Clarence City Council

Bushfire Management Plan

Seven Mile Beach Coastal Reserve
Seven Mile Beach

Revised
January 2017
Clarence City Council

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PROJECT TEAM

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1. Introduction

This Bushfire Management Plan (BMP) is the second revision and expansion of the initial BMP for Seven Mile Beach Coastal Reserve prepared by AVK Environmental Management and Renaissance Forestry in 2005, and will operate for a period of 5 years after which another review is recommended.

It should be noted that this BMP is not an operations plan and does not deal directly with response to bushfires. Operational procedures are dealt with in various documents prepared by the Tasmania Fire Service (TFS) and other emergency services.

1.1 Aim

The aim of this BMP is to provide a framework for bushfire management that meets Clarence City Council's land management objectives for the site, as set out in Council's *Bushfire Management Strategy for Council Owned and Controlled Land*, *Bushfire Management Strategy - Best Management Practice Guidelines* and Strategic Plan.

It must be noted that it will not be possible to prevent bushfires occurring in the reserve. Unless these fires are suppressed quickly, there is a risk that large destructive fires may develop. Depending on weather conditions, such fires may burn a substantial portion of the bushland in the reserve causing damage to assets and environmental values, and even loss of life. This BMP aims to lessen these risks by minimising the risk of fires starting in the reserve, and minimising the risk of injury or damage to assets in and surrounding the reserve.

This plan also provides for the use of fire as a management tool to:

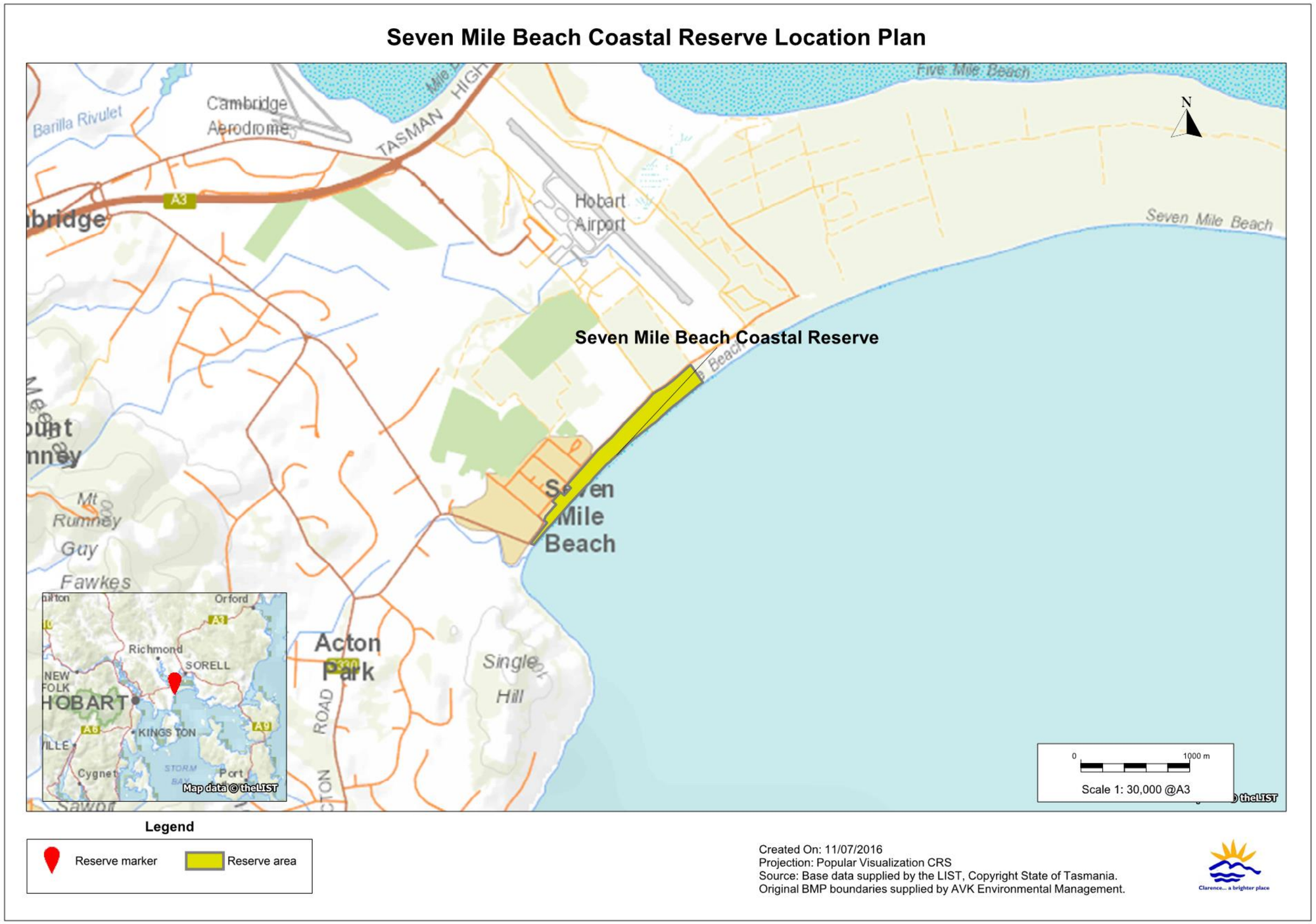
- Reduce bushfire hazard to protect assets from bushfires.
- Maintain the long-term viability of the native vegetation in the reserve.

1.2 Location and Description

Seven Mile Beach Coastal Reserve occupies the coastal dune system between the village of Seven Mile Beach and Fredrick Henry Bay. The reserve covers an area of approximately 31^{ha} and is approximately 2.8km long and approximately 200m wide at the widest point. The north-eastern end of the reserve was acquired by Council in November 2015 incorporating "Day use 1" and "Day Use 2" areas. These areas where previously managed by Crown Land Services and now known as VMU (Vegetation Management Unit) 6 and VMU 7 (see figure 7).

Seven Mile Beach Coastal Reserve has been mapped as a bushfire-prone area under the *Clarence Interim Planning Scheme 2015* (CIPS 15). Any future developments within or adjacent may require a Bushfire Risk Assessment and a Bushfire Hazard Management Plan.

Figure 1 – Location of the reserve



1.2.1 Geology and Soils

The reserve occupies a system of fore-, mid- and hind-dunes on sandstone substrates that has been formed by wind and wave action. The dunes are highly susceptible to wind erosion following disturbance. The topography is flat to undulating in the low dune system. Soils in the reserve are undifferentiated with a sandy texture.

The reserve is on a large sand spit exhibiting extensive beach ridge assemblage which records its gradual development in Pleistocene times, it is the largest sand spit in SE Tasmania and is significant at the State level and outstanding in the regional context. Threats include vegetation removal by fire or clearance, which may lead to blowouts (De Gryse 1999).

1.2.2 Vegetation

The major vegetation communities in the reserve are shown in figure 2. Vegetation types and community boundaries within the reserve are based on Tasveg 3.0 mapping, checked and modified where required following a survey of the reserve. Vegetation community boundaries outside the reserve have not been checked for accuracy but are shown to give an indication of the surrounding vegetation. The majority of the vegetation in the reserve is grassland or grassy woodland, with *Eucalyptus viminalis* coastal forest and woodland (DVC) being the dominant plant community, together with non-native marram grassland (FMG). In the middle of the reserve is a forested aggregate of Monterey pines (*Pinus radiata*) (FPL). Although the pines were probably planted as part of a plantation many of them are regrowth. There are scattered pines through the rest of the reserve. Prominent native shrubs in the reserve include banksia (*Banksia marginata*), broadleaf hopbush *(Dodonaea viscosa)* and coastal wattle (*Acacia sophorae*).

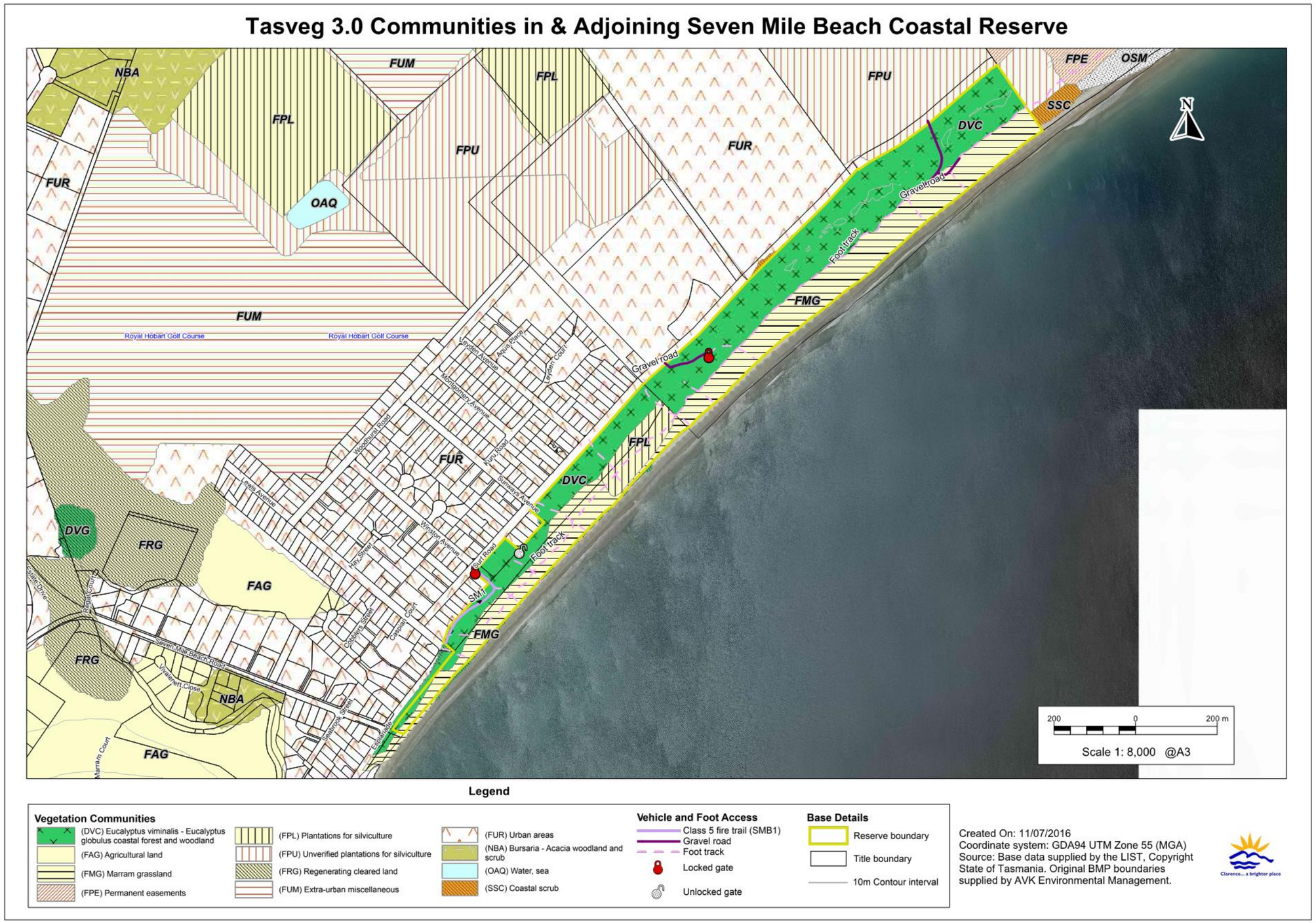
Eucalyptus viminalis coastal forest and woodland (DVC) is listed as threatened native vegetation community under the *Nature Conservation Act 2002.*

1.2.3 Reserve Usage

Seven Mile Beach is popular for swimming and walking, a number of tracks connecting the beach with the village of Seven Mile Beach run through the reserve. There is also one walking track running through the reserve parallel to the beach which is popular for walking, dog exercising and jogging. A children's play reserve, barbecue facilities, community hall and toilet block are located in Lewis Park (VMU 3). Day Use 1 & 2 areas (VMU 6 & VMU 7) have picnic tables and grassed areas. Day Use 2 also has a timber cladded toilet block.

