



Technical Letter

Bushfire Assessment

PLANS AND DOCUMENTS
referred to in the PDA
DEVELOPMENT APPROVAL

Approval no: DEV2025/1663

Date: 8 September 2025



PROPOSED CARETAKER'S DWELLING

LOCATION: FLINDERS LAKES DRIVE, WITHIN MONARCH GLEN
MASTERPLAN

MONARCH GLEN, QLD 4285

LOGAN CITY COUNCIL



DOCUMENT ISSUE APPROVAL

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Abbreviations Used in Report

Abbreviation	Full Meaning
APZ	Asset Protection Zone
AS3959	AS 3959:2018 – Construction of Buildings in bushfire-prone areas
BAL	Bushfire Attack Level
BRC	Bushfire Resilient Communities
FFDI	Forest Fire Danger Index
PO	Performance Outcome
SPP	State Planning Policy
VHC	Vegetation Hazard Class

1 Introduction

This Technical Letter assesses the bushfire hazard and outlines mitigation measures to be incorporated for the proposed Caretaker's dwelling (Figure 1-1) as part of the Monarch Glen master-planned community. It has been assumed within this assessment that this dwelling will exist as a temporary residence for the caretaker of the development site, until such time that the development staging that adjoins this proposed dwelling is ready to be constructed.

The assessment has been undertaken with reference to Bushfire Resilient Communities (Queensland Fire and Emergency Services, 2019a) with an assessment required given that the proposed development site is mapped as a Bushfire Prone Area, per State Planning Policy mapping. It therefore triggers a bushfire risk assessment and management plan.

As a minimum, proposed dwellings must be setback from assessable bushfire-hazardous vegetation, to ensure impact by Radiant Heat Flux of no greater than 29kW/m².

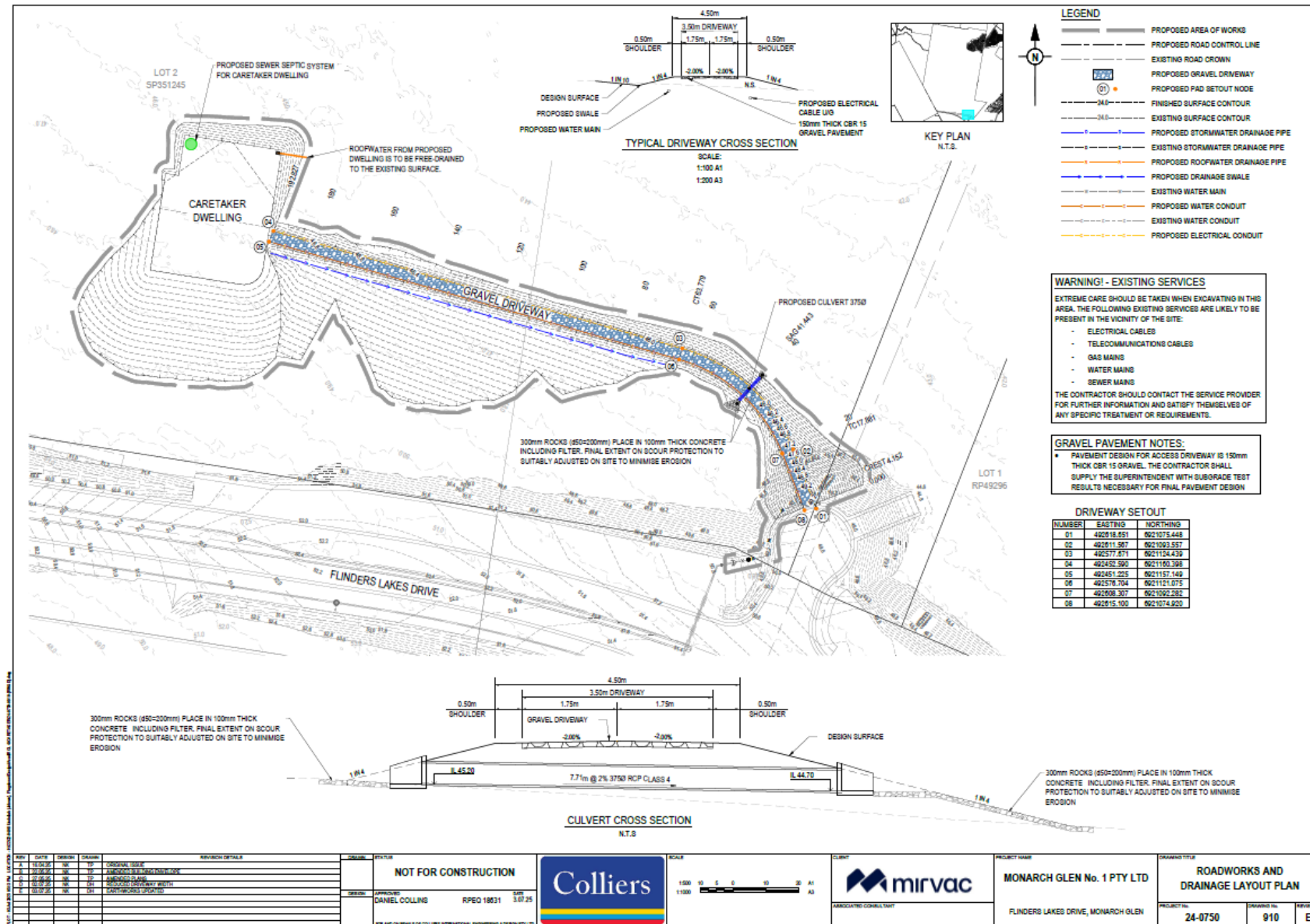


Figure 1-1 - Proposed Caretaker's building for Monarch Glen

2 Bushfire Hazards

2.1 Bushfire Prone Area mapping

The State Planning Policy (2018) mapping identifies the site as subject to High Potential Bushfire Intensity, Medium Potential Bushfire Intensity, and Potential Impact Buffer (Figure 2-1). Given that the proposed development is within a mapped bushfire prone area, an assessment is required to ensure that people and property are not exposed to unacceptable level of risk from potential bushfires.

