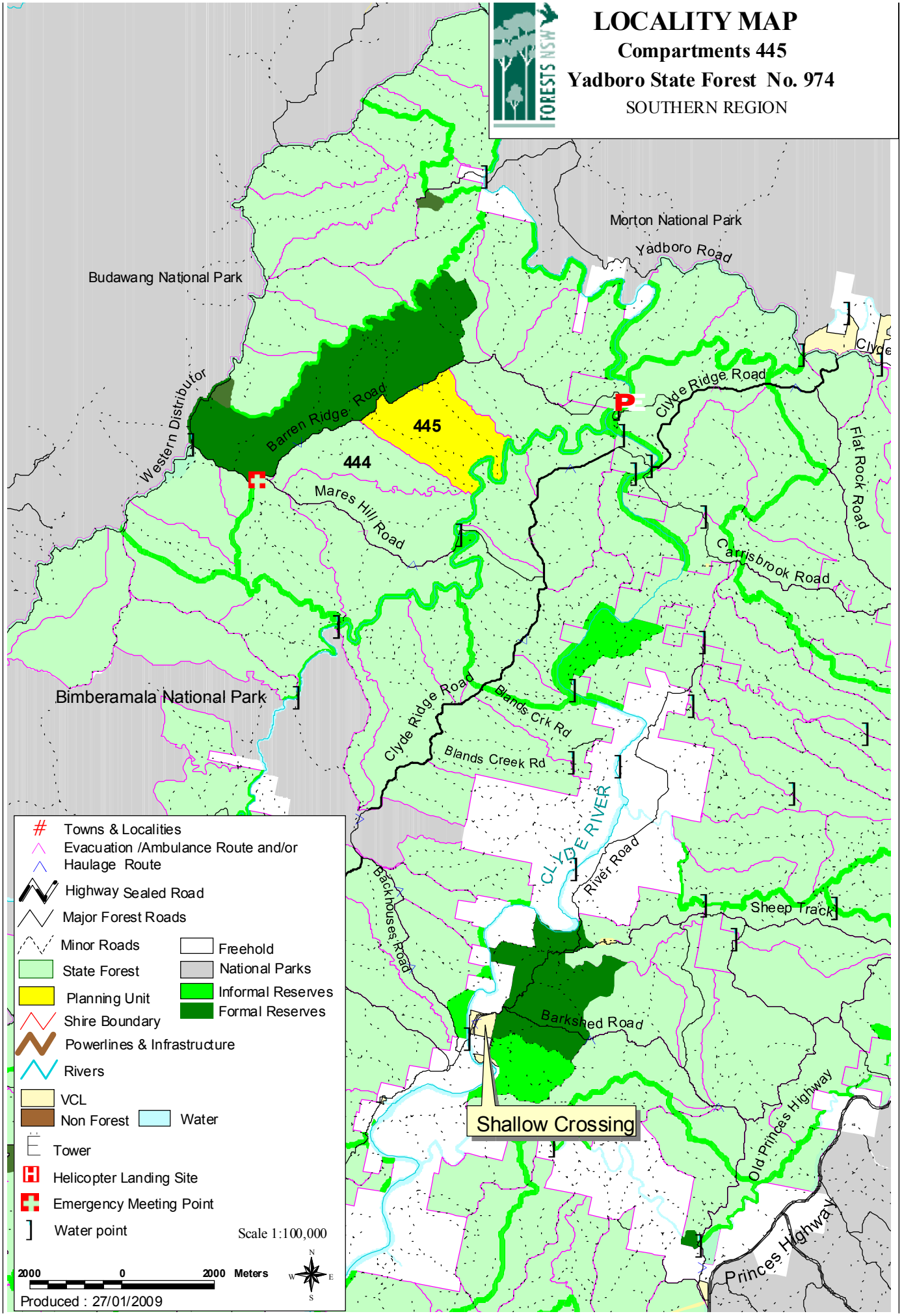
LOCALITY MAP

Compartments 445

Yadboro State Forest No. 974

SOUTHERN REGION

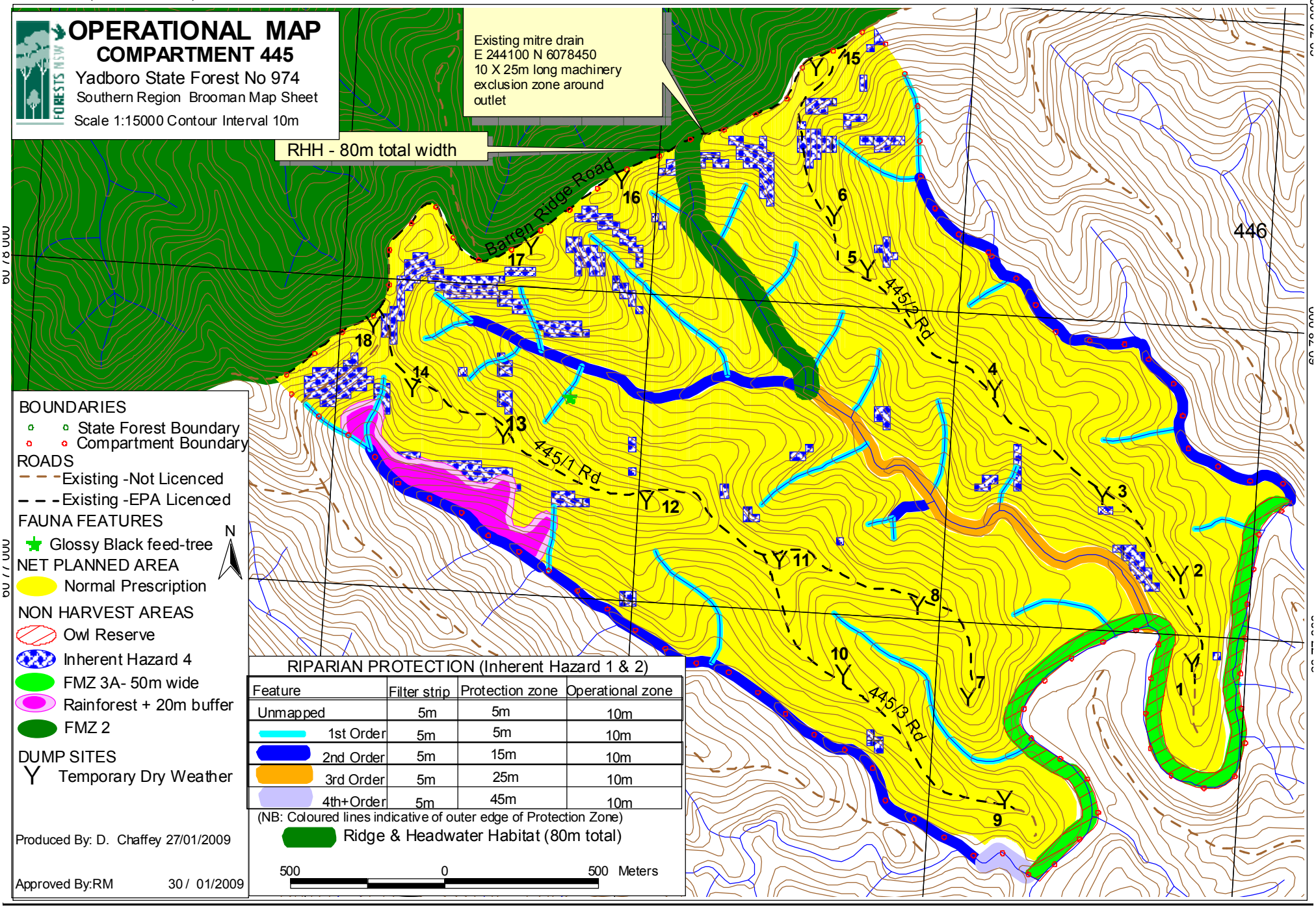


OPERATIONAL MAP
COMPARTMENT 445

Yadboro State Forest No 974

Southern Region Brooman Map Sheet

Scale 1:15000 Contour Interval 10m



BOUNDARIES
- State Forest Boundary
- Compartment Boundary

ROADS
- Existing -Not Licenced
- Existing -EPA Licenced

FAUNA FEATURES
- Glossy Black feed-tree

NET PLANNED AREA
- Normal Prescription

NON HARVEST AREAS
- Owl Reserve
- Inherent Hazard 4
- FMZ 3A- 50m wide
- Rainforest + 20m buffer
- FMZ 2

DUMP SITES
- Temporary Dry Weather

RIPARIAN PROTECTION (Inherent Hazard 1 & 2)

Feature	Filter strip	Protection zone	Operational zone
Unmapped	5m	5m	10m
1st Order	5m	5m	10m
2nd Order	5m	15m	10m
3rd Order	5m	25m	10m
4th+Order	5m	45m	10m

