



Chief Executive Officer
City of Albany
c/ planners@albany.wa.gov.au

Local Development Plan – Lots 654 and 688-691 Greyhound Circle and Lots 651 and 692 Little Oxford Street, Gledhow

I refer to recent correspondence and discussions regarding the above.

On behalf of our client, Gerry Kelly and Yvonne Attwell, Edge Planning & Property seek the Council's approval of the above mentioned Local Development Plan (LDP). The LDP proposes 7 large residential lots, ranging between 1413m² to 1668m², which will be fully serviced.

In support of the request, please find attached:

- the LDP;
- Indicative Development Solutions Plan;
- Indicative Buildings and Overshadow Analysis (Plan A and Plan B); and
- Bushfire Management Plan and BAL Contour Plan by Bio Diverse Solutions.

If required, hard copies of the above can be provided to the City.

By way of background, the LDP in part addresses the Western Australian Planning Commission's conditional subdivision approval of Application 157667 and associated Condition 9. Condition 9 set out the requirement to prepare a LDP for the area west of Greyhound Circle/Flood Lane (former proposed Lots 689 – 697). Since then, there has been City administration and Department of Planning, Lands and Heritage support to include Flood Lane and former proposed Lots 651 – 654 also within the LDP.

The LDP has been informed by the Bushfire Management Plan and BAL Contour Plan.



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The LDP provides a planning and design framework for the site which respects the site's context, attributes, promotes responsive residential development and supports appropriate servicing.

The LDP reduces the number of lots, west of Greyhound Circle/Flood Lane, from 9 lots in Application 157667, to 5 generous sized residential lots. Similarly, the LDP reduces the number of lots east of Flood Lane from 4 lots (in Application 157667) to 2 generous sized residential lots.

The Indicative Buildings and Overshadow Analysis (Plans A and B):

- show a 'worse case' scenario relating to the greatest anticipated overshadowing impacts;
- demonstrate, with provision 7, that overshadowing can be suitably addressed. The lots have sufficient space to accommodate 2 storey homes while still providing required solar access for homes on the southern boundary;
- Plan A shows the proposed building envelopes. If a 2 storey home is proposed and located on or near the southern boundary of a building envelope, it will exceed the 25% shadow cover. LDP provision 7 acknowledges this; and
- Plan B aims to correct/minimise the shadow cover as per the red dimensions. Plan B shows it is possible for 5 x 2 storey homes to address the R-Codes with overshadowing.

As previously discussed, it is suggested that the Indicative Buildings and Overshadow Analysis does not form part of the LDP and are not subject to community consultation. It is suggested that on-the-ground development will not occur as outlined on the Indicative Buildings and Overshadow Analysis as most, possibly all, dwellings will be single storey.

The Indicative Development Solutions Plan shows that development can be achieved to respect site conditions and address the LDP provisions. This includes the location and height of retaining walls. The Indicative Development Solutions Plan is suggested to simply be a guiding plan rather than form part of the LDP. It is highlighted there are, of course, many possible ways to undertake residential development on the lots that address LDP provisions.

It would be appreciated if the City could confirm its processing fee for the LDP. Following this, our client will shortly pay the City's processing fee. It is then hoped the City will shortly arrange consultation with adjoining and nearby landowners.

On behalf of our client, Edge Planning & Property look forward to the City's approval of the LDP and the associated clearance of Condition 9 for Application 157667.

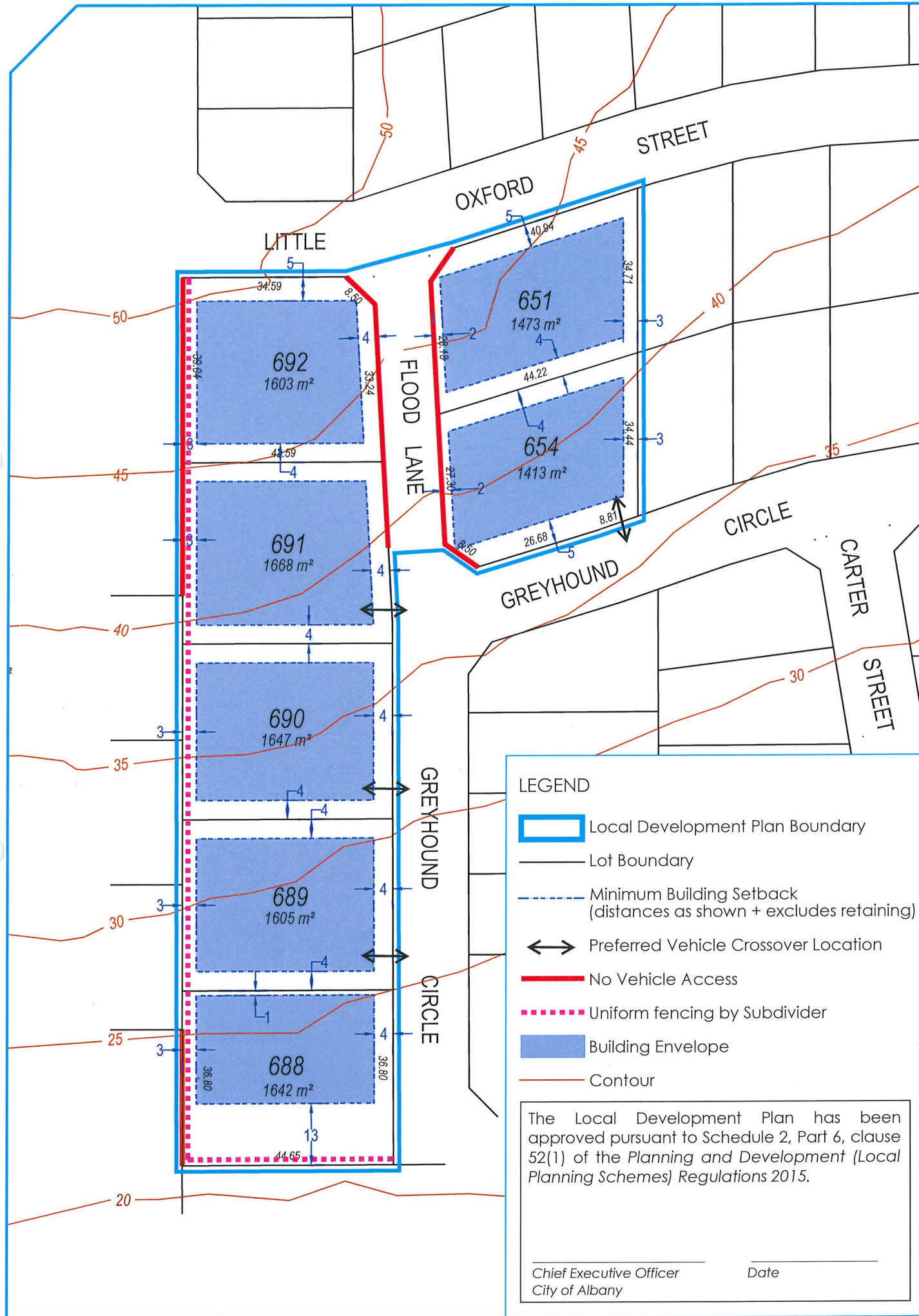
Yours sincerely



Steve Thompson
SENIOR PARTNER

12 November 2019

Enc.



LOCAL DEVELOPMENT PLAN PROVISIONS - LOTS 654, 688-691 GREYHOUND CIRCLE AND LOTS 651 AND 692 LITTLE OXFORD STREET, GLEDHOW

Relationship to City of Albany Local Planning Scheme No. 1 and Residential Design Codes

- A) The provisions of the *City of Albany Local Planning Scheme No. 1* (LPS1) and the *Residential Design Codes* (R-Codes) are varied as detailed within this Local Development Plan (LDP).
- B) Where related to residential development, the following standards constitute amendments to the R-Codes and operate as deemed-to-comply provisions.
- C) Where residential development is consistent with the LDP, there is no requirement for neighbour consultation and development approval.
- D) Any variation to the deemed-to-comply provisions, as outlined in the LDP or the R-Codes, is required to be addressed through an application for development approval.
- E) All other requirements of LPS1 and the R-Codes shall be satisfied in all other matters.

Residential Design Codes

- 1. The R-Coding applicable to the LDP area is R20.

Setbacks and Building Envelopes

- 2. While noting the R20 coding, all lots have a defined building envelope. All buildings (dwellings and outbuildings) and retaining walls are to be in the building envelope.
- 3. The minimum building setback on Lots 688, 689, 690 and 691 from the Greyhound Circle property boundary is 4 metres, the minimum building setback from the Flood Lane property boundary for Lot 692 is 4 metres and the minimum building setback from the Flood Lane property boundary for Lots 651 and 654 is 2 metres.
- 4. The minimum building setback from the Greyhound Circle property boundary for Lot 654 is 5 metres, while the minimum building setback for Lots 651 and 692 from the Little Oxford Street property boundary is 5 metres.
- 5. The area located outside of the building envelope is a Retaining Wall Exclusion Area.

Design Elements

Building Height

- 6. Building height will be generally in accordance with Category B of Table 3 of the R-Codes.
- 7. Two storey development is permitted on all lots. Subject to building height and location, the two-storey dwelling may need to have an increased setback from the southern boundary of the building envelope to ensure suitable access to winter sun for the adjoining property to the south.

Built Form, Materials and Colours

- 8. Built form, materials and colours should complement surrounding and nearby buildings. External materials can include painted or rendered masonry, timber weatherboard or cement-cladding.
- 9. Applicants and landowners are encouraged to use building designs which minimise cut and fill and which respect the site's topography. For instance, pole and split homes are encouraged which take account of the topography.

BAL-ratings

- 10. Dwellings are to be constructed in accordance with the BAL-ratings as set out in the Bushfire Management Plan and BAL Contour Plan dated 4 October 2019 or any document superseding it.

Fencing

- 11. Uniform fencing, on the western boundary of Lots 688 - 692 and the southern boundary of Lot 688, is to be constructed by the subdivider to the satisfaction of the City.
- 12. For lots abutting Flood Lane, the subdivider will construct uniform fencing in accordance with the requirements of the City. The fencing will be designed to offer surveillance of Flood Lane. Should the fence be above 1.2 metres, the fence will be visually

permeable above 1.2 metres to a height of 1.8 metres above the finished ground level.

- 13. Landowners are required to provide suitable fencing, for shared property boundaries, where the fencing is not constructed by the subdivider.

Surveillance of Flood Lane and Surveillance of Public Open Space (Reserve 48779)

- 14. Dwellings on Lots 651, 654, 691 and 692 abutting the Flood Lane reserve should be orientated so they offer passive surveillance over Flood Lane through the provision of major openings and habitable rooms.
- 15. Provision should be made for the dwelling on Lot 688 so it offers passive surveillance where possible to the public open space through the provision of major openings and habitable rooms.

Earthworks

- 16. The lots will be created with no earthworks (cut, fill or retaining walls) undertaken by the subdivider.
- 17. No retaining walls are permitted in the Retaining Wall Exclusion Area, other than minor retaining to provide for discrete garden areas.
- 18. Within the Building Envelope, no single retaining wall is to be higher than 3.0m and the maximum change in height at any point above or below natural ground level shall not exceed 2.0m.
- 19. Where limitations on cutting and filling produce a building located on a podium, the exposed underside of the building should be screened utilising materials that complement the remainder of the building and demonstrate connectivity of the building to the site.

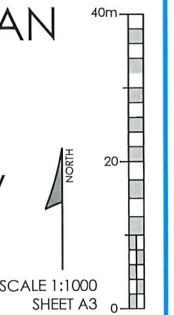
Access

- 20. While Flood Lane will remain a public road reserve, Flood Lane will not be constructed as a public road.
- 21. The subdivider will construct a 2.5m wide dual use path and will undertake landscaping in Flood Lane.
- 22. No direct vehicular access is permitted between lots and Flood Lane and no direct vehicular access is permitted between lots and the road reserve to the west of the LDP area.
- 23. The location of vehicle crossovers is generally to accord with the LDP.
- 24. Crossovers are to be suitably constructed, drained and sealed in asphalt, concrete, brick paving or similar materials to the satisfaction of the City prior to occupation of the dwellings.

