FORESTS NEW SOUTH WALES CENTRAL REGION

HARVESTING PLAN NATIVE FOREST

Cowarra State Forest – Compartment 16

Certification

This plan has been prepared in accordance with the Integrated Forestry Operations Approval issued under the Forestry and National Park Estate Act 1998.

Prepared By: Brent Bailey
Harvest Planner

Signature

Date 14/6/2012

Reviewed by: Justin Williams
Planning Manager

Signature

14/6/12

Date

Approved By: Kathy Jones
Regional Manager

Signature

15/6/12

Date

This approval includes the Harvest Plan Operational Map (HPOM) with the corresponding approval date displayed on the map, verifying it as the final approved version

Description of Proposal

This is a plan for Integrated Harvesting of Native Forest – No Road Plan has been prepared.
It is not a Scheduled Operation and therefore will not be licenced under the EPL.

Attachment 1: Site Safety Plan prescribes describes safety requirements and Medical Emergency Evacuation Plan (MEEP) for this harvesting operation.

Attachment 2: Standard Harvest Plan Conditions for Native Forest Operations in Central Region (SHPC – NF – CR)

Appendix 1 – SFO Notes

Area Identification

State Forest	Compartment/s	Region	Management Area	Price Zone	Event ID	Harvest Plan ID
Cowarra	16	Central	Kendall	Kendall	14921	3896

	Cpt 16
Gross Area (ha)	231
Net Harvest Area (ha)	110

Silviculture and Harvesting Prescriptions

These net harvest area of this compartment is comprised mostly of medium quality dry Blackbutt forest and dry hardwood with a mixture of mature and regenerating patches.

Silvicultural Planning

Areas for future treatment are indicated on the Harvest Plan Operational Map (HPOM)

Harvesting Prescription

Stand type	% of net area	Example	Treatment (%STS,AGS,THIN)
Mix of Regrowth Dry Blackbutt and Hardwood stands	45%	Areas indicated as "Future Treatment" on HPOM	Do not harvest
Black butt stands at end-point	100%	Areas of merchantable stems within "General Harvest Area" on HPOM	STS heavy. Harvest to remove poor quality and stand end point stems. Retain good quality seed trees[1] at 30m spacing. Treat areas between seed trees to aid regeneration[2].

Notes:

1. Retained seed trees must be mature, have good form and large, healthy crowns. Do not retain suppressed trees as seed trees.
2. Unless otherwise directed by the SFO, areas between seed trees should be treated to aid regeneration, including removal of shade-tolerant stems as far as practicable under the conditions of the IFOA and as market conditions allow and additional soil disturbance to ensure adequate seed bed.

IFOA Limits

Max. number of AGS openings	N/A
Thinning BA limit (60%)	N/A
STS BA limit (40%)	Sections of native forest will be retained unlogged within the NHA to ensure BA limits are not reached. These are indicated on the HPOM as "Future Treatment Areas". The Harvest Planning Forester must be contacted if changes to this plan are proposed.

Special Conditions

Critical boundaries

The Pacific Highway runs adjacent to the western boundary of the compartment (portion within NHA).

Tree falling within 20m of the Pacific Highway reserve boundary is excluded. Extreme Caution should be used when felling trees within two tree lengths of the highway. Consider the employ of certified traffic management if trees likely to fall onto highway.

The HPOM displays a RTA highway easement between the highway and State Forest. The 20m Visual Protection area indicated on the HPOM adjoining the highway MUST be marked in the field from the GPS cadastral boundary not the edge of the highway itself.

The 20m Visual Protection area will occur internal to the two tree length safety precautionary condition. All products can be removed from outside the 20m Visual Protection Exclusion provided it is safe to do so.

Queens Lake State Conservation Area (SCA) adjoins the north and south east boundary of the compartment, logging will not be occurring within the vicinity of this boundary. Private property adjoins the south eastern boundary of compartment 16 logging will not be occurring within the vicinity of this boundary.

Traffic Management

All traffic is to exercise extreme caution entering and exiting the compartments onto Houston Mitchell Drive.

The HPOM indicates the locations in which haulage traffic must enter and exit the compartment.

Dirt and debris deposited onto Houston Mitchell Drive must be avoided during periods of wet weather. Debris from harvesting and haulage operations must be removed from both the Pacific Highway and Houston Mitchell Drive as soon as it is safe to do so.

Endangered Ecological Communities (EEC's)

Swamp sclerophyll and Subtropical coastal floodplain EECs is present in the compartment. The areas indicated on the attached HPOM are excluded from logging unless assessed in the field as not meeting the criteria for EEC. The Regional Ecologist MUST be notified prior to any harvesting occurring on mapped indicative EEC locations.

The SFO must be vigilant for the criteria that identify EEC forest types during mark up. If possible EEC is located in the field – outside that of the indicative mapped area on the HPOM – the Regional Ecologist should be contacted for confirmation of the EEC. No logging within the possible EEC should take place prior to this confirmation taking place.

Forest Management Zoning

These compartments contain the following FMZ's;

- **FMZ 4 (General Harvesting Prescription)-** available for harvesting. Normal prescriptions apply.
- **FMZ 3** – Occurs as mapped Wetland and is excluded from harvesting.
- **FMZ 7** – Occurs as cleared area underneath Powerline – this area is excluded from logging.
- **FMZ 8 (Further Investigation)-** The FMZ 8 areas occur as modeled stream exclusion zones and can be harvested and managed under normal harvesting prescriptions and EPL prescriptions *not displayed on HPOM* .

Bee permits

Bee permits are registered over this compartment. Any hives or other structures associated with bees must not be damaged. Contact the Harvest Planner if any hive placements need to be moved during the course of harvest operations.

Rutting

Maximum allowable soil disturbance limits shall be:

On log dumps a depth of 25cm and a length of 10m and

On snig and/or extraction tracks a depth of 20 cm and a length of 10m.

(See Forest Practices Circular 2008/04)

Cultural heritage

An Aboriginal site survey was performed by Forests NSW Aboriginal Cultural Heritage officer in Jan 2012. There are no known sites of European heritage within these compartments.

Contact the SFO and ACHO if further sites are uncovered during harvesting operations.

Flora and Fauna

Refer to the Threatened Species Licence (TSL) Booklet for Conditions.

General TSL Prescriptions

- **SFO Mark Up Searches** – Conditions 5.1(h), 5.2 and 5.13 (general, koala and bird roost and nest searches) must be implemented. No or Koala star search triggers identified.
- **Tree Retention** – Regrowth Zone. Conditions 5.6 (c), (d), (e), (f) and (g), must be applied - Glossy Black Cockatoo feed trees.
- **Riparian Habitat Protection** – Condition 5.7 must be applied.
- **Ground Habitat protection** – Condition 5.17. No commercial firewood collection permitted in these compartments.

