



NSW Department of Justice
Dillwynia Correctional Centre and Outer Metropolitan
Multi Purpose Correctional Centre
Bushfire Assessment

November 2018

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1. Introduction

GHD was commissioned by the Department of Justice to provide a bushfire assessment in relation to a proposed capacity expansion of the John Morony Corrections Complex, including Dillwynia Correctional Centre (DCC), and the Outer Metropolitan Multi Purpose Correctional Centre (OMMPCC).

1.1 Applicant and Property details

The applicant and property covered by this bushfire report are:

| | |
|------------|---|
| Proponent: | NSW Government – Department of Justice |
| Owner: | NSW Government |
| Council: | Penrith City Council |
| Property: | Lot 1 DP 740367 |
| Address: | 2, The Northern Road, Berkshire Park, NSW |

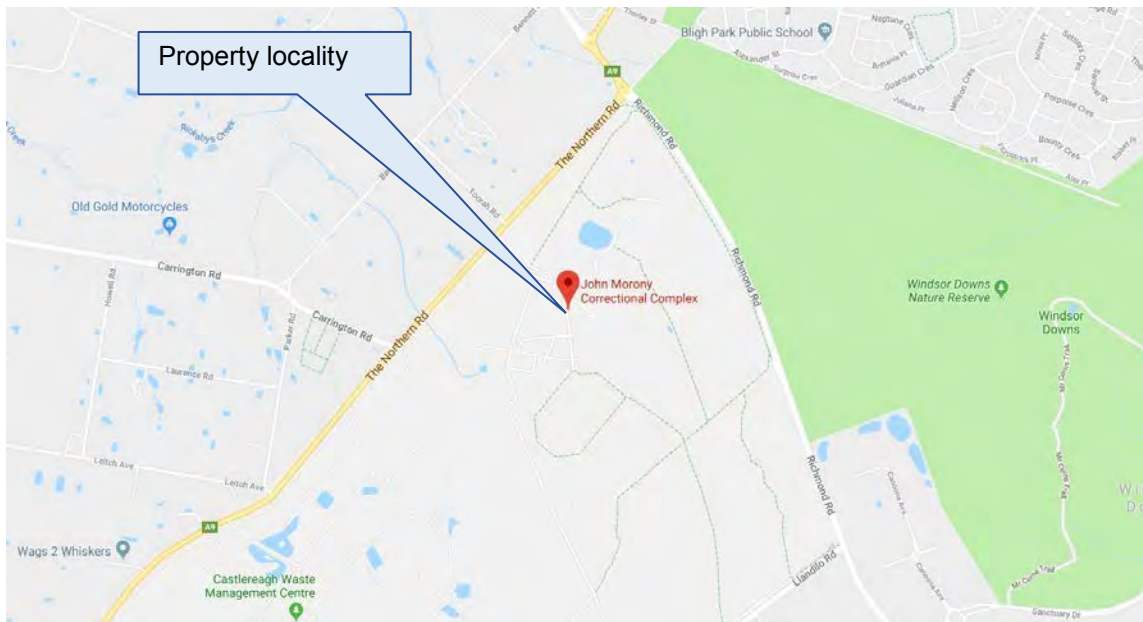


Figure 1-1 Site Location

1.2 Type of proposal

Broadly, the proposal comprises construction of new inmate accommodation and facilities buildings, parking spaces and landscaping.

The proposed construction of accommodation buildings, entails building occupancy densities which are higher than ordinary residential developments, and present bushfire evacuation challenges due to the particular use of the facility. Hence the development can reasonably be considered to have bushfire management issues in common with *Special Fire Protection Purpose* development (SFPP) development - as defined by Planning for Bushfire Protection (RFS, 2006). Standards for bushfire protection measures for SFPP developments are higher than for non-SFPP developments. Of particular note for this development, achievement of Bushfire Attack Level (BAL) 10 is a noteworthy requirement.

