

FORESTS N.S.W.

SOUTHERN REGION - EDEN

HARVESTING PLAN HP_ED_2002T_09

COMPARTMENT 2002



1: SAFETY CONSIDERATIONS

1.1: EMERGENCY PLAN INFORMATION.

(a) **Mobile Phone reception on work site:**

Next G ☒ Good ☐ Poor ☐ Nil Digital ☐ ? ☐ Good ☐ Poor ☐ ? Nil

Nearest reliable reception: High points within the compartment and along Cobargo-Bermagui Road.

(b) **Forests NSW Radio from work site:**

Channel No:
Call to:
Call sign from:

Contractor Radio at work site:

UHF Channel No:
Contractor Radio:
Call to Bush Boss:

(c) **Emergency meeting point for ambulance:**

Wallaga Lake-Bermagui Road and Cobargo-Bermagui Road Junction.
1:100000 map sheet: Narooma.
AMG zone: 56.
AMG Grid reference: E234999 N5966560.
Lat/Long for GPS: 36° 24' 34"S 150° 02' 41"E.

(d) **Closest Helicopter Landing Place:**

Wallaga Lake-Bermagui Road and Cobargo-Bermagui Road Junction.
1:100000 map sheet: Narooma.
AMG zone: 56.
AMG Grid reference: E234999 N5966560.
Lat/Long for GPS: 36° 24' 34"S 150° 02' 41"E.

(e) **Procedure for obtaining Ambulance assistance:**

Dial "000" OR Call Eden Forestry Office for Ambulance assistance.
Dial "112" only as an alternative to "000" if you have a GSM digital mobile phone and you are outside your own provider's GSM network coverage area.

"000" Operator Question.

Response

- | | |
|---|---|
| 1. Police, Fire, Ambulance? | Ambulance Wollongong. |
| 2. <u>Suburb</u> (State Forest name): | Bermagui. |
| (Nearest town or named locality): | Bermagui. |
| (Nearest Ambulance station): | Bermagui. |
| 3. <u>Address:</u> (Nearest named State forest road): | Meads Creek Road. |
| 4. <u>Nearest Road Junction:</u> | Cobargo-Bermagui Road and Wallaga Lake Road |
| 5. <u>Local Government Area:</u> | Bega Valley Shire Council. |

6. Nature of the problem: Give details of accident, number and condition of casualties.
7. Where is the accident: Work site location – (Centre of the compartment)
 1:100000 map sheet: Narooma. AMG zone: 56.
 AMG Grid reference: E233939 N5967490.
 Lat/long for GPS: 36°24' 20"S 150° 01' 59"E.
8. Directions to navigate from Ambulance Station to meeting point:
 Directions from Bermagui:
 • Head north along Wallaga Lake-Bermagui Road for approximately 2km to Cobargo–Bermagui Road junction.
9. Injuries?: Give detailed information about the condition of the casualty.
10. Call back No: Give your Mobile Number
 or Eden Office: 1300880548.
11. Name of Reporter: Give own name.

1.2: SITE SPECIFIC IDENTIFIED HAZARDS.

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

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

IDENTIFIED HAZARD	SUGGESTED CONTROL STRATEGY
1. Adjoining roads of various traffic levels	Warning signs at intersections, road closure and traffic control measures.
2. Overhead hazards associated with dumps	Assess overhead hazard within two tree lengths (based on the tallest surrounding trees) of the dump. Assess risk, & if necessary remove hazard or relocate dump site.
3. Hazardous or dead trees	Refer to FNSW Safety Standard 1.3.9. Assess area within two tree lengths of work site. Assess risk, mark any Distinctly Dangerous Trees with the symbol “Æ-” and if necessary remove hazard or move work site. Use machinery to assist with hazard removal if possible. Contractor is responsible for implementing control strategies during harvesting.
4. Dust from passing vehicles along dirt haulage routes	Restrict speed to minimise dust generation, slow down when passing vehicles. Turn on driving and hazard lights to increase visibility
5. Underground cables & pipelines	Minimise ground disturbance across or along cables & pipelines. Increase depth of earth cover as per BVSC & Telstra Duty of Care (see Section 5g Other Special Prescription Areas).

6. Underground water tank	Ensure all operators are aware of the location. Do not drive machinery or walk over tank. SFO to tape off if required.
7. School bus stop	Cobargo-Bermagui Road and Wallaga Lake Road is part of a school bus route. Haulage vehicles are to take particular care between 7:25 a.m. to 8:30 a.m. and 4:00 p.m. to 5:00 p.m. weekdays. Tree felling within two tree lengths of the bus stop must not occur without prior inspection of the bus stop to see if it is occupied and then tree felling should only occur with the presence of a "lookout person."

The planned locations for 1, 2, 5, 6 & 7 are shown on the attached Operational Map.