Site-Specific Conditions, Exclusion Zones & Modified Harvest Areas

Mapped exclusion areas occur for the following. Site-specific conditions must be implemented

Boundary Type	TSL Condition Number	Prescription Name	Prescription Summary
1, Solid		Swamp Scleorphyll Forest EEC	Solid Exclusion
1, Solid		Subtropical Coastal Floodplain Forest EEC	Solid Exclusion
2, Accidental	5.09	Wetlands	Mapped Exclusion
3, Machinery	5.13	Square-tailed Kite	Mapped Exclusion 100m on nest site Snigging Permitted on existngs roads & trails only
3, Machinery	7.b) xv.	Large-footed Myotis	30m buffer on dams and permanent waterbodies
4, Limited	5.05	Rare non-commercial Forests	Mapped Exclusion
4, Limited	6.09	Owl Landscapes	Mapped exclusion - Burrawan/Queens Lake Planning Unit.
4, Limited	6.12	Brush-tailed Phascogale Exclusion	Mapped exclusion. Exclusion contained entirely within Queens Lake State Conservation Area. Record only displayed on HPOM
5, Modified	6.17	Yellow-bellied Glider Tree Retention	Tree retention requirements, observation detection Record only displayed on HPOM

TSL Boundary Conditions

Boundary Type	Can Remove accidentally felled logs if at least one HQ log (1*SHPC – NF – CR)	Groundcover Rehab/Removal Rules (2* refer SHPC – NF – CR)	Machinery entry 5m to fell HQ log in NHA away from protection zone (3* refer SHPC – NF – CR)	6/200 Rule (4* rferSHPC – NF – CR)
SOLID				
MACHINERY			√	
ACCIDENTAL	√	√		
LIMITED	√	√	√	√

√ - Condition applies

Soils and Water Protection – Refer to EPL Booklet & Standard Plan Conditions.

Site-specific EPL conditions

Elements	Conditions
Unmapped Drainage Lines	BMP for UMDL apply
Drainage Feature Protection	See HPOM for widths
Inherent Hazard Class	2
Dispersible Soils	NO
Mass Movement	NO
Seasonal Harvesting Exclusions	NO
Seasonal Burning Exclusions	NA
Log Dumps	Refer relevant conditions for IHL
Snig Tracks	Refer relevant conditions for IHL
Roads	See schedule 5 of EPL Booklet
Rutting	On snig and/or extraction tracks a depth of 20 cm and a length of 10m. (See Forest Practices Circular 2008/04)
Dispersible Soils	See section 69 of Schedule 4 of the EPL

Legal Conditions

This operation must comply with:

- Standard Harvest Plan Conditions for Native Forest Operations in Central Region
- Licence Conditions issued by Forests NSW under the Forestry Act (1916)
- State Forests of NSW Forest Practices Code - Part 2 Timber Harvesting in Native Forests 1999 and Forest Practices Code Part 4 Forest Roads and Fire Trails (1999).
- Integrated Forestry Operations Approval issued under part 4 of the Forestry and National Parks Estate Act 1998 (IFOA) as amended May 2003 including associated licences for Lower North East Region.
    - Threatened Species Conservation Licence (TSCL) issued under the Threatened Species Conservation Act (1995) as amended May 2003
    - Part 7 (Div 3) Fisheries Management Act (1994) as amended May 2003
- This operation is a non-scheduled operation under the Environment Protection Licence issued under section 55 of the Protection of the Environment Act 1997. This Harvesting operation including the roads and trails associated with harvesting are not licensed. All EPL conditions will be applied to harvesting operations, except for schedule 4 condition 6 relating to filter strips on unmapped drainage lines. The Best Management Practices detailed in Standard Harvest Plan Condition for Native Forest Operations in Central Region are to be applied to unmapped drainage lines.

Pre-Operational Briefing

I acknowledge that I have received a copy of the Harvesting Plan for Compartment 16 Cowarra 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 Forest Planner or his/her delegate.

Position	Name	Signature	Date
Site Supervisor	Richard May		18.6.12
HCC	Jamie Harris		18.6.12
LOGGER	KYM STACKMAN		" "
Logger	Jake Stackman		" "
SFO	Brett Stephenson		18-6-12
ECOLOGIST	DAVE POWER		3.6.12
HCC	Peter Clark		18.6.12
Logger	Beau Stackman		" " "

Appendix 1 SFO Forms –

SFO NOTES

LOCATION **SF:** _____ **CPT NO:** _____

- This diary should record general daily events, SFO movements, Operations visited which are not otherwise recorded in detail elsewhere.

Date	Event	Initial

SFO Post Logging NOTES

LOCATION **SF:** _____ **CPT NO:** _____

Record any circumstances of significance relating to the harvesting of this compartment.
Please draw or include any annotations on an attached operation scale map.
Actual area harvested (record on map)
Give reasons for harvestable areas that were not harvested (e.g. Too steep, defective timber). Make reference to map.

Silvicultural treatment undertaken;

Treatment	Area Treated	Number of AGS gaps	Comments
Australian Group Selection			
Single Tree Selection			
Thinning			

Possible next cut (tick appropriate boxes)

Main product type	Anticipated volume		
	H	M	L
High quality large sawlog			
High quality small sawlog			
Low Value			
Poles/piles/girders			
Veneer			
Pulpwood/chipwood			
Habitat			
Non-merchantable			

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

Noxious or environmental weed problems; high levels of feral animal use.

Sites of soil erosion for attention.

Boundary compromised; neighbour issues resulting from logging or haulage.

_____

_____ ___

_____

_____ ___

Operation map errors for attention (e.g. forest type; roads) of appropriate staff i.e. GIS, Planner etc.

Attachment 1: Site Safety Plan
State Forest: Cowarra
Compartments: 16

Worksite Information		
Declared Hunting Area: Yes	Comments:	
Exclusion Zone Signs Erected prior to start of work	Yes / No	
Comments:		
Description of Work (and working alone procedure if relevant): Roadworks, harvesting and haulage from Queen's Lake State Forest.		

Site Supervisor	
Name:	Contact number:

Communication		
Radio channel number	VHF 154/156	UHF
Other (e.g. hand signals):		

Traffic management (describe) eg. Signage, Road closure, Traffic control

Name of on-site safety first-aider/s

Location of first-aid kit

- This Site Safety Plan (SSP) is to be managed according to FNSW Safety Standard 2.1.16 Site Safety Plans.
- **All** visitors, contractors and employees **must** be fully **inducted** onto the worksite by the workplace supervisor e.g. the Principle Contractor or the Forests NSW supervisor. This must be recorded on the attached induction sheet.
- Relevant **safe work procedures** must be available and understood for the type of work to be undertaken.
- A **risk assessment worksheet** must be completed if site specific hazards are identified that are not covered by a **safe work procedure**. The top (pink sheet) is to be attached to this site safety plan.
- Operators in training must be supervised by the site supervisor and person accredited in relevant work category.
- All appropriate Personal Protective Equipment (PPE) must be worn on the worksite at all times.

Hazard Management

The person responsible for managing the Site Safety Plan must ensure effective controls are in place to manage risks associated with hazards. Refer SS 2.1.16 Site Safety Plans, and SS 2.1.1 The risk management process.

If site specific hazards are identified during the course of work and cannot be resolved immediately then a Risk and Hazard Assessment Worksheet must be completed to ensure effective controls are in place. All identified hazards and controls must be incorporated into this Site Safety Plan (attach Risk Assessment) and communicated to all persons on site.

