

# Bushfire Threat Assessment

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PROPOSED RESIDENTIAL & TOURIST DEVELOPMENT AT  
LOT 156 DP 628026, CREEK STREET, HASTINGS POINT

PREPARED FOR

WALTER ELLIOT HOLDINGS PTY LTD

BY

**Planit Consulting**

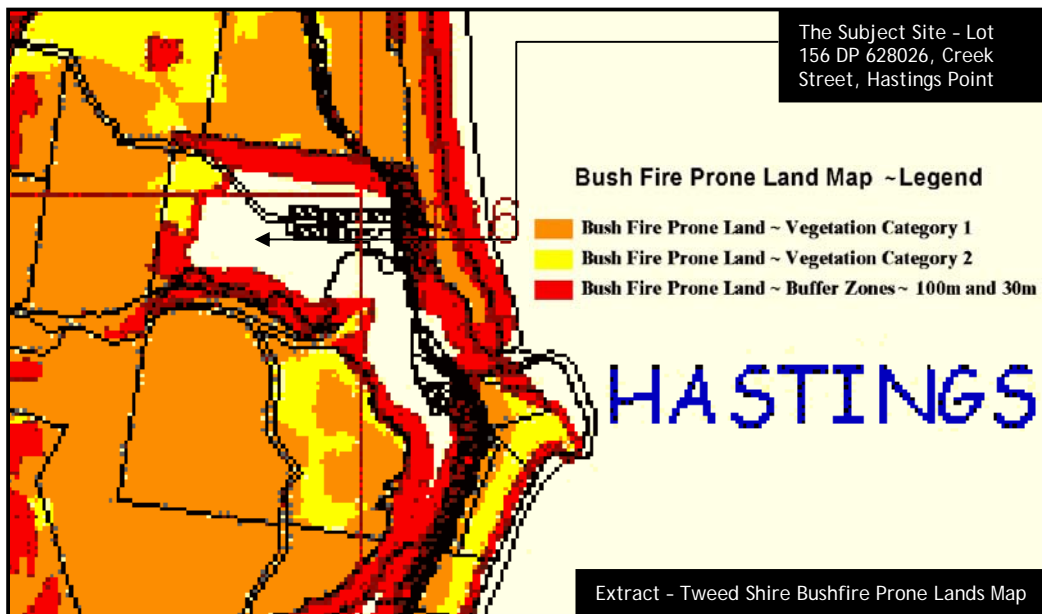
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## 1.0 Introduction

The following report has been prepared in support of a Concept Plan Approval application for a proposed residential & tourist development at Lot 156 DP 628026 Creek Street, Hastings Point. The Concept Plan has been prepared for a subdivision to create approximately 38 residential allotments plus two (2) tourist allotments and two (2) Integrated Housing allotments. Area Specific Development Controls have been developed and it is proposed that these should be adopted within Section A1 of the Tweed DCP.

The subject property is predominantly zoned 2(e) Residential Tourism and 7(a) Environmental Protection (Wetland and Littoral Rainforest) pursuant to the provisions of Tweed Local Environmental Plan 2000.

The subject property is in part located within a bushfire prone area as per Tweed Shire Council's Bushfire Prone Lands Map. Having regard to the extract from Bushfire Prone Lands Map below, the subject site is constrained by Vegetation Category 2 bushfire prone land and associated buffer zones to Vegetation Category 1 and 2.



Pursuant to Section 100B of the Rural Fires Act 1997 a Bushfire Safety Authority (permit) is required for subdivision of the subject land. The provisions of Clause 46 of the Rural Fires Regulations 2002 must be addressed with any application for a Bushfire Safety Authority Permit. The details of this report address the provisions of Clause 46, and in doing so identifies the hazard affecting the overall property and what is required in terms of asset protection zones. It is pertinent to note that in this instance as the proposal is under Part 3A of the Major Projects SEPP, no integrated nomination is required at this stage.