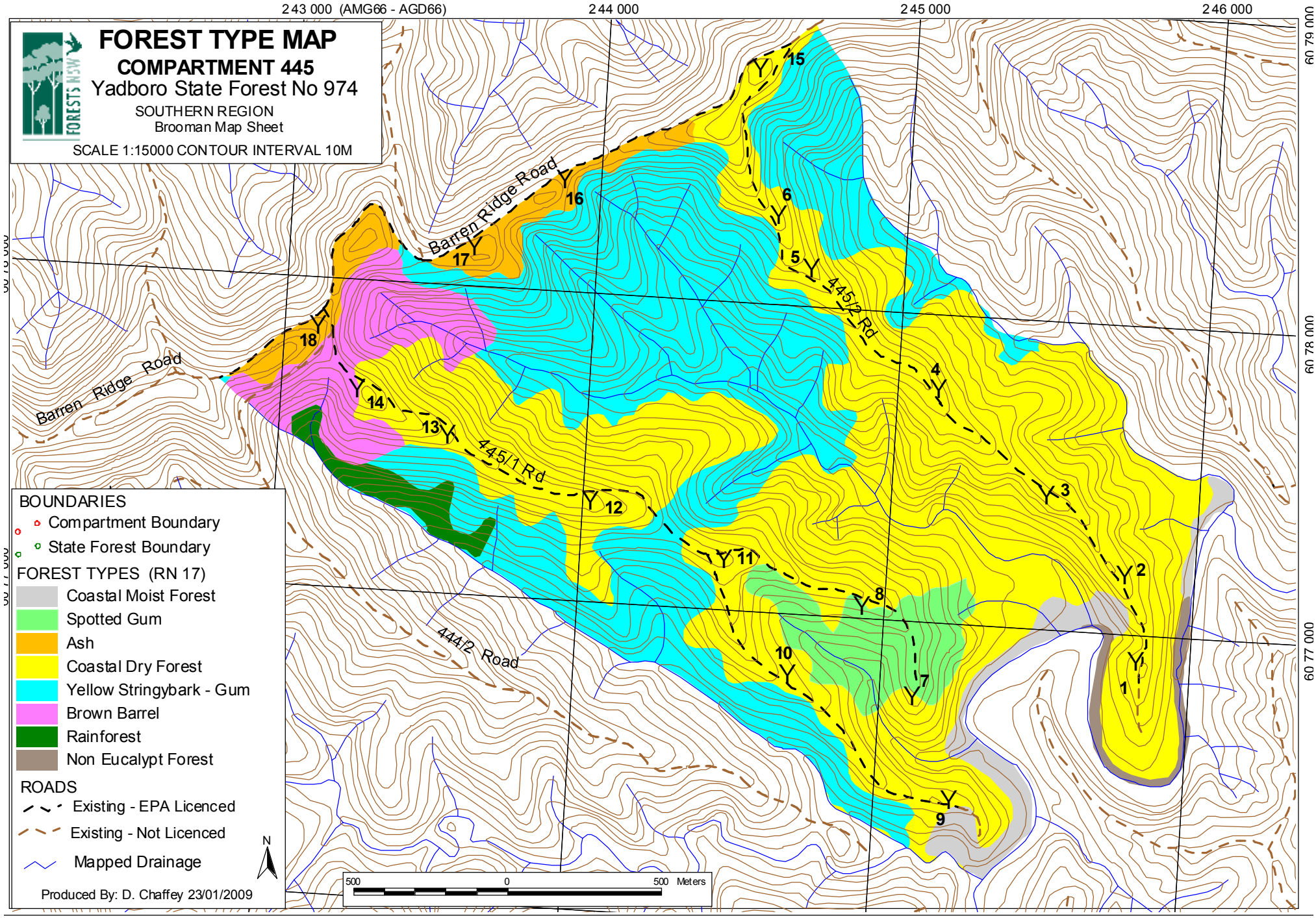
(NB: Coloured lines indicative of outer edge of Protection Zone)

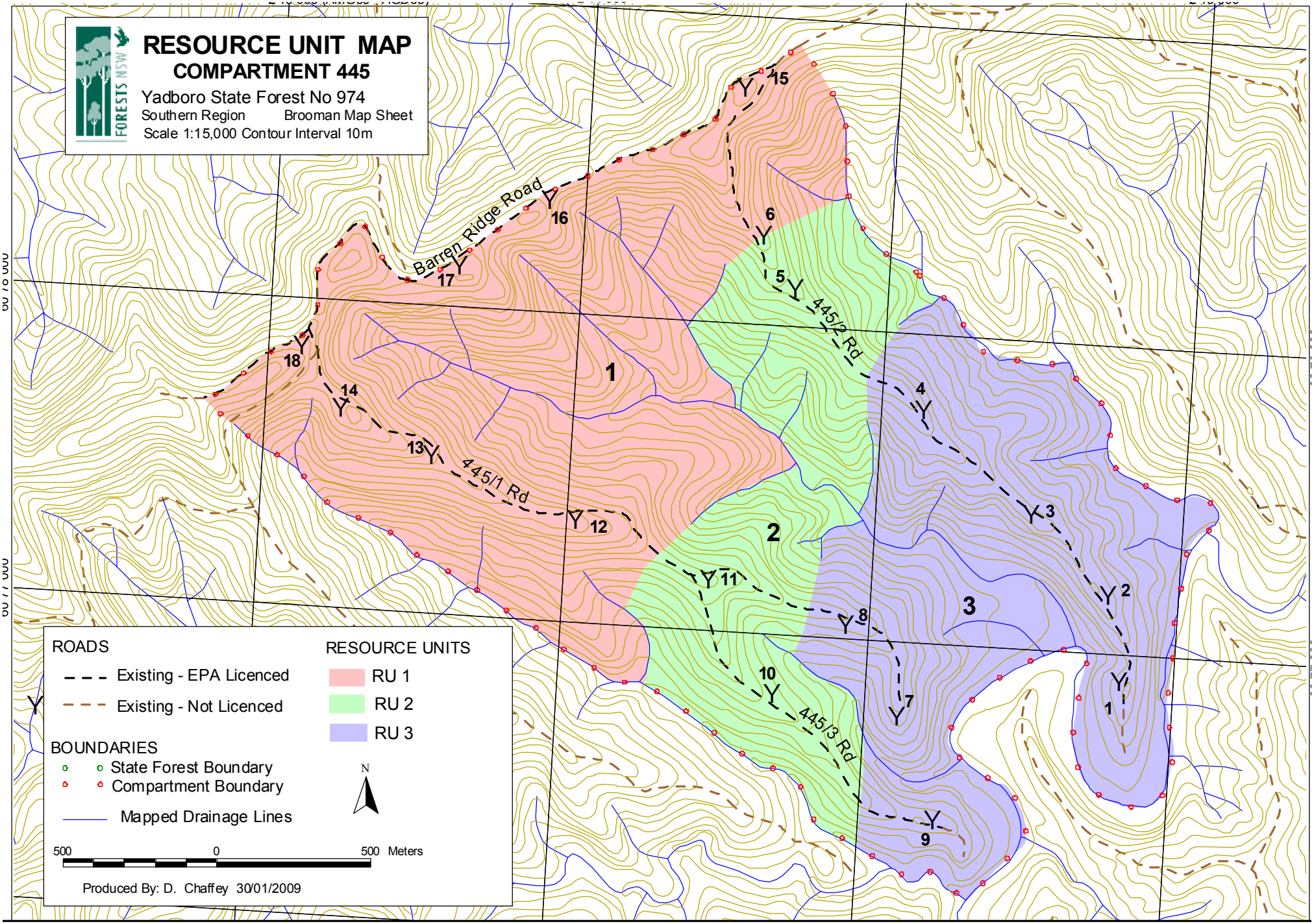
Ridge & Headwater Habitat (80m total)

500 0 500 Meters

Produced By: D. Chaffey 27/01/2009

Approved By:RM 30 / 01/2009


FOREST TYPE MAP
COMPARTMENT 445
Yadboro State Forest No 974
SOUTHERN REGION
Brooman Map Sheet
SCALE 1:15000 CONTOUR INTERVAL 10M
243 000 (AMG66 - AGD66)
244 000
245 000
246 000
6 079 000
6 078 000
6 077 000
Barren Ridge Road
Barren Ridge Road
445/2 Rd
445/1 Rd
444/2 Road
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
BOUNDARIES
Compartment Boundary
State Forest Boundary
FOREST TYPES (RN 17)
Coastal Moist Forest
Spotted Gum
Ash
Coastal Dry Forest
Yellow Stringybark - Gum
Brown Barrel
Rainforest
Non Eucalypt Forest
ROADS
Existing - EPA Licenced
Existing - Not Licenced
Mapped Drainage
N
500
0
500 Meters
Produced By: D. Chaffey 23/01/2009


RESOURCE UNIT MAP
COMPARTMENT 445
Yadboro State Forest No 974
Southern Region
Brooman Map Sheet
Scale 1:15,000 Contour Interval 10m
FORESTS NSW
Barren Ridge Road
445/2 Rd
445/1 Rd
445/3 Rd
1
2
3
ROADS
Existing - EPA Licenced
Existing - Not Licenced
BOUNDARIES
State Forest Boundary
Compartment Boundary
Mapped Drainage Lines
RESOURCE UNITS
RU 1
RU 2
RU 3
N
500
0
500 Meters
Produced By: D. Chaffey 30/01/2009

FORESTS NEW SOUTH WALES
SOUTHERN REGION
HARVESTING PLAN

Batemans Bay Management Area
Yadboro State Forest
Compartment 445

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1. Safety Considerations

1.1 Hazard identification

Assessment of existing hazards was undertaken at the time of planning. These hazards are in the attached table and where appropriate, control strategies have been applied. Where no control strategy has been described, the contractor must develop appropriate strategies as part of the contractors Safety Management Plan. A copy of the hazard assessment and control strategies is provided to assist in the development of the contractors Safety Management Plan for this harvesting area.

Identified hazards requiring risk assessment and control strategy in Safety Management Plan

IDENTIFIED HAZARD	RISK RATING	SUGGESTED CONTROL STRATEGY
1. Adjoining roads of various traffic levels	1	Warning signs at intersections, road closure and traffic control measures
2. Cliff lines & rocky very steep terrain	3	Operators to assess work site within two tree lengths to identify immediate hazards. Communicate to other operators and mark sites.
3. Hazardous or dead trees	1	**Refer to Forests NSW safety standard 1.3.9.** Assess area within two tree lengths of work site. Assess risk, & if necessary remove hazard or move work site. Use machinery to assist with hazard removal if possible. **Contractor is responsible for implementing control strategies during harvesting.**
4. Overhead hazards associated with dumps	1	**Refer to Forests NSW safety standard 1.3.9.**Assess overhead hazard within two tree lengths of the dump. Assess risk, & if necessary remove hazard or relocate dump site. **Contractor is responsible for implementing control strategies during harvesting.**
5. Dust from passing vehicles along dirt haulage routes	2	Restrict speed to minimise dust generation, slow down when passing vehicles. Turn on driving and hazard lights to increase visibility.

Hazard No 1 is shown on the attached Operational Map

1.2 Traffic Management Plan

1.2.1 Traffic control and safety measures

The logging contractor is responsible for traffic control on all forest roads when felling is within two tree lengths of the tallest tree to be felled of the road or snigging on roads or loading is occurring within 10 metres of a road. Warning of timber harvesting operations must be **displayed 200 metres either side** of all road approaches leading to areas where harvesting operations are in progress.

Truck entering signs must be placed 200 metres either side of the junctions/intersections of Barren Ridge/Mares Hill, Mares Hill/Clyde Ridge and Clyde Ridge/Woodburn Road to warn motorists of emerging log trucks.

1.2.2 Dust, noise and school bus routes

Dust and noise – Where log haulage routes pass close to rural housing along natural surface/gravel roads dust and noise must be minimised to the greatest extent practicable. Trucks should reduce speed, restrict use to daylight hours and minimise the use of engine brakes through these areas.

School bus route – Woodburn Road and Wheelbarrow Roads are used by vehicles between the hours of 7:30am to 8:30 am and 3:30pm to 4:30pm. On weekdays, to the greatest extent practicable, log haulage should avoid school bus times on the above roads.

1.3 Supervision of 'operator in training'

All new operators entering the work site must be inducted by the reading of the Harvesting Plan and the Site Safety Plan and hold all relevant licences and accreditations. No person is permitted to commence work unless they have been adequately trained and accredited. The training must give instruction in the performance of the work, instruct as to any dangers associated with that work and in any safety precautions which ought to be taken. Field and bush supervisors must ensure that an employer does not permit an untrained employee to operate, without competent supervision, any power driven tool, machine or equipment.