Outbuildings

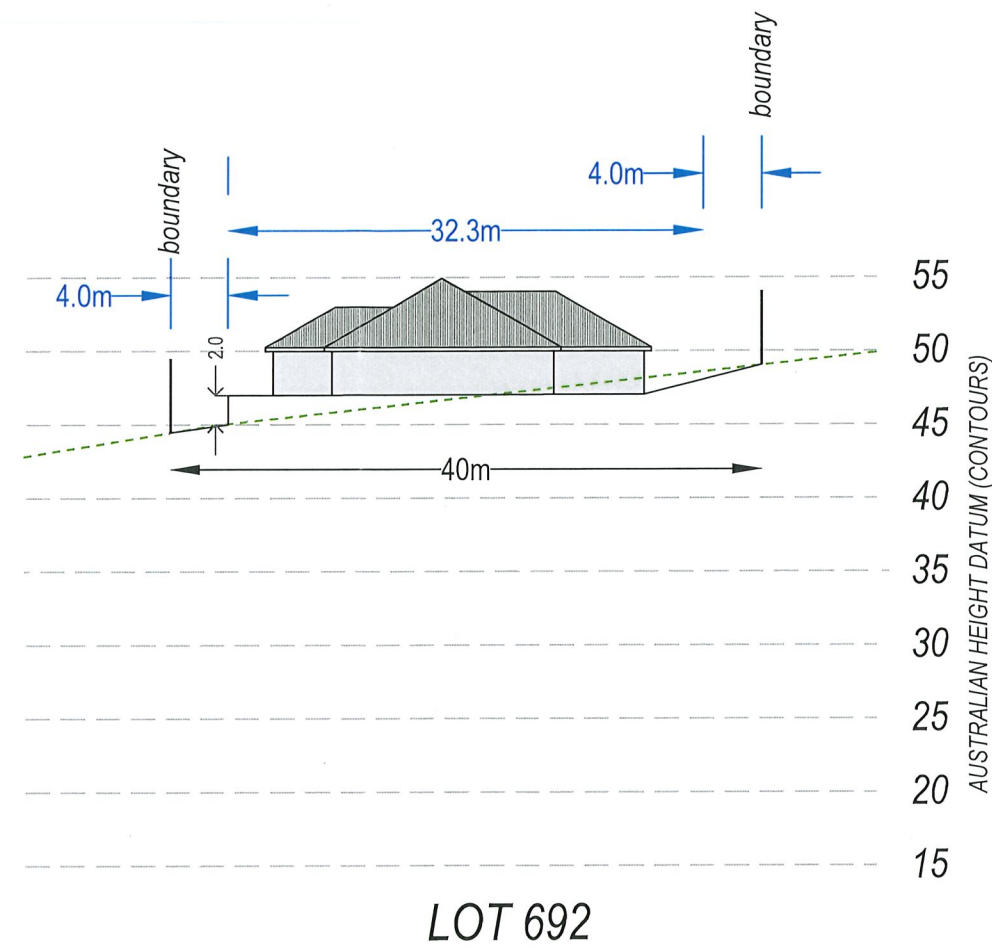
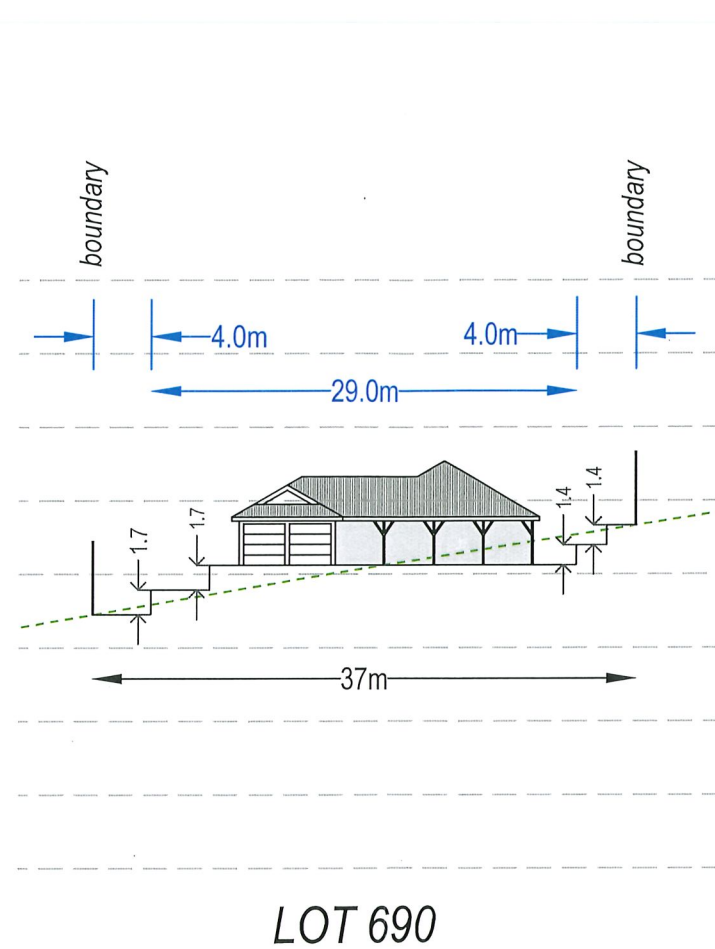
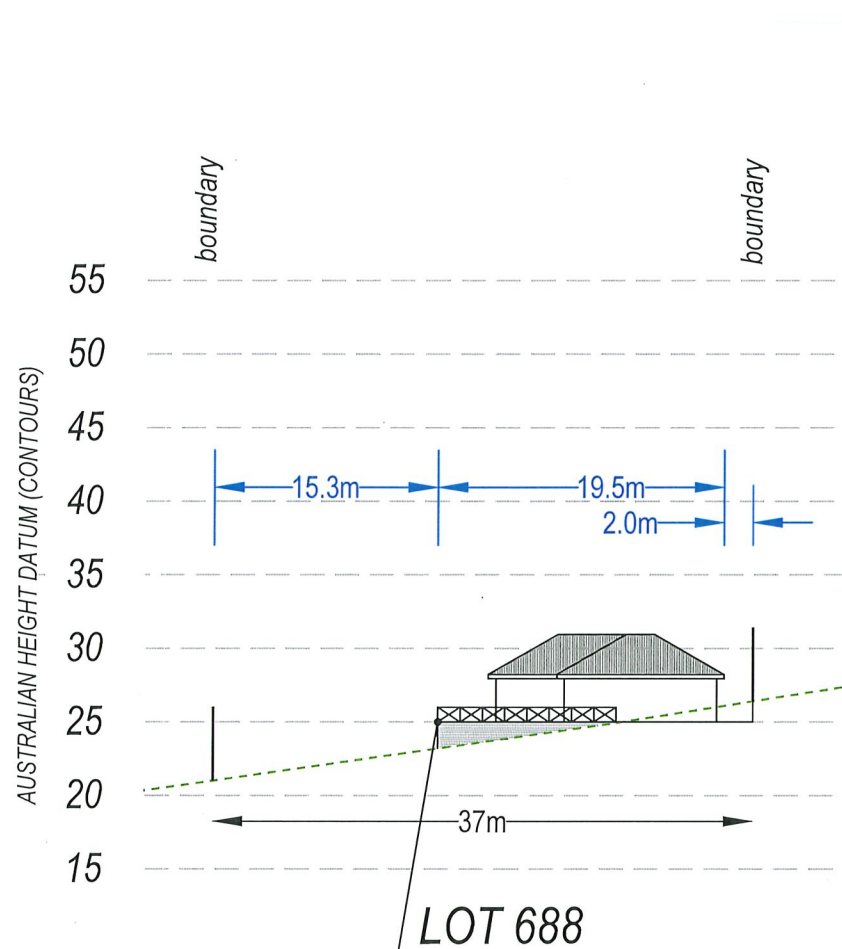
- 25. The largest outbuilding, or cumulative area of outbuildings on a lot, is 120m².

LOCAL DEVELOPMENT PLAN
Lots 654, 688-691 Greyhound Circle and Lots 651 and 692 Little Oxford Street, Gledhow



--- EXISTING TERRAIN

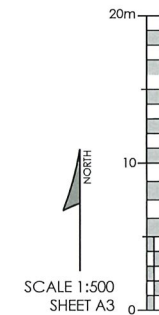
←10m→ BUILDING ENVELOPE SETBACK DIMENSIONS varies as shown

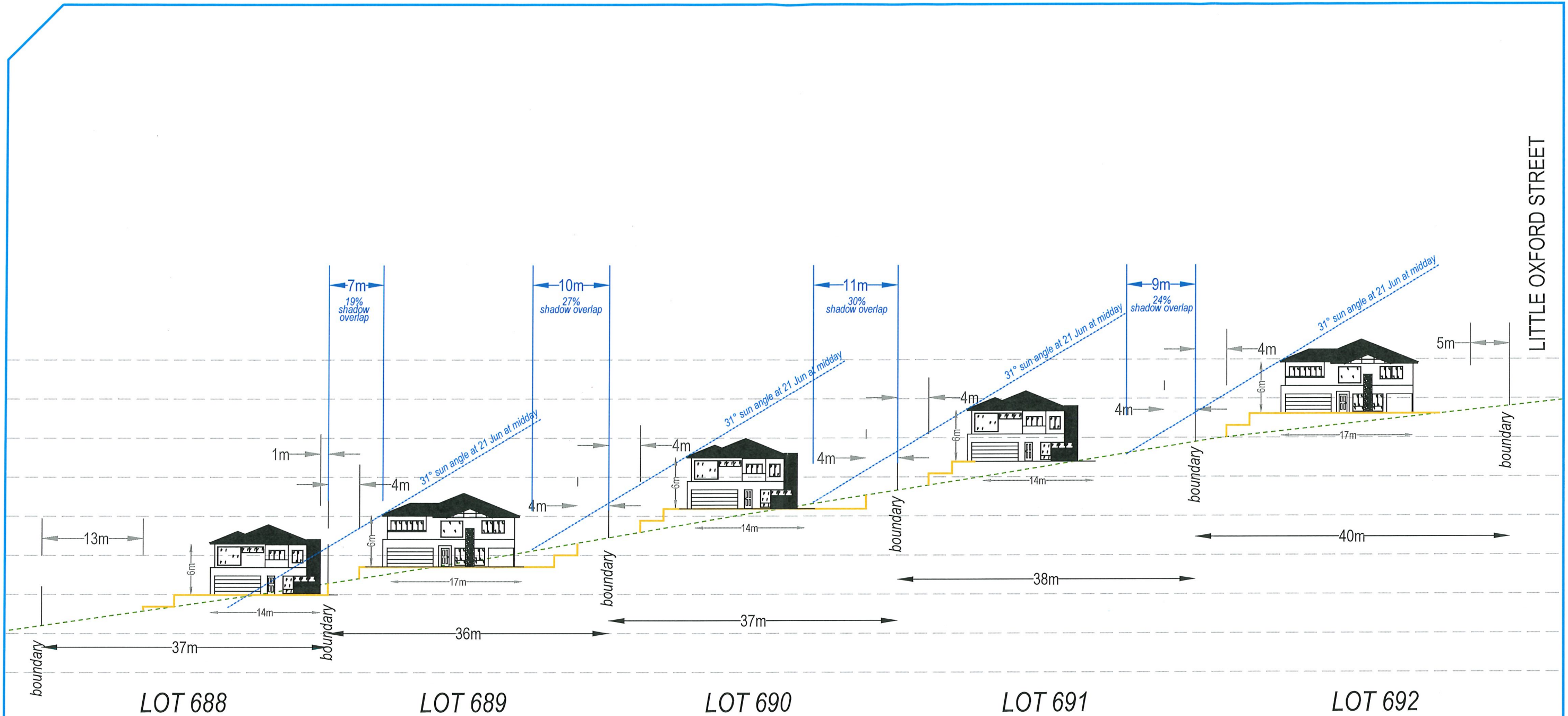


Further details are set out in the Local Development Plan including preferred building designs to respect the site's topography