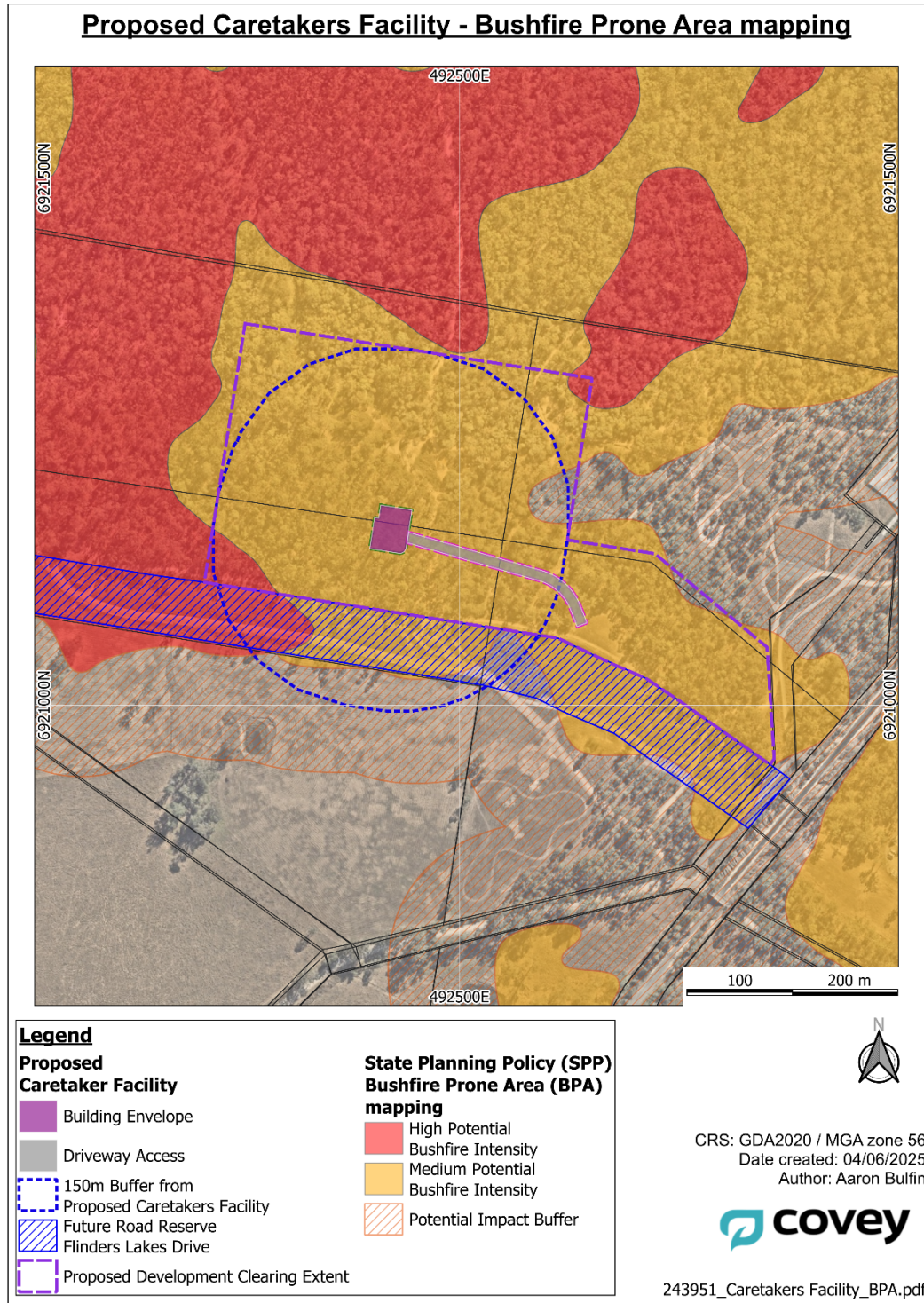


Figure 2-1. SPP Bushfire Prone Area mapping

2.2 Topography

Topography was verified during the site assessment (undertaken on 10/01/2025) and was considered consistent with the Digital Elevation Model obtained from Elvis - Elevation and Depth - Foundation Spatial Data. The proposed earthworks design tin for the proposed Caretaker's dwelling, prepared by the Project Engineers, was combined with a 1m resolution digital elevation model (DEM) obtained from Geoscience Australia (Elvis - Elevation and Depth - Foundation Spatial Data). The plan showing the site topography that has been assessed within this technical letter can be seen in Appendix A.

The topography around the proposed Caretaker's dwelling has a relatively flat slope (typically <5-degree slope), with the slope of the terrain grading down towards the north-north-east. A gully exists to the north, and a ridgeline to south of the proposed dwelling; a future sub-arterial road will be constructed along this ridgeline.

2.3 Weather

Fire weather refers to meteorological conditions that promote bushfire spread, making wildfire suppression more challenging. Fire weather can be influenced by many local factors including temperature, wind, relative humidity, and drought factor – all of which are used to calculate Forest Fire Danger Index (FFDI¹). Fire risk is typically linked to the occurrence of fire weather days or sequences of days of FFDI above 25 (Queensland Parks and Wildlife Service, 2013).

