



Map Sheets:
 1:25000 Moonee Beach 9537
 1:100000 Coffs Harbour 9537
 Scale:

North East Region - Coffs Harbour MA
 Locality Map
 Compartments 576, 577 & 578
 Orara East State Forest



MAP FEATURES

-  Subject Area
-  Emergency Meeting Point (Safety Point)
-  Helicopter Landing Point
-  State Forest
-  1:25000 Map Sheet
-  1:100000 Map Sheet
-  National Park Estate



Prepared by... Flavio Bugno
 Date: 9/8/11

Harvest Plan Operational Map
North East Region - Coffs Harbour MA

Compartments 576, 577 & 578
Orara East State Forest

MAP FEATURES

- State Forest Boundary
- Compartments Boundary
- 1 Km Grid
- 10 / 100 m Contour
- State Forest
- National Park Estate
- Swd Plt (Z6) / Non Forest (Z7)
- House
- Gravel Pit
- Mine
- Powerline

ROADS

- Sealed
- All Weather, Unsealed
- Dry Weather, Unsealed
- - - 4WD Track

HARVESTING PRESCRIPTIONS

- General Management (FMZ 4)
- Areas for Further Assessment (FMZ 8)
- Hardwood Plantations (FMZ 5)
- Non-forestry Use (FMZ 7)
- Offset (no BA removal)
- Noncommercial
- NP Protection (use trail as boundary)

- Harvesting Protection (FMZ 3A)
- High Conservation Value Old Growth
- Rainforest - Crafti + RN17
- Ridge & Headwater Habitat (40m wide exclusion)
- Owl Landscape Protection

FOREST MANAGEMENT PROTECTION

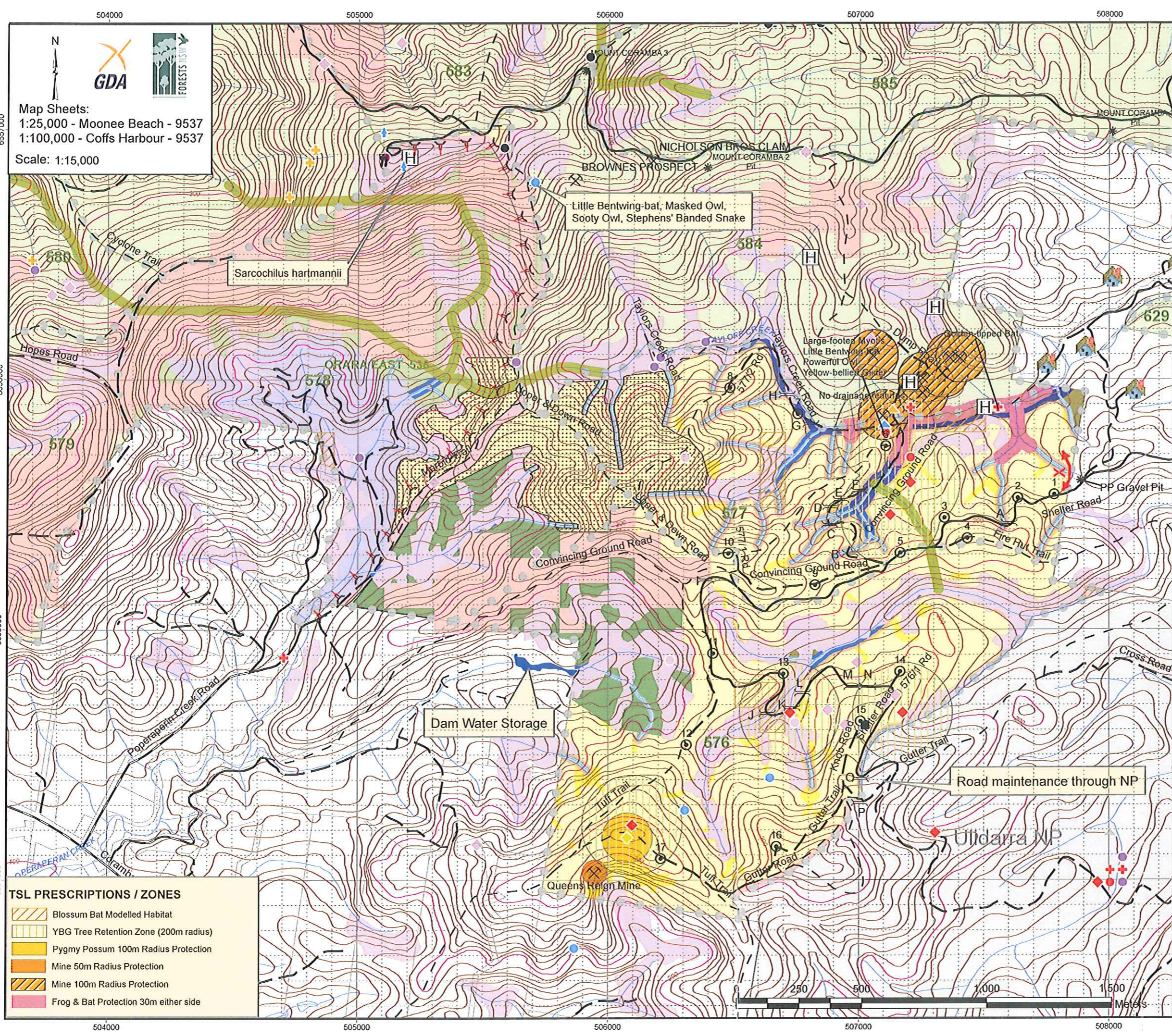
- Filter 5m either side
- Protection 5m either side
- Protection 15m either side
- Protection 25m either side
- Protection 45m either side
- Operational zone 10m either side
- Slopes > 30 degrees
- Aboriginal Sites
- Non Aboriginal Heritage
- Approved IFOA exclusion crossing

HARVESTING PROTECTION (TSCL, EPL & FL)

- Riparian (IHC 1 & 2)
- Filter 5m either side
- Protection 5m either side
- Protection 15m either side
- Protection 25m either side
- Protection 45m either side
- Operational zone 10m either side
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THREATENED SPECIES LOCATIONS

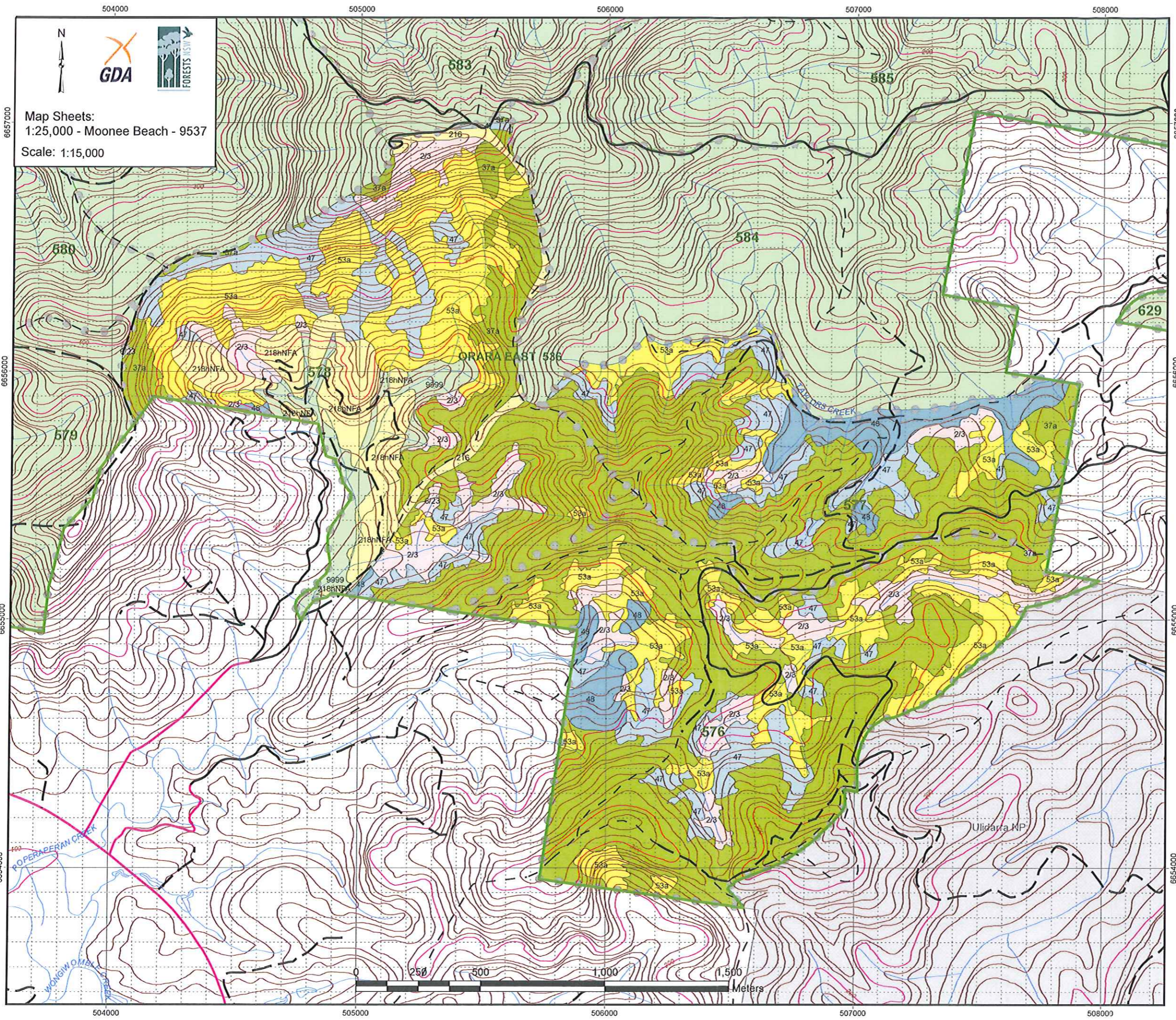
- Rose-crowned Fruit-Dove
- Grey-headed Flying-fox
- Rose-crowned Fruit-Dove
- Wompoo Fruit-Dove
- Powerful Owl
- Masked Owl
- Sooty Owl
- Glossy Black-Cockatoo
- Glossy Black-Cockatoo feed tree
- Yellow-bellied Glider
- Eastern Pygmy-possum
- Koala
- Little Bent-wing Bat
- Large-footed Myotis (Bat)
- Golden-tipped Bat
- Pale-headed Snake
- Giant Barred Frog
- Sphagnum Frog
- Sarcochilus hartmannii