This Site Safety Plan is primarily for use by FNSW Supervising Forest Officers and staff.

The information in these documents may be used by contractors in their site safety plan.

Potential Hazard	FNSW Safety Standards, SWP Codes and Tools	Control Strategy / Comment / Details – (refer to and attach any completed risk assessments or maps)
1. Dangerous Trees	SS: 1.3.9 The management of tree hazards (dangerous trees) Checklist CH032: Dangerous Trees	Implement SS 1.3.9 Record locations of hazardous trees in SSP with grid ref, display on attached HPOM (∅) mark appropriate exclusions in field.
2. Wildfires, equipment fires and hazardous spills	SF Forest Practices Code Timber Harvesting in Native Forests. SS: 2.2.7 Handling hazardous substances FNSW Hazmat Procedure	Contractor or SFO to immediately contact Wauchope Regional Office to Report. Directions will be provided as appropriate
3. Falling adjacent to Pacific Highway		Extreme care should be taken when falling trees within two tree lengths of the Pacific Highway. Consideration should be given to the possibility of the tree slipping down hill onto Pacific Highway. This is the case in the North of the compartment. A 20m Visual Strip (harvest exclusion) adjoins the cadastral boundary of the compartment – this is approx 20 m from the actual Pacific Highway shoulder. The SFO should consulted before felling of any tree determined as having the possibility of falling onto the Pacific Highway.
4. Hunters	HUNTING IN STATE FORESTS - Information Kit for Staff and Contractors, March 2007	**Cowarra State Forest is declared for hunting.** The Game Council website should be checked for permits, and signs considered for use as required.
5. Site Visitors. Public road and Recreational Forest users.	SF Forest Practices Code Timber Harvesting in Native Forests. SS 2.1.4 Groups and authorised visitors to workplaces/worksites. SS 2.1.14 Contractor OHS Induction. SWP 1.8 Falling tress within 2 tree lengths of formed roadway. SWP 11.7 Communication on forest roads.	All vehicles should be aware of other road users at all times. The contractor, in consultation with, or as directed by the SFO must ensure appropriate warning signs are placed on all roads and likely access points. Roads must be closed by the contractor when falling within 2 tree lengths as per code, and barriers erected to restrict vehicle access to snigging and dump operations.

		All visitors including FNSW staff & truck drivers must be inducted into the SSP by the contractor. Records of completed SSP inductions are to be maintained in the SSP sign off section. Note: There is evidence of extensive use in this harvest area by mountain bike and motor bike riders. Numerous "single trial" routes have been identified during planning. It is the harvesting contractors responsibility to ensure that their work site is safe during the course of these operations. The active area of tree falling should be checked for the presence of Mountain Bike riders and Motor bike riders. If these are located, the active tree harvest zone should be clearly flagged at these sites in order to ensure that potential forest users are made aware of danger.
6. Operating Machinery and Chainsaws	Forests NSW Forest Operator and Contractor Licencing Policy No 2008/03 SS 1.1.4 / 1.1.7 / 2.1.14 & 2.1.21	All forest operators must be accredited for the task performed or be appropriately supervised by an accredited operator. Forest Operators must have on site a current Forest Operator Licence indicating all work categories performed including supervision conditions where in training. Contact the Harvesting Forester regarding licence mgt.
7. Unmapped drainage lines	SWP 3.2 Forest Assessment and field plot work	Use caution when marking and harvesting around unmapped drainage lines, eg steep, rocky, stags, scrubby vegetation. Ensure final call of felling remains with operator.
8. Communication with operators	SS 1.3.3 Working in active harvest areas.	UHF channel must be displayed on signage and gates to harvesting area. Visual or radio contact must be maintained with machinery operators whilst on site.
9. Roadworks and Harvesting and Haulage	SF FPC - Timber Harvesting in Native Forests. SS 2.1.14 Contractor OHS Induction SS 2.1.1 The risk management process SWP 11.7 Communication on forest roads SWP 1.8 Falling trees within 2 tree lengths of formed roadway.	Conduct Risk Assessment if there are harvesting and roading, haulage and roading or multiple operations in the same area. All communications, signage and controls must be added to SSP (attach RA). Ensure that all operators understand the safe work system developed in RA.
10. Entry points onto Public Roads	SWP 11.9 Exiting or entering Concealed bush tracks to or from a highway or main road. SS 2.1.1 The risk management process	The intersection of Housten Mitchell Drive and 16-4 Trail is very hazardous for heavy vehicles when entering or existing in both directions of travel. All haulage traffic must NOT use this intersection. Haulage traffic MUST use the alternative exit/entry point at the intersection of Houston Mitchell Drive and 16/2 trail – clearly indicated on the attached HPOM.

11. Driving on haulage roads. Drainage line crossings.	SWP 11.7 Communication on forest roads	Use caution, drive to conditions.
12. Stock on roads		No Cattle – Be aware of Deer during sunrise and sunset haulage operations.
13. Traffic Management	SWP 1.2 Gravel Haulage using Tip Truck	Use warning signs and barriers to warn/eliminate other road users.
14. Working Alone	Central Region Working Alone Policy / SS 1.3.4 Working Alone	Ensure familiarity with working alone procedure before commencing any work alone
15.		
16.		
17.		
18.		
19.		
20.		

MEDICAL EMERGENCY EVACUATION PLAN GDA94

Nearest reliable mobile phone reception (SFO to verify, describe location)	
NextG:	Digital:
Emergency meeting point for ambulance / police (refer to attached safety map)	
GPS Lat/Long: 31° 33' 17" S 152° 49' 09" E	Grid Ref: 482 830 E 6508 890 N
Location description: Intersection of Houston Mitchell Drive and Spring Creek Road	
Helicopter landing place (refer to attached safety map)	
GPS Lat/Long: 31° 33' 51" S 152° 49' 33" E	Grid Ref: 483 460 E 6507 850 N
Location description: Private property paddock immediately adjacent to Forest Parkway Road	
1:100,000 Map Sheet Name	**1:25,000 Map Sheet Name**
Camden Haven 9434	Grants Head 9434-1N

Procedures to obtain ambulance assistance

Contact Forests NSW Wauchope office on: VHF Channel: Telephone: 02 6585 3744 Give details of the situation and ask for a 000 call to be placed.	If the office does not respond: 1. Dial 000 2. If there is no mobile coverage, dial 112 3. If no response on 112: 3 use a radio link (TARA) 4 move to an area with mobile coverage 5 find a landline 6 use another network (e.g. a contractor's VHF radio)

000 operator question:	Response:
1. Police, Fire, Ambulance?	NSW Ambulance, e.g. Newcastle Operations Centre
2. Suburb?	Forests NSW name: Queen's Lake State Forest Nearest town or locality: Bonny Hills Nearest ambulance station: Laurieton
3. Address?	Spring Creek Road
4. Nearest road junction/cross street?	Houston Mitchell Drive and Spring Creek Road
5. Local government area?	Hastings
6. Nature of the problem?	Describe the accident, number and condition of casualties
7. Where is the accident?	Refer to safety meeting point above

Directions to navigate from nearest ambulance station to the emergency meeting point:

Travel East out of Laurieton via Ocean Drive. Turn North and proceed through Bonny Hills towards Lake Cathie. Turn left at Houston Mitchell Drive and proceed west to Spring Creek Road.

