

## Hunter Region Bulahdelah State Conservation Area Fire Management Strategy (Type 2) 2009 Sheet 1 of 1

**This strategy should be used in conjunction with aerial photography and field reconnaissance during incidents and the development of incident action plans.**

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**The NSW National Parks and Wildlife Service is part of the Department of Environment and Climate Change.**

**Published by the Department of Environment and Climate Change (NSW), enter north and post town.**

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**ISBN: 978 1 74232 182 0 DECC Number: 2009/188 Last Updated: 07/07/09**

**Department of Environment and Climate Change (NSW) This strategy is a relevant Plan under Section 38 (4) and Section 44 (3) of Rural Fires Act 1997.**

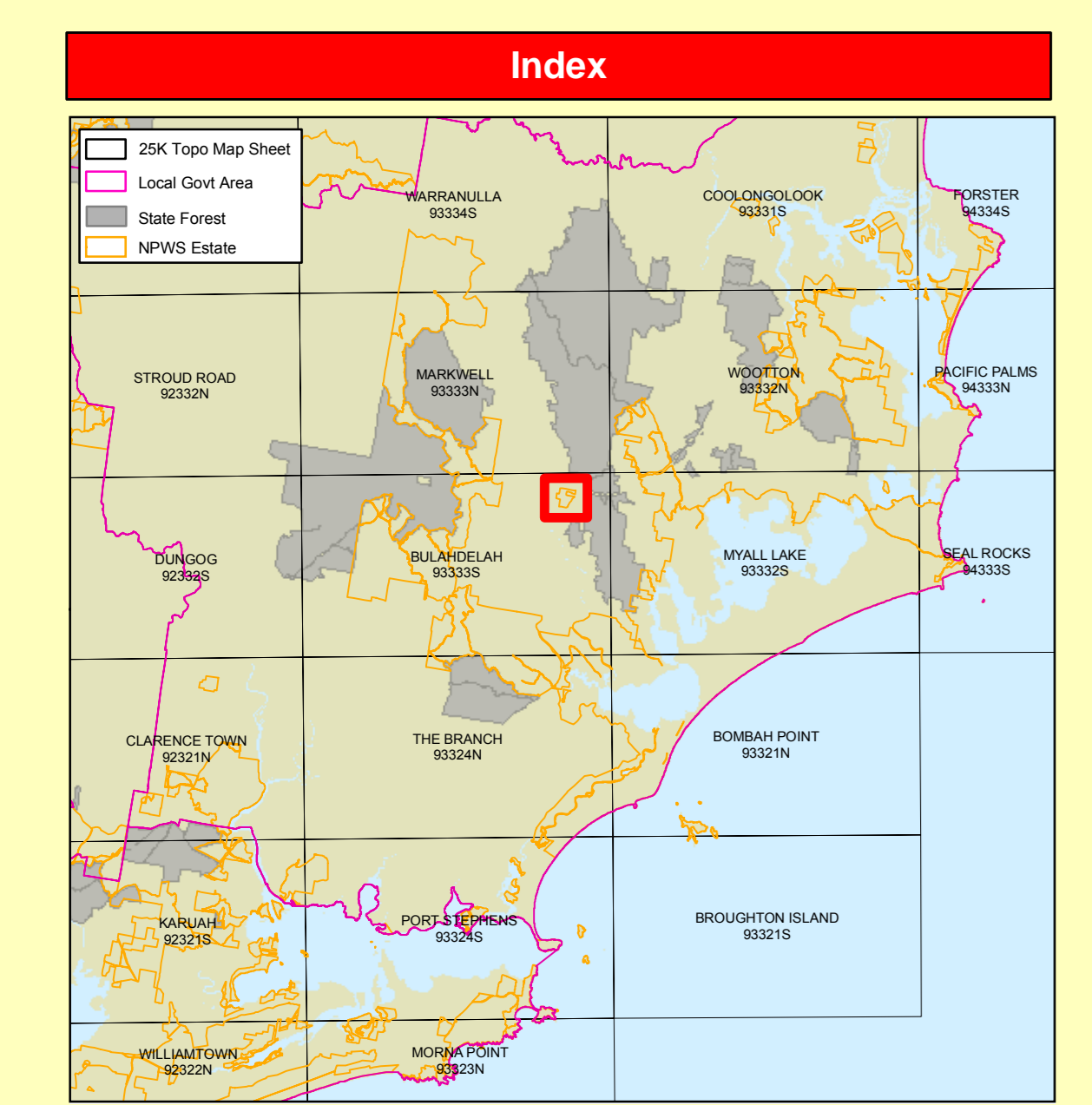
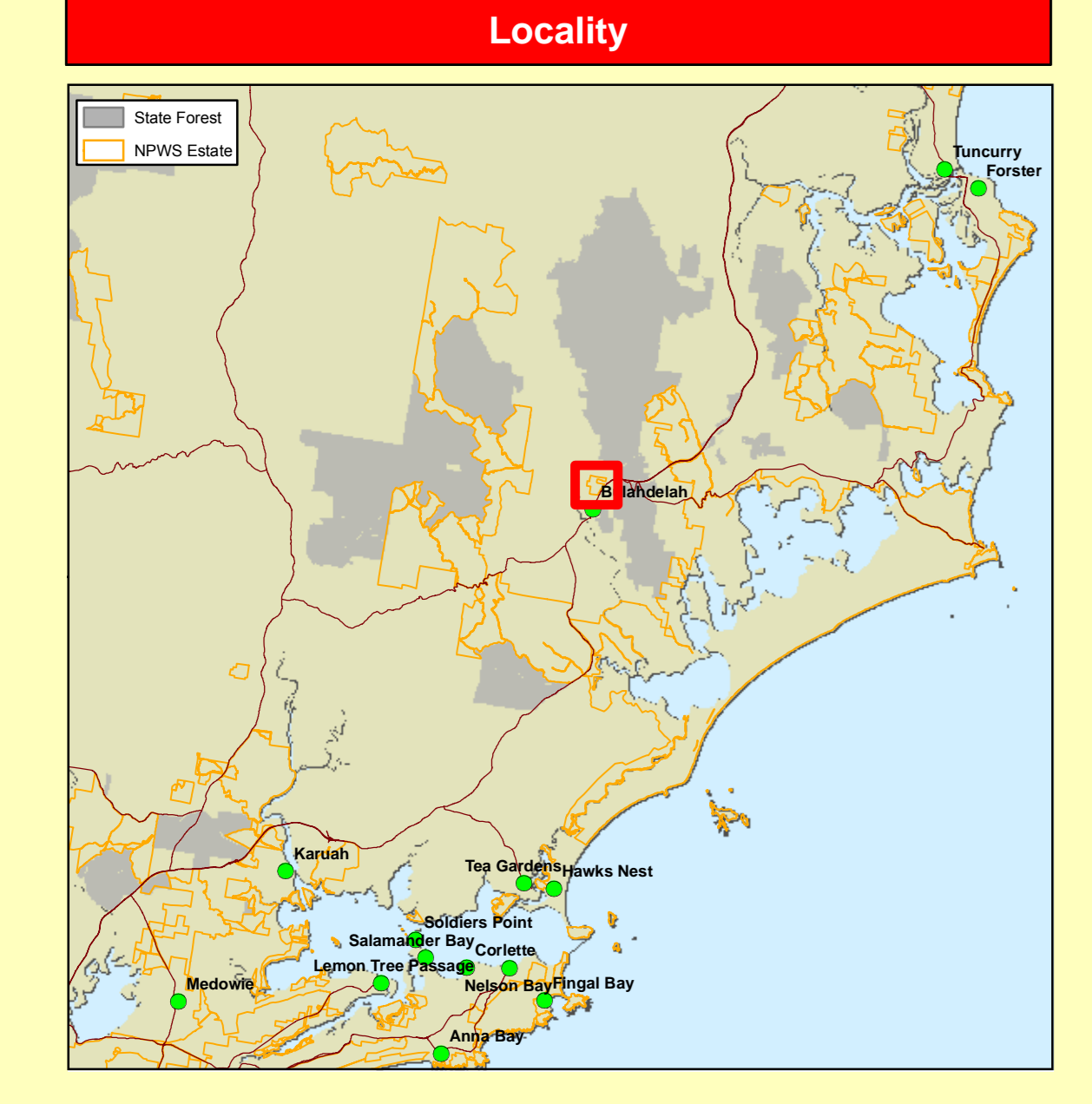
**Endorsed by: \_\_\_\_\_ Date: / /**