The 1:20 year Recurrence Interval FFDI derived for the site is 56. This value comes from the SPP and QFES published spatial data ([BRC MapViewer](#)) representing the 5% annual exceedance probability fire weather event FFDI to reflect the expected climate in 2050 using an Intergovernmental Panel on Climate Change A1FI climate scenario (Queensland Fire and Emergency Services, 2019b).

2.4 Fuel

The SPP through the Bushfire Resilient Communities publication requires assessment of the 150 m of vegetation adjacent to assets. The vegetation within the study area was classified into Vegetation Hazard Classes (VHC) (Queensland Fire and Emergency Services, 2019b) based on information gathered from a combination of:

- Site-verified vegetation data from field observations,
- State Regional Ecosystem spatial data (<https://qldspatial.information.qld.gov.au/catalogue>),
- Vegetation Hazard Class spatial data (<https://qldspatial.information.qld.gov.au/catalogue>), and
- Aerial imagery.

¹ FFDI values had previously used to determine a Fire Danger Rating. This rating system has since been replaced by the new Australian Fire Danger Rating System based on Fire Behavior index. Though FFDI values are still used as an input value for determining Radiant Heat Flux calculations.

2.4.1 Vegetation Assessment

A site inspection was undertaken on the 10th of January 2025 to verify the Vegetation Hazard Classes (Neldner et al., 2019) (Figure 2-2, refer to Appendix B for photos), as well as the topography. The area was traversed on foot and dominant canopy and understorey species composition was recorded. The current VHC observed within the site or within 150 m of the site boundary are detailed in Table 2-1 and Figure 2-2.

The site of the proposed Caretaker's Dwelling consists primarily of *Corymbia citriodora* (Spotted Gum) dominated forests with scattered *Eucalyptus crebra* (Narrow-leaved Ironbark) and an understorey of mixed *Acacia* sp., juvenile *Eucalypt* sp., and *Lantana camara* (Lantana). This vegetation community is consistent with the mapped RE 12.9-10.2. Other observed species include *Eucalyptus tereticornis* (Forest Red Gum), along with *Eucalyptus mollucana* (Grey Box), with understorey dominated by Lantana and *Lomandra longifolia* (Basket Grass).

Table 2-1. Site pre-development vegetation and VHC assessment.

Field point	VHC	Observed Vegetation Description
1	10.1	<i>Corymbia citriodora</i> , <i>Eucalyptus crebra</i> , <i>Eucalyptus tereticornis</i> , <i>Eucalyptus</i> sp. and <i>Acacia</i> sp. sub-canopy; <i>Lantana camara</i> elevated fuels; blady grass near-surface fuels
2	10.1	<i>Corymbia citriodora</i> , <i>Eucalyptus crebra</i> , <i>Eucalyptus tereticornis</i> , <i>Eucalyptus</i> sp. and <i>Acacia</i> sp. sub-canopy; <i>Lantana camara</i> elevated fuels, blady grass near-surface fuels
3	10.1	<i>Corymbia citriodora</i> , dense <i>Eucalyptus</i> sp. and <i>Acacia</i> sp. sub-canopy, elevated fuels, blady grass near-surface fuels
4	10.1	<i>Corymbia citriodora</i> , <i>Eucalyptus crebra</i> , <i>Eucalyptus tereticornis</i> , <i>Eucalyptus</i> sp. and <i>Acacia</i> sp. sub-canopy, <i>Lantana camara</i> elevated fuels, sparse blady grass near-surface fuels
5	10.1	<i>Corymbia citriodora</i> , <i>Eucalyptus crebra</i> , <i>Acacia</i> sp. sub-canopy, dense <i>Lantana camara</i> elevated fuels, sparse <i>Lomandra longifolia</i> near-surface fuels
6	10.1	<i>Eucalyptus tereticornis</i> , <i>Eucalyptus mollucana</i> , dense <i>Lantana camara</i> elevated fuels.
7	41.4	Cleared earthworks area for future sub-arterial road Flinders Lakes Drive