8. 4WD ambulance required Y / N	CB radio channel to use:
9. Injuries?	Give detailed information about the condition of the casualty (do not mention names over radio system)
10. Your name and call back number:	

INDUCTION SIGN-OFF

Forests NSW employees / contractor employees / contractor's operator(s) / visitor's declaration

I have been briefed by the Forests NSW supervisor / Contractor supervisor on-site before starting work or entering the worksite. I have noted and understand my safety responsibilities. I have taken note of and understand the site safety plan and the medical emergency evacuation plan and the attached safety map.

Name	Company	Signature	Activity	Date

SAFETY DIARY

This diary should be used to record daily safety matters such as toolbox talks, safety inspections and changes to this site safety plan. Each entry recording toolbox talks or changes to the SSP must be initialled by all people at the worksite.

Date	Issue

Safety Plan Checks to be completed by SFO at start of operations (Date and sign each item when completed, or write NA if not applicable)

Communication:	Date/NA	Signature
Test phone reception, note suitable locations in SSP, and mark in field.		
Induct contractor crew in the use of the FNSW radio system, test radio reception.		
Ensure correct UHF channel in SSP and marked clearly on signs, test all radios.		
Agree on communication, ie hand signals to use, with machinery operators.		
Complete Risk Assessment if harvesting and roading or multiple operations in same area. Ensure that all operators understand the safe work system developed in RA.		
Ensure logging warning signs and road closures (where applicable) are in place.		
Ensure haulage route and truck entering signage is in place.		

Emergency Issues:		
Ensure all operators have required PPE in good order.		
Ensure Emergency Meeting Point (EMP) is suitable, sign posted, has correct grid reference, and known to all people on the worksite.		
Ensure helicopter landing place is serviceable for use in an emergency, is sign posted, and is known to all people on the worksite.		
Check contents of all 1st aid kits, notify contractor supervisor re resupply.		

Operator Competencies:		
Check that all operators have current Forest Operator Licences (FOL) and are licenced to perform all work categories/tasks performed.		
Check that 'operators in training' receive appropriate training and supervision, have been inducted into contractor SWP for task, and FOL indicate 'in training' status and conditions of supervision.		
Check that new operators and operators in training are working safely.		

PLANT INDUCTION REGISTER		
Type of Plant:		Make/Model:
Maintenance System Sighted and Satisfactory:	Yes / No	Date & Inspector Initials:
ROPS/FOPS/OPG Compliance Plaque Sighted:	Yes / No	Standard (on plaque):
Type of Plant:		Make/Model:
Maintenance System Sighted and Satisfactory:	Yes / No	Date & Inspector Initials:
ROPS/FOPS/OPG Compliance Plaque Sighted:	Yes / No	Standard (on plaque):
Type of Plant:		Make/Model:
Maintenance System Sighted and Satisfactory:	Yes / No	Date & Inspector Initials:
ROPS/FOPS/OPG Compliance Plaque Sighted:	Yes / No	Standard (on plaque):
Type of Plant:		Make/Model:
Maintenance System Sighted and Satisfactory:	Yes / No	Date & Inspector Initials:
ROPS/FOPS/OPG Compliance Plaque Sighted:	Yes / No	Standard (on plaques):
Type of Plant:		Make/Model:
Maintenance System Sighted and Satisfactory:	Yes / No	Date & Inspector Initials:
ROPS/FOPS/OPG Compliance Plaque Sighted:	Yes / No	Standard (on plaque):

Scale 1:130,000
Projection: MGA
Datum: GDA94
Map Sheets
1:25,000; Grant's Head 9434-1N
1:100,000; Camden Haven 9434

Central Region - Kendall MA
Locality / Site Safety Map
Compartment 16
Cowarra State Forest

Prepared by:Brent Bailey

GDA

FORESTS NSW

Emergency Telephone 000 / 112 Forests NSW (02) 6585 3744

Please note this map is produced in GDA94

Emergency Meeting Point
Intersection of Houston Mitchell Drive &
Spring Creek Road
482 830E / 6 508 890N
31° 33' 17"S / 152° 49' 09"E

Helicopter Landing Place
Cleared paddock in private property
adjacent to Forewst Parkway Road
483 460 E / 6 507 850N
31° 33' 51"S / 152° 49' 33"E

Legend

- Emergency Meeting Point
- Helicopter Landing Place
- Town
- Sealed
- All Weather, Unsealed
- Dry Weather, Unsealed
- 4WD Track
- Railways
- Harvesting compartments
- State Forest (Legal)
- National Park Estate

0 0.5 1 2 3 4 5 Kilometers

470000 475000 480000 485000 490000

6520000 6515000 6510000 6505000 6500000 6495000 6490000

FORESTS NEW SOUTH WALES, CENTRAL REGION

STANDARD HARVEST PLAN CONDITIONS FOR NATIVE FOREST OPERATIONS UNDER THE IFOA

Approved: Kathy Jones

Signed:
Regional Manager – Central Region

Date: 1 July 2011

1. Approvals and Responsibilities

The Contractor/Licensee is responsible to follow the direction of authorized Supervising Forest Officer and implement conditions specified in the relevant Harvesting Plan, Codes of Practice and IFOA Licenses. The contractor must receive a clearance certificate before moving between operations.

The Supervising Forest Officer (SFO) - is responsible to implement tree marking to meet silvicultural conditions and licence conditions and monitor contractor performance and log segregation to ensure compliance with harvest plan, code of logging practice and IFOA licence condition. The SFO must authorize use of existing snig track crossings, snigging across roads and trails and movement of dumps up to 200 m from the mapped location. The SFO is responsible for maintaining a diary of key events, a record of dump usage, temporary closures and undertaking regular Operational Inspection Reports (OIRs).

The Regional Manager must approve major amendments to harvesting plans, including activities requiring a schedule 6 assessment under the TSL prior to implementation.

2. Operational Conditions

Operational Conditions relating to the Threatened Species Licence, Environment Protection Licence and Fisheries Licence in Lower North East Region are specified in the Technical Guidance Notes 2005 booklets. A summary and interpretation of some of these conditions is provided below.

2.1 Drainage Feature Protection

Conditions of EPL Schedule 4: Section D Protection of Drainage Features Apply, except for conditions relating to Unmapped Drainage Lines in compartments where UMDL harvesting is permitted.

Riparian zone widths – Inherent Hazard 1 and 2 Compartments

Stream Order	EPL Filter Strip TSL Protection zone (hard)	EPL Protection Zone TSL Protection zone (soft)	EPL Operational Zone
Unmapped	0 (BMP#) Or 5	0 (BMP#) Or 5	0 (BMP#) Or 10
1st Order	5	5	10
2nd Order	5	15	10
3rd Order	5	25	10
4th Order or greater	5	45	10

BMP – Best Management Practice Guidelines for Logging Unmapped Drainage Lines – Section 4.