INDICATIVE DEVELOPMENT SOLUTIONS

Lots 688 and 690 Greyhound Circle and Lot 692 Little Oxford Street, Gledhow







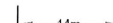

LOT 688

LOT 689

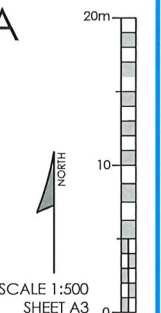
LOT 690

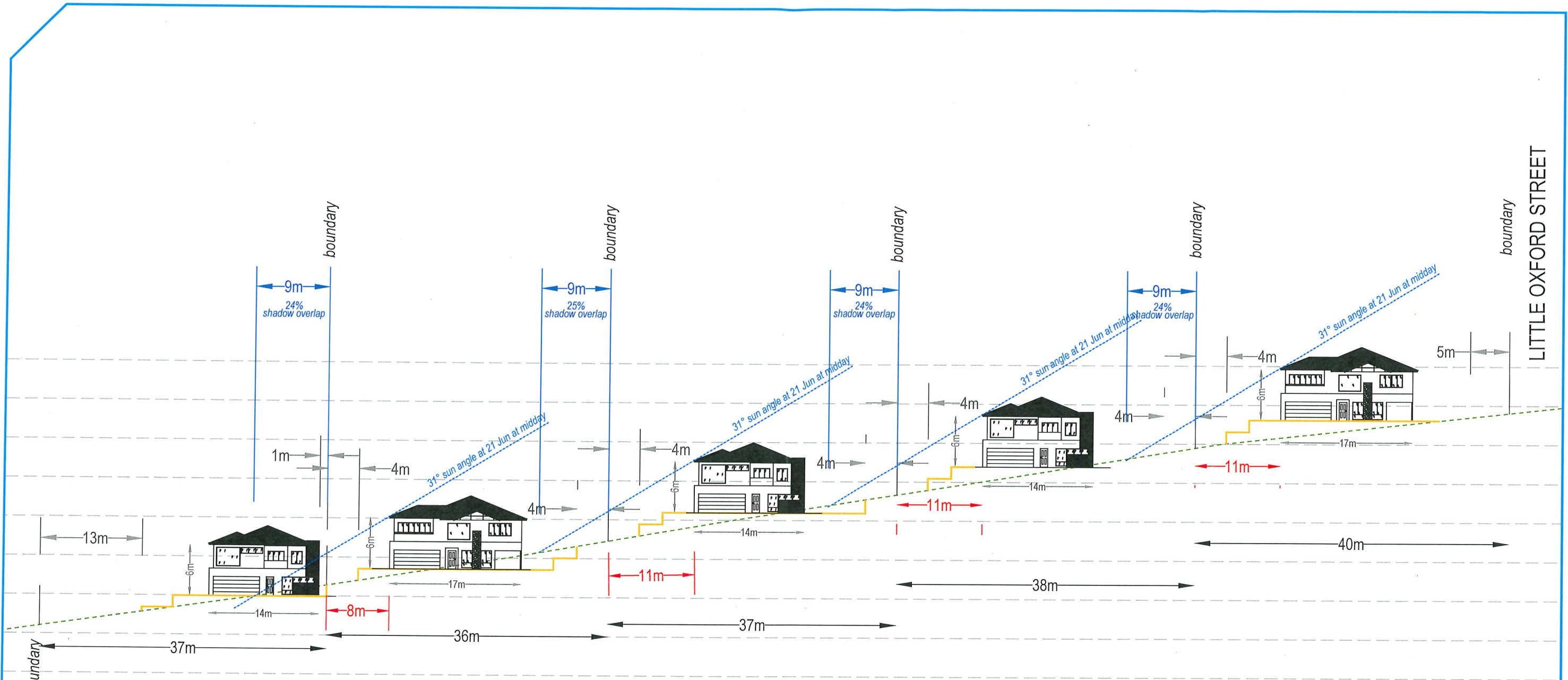
LOT 691

LOT 692

-  EXISTING TERRAIN
-  INDICATIVE BENCHING
-  BUILDING ENVELOPE SETBACK DIMENSIONS varies as shown
-  SUN ANGLE 21 JUN (31°) distances show length of sun shadow over neighbouring lot. 25% or greater not permitted.

INDICATIVE BUILDINGS AND
OVERSHADOW ANALYSIS - PLAN A
Lots 688-691 Greyhound Circle
and Lot 692 Little Oxford Street,
Gledhow





LOT 688

LOT 689

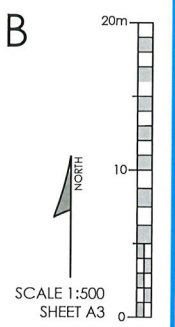
LOT 690

LOT 691

LOT 692

- - - - EXISTING TERRAIN
- INDICATIVE BENCHING
- BUILDING ENVELOPE SETBACK DIMENSIONS varies as shown
- SUN ANGLE 21 JUN (31°) distances show length of sun shadow over neighbouring lot. 25% or greater not permitted.
- MIN. REQUIRED DWELLING SETBACK

INDICATIVE BUILDINGS AND
OVERSHADOW ANALYSIS - PLAN B
Lots 688-691 Greyhound Circle
and Lot 692 Little Oxford Street,
Gledhow



Bushfire Management Plan and BAL Contour Plan

Site Details			
Address:	Argyll Heights Estate, Lot 9020 Greyhound Circle		
Suburb:	Gledhow	State:	WA
Local Government Area:	City of Albany		
Description of Building Works:	Local Development Plan		
Stage of WAPC Planning	N/A		

BAL Contour Plan Details			
Report / Job Number:	MSC0232	Report Version:	FINAL Version 4
Assessment Date:	09/01/2019 & 22/7/2019	Report Date:	04/10/2019
BPAD Practitioner	Kathryn Kinnear	Accreditation No.	BPAD30794



SECTION 1: Proposal details

Bio Diverse Solutions was commissioned to assess part Lot 9020 Greyhound Circle, Gledhow "Argyll Heights" ("the subject site") for bushfire planning requirements. The subject site is located in the municipality of the City of Albany (CoA) in the locality of Gledhow. The site is partially constructed urban land and vacant land. The Subject site is zoned 'residential' and has Western Australian Planning Commission (WAPC) condition approval (WAPC# 157667) over the balance of land. Version 1 of this BMP was approved through WAPC and the CoA in 2019, this BMP (Version 3) has been prepared to assist with approval of the Local Development Plan (LDP) (condition 9 of WAPC 157667). The LDP contemplates amalgamation of lots along the western side of the subdivision to achieve more favourable site conditions for buildings in accordance with State Planning Policy (SPP) 3.7, Liveable Neighbourhoods and SPP 3.1.

Development has been staged, with Stage 1, 2, 3 and 4 constructed lots and serviced, with stage 5 servicing complete however lot construction and the final linking roads of Greyhound Circle are yet to be completed. Access to the site is from alternative directions to the north south and to the west along established road reserves. Public roads are noted to have been previously approved through the subdivision process by the City of Albany (WAPC 15149). Refer to the proposed Plan of Subdivision Figure 1 and Staging Plan Figure 2. The subject site is partially located in the WA bushfire prone area mapping (SLIP, 2019), refer to Figure 3.

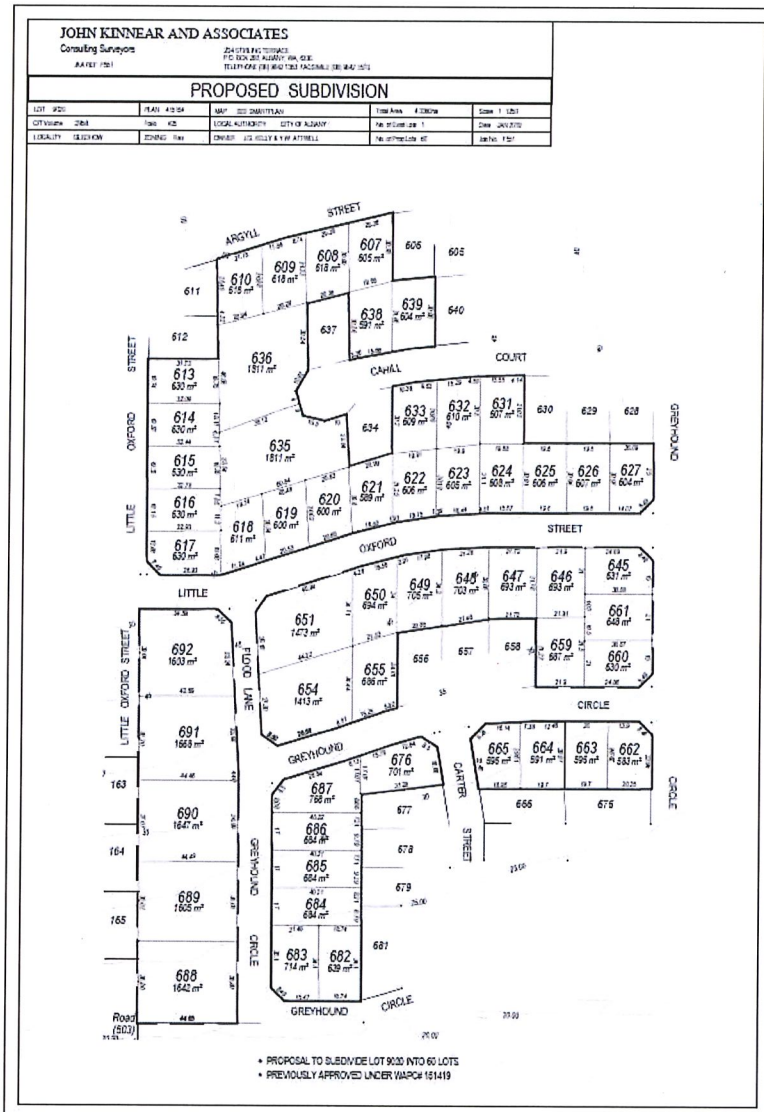


Figure 1: Plan of subdivision (Local Development Plan September 2019)