It should be noted that the Seven Mile Beach Coastcare Group have cared for the reserve for an extended period of time, keeping them informed on the BMPs management prescriptions will assist in a holistic management approach.

Figure 2 – Vegetation types in the reserve



1.3 Bushfire Management Objectives

Bushfire management within the Seven Mile Beach Coastal Reserve will meet the following broad management objectives:

1. Protection of life, assets and adjoining property from bushfire.
2. Minimise the risk of fires starting and spreading in the reserve.
3. Protection and enhancement of the ecological and visual values provided by the reserve.
4. Protection of infrastructure and cultural heritage values within the reserve.
5. Recovery, maintenance and enhancement of vegetation communities and fauna habitat within the reserve.
6. Minimisation of soil loss resulting from fire, or bushfire management activities.

The actions recommended to attain each of these objectives are listed in section 5.1.

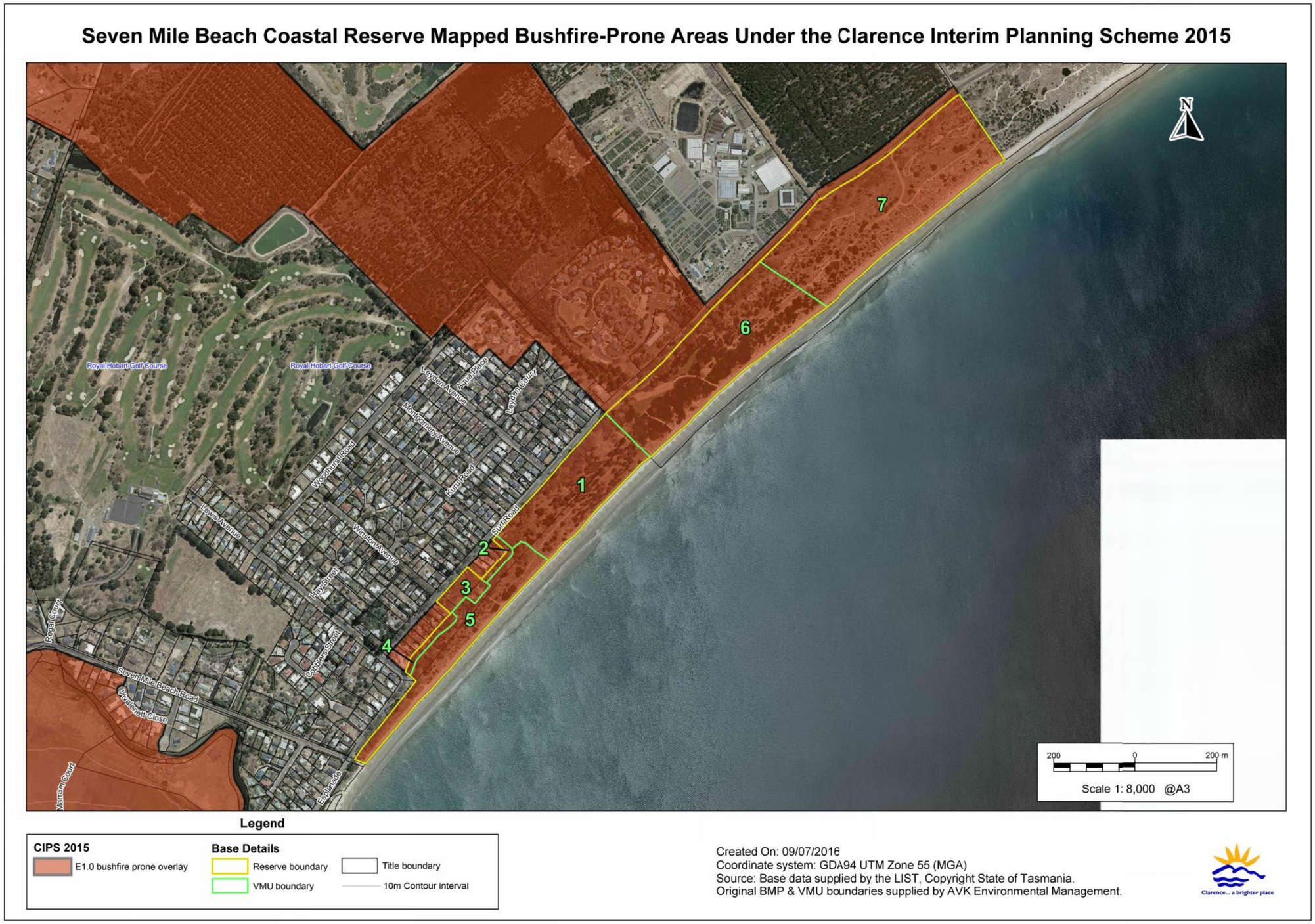
1.4 Reserve Management Responsibilities

Management of the park is the responsibility of Clarence City Council. Clarence City Council has a responsibility under the *Fire Service Act (1979)* to take all reasonable precautions to prevent any fire lit on their property from spreading onto neighbouring property. This BMP will help to fulfil that "duty of care". The TFS is responsible for suppressing bushfires within the reserve.

1.4.1 Reserve Activity Plan

In December 2011 Tasflora developed the *Seven Mile Beach Reserve Activity Plan 2011-2016*. This document aims to ensure the reserve is sustainably managed and links directly to the BMP through the preservation and enhancement of its natural, cultural and social values.

Figure 3 – Mapped bushfire-prone areas under Clarence Interim Planning Scheme 2015 (CIPS 15)



2. Bushfire Risks

Extreme bushfire conditions can occur in southern Tasmania when dry winters and springs are followed by summers where fuels are very dry. Under these conditions, fires can be expected to move quickly under the influence of strong, dry, north-westerly winds, and then move more or less at right angles on a broad front when the subsequent south-westerly wind change arrives. Fires that start under these conditions can reach a very high intensity, even in areas with relatively low fuel loads, and are very difficult to control until the weather conditions abate.

Fire poses a threat to the natural values within the reserve as the removal of vegetation resulting from fire can cause blow outs and lead to further coastal erosion.

2.1 Bushfire History and Causes (2001-2015)

The bushfire history of the Seven Mile Beach Coastal Reserve during 2001-2015 is shown on figure 4.

2.1.1 Bushfires

There were several small fires in the reserve during 2001, believed to have been deliberately lit. From October 2007 until December 2015 the TFS responded to 7 fires within the reserve (mainly from unattended camp fires in Day Use 1 and Day Use 2), one fire was ignited as the result of the torching of a stolen vehicle. All fires where less than 1^{ha}.

In addition the TFS responded to an additional torched car within the reserve during June 2013.

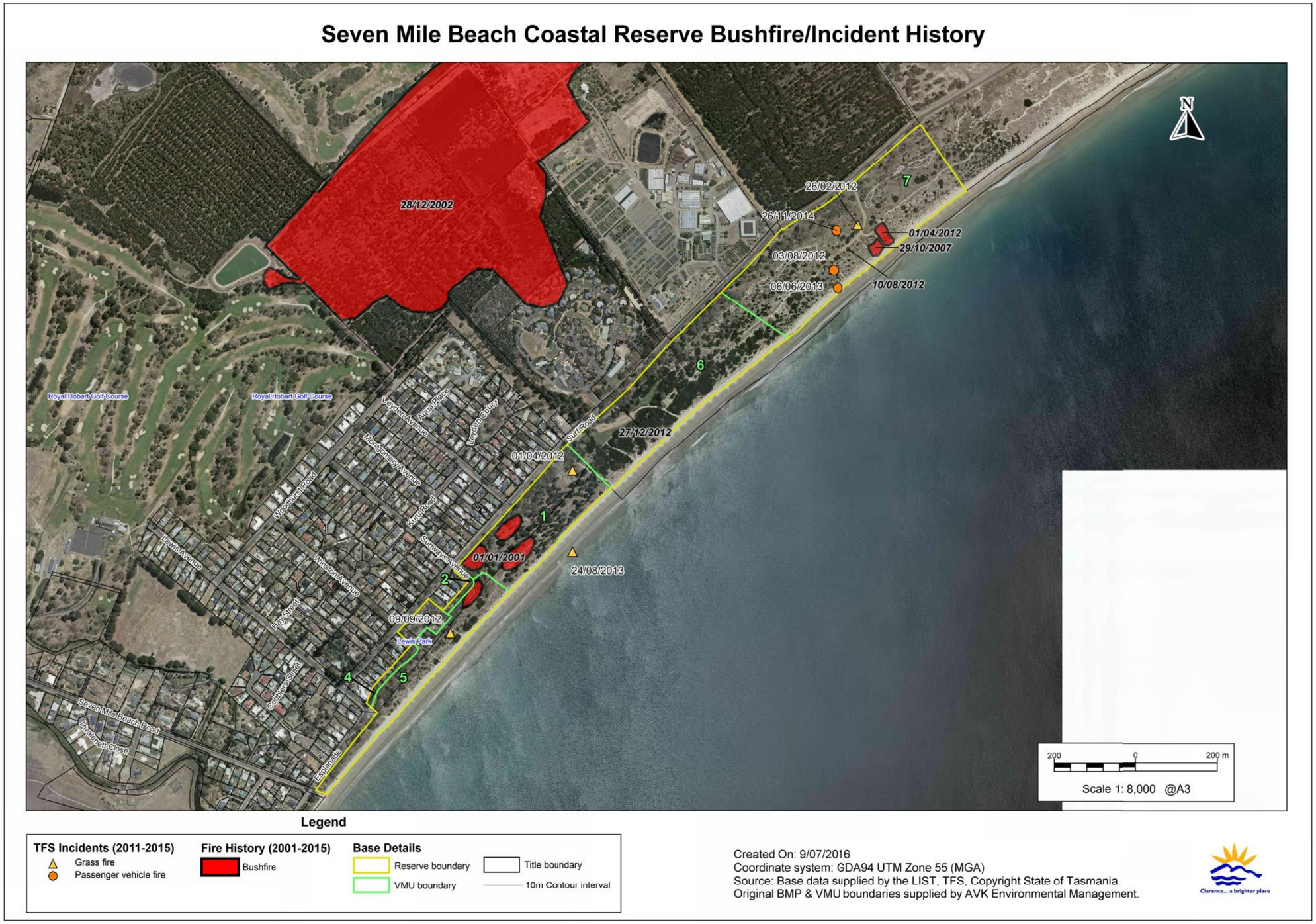
2.1.2 Planned Fires

The previous BMP noted that the local volunteer TFS brigade previously burnt off areas within the reserve, but this ceased in the 1980's.