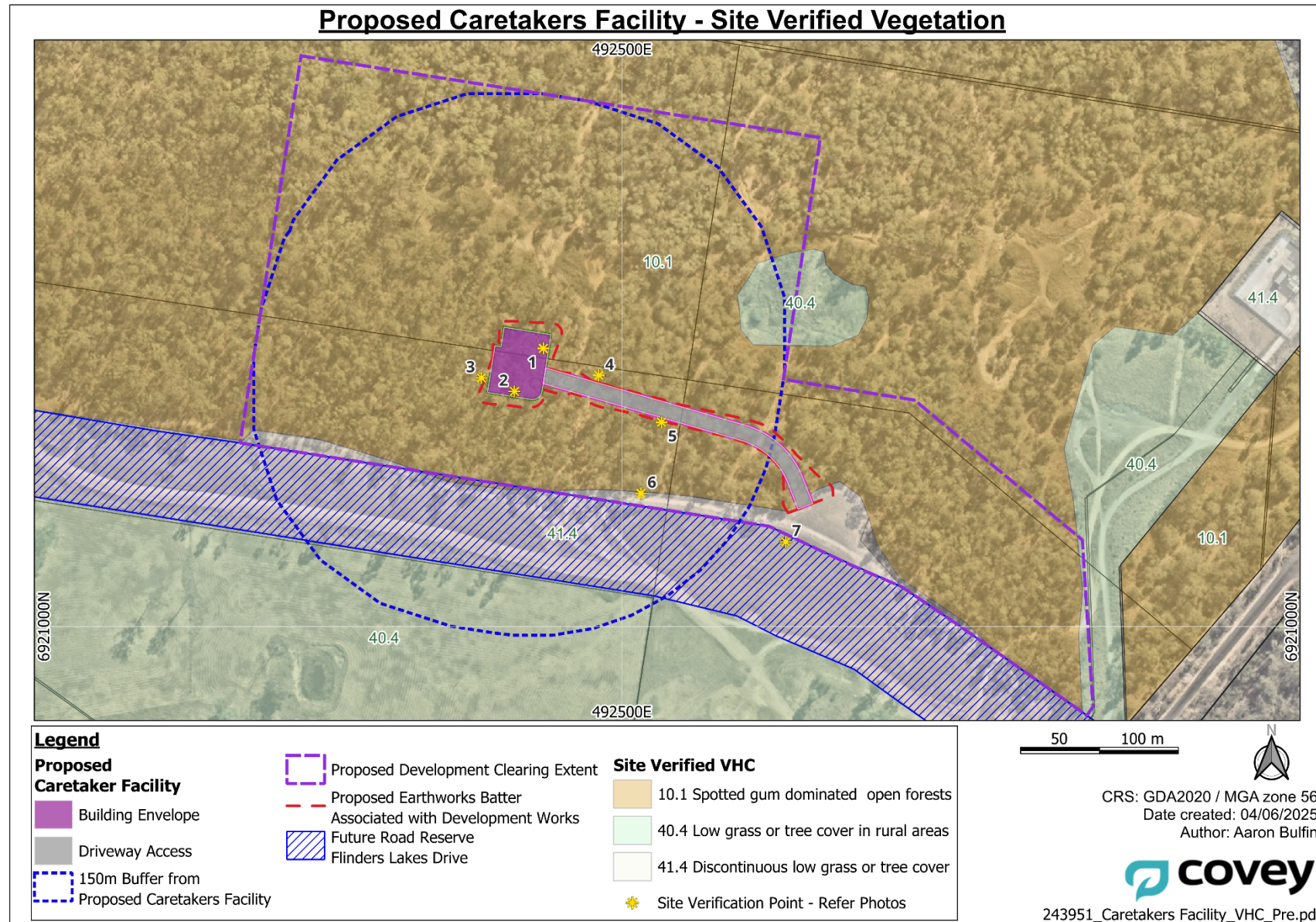


Figure 2-2 - Site Verified VHC

3 Bushfire Mitigation Measures

3.1 Proposed vegetation clearing

The proposed Caretaker's dwelling is located within a mapped Bushfire Prone Area (see Figure 2-1), thus requiring a bushfire hazard assessment. The proposed development works will include vegetation clearing to an extent of 150m around the proposed dwelling (Figure 3-1).

Meanwhile, Figure 3-2 shows the post-clearing site-specific BPA map. As the proposed Caretaker's dwelling will be further than 100 meters from bushfire hazardous vegetation, it will be classified as BAL-LOW per AS3959; thus not requiring any specific bushfire protection measures for construction. Though the following mitigation measures should be applied to ensure the bushfire risk to the proposed dwelling remains low, as the dwelling still remains within the broader mapped bushfire prone area.