Riparian zone widths – Inherent Hazard 3 Compartments

Stream Order	Filter Strip (hard)	EPL Protection Zone TSL Protection zone (soft)	EPL Operational Zone
Unmapped	10	0	10
1st Order	10	0	10
2nd Order	20	0	10
3rd Order	30	0	10
4th Order or greater	50	0	10

NOTE: ONLY PROTECTION ZONE (SOFT) WILL BE MARKED IN FIELD

Drainage Depressions – 5m EPL Buffer Strip

Operational conditions to apply to Riparian Zones and Filter strips

Zone	Licence condition	Summary
EPL Buffer Strips (Drainage Depressions)	Conditions 15,16, 21-23 of Schedule 4 of the EPL must apply (Buffer strips).	Fall in and fall out. Minimise disturbance. Don't operate when soil is saturated.
Modified harvest zone (unmapped drainage lines)	Refer to SFO training package, Management of Unmapped Drainage Lines Conditions 1-3 of BMP apply	Fall in and fall out. Minimise disturbance. Groundcover rehabilitation requirements, 70% groundcover, furrow infill and drain. Harvesting machinery entry for 5m into zone.
Machine exclusion zone (unmapped drainage lines)	Refer to SFO training package, Management of Unmapped Drainage Lines Conditions 1-3 of BMP apply	Fall in and fall out. Minimise disturbance. Groundcover rehabilitation requirements, 70% groundcover, furrow infill and drain.
EPL Filter Strip (hard) And TSL Protection Zone (hard)	Conditions 6, 8, 11-14, 14A & 14B 17, 18, 19, 19A, 19B, 19C, 20 of Schedule 4 of the EPL must apply (Filter strips) Conditions 5.7a,d – i of the TSL must apply Operations within Protection Zones (hard)	Trees not to be felled into. Accidentally felled trees may be removed (not if pulp or salvage) provided that: -The crown is cut off from trunk and left where it has fallen unless tree can be lifted using mechanical harvester. -The wheels or tracks of harvesting machinery must remain outside protection zone (hard) -The SFO documents the incident -Resulting log furrow in filled with soil, drained onto a stable surface, at least 70% ground cover must be achieved within 5 days -Cannot reposition tracks within adjacent Protection Zone (soft)for the sole purpose of retrieving accidentally felled tree from filter strip/Protection Zone (hard), can only reposition tracks to retrieve accidentally felled tree if repositioning is associated with felling of trees within net harvest area away from Protection Zone (soft) 70% Groundcover must be achieved on all disturbed soil surfaces within EPL Filter strips within 5 days of creation. Harvesting Machinery must not enter filter strips or Protection Zones (hard) except for construction of and use of road crossing or snig track crossing

Zone	Licence condition	Summary
EPL Protection Zone	Conditions 20A – 20J of Schedule 4 of the EPL must apply (Protection Zones)	Trees in Protection zones (soft) must not be felled Trees may be felled into Protection zone (soft)
TSL Protection Zone (soft)	5.7b, j – q TSL must apply Operations within Protection Zones (soft)	The crown must be cut off from trunk and left where it has fallen unless tree can be lifted using mechanical harvester. Machinery may operate in the outer five meters of a protection zone for the purpose of cutting and removing timber logs located in an operational zone where: the technique of directional felling could not be used the only practical method of felling that tree so that it falls outside the protection zone (soft) is to enter the protection zone (soft) with harvesting machinery the tree is felled away from the protection zone (soft) the wheels or tracks remain 5 meter of the boundary of the protection zone and NHA walkover techniques only , minimise skewing Blade up at all times **Cannot reposition tracks within a protection zone (soft) for the sole purpose of retrieving accidentally felled log from filter strip/protection Zone (hard) Can be moved only if needed to gain access to timber log in Operational zone** **Resulting log furrow in filled with soil, drained onto a stable surface, at least 70% ground cover must be achieved within 5 days** **70% Groundcover must be achieved on all disturbed soil surfaces within EPL Protection Zone within 5 days of creation.** **No operations allowed when soil is saturated** **Machinery only to enter Protection Zone (apart from detail above) for the purpose of constructing extraction track or snig track crossing.**
EPL Operational Zone	Conditions 20K – 20U of Schedule 4 of the EPL must apply (Operational Zones)	Fall in and fall out. **Minimise disturbance by using walkover techniques and minimise skewing.** **log furrows in filled with soil, drained onto a stable surface, at least 70% ground cover must be achieved within 5 days** **70% Groundcover must be achieved on all disturbed soil surfaces within EPL Protection Zone within 5 days of creation.**

Zone	Licence condition	Summary
		Don't operate when soil is saturated. Snig tracks may only be constructed (blade down) where the construction of a snig track immediately adjacent to the operational zone would result in a side cut. SFO to document these instances.
EPL Buffer Strips (Drainage Depressions)	Conditions 15,16, 21-23 of Schedule 4 of the EPL must apply (Buffer strips).	Fall in and fall out. Minimise disturbance. Don't operate when soil is saturated.

2.2 Roads and Road Crossings

The Conditions under Schedule 5 of the EPL apply to roads and road crossings.

2.3 Log Dumps

Location

Field location of log dumps must utilise the most level site available, consistent with the location indicated on the Operational Map. It is permissible for the SFO to move the location up to 200m from the indicated position to achieve this. If additional log dumps are required, the SFO must obtain approval from the Harvesting Forester.

Treatment – EPL Schedule 4 Conditions 26-32

Run-off from log dumps must not be discharged into drainage features.

Location of Dump and Log Dump debris	IH1	IH2	IH3
Dump Located from outer boundary of protection zone	Outside	10 m	20 m
Log Dump Debris must be located from outer boundary of protection zone	Outside	5m	15 m

Bark Management

The following 'bark management' practices will be implemented in lieu of section 16.2 of the Forest Practices Code:

On a log dump, bark should be moved by an excavator. Pushing bark around the dump with a blade should be avoided. Where bark has been pushed with a blade, an excavator must shake the soil out of the bark prior to it being heaped (this will facilitate burning of the bark heap).

Bark heaps must not be located adjacent to, or under the crowns of, retained trees.

Where a bark heap is located to the side of an active log dump, the bark heap must be surrounded by a 5m mineral earth break.

Upon completion of each log dump, bark heaps must be positioned in the centre of the log dump with the excavator, ensuring that the bark is essentially soil-free and 'fluffed up' ready for burning.

Timber off-cuts must be stacked separately, away from the bark heap.

Future Intent

Dumps must be re-shaped, drained to produce a stable surface. For dumps not planned to be re-used for harvesting within the next 10 years soil should be stockpiled prior to use and re-spread at the completion of use with the aim of establishment natural regeneration. The SFO must note instances where compaction of the dump means natural regeneration is unlikely to result and further treatment to achieve a regenerated condition is required.

2.4 Snig and Extraction Tracks

Conditions 38-82 of Schedule 4 of the EPL Apply.

Technique

Wherever practicable, walkover extraction techniques be used in preference to snig track construction.

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.

Drainage of Snig Tracks

EPL Table 3: Maximimum Distance of Water flor along snig tracks or extraction track surface (metres measured along ground surface). The table may be interpolated to derive site-specific maximum spacings.