No broadscale planned burning was recommended or occurred within the reserve during the 5 year period of the previous BMP.

During 2015 Councils Fire and Bushland Management burnt several heaps of residue from felled *Pinus radiata* within the reserve. Several large end diameter logs remain unburnt in these areas. Localised weed infestation have become evident in some sites with follow up weed work required.

Figure 4 – Bushfire history 2001-2015 / TFS incidents (2011-2015)



2.2 Fuel Types and Hazard Levels

The higher the intensity of a bushfire the greater its destructiveness and the more difficult it is to control. As the intensity of a bushfire increases it becomes progressively more difficult to contain and suppress the bushfire. Very high intensity (> 4000 kW/m heat output at the fire front) fires with flame heights greater than 10m are generally uncontrollable (NSW Rural Fire Service, 1997). Although grass fires rarely attain a very high intensity, they can move much faster than forest fires, thereby making them difficult to contain.

Bushfire intensity is a function of the heat content of the fuel, the quantity (load) of fuel, and the rate of spread of the bushfire. The heat content of vegetation fuels is roughly constant, and rate of spread is largely a function of slope and weather conditions (wind speed and relative humidity). It has been found that the quantity and distribution of fine fuels are the main factor influencing bushfire behaviour. Larger fuels burn during a bushfire but do not contribute significantly to the spread of a bushfire (NSW Rural Fire Service, 1997).

Fine fuels consist of dead plant matter less than 6mm in diameter and live plant matter less than 2mm in diameter (including grasses, bracken, leaves, bark, and twigs and branches) (Marsden-Smedley, 2009). Fine fuel load (measured in tonnes per hectare) has therefore been used as a convenient measure of the underlying bushfire hazard in areas dominated by woody vegetation. The fine fuel load at any given time is a balance between the rate of fuel build-up, and factors that remove fuel, such as litter decomposition and fire. In the absence of bushfire, fuel loads in forests and woodlands with a shrubby or heathy understorey build up to a quasi-equilibrium state where the rate of fuel production equals the rate of decomposition. The maximum levels vary for different vegetation types and also for the same vegetation types in different locations (Conroy, 1988). The time taken to reach equilibrium fuel loads also varies, ranging from about 2 years in some native grasslands to about 20 to 40 years in dry eucalypt forests (Marsden-Smedley, 2009).

However, it has been found that fuel structure is possibly more important than the total fine fuel load in determining bushfire behaviour (Marden-Smedley, 2009). Fuel in forests, woodlands and shrublands can be categorised into four layers with differing effect on bushfire behaviour (Hines et al., 2010). These layers are:

- **Surface fine fuel**; leaves, bark, small twigs and other fine fuel lying on the ground. These fuels provide the horizontal continuity that allows a bushfire to spread.
- **Near surface fine fuel**; grasses, low shrubs, bracken etc. up to about 0.5m above the ground surface. Fuels in this layer will burn when the surface fuel layer burns and will increase bushfire intensity.
- **Elevated fuels**; larger shrubs and small saplings with most of the fuel closer to the top of this layer and a clear gap between them and the surface fuels. These interact with the two lower fuel layers to further increase bushfire intensity. They also contribute to the vertical continuity of fuel that allows fire to 'climb' into the tree canopy.

- **Bark fuels**; flammable bark on trees, saplings and large bushes from ground level to canopy. Loose fibrous bark on stringy-bark eucalypts, and candle bark on some gums can generate large amounts of burning embers which can start spot fires ahead of the main fire front.

Canopy fuels are not usually included in fuel hazard assessments in forests and woodlands, but are included in shrubland and heath fuel types where they are equivalent to elevated fuels. If there is sufficient fuel in the lower fuel layers to start the canopy fuel burning (called a crown fire) bushfire intensity can increase considerably. Crown fires in forests are generally considered uncontrollable (Luke and McArthur, 1986).

The main fuel factor that influences the rate of spread of a bushfire is the quantity of near surface fuel whereas total fine fuel load is the main factor influencing bushfire intensity (Gould et al 2007).

In grasslands and grassy woodlands the degree of curing (dryness) of the fuel is considered at least as important as the actual fuel load (Cheney and Sullivan, 2008). Grass goes through an annual cycle with new growth in spring drying out over summer. The bushfire hazard in grassland areas is greatest when the grass is fully cured which usually occurs during the period from December to April depending on seasonal breaks and significant summer rainfall events. However, grasslands that are not grazed or slashed over winter can burn in spring if cured grass from the previous growing season is still present.

Unlike bushland dominated by woody plants, grasslands can accumulate fuel very rapidly, and therefore burning is not a very effective method of hazard reduction. As grass fuel decomposes faster than eucalypt leaves and twigs, and is more likely to be eaten by herbivores, fuel loads in grasslands and grassy woodlands can fluctuate from year to year (Cheney and Sullivan, 2008).

Fuel loads can be roughly categorised in terms of the potential threat they pose as follows:
Low - < 5 tonnes per hectare
Moderate - 5 to 15 tonnes per hectare
High - >15 tonnes per hectare.

The characteristics of each fuel type in the reserve are given in table 1. The TASVEG 3.0 codes of the vegetation types in figure 2 corresponding to each fuel type are listed under the fuel type.

Table 1 – Characteristics of the different fuel types in the reserve

FUEL TYPE	FUEL HAZARD CHARACTERISTICS	BUSHFIRE BEHAVIOUR AND CONTROL
Grassy forest / woodland DVC	Canopy, near surface and surface fuel all present, bark fuels only present on roughed barked trees and shrubs. Moderate fuel loads, grass/bracken cover dense in aggregates up to 1m high. Leaf and bark fall around trees contributes to a gradual build-up of fuel, particularly around the base of trees. Grass/bracken component of the fuel load can build up fuel rapidly after ire.	Can burn with moderate to high intensity depending on the degree of fuel build-up. Significant ember attack on structures and spotting across containment lines can be expected. Capable of carrying a bushfire at any time of year if there is a sufficient amount of litter on the ground, and/or cured grass. Tree cover is generally too sparse to sustain a crown fire, however, the eucalypts, particularly old hollow trees and those with rough bark, will be a source of burning embers which can carry a bushfire over nearby fire control lines (roads, fuel breaks) and threaten nearby buildings. Fuel reduction burning is effective in removing accumulated litter and the bark fuels largely responsible for spotting, but grass/bracken fuels can be replenished within a year after a burn.
Pine Plantation FPL	Low to moderate overall fuel loads, predominantly canopy and bark fuels. High proportion of the fuel finely divided and in the canopy. Surface and near surface fuels present, in form of grasses up to 0.5m high. Elevated fuels very sparse.	Can sustain a running crown fire of high intensity on days of extreme bushfire weather that would be difficult to control. Significant ember attack on nearby structures and spotting across containment lines can be expected. Sparse elevated fuels will make crown fire difficult to occur. Planned burning will have little effect of the bushfire hazard as most of the fuel is in the canopy.
Unmanaged grassland FMG	Surface fuels present, near surface fuels present in the form of native and introduced grasses with some dense aggregates of bracken. Potential for dense elevated fuels to approximately 1m high following wet winters and springs, in addition to present felled P*inus. radiata.* Canopy fuels present in VMU 6 & 7 in the form of *Acacia. sophorae.* Flammability dependant on degree of curing of the grass. Grass/bracken fuels can be replenished within a year post burn.	Can generate rapidly moving, moderate intensity fires in late summer and early autumn. Fires can occur at other times of the year if the cured standing crop from the previous year's growth persists. Likely to be relatively little spotting so fires can usually be stopped at roads and firebreaks, however, fires may be uncontrollable in extreme conditions. Dense aggregates of *Acacia sophorae* able to withstand crown fire under suitable fire conditions.

Currently fuel loads within the reserve are variable averaging 3-7$^{t/ha}$. Fuel loading in FMG with sparse Coastal wattle *(Acacia sophorae)* currently averages 4-6$^{t/ha}$. Fuel loadings within DVC with thick bracken currently 4-7$^{t/ha}$, without bracken average 3-5$^{t/ha}$.

2.3 Bushfire Threat and Risk to Persons

The south-west to north-east orientation of the reserve means that any fires that start in the reserve on days with severe bushfire weather (strong, dry northerly to westerly winds) would be blown away from adjoining houses. The main bushfire threat to the reserve is considered to come from fires that start at the southern end of the reserve being blown northwards through the reserve by south westerly winds or sea breezes.

As most usage of the reserve is confined to Lewis Park, Day Use 1&2 areas and the beach, the bushfire risk to persons is considered to be low as anybody in the reserve during a bushfire could easily reach a safe area on the beach or on adjoining streets.

2.4 Assets at Risk from Bushfire

Assets potentially at risk from bushfire include; dwellings, infrastructure, and other items (such as ornamental and regeneration plantings) which would cost money to replace; as well as items of scenic, cultural and natural heritage value which could be damaged or destroyed by bushfire, or bushfire suppression activities. Each landowner has an obligation to reduce a bushfire hazard where it is a threat to neighbouring properties. However, even with extensive hazard reduction burning, the risk of high intensity bushfires occurring in the reserve cannot be eliminated. Therefore, consideration must be given to protection measures that will reduce the risk of bushfire damage to assets in and surrounding the reserve. Assets within and surrounding the reserve that are considered at risk from bushfires are shown in figure 5.

2.4.1 Bushfire Risk to Natural Heritage Assets

The conservation value of the native plant community in the Seven Mile Beach Coastal Reserve is given in table 2. Coast houndstongue (*Cynoglossum australe)* is a flora species of conservation significance which occurs within the reserve - see figure 5. Table 3 states it's response to bushfire.