Map Sheets:
1:25,000 - Moonee Beach - 9537
1:100,000 - Coffs Harbour - 9537
Scale: 1:15,000

TSL PRESCRIPTIONS / ZONES

- Blossum Bat Modelled Habitat
- YBG Tree Retention Zone (200m radius)
- Pygmy Possum 100m Radius Protection
- Mine 50m Radius Protection
- Mine 100m Radius Protection
- Frog & Bat Protection 30m either side



North East Region - Coffs Harbour MA
Compartments 576, 577 & 578
 Orara East State Forest
 Forest Type Map

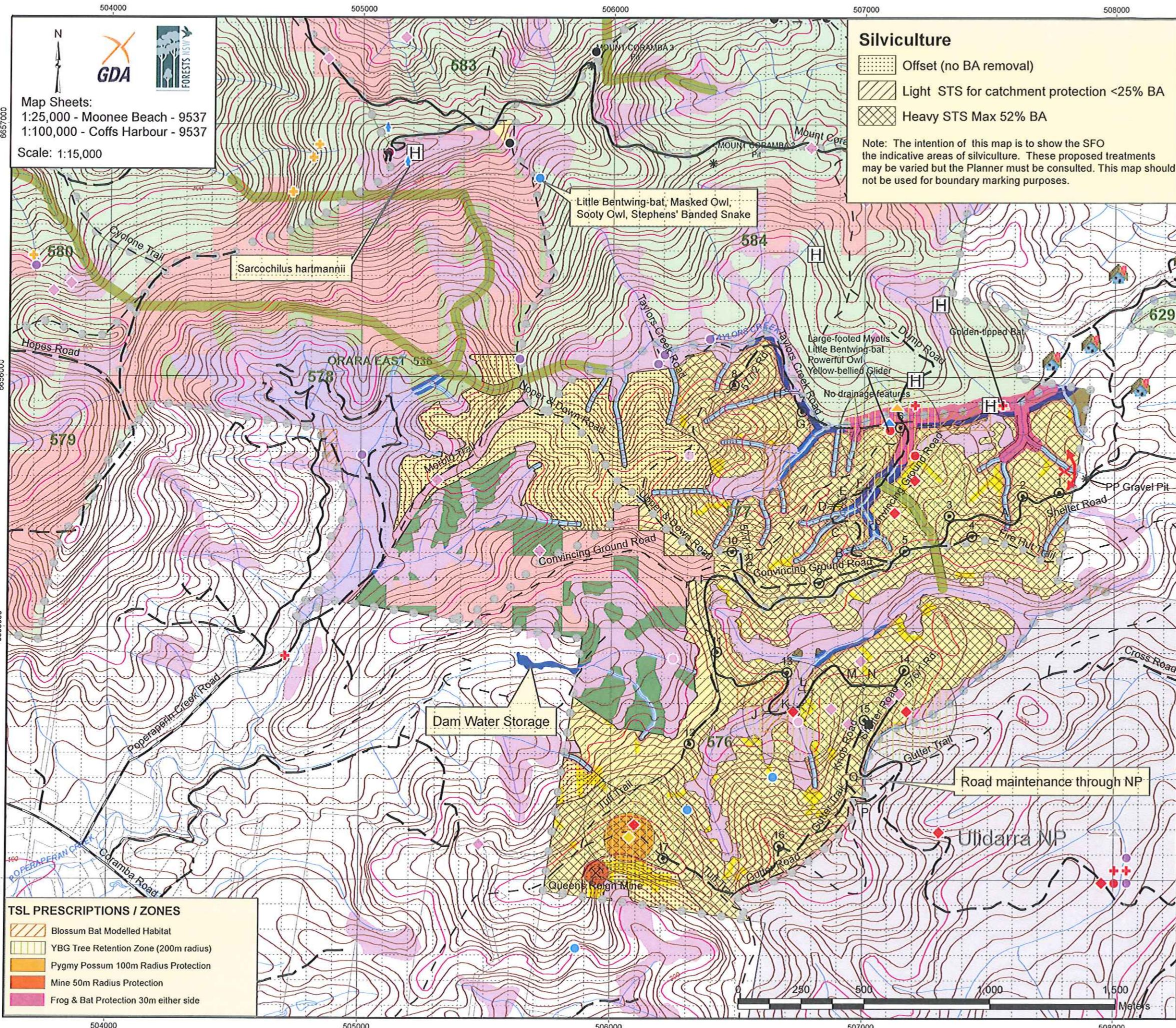
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- Forest Types**
- Type 2 Yellow Carabeen
 - Type 6 Fig - Giant Stinger
 - Type 37 Dry Blackbutt
 - Type 47 Tallowwood - Sydney Blue Gum
 - Type 48 Flooded Gum
 - Type 53 Brush Box
 - Type 216 Improved Pasture and Cropland
 - Type 218 Forestry Plantations

Map Sheets:
 1:25,000 - Moonee Beach - 9537
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Indicative Silviculture Map
 North East Region - Coffs Harbour MA
Compartments 576, 577 & 578
 Orara East State Forest



Silviculture

- Offset (no BA removal)
- Light STS for catchment protection <25% BA
- Heavy STS Max 52% BA

Note: The intention of this map is to show the SFO the indicative areas of silviculture. These proposed treatments may be varied but the Planner must be consulted. This map should not be used for boundary marking purposes.

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FORESTS NEW SOUTH WALES - NORTH EAST REGION

HARVESTING PLAN No. 3783

Orara East State Forest - Compartments 576, 577 & 578

1. Certification

This plan has been prepared in accordance with the Integrated Forestry Operations Approval issued under the Forestry and National Park Estate Act 1998 and addresses significant aspects and impacts in the planning process. The **Standard Harvest Plan Conditions for Native Forest Operations in North East Region** apply to this operation.


Prepared by:

Harvest Planner		Date: 14/5/12
Flavio Bugno		


Endorsed by:

Harvest Planning Team Leader		Date: 22/5/2012
Steve Pickering		

Endorsed by:

Regional Planning Manager		Date: 4/6/12.
Dean Kearney		

Approved by:

Regional Manager		Date: 5/6/12
Craig Busby		

Note: Approval includes the Harvest Plan Operational Map (HPOM) version 1.

2. Description of Proposal

Selective harvesting of regrowth native forest stands, using Single Tree Selection.

Other

	Proposed	Details
Roadworks	Yes	Roadworks Plan (attached)
Post harvest Burning	No	NA
Rehabilitation	No	NA

3. Area Identification and Yield Estimates

Region	North East Region
Management Area	Coffs Harbour
State Forest	Orara East
State Forest No.	536
Pricing area	Coffs Coastal
Other Tenure Details (if applicable) For Lease & other non State Forest tenure (Lot/DP)	NA

	Cpt 576	Cpt 577	Cpt 578	Total
Gross Area (ha)	206.8	132.7	214.3	553.8
Net Harvest Area (ha)	128.3	101.0	26.1	255.4
Net Harvest Area (ha) after offsets	124.0	83.2	0	211.9
Estimated Yield (m3/ha)	25.9	45.2	0	33.5
Volume (m3) All Product	3312	3761	0	6973

Products	Total (m3)
High Quality Large	3692
High Quality Small	912
Veneer	274
Poles & Girders	393
Low Quality	1700
Total	6973

4. Forest Description

Forest Type: (See Forest type map)

- Dry Blackbutt type 37 dominates the operational area.
- The lower slopes and gullies of the compartments are dominated by moist coastal forest and rainforest.

Harvest History:

- These cpts have been harvested since at least the 1920's as evidenced by 'high board' stumps. The north western section of the compartments was heavily logged in the 1970's with the remaining area of older harvest events in 1940's and 1950's. Cpt 577 was TSI'd in 1967/68 and Cpt 578 in 1970/71.

HARVEST PLAN No. 3783 – Orara East SF, Compartments 576, 577 & 578

- Last harvests for Cpt 576 in 2004, for Cpt 577 in 1998 and for Cpt 578 in 1985 were carried out under an AGS and STS operation. The plantation section of Cpt 578 was harvested in 1997.

Stand Description: Two stand types exist:

- North western corner (see silviculture Map) consisting of advanced sapling 20-30cm dbhob regrowth from 1970's harvest event with residual mature seed trees which make up to 20% of the stand.
- Remaining areas consist of Pole/Mature 30-80cm dbhob with scattering (less than 20% component) of sapling: 0-10cm dbhob regrowth from more recent harvest.

Site Quality

- Generally excellent site quality with site height 30-40m.

Stand health

- Very Good – few old defective trees and stags due to previous TSI operations.

5. Silviculture and Harvesting Prescriptions

Notwithstanding the prescriptions detailed below, all conditions of the IFOA, including General and Species Specific conditions of the Threatened Species Licence and the Environment Protection Licence are to be applied, where they are described in this plan or in the respective licences.

Objectives:

- Maximise the recovery of merchantable timber from the mature age/size cohort within the constraints of the harvest plan
- Create suitable conditions for a regeneration event.

	Stand Description		
	Even-aged BBT regrowth (& residual mature trees) #	Mixed age Blackbutt and Mixed aged Mixed Species	Water supply catchment: Mixed age Blackbutt and Mixed aged Mixed Species *
Treatment – current ops	Offset area	Heavy STS	Light STS
Est. % of NHA	20%	74%	6%
Expected BA Removal (%)	0%	Up to 52%	25%
Future Ops	STS 7-10 years	Thin 25-30 years	STS 25-30 years
Other treatments		<ul style="list-style-type: none"> • Retain seed trees • Mechanical disturbance • Enrichment seeding/planting 	

This section is not easily accessible as Morbid Trail is too steep for haulage. Harvest in 7-10 years to allow advanced saplings to grow into merchantable size. This area should be timed for harvest in conjunction with offset areas in adjacent Cpt 584 and Cpt 578 plantation.

* Light STS to reduce intensity on water catchment of irrigation dam shown on Operational Map. Indicative area for this treatment shown on Silviculture Map.

Single Tree Selection prescription:

- Tree removal and ground disturbance must also maximise regeneration opportunities.
- Single Tree Selection must remove no more than 40% of the basal area across the net harvest area. Trees with dbhob <20cm must not be selected for harvesting under STS (1.5.10 IFOA).
- In areas designated for STS it is expected that the basal area removal across the tract will fall below 40 %. BA removal will exceed 40% in some localized areas, but will be balanced by offset areas, non harvest areas and tree retention across the tract.