## 2.0 Clause 46 Provisions

### 2.1 Property Description

**(a) a description (including the address) of the property on which the development the subject of the application is to be carried out,**

The subject property is made up of three parcels of land and part of the Creek Street Road Reserve. The properties are legally described as:

Property Description			
Lot Number	Plan Number	Address	Area
Lot 156	Deposited Plan 628026.	32 Creek Street, Hastings Point	17.77 ha
<b>Total Area</b>			17.77 ha

Lot 156 is irregular in shape and borders Christies and Cudgera Creek to the South and Southeast, Cudgen Nature Reserve to the west and Creek Street road reserve and adjoining residential properties along the northern and north western boundaries.

The land is generally level with a maximum height of 3.36 m AHD as surveyed. A copy of the survey plan is appended to this report.

The concept plan indicates the proposed development is to occur predominantly within the residential zones, with road works proposed within the road reserve of Creek Street.

## 2.2 Vegetation

**(b) a classification of the vegetation on and surrounding the property (out to a distance of 140 metres from the boundaries of the property) in accordance with the system for classification of vegetation contained in Planning for Bushfire Protection,**

The residential component of the property has been cleared at sometime in the past and used intermittently as pasture for the grazing of horses. Areas of bushfire hazard are located to the north, the North West, the west, the south and south east of the residential component of the property.

To assist in defining the vegetation affecting the residential land, the residential zoned land has been broken up into four precincts. They are:

- The North West Precinct
- The Western Precinct;
- The Southern Precinct; and
- The South Eastern Precinct

A mapping extract is provided below of the defining this four precincts.

### North West Precinct:

The following analysis is provided for the vegetation located to the west and north of the residential zoned land found in the North West precinct.

Distance	0 - 20 metres	20-30 metres	30-50 metres	50-80 metres	80-100 metres	100-140 metres
<b>Vegetation to the west of the North West Precinct</b>	Salt Marsh, marine couch and local drain 3 metres	Mixture of sedges, rushes, and salt marsh interspersed	Mixture of sedges, rushes, and salt marsh interspersed	Mixture of sedges, rushes, and salt marsh interspersed	Mixture of sedges, rushes, and salt marsh interspersed	Coastal Forest comprising eucalypts and

	wide.	with mangroves.	with mangroves.	with mangroves.	with mangroves. Area west of property boundary graduates into a coastal forest comprising eucalypts and melaleucas	melaleucas
<b>Vegetation to the North of the North West Precinct from the northern Boundary with Creek Street Road Reserve</b>	Road Reserve – substantially cleared for the provision of services. Remaining vegetation resembles a treed boulevard	Developed Land - North Star Caravan Park/ Manufactured Home Estate	Developed Land - North Star Caravan Park/ Manufactured Home Estate	Developed Land - North Star Caravan Park/ Manufactured Home Estate. Graduating to forested wetland comprising melaleucas and heathland	Forested Wetland comprising melaleucas and heathland	Forested Wetland comprising melaleucas and heathland
<b>Vegetation to the east of the North West Precinct from the Boundary with Creek Street Road Reserve</b>	Road Reserve – substantially cleared for the provision of services. Remaining vegetation resembles a treed boulevard	Developed Land - North Star Caravan Park/ Manufactured Home Estate				

Dominant vegetation to the west of the residential zoned land is salt marsh, rushland and sedgeland which is identified under Planning for Bushfire Protection as a Saline Wetland or a short heathland. Accordingly a minimum ten (10) metre buffer should be provided for bushfire protection purposes from the vegetation which is generally defined by the 7(a) Wetlands Zoning boundary.

In terms of development to the north of the site it is considered there is no dominant vegetation communities located within 100 metres. It is recommended a minimum 20 metre buffer be provided to the North West corner.

#### Western Precinct:

This area borders the man made lagoon which has a width varying from thirty metres in the north to 150 metres in the south. In general this lake provides a suitable buffer to the bushfire hazard located to the west of the property and found within the Round Mountain Nature Reserve.

The following analysis is provided.

Distance	0 – 20 metres	20-30 metres	30-50 metres	50-80 metres	80-100 metres	100 – 140 metres
<b>Vegetation to the west of the West Precinct</b>	Area located on the eastern side of the land contains kept pasture, marine couch, salt marsh interspersed with mangroves	Lake			Lagoon graduating in the north to salt marsh on the western side of the lake with opportunistic mangroves. Area west of the lake comprised of native grasses, sedges, rushes and salt marsh.	

	and a small copse of casuarinas.		
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It is considered the lagoon in itself provides a suitable buffer for bushfire protection purposes.