1.3 Report

This report has been prepared in accordance Section 100B of the *Rural Fires Act* (1997) and Section 91 of the *Environmental Planning and Assessment Act 1997* (EP&A Act) to meet the aims and objectives of *Planning for Bushfire Protection 2006* (NSWRFS 2006) (PBP). This report is structured to correspond with the format recommended in Clause 46 of the Rural Fires Regulation 2002.

1.4 Planning for Bushfire Protection compliance – Summary

The bushfire protection measures proposed comply with the aims and objectives of *Planning for Bushfire Protection* (NSW RFS, 2006) through provision of:

- Building setbacks from bushfire-prone vegetation which meet or exceed full Asset Protection Zone requirements for SFPP development and which are already in place for all proposed buildings except for the south eastern-most accommodation block proposed in the OMMPPC. For this building, it is proposed to modify existing Castlereagh Scribbly Gum Woodland vegetation adjacent to the site to provide a SFPP-compliant 60 metre wide Asset Protection Zone;
- Building construction and design appropriate for Level 1 construction (Bushfire Attack Level (BAL) 12.5) is proposed;
- The existing JMCC internal access road network from The Northern Road entrance to JMCC provides two-way sealed access suitable for access by emergency service vehicles – access is provided to both DCC and OMMPPC;
- Both DCC and OMMPPC are serviced by existing mains water which can be accessed by fire and emergency services;
- Electrical services to DCC and OMMPPC is via underground services; and
- JMCC has an existing emergency bushfire response plan in place.

2. Site Information

2.1 Site and proposal description

DCC is a minimum/medium security correctional facility for female offenders. OMMPPCC is a minimum security institution for male offenders. Both correctional centres form part of the JMCC located at Berkshire Park, 5km south of Windsor.

As part of the NSW Government's Prison Bed Capacity Program, the NSW Department of Justice is proposing to expand DCC and refurbish OMMPPCC.

The proposed development involves:

- construction of a new accommodation and services compound east of and adjoining the existing DCC, the extension of the staff and visitor car park (referred to as 'the DCC proposal' for the purposes of this document), and
- construction of a new accommodation blocks at OMMPPCC, construction of a new gatehouse building, new administration/reception building and ancillary car park works (referred to as 'the OMMPPCC proposal' for the purposes of this document).

2.1.1 Dillwynia Correctional Centre

Development of the DCC site entails:

- construction of five new accommodation units with maximum security (three 48 bed-units and two 52-bed-units)
- construction of a management unit with 20 beds, consisting of 10 segregation cable beds and 10 observation beds
- refitting of main gate and reception area, including 8 assessment/ high risk CCTV monitored cells, to serve both new (maximum) and existing (medium) levels of security
- construction of new visits area with provision for maximum security
- construction of a new health centre, incorporating 3 observation/ assessment cells to support the inmates requiring further detailed medical assessment or support
- new education, programs and interview facilities including classrooms and library
- construction of a new kitchen (food retherm unit)
- construction of industries unit including laundry
- expansion of the gatehouse, including new master control room
- refurbishment and expansion of inmate reception in the existing centre to provide service to the whole centre within the maximum secure of the facility
- construction of new bulk stores
- construction of staff amenities
- expansion of staff and visitors car park

2.1.2 Outer Metropolitan Multi Purpose Correctional Centre

Development of the OMMPPCC site involves:

- construction of 2 medium security double storey 48 bed accommodation blocks and 3 minimum security double storey 48 bed accommodation blocks
- construction of one five-bed segregation unit

- construction of new administration and reception building
- construction of a new gatehouse
- construction of new fence from the existing fence across the clinic and around between the minimum security accommodation compound and extended security fence to meet up with new gatehouse

The proposed new accommodation buildings are classified as Class 3 (Detention Centre accommodation) in accordance with Part A3 of the Building Code of Australia.

2.2 Existing development at the site

Existing built areas within JMCC are a complex of buildings and structures within cleared, landscaped and maintained grounds principally occupying the southern part of the site.