**Director Northern, Parks & Wildlife Group**

Operational Guidelines	
Refer to Current Fire Management Manual (updated annually)	
Brief all personnel involved in suppression operations on the following issues:	
<b>Resource</b>	<b>Guidelines</b>
<b>Aboriginal Cultural Heritage Site Management (NPWS FMM)</b>	<b>Caution:</b> Known sites are mapped, this reserve may contain unknown sites.
<b>A1</b>	As far as possible protect site from fire. Do not cut down trees. Use of fumes, wetting agents & retardant is acceptable.
<b>A2</b>	As far as possible protect site from fire. Avoid ground disturbance including handhoes, dozers. Avoid water bombing which may cause ground disturbance. Avoid ground disturbance including handhoes, dozers. Avoid water bombing which may cause ground disturbance. Site may be burnt by wildfire, backburn, prescribed burn.
<b>A3</b>	As far as possible protect site from fire. Do not cut down trees. Use of fumes, wetting agents & retardant is acceptable.
<b>Historic Heritage Management (NPWS FMM)</b>	<b>*RCHMS - Regional Cultural Heritage Management Strategy.</b> In areas where the asset may be in or close to a water body, wetland or swamp, no foam or retardant is to be used. Earthmoving machinery is to be used around, rather than through assets.
<b>HS1</b>	High RCHMS priority. Avoid fire, including wildfire, backburning & PB. Avoid all water bombing activities.