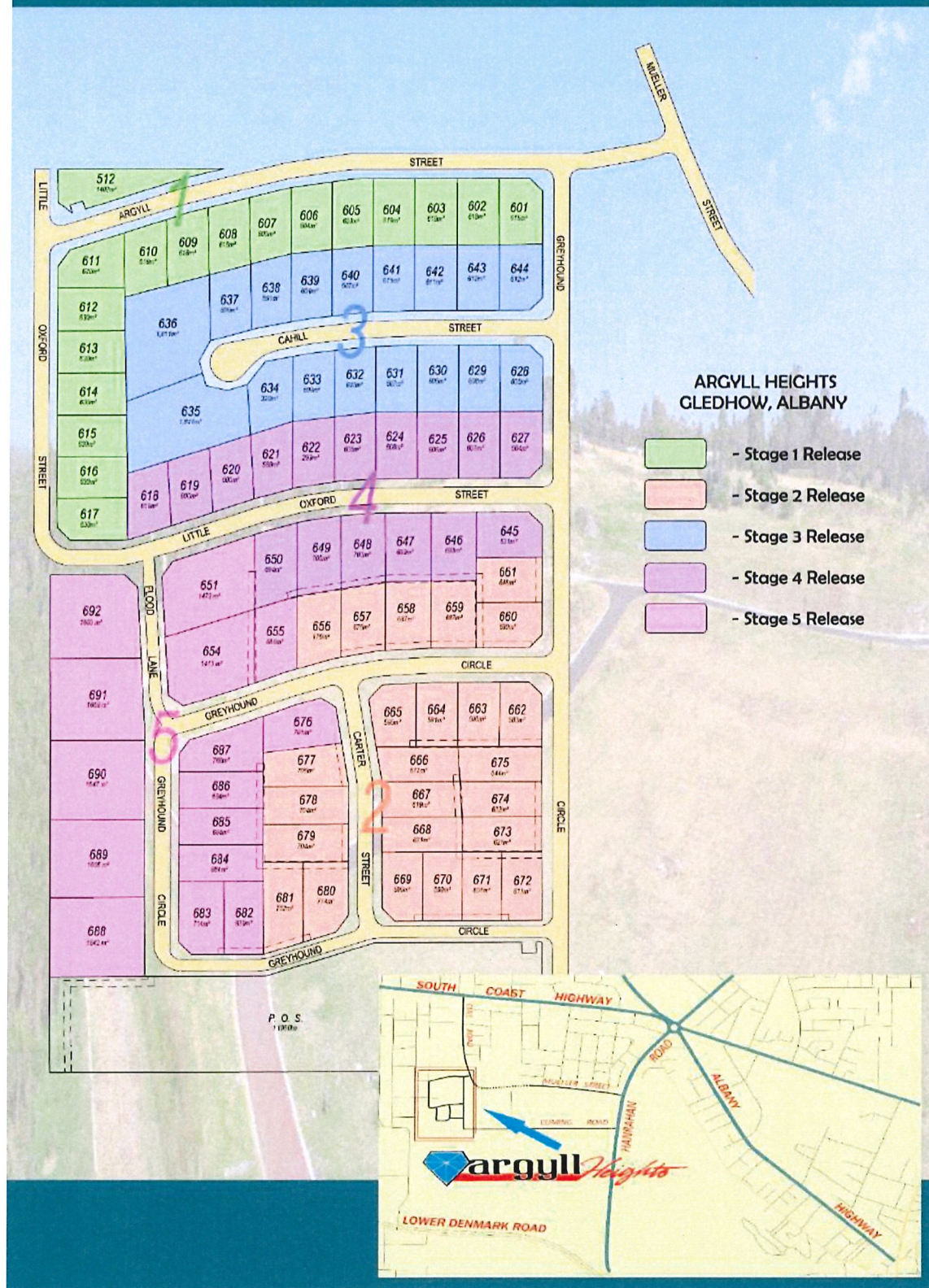


Figure 2: Staging Plan Argyll Heights



Figure 3: State Bushfire Prone Area Mapping (SLIP 2019)

SECTION 2: Environmental Considerations

Vegetation modification proposed: There is some removal of regrowth vegetation proposed in the south west corner to allow for access and separation of bushfire fuels to Lot 688. A Works Program (Figure 6) has been prepared and in principle agreement reached with the CoA. Weed removal is required across the site and at the interface of the southern POS area. Refer to the Vegetation Classes Mapping Figure 4. It is noted that the southern POS area has been previously approved through the WAPC approval process (refer to WAPC 15149 approvals) and majority of the vegetation to the south of the development will remain "as is".

Re-vegetation/landscape plans: No revegetation or landscaping plans are proposed for the proposal.

SECTION 3: Assessment Results

SECTION 3.1 – Assessment Inputs

Bushfire Assessment inputs for the site has been calculated using the Method 1 procedure as outlined in AS3959-2009. This incorporates the following factors:

- WA adopted Fire Danger Index (FDI), being FDI 80;
- Vegetation Classes;
- Slope under classified vegetation; and
- Distance between proposed development site and classified vegetation.

Vegetation Classification (Bushfire Fuels)

A method 1 BAL Assessment was undertaken of the lot. A site inspection was undertaken on the 9th of January and 22nd July 2019 by Level 2 Bushfire Practitioner Kathryn Kinnear (BPAD 30794) to assess the current land use, topography/slope, vegetation and conditions of the site and its surroundings. Photographs of the Subject Site and surrounding areas were taken and have been presented in the following pages. All vegetation within 150m of the lot boundary was classified in accordance with Table 2.3 and Exclusion clauses 2.2.3.2 of AS 3959-2009. Each distinguishable vegetation plot with the potential to determine the Bushfire Attack Level is identified in the following pages and mapped on the Vegetation Classes Map Figure 4 (Page 5).

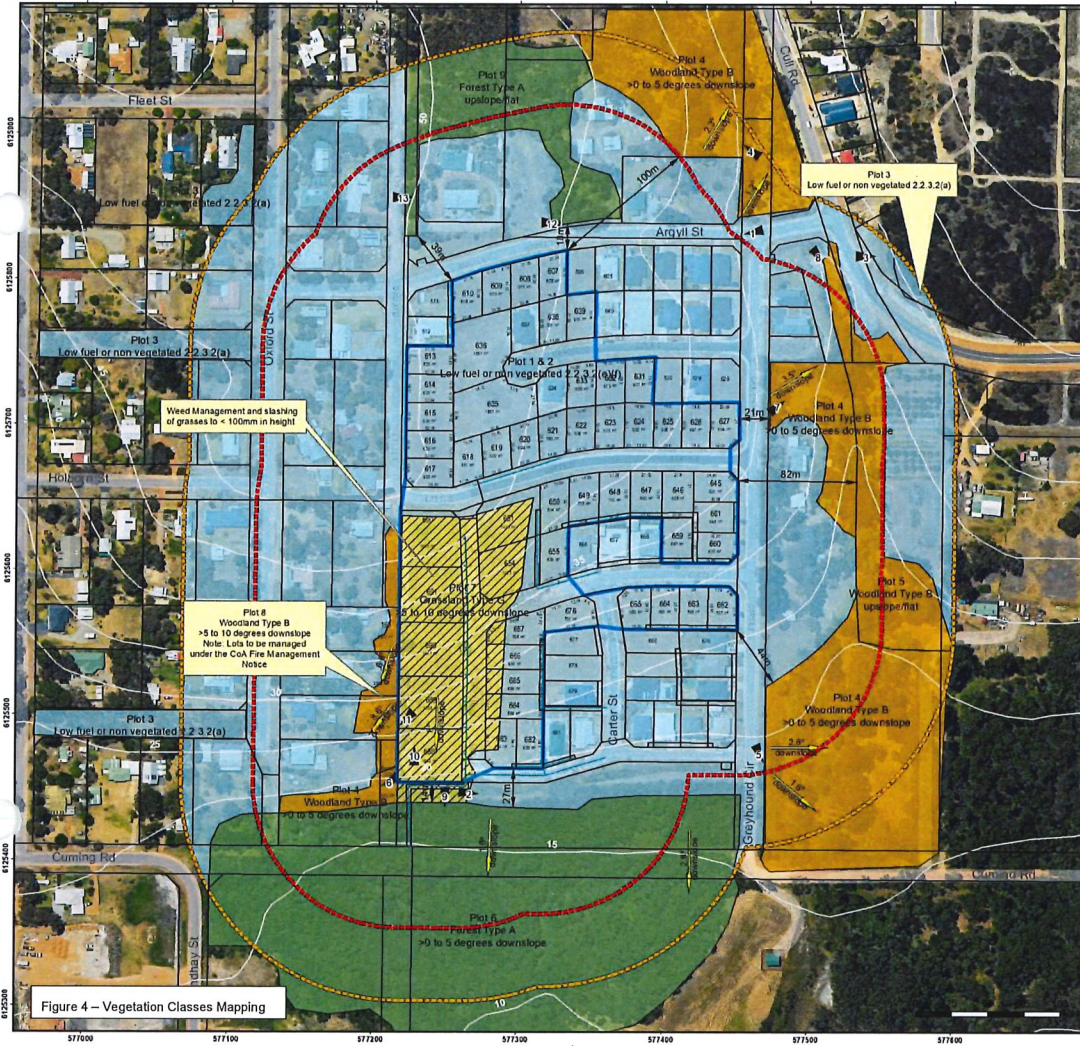


Figure 4 – Vegetation Classes Mapping

This DAL Plan was prepared by:
 Kathryn Skinner, Bio Diverse Solutions
 Accredited for SP420784
 Jurisdiction Level 2 - WA

BPAD
 Planning & Design
 Accredited Practitioner
 Level 2

BIO DIVERSE SOLUTIONS
 23 Hercules Crescent
 Albany, WA 6330
 Australia
 Tel: 08 9542 1575
 Fax: 08 9542 1575

Overview Map Scale 1:100,000

Legend

- Subject Site
- 100m Assessment Boundary
- 150m Assessment Boundary
- Cadastral
- 5m Contours
- Photo Point
- Slope Degrees
- Separation Distance
- APZ Standards to apply

Vegetation

- Forest Type A
- Woodland Type B
- Grassland Type G
- Low fuel or non-vegetated 2.2.3.2

Scale
 1:2,500 @ A3
 GDA MGA 94 Zone 50

Data Sources
 Aerial Imagery: VIA Now, Lantana Subscription Imagery
 Cadastral, Rural Contours and Roads: Landgate 2017
 RUS Road Network, Map Roads Western Australia 2017
 Contours Map: World Topographic map service, ESRI 2012

CLIENT
 Jerry Kelly and Yvonne Atwell
 Balance of land Argyll Heights Estate
 Gledhow, WA 6330

Vegetation Classes

DAL Assessor KK	QA Check BT	Drawn by GK
STATUS FINAL	FILE MSC0232	DATE 30/08/2019

Plot	1	Classification or Exclusion Clause	Low fuel or non-vegetated areas exclusion 2.2.3.2 (e)
			<p>Location: Existing urban and residential area. Internal to the site and external to the west, northwest and east.</p> <p>Description: Bare areas, hardstand, roads and buildings. As per exclusion clause 2.2.3.2 (e) of AS3959.</p>

Photo Id 1: View to the west of Argyll Street.

Plot	2	Classification or Exclusion Clause	Low fuel or non-vegetated areas exclusion 2.2.3.2 (f)
			<p>Location: Existing urban and residential area. Internal to the site and external to the west, northwest and east. Includes managed POS areas in the south.</p> <p>Description: Low fuel areas such as mowed lawns, POS areas and managed gardens. Includes lots managed under the CoA Fire Management notice. As per exclusion clause 2.2.3.2 (f) of AS3959.</p> <p>Available fuel loading: <2t/ha.</p>

Photo Id 2: View to the east along the managed POS area in the south of the existing subdivision.



Plot	3	Classification or Exclusion Clause	Low fuel or non-vegetated areas exclusion 2.2.3.2 (a)
 <p>☉ 179°S (T) ● -35°0.402', 117°51.023' ±5m ▲ 45m</p>			<p>Location: Located to the north west and east.</p> <p>Description: Vegetation plots located > 100m from subject site. As per exclusion clause 2.2.3.2 (a) of AS3959.</p>
 <p>09 Jan 2019, 16:13:08</p>			

Photo Id 3: View of Scrub located on vacant land to the north east of the subject site.



Plot	4	Classification or Exclusion Clause	Woodland Type B
 <p>☉ 307°NW (T) ● -35°0.443', 117°50.921' ±555m ▲ 35m</p>			<p>Location: North east, east, south west and south east of subject site.</p> <p>Separation distance: 21m east. 0m south west and 44m south east.</p> <p>Dominant species & description: Planted drainage basin in north east and Jarrah, Marri disturbed paddock areas, north east, south west.</p> <p>Average vegetation height: 8-12m.</p> <p>Vegetation Coverage: 10-30% foliage cover.</p> <p>Available fuel loading: 15-25 t/ha.</p> <p>Effective slope: Downslope >0-5 degrees.</p>
 <p>09 Jan 2019, 16:19:19</p>			

Photo Id 4: View to the north west in closed road reserve and private property.

Plot	4 cont.	Classification or Exclusion Clause	Woodland Type B
			Additional photo of Plot 4.