The northern and eastern part of the site retains areas of native vegetation cover which trigger the inclusion of parts of the site within the bushfire prone area on Penrith City Council's Bushfire Prone Land Map (refer to Figure 2-1).

A site plan depicting the locations of the DCC and OMMPPCC sites, the proposed new building footprints, and the bushfire prone area is provided at Figure 1.

2.3 Bushfire prone land map

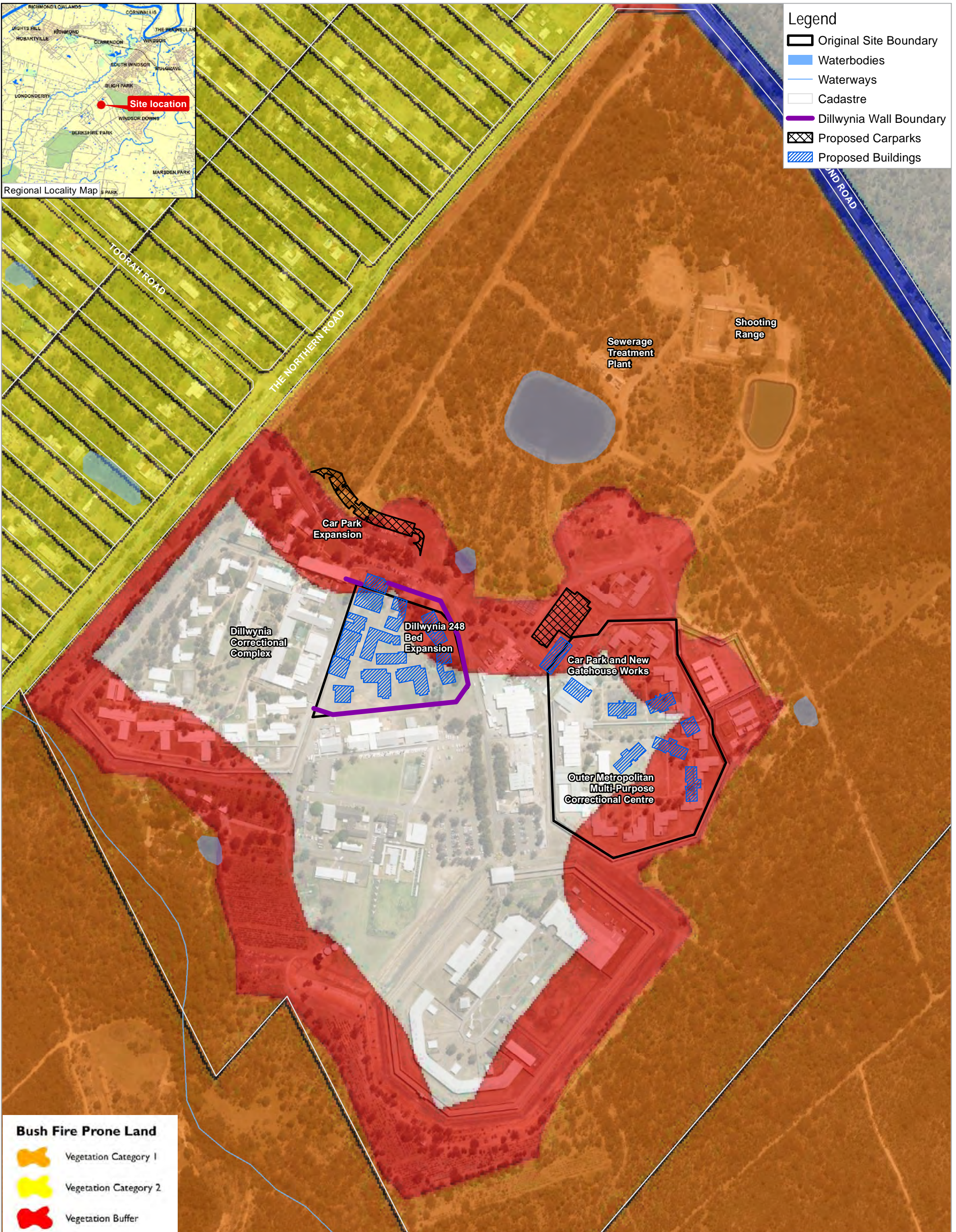
Both the DCC and OMMPPCC facilities are housed within separate security-fenced compounds which do not contain any areas of Category 1 or Category 2 vegetation.