Operational Guidelines (continued)	
Refer to Current Fire Management Manual (updated annually)	
Brief all personnel involved in suppression operations on the following issues:	
<b>Threatened Property</b>	Where possible property owners with assets at risk from a wildfire event should be kept informed regarding the progress of the fire and asked for an assessment of their current level of asset protection preparedness.
<b>General</b>	<b>Guidelines</b>
<b>Aerial Water Bombing (NPWS FMM / NSW Fire Agencies Aviation SOPs O2 / NPWS Guidelines for Effective Aircraft Management)</b>	The use of bombing aircraft should support containment operations by aggressively attacking heaped and spewers. The use of bombing aircraft without the support of ground based suppression crews should be limited to extreme fire weather conditions. Where practicable foam should be used to increase the effectiveness of the water. Ground crews must be alerted to water bombing operations.
<b>Aerial Ignition (NPWS FMM / NSW Fire Agencies Aviation SOPs O2.4 / NPWS Guidelines for Effective Aircraft Management)</b>	Aerial ignition may be used during backburning or fuel reduction operations where practicable, but only with the prior consent of a senior NPWS officer. Utilise incendiaries to rapidly progress back-burns down slope where required. <b>Beware of high voltage powerlines running from north to south through park.</b>
<b>Backburning (NPWS FMM)</b>	Temperature and humidity trends must be monitored carefully to determine the safest times to implement back-burns. Generally, when the FDI is Very High or greater, backburning should commence when the humidity begins to rise in the late afternoon early evening. With a lower FDI backburning may be safely undertaken during the day. Where practicable, clear a 1m radius around dead and flammable trees adjacent to containment lines prior to backburning or ensure these trees are part of the backburn ignition. Avoid ignition of backburns at the bottom of slopes where a long and intense up slope burn is likely. Brief all involved personnel on the location of cultural sites and threatened species prior to backburning, and adhere to the above guidelines.
<b>Command &amp; Control (NPWS FMM)</b>	The first containment agency on site may assume control of the fire, but then must ensure the relevant land management agency is notified promptly. On the arrival of other containment agencies, the initial incident controller will continue to regard to the ongoing command, control and incident management team requirements as per the relevant BEMC Plan of Operations.
<b>Containment Lines (NPWS FMM)</b>	Construction of new containment lines should be avoided, where practicable, except where they can be constructed with minimal environmental impact. New containment lines require the prior consent of a senior NPWS officer. Where practicable, containment lines should be established and rehabilitated as part of the wildfire suppression operation. All containment lines not required for other purposes should be closed and rehabilitated at the cessation of the incident. All personnel involved in containment line construction should be briefed on both natural and cultural heritage sites in the location.
<b>Smoke Management (NPWS FMM)</b>	The potential impacts of smoke and possible mitigation tactics must be considered when planning for wildfire suppression and prescribed burning operations. If smoke becomes a hazard on local roads or highways, the police and relevant media must be notified. Smoke management must be in accordance with relevant RTA traffic management guidelines.

Strategy Information	
Fire Season Information	
<b>Wildfires</b>	<b>Caution:</b> Within the Snow Shire numerous high yielding agricultural industries (ie horse studs) exist. Suppression activities (ie aerial) and backburning may impact these industries. Reserves of the Hunter Region are located in a zone between subtropical, summer maximum rainfall patterns to the north and temperate, winter maximum patterns to the south. Most extreme fire weather conditions occur during spring and early summer resulting in moderate temperatures, low relative humidity and strong winds. Subtropical rainfall in January usually ends the fire season in most years, however, if rain events do not occur the fire season may last from August to March. General season is Autumn to late Winter due to low fire risk. Burning is possible in early Spring under suitable weather conditions.
<b>Prescribed Burning</b>	Undertake direct parallel or indirect attack along existing containment lines taking advantage of natural fire control advantages such as high fuel moisture content. Where practicable consider maximising the fire area in accordance with the requirements of any proposed prescribed burns. Identify and survey backup control lines. In order to minimise the fire area and secure the flanks as soon as possible, undertake direct, parallel or indirect attack along the closest containment lines. Pay particular attention to the flank on the next predicted downwind side. Secure and deepen containment lines along the next predicted downwind side of the fire. Undertake indirect attack along existing or newly constructed containment lines. Secure and deepen containment lines along the next predicted downwind side of the fire. If applicable consider broader than normal containment strategies to avoid wasteful effort and high risk of failure. Ensure there is sufficient time to secure containment lines prior to the fire impacting upon them, otherwise fall back to the next potential line.
<b>Current FDR</b>	<b>Forecast FDR</b>
Low - Mod	Low - Mod
Low - Mod	=> High
High	All
All	All