The *Natural Values Atlas* identifies no verified records of fauna species of conservation significance occurring within the reserve. It does identify potential habitat present within the reserve for the following species:

Wedge-tailed eagle (*Aquila audax)*, Tasmanian wedge-tailed eagle *(Aquila audax* Subsp. *Fleayi),* white-bellied sea eagle *(Haliaeetus leucogaster)*, spotted-tail quoll *(Dasyurus maculatus)*, green and gold frog *(Litoria raniformis)*, chaostola skipper *(Antipoda chaostola)*, tussock skink *(Pseudemoia pagenstecheri)*, swift parrot *(Lathamus discolor)*, Tasmanian devil *(Sarcophilus harrisii)*, masked owl *(Tyto novaehollandiae)*, Australian grayling *(Prototroctes marena)*, forty-spotted paradalote *(Paradalotus quadragintus)*, chevron looper moth *(Amelora acontistica),* eastern barred bandicoot *(Parameles gunnii)* and grey goshawk *(Accipiter novaehollandiae).*

The southern elephant seal *(Mirounga leonine* susbsp. *Macquariensis)* has been observed on the adjacent beach in the 1990's. No recent sightings have been recorded in the *Natural Values Atlas.*

Table 2 – Conservation values of native plant communities

TASVEG 3.0 CODE	EQUIVALENT FLORISTIC COMMUNITY[1]	Conservation Status[2]
DVC	DRY-hVIM-co Heathy *E.viminalis* coastal forest/woodland	THREATENED NATIVE COMMUNITY

1. Forest Practices Authority (2005)
2. *Nature Conservation Act 2002*

Table 3 - Plant species of conservation value and preferred bushfire management

SPECIES	CONSERVATION STATUS[1]	OCCURRENCE	RESPONSE TO BUSHFIRE AND MANAGEMENT	*ENVIRONMENT PROTECTION AND BIODIVERSITY CONSERVATION ACT 1999* (EPBC Act) STATUS
Cynoglossum australe Australian hounds tongue	RARE	Large population previously observed near Surf Road beneath white gums and scattered elsewhere on the dunes.	Regenerates from seed following bushfire - sometimes prolifically.	Not threatened

1. Tasmanian *Threatened Species Protection Act* 1995

Figure 5 - Assets at Risk from Bushfire

The fire sensitivity and flammability ratings of the vegetation types in the reserve according to Pyrke and Marsden-Smedley (2005), is given in table 5.

Table 4 – Fire attributes of vegetation

TASVEG 3.0 CODE	FIRE SENSITIVITY	FLAMMABILITY
DVC	Low	High
FMG	Low	Very high
FPL	Extreme	Moderate

Flammability classification of Tasmanian vegetation (Pyrke & Marsden-Smedley, 2005)

FLAMMABILITY	CRITERIA FOR FLAMMABILITY
Very high	Will burn readily throughout the year even under mild weather conditions, except after recent rain (i.e. less than 2–7 days ago).
High	Will burn readily when fuels are dry enough but will be too moist to burn for lengthy periods, particularly in winter. Fuels will be dry enough to burn on most days from late spring to early autumn.
Moderate	Extended periods without rain (i.e. two weeks at least) and/or moderate or stronger winds are required for these communities to burn.
Low	These communities will burn only after extended drought (i.e. four weeks without rain) and/or under severe fire weather conditions (i.e. forest fire danger index > 40).

Note: recently burnt stands of low or moderate flammability classes may have a higher flammability rating.

Fire sensitivity classification of Tasmanian vegetation (Pyrke & Marsden-Smedley, 2005)

FIRE SENSITIVITY	ECOLOGICAL IMPACT OF BUSHFIRE	MANAGEMENT RECOMMENDATIONS
Extreme	Any bushfire will cause either irreversible or very long-term (> 500 years) damage.	Suppress all bushfire. Highest priority for bushfire suppression.
Very high	A single bushfire will cause significant change to the community for 50–100 years and will increase the probability of subsequent fires changing the community permanently.	Suppress all bushfire. High priority for bushfire suppression.
High	A fire-adapted community requiring at least 30 years between fires to maintain the defining species. Bushfire intervals greater than 80 years are required to reach mature stand structure.	Suppress all bushfire, but give higher priority to stands burnt less than 80 years ago.
Moderate	A fire-adapted community requiring at least 15 years between fires to maintain the defining species.	Suppress fires in stands burnt less than 20 years ago.
Low	Highly fire-adapted or non-native vegetation. A single bushfire will generally not affect biodiversity, although repeated short intervals (i.e. < 10 years) may cause long- term changes.	Suppression usually not an ecological priority except in specific situations (e.g. a recently burnt stand of a threatened species).

The low fire sensitivity of the vegetation in the reserve indicates that it is highly fire adapted and a single bushfire will generally not adversely affect biodiversity, though repeated fires at intervals of less than 10 years may cause long-term changes in floristics and vegetation structure (Pyrke & Marsden-Smedley 2005). The high to very high flammability rating of the native vegetation in the reserve in Pyrke & Marsden-Smedley (2005) indicates that it will burn readily even under mild weather conditions. Fuels will be dry enough to burn at any time of the year except immediately after rain. As the pines in the reserve are extremely fire sensitive they are likely to be killed by even a moderate fire.

2.4.2 Bushfire and Habitat Management

The main bushfire risk to natural heritage assets in the reserve is from bushfires that burn the whole of the reserve as well as fire regimes (planned or unplanned) that are outside the thresholds within which a particular plant community, or habitat for flora and fauna species, has viability in the long-term. Fire regimes within the thresholds of a particular plant community will help maintain its long-term viability, whereas fire regimes outside the thresholds are likely to lead to progressive changes in the structure and floristics of the plant community, and loss of habitat for the fauna favouring that plant community.

High intensity bushfires that burn the whole of the reserve can damage or destroy valuable fauna habitat including:

- Tree hollows used as nests and dens by many birds and arboreal mammals.
- Mature, senescing or dead trees that can be important invertebrate, bird and reptile habitat, and take a long time to replace.
- Understorey species that provide nest and shelter sites as well as a food source for many bird and mammal species.
- Fallen logs, bark and leaf litter that provide shelter and a food source for invertebrates, frogs, reptiles, birds and mammals.

Species may be lost from the reserve if they cannot recolonise from nearby areas, or survive in unburnt patches.

Bushfires often stimulate the spread of environmental and other weeds. However, some weed species provide significant protection and food sources for fauna (for example, gorse and blackberry) and removal of these species should be carefully managed to ensure they are progressively replaced by equivalent native species habitat.

The bushfire management requirements of the different plant communities/habitats in the reserve are given in table 5. These plant communities have been grouped together according to their bushfire management requirements.

Table 5 - Bushfire management requirements of the plant communities in the reserve

TASVEG 3.0 MAPPING UNITS	BUSHFIRE IMPACTS AND BUSHFIRE MANAGEMENT AIMS
Grassy dry sclerophyll forests and woodlands	
DVC – *Eucalyptus viminalis* coastal forest and woodland	Bushfire controls the establishment of a dense shrubby understorey which would reduce light penetration to the ground layer. This can help maintain a diversity of heathy shrubs and herbs. Frequent fires can encourage a dense bracken layer that can suppress other ground layer species. Bushfire provides an opportunity for fire dependent species to germinate. **Optimal bushfire interval for maintaining these communities is 15-25 years.** **Exclude broadscale fires for the duration on the plan.**
Non-native forests	
FPL – pine plantation	Trees may survive a low intensity bushfire but are likely to be killed by a moderate to high intensity bushfire. Pines will regenerate prolifically after a bushfire. **Exclude broadscale fires for the duration on the plan.**
Coastal vegetation	
FMG - Marram grassland	Variation in bushfire frequency and intensity within coastal vegetation can lead to the evolution of different communities (Harris, 1991). Bushfire can lead to destabilisation of sand dune environments. Successional processes in coastal grassland are inhibited by fire. **Exclude broadscale fires for the duration on the plan.**

2.4.3 Bushfire Risk to Built and Cultural Assets

Infrastructure in the reserve likely to be at risk from bushfire is shown on figure 5 and includes; power lines, barbecue facilities, timber picnic tables, two toilet blocks (one timber cladded), a children's playground, assorted signage and the Seven Mile Beach Community Hall. In addition, a number of houses directly adjoin the reserve.

The degree of bushfire danger at any particular time is a combination of fine fuel quantity, slope, and the prevailing weather conditions. The actual risk of a bushfire causing damage to an asset is a function the degree of danger, the probability of a bushfire igniting, and any measures taken to prevent the bushfire causing damage.

The four major modes of attack by bushfires that can cause damage to assets are:

1. Wind-blown burning debris
2. radiant heat which can ignite flammable materials ahead of the fire front and shatter glass
3. flame contact
4. Strong winds generated or intensified by the bushfire.

The potential for damage to buildings in the path of large fires burning out of the reserve will depend largely on:

- Whether the bushfire will approach upslope or downslope
- the quantity and distribution of fuel surrounding the building
- whether they are defended during the bushfire
- their design
- if the building was constructed to Australian Standard 3959-2009, *Construction of Buildings in Bushfire-prone Areas*
- How well they have been maintained.

The Australian Standard for Construction of Buildings in Bushfire-prone Areas (AS:3959 – 2009) uses a Fire Danger Index (FDI) of 50 to determine the Bushfire Attack Level (BAL) for buildings that need to comply with the standard. An FDI of 50 is the boundary between Very High and Severe Fire Danger Rating.

There is insufficient data available to assess the likelihood of a high intensity bushfire starting in the reserve, however there is sufficient fine fuel within the reserve to sustain a high intensity bushfire on days of extreme fire danger. The bushfire risk to the built and cultural heritage assets within and surrounding the reserve has been assessed using a procedure adapted from the National Emergency Risk Assessment Guidelines (NEMC, 2010). The assessment process is explained in section 5.4 of *Clarence City Council Bushfire Management Strategy for Council Owned and*

Controlled Land, and the results and proposed management strategies are shown in table 6. This assessment process has been analysed and complies with AS/NZS IOS:31000-2009.

Note that the assessment in table 6 only considers the risk from fires starting in, or passing through the reserve. Some assets may face a greater bushfire risk from nearby bushfire hazards that are not under the control of Clarence City Council. Some assets, such as Aboriginal heritage sites, may not be directly damaged by bushfire but may be damaged by bushfire management and bushfire suppression activities, such as constructing fire control lines. These risks are noted under "other risks" in table 6.

NOTE: It was not possible to inspect assets on properties adjoining the reserve. The risk assessment therefore makes the following assumptions about these assets:

- Landowners/residents have established and are maintaining a defendable space to TFS specifications around vulnerable assets, either wholly within the lot, or up to the boundary with the reserve where there is insufficient space within the lot. Where this is not the case the asset may face a much higher bushfire risk than indicated in the risk assessment.
- All dwellings adjoining the reserve are well maintained to resist attack by wind-blown burning embers. Where this is not the case the asset may face a much higher bushfire risk than indicated in the risk assessment.

The management strategies recommended in table 6 will reduce the existing bushfire risk to built and cultural assets but in most cases will not eliminate it. Active protection of an asset during a bushfire can greatly reduce the bushfire risk.

Table 6 - Bushfire risk assessment for built and cultural assets

RISK CATEGORIES

LOW – asset of low value or considered to have a low risk of damage from bushfires in the reserve due to its construction, location, or protection measures already in place.