Photo Id 5: View to the south east off Greyhound Circle into private property located east of the subject site.

Plot	4 cont.	Classification or Exclusion Clause	Woodland Type B
			Additional photo of Plot 4.

Photo Id 6: View to the south west through private property, located south west of the subject site.

Plot	4 cont.	Classification or Exclusion Clause	Woodland Type B
			Additional photo of Plot 4.

Photo Id 7: View to the north east through private property off Greyhound Circle.

Plot	5	Classification or Exclusion Clause	Woodland Type B
			<p>Location: East of subject site.</p> <p>Separation distance: 82m.</p> <p>Dominant species & description: Jarrah, Marri and planted Eucalypts in disturbed private property areas. Includes regrowth in road reserves.</p> <p>Average vegetation height: 8-12m.</p> <p>Vegetation Coverage: >10-30% foliage cover.</p> <p>Available fuel loading: 15-25 t/ha.</p> <p>Effective slope: Upslope.</p>

Photo Id 8: View to south east through Plot 5.

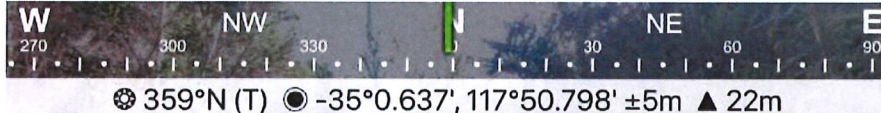

Plot	6	Classification or Exclusion Clause	Forest Type A
			<p>Location: South in Public Open Space (POS) and land to the south of the development.</p> <p>Separation distance: 14m to 27m.</p> <p>Dominant species & description: <i>Taxandria juniperina</i> (Watties) in south (POS area). Sydney Golden Wattle and Taylorina noted in south west corner. To be removed. Multilayered.</p> <p>Average vegetation height: 15-20m.</p> <p>Vegetation Coverage: >30-70% foliage cover.</p> <p>Available fuel loading: 25-35 t/ha.</p> <p>Effective slope: Downslope >0-5 degrees.</p>
			

Photo Id 9: View to the south through Plot 6 in POS area.


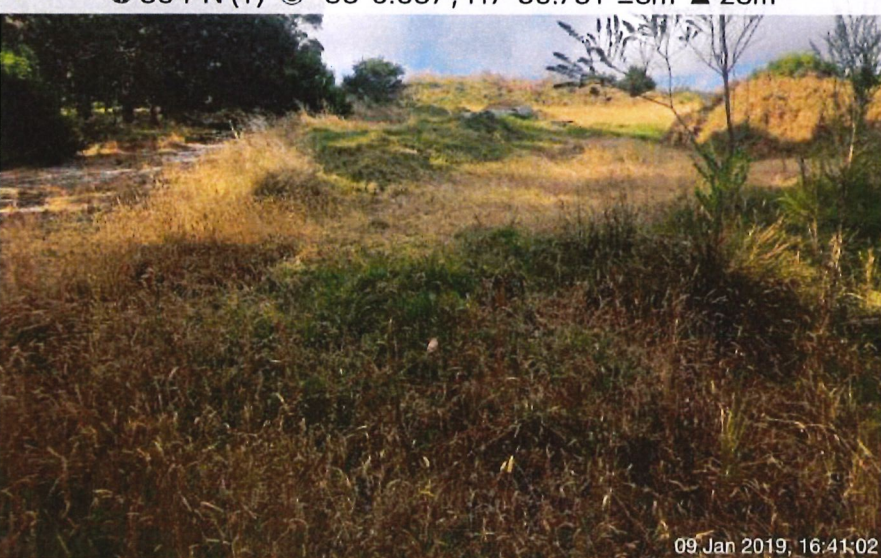
Plot	7	Classification or Exclusion Clause	Grassland Type G
			<p>Location: Internal to the site in undeveloped areas of Stage 5.</p> <p>Separation distance: 0m.</p> <p>Dominant species & description: Kikuyu, occasional Taylorina and Sydney golden wattle. Various weeds in eastern area of site.</p> <p>Average vegetation height: 100-300mm.</p> <p>Vegetation Coverage: >10% trees.</p> <p>Available fuel loading: 4.5 t/ha.</p> <p>Effective slope: Downslope >5-10 degrees.</p>
			

Photo Id 10: View to north of the eastern area of the subject site.



Plot	8	Classification or Exclusion Clause	Woodland Type B
			<p>Location: Adjacent to subject site in properties to the west.</p> <p>Separation distance: 0m.</p> <p>Dominant species & description: Blue Gums with grassy understorey. Not multilayered or maintained.</p> <p>Average vegetation height: 15-20m.</p> <p>Vegetation Coverage: >10-30% foliage cover.</p> <p>Available fuel loading: 15-25 t/ha.</p> <p>Effective slope: Downslope >5-10 degrees.</p> <p>Noted under the CoA Fire Management Notice these lots are to be low fuel across the whole of the lots.</p>
			

Photo Id 11: Planted blue gums and trees along the western properties.




Plot	8	Classification or Exclusion Clause	Forest Type A
			<p>Location: North in private property.</p> <p>Separation distance: 18m.</p> <p>Dominant species & description: Jarrah, Marri. Midstorey of Acacia and juvenile trees. Understorey of Sword sedge, herbs and grasses. Multilayered.</p> <p>Average vegetation height: 8-12m.</p> <p>Vegetation Coverage: >30-70% foliage cover.</p> <p>Available fuel loading: 25-35 t/ha.</p> <p>Effective slope: Upslope.</p>
			

Photo Id 12: View to the east along Argyll Road of Forest Type A.

Plot	8 cont.	Classification or Exclusion Clause	Forest Type A
			Additional photo of Plot 8
Photo Id 13: View from Little Oxford Street of Plot 8.			

COMMENTS ON VEGETATION CLASSIFICATIONS:

- Distances from vegetation were made based on surface fuels to edge of lot (subject site) boundary;
- Effective slopes were measured in the field using a Nikon Forestry Pro and represented on the respective plots;
- Method 1 (AS3959-2009) Simplified procedure was used for vegetation classification and BAL Assessment process;
- All vegetation was classified within the subject site and within 150m of the lot boundaries to AS3959 Table 2.3; and
- The perimeter of the vegetation was measured using field GPS and notations on field GIS maps.

SECTION 3.2 Bushfire Assessment Outputs

A Method 1 BAL calculation (in the form of BAL contours) has been completed for the subdivision. The BAL Contours are depicted in accordance with AS 3959-2009 and WAPC defined methodology. The BAL rating gives an indication of the level of bushfire attack (i.e. the radiant heat flux) that may be received by proposed buildings and subsequently informs the standard of building construction required to increase building tolerance to potentially withstand such impacts in line with the assessed BAL. The potential bushfire impact to the site / proposed development from each of the identified vegetation plots are identified below in Table 1 and shown on the BAL Contour Plan Figure 5. A Works Program has been developed to reduce the bushfire impacts the site, refer to Figure 6 Works Program Mapping and the resulting BAL Contour Plan – Post Works Program (Figure 7).

Table 1 - Potential Bushfire impacts to AS3959 (Homestead Lot A)

Lot number	Vegetation Type (Table 2.3)	Slope (Table 2.4.3)	Separation distance to vegetation (m)	Highest BAL Contour	Modified BAL Contour
607	Forest Type A (Plot 9)	Upslope	18m	BAL 40	BAL 29 (6m R code setback)
608	Forest Type A (Plot 9)	Upslope	>21m	BAL 29	BAL 29 and BAL 19 can apply
609, 610,	Forest Type A (Plot 9)	Upslope	>31m	BAL 19	BAL 19 and BAL 12.5 can apply
613, 614 636, 638 & 639	Forest Type A (Plot 9)	Upslope	>42m	BAL 12.5	BAL 12.5 can apply
627	Woodland Type B (Plot 4)	Downslope >0-5 degrees	21m	BAL 29	BAL 29 and BAL 19 can apply
624-626, 631, 645-647, 659-661-665	Woodland Type B (Plot 4)	Downslope >0-5 degrees	>35m	BAL 12.5	BAL 12.5 can apply
682 & 683	Forest Type A (Plot 6)	Downslope >0-5 degrees	27m	BAL 29	BAL 29 can apply
688	Forest Type A (Plot 6)	Downslope >0-5 degrees	14m	BAL FZ	BAL 29 can apply
689	Forest Type A (Plot 6)	Downslope >0-5 degrees	14m	BAL 12.5	BAL 12.5 can apply
690	Forest Type A (Plot 6)	Downslope >0-5 degrees	62m	BAL 12.5	BAL 12.5 can apply
691-692, 687, 676, 654, 655 & 651	Forest Type A (Plot 6)	Downslope >0-5 degrees	>100m	BAL Low	BAL Low can apply
684-686	Forest Type A (Plot 6)	Downslope >0-5 degrees	>50m	BAL 12.5	BAL 12.5 can apply
650-651, 655, 615-616, 618-620, 635	Woodland Type B (Plot 5)	Downslope >5-10 degrees	>43m	BAL Low	BAL Low can apply
617	Woodland Type B (Plot 5)	Downslope >5-10 degrees	>22m	BAL Low	BAL Low can apply
635, 621, 622, 633, 632, 623, 648-650, 655, 676,	N/A	N/A	>100m	BAL Low	BAL Low can apply

The final BAL allocation for any future buildings is dependent on final placement of the dwelling on the lots. Individual BAL assessments may be considered on the lots by the new owners when dwelling design/placement is known and can be undertaken at building approval stages with the engagement of an Accredited Level 1 BAL Assessor.

NOTES ON BAL ASSESSMENT

- The BAL Contour Plan was prepared by an Accredited Level 2 Bushfire Planning Practitioner (BPAD30794);
- The BAL Contour Map has been prepared in accordance with Department of Planning (WAPC) Guidelines for Planning in Bushfire Prone Areas Version 1.3 (WAPC, 2017).

- Subdivision based on plan of subdivision as supplied by John Kinnear and Associates (Figure 1).
- Subject site is partially located in a Bushfire Prone Area, see Figure 3 (SLIP, 2018). Buildings located outside of the Bushfire Prone area mapping are not legally required to build to BAL and AS3959.
- Internal areas of the subject site are to be maintained in a Low Fuel state as per APZ standards in the Guidelines for Planning in Bushfire Prone Areas Version 1.3 (WAPC, 2017). Refer to Appendix 1.

Works Program

Consultation with the City of Albany occurred in July and August 2019 whereby a "Works Program" (Figure 6) has been prepared outlining removal of Blue gums in the unformed road reserve to the west and some removal of re-growth and low fuel standards to the south of lot 688. The application of the CoA fire Management notice, clearing for the new fencing as per the LDP will significantly reduce the bushfire risks from the west which is outlined in Figures 4 (Vegetation classes) and Figure 5, BAL Contour Plan. A "Post Works Program BAL Contour Plan" has been prepared which outlines lots 689 and 690 are subject to BAL 125, Lots 691 and 690 BAL Low. Lot 688 Has a small area of BAL FZ and BAL 40 which will remain in perpetuity and building is to be excluded from this area, however the lot is large enough (1642m²) whereby BAL 29 can apply to a future building. Refer to Figure 7.