In areas where heavy STS is implemented, seed tree retention, mechanical disturbance and enrichment planting may be required.

Seed Tree Selection: Seed trees should be

- as tall as possible (~30-40m),
- have good form,
- be in the size range 40-70cm dbhob and
- generally be spaced at 1 1/2 x tree height but not more than 2 x tree height. (trunk to trunk).
- Trees in retention areas may also serve as seed trees.
- Seed trees may also fulfill tree retention requirements of the TSL.

Mechanical Disturbance

- Ensure ground disturbance is sufficient to create suitable seedbed for regeneration
- SFO to map areas requiring additional disturbance
- Encourage knocking over of as much non-vigorous unmerchantable material as possible.

Enrichment Planting/Seeding

- Seed is to be collected during the harvest operation and dispersed over suitably disturbed and/or burnt areas, preferably during the wet season (January/February).
- Enrichment planting to be conducted as determined by the Harvesting Forester.

The silviculture map shows the indicative areas for silvicultural treatment as outlined above.

Major variations from this intent require the approval of the Harvesting Team Leader

The SFO must monitor basal area retention under STS. The area of each type of silvicultural treatment must be mapped and recorded in the Post-logging Information section of this plan.

6. Special Conditions

6.1 EPL Licensing

NOTE: This operation is licensed.
A commencement of Operations form is to be forwarded to the Office of Environment and Heritage within 14 days of commencement of operations authorised under this plan. The Harvesting Manager is responsible to send a Commencement of operations form.

A cessation of Operations form is to be forwarded to the Office of Environment and Heritage within 14 days of cessation of operations authorised under this plan.

The Supervising Forest Officer must notify the Harvesting Manager when operations have commenced and ceased.

6.2 Seasonal Harvesting and Burning Restrictions

Yes

For slopes greater than or equal to 25 degrees, logging is excluded from 1 December till 30 March.

Condition 37 of Schedule 4 of the EPL applies. EPL seasonal restrictions apply to the burning. During the months of February to March burning may be carried out by top disposal only

6.3 Leases, Permits, Plots

	Occurs	Details	Conditions
Crown Leases	No		
Occupation Permits (grazing)	No		
Occupation Permits (apiary)	No		
Occupation Permits (other)	Yes	2774 Essential Energy (formerly Country Energy) Powerline easement	See below.
PGP's	No		
Research Plots/Plus Trees	No		
Special Purpose Permits	No		

6.4 Noise

Where there are residences (see map) in close proximity to an operation that are likely to be affected by noise, mitigation measures to lessen the impact on those residents will apply. These measures are to be determined on a site specific basis by the SFO and should be discussed with the Harvesting Forester.

6.5 Critical Boundaries

Private Property: adjoins compartment 576 to the south and west, and Cpts 576 & 577 to the east. The eastern Boundaries are fenced. Some sections of the south and west boundaries have remains of old fences on them. Boundary blazes can be readily seen along most lengths except for the southern boundary. The southern and western boundaries must be marked prior to harvesting.

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National Park: Ulidarra NP adjoins compartment 576 to the south east. This boundary is formed by unnamed drainage line, 20m off set from the center line from the old alignment of Gutter Trail and then in a south east direction along a cadastral boundary.

- If there is any doubt about the location of a critical NP/PP boundary, clarification must be sought from the harvest planning unit to determine the requirements for boundary mark-up.
- No harvesting is to take place within the 20m offset from the old alignment of Gutter Trail.
- Harvesting must not impact on private property or National Park or any functional fence line.
- Any damage to a fence must be immediately repaired by the contractor.

6.6 Underground Cables

- There is a Telstra cable that runs adjacent to Morbid Trail.
- Site plans for the cable are held on the Harvest Plan Folder.
- Dial before you dig procedure must be followed prior any excavation or road maintenance works in this area to determine cable locations.

6.7 Transmission Lines

- A transmission line traverses the compartments along Morbid Trail, as shown on the operational map.
- The transmission line is a 33Kv line, operated by Essential Energy.
- Dumps are not to be located under powerlines. Harvesting must not impact upon the transmission line easement and directional falling must be used when falling within two tree lengths of the power lines. No obstructions shall be placed or excavations undertaken within 15m of a transmission line structure.
- A risk assessment must be undertaken prior to tree falling within 2 tree lengths of powerlines.
- Appropriate safety procedures must be in place before any work is undertaken in proximity to this power line (See Safety Standard 1.3.12 *Working Near Power lines* attached).

6.8 Haulage Considerations

- Haulage is planned to access the Central Bucca Road via Shelter Road.
- Additional signage should be used on Central Bucca Road to notify traffic of turning trucks.

6.9 IFOA Required Approval Of Forestry Activities

Approvals have been obtained for the following activities / locations as shown on the operational map.

Crossing No.	Activity	Type	Conditions
1	Snigging	Riparian Protection Zone	Using existing causeway crossing on old logging Road. On completion of operations the crossing is to be back bladed and seeded following completion of track operation. Standard EPL conditions for track drainage either side of crossing.

- NOTE: Any additional crossings of Rainforest, HCVOG and Riparian Protection Zones require prior Regional Manager (or NPWS) approval before can be undertaken.
- It is the responsibility of the SFO to identify any additional areas that need to be crossed, the location of any such crossings without approval and to contact the Planning Unit to obtain the necessary approval.

6.10 Unmapped Rainforest

Unmapped rainforest is to be identified and marked for retention in accordance with Forest Practices Circular 2005/02

6.11 Neighbor road access along Tuff Trail

The neighbors to the south and west of Cpt 576 use Tuff Trail as access to their property. The Harvesting Forester must consult with the private property owners over shared road use conditions during harvesting and haulage operations (see contact list).

6.12 Gates across Shelter Road

A right of carriageway exists for the section of Shelter Road within private property. There are two gates across Shelter Road on Private property boundaries to the north east of the compartments. These gates must be kept locked at the end of each day unless the private property owner agrees to alternative arrangements.

6.13 Private property dam

There is a private property dam used for irrigation purposes located to the west of Cpt 576 (shown on Operational Map). Mitigation measures must be considered to lessen the impact of harvesting operations within the catchment of the dam. Measures could include reduced intensity of harvesting within the catchment (see Indicative Silviculture Map), grass seeding and jutmesh fences for snag crossings, and minimize disturbance to riparian operational zones. These measures are to be determined on a site specific basis by the SFO and should be discussed with the Harvesting Forester.

7. Forest Management Zoning Conditions

The following Forest Management Zones and conditions apply:

FMZ	Type	Notes
Zone 3A	Harvesting Protection	High Conservation Old Growth Forest (HCVOG), Rainforest, and flora protection. Protects sections of steep topography & non-commercial hardwood types and pockets of forest isolated due to other protection zones. These areas must be protected as marked on the map.
Zone 4	General Management	Available for harvesting in accordance with the conditions of this harvest plan.
Zone 5	Hardwood Plantation	Not available for harvesting under this harvest plan
Zone 7	Non forest Use	A transmission line Easement runs along Morbid Trail. Harvesting not permitted within the easement. Harvesting must not impact upon the transmission line.
Zone 8	Further Assessment	<p>These areas are to be rezoned FMZ 4 with management by prescription (Standard Harvest Plan Conditions for Native Forest Operations in North East Region apply)</p> <p>These areas include:</p> <ul style="list-style-type: none"> • Modelled IHC 4 areas – assess actual slope in the field and exclude areas >30 degrees in accordance with condition 3 of schedule 4 of the EPL. • Mapped drainage features – identify in the field and apply EPL and TSL conditions based on actual field location, • modelled drainage features - modelled streams are to be inspected by the SFO. Appropriate prescriptions (Schedule 4 of the EPL) are to be applied if required and noted on the harvesting operational map.

8. Cultural Heritage Conditions

Aboriginal Cultural Heritage

No special conditions apply.

Non Aboriginal Cultural Heritage

One site contained within riparian protection zone. No further measures required.

9. Flora and Fauna Conditions

10. Refer to Technical Guidance Note 2005-3A March 2005 for conditions (TSL Booklet)

Mark-up Conditions

The SFO must search for threatened species and mark-up the block as per Conditions 5.1 (General), and 5.2 (Koala) of the TSL. The Tree Marking code is shown in the Standard Harvest Plan Conditions for Native Forest Operations in North East Region.

Tree retention Conditions applying:

Prescription	TSL Condition
Hollow bearing and recruit trees	(Regrowth Zone) 5.6c,d (Note Koala / EPPP below)
Greater Glider density > 1 per ha?	No – 6.9 d does not apply
Stag Retention	5.6e
Significant Food Resources	5.6f,
Protection of Retained Trees	5.6g

Note: 6.14 and Eastern Pygmy Possum Prescription (EPPP) Apply in compartments
Ten primary koala browse trees to be retained per 2 hectares where available,
10 hollow bearing trees to be retained per 2 hectares. Where not available select largest 10 trees/2ha

Species Known or Likely to Occur

- Recent and reliable records exist within, or within close proximity of the compartments for the following threatened species. These species require species-specific or site-specific prescriptions if further records or habitat features are identified during mark-up.