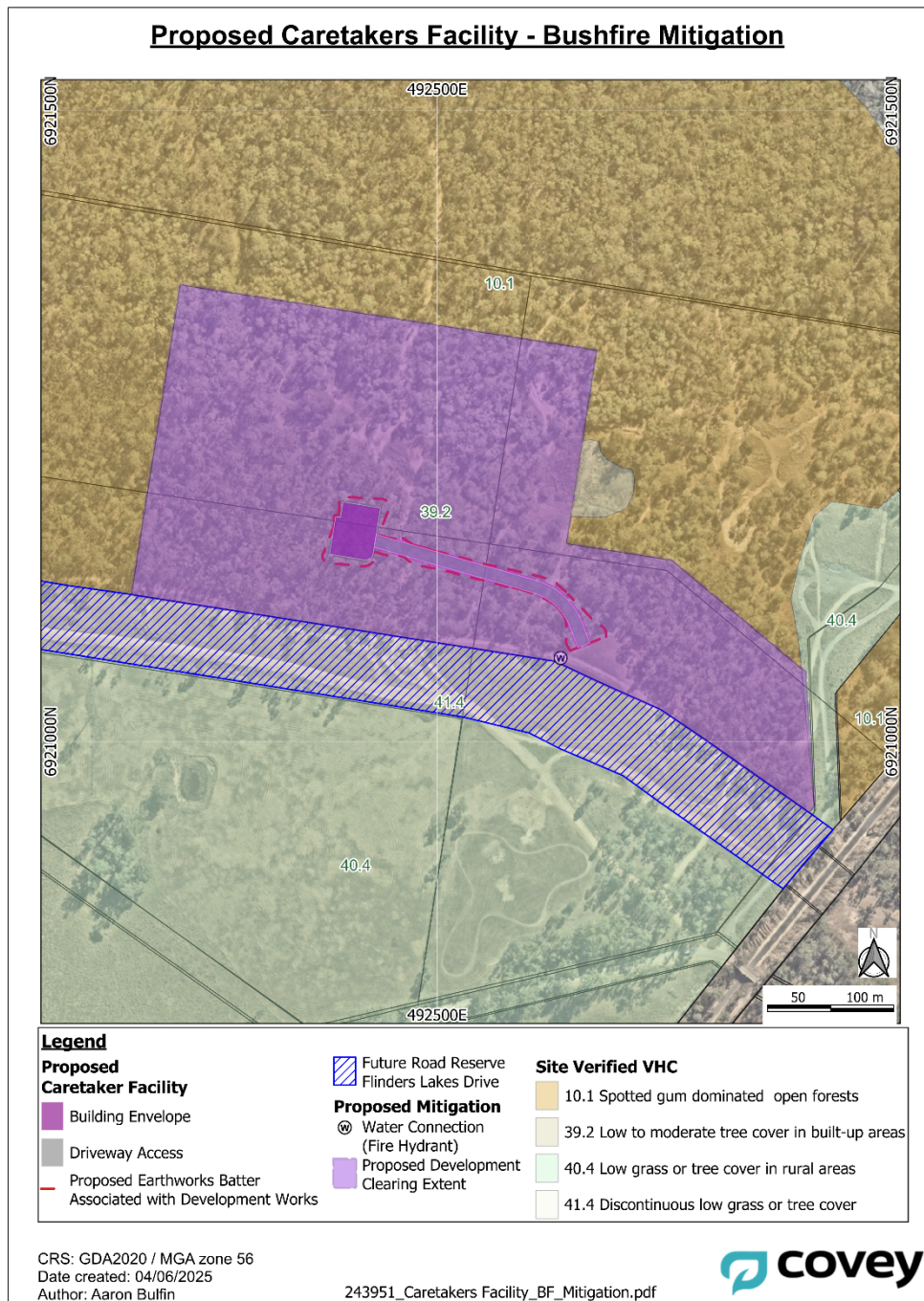


Figure 3-1. Proposed Bushfire Mitigation Measures

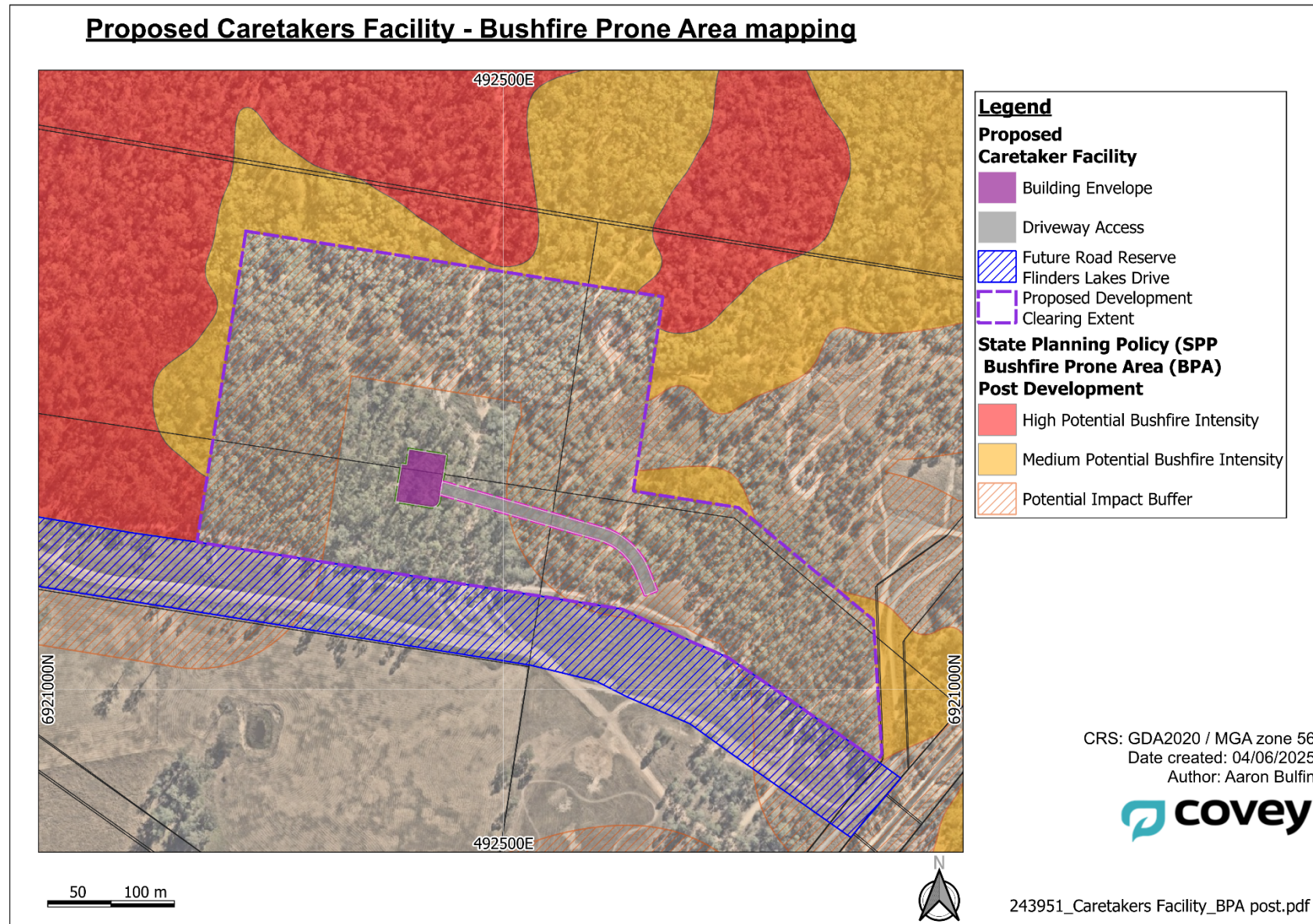


Figure 3-2. Bushfire Prone Mapping (SPP BPA) Post Development

3.2 Asset Protection Zone and Vegetation Management

The proposed vegetation clearing outlined above, will need to be established and maintained as an Asset Protection Zone (APZ) (i.e., area of low hazard fuel, cleared of most vegetation). This APZ must be retained as low-hazard fuel status through regular maintenance activities for the length of the dwelling's existence. The following section provides details of how the APZ shall be established and maintained.

