



**Bushland Protection
Systems**

Specialising in

**BUSHFIRE HAZARD
PLANNING & MITIGATION**

ABN 97 782 336 595 | Phone: 07 5546 7933 | PO Box 40, Ormeau, Qld, 4208 | E-mail: admin@bpsfire.com.au

**BUSHFIRE HAZARD ASSESSMENT AND
MITIGATION PLAN**

**PROPOSED
TELECOMMUNICATIONS TOWER AND FACILITY
ON
Lot 5 RP880863
No. 9 Trewin Road North
Mundoolun**

FOR

Plan Consult Town Planning

DATED

16th September 2023

A Bushfire Mitigation Plan is designed to identify and minimise the potential bushfire risk to a given property and to help property owner/occupiers to minimise bushfire risk to themselves, their property and their neighbours, although it cannot completely eliminate that risk. Ultimately it is a community responsibility to protect the environmental values, life and property in their area.

Bushland Protection Systems
Document Control:

Version	Date	Details	Prepared	Checked
1	08/08/2023	Draft BMP	Brett Bain	
2	16/09/2023	Finalised BMP	Brett Bain	

Table of Contents

1. Background	4
2. Site Description and Bushfire Hazard Assessment.....	4
3. Roads, Driveways and Trails	5
4. Appropriate Building Location	5
5. Appropriate Clearing and Landscaping	6
6. Building Construction.....	7
7. Provision of Adequate Water Supplies	7
8. Local Fire Brigades.....	7
9. Improved Community Awareness	7
10. Summary of Recommendations	8
11. Conclusion	8
12. Bibliography	9

List of Tables

Table 2.1: Potential Bushfire Hazard Rating	4
---	---

List of Appendices

Appendix 1: Site Plan.....	11
Appendix 2: NSW Rural Fire Service – Practice Note 1/11	12
Appendix 3: Asset Protection Zones.....	14

1. Background

This plan is for a proposed Optus phone tower facility located on Lot 5 RP880863, No. 9 Trewin Road North, Mundoolun, as shown in Appendix 1.

This plan is based on the following material supplied by Plan Consult Town Planning.

- 1.1. Overall Site Layout, drawn by CPS Technology & Infrastructure, Drawing No. B2752-P1, Revision 1, Dated 29/08/22, is included as Appendix 1 of this report.

This plan is produced in accordance with the Logan Planning Scheme 2015, Section 8.2.3 – Bushfire Hazard Overlay Code and Sc6.2.6 – Planning Scheme Policy 6, based on the State Planning Policy 7/17, under the Planning Act 2016.

2. Site Description and Bushfire Hazard Assessment

The property has a managed area around the existing dwelling, while the remainder of the property consists of grassy eucalypt bushland. The proposed Optus tower is to be located just to the northeast of the existing Telstra tower.

To the east, northeast and southeast of the proposed facility, the land slopes down steeply to the east. The bushland would be assigned a Vegetation Hazard Class (VHC) 10.1 with associated fuel loads of up to 20.8t/Ha, over slopes of up to 21 degrees, with an east aspect and a Forest Fire Danger Index (FFDI) of 55, providing for a potential fire line intensity of up to 58,299kW/m equating to a ‘Very High’ hazard rating.

To the west is the intersection of Barnes Road and Dennis Road. To the west and southwest, on the opposite side of Barnes Road, the bushland would be assigned a VHC 10.2 with associated fuel loads of up to 20.8t/Ha, over slopes of up to 13 degrees, with a west aspect and an FFDI of 55, providing for a potential fire line intensity of up to 33,568kW/m equating to a ‘High’ hazard rating.

To the north is an unconstructed road reserve (Harrison Road). On the opposite side of the road reserve the bushland would be assigned a VHC 10.2 with associated fuel loads of up to 20.8t/Ha, over slopes of up to 21 degrees, with a northeast aspect and an FFDI of 55, providing for a potential fire line intensity of up to 58,299kW/m equating to a ‘Very High’ hazard rating.

Table 2.1: Potential Bushfire Hazard Rating

POTENTIAL HAZARD CLASS	POTENTIAL FIRELINE INTENSITY
Not Bushfire Prone Area (Low)	<4,000 kw/m
Medium	4,000 to 20,000 kw/m
High	20,000 to 40,000 kw/m
Very High	>40,000 kw/m

The Bushfire Hazard Mapping also incorporates a 100 metre Potential Impact Buffer meaning that any land within 100 metres of a Potential Bushfire Hazard is also assigned the same rating as that bushland and triggers the Bushfire Code if Medium, High or Very High. Whilst having the same distance for all three levels of hazard is not considered a fit for purpose application, it is unfortunately what is legislated at this current time. Therefore, the proposed telecommunications facility would be assigned a ‘Very High’ bushfire hazard rating.