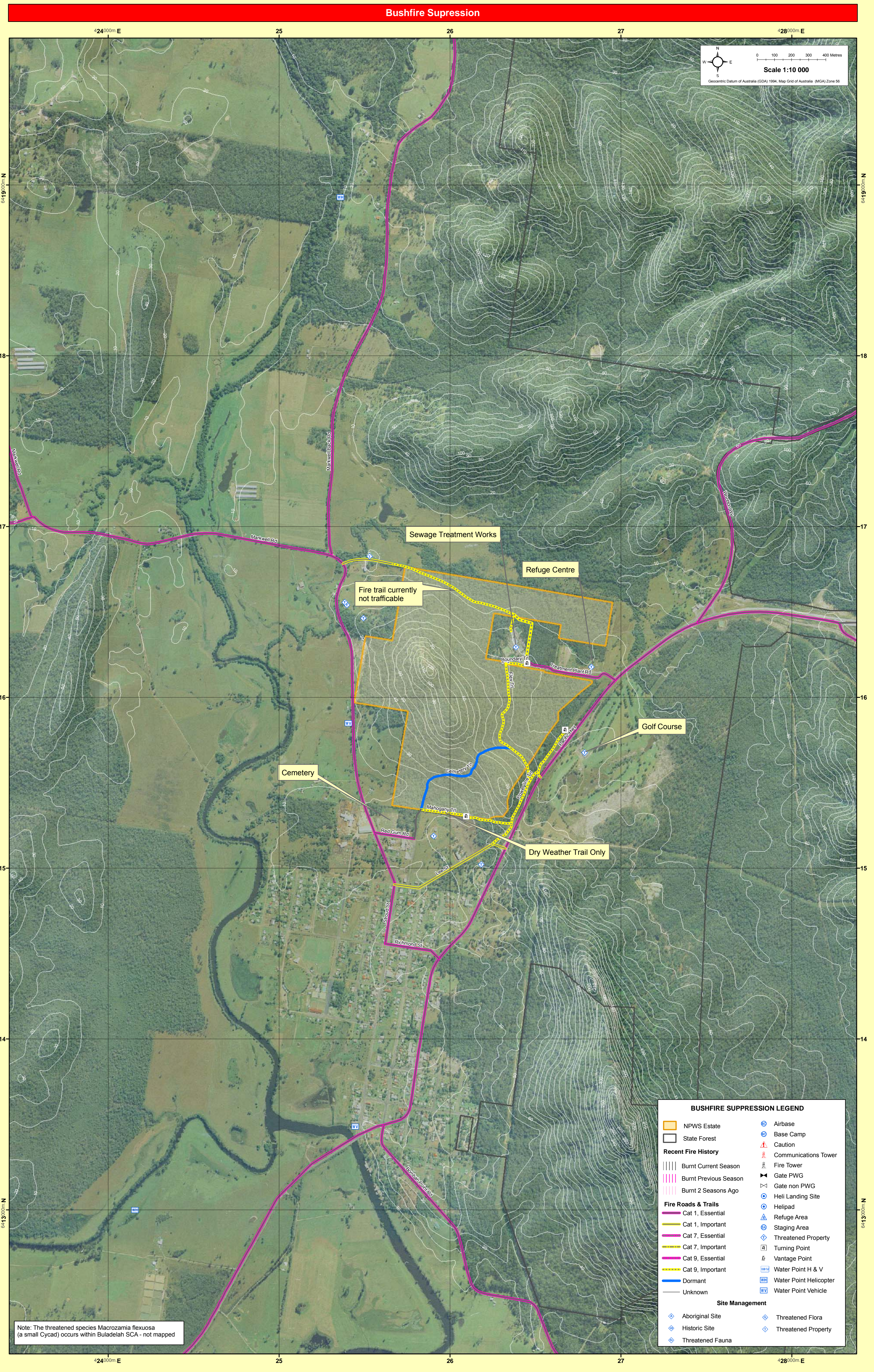
Operational Guidelines (continued)	
Refer to Current Fire Management Manual (updated annually)	
Brief all personnel involved in suppression operations on the following issues:	
<b>Resource</b>	<b>Guidelines</b>
<b>Historic Heritage Management (continued) (NPWS FMM)</b>	<b>*RCHMS - Regional Cultural Heritage Management Strategy.</b> In areas where the asset may be in or close to a water body, wetland or swamp, no foam or retardant is to be used. Earthmoving machinery is to be used around, rather than through assets. High RCHMS priority. Avoid fire, including wildfire, backburning & PB. Avoid fire, including wildfire, backburning & PB. High or low RCHMS priority. Heritage site unlikely to be affected by fire. Danger to any fire crew activity. Avoid site at all costs. Low RCHMS priority. Avoid fire, including wildfire, backburning & PB. Avoid all water bombing activities. Low RCHMS priority. Avoid fire, including wildfire, backburning & PB. High or low RCHMS priority. Heritage site unlikely to be affected by fire. Avoid use of earth moving machinery. High or low RCHMS priority. Heritage site unlikely to be affected by fire. Avoid use of earth moving machinery. Avoid all water bombing activities.
<b>HS2</b>	High RCHMS priority. Avoid fire, including wildfire, backburning & PB.
<b>HS3</b>	High or low RCHMS priority. Heritage site unlikely to be affected by fire. Danger to any fire crew activity. Avoid site at all costs.
<b>HS4</b>	Low RCHMS priority. Avoid fire, including wildfire, backburning & PB. Avoid all water bombing activities.
<b>HS5</b>	Low RCHMS priority. Avoid fire, including wildfire, backburning & PB.
<b>HS6</b>	High or low RCHMS priority. Heritage site unlikely to be affected by fire. Avoid use of earth moving machinery.
<b>HS7</b>	High or low RCHMS priority. Heritage site unlikely to be affected by fire. Avoid use of earth moving machinery. Avoid all water bombing activities.
<b>Threatened Fauna Management (NPWS FMM)</b>	
<b>FA1</b>	Protect large and hollow bearing trees.
<b>FA2</b>	Protect large and hollow bearing trees. Avoid interfire intervals of < 10 yrs. Avoid high intensity fires that consume tree canopies and fallen logs.
<b>FA3</b>	Avoid interfire intervals of < 10 yrs.
<b>FA4</b>	Habitat unlikely to be affected by fire. Avoid use of earth moving machinery in wetland habitats.
<b>FA5</b>	Habitat unlikely to be affected by fire. Avoid use of earth moving machinery in dune habitats.
<b>FA6</b>	Avoid fire, including wildfire, backburning & PB, as far as possible in wetland habitat. Avoid use of earth moving machinery in wetland habitats. Avoid use of retardant and foam in wetland habitat. Avoid high intensity fires that consume tree canopies and fallen logs. Avoid fire, including wildfire, backburning & PB, as far as possible. Avoid use of earth moving machinery.
<b>FA7</b>	Avoid fire, including wildfire, backburning & PB, as far as possible. Avoid use of earth moving machinery.
<b>FA8</b>	Avoid fire, including wildfire, backburning & PB, as far as possible. Avoid use of earth moving machinery.