b Traffic management/road closures

- The logging contractor is responsible for traffic control on all roads when felling is within two tree lengths (based on the tallest surrounding trees) of a road or extracting on roads or loading is occurring within 10 metres of a road. The contractor must ensure that Meads Creek, Scenic Forest Drive West and all other internal forestry roads are closed to all traffic when trees within two tree lengths of Meads Creek, Scenic Forest Drive West and all internal forestry roads are being felled.
- Ando Trail and Meads Creek Road are used to access private freehold. In the event Ando Trail and Meads Creek Road are closed during harvesting. The road closures should be restricted between the hours of 10am and 2:30pm to accommodate private access on these roads unless prior consultation has occurred with the private freehold owners.
- The duration of closure on Ando Trail and Meads Creek Road must be kept to a minimum to accommodate private access on these roads.
- The unlicensed section of Scenic Forest Drive West running parallel and adjacent to Black Lagoon must not be used by 4wd traffic or harvesting machinery without prior documented approval of the SFO or Supervising Forester. Disturbance to this section of road must be kept to an absolute minimum. Safety barrier fences should be placed at either end of this section of road to indicate the road is closed to all traffic during logging.
- Within Compartment 2002 the contractor is to install baulk drains on Spotted Gum Road immediately east of the junction with Scenic Forest Drive West. The location of the baulk drains are to be approved by the SFO and are not to drain directly into drainage features and onto stable ground as per the EPL.
- In the event that felling of trees occurs within two tree lengths (based on the tallest surrounding trees) or loading is occurring within 10 metres of Cobargo-Bermagui Road then RTAs' Traffic Control at Work Sites TCP 83 attached to this harvesting plan must be implemented.
- Assessment of Cobargo-Bermagui Road has been carried out by a qualified Traffic Control Selector for the traffic control requirements. Sight distance clearing is required at the junctions of Ando Trail and Cobargo-Bermagui Road. RTA Traffic Control at Work Sites TCP 83 attached to Roding Plan HP_ED_2002_09 must be implemented.
- **Forests NSW Sales Forester must be notified well in advance of any proposed road closures along Cobargo-Bermagui Road. The duration of closure on Cobargo-Bermagui Road must be kept to a minimum to accommodate general public access on this road.**
- Assessment of Cobargo-Bermagui Road has been carried out by a qualified Traffic Control Selector for the traffic control requirements. RTA Traffic Control at Work Sites (TCP SE003 attached to this plan) must be implemented for log haulage access onto major roads.
- Warning of timber harvesting operations must be **displayed 200 metres either side** of all thoroughfare road approaches leading to areas where harvesting operations are in progress.
- Cobargo-Bermagui Road is part of school bus route. Particular care must be exercised between 7:25 a.m. to 8:30 a.m. and 4:00 p.m. to 5:00 p.m. weekdays.

c Supervision of 'operator in training'

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

1.3 Site visitors**(a) Authorised**

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

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

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

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

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

(b) Unauthorised

i) All unauthorised visitors to active timber harvesting/roading operations must not approach within 100 metres of a person operating timber haulage or harvesting equipment (clause 63(1)(a)) or interfere with such equipment (clause 63(1)(b)) Forestry Regulations 2004. In addition unauthorised visitors must wear the personal protection equipment outlined in 5.4(1)(i) above.

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

- All operations to cease immediately.
- Unauthorised visitors to be advised that they are in contravention of clause 63(1)(a) or 63(1)(b) of Forestry Regulations 2004 and to leave the site or move outside the 100 metre restricted area immediately.
- Notify the Forests NSW Office of unauthorised visitors.

2: AREA IDENTIFICATION

Management Area: Eden.
 State Forest: Bermagui No. 142.
 Management Section: Quaama.
 Compartment(s) Number: 2002.
 Event id: 14051

Table 1: Area of Plan by Logging Coupes (hectares)

Compartment: 2002		
Area of Compartment: 190.2 ha		
	Coupe	Net Area (ha)
Proposed for Harvesting	1	19.2
	2	28.0
	9	23.5
	10	21.7
TOTAL		92.4

3: DESCRIPTION OF PROPOSAL

(a) Forest Stand condition/Harvesting History:

This compartment contains an early mature even aged overstorey with an understorey consisting of even aged regrowth and coppice regenerated from earlier operations. Spotted Gum, Stringybark, Silvertop Ash, Iron Bark, Bloodwood and Coastal Grey Box dominate the stand. The stand structure is a result of clearfelling in the 1930,s and Timber Stand Improvement (TSI) operations across the entire compartment in the 1950's. A sawlog harvesting operation was conducted over the majority of the compartment in 1984/85. A thinning operation was conducted over the majority of the compartment in 1991.

(b) Thinning Harvesting of Early Mature Regrowth Native Forest:

Early mature stands originating from past logging activities and wildfire events will be manually thinned under site specific silvicultural regimes. Thinning reduces the number of competing stems in a stand and concentrates the growth potential onto the remaining crop trees. This process will maintain the uniform age structure that characterises regrowth forests.

The primary product of the harvesting is high quality large and small sawlogs, veneer logs, girders, poles & piles where timber markets are available. Parts of felled logs that do not meet high quality log specifications are segregated and graded into other classifications such as salvage sawlogs, pulp logs & miscellaneous timbers e.g. split & round posts, firewood, mining timbers & craftwood. The availability of miscellaneous timbers depends mainly on forest types, log defectiveness & market conditions at the time of harvesting.

(d) Roadworks:

The road works required are those associated with this harvesting operation.

(e) Post-harvest Burning:

Post-harvest burning to reduce fuel loads and create a suitable seed bed may be carried out under prescribed conditions. A separate Burning Plan will be prepared for this operation. Post-harvest burning should be confined as far as practicable to the net harvest area. Site specific burning exclusions associated with flora, fauna, cultural heritage, riparian, private freehold and other exclusion zones are explained within the relevant sections of this Harvest Plan and indicated on the Operational Map.

- To facilitate post-harvest burning of this compartment care must be taken to remove logging debris away from retained trees and to keep logging debris heaps less than 1m in height where possible.
- Where practicable, snig track patterns should be designed to double as bare earth control lines to prevent fire entering specified exclusion zones i.e. Cultural Heritage sites, private freehold. Where this is not practical, the SFO is to assess the need for a bare earth break to be constructed close to the harvesting exclusion boundary and seek advice and approval from the Harvesting supervisor for the additional earth works.
- The burn area will be divided into hazard zones and prioritised depending on proximity to residential areas, topography, fuel loads and ecological values. Harvest scheduling will avoid areas adjacent to residential areas (primarily east of Wallaga Lake Road) during the summer months to minimise additional elevated fuel loads.