3.2.1 Bushfire Landscaping Guidelines

Any landscaping and APZ should not exacerbate potential bushfire risk. This may be achieved through aligning landscaping/APZ with Bushfire Resilient Landscaping (CSIRO, 2020) and Low Threat exclusion clauses defined in AS 3959, S2.2.3.2. Examples include:

- (i) Landscaping design within the low fuel zone being consistent with AS3959 S2.2.3.2(f) to ensure vegetation does not create vertically and horizontally continuous fuel structures that may contribute to bushfire intensity,
- (ii) Where areas of bushland are to be included as part of landscaping design in the low fuel zone, ensure they are consistent with AS3959 S2.2.3.2, being less than 0.25 ha in area and not within 20 m of each other or proposed dwellings,
- (iii) Utilise non-vegetated areas within the development consistent with AS3959 S2.2.3.2 (e) to provide enhanced separation between buildings and vegetation identified as a bushfire threat external to the site boundaries, and,
- (iv) Utilise 'Fire-Wise' plant species that are resistant to the effects of fire (guidance can be found at <http://www.cfa.vic.gov.au/plan-prepare/landscaping-for-bushfire>).



Figure 3-3 - Low Threat vegetation (left) and Low Threat public open space (right)

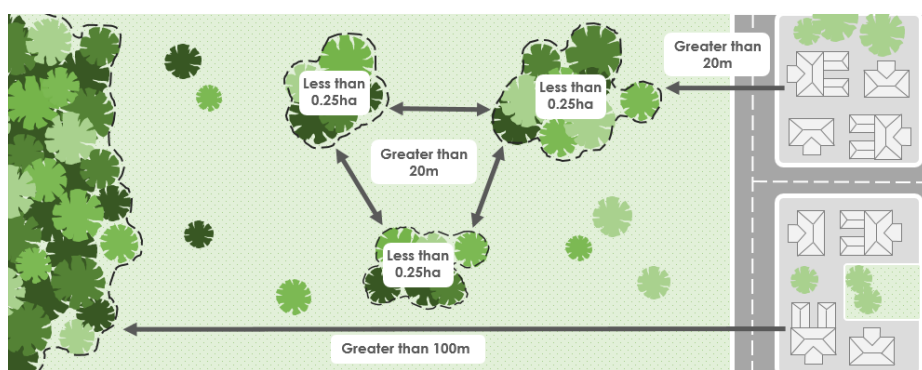


Figure 3-4 - AS3959 Exclusions—Low threat vegetation and non-vegetated areas.

3.3 Water Supply

The proposed development includes the installation of a Fire Hydrant within the future road reserve of Flinders Lakes Drive, at the proposed driveway connection from the Caretaker's dwelling (see Figure 3-1). The allocation of water supply connection for the purpose of firefighting is a requirement under the Logan City Planning Scheme Infrastructure Code (9.4.3). The Infrastructure Code references *AS2419.1-2005 Fire hydrant installations*; and Logan City Council operates under the South-East Queensland (SEQ) Water Supply Code (2011).

Note that, this proposed fire hydrant is approximately 160m from the caretakers' building. According to the South-East Queensland (SEQ) Water Supply Code (2011), hydrants shall be placed:

- within 40m of the front boundary of all proposed residential lots (S.8.8.8(a)), and,
- shall be within 90m of the furthest point to all proposed (and existing) Class 1 buildings (S.8.8.8(b)).

In lieu of referencing a proposed frontage boundary being established as part of the Caretaker's dwelling development, the distance to the proposed fire hydrant has been measured relative to building envelope.

To ensure compliance with Performance Outcome (PO4) with the Logan City Council Infrastructure Code, it is recommended to review the placement of this fire hydrant to ensure adequate water supply for emergency services to the proposed Caretaker's Building.

3.3.1 Alternative Water Supply

Alternatively, where deemed that the fire hydrant cannot be located within limits of the proposed building area to achieve PO4, alternative provision of static water supply dedicated for firefighting can be accommodated in accordance with PO5 of the Planning Scheme:

PO5: Where development not in a water service area provides sufficient water storage with adequate pressure, volume and flow to service development for firefighting purposes:

AO5: has on-site water storage in accordance with Table 9.4.3.3.2 - Water storage for firefighting, dedicated or retained for firefighting purposes that is made of fire resistant materials and is:

- a. a separate tank of 20,000L capacity given the development lot is greater than 1 hectare.*

3.4 Access and Egress

One point of primary access is proposed to be provided for the Caretaker's dwelling which will connect the proposed dwelling to a stub (cul-de-sac) connection off the future sub-arterial road (refer to Figure 1-1 for visual context). This proposed driveway will be six meters wide (minimum) thus allowing for two-way access along the length.

With consideration to the remaining bushfire hazardous vegetation after the proposed vegetation clearing around the proposed dwelling (Figure 3-1) a likely fire-run would originate anywhere between a West-North-West and a North-North-East direction. The proposed driveway allows for egress from the dwelling to the south, away from a potential approaching fire-front onto the proposed sub-arterial road providing egress to the east or west along this connecting public road.

3.5 Bushfire Awareness and Australian Fire Danger Rating System

The occupants of the proposed Caretaker's dwelling should be made aware of the dangers of living within a bushfire prone area. The intent of the APZ should be communicated and the need to maintain this APZ to low fuel hazard in for the life of the proposed Caretaker's dwelling.

Provided that the APZ is maintained to low fuel hazard, the proposed Caretaker's dwelling will be classified as BAL-LOW, given the separation to bushfire hazardous vegetation. BAL-LOW has no specific construction requirements to improve resistance to bushfire attack, per AS3959.