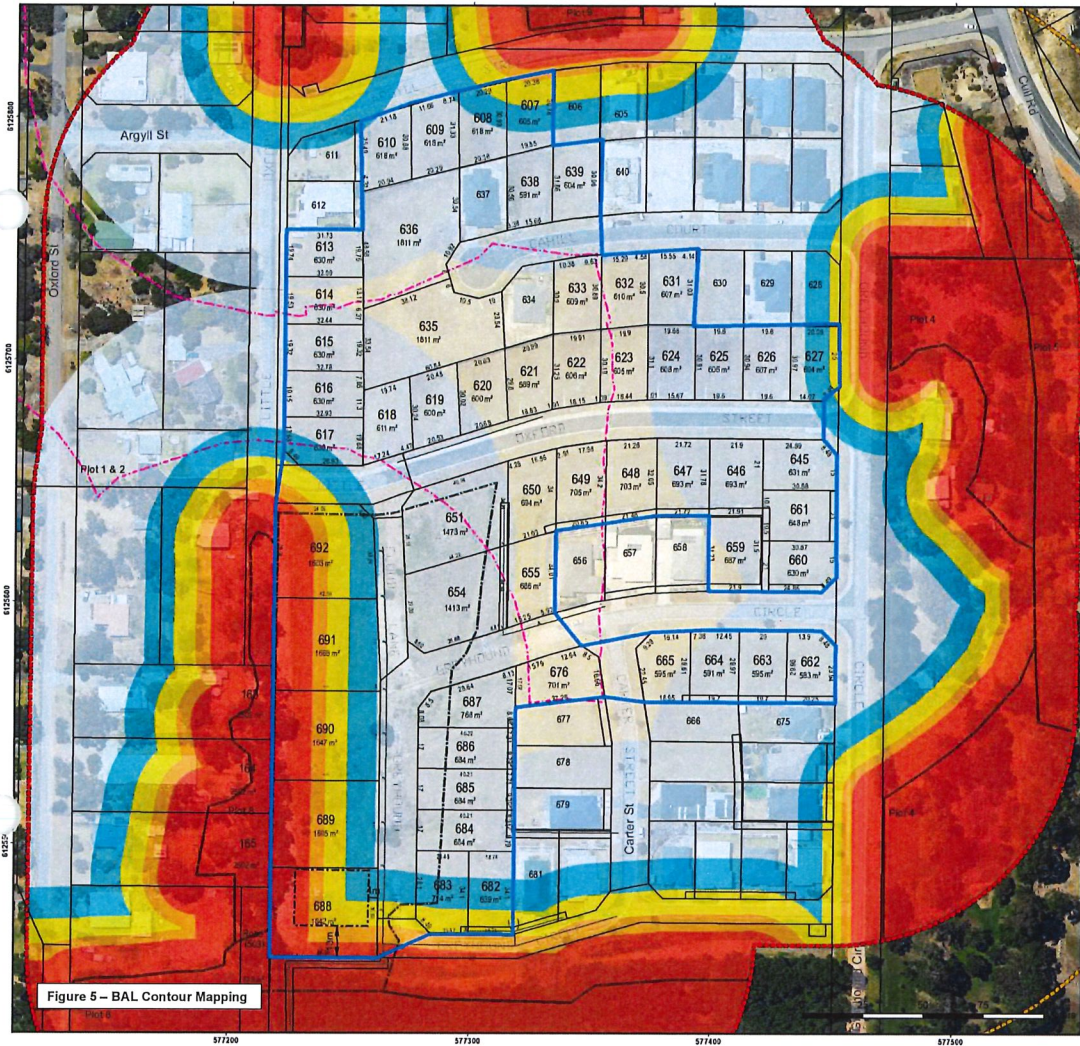


Figure 5 – BAL Contour Mapping

This BAL Plan was prepared by:
 Kathryn Kinneer, Bio Diverse Solutions
 Accreditation No. SPAD20184
 Jurisdiction: Level 2 - WA

BPAD Planning & Design
 Accredited Practitioner
 Level 2

BIO DIVERSE SOLUTIONS
 29 Hercules Crescent
 Albany, WA 6330
 Australia
 Tel: 08 9842 1878
 Fax: 08 9842 1873

Overview Map Scale 1:100,000

Legend

- Subject Site
- 100m Assessment Boundary
- 150m Assessment Boundary
- Cadastre
- WA BushfireProneAreas_20190601
- Building Envelope
- Separation Distance

BAL Contours

- BAL-FZ
- BAL-40
- BAL-29
- BAL-19
- BAL-12.5
- BAL-LOW

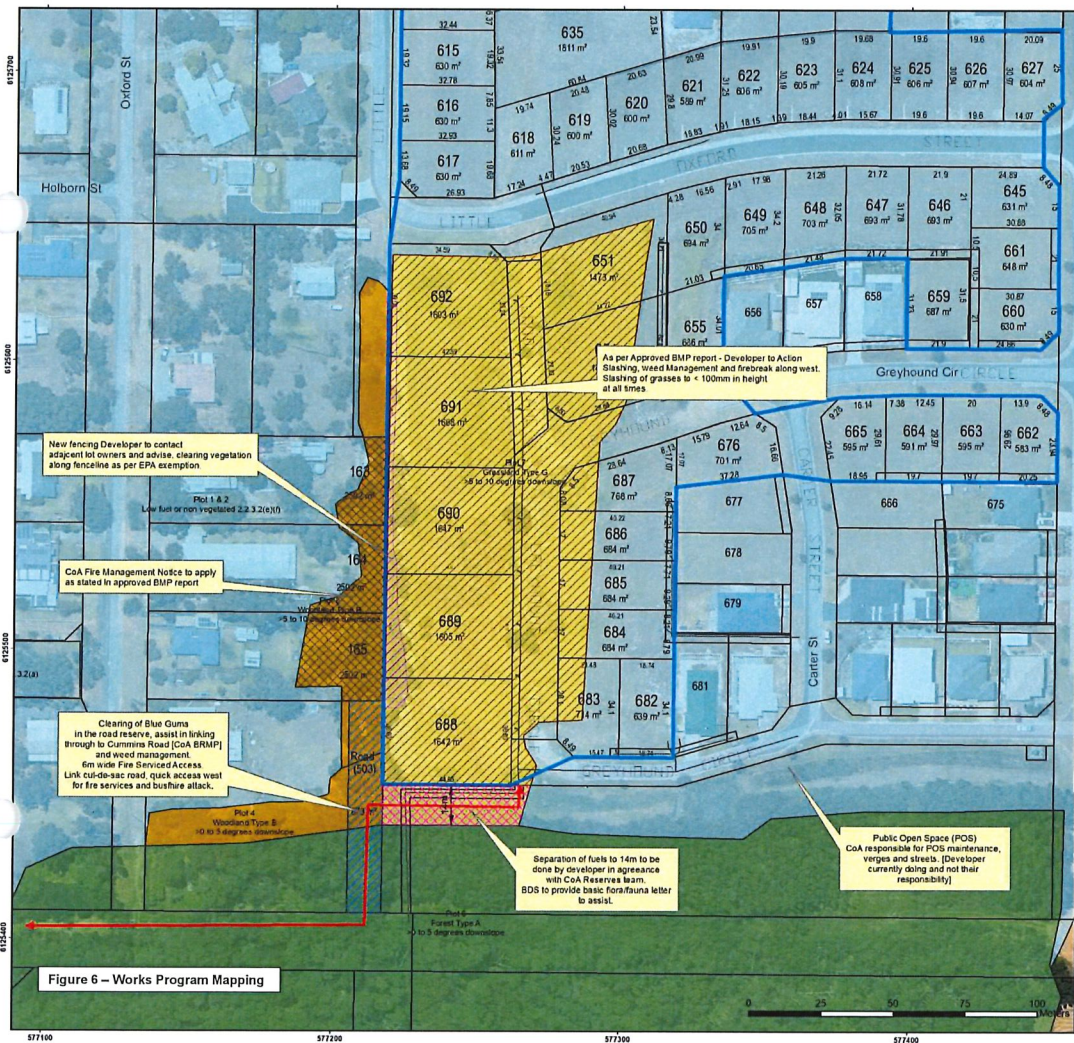
Scale
 1:1,500 @ A3
 GDA MGA 94 Zone 50

Data Sources
 Aerial Imagery: WA from Landgate Subscription Imagery
 Cadastre: Spatial Contours and Roads - Landgate 2017
 PLIS Road Network: Main Roads Western Australia 2017
 Contourline Map: World Topographic map service: 05/08/2012

CLIENT
 Jerry Kelly and Yvonne Atwell
 Balance of land Argyl Heights Estate
 Odehovi, WA 6330

BAL Contour Map

BAL Assessor: KK	QA Check: KK	Drawn by: BT
STATUS: FINAL	FILE: MSC0232	DATE: 04/10/2019



This BAL Plan was prepared by:
 Kathryn Kinnear, Bio Diverse Solutions
 Accreditation No. BPA021794
 Jurisdiction Level 2 - WA

BPAD
 Planning & Design
 Accredited Practitioner
 Level 2

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 Albany, WA 6330
 Australia
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 Fax: 08 9842 1976

Overview Map Scale 1:100,000

Legend

- Subject Site
- Cadastre
- Separation Distance

Access Routes

- Future Connection
- As per approved BMP low fuel status to prevail
- Slashing to Low Fuel Standards
- Fuel Reduction to 14m

Vegetation removal

- Blue gums removed
- New fence line cleared

Vegetation

- Forest Type A
- Woodland Type B
- Grassland Type G
- Low fuel or non vegetated 2.2.3.2

Scale
 1:1,250 @ A3
 GDA MGA 94 Zone 50

Data Sources
 Aerial Imagery: 10A Now, Landscape Subscription Imagery
 Cadastre, Point Clouds and Roads: Landgate 2017
 100 Road Network, Main Roads (stream network) 2017
 Overview Map: World Topographic map service, ESRI 2012

CLIENT
 Jerry Kelly and Yvonne Atwell
 Balance of land Argyll Heights Estate
 Gledhow, WA 6330

Works Program Argyll Heights

BAL Assessor	KK	QA Check	KK	Drawn by	BT
STATUS	FINAL	FILE	MSC0232	DATE	30/08/2019

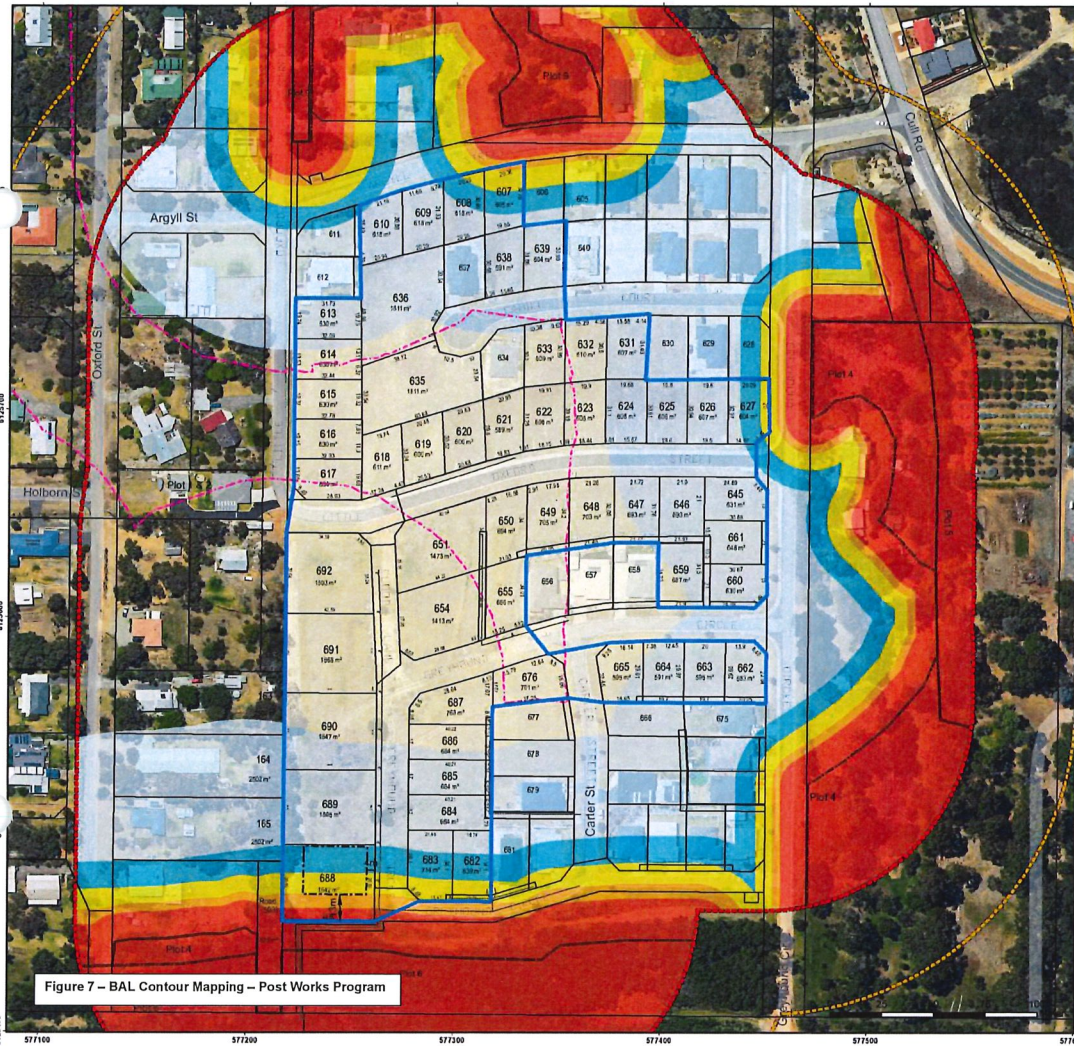


Figure 7 – BAL Contour Mapping – Post Works Program

This BAL Plan was prepared by
 Kathryn Kinnear, Bio Diverse Solutions
 Accreditation No. BPA030764
 Jurisdiction Level 2 - WA