However, the north-eastern portion of DCC falls within a 100 metre wide bushfire-buffer (depicted in red) extending from Category 1 vegetation (depicted in orange) located outside the DCC but within the JMCC property boundary.

Similarly, areas within the northern and eastern parts of the OMMPPCC fall within a 100 metre wide bushfire-buffer (depicted in red) extending from Category 1 vegetation (depicted in orange) located outside the OMMPPCC compound but within the JMCC property boundary.

Penrith City Council's bushfire-prone land map indicates parts of the property are considered not to be bushfire-prone (existing developed and cleared/landscaped area) more than 100 metres from retained forest vegetation – as depicted in white on the bushfire-prone land map).). Parts of the development within DCC and OMMPPCC sites are to be situated within 100 metres of and therefore fall within the 100 metre wide bushfire buffer.

Accordingly, buildings within, or partly within, the bushfire prone buffer will require bushfire protection measures satisfying the requirements of Planning for Bushfire Protection (NSWRFS, 2006) to be applied.



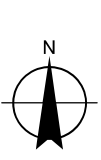
Data Disclaimer

Imagery - Department of Finance, Services & Innovation (2017)
 Bushfire Prone Land - Penrith City Council (Dated: 10/11/2014)

Paper Size ISO A3

0 50 100 150
Metres

Map Projection: Transverse Mercator
 Horizontal Datum: GDA 1994
 Grid: GDA 1994 MGA Zone 56



Department of Justice
 John Morony Correctional Complex
 Review of Environmental Factors

Project No. 21-27421
 Revision No. -
 Date 17 Sep 2018

Bushfire Prone Land

FIGURE 2-1

Vegetation assessment

Field inspections undertaken by GHD during August 2018 confirm that the vegetation types occurring immediately north of the DCC and immediately east of the OMMPPCC, within the area depicted on the Penrith City Council map as Category 1 vegetation, is Castlereagh Scribbly Gum Woodland (CSG Woodland). The CSG Woodland adjacent to the south-eastern perimeter security fence of the OMMPPCC has a tall (> 2 metres) dense shrub stratum consisting of sclerophyllous species.

For the purposes of bushfire assessment, the CSG Woodland in this location is classifiable as a Dry Sclerophyll Forest (Shrub/grass sub-formation) in accordance with Planning for Bushfire Protection (NSWRFS 2006) on the following basis:

- The overstorey strata is dominated by eucalypts within a 10 to 30 metre height range, with crowns that may touch or overlap;
- The understorey contains a prominent layer of hard-leaved shrubs, including a mixture of hard and soft-leaved plants; and
- The conspicuous presence of grasses in the understorey.

This vegetation formation can support high intensity bushfires, most likely burning as an understorey fire or fast moving crown fire. As the DCC and OMMPPCC sites are cleared, and only overlap with the outer edge of the bushfire buffer, the risk posed by this vegetation type is reduced principally to ember attack.

The CSG Woodland adjacent to the north-eastern perimeter security fence of the OMMPPCC has been modified, with characteristics consistent with an Asset Protection Zone – Outer Protection Area, in which the sclerophyllous shrub stratum has been removed, and the overstorey stratum has been thinned through removal of saplings and sub-dominant trees, with only dominant mature overstorey trees retained.

2.4 Slope assessment

As confirmed from site inspection using an inclinometer, the development site is situated on relatively flat topography, with landform under the adjacent bushfire prone vegetation within 140 metres of the site being flat. Accordingly, the appropriate effective slope category for bushfire attack level assessment is the “Upslope /Flat” category.