4: FOREST CONDITION & SILVICULTURE

4.1: FOREST TYPE:

Table 2: Compartment Forest Types:

Compartment 2002	Forest Type (Res. Note 17)
	70: Spotted Gum
	75: Spotted Gum – Yellow/White Stringybark
	121: Blueleaved Stringybark
	123: Coastal Stringybark

Reference: Baur GN “Forest Types in New South Wales” FC NSW Res. Note No. 17 2nd ed. 1989.
Pre-harvest Survey Report Compartment 2002, Bermagui State Forest, Forests NSW Southern Region - Eden, 2009.

4.2: SILVICULTURAL OBJECTIVES AND PRESCRIPTIONS:**Silvicultural Prescriptions for Thinning Operations:**

- The principal objective of this operation is to remove a representative range of species and size classes of the early mature stands containing high quality products (e.g. quota sawlogs, veneer, girders or poles), while minimising damage to retained stems. As a result of harvesting, canopy openings will promote growth of the retained regrowth and early mature component for future sawlog production. Care must be taken to avoid damage to the retained future crop. This will be achieved by “thinning across the range of size classes”, to reduce the number of competing stems in the stand and to concentrate growth potential onto the remaining final crop trees.
- No more than 60% of the canopy cover is to be removed. The current standing basal area estimate for Compartment 2002 is 25m²/ha.
- Retained stems should represent the range of species and size classes of the early mature stands and be of suitable form.
- Volumes obtained from areas harvested in the vicinity of Compartment 2002, estimate the merchantable sawlog volume to be removed is: 17m³/ha.
- Where achievable thinning should aim to retain vigorous stems to grow on for a subsequent cutting cycle capable of producing a net merchantable increment.
- Tree species retained for future product must be representative of the stand prior to harvesting and have a healthy crown with good economic growth and seed producing potential.
- Damage to regrowth and advanced regrowth must be minimised where practicable and safe to do so.
- A minimum of four (4) trees per hectare, in the dominant or co-dominant class, with suitable crowns, shall be retained for seed production. These should include retained habitat and future sawlog trees.
- Seed trees are to be retained around each log dump to assist regeneration of the disturbed area. The number of retained seed trees will be determined by the Supervising Forest Officer (SFO) based on the size of the log dump, but will generally be 3 - 5 trees with healthy, seed producing crowns. These trees are not additional to those specified in the condition above.
- To minimise damage to advanced regrowth. Areas that contain one or two scattered early mature trees should be excluded from harvesting. These trees are not additional to those specified in the condition above.
- Subject to occupational health and safety considerations, directional felling techniques are to be utilised to minimise damage to retained trees, to avoid hang-ups and to maintain values of reserve areas and drainage lines.

5: SPECIAL REQUIREMENT AREAS

(a) Forest Management Zone Classification:

Forest Management Zone 3aC Exclusion (Catchment 50m width from mean high water mark) is located adjacent to Black Lagoon and Narira Creek. Which are located on the northern boundary of Coupes 9 and 10 within Compartment 2002, as indicated on the Harvesting Plan Operational Map.

- All harvesting activities must be excluded from this zone.
- Post log burning is to be excluded from this area as far as is practicable.
- Where it is considered likely that fire applied externally will enter this exclusion zone through natural spread, a carefully planned ignition pattern and sequence should be applied.
- Existing snig tracks, roads, moisture differentials, ignition patterns and constructed hand trails should be utilised to avoid fire encroachment into this zone.

Forest Management Zone 3bC-Modified Prescriptions 50% Canopy Retention (Catchment 50m width) is located adjacent to the above FMZ3aC 50m exclusion zone as indicated on the Harvesting Plan Operational Map. The Forest Management Zone 3bC -Modified Prescriptions 50% Canopy Retention area within this compartment forms part of the net harvestable area for this harvesting operation. Harvesting operations within this area must be conducted under the following prescriptions:

- A minimum of 50% canopy retention must be achieved across the entire area delineated as FMZ 3bC (Catchment) on the Harvesting Plan Operational Map. This canopy retention is not additional to the tree retention prescriptions included in this plan. Additionally, the harvested materials are to be comprised of sawlogs where possible.
- Walkover extraction techniques must be used in this zone area instead of snig track construction.
- Logging debris in particular tree heads must be distributed across the zone and not windrowed.
- Post log burning is to be excluded from this area as far as is practicable.
- Where practicable, snig track patterns within the FMZ 4: General Management should be designed to double as bare earth control lines to prevent fire entering the FMZ 3bC. Where this is not practical, the SFO is to assess the need for a bare earth break to be constructed close to the harvesting exclusion boundary and seek advice and approval from the Harvesting Supervisor for the additional earth works.
- Where it is considered likely that fire applied externally will enter this exclusion zone through natural spread, a carefully planned ignition pattern and sequence should be applied.
- Existing snig tracks, roads, moisture differentials, ignition patterns and constructed hand trails should be utilised to avoid fire encroachment into this zone.
- The FMZ 3bC (Catchment) located in the north-western corner of Coupe 10 of Compartment 2002 is excluded from harvesting.