Operational Guidelines (continued)	
Refer to Current Fire Management Manual (updated annually)	
Brief all personnel involved in suppression operations on the following issues:	
<b>Threatened Flora Management (NPWS FMM)</b>	
<b>FL1</b>	Avoid interfire intervals of < 10 yrs. Avoid the use of earthmoving machinery. Avoid the use of retardant.
<b>FL2</b>	Avoid fire, including wildfire, backburn, prescribed burning, as far as possible. Avoid the use of earthmoving machinery. Avoid the use of retardant.
<b>FL3</b>	Avoid high intensity fire. Avoid interfire intervals < 10 yrs, effect unknown. Avoid the use of earth moving machinery. Avoid interfire fire.
<b>FL4</b>	Avoid low intensity fire. Avoid interfire intervals < 5 yrs. Avoid earth moving machinery. Avoid the use of retardant.
<b>FL5</b>	Avoid low intensity fire. Avoid interfire intervals < 5 yrs. Avoid earth moving machinery. Avoid the use of retardant.

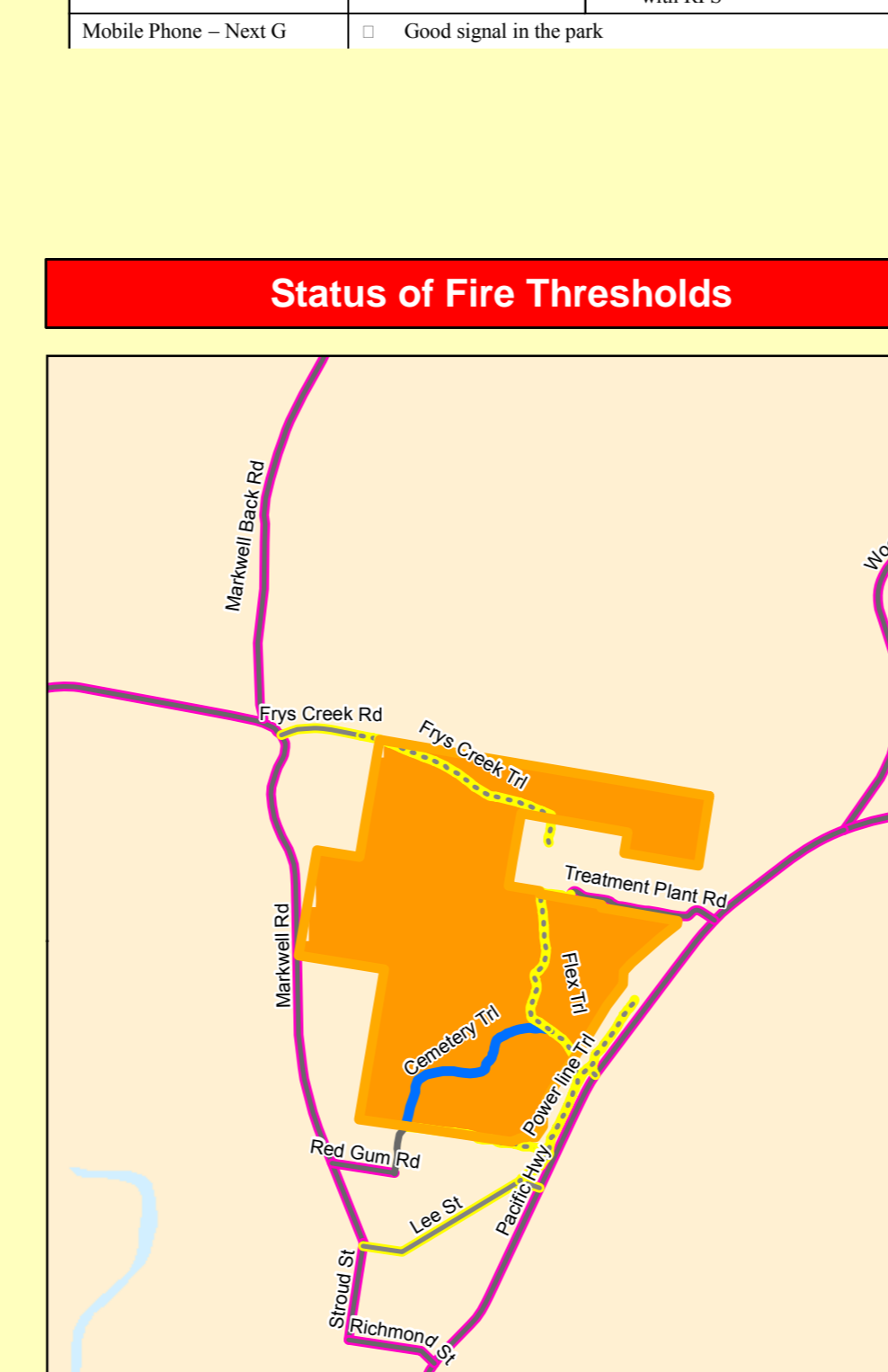
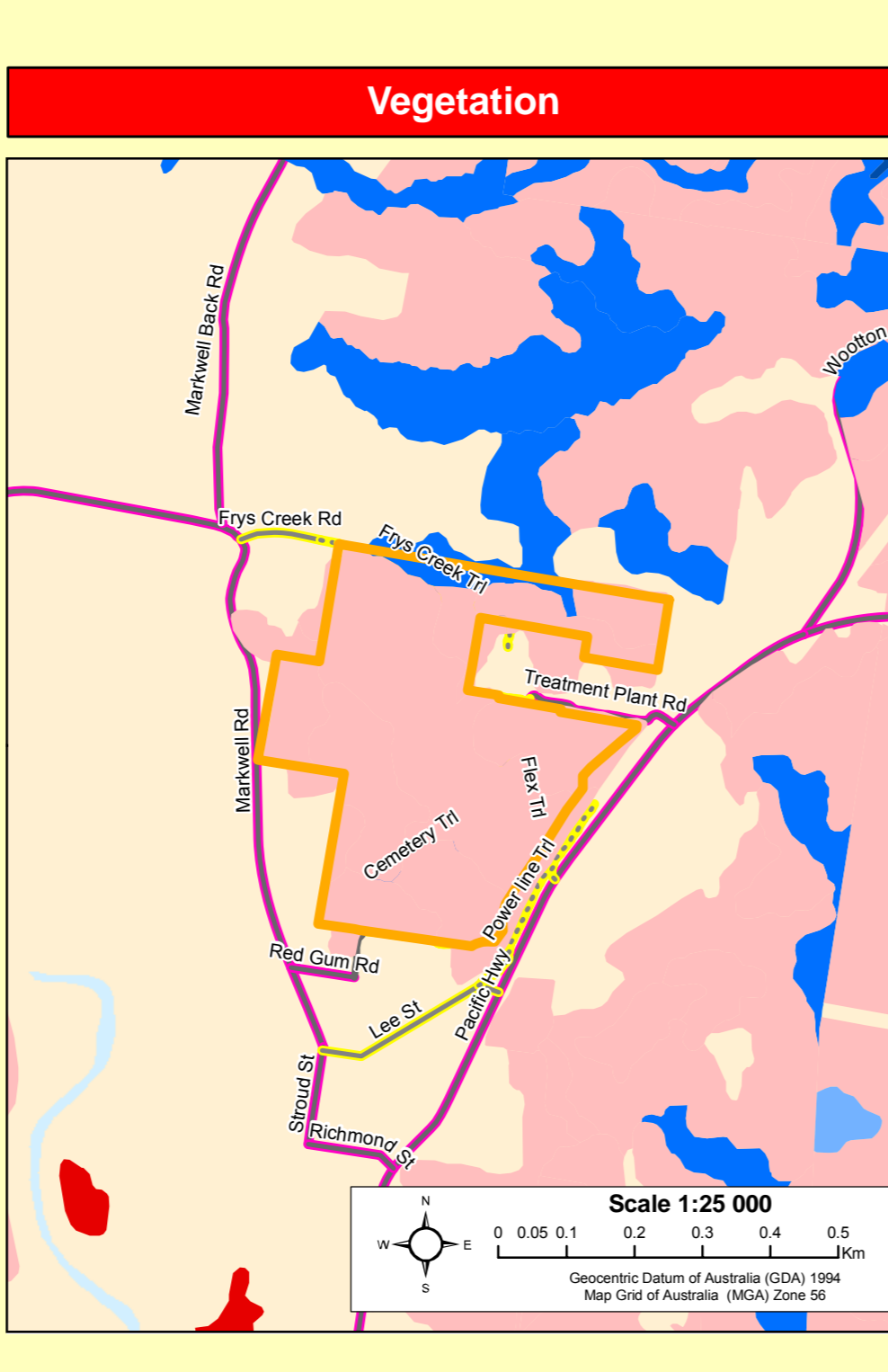
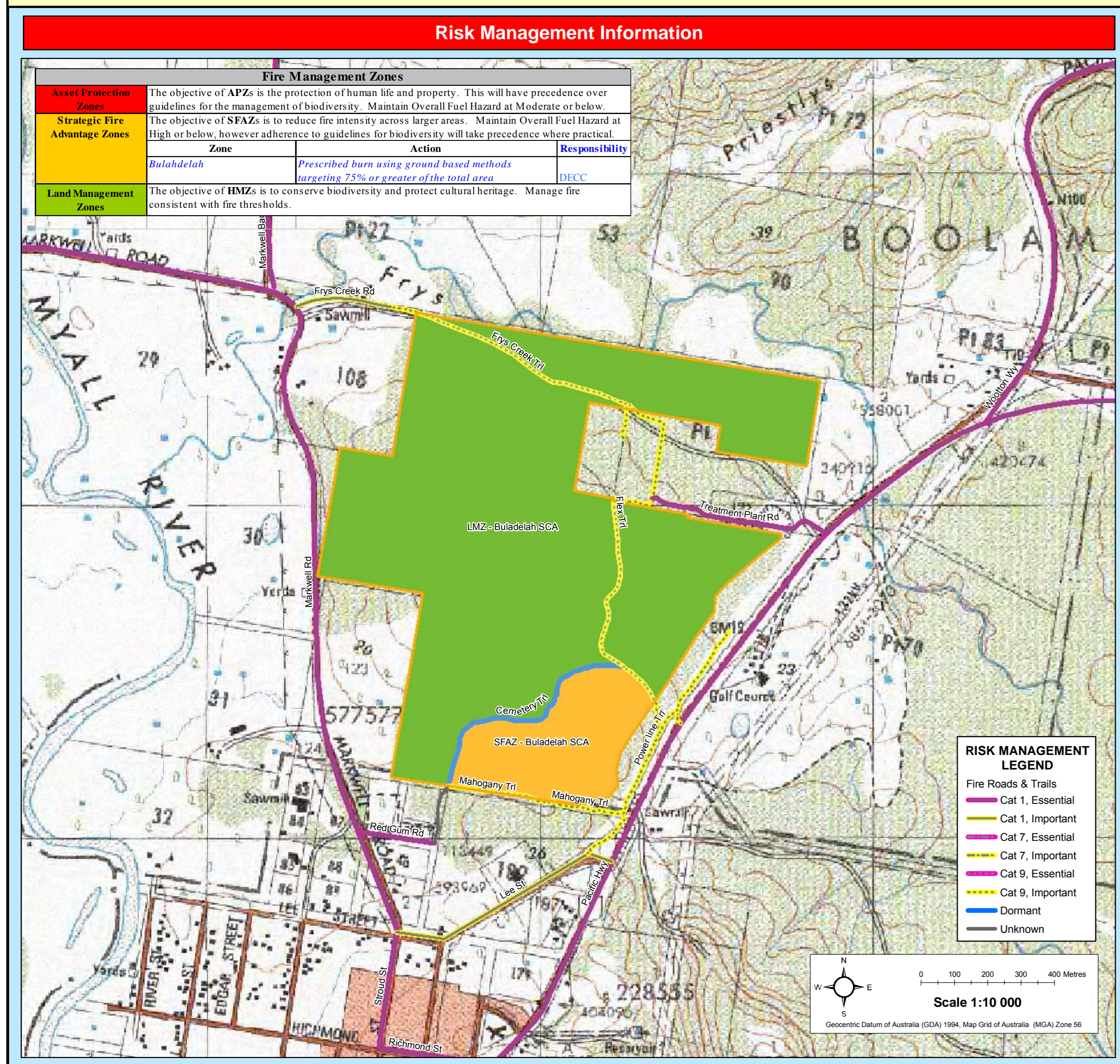
Operational Guidelines (continued)	
Refer to Current Fire Management Manual (updated annually)	
Brief all personnel involved in suppression operations on the following issues:	
<b>Earthmoving Equipment (NPWS FMM)</b>	Earthmoving equipment may only be used with the prior consent of a senior NPWS officer, and then only if the probability of its success is high. Earthmoving equipment must be always guided and supervised by an experienced officer, and accompanied by a support vehicle. Personnel engaged in direct or parallel attack this vehicle must be a firefighting vehicle. Containment lines constructed by earthmoving equipment should consider the protection of drainage features, observe the Threatened Species and Cultural Heritage Operational Guidelines, and be surveyed, where possible, to identify unknown cultural heritage sites. Earthmoving equipment should be washed down, where practicable, prior to it entering NPWS estate. All fire advantages used during wildfire suppression operations must be mapped and where relevant added to the database. The use of fire retardant is only permitted with the prior consent of the senior NPWS officer, and should be avoided where reasonable alternatives are available. Exclude the use of surfactants and retardants within 50m of rainforest, watercourses, dams and swamps. Areas where fire suppression chemicals are used must be mapped and the used products name recorded. The Threatened Species Operational Guidelines are to be observed. Stabilised and rehabilitated where practicable as part of the wildfire suppression operation. The reserve may be closed to the public during periods of extreme fire danger or during wildfire suppression operations.
<b>Fire Advantage Recording</b>	
<b>Fire Suppression Chemicals (NPWS FMM)</b>	
<b>Rehabilitation (NPWS FMM)</b>	
<b>Visitor Management (NPWS FMM)</b>	