Track Grade (degrees)	Maximum Distance (metres)
5	100
10	60
15	40
20	25
25	20
30	15

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.**

Drainage Feature Crossings

Use of existing snig track crossings is permitted with SFO approval (subject to conditions specified in Section 2.5 below).

All **new snig track crossings** must be authorised by the Regional Manager.

In Inherent Hazard 3 compartments snig tracks must not cross watercourses, unless by a using a permanent snig track crossing structure.

Snig tracks must be drained between 5 and 20 m of a drainage feature (where practicable).

Drainage feature crossing design, construction, management and monitoring must follow all of the many requirements of Conditions 39-62 of the EPL.

Wet Weather

All snigging and extraction must cease when water is running in tracks or tracks are likely to be significantly rutted.

Rutting

Maximum allowable soil disturbance for Snig/Extraction Tracks is 20cm deep for a length of 10m refer Forest Practices Circular 2008/04.

2.5 Summary of TSL Conditions

The Threatened species licence conditions for Lower North East Region are set out in the TSL Booklet – Technical Guidance Note 2005 – 3 A and these must be adhered to.

Exclusion Zone Category	TSL Exclusion Zone	Removal of accidentally felled trees if at least one HQ log? (see note 1)*	Machine entry to 5m for felling HQ logs in NHA away from exclusion zone? (note 2)	Felling of HQ logs into zone at 6/200 m? (see note 3)	Marking in the field	Use Existing Road/Snig Track (**note 4**)	Snig Track and Road Re-opening/ Construction (**note 5**)	IFOA licence condition	TSL condition
Total/Solid	Heath and scrub					Sch6			5.10
	General frog 10m around dams					Sch6			5.12
Machinery-in	General bird nest and roost protection		✓			✓			5.13
	Bat roost protection		✓			✓			5.14
	Frogs: Green & Golden Bell Frog Giant Barred, Fleays, Stuttering Frog Philoria spp Giant Burrowing Frog		✓			✓			6.2 6.3 6.4
	Bats: Golden tipped Bat Large-footed Myotis		✓			✓			6.20 6.21
	Snakes: White crowned Snake Pale Headed Snake		✓			✓			6.5 6.6
	Rufous Scrub Bird		✓			✓			6.10
	Threatened and protected flora		✓			✓			6.22-6.26
Accidentals	Wetlands	✓				Sch6			5.9
	Rainforest and rainforest exclusion zones	✓				✓		10A	5.4
Limited	HCV Old Growth	✓	✓	✓		✓	RM	18	5.3
	Rare Non-commercial Forest Type	✓	✓	✓		✓	RM	18	5.5
	FMZ 2 and 3A	✓	✓	✓		✓	RM	18	
	Ridge and Headwater Habitat	✓	✓	✓		✓*			5.8
	Rocky outcrop and cliff protection	✓	✓	✓		Sch6			5.11

	Threatened species habitat protection Large Forest Owl Hasting river Mouse Spotted tail Quoll Yellow Bellied Glider den Squirrel Glider Glossy Black Cockatoo nest/roost	✓	✓	✓	✓	Sch6		6.9 6.13 6.15 6.17 6.16 5.13
Riparian	TSL Riparian Habitat	✓	✓	✓	✓	RM		5.7

Note Fix bars/dots to match tree mark code

✓= Activity permitted (with conditions)

1, 2, 3 – Refer to table notes for conditions

* TSL conditions are not breached where a tree is **accidentally** felled into any exclusion zone. However, accidentally felled trees may only be removed from the exclusion zones indicated in this table.

Table Notes:

(1) Removal of Accidentally Felled Trees

An accidentally felled tree may be removed, but only if the tree contains a high quality log. The following conditions apply:

- 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 exclusion zone for the purpose of felling a tree within the net harvest area (see 2 below) may also be used to remove a tree that has been felled into the exclusion zone accidentally, or as allowed in 3, below.
- The wheels or tracks of harvesting machinery must not (to any significant extent) be repositioned or moved solely for the purpose of removing a tree felled into the exclusion zone.

(2) Machine entry to 5m for felling HQ logs in NHA away from exclusion zone

Harvesting machinery is permitted to operate in an exclusion zone for the purposes of felling a tree within the net harvest 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 exclusion zone.
- The only practicable method of felling the tree is to enter the exclusion zone.
- The tree is felled away from the exclusion zone.
- The wheels or tracks of harvesting machinery remain wholly within 5 meters of the boundary of the exclusion zone.
- The use of the harvesting machinery involves the use of walkover techniques (only) and minimal ground disturbance.

(3) Felling of HQ logs into zone at 6/200

The felling of trees across the boundary of an exclusion zone is prohibited except where no more than six (6) trees containing high quality logs are felled across the boundary in any 200 meter length of the boundary of an exclusion zone, whatever 200 meter length of boundary is considered:

- An accidentally felled tree may be removed from the zone, but only if the tree contains a high quality log. These trees do not count toward the 6/200 rule.
- Trees fallen under the 6/200 rule must be felled in such a way so as to avoid damage to trees growing in the exclusion zone.

(4) Use of Existing Snig Track or Road

Schedule 6 requires NPWS approval prior to using a track through the specified exclusion zones. These approvals, where given, will usually be specified in the site-specific harvesting or roading plans prior to commencement of operations.

(5) Snig Track and Road Re-opening and Construction

RM = Regional Manager approval is required prior to constructing a road or snig track through these exclusion zones. These approvals will usually be specified in the site-specific harvesting or roading plans prior to commencement of operations.

3. Tree Marking Code

All exclusion zone and buffer zone boundaries must be marked in the field, except where specified forestry activities will not come within 50 metres of such boundaries. Retained trees must be marked, except where the understorey consists of thick impenetrable lantana greater than one metre high or other impenetrable understorey. In these cases the SFO must document and justify such situations as it becomes apparent during compartment mark-up in the SFO diary.

Description	Symbol
RETAINED TREES **Retained trees may fill several roles (*eg* recruitment and feed tree)** TSCL condition 5.6.g.(ii) (flatten/remove logging debris and minimise disturbance to ground and under storey within 5m radius) applies to trees retained with a letter code (except K).	
Retained trees not to be removed or damaged (*eg* grower)	One horizontal line or ring
Hollow-bearing tree	**H**
Recruitment tree	**R**
Eucalypt feed tree	**E**
Yellow-bellied Glider v-notch feed tree or record	**YB**
Yellow-bellied Glider retained feed tree	**One horizontal line or ring**
Squirrel Glider sap feed tree, record or nest	**SG**
Koala high use tree	**K**
Koala retained feed tree	**One horizontal line or ring**
Glossy black cockatoo feed tree, record or nest	**GB**
Owl nest and/or roost	**OWL**
Raptor nest	**N**
BOUNDARIES	
Solid Exclusion zones with no boundary exceptions. Licence conditions not breached if tree accidentally felled into	**Four horizontal bars with dot above and below**
Machinery Machinery entry 5m to fell timber log in NHA away from protn. Zone.	**Three horizontal bars with dots above and below**
Accidentals Can remove accidentally felled timber logs. Groundcover rules apply	**Four horizontal bars**
Limited Can remove accidentally felled timber logs. Groundcover rules apply Machinery entry 5m to fell timber log in NHA away from protn. Zone. 6 trees (containing timber log) in every 200m can be felled into.	**Three horizontal bars**
Riparian Protection zone to be marked in field	**Two horizontal bars**
Unmapped drainage line marking Modified harvesting zone, including 5m machinery exclusion zone, marked 10m from banks	θ
Edge of net harvest 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)	⊙