Forest Management Zone 3bV (Visual 50m width) is located adjacent to Cobargo-Bermagui Road which forms the southern boundary of Compartment 2002 as indicated on the Harvesting Plan Operational Map. Forest Management Zone 3bV (Visual variable width) exists to the north and north-east of Dump J in Coupe 9, and to the north-east of Dump L in Coupe 10 within Compartment 2002 as indicated on the Harvesting Plan Operational Map. This Forest Management Zone 3bV (Visual) area within Coupes 1, 2, 9 and 10 of Compartment 2002 forms part of the net harvestable area for this harvesting operation. Harvesting operations within this area must be conducted under the following prescriptions:

- A minimum of 50% canopy retention must be achieved across the entire area delineated as FMZ 3bV (Visual) on the Harvesting Plan Operational Map. This canopy retention is not additional to the tree retention prescriptions included in this plan. Additionally, the harvested materials are to be comprised of sawlogs where possible.
- The visual impact of harvesting operations within this zone area must be monitored twice weekly by the SFO to ensure that the canopy retention prescriptions are achieving the desired outcome of protecting the visual values of this zone. The SFO is to utilise vantage points from Bermagui – Cobargo Road, Scenic Forest Drive West, from the townships of Fairhaven and Beauty Point. The SFO is required to increase the level of canopy retention where current prescriptions are not adequately maintaining the visual values of this area, but under no conditions is the level of canopy retention to be dropped below the prescriptions set out in this Harvesting Plan.

The remaining area within this compartment is classified FMZ 4 (general management).

(b) Critical boundaries:

Private freehold property is located on sections of the northern and western boundaries of Compartment 2002 as indicated on the Harvesting Plan Operational Map.

- The freehold property boundary must not be crossed during harvesting operations.
- Ensure no build-up of fuel within 10m of the freehold property boundary in order to assist post-harvesting burning.
- Where practicable, snig tracks should be constructed close to the boundaries of the harvested area to act as bare earth breaks around post-harvesting burns. Where this is not practical, the SFO is to assess the need for a bare earth break to be constructed close to harvesting boundaries and, where required the SFO should advise the Operations Forester Eden of this need and estimated works involved. On approval from the Operations Forester Eden the SFO shall engage the contractor to undertake the work concurrent with harvesting, with Forests NSW to be billed appropriately. Where the harvesting configuration does not have suitable machinery to undertake break works, the Operations Supervisor Eden needs to be notified to arrange alternative means of break construction.

(c) Research and Inventory Plots:

A Permanent Growth Plot (PEG 167 GR 234000/5968000) is located within Coupe 7 of Compartment 2002 as indicated on the Harvesting Plan Operational Map.

- The inventory tags and wire are to be removed from this plot by the SFO prior to harvesting and returned to the Regional Resource Officer.
- Where the plot extends into Coupe 10 of Compartment 2002 the PGP is to be harvested as per standard harvesting prescriptions outlined in this harvesting plan.

(d) Recreational Site Values:

Lilly Pilly Walking Track is located within Coupes 8, 9 and 10 within Compartment 2002. The intent of FNSW is to have this area available to be used by the public as soon as it is safe following the harvesting operations. To facilitate FNSW intent harvesting operations within this area must be conducted under the following prescriptions:

- To minimise damage to the bike track directional felling is to occur where safe to do so.
- Where practicable, snig tracks should be constructed in such away to minimising damage to the walking track.
- Where practicable walk over techniques should be used where crossing of the walking track is required.
- The walking track must be progressively tidied up at the time of harvesting.

- Logging debris must be pulled away from track surface.
- Where safe to do so obvious overhead hazards are to be removed (i.e. dangerous trees, hang-ups, widow makers). Where hazards cannot be safely removed the location is to be documented in the SFO harvesting plan diary notes and the hazard identified in the field with “Ø↑” as per FNSW Safety Standard 1.3.9.
- Install rollover drains where part of the track is to be used as a snig track.
- Recreational access to the forest will be restricted from the general forest area during active harvesting operations. Access following harvesting may be limited for a period of time due to safety considerations.

(e) Occupational Permits and Grazing Permits:

Bega Valley Shire Council has an Occupational Permit (No. 13180) within Compartment 2002. This permit covers the area of land where the underground pipeline is located, as indicated on the Harvesting Plan Operational Map. See (g) Other Special Prescription Areas below for management prescriptions.

(f) Crown Leases: Nil.

(g) Other Special Prescription Areas:

Under ground cables and water mains.

Telstra underground cables (2) are located within Coupes 2, 6, 7 and 9 of Compartment 2002 as indicated on the Harvesting Plan Operational Map. The actual location of the cable in the field was located by a Telstra Qualified Cable Locator and is identified in the field by cable markers and pink and black stripped flagging tape.

- Where the Telstra cables are to be crossed by new roads, extraction tracks or road drainage is to be installed in the vicinity of these cables, FNSW and the harvesting contractor must follow Telstra “**Duty of Care**” (attached to this harvesting plan) as per Telstra requirements. This means wherever a new road, extraction track or road drainage structure is to be constructed (i.e. rubber flaps, mitre drains etc) the person responsible for conducting the work must dig down to locate the cable depth before establishing the new road, extraction track or road drainage structure. This is to be carried out with a shovel or hand tools and **NOT a BACKHOE or MACHINERY** so digging is controlled close to cables.
- Care must be taken to avoid damage to this cable line. No ground disturbance is allowed at this cable line area and within 5.0m of this line.
- Where the Telstra Cable is under a proposed extraction track the track surface is to be gravelled or built up to a minimum depth of 600mm at the crossing point and as far as practicable minimise brushing off of the surface and avoid digging into the ground within 10m on either side of the cables.
- Care must be taken in placement of dump sites G and H and the snigging pattern to G and H to avoid causing damage to this cable lines.
- No rock-blasting is permitted within 10.0 m of this cable line.
- No pushing of trees is allowed within 5.0 m of the Telstra cable lines. All trees within this vicinity must be manually felled, where it is safe to do so.

