

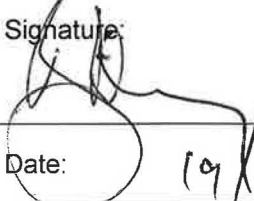
FORESTS NEW SOUTH WALES CENTRAL REGION

NATIVE FOREST HARVESTING PLAN

Kiwarrak State Forest – Compartments 16, 17, 18, 19, 20

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: Ken Drew Harvest Planner	Reviewed by: Brent Bailey Harvest Planning Team Leader	Approved by: Kathy Jones Regional Manager
Signature: 	Signature: 	Signature: 
Date: 19/07/13	Date: 19/7/13	Date: 30/8/13

Note: Approval encompasses the Harvest Plan Operational Map (HPOM) with the corresponding approval date displayed on the map, verifying final approved version.

Description of Proposal

This native forest timber harvesting plan aims to:

1. Provide the means by which native forest timber can be efficiently and effectively harvested in accordance with the requirements of the Integrated Forestry Operations Approval (IFOA).
2. Describe the silviculture objectives and constraints that will apply to this operation to ensure appropriate treatment of the forest to achieve object number 1 and to provide for the regeneration of the forest where required.
3. Outline the critical boundaries and modified harvest practices that are to apply to safeguard environmental values, neighbouring properties, State forest or other tenures.
4. Provide a succinct summary of the key features of all aspects of the harvesting operation so as to inform and guide harvest contractors and Forest NSW personnel during the undertaking of forestry activities.

Environment Protection Licence (EPL)

This operation will not be licenced under the EPL, therefore:

1. Unmapped Drainage Line harvesting is permitted. However, as best practice all conditions of the EPL will be applied to this operation with the exception of Schedule 4 Condition 6 relating to filter strips on unmapped drainage lines.
2. Commencement and cessation notifications under the EPL are not required.

Attachment 1: Site Safety Plan prescribes describes safety requirements and MEEP for this harvesting operation.

Attachment 2: A separate road works plan outlines roading requirements for this harvesting operation.

Attachment 3: Central Region Standard Operating Conditions for Native Forests Operations under the IFOA

HARVEST PLAN – Compartments 16, 17, 18, 19, 20 Kiwarrak State Forest

Area identification and yield estimates

State Forest	Compartments	Region	Management Area	Price Zone	Harvest Plan ID
Kiwarrak	16, 17, 18, 19, 20	Central	Taree	Taree	

	Cpt 16	Cpt 17	Cpt 18	Cpt 19	Cpt 20	Total
Event ID						
Gross Area	10ha	222ha	237ha	233ha	191ha	893ha
Net Harvest Area	9ha	200ha	176ha	200ha	167ha	752ha
Basal Area Offsets	9ha	200ha	115ha	0ha	16ha	340ha
NHA after Basal area Offsets	0ha	0ha	61ha	200ha	151ha	412ha
Estimated Yield all of NHA	310m ³	5600m ³	7450m ³	7600m ³	5340m ³	26300m ³
Estimated Yield / ha	34m ³ /ha	28m ³ /ha	42m ³ /ha	38m ³ /ha	32m ³ /ha	35m ³ /ha

Special Conditions

Critical boundaries

The south western boundary of the harvesting plan group is bordered by Talawahl Nature Reserve. The boundary isn't defined in the field. Boundary to be defined in the field by use of GPS before harvesting commences.

South eastern boundary is bound by Private property and is defined in the field by a fence.

The western boundary of the harvesting plan group is bordered by State Forest.

The eastern boundary of the harvesting plan group is mostly bound by Pacific Highway and old highway. Harvesting must not impact on Highway and highway rest area.

The northern boundary of the harvesting group is mostly bound by private property and is fenced.

Harvesting must not impact on private property.

Damage to fence lines caused by harvesting operation shall be repaired immediately by the contractor. Debris must not be left within five metres of fence lines.

If there is doubt about location of boundaries between net harvest area and either Talawahl SCA, Pacific Highway or Private Property consultation MUST be made with either the harvesting Contract Coordinator or Harvest Planner such that relevant Parish maps and or gazettals can be consulted.

All boundaries to be checked by use of GPS units before harvesting commences within that area.

Modified Harvest Areas

Modified Harvesting Areas exist within the identified BA offset area. No logging is expected to occur in or around these's sites at the time of planning.

Mid Coast Water

Mid coast have a pumping station and a storage reservoir within compartment 20 and pipe lines running throughout compartments 17, 18 and 20. These pipe lines are buried at a minimum depth of 30cm and up to 60cm below the ground surface. No excavation work to be carried out within the vicinity of these pipes. Snigging is allowed across the pipes but not along them. Some haulage routes run apparel to the pipe lines. Log dumps not to be located on top of pipe lines. See operational map for location.