Description	Symbol
TREES TO BE REMOVED	
Individual tree	**• or dots**
Directional felling mark	**← over •**
Possible Pole	**• with 'P'**
Possible Girder	**• with 'G'**
SITES MARKED FOR INFORMATION	
Compartments boundary	**O**
Private property	**PP**
Dump site with optional dump number reference	**D**
Road/Track line	**I**
Approved crossing site with optional reference (crossing A)	↕ **A**
Cancellation mark	**X**
Edge of identified AGS 'groups'	*
Slope angle indication (commences here)	*eg* **25°**
Dangerous Tree/Potential Dangerous Tree (with arrow if required)	∅
FLORA AND FAUNA FEATURES (Retain)	
Frog record	**F**
Hastings River Mouse record	**HRM**
Smoky Mouse record	**SM**
Quoll latrine	**QL**
Quoll den	**QD**
Quoll record	**Q**
Bat roost	**BR**
Bat record	**B**
Phascogale den	**PD**
Philoria frog seeps and soaks	**PHS**
Cave, tunnel or mineshaft	**CTM**
Threatened plant	**TP**

4. Best Management Practices for Unmapped Drainage Lines

In compartments where Unmapped Drainage line harvesting is permitted the following best management practice conditions apply.

1.0 Machinery exclusion zone: 0 to 5m from drainage line.

1.1 Machinery is excluded within 5m of the edge of drainage lines, except for the construction and use of a crossing. The edge of the drainage line is defined consistent with the EPL. This zone is marked with the θ symbol.

2.0 Modified harvest zone: 0 to 10m from drainage line.

This zone is marked with the θ symbol.
Ground disturbance is to be minimised within this zone and disturbance must be rehabilitated as outlined below. Machinery is only to enter the outer 5m of this zone where essential and under the following conditions:
For mechanical harvesting operations: mechanical harvesting and shovel extraction with the harvester is permitted,
For manual falling harvesting operations: log extraction with a grapple skidder or dozer is permitted only where machinery does not have the capacity to use a snig chain/rope
For all operations: the construction or use of an authorised crossing.

2.1 Ground cover maintenance

2.1.1 Machinery operating within modified harvest zones must:

a) Use walkover techniques wherever possible.

b) Prevent to the greatest extent practicable the skewing of machinery tracks.

c) Operate with blade up at all times except when conducting earthworks for the construction of a road, extraction track or snig track crossing, or for safety reasons. Crossings are to be minimised.

d) Not snig along drainage depressions and drainage lines.

e) Not operate when the soil is saturated.

2.1.2 Earthworks must not be undertaken within the modified harvest zone except for the construction of a road, extraction track or snig track crossing, consistent with EPL conditions to avoid soil disturbance.

2.1.3 Any crossings of unmapped drainage lines must be consistent with the conditions for crossing drainage lines in the EPL.

2.2 Ground cover rehabilitation

2.2.1 Soil disturbance created by machine operation in the modified harvest zone is to be rehabilitated by applying litter, twigs or mulch to achieve at least 70% surface cover on the disturbed area within one day of the creation of the disturbance (by contractor).

2.3 Log furrow rehabilitation

2.3.1 All log furrows produced by log extraction from the modified harvest zone must be:

a) Infilled with soil and covered with litter, twigs or mulch to achieve at least 70% surface cover within one day of the creation of the furrow.

b) Drained, 10m from the bank of the unmapped drainage line, so water running down any log furrow is dispersed onto undisturbed forest floor within one day of the creation of the furrow.

c) Drained, if required, with a snig track crossbank, 10m from the bank of the unmapped drainage line, where a snig track will discharge water directly into the furrow (all by contractor).

3. Tree falling conditions

3.1Tree selection and extraction

3.1.1 Trees may be felled into and from within the modified harvest zone.

3.1.2 Tree removal within the modified harvest zone and buffer on buffer trees from adjacent areas will be targeted single tree selection of high quality products only (quota, veneer, PPG, graded smalls.

3.1.3 Trees must be marked for removal within the modified harvest zone.

3.1.4 Minor debris from understorey trees accidentally falling into or across drainage lines is acceptable.

3.1.5 Directional felling should be used where possible to direct trees located within the modified harvest zone out of the zone, for ease of straight line extraction. Any such disturbance is to be rehabilitated with 70% groundcover.

3.1.6 Trees felled from within or into the modified harvest zone must be extracted in the direction of the line of the log to minimise soil disturbance.

3.1.7 If a tree is accidentally fallen into or across a drainage line:

a) Forests NSW will take appropriate action, including the issuing of Penalty Infringement Notices, where trees are deliberately or negligently felled into or across a drainage line.

b) Forests NSW will determine appropriate action on a case by case basis, that may involve the removal of substantial debris from within the banks of the drainage line where safe to do so. Consideration will be made of the potential fire risk, potential benefits of leaving the debris in place and other factors

3.2 Excluded trees

3.2.1 Trees may not be felled from within or into the modified harvest zone where:

a) The ground slope in the zone of the anticipated disturbed area exceeds 21 degrees. The anticipated disturbed area is the area the SFO assesses as likely to be disturbed by tree falling and extraction (log furrow, snig track, area swept by log during extraction). The disturbed area does not include the area impacted by a tree head, ie trees may be felled into the zone where the ground slope exceeds 21 degrees only if there is to be no extraction disturbance. If trees are to be felled into the modified harvesting zone consideration should be given to the possibility of trees "spearing" into the drainage line.

b) The tree is growing within the banks of the unmapped drainage line.

c)The tree would fall into or across drainage lines to avoid disturbance to the drainage line or banks.

d) There is evidence of localised occurrence of mass movement, such as earth slumps, topples, falls, slides and/or flows.

e) There are regolith class 4 soils within the zone.