MODERATE – asset is vulnerable to damage by bushfires and could face attack by a moderate to high intensity bushfire, but has features that will reduce the intensity of the fire attack, or provide some protection from fires. Further bushfire protection measures are required.

HIGH – asset is of high value, is vulnerable to damage by bushfires and could face attack by a high intensity bushfire with few, if any, features that would reduce the intensity of fire attack. Further bushfire protection measures are required.

ASSET AT RISK	RISK ANALYSIS (See section 5.4 of the Bushfire Management Strategy)								OTHER BUSHFIRE RISKS	PROPOSED MANAGEMENT STRATEGIES
	A	B	C	D	E[1]	F	G	Level of Risk		
Timber cladded toilet block in day use 1	2	2	3	3	3	3	6	1944 Moderate		The toilet block is cladded in timber with thick vegetation on all sides and is vulnerable to impact from fire. Recommend Council budget for replacement should it be destroyed by bushfire, rather than maintaining a large defendable space around the building.
Power line along the eastern side of the Esplanade	2	2	3	3	2	1	4	288 Moderate		Maintain existing easement. Clear at least 1m around the base of each pole.
Dwellings bordering the reserve along the western side of the Esplanade.	2	2	3	2	2	1	6	288 Moderate		Advise residents of the need to maintain adequate defendable spaces around their dwellings. As the width of the reserve adjoining these dwellings in only about 30m, the fuel break provided by the approximately 15m width of the Esplanade and its cleared verges is considered to provide adequate bushfire protection along with maintenance of defendable spaces around dwellings. Maintain an approximately 15m outer zone between the dwellings and the reserve comprising the Esplanade and its cleared verges.

ASSET AT RISK	RISK ANALYSIS (See section 5.4 of the Bushfire Management Strategy)								OTHER BUSHFIRE RISKS	PROPOSED MANAGEMENT STRATEGIES
	A	**B**	**C**	**D**	**E[1]**	**F**	**G**	**Level of Risk**		
Dwellings adjoining the reserve at 1, 3, 5, 7, 11, 13 and 15 Surf Road	2	2	3	2	2	1	6	288 Moderate		Advise residents of the need to maintain an adequate defendable space around their dwellings. Maintain a 4m outer zone along alignment of fire trail SM1 to complement the defendable space on the lots. Issue hazard abatement notices as required to ensure vegetation on 9 Surf Road is maintained as an outer zone.
Shop and petrol station on the corner of Surf Road and Lewis Avenue.	2	2	3	2	2	1	6	288 Moderate		Advise owner of the need to maintain an adequate defendable space around their dwellings. Maintain a minimum 15m wide outer zone along the reserve boundary to complement the defendable space on the lots.
Dwellings adjoining the reserve at 27, 29, 31, 33 and 35 Surf Road	2	2	3	2	2	1	6	288 Moderate		Advise residents of the need to maintain an adequate defendable space around their dwellings. Maintain a 15m wide outer zone along the reserve boundary to complement the defendable space on the lots.
Dwellings bordering the northern portion of the reserve along the western side of Surf Road.	2	2	3	2	2	1	6	288 Moderate		Advise residents of the need to maintain an adequate defendable space around their dwellings. The approximately 20m wide fuel break provided by Surf Road and its verges is considered to provide adequate bushfire protection along with maintenance of defendable spaces around dwellings. Maintain the whole of the road reserve as an outer zone.
Seven Mile Beach Community Centre	2	2	3	3	2	1	4	288 Moderate		This old timber building is highly vulnerable to ember attack, so it is recommended the Council budget for its replacement should it be destroyed in a bushfire rather than maintaining a large defendable space around the building. With this in mind valuable equipment should not be stored in the building.

ASSET AT RISK	RISK ANALYSIS (See section 5.4 of the Bushfire Management Strategy)								OTHER BUSHFIRE RISKS	PROPOSED MANAGEMENT STRATEGIES
	A	**B**	**C**	**D**	**E[1]**	**F**	**G**	**Level of Risk**		
Playground and barbecue facilities in Lewis Park	2	2	3	2	2	1	2	96 Low		Replace equipment if damaged by bushfire.
Concrete toilet block in Lewis Park	2	2	3	1	2	1	2	48 Low		Repair bushfire damage.

1 – Note that the risk analysis score in column E only indicates that there is enough space to provide a defendable space between bushland in the reserve and an adjoining asset. It does not indicate that a defendable space has been established on the adjoining property, or if established is being adequately managed.

3. Bushfire Management Issues

3.1 Existing Bushfire Management

3.1.1 Implementation of the Previous Bushfire Management Plan

As part of this revision of the BMP for the Seven Mile Beach Coastal Reserve, a review of the success of the implementation of the recommendations of the previous BMP was carried out. The review found that of 12 recommendations 6 have been successfully implemented and 3 have been partly implemented. 3 recommended actions have not been required.

The full findings of the review are in Appendix A.

3.1.2 Planned Burning

The previous BMP did not prescribe any broadscale planned burns; this prescription will continue for the revised BMP as planned burning within the coastal environment can cause blow outs destabilising the dunes. As the main fuel type in the reserve is a combination of grass and bracken, the use of planned burning to reduce the bushfire hazard would only have a short-term effect of 1-2 years and in some areas encourage the recruitment of existing bracken populations.

Council and the Seven Mile Beach Coastcare Group have a long-term aim of restoring the *Eucalyptus viminalis* forest that previously covered much of the reserve. This is being accomplished by progressive removal of Monterey pines in the reserve and their replacement with planted *Eucalyptus viminalis.* Heap burning the removed vegetation is a cost effective means and is recommended within this BMP. In general piles to be burnt should only consist of limb wood; large end diameter sections of Monterey pines should not be burnt. Heaps should be no greater than 10 cubic metres. Heaps should be located so they can be accessed within one house length (20m) from a Council Fire and Bushland Management fire tanker, all heap locations are to be informed to Councils Fire and Bushland Management. No heaps are to be made during October-February, and preferred to be free of seeds. Those conducting heap burning operations are to meet the requirements in section 4.3.2.

3.1.3 Vehicle Access Routes and Foot Tracks

There is an extensive network of informal foot tracks within the reserve; some can provide vehicle access in event of fire. The reserve has one fire trail (SM1) which runs behind the Seven Mile Beach shop finishing at Lewis Park. The entrance behind the shop is unrestricted. Day Use 1 & Day Use 2 areas have dead end sealed gravel roads which meet class 3 standards.

The location of the fire trail, roads and foot tracks which can assist bushfire management within the reserve are shown in figure 6 and fire trail described in Table 7.

The fire trail has been assigned a usage class and its current condition assessed against the standard outlined in MP 1 in the *Clarence City Council Bushfire Management Strategy – Best Management Practice Guidelines.*

Other parts of the reserve can be accessed from adjoining roads for bushfire suppression and management purposes.

Figure 6 – Vehicle and Foot Access

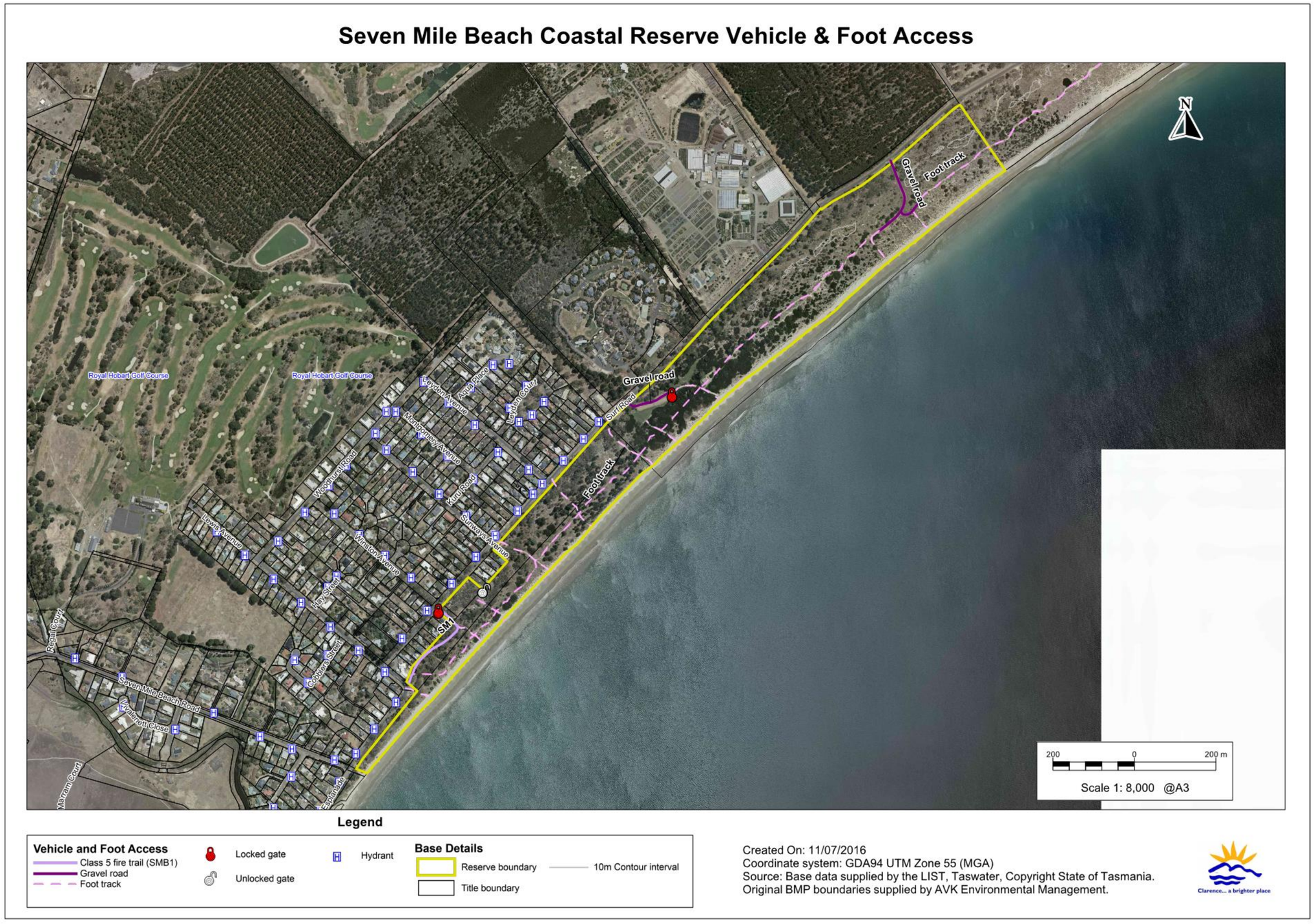


Table 7 - Condition and maintenance of fire trails

Assigned usage class (see Management Procedure 1):	Maintenance priority:
Class 1 – all 2WD and 4WD vehicles	**High** priority - major through routes and fire control lines
Class 3 – all weather 4WD, light and heavy 4WD vehicles (category 3, 4 & 5 tankers)	**Medium** priority - important access and escape routes and minor fire control lines
Class 5 – dry weather and/or high clearance 4WD, light 4WD (category 5 tankers), also includes trails with sharp bends and dead end trails with small turning areas.	**Low** priority - minor access routes and boundaries of vegetation management units.