Endangered Ecological Community (EEC)

Potential EEC Sub-tropical Coastal Floodplain, indicative layer provided. Indicative layer must be used as exclusion boundary unless field assessment is undertaken.

Country Energy

A 11000 KVA underground electricity cable runs along with the pipe lines to pumping station and reservoir within compartments 17 and 20. Extreme care should be taken when working within this area. See operational map for location.

A power line exists within compartment 18 for residents along Fords Road, care should be taken when working within this area. See operational map for location.

Telstra Cable/ Telecommunication Tower

A underground telstra cable exists within compartments 17 and 18 Care should be taken when working within the vicinity of the cable. See operational map for location. A Telstra Tower exists within compartment 18. Logging within 20m of tower is excluded. See operational map for location

Research / Inventory Plots

Four permanent growth plots are within compartments 18 and 20 (Plot numbers PPT604, PPT652, PPT655, PPT601). A pre harvest measurement has been carried out in advance of harvesting.

All trees within the PGP plot that are identified to be harvested must have the ID tags removed and returned to the Resources department of the Wauchope office.

A search of the regional Research, PGP and Plus Tree GIS databases has found no other Research or Inventory Plots in these compartments. If any elite trees or research plots are identified during markup the SFO must get approval from the planner or resources officer before harvesting commences in those areas.

Management of Filter Strips on Unmapped Drainage Lines

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 as best management practice only, except for schedule 4 condition 6 relating to filter strips on unmapped drainage lines. Any breach of these conditions is not a breach of the Licence, but is a breach of the conditions of this Harvest Plan. The Best Management Practices detailed in **Appendix 3** of this Plan are to be applied to unmapped drainage lines.

Occupational Permits - Beekeeping

Occupation permits (Beekeeping) exist across all compartments. Permit holders have been notified. Any active bee hive sites MUST remain undisturbed during the course of logging.

Harvesting Debris Management

Logging debris must be removed within 5 meters of the base of retained seed trees and hollow bearing trees to avoid damage in burning operations.

Harvesting operating times

When working northern sections of compartments 19 and 20 along Lantana crossing road, Machinery (including chainsaws) operating hours must be limited to between 7am and 8pm Monday to Saturday, and 8am to 8pm Sundays and public holidays. The SFO will monitor noise and dust resulting from the operation and take the appropriate action to minimize the effect on surrounding property owners.

Forest Closure

When harvesting operations commence within these compartments a mandatory closure of the forest will take place over these compartments. Notification of closure will be published in the local papers.

SFO Notes

A revised SFO notes page has been incorporated into this plan. This page should be used in recording operations under unmapped drainage line prescriptions

Silviculture and harvesting prescriptions

Compartment History

Compartment records indicate an integrated harvesting operation occurring in these compartments in 1994 – 1995.

Recent fires have occurred in the compartments in 2002 and 1991 respectively.

Silvicultural Planning

Stands vary from dry hardwoods Grey Gum, Grey Ironbark, Spotted Gum, White Mahogany, Blood wood, on the ridges to moist hardwoods Flooded Gum Tallowwood, Sydney Blue Gum, in the gullies. The stands are typical of the Kiwarrak forests which have had a long history of harvesting, thus resulting in an uneven aged stand with a mixture of mature, regrowth and advanced growth stems.

While this is the final harvest within the Wood Supply Agreement (WSA) period, the mixed hardwood forest types and presence of advanced growth will enable a suitable stocking of trees to be retained. Where there are no suitable growers / advanced growth present, mechanical disturbance and retaining seed trees for regeneration will be necessary.

Number of harvesting operations remaining in the WSA period (excluding this event)	0
Next anticipated harvesting operation	2028
Enrichment Planting	No

Stand type	% of net area	Example	Treatment (%STS,AGS,THIN)
Mature with Regrowth - mixed hardwood	100%	Throughout all compartments	<p>Single Tree Selection to remove mature & over mature trees and defective stems.</p> <p>Retaining regrowth trees especially Iron Bark, Spotted Gum that won't make full length pole, regrowth and advanced regrowth stems.</p> <p>Where a number of stand end point trees occur together, the group may be removed. Ensure enough disturbance and presence of a suitable seed tree (large healthy crown) for adequate regeneration</p>

Max. number of AGS openings	Nil
Thinning BA limit (60%)	N/A
STS BA limit (40%)	Likely not to be reached due to proportion of stems to be retained and harvesting to occur to the above prescriptions. Also offset areas.

