



Bushfire Protection Assessment

Commercial & Industrial Property Pty Ltd

Bringelly Road Business Hub

14 November 2018



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1 Property and proposal

Table 1: Subject site summary

Street address or property name:	Proposed Lot 8, Skyline Crescent, Bringelly Road Business Hub		
Suburb, town or locality:	Horningsea Park	Postcode:	2171
Lot/DP no:	Part Lot 10 DP 29104		
Local Government Area:	Liverpool City Council		
Zoning:	State Significant Development		
Type of development:	Commercial Development		

1.1 Description of proposal

The proposal is for the construction and operation of a light industrial building within the Bringelly Road Business Hub (the site boundary – see **Figure 1**). The proposal will be located on proposed Lot 8 (subject land) of the Bringelly Road Business Hub and will include ancillary office space, car parking and landscaping (**Figure 1**). The site is located in the Western Sydney Parklands, which are identified as a State Significant Site in Schedule 2 of *State Environmental Planning Policy (State and Regional Development) 2011*.

The light industrial building will be used as a warehouse and distribution base for *Steelforce*, distributors of structural steel products. Proposed operations will include:

- Storage;
- Dispatch and distribution; and
- Ancillary office administration.

1.2 Assessment process

The proposal is for a State Significant Development and an Environmental Impact Statement (EIS) (SSDA17_8900) was prepared by Ethos Urban (January 2018) in accordance with Part 4 of the *Environmental Planning and Assessment Act 1979*. This report forms part of an amendment to SSD8900 pursuant to clause 55 of the *Environmental Planning and Assessment Act 1979*.

This assessment is in accord with 'Planning for Bush Fire Protection 2006' (RFS 2006), herein referred to as PBP (See **Appendix A** for a summary of the assessment process).

Assessment included a review of background documentation, design team consultation, GIS analysis and a site inspection on 22 March 2018.

Table 2 identifies the bushfire protection measures assessed and whether these involved acceptable or performance solutions.

Table 2: Summary of bushfire protection measures assessed

Bushfire Protection Measure	Acceptable Solution	Performance Solution	Report Section
Asset Protection Zones	☒	☐	3.1
Construction standard	☒	☐	3.3
Access	☒	☐	3.4
Water supply	☒	☐	3.5
Gas and electrical supplies	☒	☐	3.5

1.3 Bush fire prone land status

The proposed development includes land classified as bush fire prone on the Liverpool City Council's bush fire prone land (BFPL) map¹.