1.4 Site visitors

(1) Authorised

i). All authorised visitors to active timber harvesting/roading operations must wear the following personal protection equipment:

- an approved safety helmet
- suitable heavy duty footwear, with firm ankle support and non-slip soles
- approved high visibility clothing
- eye and ear protection if appropriate

ii). Immediately upon arrival at an active timber harvesting/roading operation, visitors must report to the Supervising Forest Officer (SFO) or bush supervisor who will determine points from which operations can be safely viewed.

iii).The following minimum safety distances must be observed while operations are active:

- Manual tree felling - at least 2 tree lengths of the tallest tree to be felled
- Log dump operations – 12 metres from the working area (edge of dump perimeter)
- Mechanical harvesting – 2 tree lengths of the tallest tree to be felled and when the driver is advised
- Active snig track – at least 2 tree lengths of the tallest tree to be felled
- Road & crossing maintenance &/or construction – at least 2 tree lengths of the tallest tree to be felled

(2) Unauthorised

i) All unauthorised visitors to active timber harvesting/roading operations must not approach within 100 metres of a person operating timber haulage or harvesting equipment (clause 67(1)(a)) or interfere with such equipment (clause 67(1)(b)) Forestry Regulations 2004. In addition unauthorised visitors must wear the personal protection equipment outlined in 5.4(1)(i) above.

ii) Failure to observe the above guidelines will result in the following procedure:

- All operations to cease immediately
- Unauthorised visitors to be advised that they are in contravention of clause 67(1)(a) or 67(1)(b) of Forestry Regulations 2004 and to leave the site or move outside the 100 metre restricted area immediately.
- Notify the Batemans Bay Forests NSW Office of unauthorised visitors.

1.5. Emergency Plan Information

1) Mobile phone reception on work site:

Next G: **Poor** Digital: **Poor**
Nearest reliable reception: **higher points only**

2) Radio coverage from work site:

State Forest Radio: Channel No: 236/Budawang 239/Plumwood 237/Lowden 238

Call to: Batemans Bay, Call sign from: your name

Contractor/operators radio: Channel No: UHF radio repeaters, Emergency channel 5, Truckies channel 40

3) Work site location:

1:100,000 map sheet: **Ulladulla 8927**

Lat/Long for GPS: **S 35°25'3"** **E 150°10'50"**

1:25,000 map sheet: **Brooman**

Grid reference: (centre of 445) AMG 2**440**00 E 60**770**00 N

State Forest name: **Yadboro SF** Nearest named Forest road: **Barren Ridge Road**

Nearest town or named locality: **Yadboro Flat** Local Government Area: **Shoalhaven**

Nearest shire road/junction: **Clyde Ridge Road/Woodburn Road**

4) Emergency meeting point for ambulance:

1:100,000 map sheet: **Ulladulla 8927**

Lat/Long for GPS: **S 35°25'31"** **E 150°8'54"**

1:25,000 map sheet: **Brooman** Grid reference: AMG 2**411**00 E 60**760**50 N

Description: **Intersection of Mares Hill Road and Barren Ridge Road**

5) Closest helicopter landing site:

Description: **Open paddock at 'Budawang Retreat', off Barren Ridge Road**

Grid reference: AMG 2**484**50 E 60**785**00 N

1:100,000 map sheet: **Ulladulla 8927**

Lat/Long for GPS: **S 35°24'18"** **E 150°13'48"**

6) Directions to navigate from nearest ambulance station to meeting point:

Nearest ambulance station: **Ulladulla**

Directions: **South along Princess Highway for 6.5km, turn right into Wheelbarrow Road. Go 6km then left into Woodburn Road. Go 3km then right into Clyde Ridge Road. Go approximately 30km to intersection of Clyde Ridge Road and Barren Ridge Road. Await instructions.**

7) <u>Procedure to obtain ambulance assistance</u>:

Telephone 000 or 112 (if there is no mobile coverage), or no response

Radio Batemans Bay forestry office on **channel 236** & say ‘ this is <name>, **Emergency Call, Emergency Call, Over’.** When the office responds, provide brief details of the situation and ask for the office to relay a "000" call.

The information provided to the "000" operator will be in the following sequence:

"000" Operator Question	**Response**
1. Police, Fire, Ambulance?	NSW Ambulance, Wollongong Operations Centre
2. Suburb?	**Yadboro** State Forest Nearest town/locality is **Yadboro Flat** Nearest ambulance station is **Ulladulla**
3. Address?	**Barren Ridge Road**
4. Nearest Road junction/Cross street?	**Barren Ridge Road and Mares Hill Road**
5. Local Government Area?	**Shoalhaven City Council**
6. Nature of the problem?	Brief statement of the nature of the accident, number and condition of casualties.
7. Where is the accident?	repeat 3, 4, 5 and 6 above Grid Reference AMG 2**392**40 E 60**769**00 N 1:100,000 map sheet: **Ulladulla 8927** Lat/long **S 35°25'1" E 150°7'41" E** **South along princess Highway for 6.5km, turn right into Wheelbarrow Road. Go 6km then left into Woodburn Road. Go 3km then right into Clyde Ridge Road. Go approximately 30km to intersection of Clyde Ridge Road and Barren Ridge Road. Await instructions.**
8. Injuries?	Detailed information about the condition of the casualty
9. Call Back Number	Mobile phone no. if available. Forests NSW Batemans Bay office - 4472 6211
10. Name of reporter	Your name

SITE SPECIFIC HARVESTING PLAN

1a. Area Identification

Region	**Southern Region**
Management Area	**Batemans Bay**
State Forest	**Yadboro**
Compartment	**445**
Harvest Plan Job Number	**3333**
Pricing Zone	**Batemans Bay Foothills**

Areas

Compartment	**445**
Event ID	**13750**
Gross Area (ha)	**433**
Net Planned Area (ha)	**345 (79%)**

(Refer to Operational Map)

The actual area harvested or treated may be less due to unmapped exclusions, small scale variations in forest condition and commercial viability. Analysis of previously harvested Compartments has estimated the reduction of the Net Planned Area due to unmapped exclusions alone to be in the order of 28% across the Southern Region.

2. Description of Proposal

2.1 Harvesting of native forest

Harvesting of native forest, using Single Tree Selection (heavy) Silviculture subject to the Southern Region IFOA requirements. The primary product of the harvesting is high quality large sawlogs (quota logs), small high quality sawlogs, veneer logs, girders, poles & piles where timber markets are available. Parts of felled logs that do not meet high quality log specifications are segregated and graded into other classifications such as salvage sawlogs, pulp logs & miscellaneous timbers e.g. split & round posts, firewood, mining timbers & craftwood. The availability of miscellaneous timbers depends mainly on forest types, log defectiveness & market conditions at the time of harvesting.

2.2 Clause 22 (IFOA) Consideration

All relevant factors have been reviewed taking into account the volume and monetary value of each forest product to supply Term Agreement Holders. The harvesting operation also complies with Clause 22 of the IFOA.

Forest management should aim to improve the long-term timber productivity by appropriate harvesting and silvicultural practices whilst addressing all the necessary environmental issues under the Environment Protection Licence (EPL) (when applicable), the Threatened Species Licence (TSL) and the Fisheries Licence (FL).

2.3 Roadworks

Maintenance and upgrade to the existing road network. Roading details are contained in Appendix 2.

2.4 Post harvesting burning

Post harvesting burning to reduce fuel loads and create suitable seedbeds will be carried out under prescribed conditions. Post-harvest burning details are contained in Appendix 1.

2.5 Silviculture Investment

Following harvesting, silvicultural investment may be required on the harvested area to ensure regeneration, thin existing regeneration to desirable spacings or release regeneration from suppression of tree canopy competition.

3. Forest Condition and Silviculture

3.1 Forest History and Condition

Year	1957	1976	1979	2002
TSI	X	X	X	X
HR Burning	X	√	X	X
Wildfires	√	X	X	√
Logging m^3	X	X	3200	X

√ - applies, **X** – not applicable

Compartment	No. of Samples	BA Average (m^2/ha)	BA Range (m^2/ha)
445	13	26	16-34

3.2 Silviculture Prescription

The stands are low to medium to quality, variable in their structure and include areas of multi-aged regrowth with patches of maturing stands.

The area of each silvicultural treatment must be mapped and recorded in the Post logging information section of this plan.

3.2.1 Single Tree Selection

Forest stands of uneven age cover 100% of the net planned area (345ha) and will be harvested under a single tree selection (STS) regime with the objective of removing approximately 45% of mature trees and defective trees containing a sawlog ,while minimising damage to young regenerating stems, and creating canopy openings where appropriate for regeneration.

It is envisaged that the next harvesting operation in this compartment would be in approximately 20-30 years time.

The STS tract for IFOA purposes includes all parts of the net planned area in Compartment 445 as indicated on the Operational Map.

Single tree selection (STS) must remove no more than 45% of the basal area (BA), nor more than 50% of the canopy while retaining a minimum BA of 10m^2 within the tract. High volume areas (ie: areas coloured bright yellow on the Operational Map) may require careful tree marking to ensure the minimum BA is retained.

Following harvesting, the culling of trees may be considered and will have the primary aim of promoting regeneration by enhancing gaps created in harvesting. The combined effect of the harvesting and tree culling will remain within provisions of the Southern Region IFOA requirements.

Trees available for culling will exhibit one or more of the following characteristics, generally in order of priority:

- Significant defect rendering the bole ineffective for sawlog production, either
    - Externally such as stem malformation, excessive lower limbs, spiral grain, bumps; or
    - Internally with symptoms such as hollows, deep scars, bleeding
- Unacceptable site occupancy, such as large crown diameter, high dominance, especially on canopy gap edges
- Trees suppressing subdominant trees with growth potential
- Trees suppressing co-dominant trees with higher potential (thinning)
- Unmerchantable species to a level reflecting pre disturbance proportions.

AND

- Have not been retained for environment protection or future harvest reasons
- Will not exceed prescriptive limits

Artificial regeneration or rehabilitation of forest may be undertaken where proved necessary and as resources permit.

3.3 Silviculture Prescription – Resource Units

Current status and basic silviculture guidelines for the STS tract for each Resource Unit are as follows:

Resource Unit 1 of Compartment 445:

Structure: Unevenaged, mostly fully stocked. Highly variable over short distances. Mostly mature and overmature with some advanced pole/small sawlog sizes and some clumps of sapling regrowth.

Species: Dominated by Stringybark, Spotted Gum, Grey Iron Bark/Grey Box and Ash with Brown Barrel.

Condition: Average. Remnant overstorey in average timber condition.