Contact Information		
<b>Agency</b>	<b>Position</b>	<b>Location</b>
<b>NPWS</b>	Hunter Region Duty Officer (24hr)	016 301 161 / 0429 144880
	Great Lakes Area Manager	6591001 / 0429 44874
	Fire Management Officer	4984 8206 / 0429 144870
	Regional Operations Coordinator	4984 8212 / 0429 144872
	Great Lakes Area Office	6591 0300 / (fax) 65540489
	Hunter Regional Office	4984 2300 / (fax) 4981 3913
<b>RFS</b>	Great Lakes	6555 7982 / (fax) 6555 8809 6555 8888 (After hours)
<b>NSW Fire Brigade</b>	Emergency	000
	Newcastle Communications (24hr)	49297 177 / (fax) 4927 2580
<b>SES</b>	Emergency	000
	Foster	6554 0716 / (fax) 6554 0776
<b>Police</b>	Emergency	000
	Some	4997 4204 / (fax) 4997 4377
<b>Ambulance</b>	Emergency	000
	Bookings	331 233
		4997 4477
<b>Hospital</b>	Bulahdelah	4997 4477
<b>DPI - Forests</b>	Hunter Region Office Maitland	4931 6319 / (fax) 4933 0772
		0429 491 868
<b>Council</b>	Great Lakes	6591 7222 / (fax) 6591 7200 0408 652662 (Ab)
<b>Local Aboriginal Land Council</b>	Foster	6555 5411
<b>Treatment Works</b>	Mid Coast Water	0417439440 49974975