Slope within the vegetated area north of the development is not expected to have any significant effect on fire behaviour at the site.

2.5 Fire weather

The development site falls within Penrith City Council. The NSW RFS (2006) fire weather assessment assumes the worst case scenario (no mitigating factors). Penrith City Council being within the ‘Greater Sydney Region’ has a corresponding FDI rating of 100 (NSWRFS 2006).

2.6 Factors affecting bushfire behaviour

Noting that the areas of bushfire prone vegetation immediately north of the DCC and east of the OMMPPCC are on flat land, slope will have no material effect on bushfire behaviour at the site. The principal factors influencing bushfire behaviour are the state of bushfire fuel accumulation in adjacent forest vegetation, and the weather prevailing at the time a fire is burning within the JMCC site.

Planning for Bushfire Protection assumes that for Dry Sclerophyll (Open) Forest types, 25 tonnes per hectare of fuel is present, this being the total fuel load present in ground and understorey strata (surface, near-surface and elevated fuel strata, inclusive of bark). Fuel loads and understorey vegetation characteristics in unmodified CSG Woodland at the site are consistent with Planning for Bushfire Protection fuel load assumptions.

On the basis of the DCC and OMMPPCC site locations in relation to the location of adjacent bushfire hazard, the weather associated with generating a high intensity fire hazard to the site would be:

- DCC - a bushfire driven by strong dry winds from the north or the north-east;
- OMMPPCC - a bushfire driven by strong dry winds from the north-east, east or south-east.
- The principal strategy to protect the proposed buildings in the DCC and OMMPPCC complexes is by provision and ongoing maintenance of an adequate Asset Protection Zone, sufficient to achieve a radiant heat flux rating of no greater than 10 kW/m² at the closest building elevation to the nearest hazard.

3. Bushfire Protection Measures for the Proposal

A range of bushfire mitigation measures are identified for SFPP development as detailed in Section 4.2 of Planning for Bushfire Protection (NSW RFS 2006). Their applicability in relation to the proposed development is described in this section.

3.1 Asset Protection Zones to achieve BAL ≤ 10 kW/m²

Asset Protection Zones are a passive bushfire protection measure which provide separation between buildings and bushfire prone vegetation such that the building conforming to the deemed-to-satisfy arrangements under the Building Code of Australia can withstand the degree of radiant heat flux (expressed as a BAL) emanating from the bushfire hazard. In the case of SFPP development, a maximum BAL of 10 kW/m² is specified to ensure that an additional level of safety is provided for firefighters undertaking response operations to protect SFPP occupants.

Asset protection zones are determined based on vegetation and slope. For an SFPP building, asset protection zones which apply to achieve a radiant heat level of <10kW/m² are detailed in Table A2.6 of Appendix 2 of the Planning for Bushfire Protection (NSWRFS 2006). Asset protection zone compliance requirements at DCC and OMMPC are shown in Table 1 and Table 2 below. The actual distance between the proposed building and vegetation and whether an asset protection zone is required is also shown in Table 2

Table 3-1 Dillwynia Correctional Centre APZ requirements and compliance

| Bushfire approach direction from | Slope class | Max. BAL (SFPP) required | Min. existing separation from hazard | Actual BAL / Comments |
|----------------------------------|--------------|--------------------------|--------------------------------------|--|
| North | Upslope/Flat | 10 kW/m ² | 80 metres | < 10kW/m ² ✓ Fully complies |
| East | NA | NA | >100 metres | NA (no hazard within 100 metres) |
| South | NA | NA | >100 metres | NA (no hazard within 100 metres) |
| West | NA | NA | >100 metres | NA (no hazard within 100 metres) |