The trail usage class describes the suitability of the fire trail if properly maintained, not necessarily its condition at the time of inspection.

MP refers to Management Procedures in *Clarence City Council Bushfire Management Strategy – Best Management Practice Guidelines

FIRE TRAIL ID	USAGE CLASS	STRATEGIC FIRE TRAIL UNDER HOBART FIRE PROTECTION PLAN[1]	MAINTENANCE PRIORITY	LOCATION AND CONDITION AT APRIL 2016	ACTION REQUIRED	MANAGEMENT CONSTRAINT
SM1	5	NO	Moderate	Starts behind Seven Mile Beach Shop running north-east behind properties finishing at Lewis Park. Lewis Park entrance has a locked gate. Trail is unsealed and does not meet usage class 5 specifications. Small turning circles present.	Clear encroaching vegetation. Liaise with Seven Mile Beach Coastcare Group prior to vegetation clearing. Inspection and maintenance as specified in MP2.	None

1 - Strategic fire trails have been identified in the Hobart Fire Protection Plan. Strategic fire trails will be signposted.

3.1.4 Water Supply

There are no water sources within the reserve. Water for firefighting and bushfire management can be easily obtained from fire hydrants in the streets adjoining the reserve (see figure6).

3.1.5 Fuel Breaks and Defendable Spaces

A fuel break (sometimes called a "firebreak") is a strip of cleared, or partly cleared, bushland constructed and maintained to slow, or stop, the progress of a bushfire to assist in its control. They are not the same as defendable spaces which are maintained around vulnerable assets to protect them from bushfires. Fuel breaks in grassland can be effective in stopping fires if cleared down to mineral earth, but where trees and shrubs are present wind-blown burning embers will usually carry a bushfire across a fuel break. Therefore, in bushland with shrubs and trees the only benefit of a fuel break is to provide access for firefighters and a boundary for back burning operations. Currently there are no standards or guidelines for fuel breaks in Tasmania. There are currently no fuel breaks maintained in the reserve.

A defendable space is an area of managed vegetation around an asset likely to be at risk from bushfire that protects it from direct flame contact and intense radiant heat, as well providing an area where fire fighters can defend the asset.

The Tasmania Fire Service document *Bushfire Survival Plan 2015-2016* recommends that a defendable space includes two 'zones':

- An inner zone (formerly Fuel Modified Zone or FMZ) where flammable materials are minimised.
- An outer zone (formerly Bushfire Protection Zone or BPZ) where a low level of flammable material is permitted.

In the inner zone, flammable materials on, under and around your home should be moved away from the house.

In the inner zone:

- Include non-flammable areas such as paths, driveways, and mowed lawns.
- Use non-flammable mulch, do not use woodchips or bark.
- Locate any dams, orchards, vegetable gardens and any effluent disposal areas on the fire-prone side of the home.
- Use radiation shields and windbreaks such as stone or metal fences and hedges using low-flammability plants.
- Remove fire hazards such as wood piles, rubbish heaps and stored fuels.
- Replace all highly-flammable plants with low-flammability plants.
- Prune lower branches on trees and remove flammable shrubs from under and between trees.
- Rake up bark and leaves and keep roofs and gutters clear of flammable debris.

The TFS notes that it is not necessary to remove all vegetation from the inner zone. Individual trees rarely cause houses to burn in bushfires.

Trees can screen a building from windblown embers while protecting it from radiant heat. Smooth barked trees are less likely to catch fire than those with rough bark. No tree should be able to fall on the building.

In the outer zone, small-sized natural fuels (such as leaf litter, bark, sticks, tussocks and some shrubs) should be removed and larger fuels (trees and shrubs) should be cut back to reduce the intensity of an approaching bushfire.

Natural fuels, both on the ground and between the ground and any larger trees, should be reduced by selective removal of vegetation, both horizontally and vertically, followed by ongoing maintenance.

In the outer zone:

- Retain established trees to trap embers and reduce wind speeds.
- Selectively remove small trees and shrubs to create clumps (rather than a continuous wall of trees) separated by open areas.
- Remove the vegetation between the ground and the bottom of the tree canopy, to a height of at least two metres.
- Minimise fine fuels at ground level, such as grasses and leaf litter.

The existence and adequacy of defendable spaces on individual lots adjoining the reserve was not surveyed as part of this BMP. Nevertheless, it must be stressed that establishment and maintenance of defendable spaces around residences bordering the reserve is essential for bushfire protection. Clarence City Council and individual landowners need to co-operate to provide and maintain adequate bushfire protection.

Lewis Park is maintained as managed parkland and would meet the criteria for an outer zone. Partial outer zones have been established in VMU 2 & VMU 4. VMU 4's outer zone follows the alignment of fire trail SM1 (see figure 7). Both are maintained annually by Councils Fire and Bushland Management. VMU 2 requires some thinning to meet outer zone specifications. The Seven Mile Beach Coastcare Group have cared for these areas for an extended period of time, keeping them informed on VMU's management prescriptions will assist in the functionality of defendable spaces.

3.1.6 Bushfire Detection and Suppression

The Seven Mile Beach Coastal Reserve is highly visible from surrounding dwellings and roads so it is likely that any fires would be promptly reported. The Seven Mile Beach fire station is located centrally to the reserve so response times should be short. The reserve has numerous walking tracks which should allow the TFS to rapidly reach and contain fires within the reserve. As the reserve is narrow, hoses can be laid from fire hydrants in adjoining streets for any firefighting in the reserve.

3.2 Weeds

A detailed weed survey was not undertaken as part of the BMP review, merely observations from field work. The *Seven Mile Beach Reserve Activity Plan 2011-2016* (Tasflora) includes a detailed weed survey undertaken within the 2011-2016 BMP polygon. The additional 20.5^{ha} polygon that was acquired by Council in 2015 from Tasmanian Parks and Wildlife Services (VMU 6 & VMU 7 - see figure 7) has had no formalised weed survey. The weeds listed in the RAP polygon could still occur in the reserve and are listed below.

Several weed species identified in the RAP within the reserve are classified as declared weeds under the Tasmanian *Weed Management Act 1999* and/or Weeds of National Significance (WONS). Where possible these weeds will be targeted as a priority to prevent their further spread.

Boneseed *(Chrysanthemoides monilifera subsp. Monilifera)* and blackberry *(Rubus anglocandicans)* are present declared weeds and WONS.

Fennel *(Foeniculum vulgare)* is a declared weed listed within the RAP that is not listed as a WONS.

Other environmental weeds listed within the RAP are: asparagus *(Asparagus officinalis),* tree lucerne *(Chamaecytisus palmensis)*, mirror bush *(Coprosma repens),* garden geranium *(Geranium sp.)*, grevillea *(Grevillea rosmarinifolia),* English ivy *(Hedera helix),* tree lupin *(Lupinus arboreus)*, tree mallow *(Malva arborea)*, cape wattle *(Paraserianthes lophantha subsp. Lophantha)*, sweet briar *(Rosa rubiginosa)* and blue periwinkle *(Vinca major)*.

Much of the reserve is dominated by Marram grass, an introduced species planted to help stabilise sand dunes that has since become a weed.

Bracken fern (*Pteridium esculentum*), although a native plant, is a concern in the reserve as it is a greater bushfire hazard than many other understorey species and at high density can exclude other native species. As bracken recovers faster than other understorey species after bushfire, it can quickly dominate areas that are burnt frequently. It also builds up an elevated fuel load in 2 to 3 years, thus making burning an ineffective method of hazard reduction (AVK Environmental Management, 2011). Bracken control is therefore an important component of bushfire management in the reserve.

Council is working with the Seven Mile Beach Coastcare Group to control weeds in the reserve and many of the species listed above may now have been eradicated from the reserve or been effectively controlled.

3.3 Biodiversity Conservation

The Seven Mile Beach Coastcare Groups main activity has been to remove pine trees and seedlings and other weeds from targeted areas in the dunes and replace them with a diverse range of local species to enhance the area for local residents and to provide habitat for other flora and fauna.

3.4 Stakeholder and Community Concerns

At the commencement of the project Clarence City Council sent a letter to all landowners adjoining the reserve and to other stakeholder groups informing them that the BMP was being revised and inviting them to have input into the revised plan for the reserve by sending in a written submission, attending a community "walk and talk" at the reserve, or by contacting the reviewer directly. The community "walk and talk" was held in the reserve on 7th November 2015 and was attended by 2 community members (both members of the Seven Mile Beach Coastcare Group) and a Council representative. One written comment was received. The community concerns about bushfire management in the reserve expressed during the walk and talk are summarised in Appendix B along with the Councils response.

4. Plan Implementation

To ensure that the recommendations in this plan are fully implemented, Clarence City Council will ensure that TFS brigades likely to attend bushfires within the reserve are familiar with the plan, and its contents are issued to the TFS.

4.1 Bushfire Risk Reduction Strategy

The overall bushfire risk reduction strategy recommended for the Seven Mile Beach Coastal Reserve can be summarised as follows:

- Reduce ignitions through prosecution of arsonists, and prompt reporting of fires.
- Maintain access points and the fire trail to enable the TFS to rapidly contain fires that start in the reserve.
- Maintain defendable spaces in the reserve to protect assets within and adjoining the reserve.
- Encourage neighbouring residents to maintain defendable spaces around their homes.

4.2 Community Education, Awareness and Involvement

To ensure successful implementation of this BMP it will be necessary to inform key sectors of the community about bushfire management issues in the reserve. This should include surrounding residents and those with special interests in the reserve, or whose activities can affect assets within the reserve. The community education process is detailed in section 5.7 of *Clarence City Council Bushfire Management Strategy for Council Owned and Controlled Land*. This was not implemented during the previous BMP, and has a heavy influence in the effectiveness of this BMP.

In particular, the Seven Mile Beach Coastcare Group have actively cared for the reserve for many years, continually informing the group of the BMPs most current management regimes and establishing relationships will assist in creating a holistic management approach of the reserve.

Also, adjoining residents should be advised that dumping garden waste and other rubbish in reserves increases the bushfire hazard and makes firefighting along the bushland/urban interface more difficult and dangerous for fire fighters. It also contributes to the spread of weeds. Residents should also be advised that they are not authorised to remove vegetation in a Council reserve, even if it is recommended in the BMP. If residents have any concerns about the bushfire hazard in the reserve near their home, they should be encouraged to contact Council's Fire and Bushland Vegetation Management Co-ordinator.