Therefore, it is important to emphasize that early evacuation remains a critical and effective strategy for those living within bushfire prone areas. Occupants should follow Queensland Fire Department Warning and Alerts notifications (<https://www.fire.qld.gov.au/Current-Incidents>); (Queensland Fire Department)

The Australian Fire Danger Rating System (AFDRS) was updated in 2022 to provide a nationwide fire danger rating system based on the latest bushfire science. The AFDRS communicates the potential level of danger in the event of a fire (Australasian Fire and Emergency Service Authorities Council (AFAC), 2022).

The AFDRS can be communicated as five Fire Danger Rating (FDR) levels, which provide key messages and action-oriented advice to the community and organisations under different levels of fire danger, as shown below and in Figure 3-5, AFAC, 2022):

- No Rating - On days with minimal risk, the white bar meaning 'No Rating' will be used.
- Moderate - **Plan and prepare.** Most fires can be controlled.
- High - **Be ready to act.** Fires can be dangerous.
- Extreme - **Take action now to protect your life and property.** Fires will spread quickly and be extremely dangerous.
- Catastrophic - **For your survival, leave bushfire risk areas.** If a fire starts and takes hold, lives are likely to be lost.

Fire mitigation and preparedness actions should be year-round processes where extreme and catastrophic FDR relate to taking actions (whether in relation to stay and defend or leave early) that have already been planned for before the commencement of the fire season. It is recommended that FDR is monitored during bushfire season and that operational and management activities be adjusted according to the FDR.

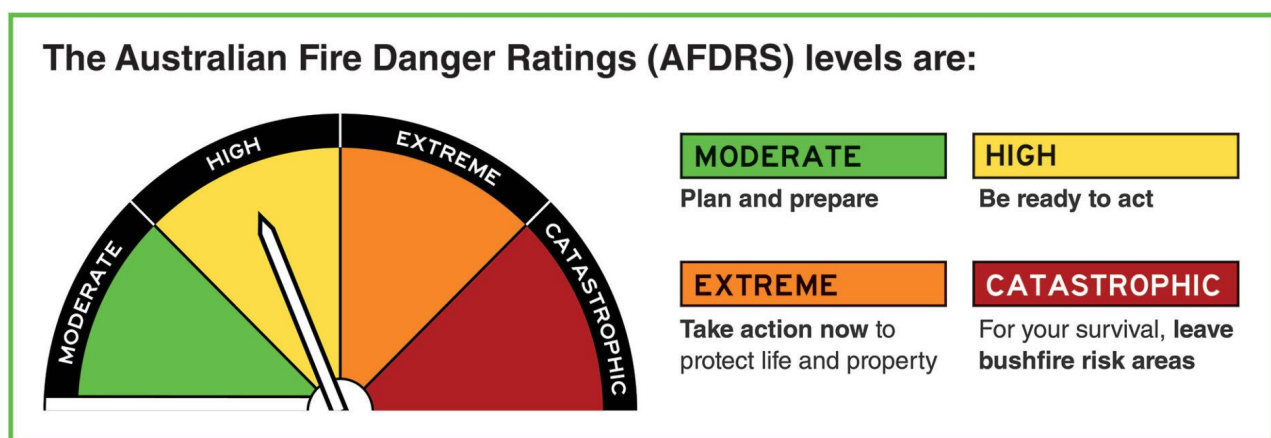


Figure 3-5. Australian Fire Danger Rating System (AFDRS) levels and community messages.

4 Recommendations

This Technical Letter has assessed the bushfire hazard for the proposed Caretaker's dwelling within a mapped bushfire prone area, per SPP overlay mapping. This technical letter has outlined the following mitigation measures to be incorporated for the proposed Caretaker's dwelling:

1. It is proposed to clear vegetation to a width of 150 meters around the proposed dwelling. This bushfire hazard assessment has demonstrated how this clearing has reduced the bushfire risk to the proposed dwelling. .
 - a. This extent of vegetation clearing is to be established as an Asset Protection Zone and be regularly maintained to ensure the APZ remains as low-threat status for as long as the caretaker dwelling exists.
2. Improve the water supply dedication for firefighting as part of the development by:
 - a. Adjusting the placement of the proposed fire hydrant to ensure that the distance between the proposed dwelling and the hydrant comply with the SEQ Water Supply Code, or,
 - b. Provide a static water supply to achieve requirements of PO5 of the Logan City Council Infrastructure Code, with water capacity specified in Table 9.4.3.3.2.

It is also recommended to ensure:

3. The occupant of the Caretaker's dwelling understands the dangers of living within a bushfire prone area, and,
4. Establishes a suitable bushfire emergency plan that allows for evacuation of occupants from the dwelling to a place of safety, following Occupants should follow Queensland Fire Department Warning and Alerts notifications (<https://www.fire.qld.gov.au/Current-Incidents>).