SPECIES GROUP	COMMON NAME	SCIENTIFIC NAME
Amphibians	Giant Barred Frog	<i>Mixophyes iteratus</i>
	Sphagnum Frog	<i>Philoria sphagnicola</i>
Reptiles	Pale-headed Snake	<i>Hoplocephalus bitorquatus</i>
Mammals	Golden-tipped Bat	<i>Kerivoula papuensis</i>
	Large Footed Myotis	<i>Myotis adversus</i>
	Koala	<i>Phascolarctos cinereus</i>
	Spotted-tailed Quoll	<i>Dasyurus maculatus</i>
	Eastern Pygmy Possum	<i>Cercartetus nanus</i>
	Yellow-bellied Glider	<i>Petaurus australis</i>
Birds	Masked Owl	<i>Tyto novaehollandiae</i>
	Powerful Owl	<i>Ninox strenua</i>
	Sooty Owl	<i>Tyto tenebricosa</i>
	Glossy-black Cockatoo	<i>Calyptorhynchus lathami</i>
Flora	Rusty Plum	<i>Amorphospermum whitei</i>
	Stinking Lily	<i>Typhonium sp. aff. Brownii</i>
	Hartman's Sarcoc hilus	<i>Sarcoc hilus hartmannii</i>

Site-Specific Conditions, Exclusion Zones & Modified Harvest Areas

Table 1: General Prescriptions

TSL Condition	TSL Condition No.	Record Details	Prescription Summary
Koala Mark-up Searches	5.2.2	7 KOAL records cpts C_576, 578	These compartments contain preferred forest types, marking-up must be conducted at least 300m in advance of harvesting operations. In the event that a koala or scats (as noted in 5.2.2(i)) are found, a koala star search will be conducted to determine koala use area/s.
Tree Retention	5.6 (f),(g) 5.6 (c), i	1 GLBC feed trees recorded in cpt C_576 1 EAPP record in cpts	Retain and protect glossy black cockatoo feed trees. In regrowth zone a minimum of ten hollow-bearing trees must be retained per two hectares of net logging area. Where this density is not available, the existing hollow-bearing trees must be retained plus additional trees must be retained to meet the requirement of ten per two hectares. The additional trees retained must be those with the largest dbhob.
Subterranean Roost Protection	5.14.2	Queens Reign Mine site in cpt C_576 Not significant but evidence of bats recorded – 50M exclusion	50m exclusion zone if bats found.
Significant Subterranean Roost Protection	5.14.3	7 significant subterranean roosts in cpt C_584 within 100m of compt– continue search	100m radius exclusion zone must be implemented around the entrances of all significant subterranean roost sites. 100m radius exclusion zone on all caves, rock overhangs, tunnels and disused mineshafts (>3m deep) until inspected to determine status of roost.
Burning	5.16	1 EAPP record in cpt C_576 Threatened species have been recorded in these cpts.	Post Harvest burning must not be conducted with the exclusion zone. Any burning in the compartments net harvest area must reflect the ecological requirements of the eastern pygmy possum and their habitat The habitat requirement of threatened species must be taken into account when instigating hazard reduction burns to promote and maintain an understorey mosaic, significant areas of dense understorey vegetation and to minimise impact on large fallen logs.
Ground Habitat Protection	5.17 (a) 5.17 (b) 5.17 (d)	1 GLBC feed tree in cpt C_576 CWRV + small mammals reptiles Larger CWRV	To the greatest extent practical, protect ground habitat from SFA. Ground habitat includes understorey vegetation, ground cover vegetation, leaf litter and fallen timber. Commercial Firewood collection is not permitted Firewood licences state that timber with hollows and/or over 40 cm diameter must not be collected or damaged.

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Table 2: Species Specific Prescriptions (record and survey based)

TSL Condition	TSL Condition No.	Record Details	Prescription Summary
Giant barred Frog (<i>Mixophyes iteratus</i>)	6.3	3 MIX ITE records in and within 200m of cpt boundaries	Exclusion zone of 30m on both sides of all streams within 200m of record as mapped.
Powerful Owl (<i>Ninox strenua</i>) Masked Owl (<i>Tyto novaehollandiae</i>) Barking Owl (<i>Ninox connivens</i>)	6.9	6 POWL records in and within 2km of cpt boundaries 14 MOWL records in and within 2km of cpt boundaries 3 BOWL records within 2km of cpt boundaries	Landscape approach as specified in 6.9.2 will be used. Condition 5.13 may be applicable to protect any roosts or nests found. Search gully lines and heads of gullies for roost and nest sites.
Eastern Pygmy-possum (<i>Cercartetus nanus</i>)	1.2 5.17(a) 5.17 (b)	1 EAPP record in cpt C_576	An exclusion zone of 100m radius must be implemented around individual records of the Eastern Pygmy Possum. Specified forestry activities are prohibited within this exclusion zone. If a tree fall into the exclusion zone, no part of that tree is to be removed. Harvesting machinery is prohibited from operating with the exclusion zone. Post Harvest burning must not be conducted with the exclusion zone. Any burning in the compartments net harvest area must reflect the ecological requirements of the eastern pygmy possum and their habitat. Damage to heath, <i>Banksia spp.</i> , <i>Xanthorrhoea spp.</i> and <i>Leptospermum spp.</i> , must be avoided to the greatest extent practicable. To the greatest extent practical, protect ground habitat from SFA. Ground habitat includes understorey vegetation, ground cover vegetation, leaf litter and fallen timber. Particular attention must also be paid to the protection of Xanthorrhoea species and heath species. Commercial firewood collection must not be permitted.
Koala (<i>Phascolarctos cinereus</i>)	6.14	7 KOAL records cpts C_576, 578	Evidence of koalas was found in the compartment, but pre-logging surveys did not detect high use areas. Compartment mark-up 5.2.2 must be completed. Compartment C_576 is an intermediate use area. Ten primary browse trees must be retained per two hectares where available. These trees must be marked for retention. No AGS permitted in preferred forest types. It is recommended that cpts C_577 and 578 are also designated Koala intermediate use area. It is also recommended that AGS and regeneration harvesting are not permitted in the entire NLA of this harvest

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TSL Condition	TSL Condition No.	Record Details	Prescription Summary
			plan.
Yellow-bellied Glider (<i>Petaurus australis</i>)	6.17	6 YEGB call detection records in cpt C_576, 577	Exclusion of 50m on dens. Retention of all sap feed trees. Within 100m of dens, sap feed trees and observation records, 15 mature / late mature feed trees must be retained. Within 200m of call detection site, 15 feed trees must be retained. Retained trees must be of same species as tree with den, feed marks or observation or should be species that shed their bark in long strips.
Common Blossom Bat (<i>Syconycteris australis</i>)	6.19	8.4ha of modelled Blossom bat habitat is mapped in cpts C_576, 577, 578	Within modelled habitat 75% of mature <i>Banksia integrifolia</i> , <i>Melaleuca quinquenervia</i> , <i>Grevillea robusta</i> and <i>Callistemon viminalis</i> within NLA should be protected from damage.
Golden-tipped Bat (<i>Kerivoula papuensis</i>)	6.20	2 GOTB records in and within 200m of cpt C_577	Exclusion zones of 30m on all 1 st and 2 nd order streams within 200m of all records as mapped.
Large-footed Myotis (<i>Myotis macropus</i>)	6.21	1 LFMB record in cpt C_577	Exclusion zones of 30m on all dams and permanent water bodies of still water. Exclusion zones of 30m of all permanent streams within 100m of all records as mapped.
<i>Sarcochilus hartmannii</i>	6.22	1 SARC FITZ record in cpt C_578	50m Exclusion Zone, all individuals
<i>Niemeyera whitei</i>	6.27	67 NIEM WHIT records in and within 50m of cpt boundaries	Harvesting is permitted in populated areas. This species is managed under a threatened flora monitoring program. No burning in areas with records.

Table 3: Other Ecological Considerations

Issue, Feature or Record	Presence	Assessment and Management Recommendations
EEC: Lowland Rainforest in the NSW North Coast and Sydney bioregion.	Likely to be present - continue search within NLA.	Identify and mark in field to exclude specified forestry activities. Contact FNSW ecology unit for guidance if required.

In addition to Forest Management Zone Exclusions, the following exclusion zones occur and are shown on the operational map. Boundary marking conditions for each exclusion zone are described on the HPOM and in the tree marking code.

Riparian Protection (TSL Condition 5.7)
Ridge and Headwater Habitat (TSL Condition 5.8)
Large Forest owl exclusions (TSL Condition 6.9)

Boundary marking conditions for each exclusion zone are described on the HPOM and in the tree marking code (see Standard Harvest Plan Conditions for Native Forest Harvesting in North East Region).

11. Fisheries Licence Conditions

Refer to Technical Guidance Note 2005- 02 March 2005 (Fisheries Licence Booklet)

Class 1 Aquatic Habitat (Eastern Freshwater Cod) has been identified as occurring within these compartments. Conditions of the Fisheries Licence apply.

Condition 7 of the Fisheries Licence applies. The boundary of any exclusion zone or buffer zone is to be marked in the field before a specified activity is commenced where the activity will come within 50m of that boundary.

Condition 7.9 of the Fisheries Licence apply to snig track crossings of mapped and unmapped drainage lines.

- Crossings must be approved and marked in the field prior to use
- Crossings may only be used where it is not reasonably practicable to use another route or site.

Conditions 8.3 and 8.4 of the Fisheries Licence apply to crossings.

A pre-logging aquatic habitat assessment of the site of each proposed crossing is required prior to use. Consultation with the harvest planner is required prior to construction and use.

12. Soils and Water Protection Conditions

Refer to Technical Guidance Note 2005- 1C (Environment Protection Licence Booklet) & Standard Harvest Plan Conditions for Native Forest Harvesting in North East Region

Site-specific EPL conditions –

Elements	Conditions
Unmapped Drainage Lines	EPL applies
Drainage Feature Protection	See HPOM for widths
Inherent Hazard Class	2
Dispersible Soils	NO
Mass Movement	NO
Log Dumps	Refer relevant conditions for IHL. Mark Riparian Protection boundaries prior to constructing dumps 6 & 7.
Snig Tracks	Refer relevant conditions for IHL
Roads	See schedule 5 of EPL Booklet
Non-Haulage Roads	May be used for extraction within ney harvest area EPL applies Remove debris on completion of operations

13. Legal Conditions

This operation must comply with:

- Standard Harvest Plan Condition for Native Forest Operations in North East 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 February 1999 and Forest Practices Code Part 4 Forest Roads and Fire Trails (February 1999).
- Integrated Forestry Operations Approval issued under part 4 of the Forestry and National Parks Estate Act 1998 (IFOA) including the associated licences:
 - Threatened Species Conservation Licence (TSL) issued under the Threatened Species Conservation Act (1995)
 - Licence issued under section 220ZW of the Fisheries Management Act 1994 (FL)
- Environment Protection Licence No. 4017 (UNE) issued under section 55 of the Protection of the Environment Operations Act 1997 (EPL)

14. Attachments

- Attachment 1: Locality map
- Attachment 2: Harvest Plan Operational Map
- Attachment 3: Indicative Silviculture Map
- Attachment 4: Forest Type Map
- Attachment 5: Site Safety Plan prescribes describes safety requirements and Medical Emergency Evacuation Plan for this harvesting operation.
- Attachment 6: Roding plan prescribes roading requirements for this harvesting operation.