Site Height: 25-30m. Site productivity – Poor.

Understorey: Mesic understorey. Mostly open (native grass, burrawangs, litter/humus, logs & limbs, Acacia's, Casuarina, Native Cherry, Dogwood, Bracken fern).

Silvicultural Objectives: STS – Medium-Heavy

Practice: Whilst protecting advanced growth and regrowth patches, remove all defective trees as timber markets and tree removal limits allow, create canopy openings to promote regeneration and disturb soil seedbed areas, release existing regrowth from overhead competition.

Resource Unit 2 of Compartment 445:

Structure: Predominately small diameter stand. Unevenaged, patchy, frequent openings. . Mostly small diameter mature and overmature trees with fire regrowth.

Species: Dominated by Stringybark and Ash.

Condition: Fair. Remnant overstorey in fair timber condition.

Site Height: 20-25m. Site productivity – average.

Understorey: Mesic understorey. Mostly open (native grass, burrawangs, litter/humus, logs & limbs, Acacia's, Casuarina, Native Cherry, Dogwood, Bracken fern).

Silvicultural Objectives: STS – Medium-Heavy

Practice: Whilst protecting advanced growth and regrowth patches, remove all defective trees as timber markets and tree removal limits allow, release existing regrowth from overhead competition.

Resource Unit 3 of Compartment 445:

Structure: Predominately small diameter. Unevenaged with frequent openings. Defective mature and overmature, with considerable fire damage.

Species: Dominated by Stringybark/Ash and Bloodwood.

Condition: Poor. Remnant overstorey in poor timber condition due to fire damage.

Site Height: 20m. Site productivity – poor.

Understorey: Mesic understorey. Mostly open (native grasses, litter/humus, logs & limbs, Native Black Thorn and other fire regrowth shrubs.

Silvicultural Objectives: STS – Medium-Heavy.

Practice: Maximum utilisation, however due to defects and fire damage, the end result may be nil to light STS.

4. Legal Conditions

In 2001, the Commonwealth and NSW Governments signed a Southern Regional Forest Agreement which, among other things, allows for the supply of timber for 20 years from public lands under the following NSW legislation:

- Forestry Act 1916, and
- Forestry & National Park Estate Act 1998

The latter Act provides for the Southern Forest Agreement and Southern Integrated Forest Operations Approval (IFOA), both approved by NSW Government Ministers in May 2002. This harvest plan is issued under the authority provided within the IFOA.

The IFOA also contains three licences issued under:

- Section 55 of the Protection of the Environment Act 1997 (EPL)
- Threatened Species Conservation Act 1995 (TSL).
- Section 220ZW of the Fisheries Management Act 1994 (FL).

Note: The EPL will not apply unless Forests NSW notifies the IFOA regulator(s) that it will apply. When the EPL does not apply to this plan, the conditions of the EPL will apply, except felling of trees within the protection zone of unmapped drainage lines will be allowed.

This harvest plan will be managed in the field under:

- Licences issued under the Forestry Act (1916)
- Forest Practices Code part 2 (Timber Harvesting in Native Forests - 1999) and part 4 (Forest Roads and Fire Trails - 1999)

Harvesting operations must comply with all of the above Licences (where applicable) and the Code.
Further information is available from www.racac.nsw.gov.au and www.rfa.gov.au .

5. Special Requirements

5.1 Non-harvest areas

The Operational Map indicates the non-harvest areas in the compartment, as detailed in the legend. Harvesting disturbance is not permitted in non-harvest areas unless authorised by the Regional Manager.

5.2 Occupation Permits

Apiary

2 Apiary Sites provided in the table below are located within the planning unit (Compartment 445). The contact phone numbers of permittees are available from the Batemans Bay office.

Table 5.2a.

Name	Boundary Location
[redacted]	Dumps 1-4 & 7
[redacted]	Dump 9

- The SFO must provide the apiary permittees with at least two weeks advance notice when bee boxes need to be removed or relocated.

6. Forest Management Zoning and Approvals

6.1 Forest Management Zones

Refer to operational map for location details.

Zone	Area (ha's)	Timber Harvesting	Snigging through	Removal of forest products	Grazing by domestic stock	Gravel/ rock quarrying	Existing roads & trails	Prescribed burning	Beekeeping	Feral animal & weed control	Tree removal for safety	Recreation & Research	Road Construction	Aboriginal (forest products)
FMZ 3A – Harvesting Exclusion	**15**	**X**	√ #	**X**	√	**X**	√	√	√	√	√	√	√ #	√
FMZ 4 – General Management	**418**	√	√	√	√	√	√	√	√	√	√	√	√	√

√ - Condition applies
X – Not Permitted.
- Special conditions apply.

6.2 IFOA Required Approval of Forestry Activities

Forestry Operations within the plan area must minimise impacts to the protection zones and meet the requirements of the EPL and General Protection Zones in part 8.3 of this Plan.

NOTE: All areas of Rainforest and Protection Zones require prior Regional Manager (&/or Department of Environment & Conservation) approval before forest harvesting related activities (eg: road or snig track construction) can be undertaken. It is the responsibility of the SFO to identify any protection zones which will need to be crossed during harvesting. The SFO should then contact the Planning Forester to obtain the necessary approval.

7. Cultural Heritage

Cultural Heritage - There are Cultural Heritage sites within the compartment. All relevant representatives have been consulted &/or inspected Compartment 445. Due to the confidentiality of the Cultural Heritage sites a Cultural Heritage site map will only be attached to the specific copies of the plan. All 10 metre radius exclusion buffers are to be marked in the field as **hard exclusion zones (i.e. pink & yellow tape)** where logging and/or road works are scheduled to be undertaken. **All operators must be taken to each site within the planned area before any activities are commenced**. It has been agreed that any Cultural Heritage sites discovered during road construction and harvesting will be reported to the Supervising Forester who may then consult with relevant external representatives. Vehicles may continue to use roads unless otherwise advised.

8. Flora and Fauna General Conditions

8.1 Pre-harvesting searches

During the pre-harvest mark up the SFO must search for and record threatened species habitat features consistent with Conditions 5.2 and 9.6 of the TSL.

Where any of these features are found, the feature must be recorded, the Harvesting Plan (including the Operational Map) must be amended accordingly and the appropriate Condition applied.

The results of the database search and pre-harvest surveys resulted in the following consideration of flora & fauna issues:
General prescriptions: **Eastern (Common) Bent-wing Bat** *(Miniopterus schreibersii)* (Desktop Review), **Glossy Black Cockatoo** (*Callyptorhnchus lathami)* Feed Tree (Compartment Traverse).

Species specific prescriptions: **Nil**

Site specific prescriptions: **Nil**

All known flora and fauna information has been considered by the Regional Ecologist in consultation with the Forest Planner in applying general and site specific prescriptions for the protection of the above species. It is acknowledged that one (1) of the two (2) species listed above were recorded during pre-harvest surveys and appropriate prescriptions have been applied. All species are adequately protected under their relevant IFOA prescriptions and do not require additional measures.

8.2 Tree Retention

Zone	Habitat Trees/ 2ha	Recruitment Trees/ 2ha	Protection of Retained Trees	Stag Retention (only if safe)	Significant Food Resources/ 2 ha
Non Regrowth	**10**	**10**	√	√	**4**
TSL condition	5.6a	5.6b	5.6g	5.6e	5.6f

√ - Condition applies

8.3 General Protection Zones

General exclusions as listed below are shown on the Operational Map.

Table 1

Feature/Condition	TSL cond'n	Occurs within Planning Unit
High Conservation Value Old Growth	5.3	No
Rainforest	5.4	Yes (Cool Temperate)
Rare Non commercial Forest Types	5.5	No
Riparian Protection Zones	5.7	Yes
Ridge & Headwater Habitat	5.8	Yes
Wetlands	5.9	No
Heath and Scrub	5.10	No
Rocky Outcrops and Cliffs	5.11	No

- All rainforest encountered in the field (Warm Temperate, Cool Temperate and Depauperate (Dry) as described in Research Note 17) is to be excluded from harvest disturbance. Warm Temperate and Cool Temperate rainforest must have an additional 20 metre wide exclusion zone (refer to Table 2 below) .
- The Operational Map is to be used as a guide to field identification only. The on ground identification and field marking of rainforest and exclusion zones to be established around Warm Temperate and Cool Temperate rainforest must be carried out before or during pre-logging mark-up.
- The location of all rainforest and exclusion zones identified in the field must be shown on a copy of the harvesting plan Operational Map and filed in the compartment history.

Operational Conditions for Protection Zones

Operational conditions applying to protection zones are summarised below.

Table 2

Protection Feature	Can Remove accidentally felled logs if at least one HQ log (1)	Groundcover Rehab/Removal Rules	Machinery entry 5m to fell HQ log in NHA away from protection zone (2)	2/200 Rule (3)	6/200 Rule (4)	Use existing road/snig Track	IFOA Licence Conditions	TSL Licence Condition
Heath and Scrub	**X**	**X**	**X**	**X**	**X**	X	X	5.10
Wetlands & 20/40m exclusion zone	**X**	**X**	**X**	**X**	**X**	X	X	5..9
Rainforest (Warm/Cool Temperate)	**X**	**X**	**X**	**X**	**X**	√	√	5.4
Rainforest 20m exclusion zone	√	√	**X**	√	**X**	√	√	5.4
Rainforest (Dry)	√	√	**X**	√	**X**	√	√	5.4
Bird Nest and Roost sites	√	√	√	**X**	√	√	X	5.13
Owl Landscape Habitat	√	√	√	**X**	√	√	√	6.4.2
FMZ 1	√	√	**X**	**X**	**X**	√	√	
FMZ 2, 3A	√	**X**	**X**	**X**	**X**	√	√	
Ridge & Headwater Habitat	√	√	√	**X**	√	√	√	5.8
General Bird Nest and Roost	√	√	√	**X**	√	√	X	5.13
Rocky Outcrops	√	√	√	**X**	√	X	X	5.11
Cultural Heritage Sites	√	√	**X**	**X**	X	√	X	

Licence conditions are not breached where a tree is accidentally felled into any Protection zones.
√ - Condition applies
X – Condition does not apply.

(1) Tree Removal Rules
An accidentally felled tree may be removed, but only if the tree contains a high quality log. The crown must be cut off from the trunk and left where it has fallen, except where the whole of the tree is lifted out of, or lifted and moved within, the zone using a mechanical harvester; and in removing the tree/log any disturbance to the ground and soil must be minimised.
Harvesting machinery that has entered the protection zone for the purpose of felling a tree within the net logging area may also be used to remove a tree that has been felled into the protection zone.
However, the wheels or the tracks of the harvesting machinery may not (to any significant extent) be repositioned or moved solely for the purpose of removing the tree felled into the protection zone.