BPAD
 Planning & Design
 Accredited Practitioner
 Level 2

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Overview Map Scale 1:100,000

Legend

- Subject Site
- 100m Assessment Boundary
- 150m Assessment Boundary
- Cadastre
- WA BushfireProneAreas_20190601
- Separation Distance
- Building Envelope

BAL Contours

- BAL-FZ
- BAL-40
- BAL-29
- BAL-19
- BAL-12.5
- BAL-LOW

Scale
 1:1,750 @ A3
 GDA MGA 94 Zone 50

Data Sources
 Aerial Imagery: WA Now, Landgate Subscription Imagery
 Cadastre: Real Boundaries and Roads Landgate 2017
 RIS Road Network: Main Roads Western Australia 2017
 Climate Map: World Topographic map service, ESRI 2012

CLIENT
 Jerry Kelly and Yvonne Atwell
 Balance of land Argyle Heights Estate
 Gledhow, WA 6330

BAL Contour Map - Post Works Program

BAL Assessor KK	QA Check KK	Drawn by BT
STATUS FINAL	FILE MSC0232	DATE 04/10/2019

SECTION 4: Identification of Bushfire Impacts

The potential bushfire impacts to the subject site are from the external hazards to the north, south, east and west. Forest Type A and Woodland Type B present 'Extreme' Bushfire Hazard Level as defined by WAPC Guideline's for Planning in Bushfire Prone Areas (WAPC, 2017). Setbacks to the lots can be achieved via the external road layout of the subject site's road network, excepting along the western side of the development. The updated Local Development Plan (LDP) Figure indicates larger lots are proposed along the western edge of the subdivision (44m in depth) and allow for BAL 29 to be achieved within the Lot 688. Refer to Figure 6 – Works Program.

Access to the site is from alternative directions to the north, south and to the west along the established road reserves. Public roads are proposed to complete the internal subdivision construction in Stage 5 works. The public roads measure between 12-16m and is noted that have been previously approved through the subdivision process by the City of Albany (WAPC 15149).

SECTION 5: ASSESSMENT TO GUIDELINES FOR PLANNING IN BUSHFIRE PRONE AREAS

The Bushfire Protection Criteria have been provided by WAPC in the "Guidelines for Planning in Bushfire Prone Areas" (WAPC, 2017) to assist the assessment of the proposal in bushfire prone areas. The BMP report assesses the proposal to the "Acceptable Solutions" of the four elements a summary of this assessment is outlined below (Table 2).

Table 2: Bushfire protection criteria applicable to the site

Element	Acceptable Solution	Applicable or not Yes/No	Meets Acceptable Solution
Element 1 – Location	A1.1 Development Location	Yes	<p>Compliant.</p> <p>BAL 29, 19 or 12.5 will apply to any future buildings on site depending on final location of proposed dwelling. Lot 688 has a small area of BAL FZ and BAL 40 which will remain in perpetuity and building is to be excluded from this area. However, the lot is large enough (1642m²) whereby BAL 29 can apply to a future building. The proposed "Works Program" (Figure 6) will be implemented in Spring 2019 during subdivision construction phases. The works program has been agreed to in principle by the City of Albany. It is noted that the lots along Little Oxford Street (backing on the development) are subject to the CoA Fire Management Notice. It is recommended that an updated BAL Assessment/Certification of individual buildings is prepared by the new lot owners prior to building approval.</p> <p>Proposal meets Acceptable Solution A1.1</p>
Element 2 – Siting and Design	A2.1 Asset Protection Zone	Yes	<p>Compliant.</p> <p>Asset Protection Zone (APZ) will apply to the whole of the lots and subject site as they are urban (<1000m²) lots. The existing urban areas and external roads to the development ensure the APZ is located within the parent lot meeting the acceptable solutions. The CoA Fire Management Notice requires all urban lots to be fuel reduced at all times. Management of the balance of land/titles in ownership by the developer is to be WAPC APZ standards at all times. Any landscaping/streetscaping is to conform to WAPC APZ standards. Refer to the standard Appendix 1.</p> <p>Plan of subdivision deemed compliant to Acceptable Solution A2.1</p>
Element 3 – Vehicular Access	A3.1 Two Access Routes	Yes	<p>Compliant.</p> <p>Access is via driveways (existing) onto the established and future road reserves. All internal road reserves are constructed excepting the western access of Greyhound Circle which will be constructed in 2019/20 construction periods and therefore link all road reserves in the plan of subdivision. Under the Local Development Plan Flood Lane may only be constructed as a pedestrian access, this does not affect two-way access for the lots. Access from the subdivision is via existing linking roads to the north east and west. Refer to the Access Plan Figure 8.</p> <p>Plan of subdivision deemed compliant to Acceptable Solution A3.1</p>

Table 2 cont.

Element	Acceptable Solution	Applicable or not Yes/No	Meets Acceptable Solution
Table Element 3 – Vehicular Access cont.	A3.2 Public Road	Yes	Compliant. Linking public roads are proposed to complete the subdivision construction in Stage 5 works. The public roads measure between 12-16m and are noted to have been previously approved through the subdivision process by the City of Albany (WAPC 15149). Plan of subdivision deemed compliant to Acceptable Solution A3.2.
	A3.3 Cul-de-sacs	Yes	No cul-de-sacs are proposed in the plan of subdivision. It is noted that temporary cul-de-sacs occur at the end of Greyhound Circle, these are currently a minimum of 17.5m in width to enable heavy vehicles to turnaround. It is noted that the public road network has been previously approved through the subdivision process by the City of Albany (WAPC 15149). The temporary cul-de-sacs meet the minimum requirements of Table 3, Column 1. Plan of subdivision deemed compliant to Acceptable Solution A3.3.
	A3.4 Battle axes	No	No battle axes are proposed. Not assessed to A3.4.
	A3.5 Private driveways	Yes	Compliant. Driveway crossovers will be implemented by the new lot owners and are to be to the standards as outlined in Table 3, Column 2. Plan of subdivision deemed compliant to Acceptable Solution A3.5.
	A3.6 Emergency Access Ways	No	No EAWs proposed as the public road network will be utilised. Not assessed to A3.6.
	A3.7 Fire Service Access Ways	No	No FSA's proposed as the public road network will be utilised. Not assessed to A3.7.
	A3.8 Firebreaks	Yes	Compliant. Noted installed on site and compliant, some trimming to 4.5m vertical clearance is required along the western boundary to be compliant to the CoA Fire Management Notice. Urban lots once constructed/developed do not require firebreaks. Plan of subdivision deemed compliant to Acceptable Solution A3.8.

Table 2 cont.

Element	Acceptable Solution	Applicable or not Yes/No	Meets Acceptable Solution
Element 4 – Water	A4.1 Reticulated areas	Yes	Compliant. The development will be provided with reticulated scheme water in accordance with the specifications of the relevant water supply authority (Water Corporation WA) (WCWA). This is detailed in the approved engineering drawings and subject to approval from WCWA and the CoA at subdivision condition and clearance stages, meeting the Acceptable Solution. Fire hydrant (street) outlets are required, these must be installed to WCWA standards installed in accordance with the Water Corporation's No 63 Water Reticulation Standard and are to be identified by standard pole and/or road markings and installed by the Developer. The plan of subdivision deemed compliant to Element 4.1.
	A4.2 Non-reticulated areas	No	Not assessed to A4.2.
	A4.3 Individual lots in non-reticulated areas	No	Not assessed to A4.3.

Table 3 –Vehicular Access Technical Requirements (WAPC, 2017)

Technical requirements	Cul-de-sac	Private Driveways
Minimum trafficable surface (m)	6m	4m
Horizontal clearance (m)	6m	6m
Vertical clearance (m)	4.5m	4.5m
Maximum grades	1 in 10	1 in 10
Minimum weight capacity (t)	15	15
Maximum crossfall	1 in 33	1 in 33
Curves minimum inner radius (m)	8.5	8.5