Table 3-2 OMMPC Correctional Centre APZ requirements and compliance

| Bushfire approach direction from | Slope class | Max. BAL (SFPP) required | Min. existing separation from hazard | Actual BAL / Comments |
|----------------------------------|--------------|--------------------------|--------------------------------------|--|
| North | Upslope/Flat | 10 kW/m ² | 62 metres Gatehouse | < 10kW/m ² ✓ Fully complies |

| Bushfire approach direction from | Slope class | Max. BAL (SFPP) required | Min. existing separation from hazard | Actual BAL / Comments |
|----------------------------------|--------------|--------------------------|--------------------------------------|---|
| East | Upslope/Flat | 10 kW/m ² | 28.5 metres SE-accom block | BAL 29 ✗ Existing CSG Woodland vegetation outside SE perimeter security fence will require modification to APZ Outer Protection Area standard, to provide a minimum separation distance of 60 metres* from the eastern elevation of the southeast accommodation block to the CSG Woodland outside the SE perimeter security fence |
| South | Upslope/Flat | 10 kW/m ² | 62 metres | < 10kW/m ² ✓ Fully complies |
| West | NA | NA | >100 metres | NA (no hazard within 100 metres) |

* Clearing of the shrubby understorey stratum and thinning of saplings and sub-dominant overstorey trees to achieve a canopy cover of less than 30% will be required to achieve an APZ Outer Protection Area standard. The minimum APZ width required between the south-easternmost accommodation block in OMMPPCC and the outer edge of the APZ Outer Protection Zone to meet the BAL 10 requirement is 60 metres (as per Table A2.6 of Planning for Bushfire Protection (NSWRFS, 2006)).

APZ location and dimensions along the south-eastern side of OMMPPCC are depicted in Figure 2.