4.3 Bushfire Management

The native plant community in the reserve (DVC) is considered dependent on bushfire to maintain its structure and floristics in the long term. Periodic burning can help to maintain diversity in the understorey, and allow bushfire dependent species to germinate and establish. Planned burning has been excluded for the duration of this BMP as this plant community is currently being regenerated through manual planting. In addition planned burning has been excluded as the dominant fuel loading within the reserve is grasses and bracken in a coastal environment, planned burning has the potential to cause blowouts and destabilise the dune system.

4.3.1 Vegetation Management Units (VMU)

The bushfire management program in this plan is based on the division of the vegetation types in the reserve into a number of vegetation management units (VMUs) (see figure 7). VMUs can be managed to achieve specific bushfire, and other management objectives as detailed in table 8. The bushfire management requirements of the vegetation communities within the reserve are given in table 5. The previous BMP divided the reserve into 5 VMUs. These have been expanded to 7 to allow for the 2015 acquirement of "Day Use 1 & 2 areas", and the implementation of the most appropriate methods for managing bushfire hazard whilst promoting biodiversity.

4.3.2 Preparation and Supervision

Successful implementation of the recommended heap burning within this plan requires trained personnel and special equipment. All persons engaged in heap burning or firefighting in the reserve must have completed the Forestry Tasmania "Forest Fire Fighting" course or equivalent.

If the heap burning is contracted out, the contractor must be able to meet the required training accreditation in the previous paragraph, as well as provide evidence of experience in carrying out broadscale low intensity fuel reduction burns.

4.4 Bushland Management

Bushfire can provide the disturbance that many introduced species need to spread to new areas, as well as to expand existing populations. Other bushfire management activities, such as construction and maintenance of fire trails, and establishment of fuel breaks during fire suppression, can also provide opportunities for weeds to colonise native bushland. Fire can also be used as a tool to manage weed infestations. Some species are best controlled by herbicide application to regrowth following a bushfire. Other species can sometimes be controlled by the application of a fire regime that stimulates germination of seed but kills the regrowth before it has been able to flower. MP 8 in *Clarence City Council Bushfire Management Strategy - Best Management Practice Guidelines* includes guidelines for integrating weed management following bushfires. These guidelines should ensure that fires in the reserve do not worsen existing weed problems, or cause weeds to spread.

The local Coastcare group is working actively with Clarence City Council on regeneration and weed control projects in the reserve. It should be noted that bush regeneration plantings in previously cleared areas might increase the bushfire hazard. Any proposals for bush regeneration in the reserve should be considered in the context of this BMP to ensure that they do not compromise bushfire protection measures proposed in this plan.

In general, plantings are not allowed:

- On defendable spaces (inner and outer zones around assets at risk).
- on fuel breaks
- Within 2m of the edge of fire trails.

Figure 7 – Vegetation Management Units in the Reserve

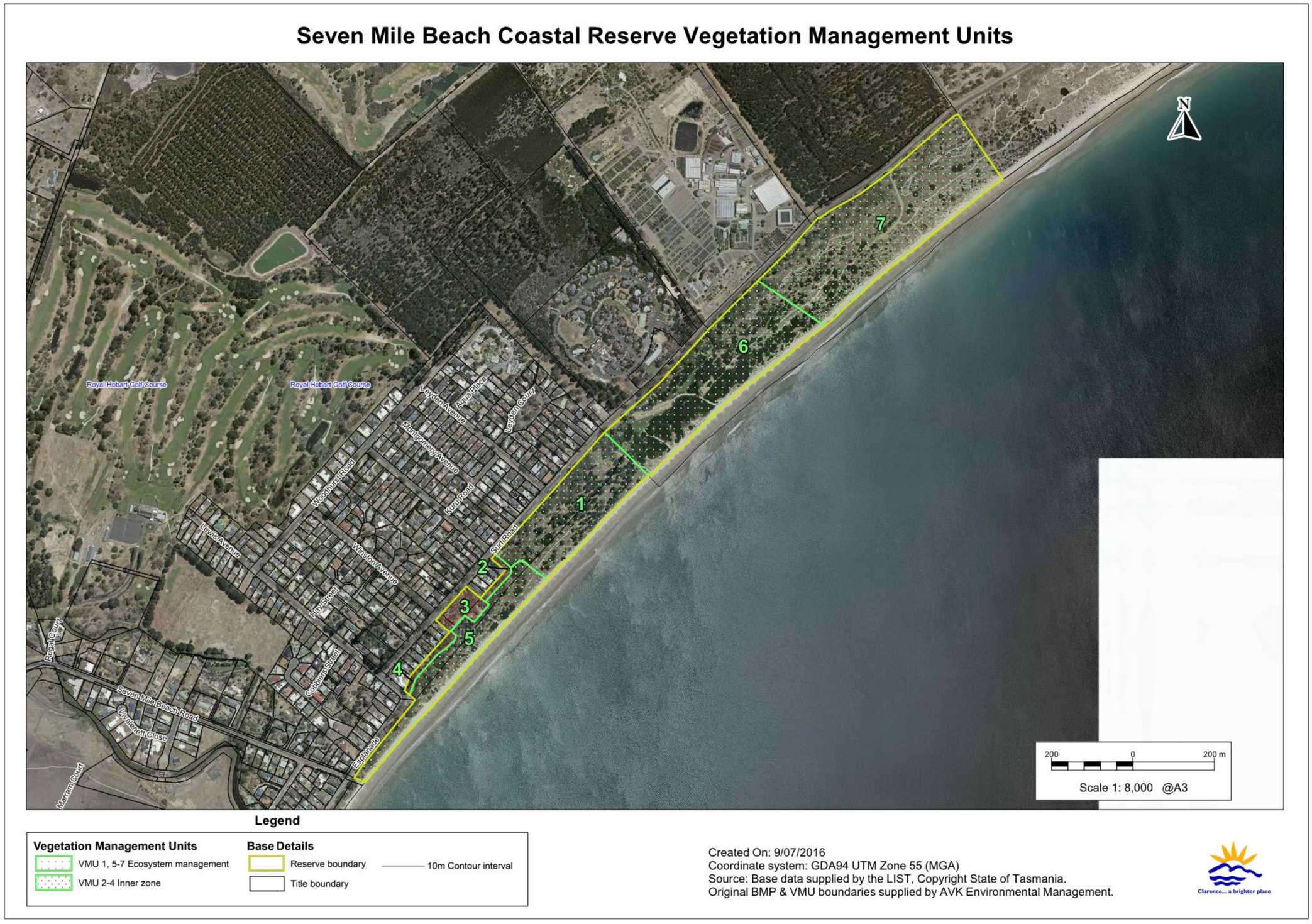


Table 8 – Bushfire management in the reserve

VMU[1]	AREA (ha)	BUSHFIRE MANAGEMENT OBJECTIVES and PRESCRIPTIONS	NOTES and PRECAUTIONS [2, 3]	LAST BURNT	NEXT BURN
1 DVC FMG FPL	5.3	OBJECTIVES: Remove *Pinus radiata* and replace with *Eucalyptus viminalis*. Reduce the extent and density of other weeds. PRESCRIPTION: Heap burn only. Exclude broadscale planned burning for duration of plan.	Contains the rare plant species *Lepidium pseudotasmanicum*[3] and *Cynoglossum australe*[3]. Obtain a permit from DPIPWE Threatened Species Section prior to operations that may impact these species. Contains DVC[2]. Consult DPIPWE Threatened Species Section prior to operations that may impact.	2001 (parts)	Heap burn only
2 DVC	0.2	OBJECTIVES: Maintain as 15m outer zone to protect adjoining dwellings. Reduce the extent and density of weeds. PRESCRIPTION: See table 6 for widths and MP 5 in the Best Management Practices Guidelines for outer zone specifications.	Contains the rare plant species *Cynoglossum australe*[3]. Obtain a permit from DPIPWE Threatened Species Section prior to operations that may impact these species. Contains DVC[2]. Consult DPIPWE Threatened Species Section prior to operations that may impact. Liaise with Seven Mile Beach Coastcare Group on defendable space requirements.	Not known	No burning duration of BMP
3 DVC	0.6	OBJECTIVES for Lewis Park: Maintain as outer zone to protect adjoining dwellings and assets within the park. PRESCRIPTION: See MP 5 in the Best Management Practices Guidelines for outer zone specifications.	Contains the rare plant species *Cynoglossum australe*[3]. Obtain a permit from DPIPWE Threatened Species Section prior to operations that may impact these species. Contains DVC[2]. Consult DPIPWE Threatened Species Section prior to operations that may impact.	Not known	No burning duration of BMP
4 DVC	0.3	OBJECTIVES: Maintain section as outer zone as stated in table 6 to protect adjoining dwellings. Reduce the extent and density of weeds. PRESCRIPTION: See table 6 for widths and MP 5 in the Best Management Practices Guidelines for outer zone specifications.	Contains DVC[2]. Consult DPIPWE Threatened Species Section prior to operations that may impact. Liaise with Seven Mile Beach Coastcare Group on defendable space requirements.	Not known	No burning duration of BMP

VMU[1]	AREA (ha)	BUSHFIRE MANAGEMENT OBJECTIVES and PRESCRIPTIONS	NOTES and PRECAUTIONS [2, 3]	LAST BURNT	NEXT BURN
5 DVC FMG	3.9	OBJECTIVES: Maintain the structure and floristics of the vegetation communities. Maintain groundcover to minimise erosion and dune destabilisation. Allow recruitment of canopy species. Reduce the extent and density of weeds. PRESCRIPTION: Heap burn only. Exclude broadscale planned burning for duration of plan.	Contains the rare plant species *Cynoglossum australe*[3]. Obtain a permit from DPIPWE Threatened Species Section prior to operations that may impact these species. Contains DVC[2]. Consult DPIPWE Threatened Species Section prior to operations that may impact.	Not known	Heap burn only
6	8.5	OBJECTIVES: Remove *Pinus radiata* and replace with *Eucalyptus viminalis.* Maintain groundcover to minimise erosion and dune destabilisation. Allow recruitment of canopy species. Reduce the extent and density of weeds. PRESCRIPTION: Heap burn only. Exclude broadscale planned burning for duration of plan.	Contains DVC[2]. Consult DPIPWE Threatened Species Section prior to operations that may impact	Not known	Heap burn only
7	12	OBJECTIVES: Remove *Pinus radiata* and replace with *Eucalyptus viminalis.* Maintain groundcover to minimise erosion and dune destabilisation. Allow recruitment of canopy species. Reduce the extent and density of weeds. PRESCRIPTION: Heap burn only. Exclude broadscale planned burning for duration of plan.	Contains the rare plant species *Cynoglossum australe*[3]. Obtain a permit from DPIPWE Threatened Species Section prior to operations that may impact these species. Contains DVC[2]. Consult DPIPWE Threatened Species Section prior to operations that may impact	Partial 2007, 2012, 2014.	Heap burn only

[1] TASVEG 3.0 codes of vegetation types in the unit.

[2] *Nature Conservation Act 2002*

[3] Tasmanian *Threatened Species Protection Act* 1995.