A BVSC underground water main is located in the southern section of Coupes 1 and 3 of Compartment 2002 as indicated on the Harvesting Plan Operational Map. The actual location of the pipe is identified in the field by blue tipped concrete posts.

- Care must be taken to avoid damage to this water pipe. No ground disturbance is allowed at this water pipe area and within 5.0m of this line.
- No pushing of trees is allowed within 10.0m of the water pipe. All trees within this vicinity must be manually felled, where it is safe to do so.
- No rock-blasting is permitted within 10.0m of this water pipe.

Dust and noise:

- Where residential housing is located adjacent to the compartment boundary or within close proximity to log dumps, the contractor must restrict loud noises (i.e. chainsaw, dozers etc) to between 7:00am and 5:00pm. Operating close to housing during the weekend should be avoided unless prior consultation has occurred.
- Where log haulage routes pass close to rural housing noise must be minimised to the greatest extent practicable. Trucks should reduce speed, restrict use to daylight hours and minimise the use of engine brakes through these areas.

Fence Line:

A fence line is located in Coupe 10 of Compartment 2002 as indicated on the Harvesting Plan Operational Map.

- Where harvesting comes within two tree lengths of the fence line the SFO must record the fence's condition prior to harvesting taking place.
- The fence line is not to be damaged. Where harvesting activities cause damage to the fence it will be the contractor responsibility to fix the fence to its original condition.
- The fence line may be cut for extraction purposes. Once extraction is completed the fence line is to be repaired to its original condition.
- Gaps cut into the fence line for extraction purpose should be kept to a minimum.

Bus shelter

A bus shelter is located on the northern side of Bermagui-Cobargo Road as indicated on the Harvesting Plan Operational Map.

- It is the contractors responsibility to ensure this shelter is not damaged by forestry activities.
- The single early mature tree to the west of this bus shelter is to be retained.

Road closures

Ando Trail and Meads Creek Road are used to access private freehold.

- In the event Ando Trail and Meads Creek Road are closed during harvesting. The road closures should be restricted between the hours of 10am and 2:30pm to accommodate private access on these roads unless prior consultation has occurred with the private freehold owners.
- The duration of closure on Ando Trail and Meads Creek Road must be kept to a minimum to accommodate private access on these roads.
- Forests NSW Sales Forester must be notified well in advance of any proposed road closures along Ando Trail and Meads Creek Road. The duration of closure on Ando Trail and Meads Creek Road must be kept to a minimum to accommodate general public access on this road.

Outstanding Trees

There are no records of "Outstanding Trees" within Compartment 2002. However, *E. botryoides* (Southern Mahogany), *E. bosistoana* (Coastal Grey Box), *Acmena smithii* (Lilly Pilly), and *Backhousia myrtifolia* (Iron wood)" specimens have been recorded as "Outstanding Trees" in adjacent Compartments 2004 and 2005. Trees that are significantly larger than the average stand diameter and height should be considered for retention. The tree/s must be left standing until the SFO or Sales Forester inspects the tree/s to determine if it is an outstanding tree. The tree is to be retained if determined to be an "Outstanding Tree" and placed on the "Outstanding Tree" data base.

- All trees greater than or equal to 200cm must be retained.

6: CULTURAL HERITAGE

(a) Cultural Heritage:

All relevant representatives have been consulted and inspected Compartment 2002.

7: FLORA AND FAUNA CONDITIONS

7.1: FLORA AND FAUNA GENERAL CONDITIONS.

(a) Tree Retention for Habitat and Food Resources:

Hollow-bearing Trees:

- A minimum of six hollow-bearing live trees per hectare must be retained in “**high**” quality habitat forest, a minimum of four hollow-bearing trees per hectare must be retained in “**moderate**” quality habitat forest and a minimum of two hollow-bearing trees per hectare must be retained in “**low**” quality habitat forest. The determination of ‘habitat quality classes’ will be made by the SFO during tree-marking in the field.
- 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 six per hectare in “high” quality habitat forest, four per hectare in “moderate” quality habitat forest and two per hectare in “low” quality habitat forest. The additional trees retained must be those trees of the next oldest age class available which are likely to persist longer than the oldest trees and are likely to become hollow-bearing trees.
- “Hollow-bearing tree” means a tree where the base, trunk or limbs contain hollows, holes and cavities that have formed as a result of decay, injury or other damage. Such hollows may not be visible from the ground, but may be apparent from the presence of deformities such as burls, protuberances or broken limbs, or where it is apparent the head of the tree has been lost or broken off.
- Retained hollow-bearing trees must represent the range of hollow-bearing species that occurs in the area. Preference should be given to selecting those species or trees that are most suitable for the threatened species known or likely to occur in the area.
- Trees retained outside the net logging area must not be counted as hollow-bearing trees. Trees retained within unlogged parts of the net harvest area, which meet the definition of a hollow-bearing tree, should be marked and counted as hollow-bearing trees.
- Hollow-bearing trees must be scattered throughout the net logging area.

Recruitment Trees:

- A minimum of six recruitment trees per hectare must be retained in “**high**” quality habitat forest, a minimum of four recruitment trees per hectare must be retained in “**moderate**” quality habitat forest and a minimum of two recruitment trees per hectare must be retained in “**low**” quality habitat forest.