3. Roads, Driveways and Trails

3.1. Roads

The proposed site fronts Barnes Road which is a through road heading to the west, and nearby is Dennis Road heading to the northwest. The roadways are lined by a mixture of managed properties and bushland. The roadways near to the site are predominantly lined by bushland and could have access/egress compromised by bushfire. However it should be noted that the proposal is not for an inhabited site that would require evacuation.

3.2. Driveways

The proposed site is located close to the roadway with short direct access.

3.3. Trails

No fire trails are proposed as part of this application.

4. Appropriate Building Location

The proposed site is located on a knoll with steep slopes down in most directions, consisting of hazardous bushland. Being located at the top of steep slopes with bushland below is not considered ideal, however this is the type of location the proposed infrastructure needs, particularly being at the highest point.

The site is located close to the roadway which provides good easy access for bushfire suppression operations.

In determining the required separation between the structure and bushland the following is noted:

- Neither Queensland State Government, Qld Fire & Emergency Services, nor Local Council have a policy specific to telecommunication towers and associated structures.
- Qld requirements for houses is to have a buffer that achieves a 29kW/m² radiant heat flux rating which in this case would be 46 metres to the east, north and south and 34 metres to the west.
- Qld requirements for critical infrastructure (which a telecommunications tower could arguably be) is for a buffer that achieves a 10kW/m² radiant heat flux rating which in this case would be 88 metres to the east, north and south and 70 metres to the west.

Obviously, the separation distances identified above are not practical given the location and type of structure. The clearing that would be required is very extensive and unacceptable, requiring clearing over half the hillside. Also, the separation doesn't take into account the mostly non-flammable nature of the structure.

NSW Rural Fire Service have a 'Practice Note' which provides recommendations specifically addressing telecommunication towers and associated structures, see Appendix 2. In the absence of an appropriate policy in Qld, it is proposed to follow the recommendations of the NSW RFS Practice Note 1/11, requiring a minimum 10 metre Asset Protection Zone (APZ) and the structure being designed to withstand 40kWm² of radiant heat and ember penetration.

5. Appropriate Clearing and Landscaping

The telecommunication tower and any associated structures are to be provided with a minimum 10 metre APZ as outlined in Appendix 3 of this report.

A minimum of 5 metres of the APZ should be provided outside the compound fence, with everything inside the fence also managed as an APZ. (For Example: if the fence is 6 metres from the tower, then there would be 6 metres of APZ inside the fence and 5 metres outside the fence, totalling 11 metres, which meets the minimum 10 metre requirement.) Providing the minimum 5 metres outside the fence ensures a managed work area for firefighters to carry out fire suppression or mitigation operations.

The APZ is to be managed as an inner APZ, as outlined in Appendix 3 of this report, and ensure that regular brush-cutting or mowing keeps grasses below 100mm in height. Leaf litter should not be permitted to accumulate in the APZ. This is most important during bushfire season.

All previous or future cleared timber and foliage or accumulated rubbish should be removed from the site or mulched and not simply moved aside as this will result in a concentrated area of fuel loading which will increase the potential bushfire hazard from that direction.

In bushland areas, the areas around the fringes of the bushland and along fire trails have a tendency to have increased ground fuel loading, as a result of increased sunlight penetration producing better growing conditions for grass and weeds (known as 'Edge Effects'), which can have an adverse impact on the local ecosystem and safety issues for fire suppression personnel during unplanned fire events. These non-endemic grasses and weeds penetrate into the edges of the retained bushland, creating conditions for higher intensity fire which damages the edges of the bushland, opening up the canopy which then allows more sunlight in and promotes grass and weed intrusion further into the bushland. This cyclic process has the effect of decreasing the size of quality bushland and increasing grass and weed dominated areas. The most cost-effective way to control grass and weed growth is to create a good closed in canopy cover, which will shade out the undesirable species. The control of fuel loads along the edges by regular mowing, brush cutting or in some cases poisoning may be suitable. Areas with a build-up of volatile fuel levels along the open edges of bushland, where full sunlight is available, can be where the most damage is inflicted on the bushland during a bushfire.

The lease area should be sized appropriately to allow for the management of the recommended APZs within the proposed site by the lessee.

6. Building Construction

The bushfire provisions of the National Construction Code (NCC) are applied to Class 1, 2 & 3 buildings and associated Class 10a buildings, located in designated bushfire prone areas. “Designated bushfire prone area means land which has been designated under a power in legislation as being subject, or likely to be subject, to bushfires” (*NCC Schedule 3 Definitions*). Therefore the bushfire requirements of the NCC do not apply.