(2) Machinery entry (5m) rules
Harvesting machinery is permitted to operate in a protection zone for the purposes of felling a tree within the net logging area that contains a high quality log where:

- the technique of directional felling could not be used to fell the tree so that it falls outside the protection zone;
- the only practicable method of felling is to enter the protection zone and the tree can be felled away from the protection zone;
- the wheels or tracks of harvesting machinery remain wholly within 5 metres of the boundary of the protection;
- the use of the harvesting machinery only involves the use of walkover techniques and minimal ground disturbance

(3) 2/200 Rule (Rainforest Only)

The felling of trees across the boundary of the Rainforest exclusion zone (20 metres) is prohibited except where the boundary is greater than 200 metres, in which case no more than two (2) trees containing high quality logs are felled across the boundary in any 200 metre length of the boundary of the exclusion zone, whatever 200 metre length of boundary is considered.
The exclusion zone is not breached where a tree is accidentally felled into the exclusion zone. An accidentally felled tree may be removed from the zone, but only if the tree contains a high quality log. The trees do not count toward the 2/200 rule.
Trees fallen under 2/200 rule must be felled in such a way so as to avoid damage to trees growing in the exclusion zone.
No part of the tree felled into the Rainforest can be removed.

(4) 6/200 Rule
The felling of trees across the boundary of a protection zone is prohibited except where the boundary is greater than 200 metres, in which case no more than six (6) trees containing high quality logs are felled across the boundary in any 200 metre length of the boundary of protection zone, whatever 200 metre length of boundary is considered.
The protection zone is not breached where a tree is accidentally felled into a protection zone. An accidentally felled tree may be removed from the zone, but only if the tree contains a high quality log. The trees do not count toward the 6/200 rule.
Trees fallen under 6/200 rule must be felled in such a way so as to avoid damage to trees growing in the protection zone.

Protection Zones – General Conditions
A snig track (including a snig track that was in existence before the commencement of this approval) within a threatened species exclusion zone or an exclusion zone in TSL condition 5.8 (“Ridge and Headwater Habitat”) or 8(b) (“General survey requirements”) that has become re-vegetated may be re-opened (by clearing, scraping or treating regrowth), but only if all of the requirements set out in conditions TSL 5.1D (e)-(h) are met.
Where a snig track within a threatened species exclusion zone or an exclusion zone referred to in TSL condition 5.8 (“Ridge and Headwater Habitat”) or 8(b) (“General survey requirements”) has become re-vegetated, but none of the trees growing within the zone on the snig track have a DBHOB of 20cm or more, the snig track may be brushed-up, provided TSL conditions 6.1D (i)–(l) are met.
A road and snig track may be constructed and used in the above protection zones only with the prior written approval of the Regional Manager, or prior written approval of the Department of Environment and Conservation (DEC), if permitted under the TSL. The SFO must notify the Supervising Forester of the need for any roads/tracks crossing areas.

8.4 General Threatened Flora and Fauna Prescriptions

Feature	Records in 445	Licence conditions under the TSC Act
Threatened Frog General Protection Measures	NO	5.12
Bird Nest and Roost Site Protection	NO	5.13
Tree Bat Roost Protection	NO	5.14.1
Subterranean Roost Protection	NO	5.14.2
Protection of flying-fox Camps	NO	5.14.4
Burning	Net planned area	5.16
Ground Habitat Protection	Net planned area	5.17

9. Flora and Fauna Species-specific Conditions

Contractors and supervisory staff must immediately report any sightings of Schedule 1 and 2 species to the Supervising Forester. The Harvesting Plan must be amended to include additional prescriptions if necessary.

The following species have been recorded within or nearby the area and the associated prescriptions must be implemented: Nil.

10. Soils and Water

Feature	Compartment 445
Inherent hazard level	**2**
Dispersible Soils	**No**
Mass Movement	**No**
Seasonality restrictions	**No**

10.1 Slope limits (Inherent Hazard Level 4)

Maximum slope for harvesting	30 degrees(i)
Maximum grade for snig track construction	25 degrees(ii)

(i) Harvesting on slopes over 30° **(unmapped inherent hazard level 4)** may occur consistent with Condition 3, Schedule 4A of the Environment Protection Licence.

(ii) The grade of snig tracks may only exceed 25 degrees to:

- negotiate poorly drained land, rock outcrops or unstable soils;or
- to take advantage of favourable terrain, such as to reach a geologically stable bench or saddle; or
- to take advantage of soil which is more suitable for snig track construction and drainage.

(NB: Such instances must be documented in the SFO Notes section of this plan, Condition 41 of Schedule 4A of the EPL)

11. Drainage features

11.1 Prescribed streams

There are no prescribed streams in the compartment.

11.2 Drainage feature protection

Filter strips (EPL), Protection Zones (EPL), Operational Zones (EPL), Protection Zones -hard (TSL) and Protection Zones -soft (TSL) must be retained along all drainage lines, prescribed streams and watercourses within the net planned area of the Compartment at minimum widths as stated in the Table below.

Table 1: Minimum filter strip, protection zone and operational zone widths for mapped and unmapped drainage lines, prescribed streams and watercourses in native forests in Inherent Hazard Level 1 & 2 (metres – measured along the ground surface).

Stream Order	EPL Filter Strip TSL Protection (hard)	EPL Protection Zone TSL Protection* (soft)	EPL Operational Zone
Unmapped	**5**	**5#**	**10**
1st order	**5**	**5***	**10**
2nd order	**5**	**15***	**10**
3rd order	**5**	**25***	**10**
4th order or greater	**5**	**45***	**10**

NOTE: # In the event that Forests NSW chooses to harvest this area without EPL coverage, all EPL conditions continue to apply **except** for the rule applying to the cutting of trees from within the protection zone of the **unmapped drainage lines**. In this case, trees within protection zones of unmapped drainage lines may be felled and removed.

Protection Feature	Can Remove accidentally felled logs if at least one HQ log	Groundcover Rehab/Removal Rules	Machinery entry 5m to fell HQ log in NHA away from protection zone	Trees can be felled into zone if at least one HQ log	Use existing road/snig track	IFOA Licence Conditions (Schedule 6 Road/snig track construction)	EPL Condition	TSL Licence Condition
Filter Strip (EPL)	√	√	**X**	**X**	√	√	17-20	X
Protection zone (hard) TSL	√	√	**X**	**X**	√	√	X	5.7
Protection zone (soft) EPL & TSL	**N/A**	√	√	√	√	√	20A-20J	5.7
Operational zone (EPL)	**N/A**	√	**N/A**	√	√	**X**	20K-20U	X

Licence conditions are not breached where a tree is accidentally felled into any Protection zones.
√ - Condition applies.
X – Condition does not apply.
N/A – Not applicable.

General conditions

- the width of a Filter Strip & Protection zone (hard) is be measured from the top of the bank of the incised channel, or, where there is no defined bank, from the edge of the channel.
- the width of a protection zone (soft) is to be measured from its boundary with the adjoining filter strip or protection zone (hard).
- the width is to be measured along the ground surface.
- 5m wide buffer strips must be retained along all drainage depressions. Conditions 15, 16, 21-23 of Schedule 4A of the EPL must apply (Buffer strips).

FL conditions

- There is no class 1 or 2 Aquatic Habitat within the compartment.

12. Tree Marking Conditions and Code

- Marking-up must be conducted at least 100 metres in advance of harvesting operations, and either side of road construction and road re-opening operations so that relevant exclusion and protection zones can be implemented prior to harvesting, road construction and road re-opening.

- All hard exclusion zones boundaries must be marked in the field, except where specified forestry activities will not come within 50 metres of such boundaries. Retained trees referred to in section 8.2 of this plan must be marked. The only exception to the marking of the retained trees is where the understorey consists of thick impenetrable lantana greater than one metre high or other impenetrable understorey. The SFO must document and justify such situations as it becomes apparent during compartment mark-up.

HARVEST MARKING CODE

Description	Symbol
A. STANDARD MARKINGS/SYMBOLS **MARKINGS/SYMBOLS THAT DELIVER KEY REQUIREMENTS ON A STATEWIDE BASIS**	
Boundary – special conditions Eg. Rainforest buffer, compartment to compartment	**One band of Pink/Yellow/Blue tape**
Hard exclusion zone/Filter strip Trees must not be felled into these areas, except where a tree is felled accidentally.	**One band of Yellow & Pink tape**
Warning sign (eg hangup, mine etc)	Ø
Edge of net planned area (*eg* unmerchantable) Retained trees and critical boundaries to be marked within 30m beyond the boundary Tree heads may fall across the line, provided they comply with boundary and tree retention rules (eg 5m debris)	"⊙"
Soft Exclusion Zone / Protection Zone Areas where disturbance by harvesting is allowed only under specified conditions	**One band of Pink tape <u>PLUS</u> width of Zone in paint**
Extraction System Road/Track line	**"I" or tape**
Dump site with optional dump number reference	**"D" or red tape**
Approved crossing site	**"↕"**
Slope angle indication (commences here)	*eg* "**25°**"
Trees To Be Removed Individual tree	**"•" or dots**
Directional felling mark	**"🡐" over "•"**
Retained Trees Retained trees not to be removed or damaged (*eg* grower, Yellow-bellied Glider potential feed tree)	**One horizontal line or ring PLUS**
Habitat tree, for any flora or fauna.	**"H"**
Eucalypt feed tree (Flowering eucalypt)	**"E"**
Edge of identified AGS 'groups'	**"*"**
Recruitment tree	**"R"**

Description	Symbol
Cancellation Mark Mark to formally cancel previous marks	**"X"**
B. SPECIALIST MARKINGS/SYMBOLS **Additional specialist Markings/Symbols that may be used in place of, or additional to standard markings to highlight particular issues as required by regulators, Forests NSW, or others.**	
Flora Fauna Features Retained Tree Glossy black cockatoo feed tree, record or nest	**One horizontal line or ring** *PLUS* **"GB"**
Owl nest and/or roost	**"OWL"**
Nest (raptors, parrots etc.)	**"N"**
Yellow-bellied Glider v-notch feed tree or record	**"Y"**
Squirrel Glider sap feed tree, record or nest	**"SG"**
Koala high use tree	**"K"**
Koala retained feed tree	**One horizontal line or ring**
Frog record	**"F"**
Smoky Mouse record	**"SM"**
Quoll record; latrine; den	**"Q"; "QL"; "QD"**
Bat record; roost	**"B"; "BR"**
Phascogale den	**"PD"**
Philoria frog seeps and soaks	**"FPH"**
Threatened plant	**"TP"**
Other Markings	
Possible Pole/Girder	**"•" with "P" or"G"**
Private property	**"PP"**
Cave, tunnel or mineshaft	**"CTM"**
Drainage Depression Centre line	**"DD"**

13. Roading and Crossings

13.1 Location

The Operational map indicates the location of existing roads and crossings on State Forest.