- Retained recruitment trees must be selected from trees of the next oldest age class available which are likely to persist longer than the oldest trees and are, or are likely to become hollow-bearing trees.
- Retained recruitment trees must represent the range of tree species that occurs in the area. Preference should be given to selecting those species or trees that are most suitable for the threatened species known or likely to occur in the area.
- Trees retained outside the net logging area must not be counted as recruitment trees. Trees retained within unlogged parts of the net logging area, which meet the definition of a recruitment tree, should be marked and counted as habitat trees.
- Recruitment trees must be scattered throughout the net logging area.

Dead Stags:

- Five dead stags must be retained per hectare of net logging area where it is safe to do so. If there are less than five stags per hectare, then all stags should be retained where it is safe to do so.
- Stags must not be counted as hollow-bearing trees or recruitment trees.

Significant Food Resources:

- Where more than 30 crushed *Allocasuarina* seed cones have been found beneath an individual of *Allocasuarina* spp., indicating intensive use by the Glossy Black-Cockatoo, the tree must be retained and protected from specified forestry activities.
- Specified forestry activities should be conducted in such a manner as to minimise damage to stands where *Allocasuarina* spp., dominate the canopy.
- All Yellow-bellied Glider and Squirrel Glider sap feed trees must be retained. Yellow-bellied Glider sap feed trees are trees with "V" notch feeding scars. Retained sap feed trees should be counted as hollow-bearing or recruitment trees.
- Damage to flowering or fruiting banksias and *xanthorrhoea* spp should be avoided during forestry operations.

Protection of hollow-bearing trees, recruitment trees, and retained food trees:

Specified forestry activities and post-logging burning must aim to minimise damage to hollow-bearing trees, recruitment trees, and retained food trees. The potential for damage should be minimised by techniques of directional felling, where it is safe to do so. Logging debris must be removed or flattened where it has accumulated to a height of more than one (1) metre within 5 m of live retained trees, provided it is safe to do so.

(b) Stream Exclusion Zones:

Stream exclusion zones must be applied to the first, second, third, fourth and higher order streams as indicated on the Harvesting Plan Operational Map.

- All forestry activities including burning must be excluded from these zones.
- Where it is considered likely that fire applied externally will enter these exclusion zones through natural spread, a carefully planned ignition pattern and sequence should be applied.

(c) Ridge and Headwater Habitat:

A strip of Ridge and Headwater Habitat (40m wide) is located on the common boundary of Coupes 1 and 3 of Compartment 2002 as indicated on the Harvesting Plan Operational Map.

- Specified forestry activities must be excluded from this area.
- Where it is considered likely that fire applied externally will enter this exclusion zone through natural spread, a carefully planned ignition pattern and sequence should be applied.

(d) Rainforest areas:

The actual location of rainforest areas as delineated in the Harvesting Plan Operational Map was determined using API. Field verification will be conducted by the SFO during supervision of the harvesting operation to determine the extent of KB rainforest floristic assemblages.

- Specified forestry activities must be excluded from these rainforest areas and the corresponding 20 m exclusion zones.
- Where it is considered likely that fire applied externally will enter this exclusion zone through natural spread, a carefully planned ignition pattern and sequence should be applied.

(e) Rare Old Growth Forest Communities: Nil.

(f) Rare Forest Ecosystems: Nil.

(g) Heath and Scrub: Nil.

(h) Rocky Outcrop and Cliffs: Nil.

(i) Wetlands: Nil.

7.2: FLORA AND FAUNA SPECIFIC CONDITIONS.

(a) Rare or Threatened Flora Species: Nil.

(b) Schedule 1 and 2 Fauna Species Prescriptions:

Yellow-bellied Gliders: A Yellow-bellied Glider feed tree record (GR 234383/596787) is located within the FMZ 3bC Zone in Coupe 9 of Compartment 2002 as indicated on the Harvesting Plan Operational Map.

The following conditions shall apply for Yellow Bellied Gliders:

- A 50 metre radius exclusion zone must be implemented around Yellow-bellied Glider dens.
- All Yellow-bellied Glider sap feed trees must be retained. All Yellow-bellied Glider sap feed trees must be marked for retention.
- Where there is a record of a Yellow-bellied Glider within the compartment, or within 100m outside the boundary of the compartment, the following must apply:
Within 100m radius (3 ha) around each retained Yellow-bellied Glider sap feed tree, observation or den site record, 15 feed trees must be retained. Yellow-bellied glider sap feed trees must not be counted towards these 15 trees.
- Within a 200m radius of a yellow-bellied Glider call detection site record, 15 trees must be retained.
- Mature and late mature trees must be retained as feed trees where these are available. The retained feed trees should be of the same species as the identified sap feed tree, or be a tree species recognised as a sap feed tree in the area (*Corymbia maculate*, *Eucalyptus botryoides*, *E. angophoroides*). The feed trees retained must be marked for retention. Note: habitat trees and recruitment trees may be counted towards the 15 trees as long as they have good crown development, minimal butt damage, should not be suppressed and be of the preferred species (as per above).

Koala: Compartment 2002 was surveyed for koalas as part of the Regularised Grid Based Sampling Protocol (GRIDSAT). This survey was conducted by the Department of Environment and Climate Change in conjunction with FNSW and community members. No evidence of koalas was located in Compartment 2002 during the GRIDSAT survey or from previous reliable surveys.

- In the event that a koala is detected during harvesting the SFO must be notified immediately. Harvesting must cease immediately in the general area of the record and the Sales Forester Eden notified. Harvesting must not recommence in the general area until further instructions have been received from the Sales Forester Eden.
- In the event that woollybutt dominated stands are detected during harvesting the Sales Forester Eden via the SFO must be notified immediately. Harvesting must avoid the woollybutt dominated stand until further instructions have been received from the Sales Forester Eden. Forest type mapping indicates that woollybutt dominated stands are not present in this compartment.