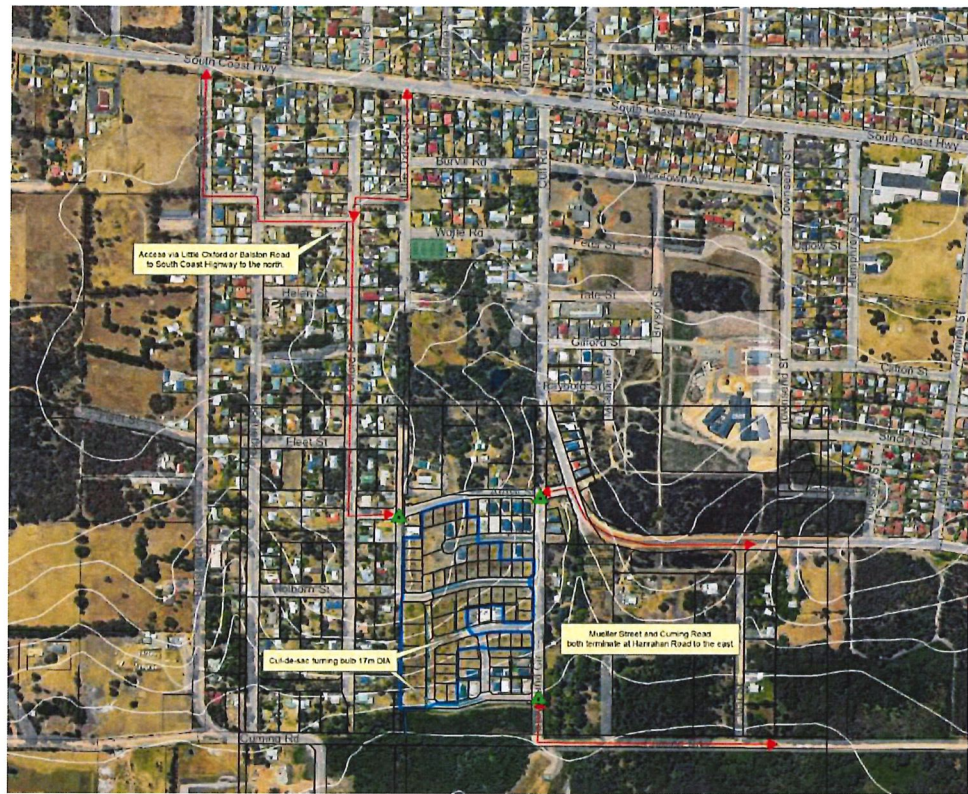


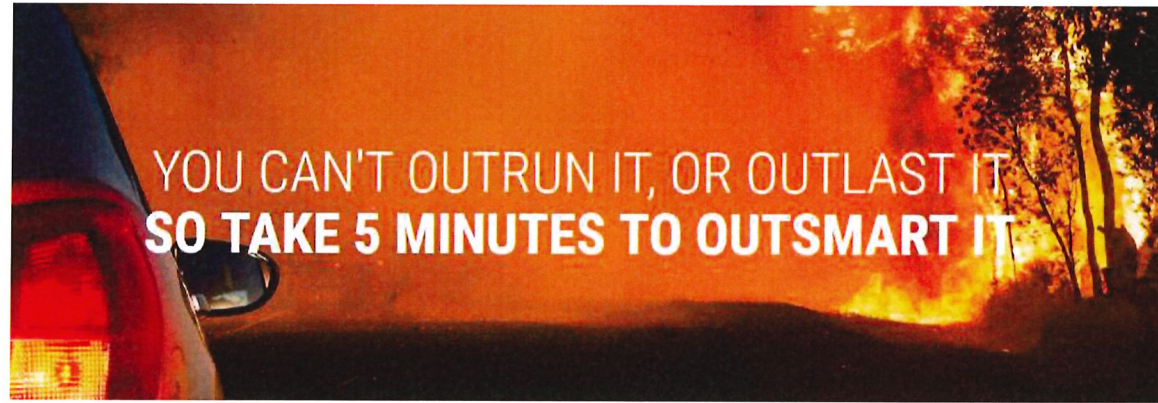
Figure 8 – Access Plan

Individual Bushfire Plan

Residents should prepare their own individual fire plans, as they need to make a commitment to develop a bushfire survival plan detailing preparations and actions to take if a bushfire threatens. By compiling information as outlined above, the individual lot owner can be prepared for their response in a bushfire emergency. Home owners should not rely on emergency personnel to attend their home and thus it is stressed to prepare an individual bushfire emergency plan regarding their intentions and property. This Bushfire Management Plan is not an individual bushfire emergency plan. More information can be gained from the DFES website (s):

www.dfes.wa.gov.au

www.emergency.wa.gov.au



www.emergency.wa.gov.au

**ARE YOU
BUSHFIRE
READY?**

www.emergency.wa.gov.au



**5 MINUTE
FIRE
CHAT**

- 1 WHEN** will you know to leave?
- 2 WHERE** will you go?
- 3 WHICH** way will you go?

SECTION 6: IMPLEMENTATION ACTIONS

The responsibilities of the developer(s), Landowners and local government are shown in Table 4.

Table 4 – Implementation Actions

Developer – Prior to issue of titles		
No	Implementation Action	Subdivision Clearance
1	Provide a BAL Contour Plan to prospective buyers indicating they are in a bushfire prone area and the lots may be subject to construction to BAL and AS38959.	<input type="checkbox"/>
2	Maintain APZ standards across the balance of land until Lots are relinquished to new owners. Any replanting, revegetation and landscaping across the subject site is to be to as per WAPC APZ standards (See Appendix 1).	<input type="checkbox"/>
3	Ensure any temporary cul-de-sacs are a 17.5m wide (established) to enable emergency services to manoeuvre around the subdivision.	<input type="checkbox"/>
4	Ensure compliance to the CoA Fire Management Notice through trimming trees along firebreaks to a minimum of 4.5m vertical clearance.	<input type="checkbox"/>
5	Ensure reticulated water is supplied in accordance with the Water Corporation's No 63 Water Reticulation Standard and hydrants are to be identified by standard pole and/or road markings.	<input type="checkbox"/>
6	Alert prospective buyers of the lots of the approved BMP report.	
New Lot owners		
No	Implementation Action	
1	BAL certification at Building Approval stages on any proposed habitable buildings. Buildings to be located in BAL 29, BAL 19 and BAL 12.5 zones. Increased construction standards to BAL and AS3959 applies to buildings located in the WA bushfire Prone Area Mapping.	<input type="checkbox"/>
2	APZ standards to apply to WAPC standards (See Appendix A) and maintained by individual lot owners at all times.	<input type="checkbox"/>
3	A driveway cross over to be designated/ installed for access into the lots to the minimum technical standards as required by WAPC. To be demonstrated to CoA at Planning approval/building approval stages.	<input type="checkbox"/>
4	Individuals are recommended to prepare individual Bushfire Emergency Plans, see www.emergency.wa.gov.au	<input type="checkbox"/>
CoA		
No	Implementation Action	
1	Request BAL certification at Building Approval stages on any proposed habitable buildings. Buildings to be located in BAL 29, BAL 19 and BAL 12.5 zones. Increased construction standards to BAL and AS3959 applies to buildings located in the WA bushfire Prone Area Mapping.	<input type="checkbox"/>
2	A driveway cross over to be designated/ installed for access into the lots to the minimum technical standards as required by WAPC. To be demonstrated to CoA at Planning approval/building approval stages.	<input type="checkbox"/>
3	Ensure reticulated water is supplied in accordance with the Water Corporation's No 63 Water Reticulation Standard and hydrants are to be identified by standard pole and/or road markings.	<input type="checkbox"/>

SECTION 7: DISCLAIMER

The recommendations and measures contained in this assessment report are based on the requirements of the Australian Standards 3959-2009 – Building in Bushfire Prone Areas, WAPC State Planning Policy 3.7 (WAPC, 2015), WAPC Guidelines for Planning in Bushfire Prone Areas (WAPC, 2015), and CSIRO's research into Bushfire behaviour. These are considered the minimum standards required to balance the protection of the proposed dwelling and occupants with the aesthetic and environmental conditions required by local, state and federal government authorities. They DO NOT guarantee that a building will not be destroyed or damaged by a bushfire. All surveys and forecasts, projections and recommendations made in this assessment report and associated with this proposed dwelling are made in good faith on the basis of the information available to the fire protection consultant at the time of assessment. The achievement of the level of implementation of fire precautions will depend amongst other things on actions of the landowner or occupiers of the land, over which the fire protection consultant has no control. Notwithstanding anything contained within, the fire consultant/s or local government authority will not, except as the law may require, be liable for any loss or other consequences (whether or not due to negligence of the fire consultant/s and the local government authority, their servants or agents) arising out of the services rendered by the fire consultant/s or local government authority.

AS3959-2009 disclaimer: It should be borne in mind that the measures contained within this Standard (AS3959-2009) cannot guarantee that a building will survive a bushfire event on every occasion. This is substantially due to the unpredictable nature and behaviour of fire and extreme weather condition.

Building to AS3959-2009 is a standard primarily concerned with improving the ability of buildings in designated bushfire prone areas to better withstand attack from bushfire thus giving a measure of protection to the building occupants (until the fire front passes) as well as to the building itself.

(AS3959, 2009)

SECTION 8: Certification

I hereby certify that I have undertaken the assessment of the above site and determined the Bushfire Attack Level stated above in accordance with the requirements of AS 3959-2009 (Incorporating Amendment Nos 1, 2 and 3) and the Guidelines for Planning in Bushfire Prone Areas Ver. 1.3 (WAPC, 2017).

SIGNED, ASSESSOR: ...



..... DATE:

4/10/2019

Kathryn Kinnear, Bio Diverse Solutions
Accredited Level 2 Bushfire Practitioner (Accreditation No: BPAD30794)



References

AS 3959-2009 Australian Standard, Construction of buildings in bushfire-prone areas, Building Code of Australia, Primary Referenced Standard, Australian Building Codes Board and Standards Australia.

Department of Fire and Emergency Services Bushfire ready website, accessed 15/1/2019 from:
www.emergency.wa.gov.au

Western Australian Planning Commission (WAPC) (2017) Guidelines for Planning in Bushfire Prone Areas Version 1.3. Western Australian Planning Commission and Department of Planning WA, Government of Western Australia.

Western Australian Planning Commission (WAPC) (2015) State Planning Policy 3.2 Planning in Bushfire Prone Areas. Department of Planning WA and Western Australian Planning Commission.

State Land Information Portal (SLIP) (2018) Map of Bushfire Prone Areas. Office of Bushfire Risk Management (OBRM) data retrieved from:
<https://maps.slip.wa.gov.au/landgate/bushfireprone/>

REVISION RECORD

Revision	Summary	Revised By	Date
DRAFT ID 17/1/2019	Internal QA review	Bianca Theyer	17/1/2019
DRAFT ID 17/1/2019	Draft issued to client for review	Kathryn Kinnear	17/1/2019
FINAL ID 21/1/2019	Issued to client as final	Kathryn Kinnear	21/1/2019
FINAL ID Vers 2 2/9/2019	Issued to Client as final	Kathryn Kinnear	2/9/2019
FINAL ID Vers 3 10/9/2019	Issued to Client as final	Kathryn Kinnear	10/9/2019
FINAL ID Vers 4 04/10/2019	Issued to Client as final	Kathryn Kinnear	04/10/2019

Appendix 1
WAPC Asset Protection Zone (APZ) standards to apply

An Asset Protection Zone (APZ) is an area surrounding a building that is managed to reduce the bushfire hazard to an acceptable level (WAPC, 2017). This is also defined as a “defendable zone”. Any replanting, revegetation and landscaping across the lots is to be to an APZ standard as per WAPC Guidelines V 1.3 (WAPC, 2017) as outlined below.

WAPC Guidelines for an APZ (WAPC, 2017)

Fences: within the APZ are constructed from non-combustible materials (e.g. iron, brick, limestone, metal post and wire). It is recommended that solid or slatted non-combustible perimeter fences are used.

Objects: within 10 metres of a building, combustible objects must not be located close to the vulnerable parts of the building i.e. windows and doors.

Fine Fuel load: combustible dead vegetation matter less than 6 millimetres in thickness reduced to and maintained at an average of two tonnes per hectare.

Trees (> 5 metres in height): trunks at maturity should be a minimum distance of 6 metres from all elevations of the building, branches at maturity should not touch or overhang the building, lower branches should be removed to a height of 2 metres above the ground and or surface vegetation, canopy cover should be less than 15% with tree canopies at maturity well spread to at least 5 metres apart as to not form a continuous canopy. See Figure 9 (WAPC Figure 16, Appendix 4) below.

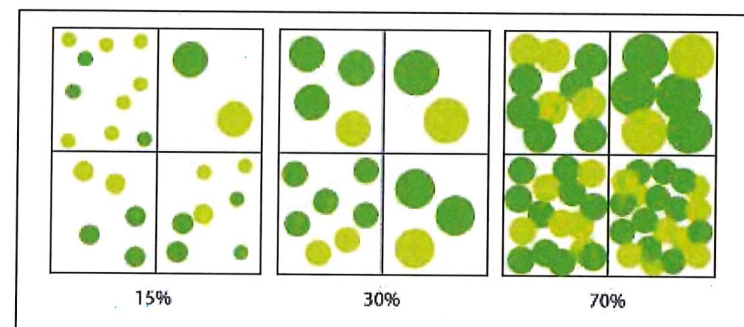


Figure 9: Tree Canopy Coverage – ranging from 15 to 70% at maturity (WAPC, 2017)

Shrubs (0.5 metres to 5 metres in height): should not be located under trees or within 3 metres of buildings, should not be planted in clumps greater than 5m² in area, clumps of shrubs should be separated from each other and any exposed window or door by at least 10 metres. Shrubs greater than 5 metres in height are to be treated as trees.

Ground covers (<0.5 metres in height): can be planted under trees but must be properly maintained to remove dead plant material and any parts within 2 metres of a structure, but 3 metres from windows or doors if greater than 100 millimetres in height. Ground covers greater than 0.5 metres in height are to be treated as shrubs.

Grass: should be managed to maintain a height of 100 millimetres or less.

(WAPC, 2017).