5. Bushfire Management Recommendations

The management actions recommended to meet the objectives of the plan in section 1.3 have been summarised and classified using the following criteria:

URGENT - Actions required to reduce a very high risk to life or property.

ESSENTIAL - Actions required to improve safety, or inadequate bushfire protection measures in high risk areas.

- Actions that are essential for control & suppression of bushfires, and/or conservation of threatened species.

RECOMMENDED - Actions required to improve inadequate bushfire protection measures in moderate risk areas.

- Actions required to ensure on-going effective bushfire management, or conservation of biodiversity.

ROUTINE - Maintenance of bushfire control resources and protection measures.

Urgent actions need to be undertaken as soon as possible.

Where applicable the desirable timing of other actions has been coded as follows:

A - Inspect and maintain annually, or as specified in the relevant MP

A/S - Timing as specified in the bushfire management plan

1, 2, etc. - Carry out action within the time period specified (years)

1A, 2A etc. - Construct within the next 1, 2 etc. years and then inspect and maintain annually, or as specified in the relevant MP.

Management actions have been linked to generic MP's in *Clarence City Council Bushfire Management Strategy – Best Management Practice Guidelines*. Performance indicators have also been provided for each management action. These should be used to determine if the specific objectives of this BMP have been achieved. They should be monitored when the plan is revised every 5 years. Where performance targets are not being achieved, a review of the relevant portion of the plan should be undertaken.

5.1 Management Action Summary

RECOMMENDED ACTION	OBJECTIVE (section 1.3)	PRIORITY	RESPONSIBILITY	PERFORMANCE INDICATORS
1) Develop a community education program, including an information sheet, as outlined in section 5.7 of the Bushfire Management Strategy, to inform the community of bushfire management issues in the reserve and to ask them to report any smoke, or suspicious activity, on days of total fire bans to the police.	1, 2	REC - 1	Clarence City Council Fire and Bushland Management Tasmania Fire Service	Educational material distributed to adjoining residents, reserve users and other interest groups. Reduction in rubbish dumping within the reserve and residents planting in Council managed defendable spaces. Reduction in the incidence of illegal fires on and around the reserve.
2) Conduct BMP information session with Seven Mile Beach Coastcare Group.	1, 2, 3, 4, 5, 6		Clarence City Council Fire and Bushland Management Clarence City Council Natural Values Volunteer Coordinator Seven Mile Beach Coastcare Group	Ongoing holistic approach to reserve management. No degradation to functionality of defendable spaces.
3) Implement the bushfire protection measures in section 2.4 for protection of built assets in and around the reserve.	1, 4	E	Clarence City Council Fire and Bushland Management Private landowners Seven Mile Beach Coastcare Group	Bushfire protection measures in the reserve implemented and maintained. No assets lost to fires originating in, or moving through, the reserve.

RECOMMENDED ACTION	OBJECTIVE (section 1.3)	PRIORITY	RESPONSIBILITY	PERFORMANCE INDICATORS
4) Implement the recovery procedures in MP 12 following bushfires.	1, 5, 6	E	Clarence City Council Fire and Bushland Management	Post-fire recovery carried out bushfires. No users of the reserve injured by fires or the effects of fires.
5) Carry out fire trail maintenance listed in Table 7.	2, 6	E – 1	Clarence City Council Fire and Bushland Management	Fire trail maintenance listed in Table 7 completed.
6) Ensure fire trail shown on figure 6 is inspected and maintained in a trafficable condition at all times according to MP 2.	2, 4	ROU - A	Clarence City Council Fire and Bushland Management	Vehicle access route inspected as required in MP 2, and maintained in a trafficable condition for Council and fire service vehicles.
7) Inspect gates regularly to ensure that locks are in place and functioning. Ensure that the local Tasmania Fire Service Brigade and other emergency services have keys to the gates on trails giving access to the reserve.	2	ROU - A	Clarence City Council Fire and Bushland Management	No unauthorised use of fire trail in the reserve. Security lock system implemented, keys distributed to Tasmania Fire Service brigades and other emergency services.
8) Treat any weeds in areas affected by bushfires or activities in this BMP according to MP 8. Ensure follow-up weeding is carried out.	3, 5	REC – A/S	Clarence City Council Fire and Bushland Management Private landowners Seven Mile Beach Coastcare Group	Post-fire weed control carried out in any weed infested VMUs burnt by bushfires. Minimal coppicing or regrowth of weeds from treated rootstock. All declared noxious weeds removed, reduction in extent of other weeds.

RECOMMENDED ACTION	OBJECTIVE (section 1.3)	PRIORITY	RESPONSIBILITY	PERFORMANCE INDICATORS
9) Consult with the DPIPWE Threatened Species Section when planning management activities in VMUs containing populations of rare flora and threatened fauna.	3	E	Clarence City Council Fire and Bushland Management Clarence City Council Natural Values Volunteer Coordinator Seven Mile Beach Coastcare Group DPIPWE Threatened Species Section	All management activities carried out according to the requirements of rare flora and threatened fauna. All required permits obtained before commencement of management activities likely to affect rare or threatened species.
10) Carry out vegetation monitoring as detailed in section 5.10 of the Bushfire Management Strategy including the recovery of any populations of threatened or rare flora and fauna burnt by bushfires.	3, 5	E	Clarence City Council DPIPWE Threatened Species Section	Post bushfire monitoring established. Annual follow-up surveys undertaken post bushfires.
11) Regularly revise management objectives and prescriptions to ensure they incorporate the most recent information on the fire ecology of flora, fauna and plant communities of conservation value in the reserve.	3, 5	REC - A/S	Clarence City Council Fire and Bushland Management	BMP revised every 5 years.

RECOMMENDED ACTION	OBJECTIVE (section 1.3)	PRIORITY	RESPONSIBILITY	PERFORMANCE INDICATORS
12) Coordinate bushfire management, weed management and other management activities using the procedure in MP 9.	3, 5	REC - A	Clarence City Council Fire and Bushland Management Clarence City Council Natural Values Volunteer Coordinator Seven Mile Beach Coastcare Group	Meetings held as recommended in MP 9 and the outcomes recorded.
13) Record bushfire management activities and bushfires using the procedures in MPs 10 and 11.	3, 4, 5	REC - A/S	Clarence City Council Fire and Bushland Management	Records maintained of all bushfire management activities and bushfires within reserve.

References

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Appendix A

Implementation of the previous BMP

The following codes have been used in assessing implementation of the previous Bushfire Management Plan for the Seven Mile Beach Coastal Reserve:

IS – Implemented successfully

PI – Partly implemented

NI – Not implemented

NA – Not applicable (to be implemented at a later time, or dependent on another incident or action).

RECOMMENDED ACTION	CODE	COMMENT
1) Develop a community education program, including an information sheet, as outlined in section 5.7 of the Bushfire Management Strategy, to inform the community of bushfire management issues in the reserve and to ask them to report any smoke, or suspicious activity, on days of total fire bans to the police.	PI	A formalised community education program has not been designed. Public exhibition of Councils *Bushfire Management Strategy for Council Owned and Controlled Land*, *Bushfire Management Strategy Best Management Practice Guidelines* and the previous BMP for the park has taken place. Various TFS community bushfire preparation events have been attended and represented by Council Fire and Bushland Management throughout municipality.
2) Implement the bushfire protection measures in section 2.4 for protection of built assets in and around the reserve.	PI	Some defendable spaces not maintained to distances prescribed within previous BMP. Distances have been revised during BMP review to current requirements.
3) Implement the recovery procedures in MP 12 following planned burns and wildfires.	NA	No planned burning or wildfires occurred within the reserve for the 5 year duration of the previous BMP.
4) Carry out fire trail repairs and maintenance listed in Table 8 including installation of a new gate.	IS	Recommended gate installed. Inspection and maintenance undertaken annually.
5) Ensure all fire trails shown on figure 5 are inspected and maintained in a trafficable condition at all times according to MP 2.	IS	Fire trails maintained in trafficable condition throughout previous BMP.
6) Inspect gates regularly to ensure that locks are in place and functioning. Ensure that the local Tasmania Fire Service Brigade and other emergency services have keys to the gates on trails giving access to the reserve.	IS	Gates/locks regularly audited. TFS have keys to Council locks.

RECOMMENDED ACTION	CODE	COMMENT
7) Treat any weeds in areas affected by wildfires or activities in this bushfire management plan according to MP 8. Ensure follow-up weeding is carried out.	IS	Follow up weeding and monitoring occurring by Coastcare group and Council in locations affected by small fires <1^{ha} throughout duration of previous BMP.
8) Consult with the DPIPWE Threatened Species Section when planning management activities in VMUs containing populations of threatened flora and fauna.	NA	No Fire and Bushland Management operations occurred during previous BMP that required consultation with DPIPWE.
9) Carry out vegetation monitoring as detailed in section 5.10 of the Bushfire Management Strategy including the recovery of any populations of threatened or rare flora and fauna burnt by wildfires or planned burns.	NA	No planned burning or bushfires impacted reserve during previous BMP triggering requirement of vegetation monitoring. Informal monitoring has been occurring within reserve by Councils Fire and Bushland Management since 2013.
10) Regularly revise management objectives and prescriptions to ensure they incorporate the most recent information on the fire ecology of flora, fauna and plant communities of conservation value in the reserve.	IS	Regimes and prescriptions have been analysed throughout life of previous BMP. During 2015 review process all VMUs regimes and prescriptions have been evaluated to suit best outcomes for asset protection and ecological burning.
11) Coordinate bushfire management, weed management and other management activities using the procedure in MP 9.	PI	Coordination of activities has been undertaken. Meetings as recommended in MP9 not carried out.
12) Record bushfire management activities and wildfires using the procedures in MPs 10 and 11.	IS	Although no wildfires or planned burning occurred within the reserve during the previous BMP, during 2013 Council developed extensive GIS Fire Management context. All available historic fire management information has been input and updated annually.

Appendix B

Summary of community concerns and comments in the initial round of community consultation

COMMUNITY CONCERNS and COMMENTS	COUNCILS COMMENT
Comment on removing lower limbs of *Acacia boobyalla*.	Acknowledged, whilst this may have some impact to the rate of fire spread on a day with moderate to high fire danger index, this would have little impact to fire behaviour on a day of severe fire danger index rating or above.
Comment from coordinator Coastcare group requesting the retainment of "planted fire retardant low height hardy plants within the reserve near fence lines"	Council has a requirement under the *Fire Service Act* 1979 to prevent fire leaving Council managed land and entering adjoining land. Council uses current TFS guidelines for defendable spaces for managing inner and outer zones to meet these requirements. Councils Fire and Bushland Management to liaise with Coastcare group and discuss management prescriptions for defendable spaces within BMP.
Request to be kept informed on changes to paths, parking and parks.	Any fire management related changes will be in the revised BMP and communicated to Coastcare group. Any non-fire related communication can be directed to Councils Natural Areas Volunteer Coordinator.
Request that any weeds piles burnt are free of seeds.	Refer to section 3.1.2 within BMP.