However, in line with the recommendations outlined in the NSW RFS Practice Note 1/11, and to allow a smaller area of APZ, it is recommended that the tower and any associated structure be built to withstand 40kW/m² radiant heat flux and designed to prevent ember penetration. Construction to a Bushfire Attack Level (BAL) 40 rating under AS3959-2018 would be deemed to satisfy this recommendation.

7. Provision of Adequate Water Supplies

As the proposal does not include a occupied structure it is considered unreasonable to require a water reserve to be maintained.

8. Local Fire Brigades

The subject property is currently in the Birnam Rural Fire Brigade district and they would be responded on a 000 emergency call. If back-up is required, further units would be engaged by the Beaudesert Rural Fire Brigades Group. Urban fire appliances would be responded in the event of a structural fire or specialised structural protection being required.

The Birnam Rural Fire Brigade should be invited to visit the site once constructed and encouraged to develop a Local Area Plan (LAP) for the site. LAPs are used by the Rural Fire Service to pre-plan response actions in the event of a bushfire.

9. Improved Community Awareness

Minimising ground fuel and regrowth is the easiest way of reducing bushfire hazard in rural areas. Owners can assist in the mitigation of these bushfires by the removal of ground fuels prior to the bushfire season.

Further useful information on Bushfire Preparedness and Local Rural Fire Brigades can be obtained through the Rural Fire Service Division of the Queensland Fire and Emergency Service at www.qfes.qld.gov.au/bushfires or by phoning 1300 369 003.

10. Summary of Recommendations

- The telecommunication tower and any associated structures are to be provided with a minimum 10 metre APZ as outlined in Appendix 3 of this report. A minimum of 5 metres of the APZ should be provided outside the compound fence, with everything inside the fence also managed as an APZ.
- The APZ is to be managed as an inner APZ, as outlined in Appendix 3 of this report, and ensure that regular brush-cutting or mowing keeps grasses below 100mm in height. Leaf litter should not be permitted to accumulate in the APZ.
- All previous or future cleared timber and foliage or accumulated rubbish should be removed from the site or mulched and not simply moved aside as this will result in a concentrated area of fuel loading which will increase the potential bushfire hazard from that direction.
- Edge effects are to be managed.
- The lease area should be sized appropriately to allow for the management of the recommended APZs within the proposed site by the lessee.
- It is recommended that the tower and any associated structure be built to withstand 40kW/m² radiant heat flux and designed to prevent ember penetration. Construction to a Bushfire Attack Level (BAL) 40 rating under AS3959-2018 would be deemed to satisfy this recommendation.
- The Birnam Rural Fire Brigade should be invited to visit the site once constructed and encouraged to develop a Local Area Plan (LAP) for the site.

11. Conclusion

This plan remains current for a period of 10 years, until 2032, at which time it should be subject to review to take account of changing land use and vegetation patterns. Any major bushfire event affecting the subject site should also trigger a review to determine effectiveness of protection measures and annual hazard reduction initiatives.

Ultimately, persons living in a bushfire prone area must take the precautions necessary to protect themselves, their families and their homes if Brigades are stretched and are unable to attend immediately.

If you require any further assistance, please do not hesitate to contact this office.



Brett Bain, MDIA, MRFAQ
Lead Bushfire Consultant.

12. Bibliography

Articles/Books/Reports/Guidelines/Standards

- Australian Building Codes Board, March 2019, National Construction Code Handbook, “Bushfire Verification Method”
- Leonard, J, Et al., 2014, “A new methodology for State-wide mapping of bushfire prone areas in Queensland”, CSIRO.
- Leonard, J and Opie, K, 2017, “Estimating the potential bushfire hazard of vegetation patches and corridors”, CSIRO.
- Queensland Department of State Development, Manufacturing, Infrastructure and Planning, December 2019, “Natural hazards, risk and resilience – Bushfire: State Planning Policy – state interest guidance material”
- Queensland Fire and Emergency Services, October 2019, Bushfire Resilient Communities, “Technical Reference Guide for the State Planning Policy State Interest: Natural Hazards, Risk and Resilience – Bushfire”
- Queensland Fire and Emergency Services, March 2019, “Fire Hydrant and Vehicle Access Guidelines for Residential, Commercial and Industrial Lots”
- Standards Australia, 2018, “Australian Standard 3959: Construction of buildings in bushfire-prone areas” (First Edition 1991; Second Edition 1999; Third Edition 2009; Fourth Edition 2018)
- Standards Australia, Barry Eadie Et al., 2009, HB330-2009, “Living in bushfire-prone areas – A guide to reducing the threat and impact of bushfire attack and an explanation of the basis of AS3959”
- The State of Queensland (Queensland Reconstruction Authority), CSIRO, July 2020, Bushfire Resilient Building Guidance for Queensland Homes
- Vic Department of Sustainability and Environment, July 2010, “Overall fuel hazard assessment guide”, 4th Edition.