¹ <https://www.planningportal.nsw.gov.au/find-a-property>

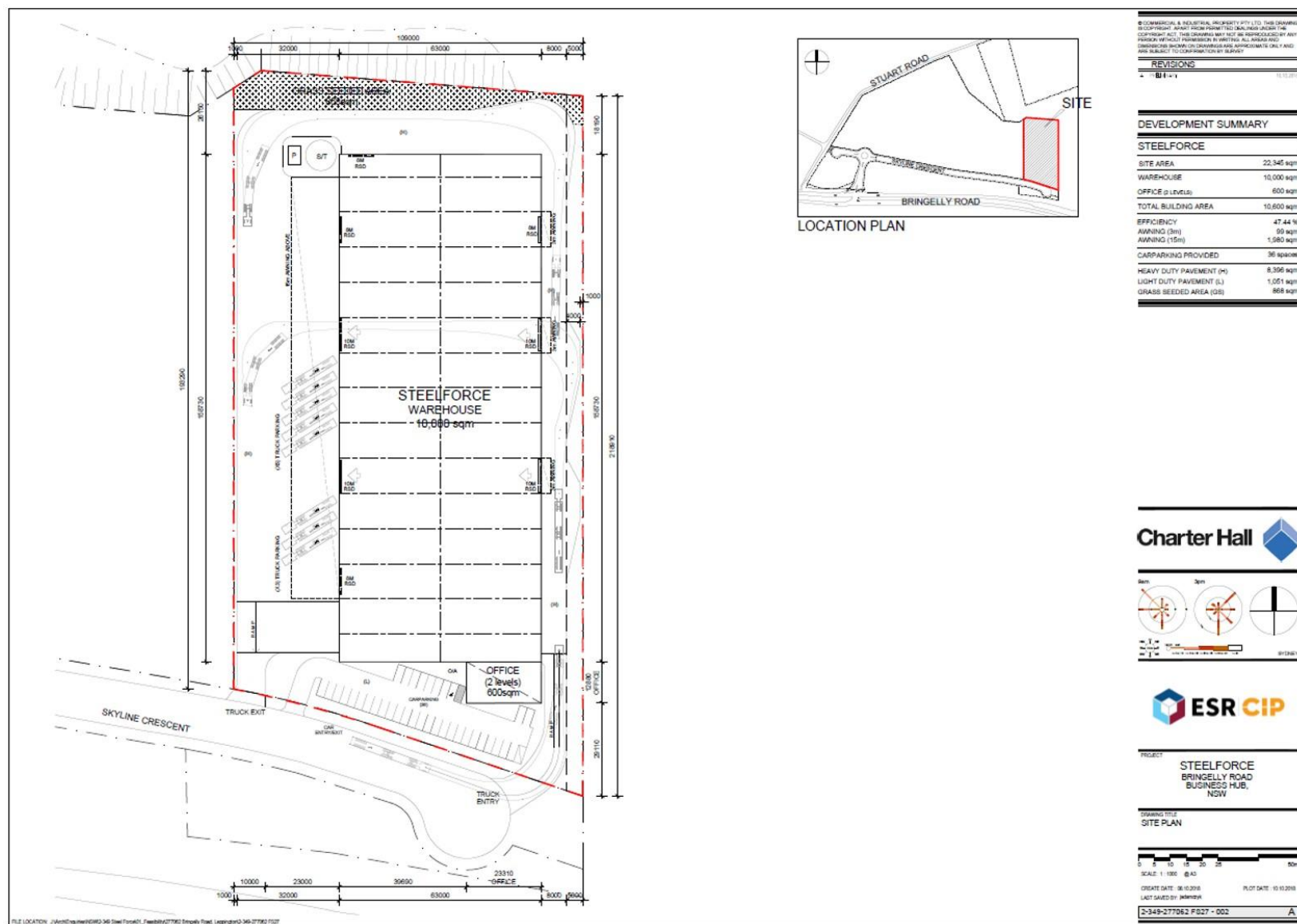


Figure 1: Bringelly Road Business Park site boundary

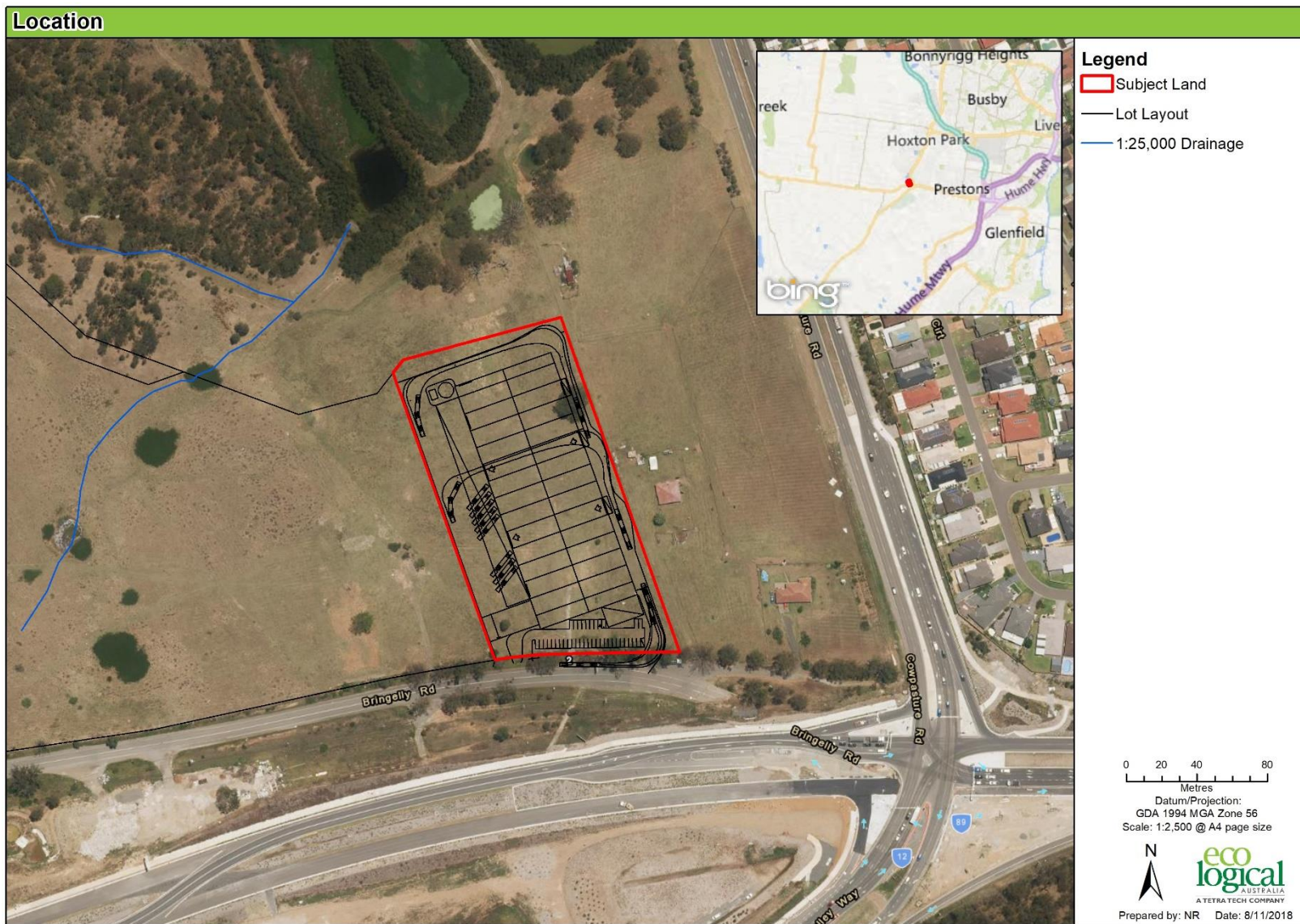


Figure 2: Development proposal

2 Bushfire threat assessment

2.1 Assessment requirements

The subject land is mapped as Bush Fire Prone by Liverpool City Council. As the development does not involve habitable dwellings or Special Fire Protection Purpose (SFPP) development it is to be assessed by Council under the provision of Section 4.14 (previously 79BA) of the *Environmental Planning and Assessment Act 1979* (EP&A Act), which includes the consideration of the NSW Rural Fire Service (RFS) document *Planning for Bush Fire Protection 2006* (NSW RFS 2006), referred to within this report as 'PBP'.

The following detailed assessment is strictly based on the methodology and requirements of PBP and supporting RFS policy.

As stated within Section 4.3.6.f of PBP, the Building Code of Australia (BCA) does not provide for any bushfire specific performance requirements for the development type proposed. As such the Asset Protection Zone (APZ) and building construction requirements of PBP and AS 3959-2009 *Construction of buildings in bushfire-prone areas* do not apply as deemed-to-satisfy provisions for bushfire protection. PBP notes, the general building fire safety provisions required by the BCA for the type of development proposed are accepted by PBP and RFS as acceptable solutions for the protection of occupants and the building from bushfires. However, the aim and objectives of PBP still apply in relation to other matters of access, the provision of water and other services, emergency planning and landscaping.

2.2 Vegetation types