Feature	Length &/or Number	Work Required
Existing Roads	8000m	Yes
New Roads	N/A	N/A
Existing Crossings	N/A	N/A
New Crossing	N/A	N/A
Borrow & Gravel Pits	N/A	N/A

Roading and crossing details are contained within Appendix 2 of this Plan.

The roading and crossing works must be undertaken, by contractor or Forests NSW staff, prior to the commencement of harvesting activity in the area served by the road or crossing. Forests NSW will supervise and pay for the maintenance works.

State Forest roads that are not EPA Licenced (refer to Operational Map) are not to be used by log trucks. They may be used with SFO approval for snigging or extraction provided they are drained to appropriate specifications. **Refer to EPL Schedule 5 – Operating Conditions for roads.**

13.2 Wet Weather Controls

Haulage is not permitted on natural surface roads when there is runoff from the road surface. Loaded trucks and partially loaded trucks may complete their journey.

13.3 Site Specific Road Drainage

A Machinery Exclusion Zone of 10x25m exists around a mitre drain outlet situated on Barren Ridge Road (see Operational Map and refer to soil report in appendix). Machinery is to be excluded from the zone wherever possible. Where machinery enters the exclusion zone disturbance should be kept to a minimum and any area disturbed should be rehabilitated.

The condition of Barren Ridge Road must be monitored by the SFO during haulage. If significant sections of the road deform the soil specialist must be contacted (refer to soil report in appendix).

14. Log Dumps

14.1 Location

18 log dumps are indicated on the Operational Map. Field location of log dumps must utilise the most level site available consistent with the location indicated on the Operational Map. The area covered by a log dump must be as small as practicable. A maximum of three log dumps may be in operation at any one time, however an additional two log dumps may be used subject to the Supervising Forester's approval.

The SFO may approve additional or relocate log dumps if required. In the case of relocation or additions a minor amendment form should be completed by the SFO. If any road construction or extension of existing road is required the Supervising Forester must be informed and appropriate amendments prepared.

14.2 Treatment

Inherent hazard level 2 Conditions 26, 27, 28, 30, 31 and 33 of Schedule 4A of the EPL must apply.

14.3 Expected Felling/ Extraction & Loading Method

The expected felling method is mechanical, extraction method by dozer, and loading method is by excavator.

15. Snig Tracks

15.1 Technique

It is preferable that, wherever practicable, walkover extraction techniques be used in preference to snig track construction. Conditions 38-41 of Schedule 4A of the EPL must apply (Snig tracks).

The SFO must approve in writing the use of snigging/extraction equipment on roads and all roads must be returned to their pre-harvesting condition by the logging contractor immediately after a road has ceased being used for harvesting.

15.2 Drainage of Snig Tracks

Where walkover techniques cannot be used and/or significant lengths of extraction tracks are exposed, snig tracks must be drained according to the maximum spacings in the table below:

Track Grade (degrees)	Maximum Distance (metres)
0 - ≤5	100
>5 - ≤10	60
>10 - ≤15	40
>15 - ≤20	25
>20 - ≤25	20
>25	15

The table may be interpolated to derive site-specific maximum spacings.

- Conditions 70-80 of Schedule 4A of the EPL must apply (Drainage of Snig Tracks)

15.3 Crossbank Height

The minimum unconsolidated crossbank height must be **35 cm**, and the minimum consolidated crossbank height must be **25 cm**. The EPA recommends a maximum unconsolidated height of **50cm**.

15.4 Drainage Feature Crossings

No existing snig tracks have been identified and marked in the field for use.

No new snig tracks have been identified, approved and marked in the field for use.

Where a snig track **(existing)** within a protection zone has become re-vegetated, but none of the trees growing on the snig track within the zone have a DBHOB of 20cm or more, the snig track may be brushed-up provided condition 5.7.3(e) of the TSL is met.

All **new snig track crossings** must be authorised by the Regional Manager. Condition 5.7 of the TSL and Conditions 42-69 of Schedule 4A of the EPL must apply (Snig tracks - crossings).

15.5 Downhill Snigging

Limited downhill snigging or extraction is required.

- Condition 82 of Schedule 4A of the EPL must apply (Downhill snigging).

15.6 Wet Weather

All snigging and extraction must cease when water is running in tracks or tracks are likely to be significantly rutted. Prescription 81 of Schedule 4A of the EPL must apply (Wet weather-snig tracks).

15.7 Mass Movement

Compartment 445 is not in an area identified as having a potential for mass movement. No specific prescriptions relating to mass movement/snigging are required.

15.8 Suitability of existing log dams and gully stuffers

There are no known log dams or gully stuffers on snig track crossings in the compartments.

Condition 47 of Schedule 4A of the EPL must apply.

16. Product Specifications and Accounting

All timber products obtained from the planning unit must be graded and accounted for prior to their departure from the loading point in a format agreed to by Forests NSW.

Sawlogs must be serviced and graded in accordance with the Hardwood Log Measurement Manual Southern Region (Jan 2002).

Sawlog sales must comply with the Code of Procedure for Sale of Hardwood Sawlogs by Gross Volume Measurement from Crown Timber Lands within Forests NSW Southern Region (Edition July 1999).

Pulpwood sales must comply with the Code of Procedure for the Sale of Hardwood Pulpwood by Weight Using Truck Delivery Dockets as Basis for Account, between South East Fibre Exports Pty Ltd and Forests NSW.

17. Yield Estimates

Native forest 445	Est yield/ha	Est total volume
Quota logs (HQL)	3.4m³/ha	1170m³
High Quality Small	1.0m³/ha	345m³
Salvage logs	4.5m³/ha	1552m³
Pulp logs	5 t/ha (4.0m³/ha)	1770m³ (2124t)
Poles/Piles/Girders	0.0 m³/ha	0
TOTAL	**13m³/ha**	**4,837m³**

Yield estimates are based on field sampling and ocular estimates and harvest data from neighbouring compartments. Yields per hectare estimates are an average over the net planned area are will vary depending on the actual area harvested.

18. Certification

Prepared by: Darryl Chaffey 30.1.09

Signature: Date:

Planning Forester

Endorsed by: Kevin Petty 30.1.09

Signature: Date:

Position A/PLANNING MANAGER

Approved by: Ian Barnes 30.1.09

Signature: Date:

Position REGIONAL MANAGER

19. SFO Acknowledgment

I acknowledge that I have received a copy of the Harvesting Plan for Compartment 445 in Yadboro State Forest and that I have been briefed on the conditions of the Plan and understand the supervision and operational control requirements as explained to me by the Harvesting Forester or his/her delegate.

Signature Date:

Position SUPERVISING FOREST OFFICER

Signature Date:

Position RELIEVING SUPERVISING FOREST OFFICER

20. Harvesting/Haulage Contractor Acknowledgment

I acknowledge that I have received a copy &/or been briefed on the contents of the Harvesting Plan for Compartment 445 in Yadboro State Forest and that I understand the conditions of the Plan as explained to me and the operators present by a Forests NSW Officer.

Name:

Date/signature: / /

Position: Principle Contractor/Crew Leader/Operator/Truck Driver

Name	Position/Role	Initial/Signature

21. State Forest Employees Acknowledgment

I acknowledge that I have been briefed on the contents of the Harvesting Plan for Compartment 445 in Yadboro State Forest and that I understand the conditions of the Plan as explained to me by a Forests NSW Officer.

Name	Date	Position/Role	Signature

Details to Record in SFO Notes

- Dates of commencement and cessation of logging
- Record the commencement and completion of harvesting at each dump
- Record the occurrence of temporary stopping of harvesting at each dump.
- Situations where drainage could not be completed due to saturated soils must be recorded in SFO Notes.
- Record the commencement and completion of each construction, upgrading or maintenance of drainage feature crossings by snig tracks or extraction tracks.
- Bi-weekly checks of road drainage structures during haulage operations.
- Record the date of checks, drainage structure compliance and the any repairs required within the specified time period.
- Records of Threatened Flora and Fauna identified during compartment markup.
- Minor variations associated with moving or adding dumps.
- Daily events of importance eg. Instructions to crew, work activity.

SFO Feature Usage Record

Dates of commencement and cessation of logging

Date of commencement of logging: _____

Date of cessation of logging:_____

DUMP USAGE RECORD

- Record the commencement and completion of harvesting at each dump
- Record the occurrence of temporary stopping of harvesting at each dump.

Dump number	Start date	Finish date	*Track drainage completed within 2 days (yes/no)	Date of temporary cessation	**Temporary track drainage completed within 5 days (yes/no)	Date resumed

*At completion of snig track/dump, track drainage must be completed within **2** days unless soil is saturated.

*At temporary cessation of snig track use, track drainage must be completed within **5** days unless soil is saturated.

Situations where drainage could not be completed due to saturated soils must be recorded in SFO Notes.

SFO Notes

Date	Event	Signed

SFO Notes (continued)

Date	Event	Signed

SFO Notes (continued)

Date	Event	Signed

SFO Notes (continued)

Date	Event	Signed

SFO Notes (continued)

Date	Event	Signed

Clearance Certificate

COMPARTMENT: 445

YADBORO STATE FOREST, SOUTHERN REGION

To .....Supervising Forest Officer

I request approval for me to move my logging crew and all associated machinery from the above-mentioned area to the next compartment in accordance with Section 3.5 of the Forest Practices Code.

I certify that:

(a) all permanent roads, trails and mitre drains have been cleared of harvesting debris;
(b) butt damage to retained trees has been kept to acceptable limits;
(c) all trees marked for removal have been felled;
(d) utilisation limits have been satisfactorily met;
(e) stump heights conform to requirements;
(f) all hanging trees have been felled and brought down;
(g) all log dumpsites have been satisfactorily restored as required;
(h) harvesting debris is not accumulated around retained trees;
(I) all accumulated litter has been disposed of properly;
(j) all filter and buffer strip requirements have been complied with;
(k) all snig track, extraction track and temporary logging road drainage has been installed satisfactorily and other required rehabilitation work has been completed;
(l) all necessary repairs to damaged roads, signs, fences and other structures have been carried out.
(m) **_____ (insert quantity) rubber flaps have been recovered in a satisfactory condition and reported to Operations Branch for collection.**

I believe that I have met all my obligations under the conditions of the Timber Licence, the EPL and TSL which apply to the compartment just completed, as stated in this Harvesting Plan.