Legislation

- Fire and Rescue Service Act 1990 (Qld)
<https://www.legislation.qld.gov.au/view/html/inforce/current/act-1990-010>
- Building Act 1975 (Qld)
<https://www.legislation.qld.gov.au/view/html/inforce/current/act-1975-011>
- Building Regulation 2006 (Qld)
<https://www.legislation.qld.gov.au/view/html/inforce/current/sl-2006-0227>

Planning Act 2016 (Qld)

<https://www.legislation.qld.gov.au/view/html/inforce/current/act-2016-025>

Vegetation Management Act 1999 (Qld)

<https://www.legislation.qld.gov.au/view/html/inforce/current/act-1999-090>

Work Health and Safety Regulation 2011 (Qld)

<https://www.legislation.qld.gov.au/view/html/inforce/current/sl-2011-0240>

Other Legislative Materials

Australian Building Codes Board, National Construction Code (NCC) Volumes 1 & 2

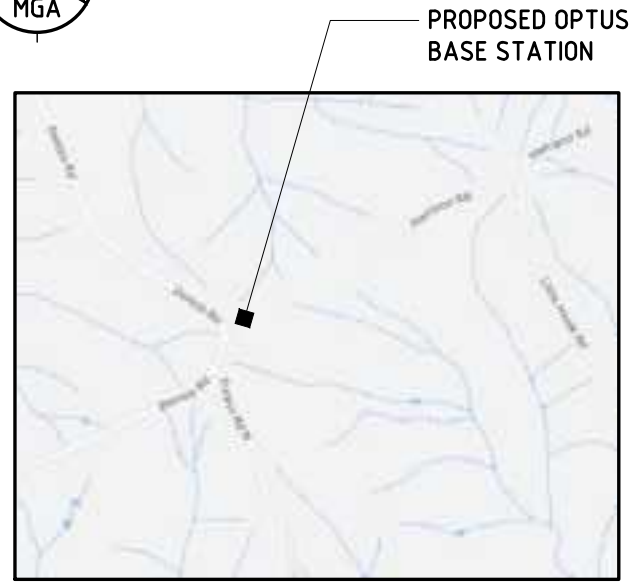
Department of Local Government and Planning, Department of Emergency Services, June 2003, State Planning Policy Guideline, “Mitigating the Adverse Impacts of Flood, Bushfire and Landslide” (SPP1/03)

Department of Infrastructure, Local Government and Planning, April 2016, State Planning Policy – State interest guideline “Natural hazards, risk and resilience” (SPP 7/17)