15. Pre-Operational Briefing

I acknowledge that I have received a copy of the Harvesting Plan for Compartments 576, 577 & 578 in Orara East State Forest and that I have been briefed on the conditions of the Plan. I understand the supervision and operational control requirements as outlined in the plan.

Position	Name	Signature	Date

Induction Questionnaire

What type of silviculture will be applied and where?

How is the boundary with National Parks defined?

Is harvesting allowed within the 20m offset from the NP?

How is the private property defined?

What site specific measures will be applied to reduce the chance of water pollution to the private property irrigation dam?

Can you name the TSL exclusion zones in the Ops area and what will the boundary symbol be for each?

What are the prescriptions in relation to use and rehabilitation of IFOA snig crossing X?

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.

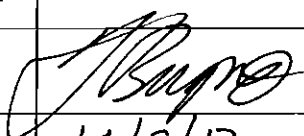
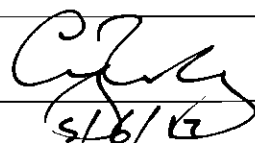
Date	Event	Initial

FORESTS NEW SOUTH WALES – NORTH EAST REGION

ROAD WORKS PLAN

Orara East State Forest; Compartments 576, 577 & 578

Certification

Prepared By: Harvest Planner	Flavio Bugno	Approved By: Regional Manager	Craig Busby
Signature		Signature	
Date	14/5/12	Date	5/6/12

1. Objectives

Roadworks are required to service native forest harvesting operations within the above compartments. These compartments are scheduled for harvest in October 2012.

The operational map shows the location of the proposed works.

Attachments: Financial Analysis Spreadsheet gives full details of costs, benefits, material & plant requirements

2. Specifications and Legal Conditions

This operation must comply with:

- Standard Harvest Plan Conditions for Native Forest Operations in North East 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 February 1999 and Forest Practices Code Part 4 Forest Roads and Fire Trails (February 1999).
- Integrated Forestry Operations Approval issued under part 4 of the Forestry and National Parks Estate Act 1998 (IFOA) as amended May 2003 including the associated licences:
- Threatened Species Conservation Licence (TSCL) issued under the Threatened Species Conservation Act (1995) as amended May 2003
- Licence issued under section 220ZW of the Fisheries Management Act 1994 (FL) as amended May 2003
- Environment Protection Licence No. 4017 (UNE) issued under section 55 of the Protection of the Environment Operations Act 1997 (EPL)
- Technical Guidance Notes for Roadworks.

3. Special Conditions

Feature	Conditions
Cultural Heritage	No
Threatened Species	See harvesting plan. Minimise disturbance within protection zones.
Dispersible Soils Hazard	No
Mass Movement Hazard	No
Seasonality	Yes – Forestry activities are not permitted For slopes greater than or equal to 25 degrees, from 1 December till 30 March
Engineering Design	No
Environmental impacts ie Dust, Noise, Water, Visual	Yes– There are residences located to the north of Shelter Road (see map) but should not be affected by noise/dust. Irrigation dam located west of Cpt 576 (shown on Operational Map). Mitigation measures must be considered to lessen the impact of roads & crossings within the catchment of the dam. The neighbours to the south & west of Cpt 576 use Tuff Trail as access to their property. The road works supervisor must consult with the private property owner over shared road use conditions during roadworks.
Haulage Standards	Yes, except for 4WD section of Convincing Ground Road.
National Park	Yes – The section of Shelter Rd and Gutter Trail between crossings R & S are contained within Ulidarra NP (see operational map). <ul style="list-style-type: none"> • Notify OEH prior to roadworks. Must hold on-site meeting with Contractor in presence of Coffs Coast Area Manager or representative to explain REF conditions (see attached REF and conditions in Schedule 1), • No trees >20cm dbhob to be removed within National Park, • Slope mowing permitted to a maximum width of 3m beyond edge of road formation, • Minimise disturbance as far as is practicable.
Private Property	No
Permit To Enter required	No
Quarries and Gravel Pits	Yes – borrow pit located off Shelter Rd near dump 3
Underground/Overhead Utilities	No – no works proposed along Morbid Trail
Safety Issues (includes hazards, public use of roads)	Yes – See Hazard Assessment in the Site Safety Pack. The draft Ulidarra NP Plan of Management identifies the intersection of gutter and shelter trail as being dangerous, particularly for turning vehicles. A risk assessment is to be

	undertaken during maintenance and use of the road. Measures taken can include road closure/traffic management/signage. OEH must be consulted prior to any road closures.
--	--

NOTE: This operation is licensed.

A commencement of Operations form is to be forwarded to the Office of Environment and Heritage within 14 days of commencement of operations authorised under this plan. The Harvesting Manager is responsible (A Commencement of operations form is attached.)

A cessation of Operations form is to be forwarded to the Office of Environment and Heritage within 14 days of cessation of operations authorised under this plan.

The Supervising Forest Officer must notify the Harvesting Manager when operations have commenced and ceased

4. General Conditions

Remove trees in accordance with FNSW Safety Standard 1.3.9; and

Remove vegetation within 3m of the road prism **only where required** to maintain safe sight distance and passage of trucks.

Note: Clearing is generally permitted within 3m of the road prism for all roads. Ground disturbance and tree debris may impact outside this 3m either side of the road prism as is required to effect clearing within 3m of the road prism. Conditions 5, 6 and 47 Schedule 5 of the EPL must apply.

5. Works Schedule

See ipaq worksheets attached.

Road Maintenance/Upgrade

Road Name 576/1 Road

Category Temporary

Location From Shelter Rd to dump 14

Length (m) 70

WORKS		YES	INSTRUCTIONS/SITE SPECIFIC CONDITIONS	
Site Info	Works >30 Slopes	<input type="checkbox"/>		
	Mass Movement	<input type="checkbox"/>		
	Dispersible	<input type="checkbox"/>		
Pavement	Upgrade	Widening	<input type="checkbox"/>	Location NA Formation Width (m) NA Curve Widening NA Upgrade Length (m) 0 Upgrade Spoil
		Grade Lowering	<input type="checkbox"/>	NA
		Realignment	<input type="checkbox"/>	NA
		Reopening	<input type="checkbox"/>	NA
Maintenance		Clear veg/debris	<input checked="" type="checkbox"/>	All road Maintenance Length (m) 70
		Repair surface	<input checked="" type="checkbox"/>	All road
		Crown/Crossfall	<input checked="" type="checkbox"/>	All road
		Gravel	<input type="checkbox"/>	NA Gravel Length (m) 0
Roadside/Batters	Remove trees >20 cm	<input type="checkbox"/>		
	Remove trees <20 cm	<input checked="" type="checkbox"/>	Clearing outside the road prism: No	
	Batter Repair/Upgrade	<input type="checkbox"/>	NA	
Drainage	Culverts	<input type="checkbox"/>	NA	Size: Sets:
	Mitres	<input type="checkbox"/>		
	ROD/Spoon	<input checked="" type="checkbox"/>	Sets: 2	
	Belts/Channels	<input type="checkbox"/>	Sets:	
	Drop Downs	<input type="checkbox"/>	Sets:	
	Silt Trapping	<input type="checkbox"/>		
Comments: Nil				

Start Date:

Finish Date:

Soil Stabilisation Date (must be within 5 days):

Date	Event	Initial

Road Name 577/1 Road

Category Temporary

Location From Convincing Ground Road to dump 10

Length (m) 100

WORKS		YES	INSTRUCTIONS/SITE-SPECIFIC CONDITIONS	
Site/no	Works >30 Slopes	<input type="checkbox"/>		
	Mass Movement	<input type="checkbox"/>		
	Dispersible	<input type="checkbox"/>		
	Upgrade	<input type="checkbox"/>	Location NA Formation Width (m) NA Curve Widening NA	Upgrade Length (m) 0 Upgrade Spoil
Pavement	Grade Lowering	<input type="checkbox"/>	NA	
	Realignment	<input type="checkbox"/>	NA	
	Reopening	<input type="checkbox"/>	NA	
	Maintenance	<input checked="" type="checkbox"/>	All road	Maintenance Length (m) 100
Roadside/Batters	Clear veg/debris	<input checked="" type="checkbox"/>	All road	Maintenance Length (m) 100
	Repair surface	<input type="checkbox"/>	NA	
	Crown/Crossfall	<input checked="" type="checkbox"/>	All road	
	Gravel	<input type="checkbox"/>	NA	Gravel Length (m) 0
Drainage	Remove trees >20 cm	<input type="checkbox"/>		
	Remove trees <20 cm	<input checked="" type="checkbox"/>	Clearing outside the road prism: No	
	Batter Repair/Upgrade	<input type="checkbox"/>	NA	
Drainage	Culverts	<input type="checkbox"/>	NA	Size: Sets:
	Mitres	<input type="checkbox"/>		
	ROD/Spoon	<input checked="" type="checkbox"/>	Sets: 1	
	Belts/Channels	<input type="checkbox"/>	Sets:	
	Drop Downs	<input type="checkbox"/>	Sets:	
	Silt Trapping	<input type="checkbox"/>		
Comments: Nil				

Start Date: Finish Date: Soil Stabilisation Date (must be within 5 days):

Date	Event	Initial

Road Name Convincing Ground Road (haulage)

Category Permanent

Location Haulage standard: 577/1 Rd to Taylors Ck Rd.