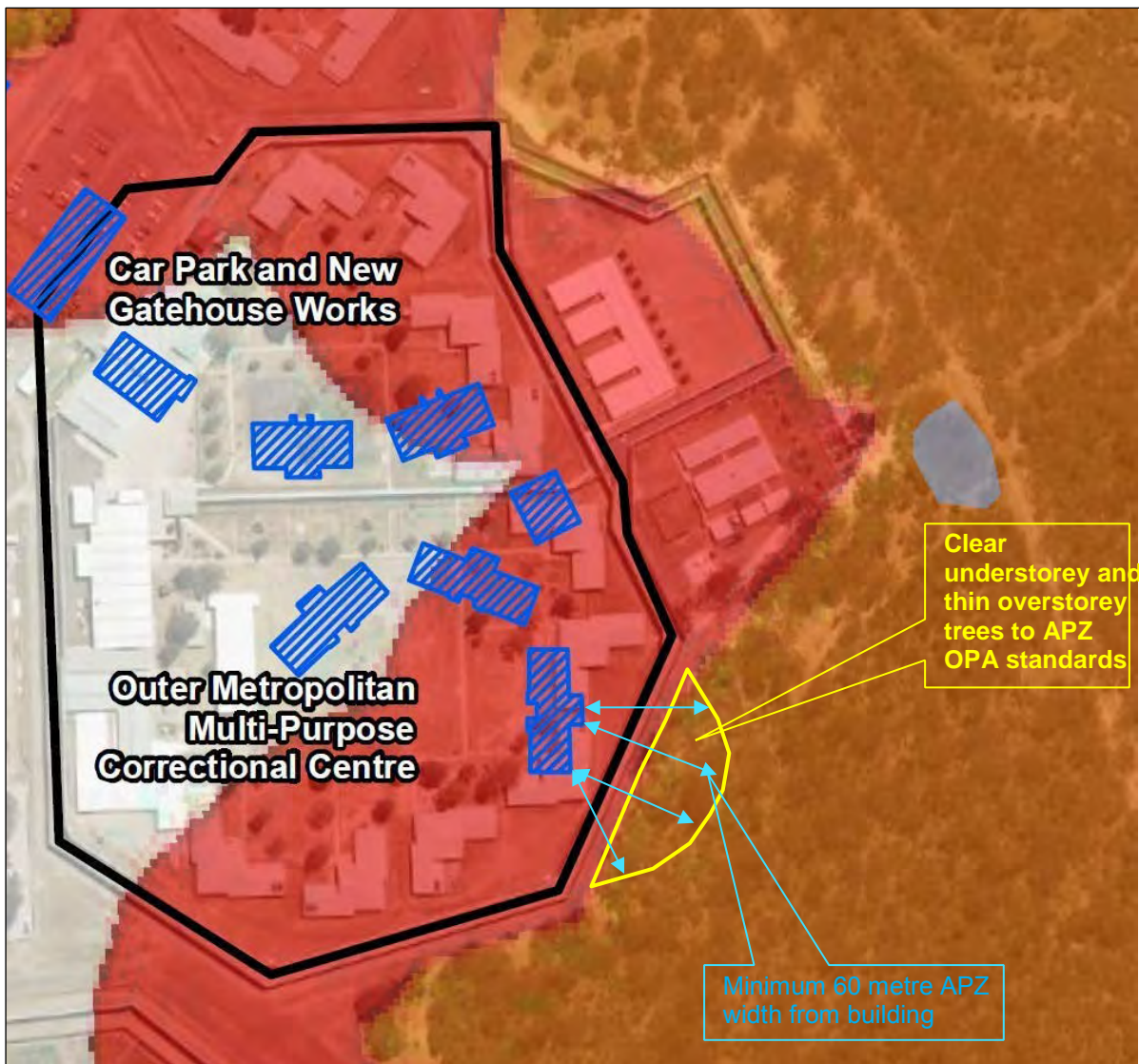


Figure 3-1 New APZ dimensions south-east of OMMPCC

In Figure 2 above, the location and extent of asset protection zone establishment work is shown along the south-eastern boundary of OMMPCC. This establishment work will be required to meet the objectives of Planning for Bushfire Protection in relation to providing an adequate setback between OMMPCC accommodation block buildings adjacent Castlereagh Scribbly Gum Woodland.

3.2 Construction standards

Consistent with the passive bushfire protection measures provided through establishment and maintenance in perpetuity of the BAL 10 compliant asset protection zone, all new buildings proposed shall be constructed to BAL 12.5 which is the maximum achievable in relation to construction standards.

3.3 Access – internal access

As the DCC and OMMPCC sites are correctional centres, no internal access roads (within the correctional centre secure compound area) are appropriate or provided. Access to and from DCC and OMMPCC to the public road network is via the existing JMCC road network. The

existing network of internal roads providing access to DCC and OMMPCC meets or exceeds Planning for Bushfire Protection requirements, thus meeting acceptable solutions for provision of safe access for emergency service vehicles.

No new internal roads are proposed as part of the development.
Road access and egress from JMCC is via The Northern Road.

3.4 Emergency and evacuation planning

Existing evacuation and emergency planning procedures are established for both the DCC and OMMPPCC, as documented in the existing JMCC Bushfire Emergency Management Plan.

3.5 Services - water supply and utilities

Both the DCC and OMMPPCC have existing connections to mains water supply. The hydrant system is to comply with AS4219.1-2005 as referenced in BCA.

Electrical mains to DCC and OMMPPCC is via underground cables.

Appendices

Appendix A - OMMPPCC Asset Protection Zone Site Photos



Site Photo 1

Castlereagh Scribbly Gum Woodland vegetation adjacent to the south-eastern perimeter security fence of OMMPCC. Note the dense shrubby understorey formation. Clearance of the understorey stratum and thinning of sub-dominant trees and saplings will be required to modify the vegetation structure to meet APZ Outer protection Zone requirements.



Site photo 2

Dense shrubby understorey stratum in CSG Woodland adjacent to the south-east perimeter security fence at OMMPPCC. It will be necessary to remove this shrubby understorey stratum to meet APZ Outer protection Zone requirements.



Site photo 3

Castlereagh Scribbly Gum Woodland with understorey vegetation cleared and overstorey stand structure thinned to achieve Asset Protection Zone – Outer Protection Area standard compliance. This area is adjacent to the OMMPPC perimeter security fence at the north-east corner of OMMPPC.

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