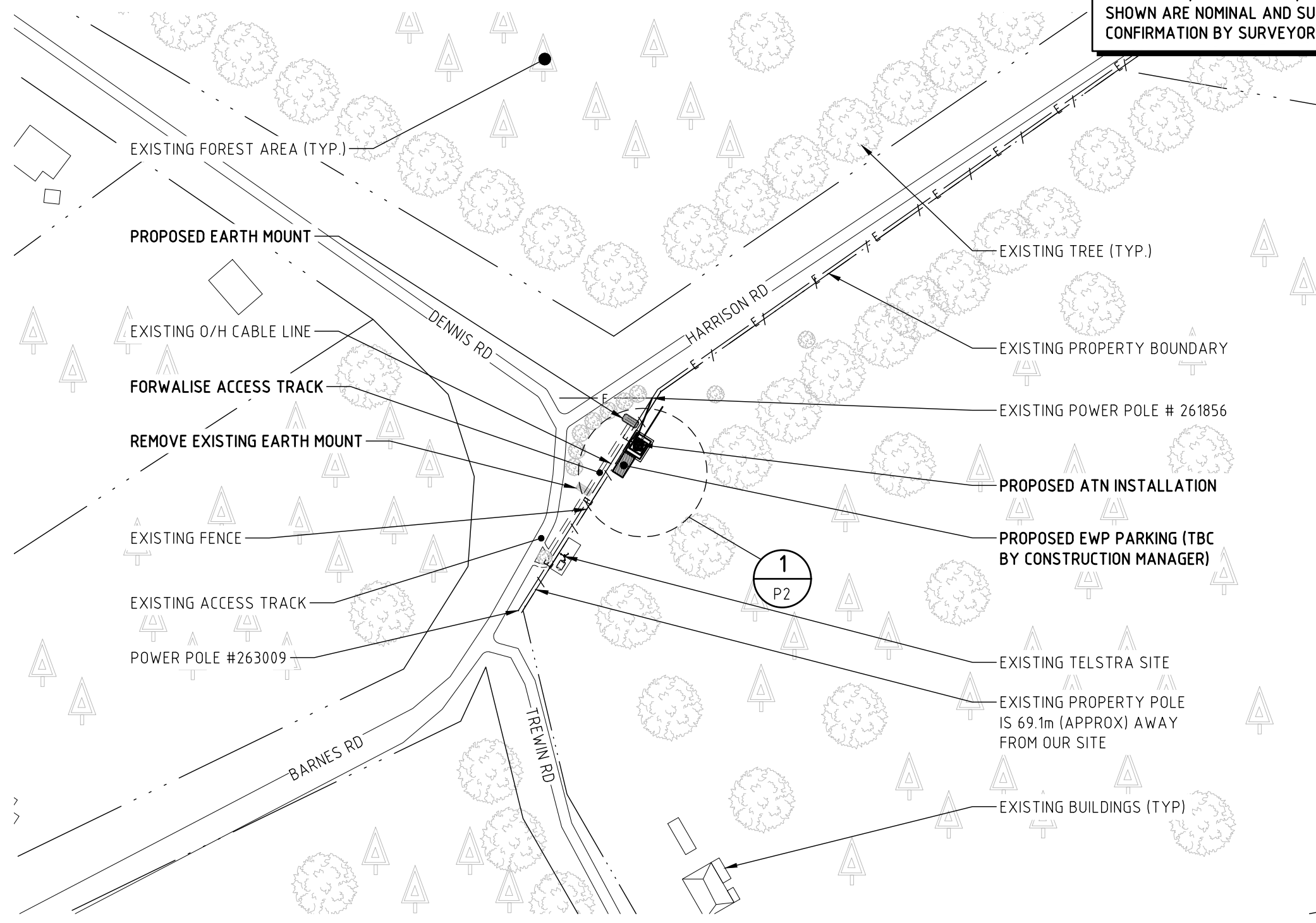
Council Planning Scheme



NOTE:
THIS DRAWING IS DIAGRAMMATIC ONLY
AND SHOULD NOT BE SCALED.
DIMENSIONS, COORDINATES, AND LEVELS
SHOWN ARE NOMINAL AND SUBJECT TO
CONFIRMATION BY SURVEYOR.



LOCALITY MAP
COPYRIGHT © GOOGLE MAPS

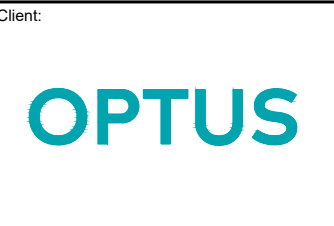


OVERALL SITE PLAN
SCALE 1:2000

LEGEND

— E — E —	EXISTING O/H POWER SUPPLY
— ··· —	NEW/EXISTING PROPERTY BOUNDARY
— 0 e — 0 e —	OPTUS UG ELECTRICITY
— 0 fo — 0 fo —	OPTUS FIBRE OPTIC
— / — / —	NEW/EXISTING FENCE LINE

Rev	Date	Revision Details	Consultant	CAD	Designer	Verifier	Approver
01	29.08.22	ISSUED FOR APPROVAL	ALL TELECOMS	ROB	KM	MB	JD



Client:
Project: **MOBILE NETWORK AUSTRALIA**
SITE No:-B2752
MUNDOOLUN
LOT 5 ON RP880863, 9 TREWIN ROAD, MUNDOOLUN, QLD 4285

Drawing Title:
OVER ALL SITE LAYOUT
Drawing Status: **FOR APPROVAL**
Drawing No. **B2752-P1**
Revision **01**

Telecommunication Towers in Bush Fire Prone Areas

This Practice Note provides direction on the application of bush fire protection measures to Telecommunication Towers in Bush Fire Prone Areas.

Towers in Bush Fire Prone Areas are critical infrastructure for fire fighting communications and for providing warnings, information and communication channels for people in bush fire prone areas during bush fire emergencies.

Telecommunications sites support wide range of communications services, broadly they are those sites that have infrastructure associated with mobile phones, internet, microwave radio links, trunk mobile radio or private mobile radio (PMR). In some instances, a number of users establish autonomous sites adjacent to one another at the same geographic location. This is variable depending on the size, purpose, complexity and remoteness of the site and could be one hut connected to a shared antenna on a tower alternatively, It could be multiple huts on a location and connected to multiple towers.

As such, a 'precautionary approach' should be taken with respect to critical infrastructure associated with communications during emergencies.

Actions should be taken by owners/ operators to reduce the risk of loss of such infrastructure and associated infrastructure from the effects of bush fire attack.