Figure 3 shows the effective slope and predominant vegetation on transect lines representing the highest bushfire threat potentially posed to the proposed development from various directions.

The effective slope has been determined from 2 m contour data and revised where required by site assessment.

The predominant vegetation has been determined by site assessment. The riparian corridor is Cumberland Plain Woodlands, with all other areas managed or under development.

The Landscape masterplan for the overall site exhibited as part of the EIS proposes estate entry landscaping up to 15 m in width, internal access road landscaping, and the establishment of a 5 m wide landscape buffer around the site's western, northern and eastern boundaries. Landscaped areas are proposed to consist of landscaped swales with low level groundcovers, native grasses and shrubs and contain a range of native tree plantings (e.g. Forest Red Gum, Spotted Gum and Grey Box) that would reach between 20 m and 35 m height at maturity.

A supplementary Concept Landscape Master Plan provided further details of boundary and estate entry landscape treatments, and clarified that the northern boundary would have an earth batter no greater than 1:4 to match existing natural levels, and included a landscaped swale to manage stormwater entering the Bedwell Park wetland. This area would comprise a mixture of native groundcovers, grasses, shrubs and trees that would complement the existing vegetation within the adjacent wetland area.

The Developer is responsible for the repair and maintenance of the riparian corridor and Bedwell Park wetlands until the commencement of the final ground lease) or the end of August 2022. From then it will be the Landlord (WSPT) to oversee any maintenance required by Council or any other relevant authorities. **Figure 3** and **Table 3** show the vegetation and slope information assessed.