Powerful Owl, Masked Owl and Sooty Owl:

A Sooty Owl record is located in Coupe 9 within Compartment 2002. Care should be taken during mark up to identify possible roost and nest sites.

- A 30 metre radius exclusion zone must be implemented around all Powerful Owl, Masked Owl and Sooty Owl Roost Trees.
- A 50 metre radius exclusion zone must be implemented around all Powerful Owl, Masked Owl and Sooty Owl Roost Trees.

Glossy Black Cockatoos: A Glossy Black Cockatoo feed tree was detected within Coupe 8 of Compartment 2002 as indicated on the Harvesting Plan Operational Map.

The following conditions shall apply for Glossy Black Cockatoos:

- Where more than 30 crushed *Allocasuarina* seed cones have been found beneath an individual of *Allocasuarina* spp., indicating intensive use by the Glossy Black-Cockatoo, the tree must be retained and protected from specified forestry activities.
- Specified forestry activities should be conducted in such a manner as to minimise damage to stands where *Allocasuarina* spp., dominate the canopy.

Swift Parrot: Swift parrots were recorded within Compartment 2002.

The following conditions shall apply for Swift Parrots:

- At least five (5) eucalypt feed trees must be retained within every hectare of the net logging area. These trees must be marked for retention.
- Where retained eucalypt feed trees also meet the requirements of hollow-bearing or recruitment trees, the retained eucalypt feed tree can be counted as a hollow-bearing or recruitment tree.
- Where a swift parrot is observed feeding, the tree in which it is feeding must be retained.

No other Schedule 1 or 2 species that require specific prescription for the proposed operation were detected during pre-harvest surveys or from existing records within the planning unit. Licencee and supervisory staff must immediately report any sightings of Schedule 1 and 2 species to the Supervising Forester.

8: SOIL EROSION AND WATER POLLUTION CONTROL

Table 3: E.P.L. Site and Soil Assessment Details

	Compartment 2002
Inherent Hazard Class	Two (2)
Parent Rock Type	Ordovician Metasediments.
Dispersible Soils	Nil
Mass Movement	Nil
Seasonality Constraints	Nil
Slope limits for Harvesting	30 degrees
Slope limits for Snig Track construction	25 degrees

8.1: DRAINAGE FEATURE PROTECTION.**Table 4: Minimum Filterstrip, Stream Exclusion Zones and Drainage Depression Buffer Widths for Drainage Features in Native Forests**

Stream Order	Drainage Line Filterstrip Width I.H.L. 2 (m)	Stream Exclusion Zones Width (m)	Drainage Depression Buffer Width (m)
Unmapped features	10	Nil	5
Mapped 1st Order	15	10	5
Mapped 2nd Order	20	20	5
Mapped 3rd Order	25	30	5
Mapped 4th & higher	25	50	5

- Where filterstrips and stream exclusion zones overlap, the more stringent (widest) condition must apply.

8.2: ROADS AND CROSSINGS.

There are no new roads or crossings associated with this harvesting operation. Reference must be made to the Roding Plan in Appendix 1, attached to this harvesting plan.

(a) Wet Weather Controls:

Harvesting operations may be conducted throughout the year subject to the application of normal wet weather closure procedures and restrictions to wet weather areas.

- Dumps A, D, G, H, I and J are the nominated wet weather dumps for this harvesting operation.

(b) Order of working:

The order of working will be progressive harvesting of Compartment 2002 subject to wet weather constraints and as directed by the SFO. The contractor must not leave a designated working area (dump or coupe as specified by the SFO) until approval has been given by SFO. Harvest scheduling will avoid areas adjacent to residential areas during the summer months to minimise additional elevated fuel loads.

(c) Downhill Snigging:

Minor downhill snigging will be required within Compartment 2002.

Where downhill snig tracks connect directly with a log dump the following must be used:

- Snig tracks must enter the log dump from the side or below; or
- A drainage structure must be in place immediately before a snig track enters the log dump at the end of each day's operation.

8.3: LOG DUMPS.**(a) Location:**

Location of log dumps is indicated on the Harvesting Plan Operational Map.
Log dump size must be kept to a minimum.

8.4: EXTRACTION TRACKS.

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

9: TREE-MARKING CODE

As required under the **Terms of the Threatened Species Licence and IFOA**, tree marking in Southern Region - Eden (EMA) must be according to the following state-wide Harvest Marking Code;

Table 5: Harvest Marking Code

Description	Symbol
A. STANDARD MARKINGS/SYMBOLS	
MARKINGS/SYMBOLS THAT DELIVER KEY REQUIREMENTS ON A STATEWIDE BASIS	
Compartment boundary Where not defined by clear features eg. Road, trail, creek	"O" or Yellow tape
Exclusion zone (eg. Old Growth or Species Exclusion Zone) Line not to be crossed or disturbed by fallers or harvesting machinery at any time	Three horizontal lines or rings Or Blue tape
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)	"α"
Buffer Zone Areas where disturbance by harvesting is allowed only under specified conditions	Two horizontal lines or rings (with indication of distance if required)
Extraction System Road/Track line	<u>"I" or white tape</u>
Dump site with optional dump number reference	"D" or red tape
Approved crossing site	"b"
Slope angle indication (commences here)	eg "25°"
Trees To Be Removed Individual tree	". " or dots
Directional felling mark	"Ç" over ". "
Retained Trees Retained trees not to be removed or damaged (eg grower)	One horizontal line or ring
Habitat tree, for any flora or fauna.	<u>"H"</u>
Eucalypt feed tree	<u>"E"</u>
Recruitment tree	<u>"R"</u>
Cancellation Mark Mark to formally cancel previous marks	"X"
Distinctly Dangerous Tree Arrow to indicate direction of hazard	"Æ- "