Communications Information		
<b>Service</b>	<b>Channel</b>	<b>Location and Comments</b>
NPWS - VHF	26	Cabbage Tree
NPWS - VHF (Portable Repeater)	15	Can be located anywhere
RFS - PMR	32	Cabbage Tree
SF - VHF	79 (NPWS)	Use 79 on NPWS - VHF radios
CB - UHF	1-99	Use 11 on SF - VHF Radios
		Available in most RFS vehicles
		Choose channel on fire-ground with RFS
Mobile Phone - Next G		Good signal in the park



Threatened Flora Management (NPWS FMM)	
<b>FL1</b>	Avoid interfire intervals of < 10 yrs. Avoid the use of earthmoving machinery. Avoid the use of retardant.
<b>FL2</b>	Avoid fire, including wildfire, backburn, prescribed burning, as far as possible. Avoid the use of earthmoving machinery. Avoid the use of retardant.
<b>FL3</b>	Avoid high intensity fire. Avoid interfire intervals < 10 yrs, effect unknown. Avoid the use of earth moving machinery. Avoid interfire fire.
<b>FL4</b>	Avoid low intensity fire. Avoid interfire intervals < 5 yrs. Avoid earth moving machinery. Avoid the use of retardant.
<b>FL5</b>	Avoid low intensity fire. Avoid interfire intervals < 5 yrs. Avoid earth moving machinery. Avoid the use of retardant.



VEGETATION MAP LEGEND	
Hardwood Plantation	Endangered Box Open Forest
Pine Plantation	Sub-Alpine Woodland
Heathland/Sclerophyll	Endangered Box Snow Grass
Heathy Woodland	Mangrove/Saltmarsh
Dry Sclerophyll Forest	Greeney Disturbed Vegetation
Native Grassland	Palm Forest
Sedgeland/Rushland	
Riparian Forest	
Endangered Sub-Alpine Wetland	
Swampy Sclerophyll Forest	
Wet Sclerophyll Forest	
Rainforest	

Fire Thresholds	
<b>Overburnt</b>	Fire thresholds have been exceeded. Protect from fire as far as possible. The area will be Overburnt if it burns this year.
<b>Vulnerable</b>	Protect from fire as far as possible. Time since fire is less than the optimum interval, but before that it was within threshold. Avoid fire if possible.
<b>Recently Burnt</b>	Fire history is within the threshold for vegetation in this area. A burn is neither required nor should one necessarily be avoided.
<b>Within Threshold</b>	The area is close to its threshold and may become overburnt with the absence of fire. A prescribed burn may be advantageous. Consider allowing unplanned fires to burn.
<b>Almost Underburnt</b>	The area is close to its threshold and may become overburnt with the absence of fire. A prescribed burn may be advantageous. Consider allowing unplanned fires to burn.
<b>Underburnt</b>	Fire frequency is below the thresholds in the area. A prescribed burn may be advantageous. Consider allowing unplanned fires to burn.
<b>Unknown</b>	Insufficient data to determine fire threshold.

NB: Fire thresholds are defined for vegetation communities to conserve biodiversity

### BUSHFIRE SUPPRESSION LEGEND

NPWS Estate	Airbase
State Forest	Base Camp
Burnt Current Season	Caution
Burnt Previous Season	Communications Tower
Burnt 2 Seasons Ago	Fire Tower
Fire Roads & Trails	Gate NPWG
Cat 1, Essential	Gate non NPWG
Cat 1, Important	Heli Landing Site
Cat 7, Essential	Helipad
Cat 7, Important	Refuge Area
Cat 9, Essential	Staging Area
Cat 9, Important	Threatened Property
Dormant	Turning Point
Unknown	Vantage Point
	Water Point H & V
	Water Point Helicopter
	Water Point Vehicle

Note: The threatened species *Macrozamia flexuosa* (a small Cycad) occurs within Bulahdelah SCA - not mapped