#### Southern Precinct:

This area provides for a mix of vegetation including mangroves, casuarinas, paperbarks, saltmarsh and larger eucalypts on the southern side of Christies Creek. The following vegetation was identified.

Distance	0 – 20 metres	20-30 metres	30-50 metres	50-80 metres	80-100 metres	100 – 140 metres
Vegetation to the south of the Southern Precinct	Area located on the northern bank of Christies Creek contains a mixture of Mangroves, paperbarks & casuarinas and some salt marsh.	Mixture of Mangroves, paperbarks & casuarinas divided by Christies Creek varying in width from 5 to 15 metres	Southern Side of Creek contains similar vegetation as northern side but begins to graduate into forested areas containing tallwoods, brushbox, blackbutts and other eucalypts.			

The dominant vegetation although located on the other side of Christies Creek is identified as a forest. Accordingly a minimum 20 metre buffer should be provided for bushfire protection purposes from the edge of the vegetated areas adjacent to Christies Creek.

#### South Eastern Precinct:

This area has been heavily disturbed in the past by dredging activities by a previous landowner during the 1980's. On inspection of the site the area adjacent to the south eastern precinct dominated by tidal saltmarsh including marine couch and mangroves. The following vegetation is noted in the area to the east of this precinct.

Distance	0 – 20 metres	20-30 metres	30-50 metres	50-80 metres	80-100 metres	100 – 140 metres
Vegetation to the east and south east of the South Eastern Precinct.	Area dominated with tidal salt marsh, marine couch and mangroves. Small copse of remnant littoral rainforest (approx 40 m x 20 m) containing scattered rainforest species including tuckeroos and macarangas.	Tidal flats, Salt Marsh, marine couch and Mangroves			Mangrove Community	Mangrove Community

It is considered the dominant vegetation is saltmarsh and mangroves, with the majority of the area noted as tidal flats. Pursuant to Planning for Bushfire Protection 2006 no prescribed asset protection zones apply to this vegetation community.

### 2.3 Slope

***(c) an assessment of the slope of the land on and surrounding the property (out to a distance of 100 metres from the boundaries of the property),***

The property and surrounding land to the north, south, east and west is generally level with gradients not exceeding 5 degrees.

## **2.4 Significant Environmental Features**

***(d) identification of any significant environmental features on the property,***

The significant environmental features on the property relate to the wetland and tidal saltmarsh areas as defined by the 7(a) Environmental Protection. These areas are located primarily within the western and south eastern portions of the property. A small clump of native vegetation comprising littoral rainforest species with dimensions of 40 metres by 20 metres is found within the eastern section of the property. All significant environmental features will be either maintained or embellished.

A small section of the property in the southern most corner of the property has been identified as SEPP 14 Wetland. This will not be affected by the proposal.

## **2.5 Threatened Species**

***(e) the details of any threatened species, population or ecological community identified under the Threatened Species Conservation Act 1995 that is known to the applicant to exist on the property,***

Threatened communities are known to exist on this site, however none will require any clearing and or impacts in respect of achieving adequate APZ provision.

## **2.6 Aboriginal Relics**

***(f) the details and location of any Aboriginal relic (being a relic within the meaning of the National Parks and Wildlife Act 1974) or Aboriginal place (within the meaning of that Act) that is known to the applicant to be situated on the property,***

The site is heavily disturbed from past filling and dredging activities. No known aboriginal artefacts or relics are known to exist on the property. The remnants of a midden can be found at the mouth of Cudgera Creek on the southern bank approximately 800 metres to the south east of the development site.