Length (m) 1610

		WORKS	YES	INSTRUCTIONS/SITE SPECIFIC CONDITIONS
Site Info	Works >30 Slopes		<input type="checkbox"/>	
	Mass Movement		<input type="checkbox"/>	
	Dispersible		<input type="checkbox"/>	
Pavement	Upgrade	Widening	<input type="checkbox"/>	Location NA Formation Width (m) NA Curve Widening NA Upgrade Length (m) 0 Upgrade Spoil
		Grade Lowering	<input type="checkbox"/>	NA
		Realignment	<input type="checkbox"/>	NA
		Reopening	<input type="checkbox"/>	NA
	Maintenance	Clear veg/debris	<input checked="" type="checkbox"/>	All road
Repair surface		<input checked="" type="checkbox"/>	All road	
Crown/Crossfall		<input checked="" type="checkbox"/>	All road	
Gravel		<input checked="" type="checkbox"/>	Wet spots	Gravel Length (m) 0
Roadside/Batters	Remove trees >20 cm		<input type="checkbox"/>	
	Remove trees <20 cm	<input checked="" type="checkbox"/>	Clearing outside the road prism: No	
	Batter Repair/Upgrade	<input checked="" type="checkbox"/>	Where required Disturbed cut batters layed back 1:3/4	
Drainage	Culverts	<input type="checkbox"/>	NA	Size: Sets:
	Mitres	<input checked="" type="checkbox"/>		
	ROD/Spoon	<input checked="" type="checkbox"/>	Sets: 10	
	Belts/Channels	<input checked="" type="checkbox"/>	Sets:	
	Drop Downs	<input type="checkbox"/>	Sets:	
	Silt Trapping	<input type="checkbox"/>		
Comments: Nil				

Start Date: Finish Date: Soil Stabilisation Date (must be within 5 days):

Date	Event	Initial

Road Name Fire Hut Trail

Category Temporary

Location Shelter Rd to dump 4

Length (m) 150

WORKS		YES	INSTRUCTIONS/SITE SPECIFIC CONDITIONS	
Site Info	Works >30 Slopes	<input type="checkbox"/>		
	Mass Movement	<input type="checkbox"/>		
	Dispersible	<input type="checkbox"/>		
	Upgrade	<input type="checkbox"/>	Location NA Formation Width (m) NA Curve Widening NA	Upgrade Length (m) 0 Upgrade Spoil
Pavement	Grade Lowering	<input type="checkbox"/>	NA	
	Realignment	<input type="checkbox"/>	NA	
	Reopening	<input type="checkbox"/>	NA	
	Maintenance	<input checked="" type="checkbox"/>	All road	Maintenance Length (m) 150
	Repair surface	<input type="checkbox"/>	NA	
	Crown/Crossfall	<input checked="" type="checkbox"/>	All road	
	Gravel	<input type="checkbox"/>	NA	Gravel Length (m) 0
Roadside Banks	Remove trees >20 cm	<input type="checkbox"/>		
	Remove trees <20 cm	<input checked="" type="checkbox"/>	Clearing outside the road prism: No	
	Batter Repair/Upgrade	<input type="checkbox"/>	NA	
Damage	Culverts	<input type="checkbox"/>	NA	Size: Sets:
	Mitres	<input checked="" type="checkbox"/>		
	ROD/Spoon	<input checked="" type="checkbox"/>	Sets: 2	
	Belts/Channels	<input type="checkbox"/>	Sets:	
	Drop Downs	<input type="checkbox"/>	Sets:	
	Silt Trapping	<input type="checkbox"/>		
	Comments: Nil			

Start Date:

Finish Date:

Soil Stabilisation Date (must be within 5 days):

Date	Event	Initial

Road Name Guller Trail

Category Permanent

Location Shelter Rd to Tuff Trail

Length (m) 1050

		WORKS	YES	INSTRUCTIONS/SITE SPECIFIC CONDITIONS	
Site Info	Works >30 Slopes	<input checked="" type="checkbox"/>			
	Mass Movement	<input type="checkbox"/>			
	Dispersible	<input type="checkbox"/>			
Pavement	Upgrade	Widening	<input type="checkbox"/>	Location NA Formation Width (m) NA Curve Widening NA Upgrade Length (m) 0 Upgrade Spoil	
		Grade Lowering	<input type="checkbox"/>	NA	
		Realignment	<input type="checkbox"/>	NA	
		Reopening	<input type="checkbox"/>	NA	
	Maintenance	Clear veg/debris	<input checked="" type="checkbox"/>	All road	Maintenance Length (m) 1050
		Repair surface	<input checked="" type="checkbox"/>	All road	
		Crown/Crossfall	<input checked="" type="checkbox"/>	All road	
Gravel		<input type="checkbox"/>	NA	Gravel Length (m) 0	
Roadside Barriers	Remove trees >20 cm	<input type="checkbox"/>			
	Remove trees <20 cm	<input checked="" type="checkbox"/>	Clearing outside the road prism: No		
	Batter Repair/Upgrade	<input type="checkbox"/>	NA		
Drainage	Culverts	<input type="checkbox"/>	NA	Size: Sets:	
	Mitres	<input checked="" type="checkbox"/>			
	ROD/Spoon	<input checked="" type="checkbox"/>	Sets:		
	Belts/Channels	<input checked="" type="checkbox"/>	Sets: 8		
	Drop Downs	<input type="checkbox"/>	Sets:		
	Slit Trapping	<input type="checkbox"/>			
Comments: Nil					

Start Date: Finish Date: Soil Stabilisation Date (must be within 5 days):

Date	Event	Initial

Road Name Knob Road

Category Temporary

Location Gutter Trail to dump 15

Length (m) 260

WORKS **YES** **INSTRUCTIONS/SITE-SPECIFIC CONDITIONS**

Site Info	Works >30 Slopes	<input type="checkbox"/>		
	Mass Movement	<input type="checkbox"/>		
	Dispersible	<input type="checkbox"/>		
	Widening	<input type="checkbox"/>	Location NA Formation Width (m) NA Curve Widening NA	Upgrade Length (m) 0 Upgrade Spoil
Upgrade	Grade Lowering	<input type="checkbox"/>	NA	
	Realignment	<input type="checkbox"/>	NA	
	Reopening	<input type="checkbox"/>	NA	
	Clear veg/debris	<input checked="" type="checkbox"/>	All road	Maintenance Length (m) 260
Maintenance	Repair surface	<input checked="" type="checkbox"/>	All road	
	Crown/Crossfall	<input checked="" type="checkbox"/>	All road	
	Gravel	<input type="checkbox"/>	NA	Gravel Length (m) 0
	Remove trees >20 cm	<input type="checkbox"/>		
Roadside Barriers	Remove trees <20 cm	<input checked="" type="checkbox"/>	Clearing outside the road prism: No	
	Batter Repair/Upgrade	<input type="checkbox"/>	NA	
	Culverts	<input type="checkbox"/>	NA	Size: Sets:
Drainage	Mitres	<input checked="" type="checkbox"/>		
	ROD/Spoon	<input type="checkbox"/>	Sets:	
	Belts/Channels	<input checked="" type="checkbox"/>	Sets:	
	Drop Downs	<input type="checkbox"/>	Sets:	
	Silt Trapping	<input type="checkbox"/>		
Comments: Nil				

Start Date:

Finish Date:

Soil Stabilisation Date (must be within 5 days):

Date	Event	Initial

Road Name Shelter Road

Category Permanent

Location From Central Bucca Rd to Gutter Trail

Length (m) 5190

		WORKS	YES	INSTRUCTIONS/SITE SPECIFIC CONDITIONS
Site Info		Works >30 Slopes	<input type="checkbox"/>	
		Mass Movement	<input type="checkbox"/>	
		Dispersible	<input type="checkbox"/>	
Pavement	Upgrade	Widening	<input type="checkbox"/>	Location NA Formation Width (m) NA Curve Widening NA Upgrade Length (m) 0 Upgrade Spoil
		Grade Lowering	<input type="checkbox"/>	NA
		Realignment	<input type="checkbox"/>	NA
		Reopening	<input type="checkbox"/>	NA
	Maintenance		Clear veg/debris	<input type="checkbox"/>
		Repair surface	<input checked="" type="checkbox"/>	Where required
		Crown/Crossfall	<input checked="" type="checkbox"/>	NA
		Gravel	<input type="checkbox"/>	NA Gravel Length (m) 0
Roadside/Batters		Remove trees >20 cm	<input type="checkbox"/>	
		Remove trees <20 cm	<input checked="" type="checkbox"/>	Clearing outside the road prism: No
		Batter Repair/Upgrade	<input type="checkbox"/>	NA
Drainage		Culverts	<input checked="" type="checkbox"/>	Clean Size: Sets:
		Mitres	<input checked="" type="checkbox"/>	
		ROD/Spoon	<input type="checkbox"/>	Sets:
		Belts/Channels	<input type="checkbox"/>	Sets:
		Drop Downs	<input type="checkbox"/>	Sets:
		Silt Trapping	<input type="checkbox"/>	
Comments: Slope mow				

Start Date: Finish Date: Soil Stabilisation Date (must be within 5 days):

Date	Event	Initial

Road Name Taylors Creek Road

Category Temporary

Location Convincing Ground to 577/2 Rd

Length (m) 700

WORKS **YES** **INSTRUCTIONS/SITE-SPECIFIC CONDITIONS**

Site no	Works >30 Slopes	<input type="checkbox"/>	
	Mass Movement	<input type="checkbox"/>	
	Dispersible	<input type="checkbox"/>	
Pavement	Upgrade		
	Widening	<input checked="" type="checkbox"/>	Location Where required for slumps Formation Width (m) 4.2m Curve Widening NA Upgrade Length (m) 0 Upgrade Spoil removed from site
	Grade Lowering	<input type="checkbox"/>	NA
	Realignment	<input type="checkbox"/>	NA
Maintenance	Reopening	<input type="checkbox"/>	NA
	Clear veg/debris	<input checked="" type="checkbox"/>	All road Maintenance Length (m) 700
	Repair surface	<input checked="" type="checkbox"/>	All road
	Crown/Crossfall	<input checked="" type="checkbox"/>	All road
Road Side/Batters	Gravel	<input checked="" type="checkbox"/>	wet spots Gravel Length (m) 0
	Remove trees >20 cm	<input type="checkbox"/>	
	Remove trees <20 cm	<input checked="" type="checkbox"/>	Clearing outside the road prism: No
Drainage	Batter Repair/Upgrade	<input checked="" type="checkbox"/>	Where required Disturbed cut batters layed back 1:3/4
	Culverts	<input type="checkbox"/>	NA Size: Sets:
	Mitres	<input checked="" type="checkbox"/>	
	ROD/Spoon	<input checked="" type="checkbox"/>	Sets: 4
	Belts/Channels	<input checked="" type="checkbox"/>	Sets: 2
	Drop Downs	<input type="checkbox"/>	Sets:
	Silt Trapping	<input type="checkbox"/>	
Comments: Remove debris off site			

Start Date: Finish Date: Soil Stabilisation Date (must be within 5 days):