The site is located within the Local Government Area (LGA) of Liverpool City Council and has a Fire Danger Index (FDI) of 100.

2.3 Effective Slope

In accord with PBP the slope that would most significantly influence fire behaviour was determined over a distance of 100 m from the proposed development where the vegetation was found. **Figure 3** shows the transect along which slope was assessed. The slope along Transect 1 is in the PBP category of '>0-5 degrees downslope'.

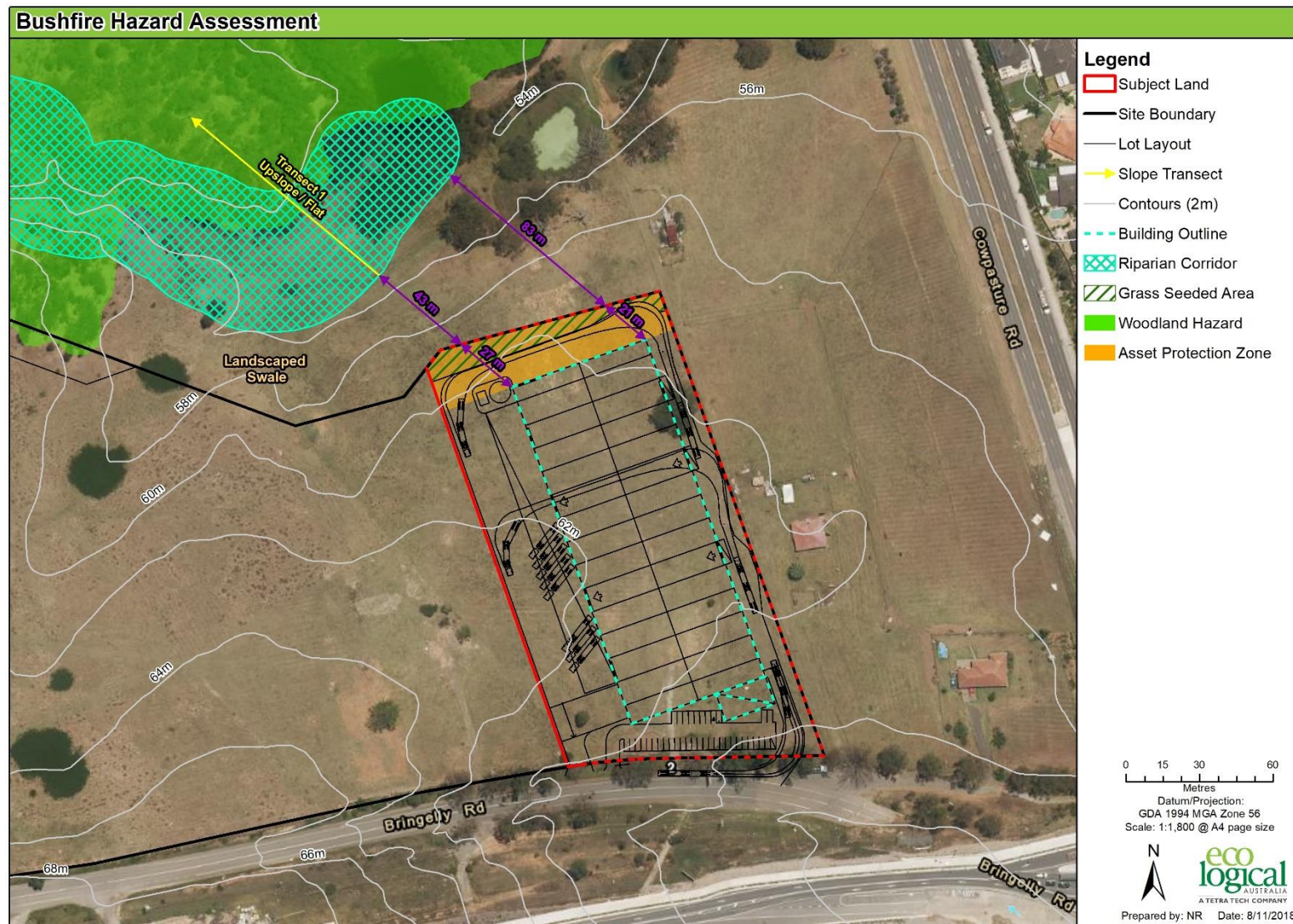


Figure 3: Bushfire hazard assessment and Asset Protection Zones (APZ) for overall site

3 Bushfire protection measures

3.1 Asset Protection Zones (APZ)

Consistent with the objectives of PBP, a minimum defensible space should be provided within the subject site. In this case the separation distance between the bushfire prone vegetation on the northern boundary and the outer wall of the proposed buildings varies from 70 m to 104 m as shown in **Figure 3**. This includes an APZ of between 21 m and 27 m within the Subject Land, and an additional separation of 43 m to 83 m as part of the broader management area of the business park area, which includes landscaped swales between the site boundary and riparian corridor.