## **2.7 Bushfire Assessment**

***(g) a bush fire assessment for the proposed development (including the methodology used in the assessment) that addresses the following matters:***





- (i) Asset Protection Zones** - the extent to which the development is to provide for setbacks, including asset protection zones,

As discussed above and having regard to the size of the property, the residential component was broken up into four precincts. Utilising the Planning for Bushfire Protection Guidelines and the Pictorial Key to the Structural forms of Australian Vegetation the dominant vegetation affecting these four precincts is as follows:

- North West Precinct - To the West - Short Heathland

- Western Precinct – To the West – Short Heathland
- Southern Precinct – To the South – Forest
- South Eastern Precinct – To the East – Saline Wetland

Having regard to Appendix 2 of Planning for Bushfire Protection 2006 the following Asset Protection Zones are required from edge of the hazard which is generally defined by the 7(a) Environmental Protection (Wetlands) Zone Boundary for slopes of between 0 and 5 degrees for residential development: (see tables below)

- North West Precinct – ten metre asset protection zone (contained within road) 
- Western Precinct – ten metre asset protection zone (contained in emergency fire trail) 
- Southern Precinct – twenty metre asset protection zone. 
- South Eastern Precinct – No prescribed asset protection zone 

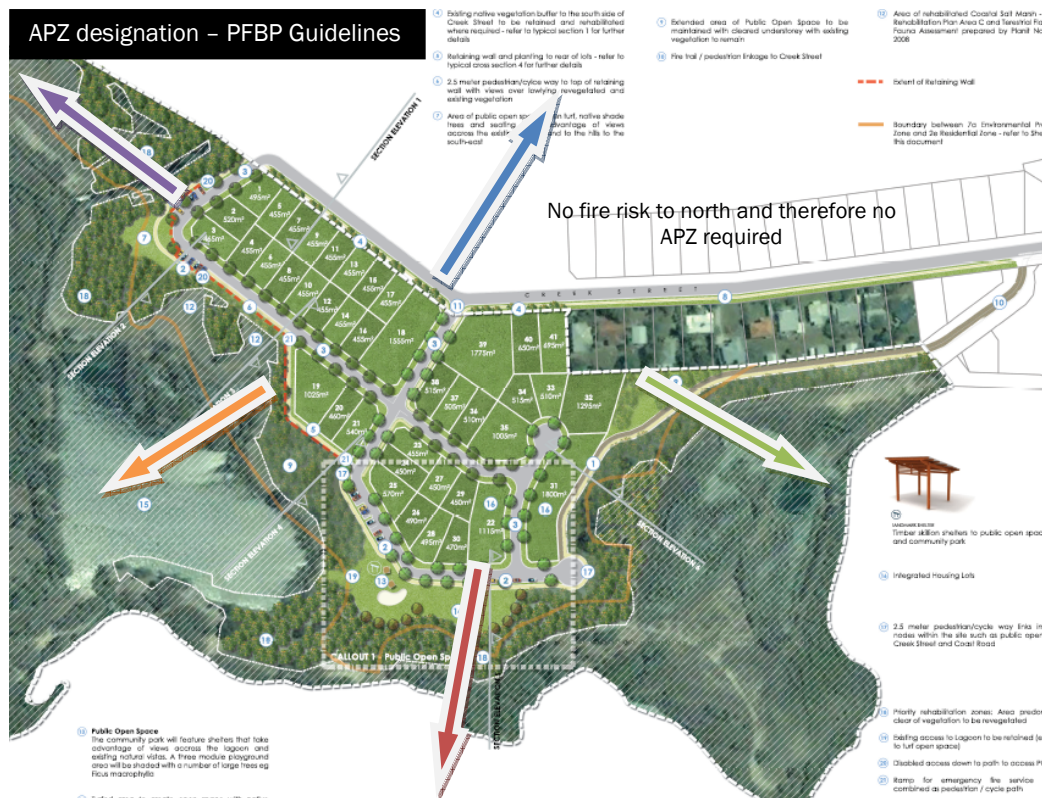


Table A2.5 Minimum Specifications for Asset Protection Zones (m) for Residential and Rural Residential Subdivision Purposes (for Class 1 and 2 buildings) in FDI 80 Fire Areas ( $\leq 29\text{kW/m}^2$ )					
Vegetation Formation	Effective Slopes				
	Upslope/Flat	>0°-5°	>5°-10°	>10°-15°	>15°-18°
Rainforests	10	10	15	15	20
Forests	20	20	30	40	45
Woodland	10	15	15	20	25
Plantations (Pine)	15	20	25	35	40
Tall Heath (Scrub)	15	15	20	20	20
Short Heath (Open Scrub)	10	10	10	15	15
Freshwater Wetlands	10	10	10	15	15
Forested Wetlands	15	20	20	30	35
Semi-Arid (Woodland)	10	10	10	10	15
Arid Shrubland	10	10	10	15	15