Date	Event	Initial

Road Name Tuff Trail

Category Permanent

Location Sheller Rd to dump 12 & Gutter Trail to dump 17

Length (m) 610

		WORKS	YES	INSTRUCTIONS/SITE SPECIFIC CONDITIONS
Site Info	Works >30 Slopes	<input type="checkbox"/>		
	Mass Movement	<input type="checkbox"/>		
	Dispersible	<input type="checkbox"/>		
Pavement	Upgrade	Widening	<input type="checkbox"/>	Location NA Formation Width (m) NA Curve Widening NA Upgrade Length (m) 0 Upgrade Spoil
		Grade Lowering	<input type="checkbox"/>	NA
	Realignment	<input type="checkbox"/>	NA	
	Reopening	<input type="checkbox"/>	NA	
	Maintenance	Clear veg/debris	<input checked="" type="checkbox"/>	All road
Repair surface		<input checked="" type="checkbox"/>	All road	
Crown/Crossfall		<input checked="" type="checkbox"/>	All road	
Gravel		<input type="checkbox"/>	NA	Gravel Length (m) 0
Roadside/Batters	Remove trees >20 cm	<input type="checkbox"/>		
	Remove trees <20 cm	<input checked="" type="checkbox"/>	Clearing outside the road prism: No	
	Batter Repair/Upgrade	<input type="checkbox"/>	NA	
Drainage	Culverts	<input type="checkbox"/>	NA	Size: Sets:
	Mitres	<input checked="" type="checkbox"/>		
	ROD/Spoon	<input checked="" type="checkbox"/>	Sets: 2	
	Belts/Channels	<input type="checkbox"/>	Sets: 2	
	Drop Downs	<input type="checkbox"/>	Sets:	
	Silt Trapping	<input type="checkbox"/>		
Comments: Nil				

Start Date:

Finish Date:

Soil Stabilisation Date (must be within 5 days):

Date	Event	Initial

Road Name 577/2 Road

Category Temporary

Location Taylors Ck Rd to dump 8

Length (m) 280

		WORKS	YES	INSTRUCTIONS/SITE SPECIFIC CONDITIONS
Site Info	Works >30 Slopes	<input type="checkbox"/>		
	Mass Movement	<input type="checkbox"/>		
	Dispersible	<input type="checkbox"/>		
	Pavement	Upgrade	<input type="checkbox"/>	Location NA Formation Width (m) NA Curve Widening NA
Grade Lowering		<input type="checkbox"/>	NA	
Realignment		<input type="checkbox"/>	NA	
Reopening		<input type="checkbox"/>	NA	
Maintenance	Clear veg/debris	<input checked="" type="checkbox"/>	All road	Maintenance Length (m) 280
	Repair surface	<input checked="" type="checkbox"/>	All road	
	Crown/Crossfall	<input checked="" type="checkbox"/>	All road	
	Gravel	<input type="checkbox"/>	NA	Gravel Length (m) 0
Road Side/Banks	Remove trees >20 cm	<input type="checkbox"/>		
	Remove trees <20 cm	<input checked="" type="checkbox"/>	Clearing outside the road prism: No	
	Batter Repair/Upgrade	<input type="checkbox"/>	NA	
Drainage	Culverts	<input type="checkbox"/>	NA	Size: Sets:
	Mitres	<input checked="" type="checkbox"/>		
	ROD/Spoon	<input type="checkbox"/>	Sets:	
	Belts/Channels	<input checked="" type="checkbox"/>	Sets: 6	
	Drop Downs	<input type="checkbox"/>	Sets:	
	Silt Trapping	<input type="checkbox"/>		
Comments: Nil				

Start Date: Finish Date: Soil Stabilisation Date (must be within 5 days):

Date	Event	Initial

Road Name Convincing Ground Road (4WD)

Category Permanent

Location 4WD: Bitumen to Shelter Rd

Length (m) 2240

WORKS		YES	INSTRUCTIONS/SITE SPECIFIC CONDITIONS		
Site Info	Works >30 Slopes	<input type="checkbox"/>			
	Mass Movement	<input type="checkbox"/>			
	Dispersible	<input type="checkbox"/>			
Pavement	Upgrade	Widening	<input type="checkbox"/>	Location NA Formation Width (m) NA Curve Widening NA Upgrade Length (m) 0 Upgrade Spoil	
		Grade Lowering	<input type="checkbox"/>	NA	
		Realignment	<input type="checkbox"/>	NA	
		Reopening	<input type="checkbox"/>	NA	
	Maintenance	Clear veg/debris	<input type="checkbox"/>	Maintenance Length (m) 2240	
		Repair surface	<input checked="" type="checkbox"/>	All road	
		Crown/Crossfall	<input checked="" type="checkbox"/>	All road	
	Gravel	<input type="checkbox"/>	NA	Gravel Length (m) 0	
Roadside/Batters	Remove trees >20 cm	<input type="checkbox"/>			
	Remove trees <20 cm	<input type="checkbox"/>	Clearing outside the road prism: No		
	Batter Repair/Upgrade	<input type="checkbox"/>	NA		
Drainage	Culverts	<input type="checkbox"/>	NA	Size: Sets:	
	Mitres	<input checked="" type="checkbox"/>			
	ROD/Spoon	<input checked="" type="checkbox"/>	Sets:		
	Belts/Channels	<input type="checkbox"/>	Sets:		
	Drop Downs	<input type="checkbox"/>	Sets:		
	Silt Trapping	<input type="checkbox"/>			
Comments: This section is being maintained for fire trail purposes only					

Start Date:

Finish Date:

Soil Stabilisation Date (must be within 5 days):

Date	Event	Initial

Crossing Works

Crossing Name A Road Name Shelter Road Location 350m from PP

Drainage Feature 1st order DL Stream Permanency Intermittent

Existing Crossing	Size	Stability Status	Crossing Required	Size (mm/m)	Future
Causeway	NA	Stable (maintainance)	Existing	NA	Permanent

Crossing Works		Approaches and Road Drainage	
Pavement/Structure	Existing natural surface	Approaches	Nil
Reshape Bed/banks	Nil	Temporary Drainage	Nil
Disposal of Spoil	NA	5-30m Upstream Left	Install Rollover to turn water
Inlet	Nil	5-30m Upstream Right	Install Rollover
Outlet	Nil	Practices where no 5-30	NA
Stabilisation	Nil	OutletControl	Natural vegetation
ErosionControl	Nil	TableDrain	Natural vegetation

Start Date: Finish Date: Soil Stabilisation Date (must be within 5 days):

Date	Event	Initial

Crossing Name B Road Name Convincing Ground Location 0.15km from Shelter Rd

Drainage Feature 1st order DL Stream Permanency Intermittent

Existing Crossing	Size	Stability Status	Crossing Required	Size (mm/m)	Future
Causeway	NA	Stable (maintainance)	Existing	NA	Permanent

Crossing Works		Approaches and Road Drainage	
Pavement/Structure	Existing gravel surface	Approaches	Nil
Reshape Bed/banks	Nil	Temporary Drainage	Nil
Disposal of Spoil	NA	5-30m Upstream Left	Repair Rollover
Inlet	Nil	5-30m Upstream Right	Install Rollover to turn water
Outlet	Nil	Practlices where no 5-30	NA
Stabilisation	Nil	OutletControl	Natural vegetation
ErosionControl	Nil	TableDrain	Natural vegetation

Start Date: Finish Date: Soil Stabilisation Date (must be within 5 days):

Date	Event	Initial

Crossing Name C Road Name Convincing Ground Location 0.4km from Shelter Rd

Drainage Feature 1st order DL Stream Permanency Intermittent

Existing Crossing	Size	Stability Status	Crossing Required	Size (mm/m)	Future
Causeway	NA	Stable (maintainance)	Existing	NA	Permanent

Crossing Works		Approaches and Road Drainage	
Pavement/Structure	Existing gravel surface	Approaches	Nil
Reshape Bed/banks	Reshape causeway	Temporary Drainage	Nil
Disposal of Spoil	NA	5-30m Upstream Left	Repair Rollover
Inlet	Nil	5-30m Upstream Right	Install Rollover to turn water
Outlet	Open outlet	Practices where no 5-30	NA
Stabilisation	Nil	OutletControl	Natural vegetation
ErosionControl	Nil	TableDrain	Natural vegetation

Start Date: Finish Date: Soil Stabilisation Date (must be within 5 days):

Date	Event	Initial

Crossing Name D Road Name Convincing Ground Location 0.45km from Sheller Rd
 Drainage Feature 1st order DL Stream Permanency Intermittent

Existing Crossing	Size	Stability Status	Crossing Required	Size (mm/m)	Future
Causeway	NA	Stable (maintainance)	Existing	NA	Permanent

Crossing Works		Approaches and Road Drainage	
Pavement/Structure	Armour with rock	Approaches	Nil
Reshape Bed/banks	Nil	Temporary Drainage	Nil
Disposal of Spoil	NA	5-30m Upstream Left	Repair Rollover
Inlet	Nil	5-30m Upstream Right	Install Rollover to turn water
Outlet	Nil	Practices where no 5-30	NA
Stabilisation	Nil	OutletControl	Natural vegetation
ErosionControl	Nil	TableDrain	Natural vegetation

Start Date: Finish Date: Soil Stabilisation Date (must be within 5 days):

Date	Event	Initial

Crossing Name E Road Name Convincing Ground Location 0.5km from Shelter Rd

Drainage Feature Unmapped Drainage line Stream Permanency Intermittent

Existing Crossing	Size	Stability Status	Crossing Required	Size (mm/m)	Future
Pipe Culvert	450	Stable (maintainance)	Existing	NA	Permanent

Crossing Works		Approaches and Road Drainage	
Pavement/Structure	Existing gravel surface	Approaches	Nil
Reshape Bed/banks	Nil	Temporary Drainage	Nil
Disposal of Spoil	NA	5-30m Upstream Left	Install Rollover
Inlet	Clean	5-30m Upstream Right	Falls away
Outlet	Clean & armour with rock	Practices where no 5-30	NA
Stabilisation	Nil	OutletControl	Natural vegetation
ErosionControl	Nil	TableDrain	Natural vegetation

Start Date: Finish Date: Soil Stabilisation Date (must be within 5 days):

Date	Event	Initial

Crossing Name F Road Name Convincing Ground Location 0.6km from Shelter Rd
 Drainage Feature Depression Stream Permanency Intermittent

Existing Crossing	Size	Stability Status	Crossing Required	Size (mm/m)	Future
Causeway	NA	Stable (maintainance)	Existing	NA	Permanent