Table 3 shows the dimensions of the APZ available in each of the transect line directions; and where relevant, information on how the APZ is to be provided is included

The Developer is responsible for the repair and maintenance of the riparian corridor and Bedwell Park wetlands until the commencement of the final ground lease) or the end of August 2022. From then it will be the Landlord (WSPT) to oversee any maintenance required by Council or any other relevant authorities.

3.2 APZ maintenance plan

Where the APZ is to be established it is to be managed to Inner Protection Area standards as follows:

- No tree or tree canopy is to occur within 2 m of the future building rooflines;
- The presence of a few shrubs or trees in the APZ is acceptable provided they:
 - Are well spread out and do not form a continuous canopy;
 - Are not species that retain dead material or deposit excessive quantities of ground fuel in a short period or in a danger period; and
 - Are located far enough away from the building so that they will not ignite future buildings by direct flame contact or radiant heat emission.
- Any landscaping or plantings should preferably be local endemic mesic species or other low flammability species;
- A minimal ground fuel is to be maintained to include less than 4 tonnes per hectare of fine fuel (fine fuel means ANY dead or living vegetation of <6 mm in diameter e.g. twigs less than a pencil in thickness. 4 t/ha is equivalent to a 1 cm thick layer of leaf litter); and
- Any structures storing combustible materials such as firewood (e.g. sheds) must be sealed to prevent entry of burning debris.

Further details on APZ implementation and management can be found on the NSW RFS website including:

https://www.rfs.nsw.gov.au/_data/assets/pdf_file/0010/13321/Standards-for-Asset-Protection-Zones.pdf.

Table 3: Bushfire hazard assessment and APZ requirements

Lot # OR direction from development boundary	Transect #	Slope	Vegetation	PBP residential APZ (PBP 2006)	Available APZ	AS 3959- 2009 Bushfire Attack Level (BAL)	Comments
North-west	1	Downslope >0 to 5 degrees	Woodland	15 m	> 21 m	BAL-12.5	The available defensible space is provided by the access arrangements and maintained landscaping (grass seeded area) within the subject land

3.3 Construction standard

The building construction standard is based on the determination of the Bushfire Attack Level (BAL) in accordance with Method 1 of *Australian Standard AS 3959-2009 'Construction of buildings in bushfire-prone areas'* (Standards Australia 2009). The BAL is based on known vegetation type, effective slope, and separation distance between the development and the bushfire hazard. Site specific inputs including the effective slope and fuel loads for the riparian corridor (Cumberland Plain Woodland) (10/15 t/ha) vegetation classification as specified in PBP (RFS 2006).

The BCA does not require this type of building to comply with AS 3959-2009 so this should be used as a guide, often the nature of this construction type (i.e. industrial building using concrete tilt slab with metal roofing) meets these requirements of AS 3959-2009. Where not possible to directly meet this residential construction standard, the intent of the measure should be addressed. The industrial nature of the proposed building will achieve this.

The building footprint of the development is 70 to 104 metres from the nearest bushfire hazard (woodland) and is therefore BAL-12.5 in accordance with AS 3959-2009.

The BAL assessment above provides an understanding of the bushfire attack the development could experience in a worst-case bushfire scenario and provides a platform on which to develop any further recommendations specific to the bushfire threat or the proposed built structures, if deemed appropriate.

It is accepted practice and RFS position to ensure the following ember protection measures are included within the design and construction of buildings which will be within 100 m of the bushfire hazard:

- Weepholes, vents and openable portions of windows be screened against the entry of embers with steel mesh with maximum aperture of 2 mm;
- Weather strips or similar measure to external doors to prevent the entry of embers through gaps greater than 3 mm; and
- Nylon brush seals or similar measure around roller doors to prevent the entry of embers through gaps greater than 3 mm.