Signature.....Name.....…….....Date .....
Contractor

As a result of inspections of the logging operations made in accordance with this Harvesting Plan, I am satisfied that, to the best of my knowledge, the contractor responsible for this harvesting operation has satisfactorily completed all work and approval is given for her/him to remove her/his machinery and equipment and leave the area/commence operations in another compartment.

This clearance does not release the contractor from any obligation to undertake any remedial work if subsequent deficiencies are shown to result from inadequate practices during the harvesting operation, which are found during any inspections of the area made within 12 months of the date of this post-harvesting inspection.

Last inspection was made on .....(Date)

Signed .....(Date).....
Supervising Forest Officer

Post Logging Information

Record any circumstances of significance relating to the harvesting of this compartment. Please draw or include any annotations on the attached operation scale map.

Summary of silvicultural treatment

Treatment type	Area (ha) subject to treatment (SFO estimate)	N/A	Comments
Single Tree Selection			

Actual area harvested (record on attached Operational Map)

Give reasons for harvestable areas that were not harvested (eg. Too steep, defective timber). Make reference to map.

Post Logging Basal Area sweeps

Dump No#	Sample 1	Sample 2	Sample 3	Sample 4	Average
			Post BA	Average	m^2/ha
			Pre BA	Average	26m^2/ha

Comply with maximum STS BA removal of 45% or Thinning BA removal of 60% Y/N

Possible next cut (tick appropriate boxes)

Main product type	Anticipated volume		
	H	M	L
Girders			
Veneer			
Poles/piles			
Quota			
Smalls/Thinnings			
Salvage			
Pulpwood/chipwood			

Time to next harvest	
0 to 5 years	
5 to 10 years	
10 to 20 years	
20 to 30 years	
30 plus years	

Post Harvest Mapping Features Confirmation Checklist

Feature	**Planning Updates**	**Reason (Error/New)**	**GIS Shape Exists**	**Harvesting Updates**	**Comments**
Soil Regolith	No				
Mapped Drainage	No				
Rainforest	No				
Rocky outcrops	No				
Wetlands	No				
Cultural Heritage	No				
Existing Roads	No				
New Roads	No				
Heath	No				
Powerlines etc	No				

APPENDIX 1 POST-HARVEST BURNING PLAN

6.08.01 Bush Fire Mapping Symbols

DTG refers to *Date Time Group* which uses the two digits for the date and 24 hour time, eg 10:51hrs on 4 November would be: **04 1051**

NAME	SYMBOL	NOTES
PREDICTED (fire edge)		Show DTG
GOING (fire edge)		Show DTG
CONTAINED (fire edge)		Show DTG
PROPOSED (control line)	X—X—X—X—X—X—	Draw on far side of feature
COMPLETED (control line)	X+X+X+X+X+X+	Show DTG
PROPOSED (backburn)		Draw on near side of feature
COMPLETED (backburn)		Show DTG
BACKBURN BURNING IN		Lines show depth of burn at DTG

RED – FIRE	BLACK – CONTROL LINES	BLUE – WRITING & SYMBOLS	
△ Strategic or Tactical Significance	○ Command, Control & Coordination	□ Logistics Related	◇ Assets to be Protected

Fire Origin	Red	⊗	Show DTG		
Fire Direction	Blue	F →	Show DTG		
Wind Direction	Blue	W →	Show DTG		
Spot Fire	Red	✳	Isolated fire ahead of main fire		
Burnt Area	Black		Burnt area (if old, show month and year)		
Aerial Ignition	Red		Proposed path to be treated		
Divisional Boundary	Blue		Use geographical names		
Sector Boundary	Blue	OOOOO	Use alphabetical names		
Refuge Area	Blue	R	Escape Route (Add arrow to show safe exit)	Blue	E
Control Centre (Incident Management Team location)	Blue	CC	Staging Area (Where resources are prepared or available)	Blue	SA
Divisional Command	Blue	DC	Base Camp	Blue	BC
Sector Command	Blue	SC	Airbase (Fixed wing and/or helicopter base)	Blue	AIR
Helipad	Blue	●	Water Point Helicopter (Helicopter water supply)	Blue	WH
Water Point Vehicle (Firefighting water supply)	Blue	WV	Aboriginal Site or Artifacts	Blue	A
Ambulance Location	Blue	AMB	Endangered Flora	Blue	FL
Threatened Property	Blue	T	Endangered Fauna	Blue	FA
Historic Site (Building or Structures)	Blue	HS			

The use of colours is optional.

Bush Fire Co-ordinating Committee (Approved)
Incident Management Procedures
6.08.01 Bush Fire Mapping Symbols
Version 1.3

Page 1 of 1
05/04/04

PLANNING INFORMATION

LGA: Shoalhaven

Fuel Management Zone & Proposed Burn Summary

Refer to sections 1 & 2 of the harvest plan document for details **Season:** Winter / Spring

Zone 3B (Post-Harvest)

REGIONAL BURNING GUIDELINES

Max Temp (°C): 25 **Min RH (%) :** 30 **Max Wind Speed (km/h):** < 20 Southerly aspect
< 15 Northerly aspect

Max BKDI:< 70 **Max FDI:** 7 **(** subject to area assessment). **Scorch Height:** 0.6 x dominant tree height – Post Log
10m – Broad Area

Max Fuel Moisture Range: 12-25% **Max Rate of Spread:** < 300m/hr. **Average Flame height:** up to 4m – Post Log
<1 – 2m – Broad Area

Fuel Reduction Objectives: 40 -60% of net area to be burned. **Reduce fine fuels to**: manageable levels - Post Log
4 – 8t/ha – Broad Area

BURN AREA INFORMATION

Fuel loads: 50-150 tons per hectare of logging slash, 10 – 20 tons per hectare in between tree heads.

Fuel arrangement: Multi-tiered structure (litter, grasses, shrubs, eucalypt regeneration and mature trees)

Terrain: 4%>30°, <12% @ 25°-30°, 26% @ 20°-25°, 42% @10°-20°, 16% @ 0°-10° slope.

Time since last burn: 2002

IMPORTANT BURNING PRESCRIPTIONS

- A small test burn must always be lit prior to main burn. This will assist in determining FIRE BEHAVIOUR and IGNITION PATTERNS.
- **Seek information from SFO (Harvesting) on regrowth excluded burn area.**
- Sections will be lit by drip torch to a determined ignition pattern. Areas will generally be burnt from ridge tops down and into the wind to minimise excessive fire behaviour.
- **Minimise fire intensity in regrowth stands.**

BURN OBJECTIVES

- To reduce fuel loads to 4-8 tonnes/ha. (assisting future fire suppression)
- A burn coverage between 40-60%
- To contain fire within designated boundaries.
- To observe and record data, assisting in future high fuel load and advanced regrowth area burns.
- To minimise crown scorch; not exceeding 10% of dominant and co-dominant crowns.
- To minimise defect damage to retained regrowth stems.

ENVIRONMENTAL PRESCRIPTIONS

FLORA AND FAUNA:

Refer to sections 8 & 9 of the Harvest plan document.

SOIL, WATER & AQUATIC HABITAT:

Refer to sections 10 & 11 of the Harvest plan document.

- Preferred months of burn – April to September
- Fuel moisture differentials will be utilised to minimise impacts upon drainage features within the burn area

ABORIGINAL CULTURAL HERITAGE:

Refer to section 7 of the Harvest plan document.

CONTROL AND STRATEGY

CONTROL LINES:

EXISTING Description of each control line	Description of Work Required	Completed Yes /No
Barren Ridge Road	Nil	
Mares Hill Road	Nil	
Internal Roads and tracks	Nil	
Check for trees that could burn down and fall over any boundary roads and wet down or rake around as necessary		
PROPOSED **Description of each control line**	**Description of Work Required**	**Completed** **Yes /No**
No new control lines proposed	Nil	

SMOKE HAZARD AND MANAGEMENT: http://www.bom.gov.au/general/reg/smoke/nsw/index.shtml

Smoke / Hazard Reduction Signs required?:…….. YES NO (☑ tick to indicate)

Smoke Dispersion Forecasting via BOM utilised?..... YES NO (☑ tick to indicate)

Safety Considerations (pre-burn)		DAY 1	DAY 2	DAY 3	DAY 4	DAY 5	DAY 6	DAY 7
Personnel	Names of fire crew documented daily.							
Visitors on site	Visitor on site induction carried out							
Neighbours notified	Documented in plan							
Traffic control	Traffic control signs to regulate traffic if required							
Smoke management:	Assessment of prevailing winds at the time of burn. Road side signs warning of smoke hazard.							
	Supervisor to initial							

Pre-burn preparation activities and responsibilities.			
Activity	**Specifications and tasks**	**Responsibility** (inc date)	**Signature**
Fuel monitoring	Regular monitoring prior to burning		
Weather monitoring	Conducted prior to and during burning operations.		
Trail preparation • D3 • Hand tools	Mineral earth control lines prepared prior to burning to contain fire within designated burning block.		
Neighbour liaison	Notification and communications documented.		
Liaison with fire & emergency authorities	"as above"		
Media releases	To advise local community of SF burning activities.		
Radio station notifications	"as above"		
Equipment	Ensure all required equipment is available.		
Communications	"as above"		
Visitor Safety	Burn is sign posted. All visitors to report to burn supervisor immediately		
Burn approval	Daily burn approvals given by delegated officers		

NOTIFICATION & RESOURCE REQUIREMENTS

Neighbours…….. Contractors…….. Lessees……....

Apiarists……..…. Shire FCO…….. Govt Agencies…….