The asset protection zone is only concerned with the underlying infrastructure required to support such services which are predominately structures and buildings. Essential equipment should be designed and housed in such a way as to minimise the impact of bush fires on the capabilities of the infrastructure to provide communications capability during bush fire emergencies.

When the RFS is asked for comment on new towers or for existing towers, a 10 metre APZ from the tower/ buildings/ infrastructure associated with the tower shall be provided.

Infrastructure does not include:

- road access to the site;
- power or other services to the site;
- associated fencing;

The APZ must be free of surface fuel and elevated fuel and should have minimum canopy.

When RFS provides comments on critical telecommunications infrastructure a recommendation to the owner of the critical infrastructure is made that the materials be designed to withstand 40kWm² of radiant heat and to withstand ember penetration into the structure and associated infrastructure.



When considering notices to manage fuel, distances should be consistent with the above criteria.

Owners/operators of critical telecommunications infrastructure may accept the risk of loss of the structure from the effects of bush fire.

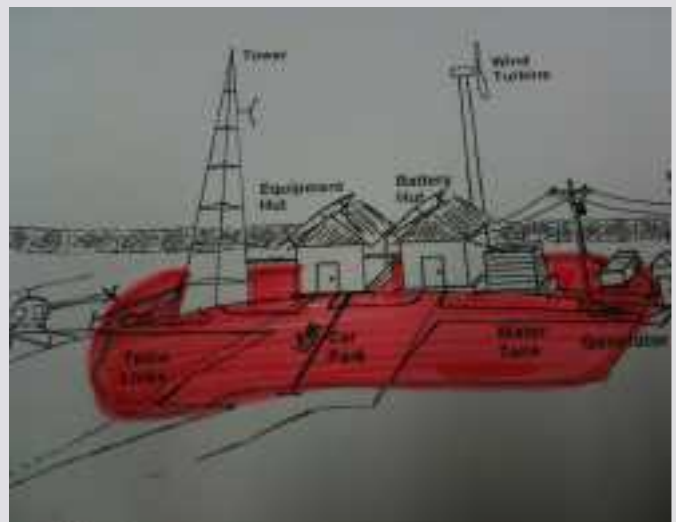
However, the RFS does not accept loss of such structures as it will have a direct impact on life safety within the fire ground.

Definitions

Critical telecommunications infrastructure is identified in a Bush Fire Risk Management Plan.

A **location** is defined as the area of land which includes one or more co located Telecommunications sites.

Figure 1: 10 metre APZ from the tower/ buildings/ infrastructure



Disclaimer: Any representation, statement opinion, or advice expressed or implied in this publication is made in good faith on the basis that the State of New South Wales, the NSW Rural Fire Service, its agents and employees are not liable (whether by reason of negligence, lack of care or otherwise) to any person for any damage or loss whatsoever which has occurred or may occur in relation to that person taking or not taking (as the case may be) action in respect of any representation, statement or advice referred to above.

Appendix 3: Asset Protection Zones

This Appendix on Asset Protection Zones (APZs) is included in this report as a guide on how to implement and maintain Asset Protection Zones, however **the dimensions required for these zones are those stipulated in the report**, not the generalised examples stated in this appendix.

What is an APZ

Generally, buildings or infrastructure located in a bushfire prone area are required to have a minimum separation between the buildings/infrastructure and the unmanaged hazardous bushland (hazardous bushland being bushland assigned a Medium, High or Very High bushfire hazard rating). This separation is known as an Asset Protection Zone (APZ) and is also sometimes referred to as a Radiation Zone or bushfire buffer.

The Asset Protection Zone can include roadways, fire trails, car parking, driveways, active park and managed areas (i.e. lawns and correctly designed landscaping). For example, on rural allotments the APZ would most often be provided by managed areas with a Low hazard rating (lawns and gardens), whilst in an area of small residential allotments adjacent to large areas of bushland the APZ may consist of a roadway or fire trail possibly supplemented by managed areas within the allotments.

An APZ provides an area for bushfire impact mitigation and a defensible space for active fire suppression. An APZ;

- Allows the radiant heat from a bushfire in adjacent bushland to at least partially dissipate before impacting on buildings or infrastructure, thereby mitigating the bushfires impact on the asset,
- Reduces the chance of direct flame contact on buildings,
- Usually includes vehicle access or firefighter pedestrian access,
- Provides an area of defensible space around the asset, allowing firefighters room to work safely and defend structures during direct, indirect and defensive suppression strategies,
- Provides a work area and break for hazard reduction burning activities to be conducted, if desirable.