3.4 Access

Vehicular access to the site is available from Skyline Crescent with separate entrance and exit points provides for cars and trucks. Truck ingress and egress points are located on either side of the site, adjacent the eastern and western boundaries, and are connected by a hardstand parking and circulation area surrounding the warehouse. Between the two truck access points is a one-directional car park, whereby cars enter the site on the westernmost side and circle around to the exit which is located at the approximate centre of the front boundary.

The access arrangements will enable emergency vehicles to access the site in the event of an emergency.

3.5 Services – Water, electricity and gas

3.5.1 Water

The proposal will be serviced by a reticulated water supply and meets the PBP requirement for the provision of water for firefighting purposes in accordance with Australian Standard 2419.1 – 2005 Fire Hydrant Installations - System Design, Installation and Commissioning (Standards Australia 2005).

3.5.2 Electricity services

Electricity supply to / within the subject land is located underground and therefore complies with Section 4.1.3 of PBP.

3.5.3 Gas services

Any gas services are to be installed and maintained in accordance with Australian Standard AS/NZS 1596:2014 'The storage and handling of LP Gas' (Standards Australia 2014).

4 Assessment of environmental issues

A Flora and Fauna Assessment has been prepared in support of the proposed development (ELA 2014 *Flora and Fauna Assessment for the Bringelly Road Business Hub State Significant Development*) containing recommendations to mitigate potential impacts from the proposed development. Site impacts have been minimised by carefully selected bushfire protection measures. If required, the impact footprint of these measures e.g. APZ is clearly identified within this report and therefore capable of being clearly assessed by suitably qualified persons.

The Department of Planning and Environment is the determining authority for this development; they will assess more thoroughly any potential environmental and heritage issues.

5 Conclusion

The proposed development complies with the acceptable solutions within 'Planning for Bush Fire Protection 2006', (see **Table 2**).

Using Method 1 of AS 3959-2009 (Standards Australia 2009) demonstrates that the proposal is able to achieve BAL-12.5.

Table 4: Summary of bushfire protection measures assessed

Bushfire Protection Measures	Complies	Requirements	Acceptable Solution	Performance Solution	Report Section
Asset Protection Zones	☒	APZ dimensions are detailed in Table 3 and Figure 3	☒	☐	3.1
APZ Maintenance plan	☒	Identified APZ to be maintained in perpetuity to the detailed specifications in Section 3.2 .	☒	☐	3.2
Construction standard	☒	Maximum exposure of BAL-12.5 is achievable. Ember protection upgrades recommended as per Section 3.3.	☒	☐	3.3
Access	☒	Internal access to meet PBP acceptable solution specifications.	☒	☐	3.4
Water supply	☒	Reticulated water supply to meet PBP acceptable solution specifications.	☒	☐	3.5.1
Electricity service	☒	Electricity supply located underground.	☒	☐	3.5.2
Gas service	☒	Gas services are to be installed and maintained in accordance with AS/NZS 1596:2014.	☒	☐	3.5.3

6 Recommendations

The proposal consists of an industrial building with a 70 m to 104 m distance to a bushfire hazard. The development proposal complies with the aim and objectives of PBP for Industrial development (**Table 2**). The following recommendations are made:

- The following ember protection measures are to be included within the design and construction of the buildings:
 - Weepholes, vents and openable portions of windows be screened against the entry of embers with steel mesh with maximum aperture of 2 mm;
 - Weather strips to external doors or similar measure to prevent the entry of embers through gaps greater than 3 mm; and
 - Nylon brush seals around roller doors or similar measure to prevent the entry of embers through gaps greater than 3 mm.
- Landscaping to be managed to Inner Protection Area standards as per Section 3.2.

It is the author's professional opinion the bushfire protection requirements listed in this assessment provide an adequate standard of bushfire protection for the Industrial development, a standard that is consistent with *Planning for Bushfire Protection* (RFS 2006).



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7 References

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Standards Australia (SA). 2014. *The storage and handling of LP Gas*, AS/NZS 1596:2014. SAI Global, Sydney.

Appendix A – Assessment process

Vegetation types

In accord with PBP the predominant vegetation class has been assessed for a distance of at least 140 m from the subject land in all directions.

Effective slope

In accord with PBP, the slope that would most significantly influence fire behaviour was determined over a distance of 100 m from the boundary of the proposed development where the vegetation was found.

Asset Protection Zone determination

Table A2.6 (FDI 100) of PBP has been used to determine the width of required Asset Protection Zone (APZ) for the proposed development using the vegetation and slope data identified in **Section 2**.



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