Table A2.6 Minimum Specifications for Asset Protection Zones (m) for Special Fire Protection Purposes in bush fire prone areas ( $\leq 10\text{kW/m}^2$ )					
Vegetation Formation	Effective Slopes				
	Upslope/Flat	>0°-5°	>5°-10°	>10°-15°	>15°-18°
Rainforests	30	40	50	60	65
Forests	60	70	85	100	100
Woodland (Grassy)	40	50	60	70	75
Plantations (Pine)	50	60	70	85	95
Tall Heath (Scrub)	45	50	55	60	65
Short Heath (Open Scrub)	35	35	40	45	45
Freshwater Wetlands	35	35	40	45	45
Forested Wetlands	50	60	75	90	95
Semi-Arid (Woodland)	30	35	40	45	50
Arid Shrubland	30	35	40	45	45
Alpine Resorts	(see page 31 and Table A3.5 on page 66)				

For the proposed tourism allotments this parcel will eventually be utilised for a special fire protection purpose and as such the provisions of Table 2.6 would apply. The tourist allotments are contained within the proposal and as such do not sit adjacent to a fire source feature i.e. vegetated areas.

#### (ii) Water Supplies - the siting and adequacy of water supplies for fire fighting,

The subject property is to be connected to town water and the subdivision is to be reticulated with town water. A number of hydrants with mains pressure will need to be strategically sited within or near the buffer areas. In this regard hydrants are to be sited in accordance with Chapter 4 of Planning for Bushfire Protection 2006.

In addition to this emergency supplies are also available from the local waterways and the manmade lake/ existing lagoon.

#### (iii) Roads - the capacity of public roads in the vicinity to handle increased volumes of traffic in the event of a bush fire emergency,

The Main road into the development is Creek Street which connects with the Tweed Coast Road. This road then leads to the coastal villages of Bogangar/ Cabarita to the north and Pottsville to the south. Creek Street presently serves thirty three residential properties. It is noted the adjacent North Star Caravan Park and 'manufactured home estate' has direct access onto Tweed Coast Road, and does not rely upon Creek Street for access. Two (2) access roads into the development area will be located off Creek Street to the northwest corner of the site.



A separate access track is also proposed from Creek Street towards the northeast and will assist access to the site for evacuation in the event of an emergency. This road is required to provide access for emergency vehicles above the design flood level of 2.4m. An area of Creek Street is prone to flooding and this emergency access is required. This emergency access will also accommodate fire service vehicles. It is considered the local road network will be capable of accommodating any additional traffic generated during a bushfire emergency.

**(iv) Fire Trails - whether or not public roads in the vicinity that link with the fire trail network have two-way access,**

The proposed development has been designed with either two way roads or a fire trail running around the perimeter of the development where it interfaces with the surrounding bushland and wetland areas. The roads provide for adequate two way access with sufficient room for vehicles including emergency vehicles to pass one another.

A fire trail is to be extended along the western boundary of the development, connecting up with public roads within the development and into the North West corner of the property to link up with the Creek Street Road Reserve. The road reserve has been cleared in the past for the provision of telecommunication and Council infrastructure, and will be constructed to provide formal access to those properties which have frontage to it.

The fire trail is to be a minimum of 4 metres wide within a 6 metre wide formation. A minimum of one passing bay is to be provided which is 20 metres long and 3 metres wide resulting in a minimum trafficable width of 7 metres at the passing bay.



**(v) Access and Egress Arrangements - the adequacy of arrangements for access to and egress from the development site for the purposes of an emergency response.**

It is considered the local road network in conjunction with the proposed subdivision layout provides for suitable means of access and egress from the development site.