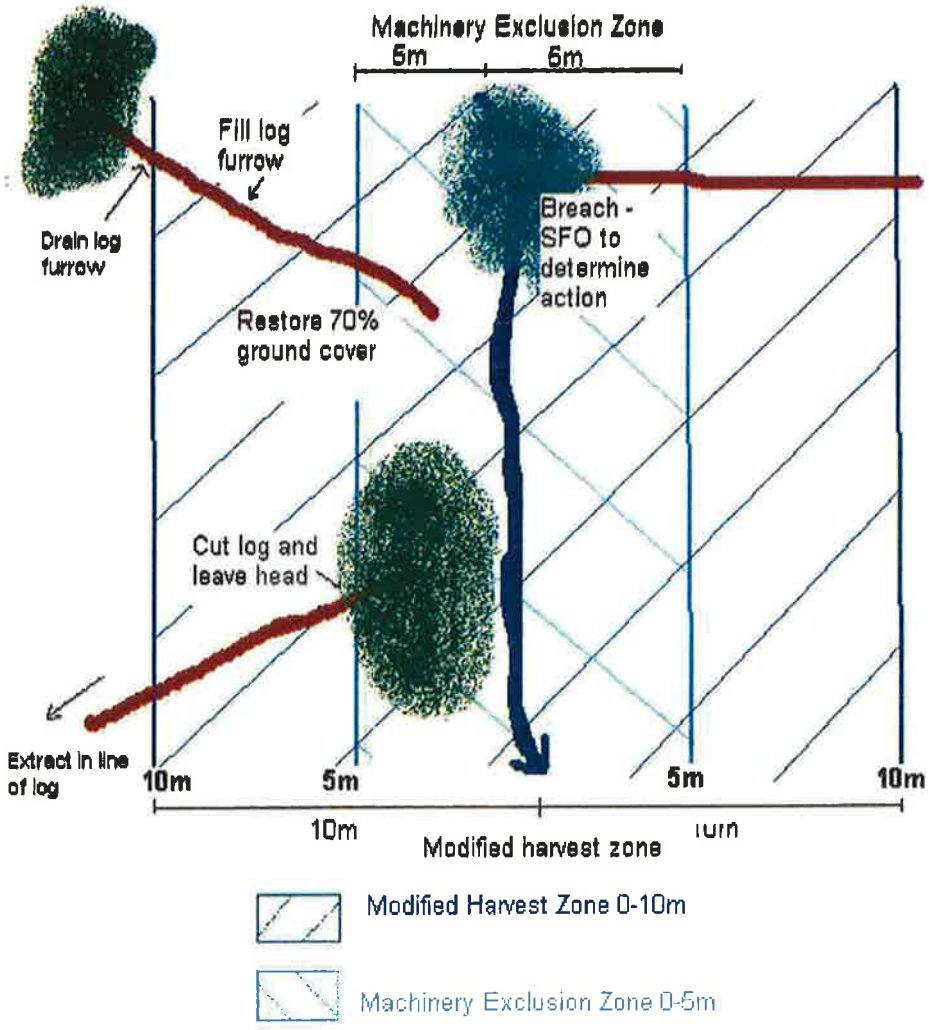
f) There is less than 70% groundcover from pre-harvesting burning within the modified harvesting zone

g) There are TSL species-specific or other exclusions, including where 200m/100m frog/bat species specific exclusions extend over unmapped drainage lines.

h) Threatened Fish License habitat class 1 or 2 occurs and the unmapped drainage line is unbroken (by a drainage depression) from the mapped stream.

i) Unmapped drainage lines can only be logged in accordance with seasonality restrictions.

j) The tree serves the purpose of being a retained tree under TSCL requirements (such as habitat trees, recruitment trees and eucalypt feed trees).


Machinery Exclusion Zone
5m
5m
Fill log furrow
Drain log furrow
Breach - SFO to determine action
Restore 70% ground cover
Cut log and leave head
Extract in line of log
10m
5m
5m
10m
10m
Modified harvest zone
Modified Harvest Zone 0-10m
Machinery Exclusion Zone 0-5m

FNSW EEC Field Identification Guide

Subtropical coastal floodplain forest of the NSW North Coast bioregion

(This version last edited 14 November 2011)

Summary of major features

To be this EEC, a site must have all of the following features:

- **Altitude less than 250 m; and**
- **On an alluvial flat or river terrace; and**
- **A canopy dominated by one or more of red gum, grey ironbark, grey box, grey gum, red mahogany, swamp mahogany, white mahogany, pink bloodwood, swamp box or rough-barked apples.**

This is one of several related EECs which occur predominantly on coastal floodplains. If an area is definitely part of the coastal floodplain, then any native vegetation it supports is EEC, and the following key is not required. However, there is no precise definition of a coastal floodplain. As a guide, if an area is at an altitude less than 20 m, has extremely low relief (less than 10 m height variation over a distance of 600 m or more, equivalent to an average slope of 1° or less) and is within the flood zone of a significant stream, then it is most likely on a floodplain.

KEY

1. Is the altitude less than 250 m?

If answer is yes, go to step 2.
If answer is no, the area is not EEC.

2. Is the area an alluvial flat, drainage flat, or river terrace with a slope less than or equal to 3°? Note that flat or gently sloping areas which are not associated with drainage features (e.g. flat areas on a low ridge which are above the overbank flood level of nearby streams) do not belong to any of these three categories and should not be identified as this EEC.

If answer is yes, go to step 3.
If answer is no, the area is not EEC.

3. Is one or more of the species red gums (*Eucalyptus tereticornis, E. seeana*), grey ironbark *(E. siderophloia*), grey box *(E. moluccana*), grey gum (*E. propinqua*), red mahogany (*E. resinifera*), swamp mahogany (*E. robusta*), white mahogany (*E. acmenoides*), pink bloodwood (*Corymbia intermedia*), swamp box (*Lophostemon suaveolens*) or apple (*Angophora subvelutina*), either individually or combined, dominant in the canopy?

If answer is yes, go to step 4.
If answer is no, the area is not EEC.

4. Does one or more of the species blackbutt (*Eucalyptus pilularis*), tallowwood (*E. microcorys*), or spotted gum (*Corymbia maculata, C. variegata* or *C. henryi*), either individually or combined, contribute greater than 10% of the total foliage cover of the canopy tree stratum (in a mature stand this is equivalent to greater than approximately 5 trees over 60 cm dbhob per ha).

If answer is yes, the stand is not this EEC.
If answer is no, the stand is this EEC.

FNSW EEC Field Identification Guide

Swamp sclerophyll forest on coastal floodplains of the NSW North Coast, Sydney Basin and South East Corner bioregions

(This version last edited 14 November 2011)

To be this EEC, a site must have all of the following features:

- **Altitude less than 50 m; and**
- **On an alluvial flat or river terrace; and**
- **A tree stratum (which may be very variable in height, from 2 m to over 25 m) dominated by one or more of swamp mahogany, broad-leaved paperbark or swamp paperbark.**

This is one of several related EECs which occur predominantly on coastal floodplains. If an area is definitely part of the coastal floodplain, then any native vegetation it supports is EEC, and the following key is not required. However, there is no precise definition of a coastal floodplain. As a guide, if an area is at an altitude less than 20 m, has extremely low relief (less than 10 m height variation over a distance of 600 m or more, equivalent to an average slope of 1° or less) and is within the flood zone of a significant stream, then it is most likely on a floodplain.

KEY

1. Is the altitude less than 50 m?

   If answer is yes, go to step 2.
   If answer is no, the area **is not this EEC**.

2. Is the area an alluvial flat, drainage flat, or river terrace with a slope less than or equal to 3°? Note that flat or gently sloping areas which are not associated with drainage features (e.g. flat areas on a low ridge which are above the overbank flood level of nearby streams) do not belong to any of these three categories and should not be identified as this EEC.

   If answer is yes, go to step 3.
   If answer is no, the area is **not this EEC**.

3. Is one or more of the species swamp mahogany (*Eucalyptus robusta*), broad-leaved paperbark (*Melaleuca quinquenervia*) or swamp paperbark (*M. ericifolia*), either individually or combined, dominant in the canopy?

   If answer is yes, the area is this EEC.
   If answer is no, the area is not this EEC.