Crossing Works		Approaches and Road Drainage	
Pavement/Structure	Armour with rock	Approaches	Nil
Reshape Bed/banks	Nil	Temporary Drainage	Nil
Disposal of Spoil	NA	5-30m Upstream Left	Repair Rollover
Inlet	Nil	5-30m Upstream Right	Install Rollover to turn water
Outlet	Nil	Practices where no 5-30	NA
Stabilisation	Nil	OutletControl	Natural vegetation
ErosionControl	Nil	TableDrain	Natural vegetation

Start Date: Finish Date: Soil Stabilisation Date (must be within 5 days):

Date	Event	Initial

Crossing Name G Road Name Taylors Creek Road Location 1.3 km from Sheller Rd

Drainage Feature 2nd order DL Stream Permanency Intermittent

Existing Crossing	Size	Stability Status	Crossing Required	Size (mm/m)	Future
Pipe Culvert	750	Stable (maintainance)	Existing	NA	Permanent

Crossing Works		Approaches and Road Drainage	
Pavement/Structure	Armour overflow with rock. Existing gravel surface for pavement.	Approaches	Nil
Reshape Bed/banks	Nil	Temporary Drainage	Nil
Disposal of Spoil	NA	5-30m Upstream Left	Install Rollover
Inlet	Nil	5-30m Upstream Right	Install Belt/channel
Outlet	Armour overflow with rock	Practices where no 5-30	NA
Stabllisation	Nil	OutletControl	Natural vegetation
ErosionControl	Nil	TableDrain	Natural vegetation

Start Date: Finish Date: Soil Stabilisation Date (must be within 5 days):

Date	Event	Initial

Crossing Name H Road Name Taylors Creek Road Location 1.4km from Shelter Rd
 Drainage Feature 1st order DL Stream Permanency Intermittent

Existing Crossing	Size	Stability Status	Crossing Required	Size (mm/m)	Future
Causeway	NA	Stable (maintainance)	Existing	NA	Permanent

Crossing Works		Approaches and Road Drainage	
Pavement/Structure	Armour with rock	Approaches	Nil
Reshape Bed/banks	Nil	Temporary Drainage	Nil
Disposal of Spoil	NA	5-30m Upstream Left	Install Rollover
Inlet	Nil	5-30m Upstream Right	Install Rollover
Outlet	Armour with rock	Practices where no 5-30	NA
Stabilisation	Nil	OutletControl	Natural vegetation
ErosionControl	Nil	TableDrain	Natural vegetation

Start Date: Finish Date: Soil Stabilisation Date (must be within 5 days):

Date	Event	Initial

Crossing Name I Road Name Shelter Road Location 0.1km from Convincing Ground Rd turnoff
 Drainage Feature Depression Stream Permanency Intermittent

Existing Crossing	Size	Stability Status	Crossing Required	Size (mm/m)	Future
Causeway	NA	Stable (no works)	Existing	NA	Permanent

Crossing Works		Approaches and Road Drainage	
Pavement/Structure	Existing natural surface	Approaches	Nil
Reshape Bed/banks	Nil	Temporary Drainage	Nil
Disposal of Spoil	NA	5-30m Upstream Left	Falls away
Inlet	Nil	5-30m Upstream Right	Existing pipe
Outlet	Nil	Practices where no 5-30	NA
Stabilisation	Nil	OutletControl	Natural vegetation
ErosionControl	Nil	TableDrain	Natural vegetation

Start Date: Finish Date: Soil Stabilisation Date (must be within 5 days):

Date	Event	Initial

Crossing Name J **Road Name** Shelter Road **Location** 1km from Convincing Ground Rd turnoff
Drainage Feature 1st order DL **Stream Permanency** Intermittent

Existing Crossing	Size	Stability Status	Crossing Required	Size (mm/m)	Future
Pipe Culvert	1050	Stable (maintainance)	Existing	NA	Permanent

Crossing Works		Approaches and Road Drainage	
Pavement/Structure	Repair pavement surface (Existing natural surafce)	Approaches	Nil
Reshape Bed/banks	Nil	Temporary Drainage	Nil
Disposal of Spoil	NA	5-30m Upstream Left	Install Rollover
Inlet	Nil	5-30m Upstream Right	Repair Rollover
Outlet	Nil	Practices where no 5-30	NA
Stabllisatlon	Nil	OutletControl	Natural vegetation
EroslonControl	Nil	TableDrain	Natural vegetation

Start Date: **Finish Date:** **Soil Stabilisation Date (must be within 5 days):**

Date	Event	Initial

Crossing Name K **Road Name** Sheller Road **Location** 1.1km from Convincing Ground Rd turnoff
Drainage Feature 1st order DL **Stream Permanency** Intermittent

Existing Crossing	Size	Stability Status	Crossing Required	Size (mm/m)	Future
Pipe Culvert	900	Stable (maintainance)	Existing	NA	Permanent

Crossing Works		Approaches and Road Drainage	
Pavement/Structure	Repair pavement surface (Existing natural surafce)	Approaches	Nil
Reshape Bed/banks	Nil	Temporary Drainage	Nil
Disposal of Spoil	NA	5-30m Upstream Left	Repair Rollover
Inlet	Nil	5-30m Upstream Right	Repair Rollover
Outlet	Nil	Practices where no 5-30	NA
Stabllisation	Nil	OutletControl	Natural vegetation
ErosionControl	Nil	TableDrain	Natural vegetation

Start Date: **Finish Date:** **Soil Stabilisation Date (must be within 5 days):**

Date	Event	Initial

Crossing Name L Shelter Road **Road Name** Shelter Road **Location** 1.2km from Convincing Ground Rd turnoff
Drainage Feature Unmapped Drainage line **Stream Permanency** Intermittent

Existing Crossing	Size	Stability Status	Crossing Required	Size (mm/m)	Future
Pipe Culvert	450	Stable (maintainance)	Existing	NA	Permanent

Crossing Works		Approaches and Road Drainage	
Pavement/Structure	Existing natural surafce	Approaches	Nil
Reshape Bed/banks	Nil	Temporary Drainage	Nil
Disposal of Spoil	NA	5-30m Upstream Left	Install Belt/channel
Inlet	Nil	5-30m Upstream Right	Falls away
Outlet	Nil	Practices where no 5-30	NA
Stabilisation	Nil	OutletControl	Natural vegetation
ErosionControl	Nil	TableDrain	Natural vegetation

Start Date: _____ **Finish Date:** _____ **Soil Stabilisation Date (must be within 5 days):** _____

Date	Event	Initial

Crossing Name M Road Name Shelter Road Location 1.45km from Convincing Ground Rd turnoff
 Drainage Feature Depression Stream Permanency Intermittent

Existing Crossing	Size	Stability Status	Crossing Required	Size (mm/m)	Future
Causeway	NA	Stable (maintainance)	Existing	NA	Permanent

Crossing Works		Approaches and Road Drainage	
Pavement/Structure	Repair pavement surface (Existing natural surafce)	Approaches	Nil
Reshape Bed/banks	Nil	Temporary Drainage	Nil
Disposal of Spoil	NA	5-30m Upstream Left	Install Rollover
Inlet	Nil	5-30m Upstream Right	Install Rollover to turn water
Outlet	Nil	Practices where no 5-30	NA
Stabillsation	Nil	OutletControl	Natural vegetation
ErosionControl	Nil	TableDrain	Natural vegetation

Start Date: Finish Date: Soil Stabilisation Date (must be within 5 days):

Date	Event	Initial

Crossing Name N **Road Name** Shelter Road **Location** 1.55km from Convincing Ground Rd turnoff
Drainage Feature Depression **Stream Permanency** Intermittent

Existing Crossing	Size	Stability Status	Crossing Required	Size (mm/m)	Future
Causeway	NA	Stable (maintainance)	Existing	NA	Permanent

Crossing Works		Approaches and Road Drainage	
Pavement/Structure	Repair pavement surface (Existing natural surafce)	Approaches	Nil
Reshape Bed/banks	Nil	Temporary Drainage	Nil
Disposal of Spoil	NA	5-30m Upstream Left	Clean existing culvert
Inlet	Nil	5-30m Upstream Right	Install Rollover to turn water
Outlet	Nil	Practices where no 5-30	NA
Stabllisation	Nil	OutletControl	Natural vegetation
ErosionControl	Nil	TableDrain	Natural vegetation

Start Date: **Finish Date:** **Soil Stabilisation Date (must be within 5 days):**

Date	Event	Initial

Crossing Name O Road Name Shelter Road Location 2.05km from Convincing Ground Rd turnoff
 Drainage Feature 1st order DL Stream Permanency Intermittent

Existing Crossing	Size	Stability Status	Crossing Required	Size (mm/m)	Future
Pipe Culvert	600	Stable (no works)	Existing	NA	Permanent

Crossing Works		Approaches and Road Drainage	
Pavement/Structure	Existing natural surface	Approaches	Nil
Reshape Bed/banks	Nil	Temporary Drainage	Nil
Disposal of Spoil	NA	5-30m Upstream Left	Existing Rollover
Inlet	Nil	5-30m Upstream Right	Existing crest
Outlet	Nil	Practices where no 5-30	NA
Stabilisation	Nil	OutletControl	Natural vegetation
ErosionControl	Nil	TableDrain	Natural vegetation

Start Date: Finish Date: Soil Stabilisation Date (must be within 5 days):

Date	Event	Initial

Crossing Name P Road Name Gutter Trail Location 200m from Shelter Rd
 Drainage Feature 1st order DL Stream Permanency Intermittent

Existing Crossing	Size	Stability Status	Crossing Required	Size (mm/m)	Future
Pipe Culvert	600	Stable (no works)	Existing	NA	Permanent

Crossing Works		Approaches and Road Drainage	
Pavement/Structure	Existing natural surface	Approaches	Nil
Reshape Bed/banks	Nil	Temporary Drainage	Nil
Disposal of Spoil	NA	5-30m Upstream Left	Existing Rollover
Inlet	Nil	5-30m Upstream Right	Existing Rollover
Outlet	Nil	Practices where no 5-30	NA
Stabilisation	Nil	OutletControl	Natural vegetation
ErosionControl	Nil	TableDrain	Natural vegetation

Start Date: Finish Date: Soil Stabilisation Date (must be within 5 days):

Date	Event	Initial

6. Pre-Operational Briefing

Staff/Contractor Acknowledgment

I acknowledge that I have received a copy of the Roadworks Plan for Compartments 576, 577 & 578 in Orara East State Forest and that I understand the conditions of the Plan as explained to me by a Forests NSW officer.

Name	Signature	Date