**(vi) Bushfire Maintenance Plans - the adequacy of bush fire maintenance plans and fire emergency procedures for the development site.**

Having regard to the subdivision layout, the construction of the road network and fire trails and the provision of mains pressured hydrants throughout the estate, it is considered these design elements require little in the way of maintenance once constructed. In relation to the residential development adjacent to the Asset Protection Zones the following Management Measures are applicable:

- Lawns and yards are to be maintained on a regular basis and kept as an Inner Protection Zone
- Trees and shrubs are not to overhang dwellings or buildings
- Vegetation is well spread out and do not form a continuous canopy and are positioned so that they will not ignite dwellings by direct flame or radiant heat transmission
- Species that are planted do not retain dead material or generate excessive ground fuel
- Woodpiles to be located clear of any building
- Garden hose and tap to be provided within the front yard and rear yards of dwellings adjacent to the Asset Protection Zones.

These management measures would be included in a covenant on the land and placed on the title when the subdivision was registered.

**(vii) Construction Standards - the construction standards to be used for building elements in the development.**

All dwellings on the perimeter of the proposal will be required to comply with Level 1 of AS3959 - 1999.

*Table A 3.4 DETERMINATION OF CATEGORY OF BUSH FIRE ATTACK FDI 80*

Vegetation Formation (class)	Categories of Bush Fire Attack (AS 3959-1999)				
	Flame Zone	Level 3 (Extreme)	Level 2 (High)	Level 1 (Medium)	No requirement
	Distance (m) of the site from the predominant vegetation class				
All upslopes and flat land (0 degrees)					
Forests (wet and dry sclerophyll)	<17	17-<25	25-<35	35 - 100	>100
Woodlands	<9	9-<14	14-<20	20 - 100	>100
Tall heath	<13	13-<19	19-<27	27 - 100	>100
Short heath	<9	9-<13	13-<19	19 - 50	>50
Low woodland (semi-arid)	<7	7-<10	10-<15	15 - 50	>50
Arid shrublands	<8	8-<12	12-<18	18 - 50	>50
Forested wetlands	<13	13-<19	19-<28	28 - 50	>100
Freshwater wetlands	<9	9-<13	13-<19	19 - 50	>50
Rainforest	<7	7-<11	11-<16	16 - 50	>50
Downslope > 0 to 5 degrees					
Forests (wet and dry sclerophyll)	<22	22-<31	31-<42	42 - 100	>100
Woodlands	<12	12-<17	17-<25	25 - 100	>100
Tall heath	<15	15-<22	22-<31	31 - 100	>100
Short heath	<10	10-<15	15-<22	22 - 50	>50
Low woodland (semi-arid)	<8	8-<11	11-<17	17 - 50	>50
Arid shrublands	<9	9-<14	14-<21	21 - 50	>50
Forested wetlands	<17	17-<24	24-<34	34 - 100	>100
Freshwater wetlands	<10	10-<15	15-<22	22 - 50	>50
Rainforest	<9	9-<14	14-<20	20 - 50	>50

(viii) Sprinkler Systems - the adequacy of sprinkler systems and other fire protection measures to be incorporated into the development.

No Sprinkler Systems or active systems are proposed for the development. It is considered reasonable at the time of construction of individual dwellings that Council require the provision of a garden hose and tap within the front and rear yards of dwellings adjoining the asset protection zones.

## 2.8 Level of compliance with Planning for Bushfire Protection Guidelines

*(h) an assessment of the extent to which the proposed development conforms with or deviates from the specifications set out in Chapter 4 (Bushfire provisions—development stage) of Planning for Bushfire Protection.*

The proposed development has been designed in accordance with the Planning for Bushfire Guidelines. No deviation to the Planning for Bushfire Protection Guidelines 2006 is proposed.

## 3.0 Conclusion

It is considered the proposed subdivision satisfies the Planning for Bushfire Protection Guidelines 2006 and adequate land has been set aside within the subdivision layout for the provision of a suitable Asset Protection Zone.

Accordingly a Bushfire Safety Authority is respectfully requested under Section 100B of the Rural Fires Act 1997 to enable the Concept Plan to proceed.