor	Management of the riparian corridor should be consistent with the principles stated in the draft *Riparian Strategy for Coombs and North Weston* (ELA 2010) (see **Section 8**). Areas of high quality habitat in the riparian corridor are characterised by having

Strategy	Description
	low fuel conditions maintained over long periods. Management of the outer APZ in these areas can therefore be consistent with ecologically sensitive fire regimes. It is recommended that the riparian corridor be managed so that the proportion of high quality areas increases. Management is expected to include weed control, creation of more rocky areas[27] to improve connectivity between existing patches, and removal of most shrubs and trees regrowing in areas of Pink-tailed Worm Lizard habitat.
Establish a strategic firefighting zone to the west	Implementation of a strategic firefighting zone to the west of the offset area (e.g. land currently leased by the Australian National University) will provide additional protection against wildfires from the west.
Minimum inner APZ width of 30 m	A minimum inner APZ width of 30 m for the entire Stage 2 area will provide a consistent defensible space for home-owners and emergency services, and minimise the risk of ignition and combustion of homes and other structures during a bushfire. It will also allow adequate space for features shown in **Figure 9** (e.g. ring road) and described in the box below.
Incorporate fire risk mitigation measures in the lot layout and building design[28]	Urban design needs to incorporate: • Appropriate residential design and construction standards; • Water supply infrastructure to agreed capacity levels in the form of a ring main with greater provision of fire hydrants within the inner APZ and adjacent urban area, and provision of emergency tanker hardstand at hydrants; • Emergency access provided as an outer ring road or fire trail, and access points; • Verge width to residential blocks a minimum of approx. 7 m with grassland; • Use of flora species in landscaping to be consistent with the adjacent vegetation community and retain remnant native vegetation as much as possible, while minimising fire risk through consideration of planting density, location, species mix, extent and maintenance requirements; (Stringybarks are not recommended because of their propensity to burn); • Multi-use of tracks, paths and roads e.g. for recreational activities, utilities and maintenance of the urban edge; and • Water sensitive urban design features to prevent impacts to adjacent ecological values and river water quality.
Optional additional measures	Additional measures that could be used to reduce fuel loads and improve management in certain areas include:

[27] Rocks need to be sourced from outside protected areas then placed in areas of suitable geology/topography/aspect etc

[28] page 7 of the *Planning for Bushfire Risk Mitigation General Code*

Strategy	Description
	• Crash grazing to reduce fuel loads – although problems can include adverse impacts to ecology, water & soils; odour; stock movement; and public safety; • Slashing - only possible in non-rocky areas; high cost if done over large areas; may not be compatible with ecological requirements; and • Construct low rock walls - to define management zones, guide public access and improve PTWL habitat; high construction cost. These options would require further site-specific consideration and discussion with relevant agencies.
Western boundary	The preferred approach for management of the western boundary will be developed in consultation with representatives from TAMS, ESA and ACTPLA during fieldwork on 2 December 2010. Some of the options being considered include: • Where the outer APZ is on the outside of the development boundary - Ecologically sensitive fire regime in the offset area and in areas of ecological value; 300 m outer APZ burning regime for forest/shrubland vegetation and 100 m outer APZ burning regimes for grassland/woodland vegetation in the remaining areas; and • Shift outer APZ to the inside (or part inside) the development boundary - This would probably mean that the 'peninsula' area would be unviable for urban development.

6.4.2 Management principles for the riparian corridor

ELA prepared a draft Riparian Strategy for the section of the Molonglo River adjacent Coombs and North Weston. The following principles in the draft Strategy can be applied to the river corridor adjacent to Stage 2.

- The corridor is to be managed so that it provides for public and community use of the area for recreation and education while ensuring that natural values and biodiversity are maintained and improved.
- Rehabilitation/improvement of the corridor is achievable and will require substantial, coordinated, ongoing management and resources, particularly in the short to medium term.
- Consistent with best practice bush regeneration principles, high priority is to be given to conserving and enhancing better quality areas of habitat within the river corridor. Biodiversity will disperse from these core areas as bush regeneration is implemented. Bush regeneration includes natural regeneration and recolonisation where this is possible e.g. by removing weeds and reducing disturbance to the river corridor by stock and other factors.

- The ecosystems of the Molonglo River corridor and adjacent areas are important for habitat and landscape connectivity at both local and regional scales and any new facilities and management will seek to maintain and improve connectivity.
- Existing river crossings and recreational tracks need to be reviewed for their suitability, and where appropriate, maintained and improved. Additional tracks and formal crossings will take into account the natural and biodiversity values of the river corridor.
- Rehabilitation/improvement of the riparian corridor requires activities and impacts within the adjoining and upstream sub-catchments to be addressed in addition to localised impacts within the study area.
- An adaptive management approach is needed because of the rapidly changing landscape associated with adjacent urban development.

Aloisi, Angelina

From:
Sent: Thursday, 16 December 2010 3:49 PM
To: Lhuede, Nick
Cc: McFarlane, Trina;
Subject: Bushfire analysis & EAS facility requirements
Attachments: 20100328 Molonglo Stage 2 Bushfire Boundary v2.docx

Hi Nick –

Thanks for the call. As discussed we would really like to talk to someone in your organisation responsible for facility planning. We are working with a constrained site where we are needing to confirm all the land requirements including for the group centre. We have the Elton Report which documented the requirements but would like an update from your organisation and the opportunity to explore any innovation for land take for the facilities. An early meeting or discussion would be welcomed.

On a related issue a working group met last week to discuss the bushfire mapping options especially for the western edge. We are preparing 3 options and the implications of the options. Jim Corrigan asked that I send you these reports for your input:

- Ecological's latest report (will send thru in a separate e-mail because of file size)
- Draft working paper for 3 options for bushfire management on the western boundary (attached).

The options paper, once agreed to, will progress to the River Park Corridor Management Committee for review.

Any comments or suggestions welcome.

Thanks Nick

SGS Economics and Planning Pty Ltd
Offices in Brisbane, Canberra, Hobart, Melbourne, Perth and Sydney
Canberra Office:
First Floor, Sparta Building
55 Woolley Street
DICKSON ACT 2602
Ph: +61 2 6262 7603
Fax: +61 2 6262 7564
Email:
Website: www.sgsep.com.au