Dimensions of APZs

Often the APZ will be split into two zones, an 'inner APZ' and 'outer APZ', particularly where the APZ is a managed vegetation area. As a general rule of thumb the first ten metres around the building would be an inner APZ while the remainder of the required separation would be an outer APZ, however the exact dimensions are those stipulated in the bushfire mitigation plan, not the generalised examples stated in this appendix, as it may vary depending on individual site conditions. The dimensions may vary depending on site factors, for example with a building on a slope, the APZ may be less on the upslope side of the building than on the downslope side. A change in vegetation type or size of vegetation area that the building is exposed to may also vary the dimensions of the APZ. An extended outer APZ is also sometimes used to extend the outer APZ in consideration of slope. The extended outer APZ is usually managed the same as the outer APZ.

Slopes in APZs

Generally, APZs require ongoing vegetation management and therefore need to be located where management can be physically possible. APZs on public land should not include slopes with a grade greater than 1:4, on private land APZs should avoid slopes greater than 1:3. For example, where a roadway (including road verge) provides the required separation, the road verge cannot consist of a batter greater than 1:4. Where a retaining wall is located within an APZ, access to all levels need to be provided permitting management of the entire APZ.

Vegetation in APZs

It should be noted that APZs do not necessarily call for complete clearing of all vegetation, as tall canopy tree retention, for example, is a common feature within outer APZs. The management of fuel levels within these zones is designed to reduce the intensity of bushfires before the bushfire impacts on assets such as buildings and property. The correct and continued maintenance of fuel levels within a buildings APZ may result (depending on factors such as terrain, fuel types and climatic conditions) in reduced flame height, a slowing of the rate of spread of the fire and a reduced risk of direct or radiant heat attack on buildings and other property assets.

The following is a guide for vegetation within APZs, however where there is an inconsistency between the main body of the Bushfire Mitigation Plan (BMP) and this Appendix, the requirements of the BMP applies.

The inner APZ:

- Trees have less than 15% canopy cover at maturity and canopy is discontinuous.
- Trees do not touch or overhang buildings.
- Near surface fuels (shrubs, ground covers) are not to be planted underneath tree canopies, are less than 300mm in height and have less than 10% plant cover.
- Lawns/grass is kept to less than 100mm height.
- No accumulated Leaf litter or fallen timber.

An example of 15% canopy – If the tree species being used have a maximum 5 metre diameter canopy at maturity then there could be up to one tree per 166m².

The outer APZ:

- Trees have less than 30% canopy cover at maturity.
- Trees do not touch or overhang buildings.
- Near surface fuels (shrubs, ground covers) are not to be planted underneath tree canopies, are less than 300mm in height and have less than 20% plant cover. Gaps between fuel patches are greater than the size of the patches.
- Lawns/grass are kept to less than 300mm height.
- No fallen timber.
- Leaf litter is not allowed to accumulate to more than 5t/Ha (10mm deep).

An example of 30% canopy – If the tree species being used have a maximum 5 metre diameter canopy at maturity then there could be up to one tree per 83m².

General for both zones;

- No mulch, woodchip, bark or leaf litter build-up against structures or flammable fencing.
- Shrubs and ground covers should not be species that accumulate a lot of dead fuel underneath.
- Creepers used as ground cover must not be climbers.
- Creepers should be low broadleaf succulents, such as *Myoporum ellipticum*.
- Tree selection is not to include fibrous bark trees or ribbon bark trees.
- Tree species have a well-defined trunk with upper canopy, not short bushy trees with foliage from ground to canopy, providing ladder fuels. Trees have branches lower than two metres removed, providing separation between canopy and ground fuels.
- Weed growth is removed.

The above criteria for an outer APZ, would approximately allow up to 8t/Ha overall fuel load in the outer zone.

Plant/Canopy cover is defined as the amount of ground blocked out by that fuel layer if viewed while looking straight down from above. Each plant is considered opaque – any ground within the perimeter of the plant cannot be seen.

Pebbles, gravel or scoria may be useful substitutes for garden mulch. Pathways and gravel areas in addition to lawn can assist in separation of plantings resulting in less continuity of fuels.

How to select the correct plant species for APZs

In selecting the correct plant species to use for landscaping in a bushfire prone area, consideration needs to be given to plant moisture content, branching patterns, texture, foliage density, leaf type, bark type, retention of dead material, and presence of oils, waxes and resins.

As a guide to landscaping and gardening in a bushfire prone area, the document ‘Landscaping for Bushfire’ produced by the CFA Victoria, is a useful guide on plant selection, garden design and ongoing maintenance. It can be found at <https://www.cfa.vic.gov.au/plan-prepare/landscaping>. Section 5 of the document provides a good description of the above characteristics and which are good or bad, and Section 7 of the document provides a plant selection key, which is a step by step guide on how to select plants based on those characteristics and should be used when choosing what plants to have in APZs.