NOTIFICATION REGISTER

RFS (Rural Fire Service)

Name	Position	Phone Number	Notified
	FCO		

NEIGHBOURS: (Refer to compartment planning folder for details prior to burning)

Owner	Postal Address	Lot / Plan	Phone	Notification Letters sent	Reply Received

APIARISTS: (Refer to compartment planning folder for details prior to burning)

Name	Site Number/s	Phone Number	Notified

DAILY CREW SMEACS BRIEFING SHEET

(tick daily when briefed)

SITUATION DAY 1 2 3 4 5 6 7

- Burn area to be treated (location, boundaries, control line types and exclusive areas)..... ☐☐☐☐☐☐☐
- Burn area characteristics (e.g. terrain, forest cover, sensitive areas, etc) ..... ☐☐☐☐☐☐☐
- Burn area access by road class (checked beforehand, dead ends, watering points etc.) ..... ☐☐☐☐☐☐☐
- Fuel Loadings and fire behaviour prescriptions for the HRB area..... ☐☐☐☐☐☐☐
- Staging areas. ..... ☐☐☐☐☐☐☐
- Expected weather ..... ☐☐☐☐☐☐☐

MISSION

- Overall aim of the hazard reduction burn ..... ☐☐☐☐☐☐☐
- Site specific aims for sections of the HRB (eg, protection of patches of advanced regrowth, rainforest pockets, buildings, bridges, etc.) ..... ☐☐☐☐☐☐☐
- Secondary aim/s should the HRB escape..... ☐☐☐☐☐☐☐

EXECUTION

- Plant and manpower resources (FNSW, RFS, DEC, others) ..... ☐☐☐☐☐☐☐
- Division of burn area into 'Sections'..... ☐☐☐☐☐☐☐
- Starting points, starting times, finish times (start 'down wind' if possible)..... ☐☐☐☐☐☐☐
- Safe 'approved' lighting patterns and directions ..... ☐☐☐☐☐☐☐
- Work down-slope, keeping below active fire (except where good fuel breaks occur)..... ☐☐☐☐☐☐☐
- Location and activity of other burning crews..... ☐☐☐☐☐☐☐
- Personal and crew safety - buddy system when lighting up ..... ☐☐☐☐☐☐☐
- Progress reports at pre-designated times ..... ☐☐☐☐☐☐☐
- Maintain awareness of other burning crews (do not light up below other burning crews)..... ☐☐☐☐☐☐☐
- Expected fire behaviour, trouble points and contingency plans ..... ☐☐☐☐☐☐☐
- Actions to be taken in the event of an escape e.g. to pause the light-up..... ☐☐☐☐☐☐☐
- End of burn debrief e.g. reporting areas requiring 'follow-up' patrols after burn..... ☐☐☐☐☐☐☐

ADMINISTRATION

- Reporting field fire weather to the office at regular times ..... ☐☐☐☐☐☐☐
- Receiving forecast weather reports from office..... ☐☐☐☐☐☐☐
- Logistical support (fuel, food, water, heavy plant, back-up crews etc.) ..... ☐☐☐☐☐☐☐

CONTROL, COMMAND, COMMUNICATIONS

- Chain of command (burn supervisor and sector bosses)..... ☐☐☐☐☐☐☐
- Communications systems for fire-ground and command (UHF & VHF radios, mobile phones)..... ☐☐☐☐☐☐☐

SAFETY

- Medical Emergency Evacuation Plan & Site Safety Plan ..... ☐☐☐☐☐☐☐
- Areas of likely tree or limb falling hazards (methods to identify/mark hazards)..... ☐☐☐☐☐☐☐
- Look up and look around procedure (for self and workmates)..... ☐☐☐☐☐☐☐
- Location first aid kits and first aiders..... ☐☐☐☐☐☐☐
- Pre-burn safety actions including 'Smoke Hazard' sign locations, traffic control plan etc..... ☐☐☐☐☐☐☐
- Location of safety zones, and escape routes ..... ☐☐☐☐☐☐☐
- Safe parking of SF vehicles within the burn area and vehicle speeds during the burn..... ☐☐☐☐☐☐☐
- Crew vehicles to have headlights and flashing beacons on where practicable..... ☐☐☐☐☐☐☐
- Schedule adequate rest breaks and set appropriate work pace ..... ☐☐☐☐☐☐☐
- Ensure crews have access to supplies of drinking water ..... ☐☐☐☐☐☐☐
- Visitors to the site are inducted into the SSP ..... ☐☐☐☐☐☐☐

Day 1 - Burn Supervisor……Date…….. Day 2 - Burn Supervisor……Date……..
Day 3 - Burn Supervisor……Date…….. Day 4 - Burn Supervisor……Date……..
Day 5 - Burn Supervisor……Date…….. Day 6 - Burn Supervisor……Date……..
Day 7 - Burn Supervisor……Date…….. Day 8 - Burn Supervisor……Date……..

EMPLOYEE IDENTIFICATION

EMPLOYEE	NAME	PROOF OF ACCREDITATION (Eg. FNSW RECORDS)	DATE	SUPERVISOR OR RELEVANT AGENCY SIGNATURE
Incident Controller				
Burn Supervisor				

Crew Leader				
Crew Leader				
Crew Member				
Crew Member				
Crew Member				
Crew Member				
Crew Member				
Crew Member				
Crew Member				
Crew Member				

Personnel and equipment requirements:				
Resource	**State Forests**	**NPWS**	**Brigades**	**SFO Signature**
Incident Controller				
Crew Leaders				
Crew Members				
Tankers	1			
Slip – on Units	1+			
Dozer	n/a			
Helicopter	n/a			
Radios – handheld UHF	1 per person			
Weather monitoring equip.	1 per crew			

Burning Operations Record

Forecast Weather and Indices (Obtain from Office)

See attached daily weather forecasts and relevant indices obtained from the Bureau of Meteorology

Burn Site Weather Readings
Take daily on site readings (hourly if possible) and note un-forecast weather changes.

Date	Time	Temp (°C)	RH (%)	Wind Direction	Wind Sp. (km/h)	FDI	FMC %	COMMENTS

FIRE BEHAVIOUR

		PREDICTED			*ACTUAL*		
Date	Time (hrs)	Flame Height (m)	ROS (m/hr)	Assessment Method	Flame Height (average)	ROS (m/hr)	Comments

Ignition details – DATE (s)……..
Type: Aerial / Ground **Method:** Contour / Ridge / Road edge / Top disposal **Pattern:** Line / Spots
Incendiary Capsules used: _____ (aerial ignition only)

Ignition details – DATE (s)……..
Type: Aerial / Ground **Method:** Contour / Ridge / Road edge / Top disposal **Pattern:** Line / Spots
Incendiary Capsules used: _____ (aerial ignition only)

Ignition details – DATE (s)……..
Type: Aerial / Ground **Method:** Contour / Ridge / Road edge / Top disposal **Pattern:** Line / Spots
Incendiary Capsules used: _____ (aerial ignition only)

Ignition details – DATE/s
Type: Aerial / Ground **Method:** Contour / Ridge / Road edge / Top disposal **Pattern:** Line / Spots
Incendiary Capsules used: _____ (aerial ignition only)

POST BURN ASSESSMENT

Estimated burn coverage (% of net area):……..%

Estimated burn coverage:…….ha

Fine fuel reduced to an average of :…….t/ha

Estimated area of crown scorch :…… %

OPERATIONAL PERFORMANCE REVIEW

Burn complete? **Yes/No**

Follow up action required ? **Yes/No**

Burn contained within planned boundaries? **Yes/No**

Burn coverage objective met? **Yes/No**

Fine fuel reduction objective met? **Yes/No**

Environmental prescriptions met? **Yes/No**

Threatened Species License conditions met? **Yes/No**

Fisheries License conditions met? **Yes/No**

Remedial Action required (if any)**:**_____

_____

_____

_____

Remedial works certified complete.

Work Supervisor_____ Date:_____

Comments:_____

_____

_____

_____

_____

_____

_____

Attach additional pages as required

APPENDIX 2 ROADING PLAN

Summary of Roading Requirements

Length of existing roads/trails to be maintained	8000m
Length of new roads to be constructed	0
Number of existing crossings to be maintained	0
Number of new crossings to be constructed	0
Length of road >10°	20m
Mass movement prescriptions apply	No
Dispersible soil conditions apply	No
Seasonality provisions apply	No

Instruction for Existing Road Repair, Maintenance and Construction

- Schedule 5 Conditions of the Environment Protection Licence must apply (Operating conditions for roads).
- The stability of existing log dams & gully stuffers must also be inspected twice weekly during logging operations. Where an existing log dam or gully stuffer becomes unstable, State Forest must replace the crossing structure within 5 days.
- Rollover crossbanks must be constructed to a minimum consolidated effective bank height of 15 cm. Bank height must be measured at 90° from the outlet to the crest of the bank. The crossbank must be of an effective height across its entire length to ensure compliance.
- Before the use of the roads for harvesting commences:

  a) Fallen timber, shrub regrowth and litter may need to be cleared from the pavements and shoulders and in places cut by hand off cut batters in and adjacent to the compartment and the shoulders and pavements reformed. The debris must be swept off the road shoulders, with minimal disturbance to fill batters. Debris must not be pushed into filter strips or buffer strips.

  b) Filter strips and buffer strips crossed by roads, or impacted by roads must be marked ahead of roading operations by the SFO or Roading Foreman.

  c) Maintenance grading may need to be carried out on sections of the roads mentioned above.

  d) Exposed surfaces must be sown with rye grass/sub clover or Japanese millet/white clover, depending on season at the rate of 20 kg/ha, where 70% ground cover cannot be achieved. The species to be planted for site stabilisation are to be determined in consultation with the Soil Conservationist.

     - Fertiliser & straw mulch must also be placed on the above exposed surfaces where stabilisation will not result through natural means.
     - Minor deviations may be required on sections of roads to straighten the formation or improve road grade.
     - Spreading of imported gravel and/or grading may be required on limited sections of roads to maintain the pavement during the proposed harvesting.
     - Revegetation of minor roads following harvesting will be through natural regeneration. All crossbank/spoon drains must be left in working condition and crossfall (outfall) drainage reinstated.
- New drainage structures have been marked in the field with yellow paint with a letter Ro (rollover), S (spoon drain) Ru (rubber strip) or M (mitre drain). Refer to diagrams.

The following roads, or sections of these roads, as indicated on the Operational Map, will be used during the harvesting:

CHECKLIST OF WORKS REQUIRED ON ROADS & CROSSINGS

Road/Crossing Name	Works Required	Date started	Date finished	Signature
Barren Ridge Rd	**NOTE 1:** Machinery Exclusion Zone on mitre drain outlet of 10x25m (see Operational Map). Install 1 new pipe. Grade pavement and clear roadside where required. Ensure existing pipes, spoon and mitre drains are clear and working to EPL specifications.			
445/1 Rd	For road and roadside, clear regrowth and debris. Grade pavement where required. Ensure mitre drains are clear and working to EPL specifications.			
445/2 Rd	For road and roadside, clear regrowth and debris. Grade pavement where required. Ensure mitre drains are clear and working to EPL specifications.			
445/3 Rd	For road and roadside, clear regrowth and debris. Grade pavement where required. Ensure mitre drains are clear and working to EPL specifications.			

Note: Maintenance works not completed by Operations must be recorded and passed onto the SFO Harvesting for completion and documentation. Various roads & crossings may not be required due to climatic or operational reasons. Additional maintenance (including changing drainage structure types) may be required due to variations in climatic conditions at the time of road assessment. However, all changes must be documented within the road appendix and initialled by the Supervising Forest Officer (Operations or Harvesting)

The start and finish dates of all maintenance and construction must be recorded on the individual roading sheets along with other relevant changes or explanations.

All roads must be effectively drained at the completion of harvesting.

Standard 375 mm pipes will be used in road relief drainage unless otherwise specified within the Road Appendix.