Forest Management Zoning

Zone	Management
FMZ 3A (Harvest Exclusion Zone)	Which is mainly High Conservation Old Growth Harvesting is excluded from these areas
FMZ 3B (Visual)	Which is to be treated the same as FMZ 4- <i>not displayed on HPOM.</i>
FMZ 4 (General Harvesting Prescription)	Which is available for harvesting. Normal prescriptions apply.
FMZ 5 (Hardwood Plantation)	5ha Which is available for harvesting. Normal prescriptions apply. Not displayed on map
FMZ 8 (Further Investigation)	The FMZ 8 areas occur as modelled stream exclusion zones and can be harvested and managed under normal harvesting prescriptions and EPL prescriptions <i>not displayed on HPOM .</i>

Cultural heritage

An Aboriginal site survey was performed by Forests NSW Aboriginal Cultural Heritage officer in May 2013. Contact the SFO and ACHO if further sites are uncovered during harvesting operations.

Non-indigenous cultural heritage

There are no known Non-indigenous culture heritage sites recorded in these compartments. If in SFO mark up sites are found SFO must record area and contact harvest planner immediately.

Flora and Fauna – Refer to TSL Booklet for Conditions

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 Koala star search triggers identified during pre-logging surveys – During markup surveys star search triggers should be 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 – Brush-tailed Phascogale and Spotted-tailed Quoll records.

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	5.12	Dams and waterbodies	10m buffer on dams
1, Solid		Endangered Ecological Community	Mapped exclusion - Sub-tropical Coastal Floodplain, indicative layer provided. Indicative layer must be used as exclusion boundary unless field assessment is undertaken.
4, Limited	5.08	Ridge and Headwater Habitat	Mapped Exclusion
4, Limited	6.12	Brush-tailed Phascogale Exclusion	Mapped exclusion

Fisheries Licence Conditions

Fisheries Licence does not apply to this Harvesting Operation.

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

Site-specific EPL conditions

Element	Conditions
Unmapped Drainage Lines	Best Management Practices for Unmapped Drainage Lines apply
Drainage Feature Protection	See HPOM for widths
Inherent Hazard Class	IHL1 Cpt's 16 and 17 IHL 2 Cpt's 18,19 and 20
Dispersible Soils	No
Mass Movement	No
Seasonal Harvesting Exclusions	Nil
Seasonal Burning Exclusions	Nil
Log Dumps	Refer relevant conditions for IHL1: IHL:2: Conditions 26, 27, 28, 30, 31 and 33.
Roads	See schedule 5 of EPL Booklet

Snig and Extraction Tracks

Element	Schedule 4 EPL Conditions
Technique	Conditions 38-40 Schedule 4 EPL
Drainage	Conditions 70-80 Schedule 4 EPL
Crossings	Conditions 42-68 Schedule 4 EPL Condition 5.7 TSL
Downhill Snigging	Condition 82 Schedule 4 EPL
Wet Weather	Condition 81 Schedule 4 EPL
Grade	Max grade must not exceed 25° except for short sections under certain circumstances. Refer to Condition 41 Schedule 4 EPL
Rutting	Max allowed soil disturbance Snig/Extraction tracks = depth 20cm / Length 10m (Forest Practices Circular 2008/4)

- New snig tracks should not be constructed and existing snig tracks should not be widened where the batter will exceed 1m in height.
- All snigging should be directed away from drainage features with uphill snigging patterns used whenever practical.
- Works must not commence during or immediately after prolonged rainfall events. The harvesting area, associated with new side cut construction or reopening of existing side cut snig tracks must be allowed to dry prior to any earthworks commencing.

Legal Conditions

This operation must comply with:

- Standard Harvest Plan Condition 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.

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; neighbor issues resulting from logging or haulage.

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

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
1 st Order	5	5	10
2 nd Order	5	15	10
3 rd Order	5	25	10
4 th 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
1 st Order	10	0	10
2 nd Order	20	0	10
3 rd Order	30	0	10
4 th 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
		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: Maximum Distance of Water flow 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)	I/O 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		✓			✓			6.2	
	Giant Barred, Fleays, Stuttering Frog, Philoria spp, Giant Burrowing Frog								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, Threatened and protected flora		✓			✓			6.10	
		✓		✓			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	✓	✓	✓	✓	Sch6	6.9
	Large Forest Owl						6.13
	Hasting river Mouse						6.15
	Spotted tail Quoll						6.17
	Yellow Bellied Glider den						6.16
	Squirrel Glider						5.13
	Glossy Black Cockatoo nest/roost						
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)	
TSCCL condition 5.6.g.(ii) (flatten/remove logging debris and minimise disturbance to ground and understorey 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	∅
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
Phyloria 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

3.1 Tree 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).