There are a number of different terms used to identify suitable plants, some of the more common ones include Fire Resistant, Fire Retardant and Firewise. Not all of these are correct and such plant lists are often confused by some as to their purpose.

‘Fire Resistant Plants’ is a term that describes plant species that survive being burnt and will regrow after a bushfire. They are resistant to being killed by a bushfire, but not to being burnt. Therefore, they may be highly flammable and inappropriate for bushfire risk areas. You can often find lists of ‘Fire Resistant Plants’ being used for the wrong purpose due to people not understanding this, so beware, it does not necessarily mean low flammability.

‘Fire Retardant Plants’ can be confused by some as being plants that will not burn. All plants will burn under the right conditions, so don’t be misled. Plants with low flammability are good, but can still burn, which is why positioning, planting density and ongoing management is also just as important.

‘Firewise Plants’ is the term used in the ‘Landscaping for Bushfire’ document to describe suitable lower flammability plants.

Other Features within APZs

Non-flammable features such as tennis courts, in-ground swimming pools, dams, driveways, paved or concreted areas, uncovered patios and non-combustible water tanks may be located within the APZs. (Note: a timber deck around a pool, is not non-flammable and if connected to the building is part of the building.)

Retaining walls and fencing within APZs should preferably be non-flammable.

Piles of timber, firewood and other flammable material should not be stored within the APZ unless shielded from bushfire.

Management of APZs

Management requirements in the APZ include:

- Tree branches below two metres being removed.
- Selective removal of tree saplings.
- Fallen Timber, bark and twigs being removed.
- Leaf Litter being controlled to the appropriate level, which can be achieved by raking or using a blower/vac.
- Removing of weed growth regularly, especially woody weed.
- Regular mowing, slashing or grazing.
- Trimming back of shrubs and ground covers
- Regular watering to keep lawns and vegetation lush and green at all times, particularly during drought, when fires are more likely to happen.
- If poisoning is used, ensure dead material has time to collapse and begin to rot prior to the onset of fire season and not provide standing dead material as fuel for a potential bushfire.

Ongoing management of vegetation in the APZ is just as critical as getting the right type of plants and correct landscape design.

Building construction ratings (or BALs) are calculated with consideration of the amount of separation between the building and hazardous bushland. Not properly maintaining the APZ separation may mean the designated construction of the dwelling is not sufficient and could compromise building survivability in the event of bushfire. This could also lead to issues with insurance claims in the event of building damage or loss.



Bushland Protection Systems

Specialising in

**BUSHFIRE HAZARD
PLANNING & MITIGATION**

ABN 97 782 336 595 | Phone: 07 5546 7933 | PO Box 40, Ormeau, Qld, 4208 | E-mail: admin@bpsfire.com.au

Fire is a part of nature. Its effects can be catastrophic and fire can never be totally eliminated, however there are steps that can be taken to reduce the chances of uncontrolled fires occurring and the risk to life, property and the environment, in the event of uncontrolled fires. This is what we concentrate on, how the threats from bushfire can be minimised. There are many methods to do so, however deciding which method/s is best to use can be a complex decision to make. There are so many factors to consider such as ecological values, biodiversity, fire history, availability of resources, cost effectiveness and public awareness just to name a few. No guarantees can ever be given when dealing with Mother Nature, with ever increasing complexities it has now become a specialist field to be able to create plans to try and minimise the risk from bushfire. Ultimately it is a community responsibility to protect the environmental values, life and property in their area

COMPANY PROFILE

Bushland Protection Systems Pty Ltd (BPS) is a leading Bushfire Management Consultancy firm in Queensland, with many clients, ranging from private landowners to multi-national companies and Government bodies.

BPS consultants began operating as Bushfire Management Consultants with the introduction of the Gold Coast Bushfire Management Strategy in 1998 and spread their operations across the state with the implementation in 2003 of the State Planning Policy for mitigating the adverse impacts of flood, bushfire and landslide.

During that time over 3500 projects have been successfully completed, including large residential estates such as Coomera Waters, Spring Mountain, Pacific Pines, Coomera Springs, Observatory, Highland Reserve, Delfin Woodlands & Yarrabilba as well as commercial or Government project sites such as Paradise Country, Wacol Police Academy, Numinbah Correctional Facility, Silkwood Steiner School, Canon Hill Community Links Project & Griffith University.

With a strong background in bush fire fighting and involvement with numerous industry bodies, Bushland Protection Systems continues to deliver realistic and cost effective advice and solutions to provide higher levels of safety for the community, improve wildfire suppression and mitigation options for emergency services and land managers, while maintaining and improving environmental values for the future.

Our Consultants are registered with the Rural Fire Association of Queensland (RFAQ) as Level 2 Accredited Bushfire Practitioners.