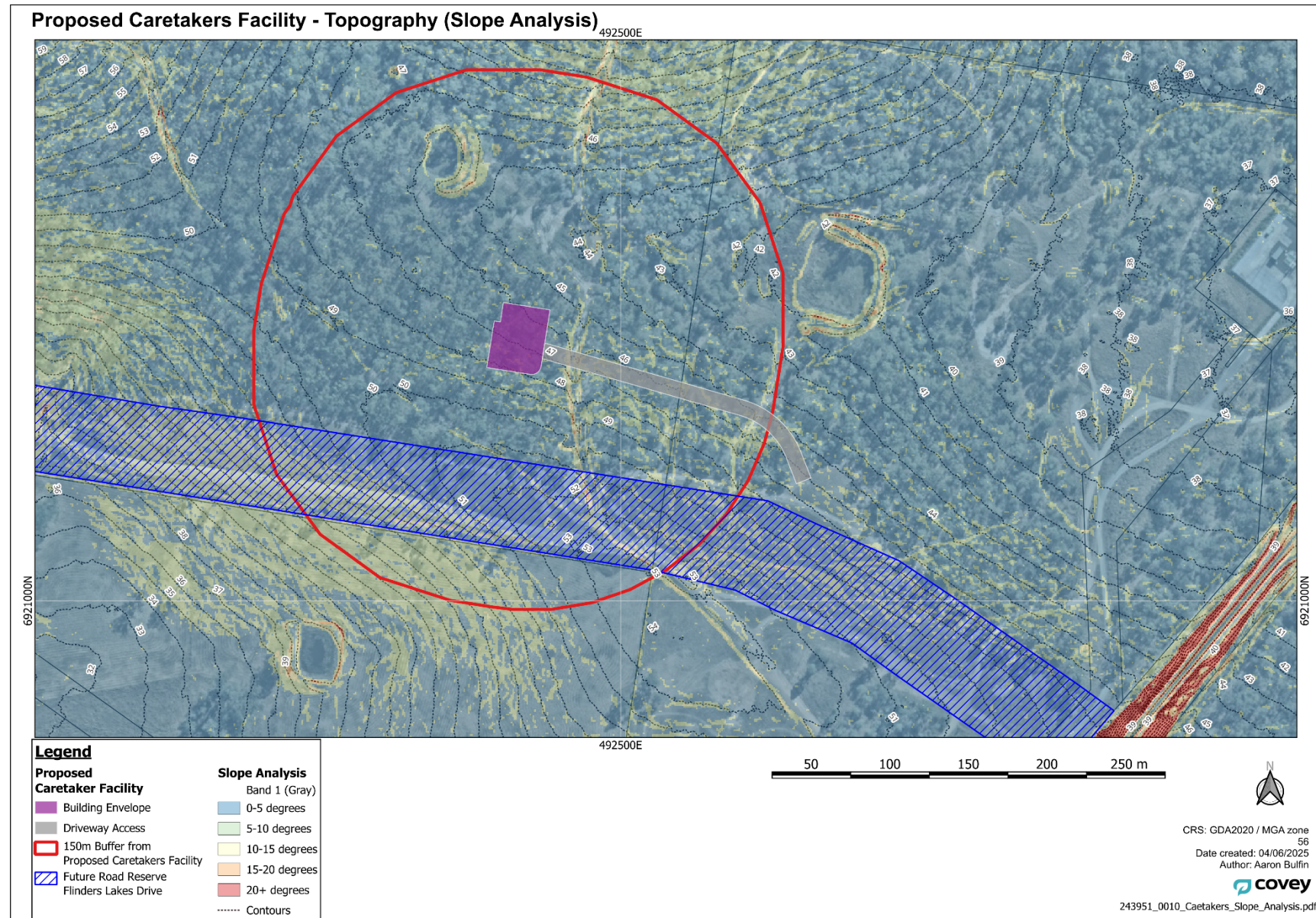
It has been assumed that this dwelling will exist as a temporary residence for the caretaker of the development site, until such time that the development staging that adjoins this proposed dwelling is ready to be constructed. This bushfire risk assessment remains in effect for the life extent of this temporary dwelling, and all mitigation measures shall remain in place for the duration of this time.

5 References

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APPENDIX A

SLOPE ANALYSIS



APPENDIX B

PHOTOS OF VEGETATION FROM SITE VERIFICATION 10/01/2025

PHOTOS

FIELD POINT 1





FIELD POINT 2





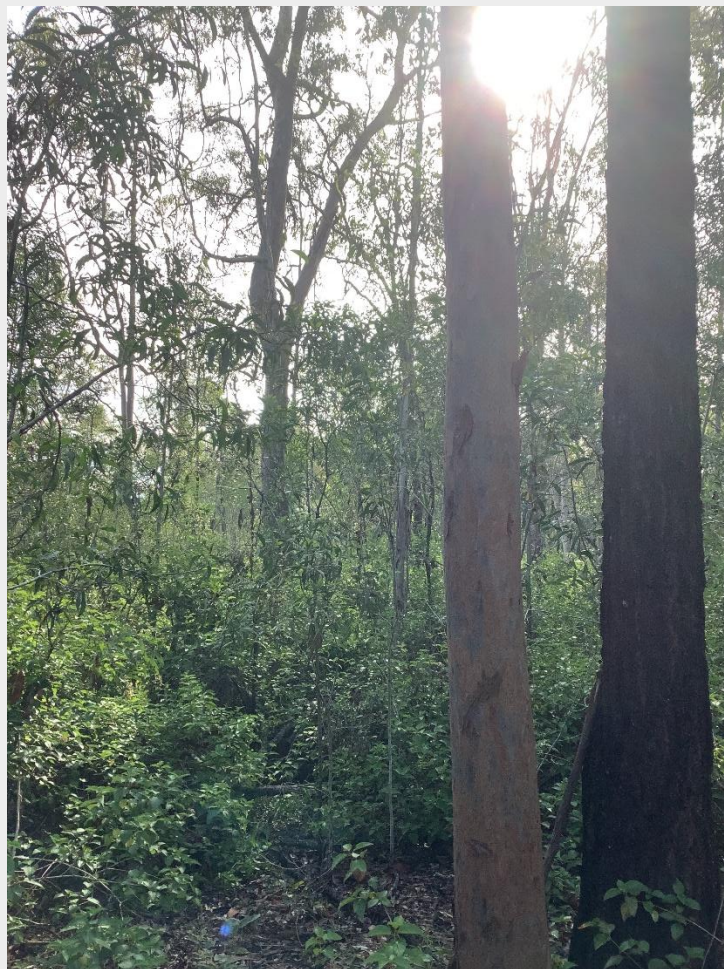
FIELD POINT 3





FIELD POINT 4





FIELD POINT 5



FIELD POINT 6



FIELD POINT 7