Description	Symbol
SPECIALIST MARKINGS/SYMBOLS Additional specialist Markings/Symbols that may be used in place of, or additional to standard markings to highlight particular issues as required by regulators, Forests NSW, or others.	
Flora Fauna Features Retained Tree	One horizontal line or ring
Glossy black cockatoo feed tree, record or nest	<i>PLUS</i> "GB"
Owl nest and/or roost	"OWL"
Nest (raptors, parrots etc.)	"N"
Yellow-bellied Glider v-notch feed tree or record	"Y"
Squirrel Glider sap feed tree, record or nest	"SG"
Koala high use tree	"K"
Koala retained feed tree	One horizontal line or ring
Frog record	"F"
Smoky Mouse record	"SM"
Quoll record; latrine; den	"Q"; "QL"; "QD"
Bat record; roost	"B"; "BR"
Phascogale den	"PD"
Threatened plant	"TP"
Other Markings	
Private property	"PP"
Cave, tunnel or mineshaft	"CTM"
Drainage Depression Centre line	"DD"
Coupe Boundary	Blue Ring
Filterstrips/stream exclusion zones	Three horizontal lines or Rings Or Pink tape

Any tree/feature marking will conform to this code. Items to be marked in the field will be specified in the Harvest Plan

10: YIELD ESTIMATES

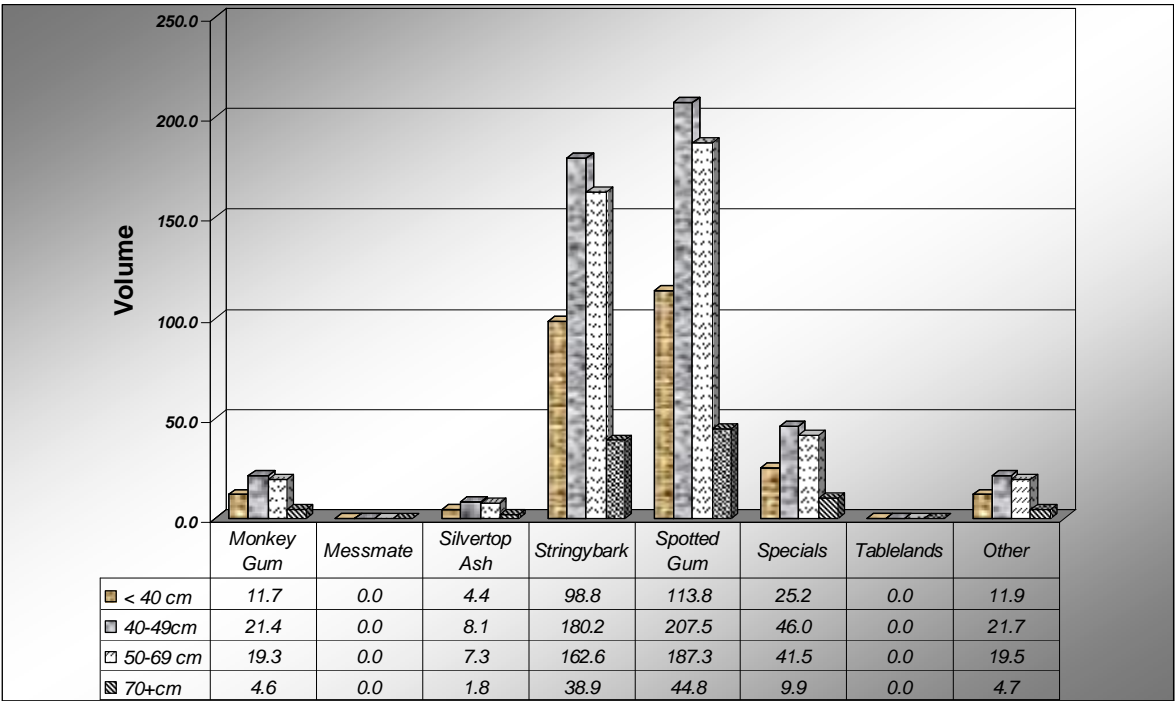
Table 6: Yield Estimate Information

Compartment No.	Sawlog Volume (m ³ / ha)	Pulpwood Volume E1 & E2 (t / ha)
2002	17	13

Source: Average volumes from recently harvested surrounding compartments.

Note: Pulpwood volume has been adjusted to reflect changed specifications in 2002.

Graph 1: Species Group and Size Class Sawlog Volume Predictions Cpt 2002



11: AUTHORISATION CONDITIONS

11.1: LEGAL AND ENVIRONMENTAL COMPLIANCE REQUIREMENTS.

This Harvesting Plan is prepared by Forests New South Wales under the authority of the Forestry Act 1916. This Harvesting Plan is a condition of all Timber, Forest Products, Contractors and Operators Licences issued in connection with the timber harvesting operations described in the Plan.

All operations conducted under the authority of the Timber Licence and other licences and agreements issued for the area covered by this Harvesting Plan must comply with:

- all licence conditions issued by Forests NSW under the Forestry Act 1916;
- the **“Forest Practices Code, Part 2, Timber Harvesting in Native Forests - State forests and Crown-timber Lands”** (1999);
- the conditions of **“The Integrated Forestry Operations Approval for the Eden Region, Forestry and National Parks Estate Act 1998”**;
- the schedule of specifications for the harvesting and utilisation of timber applicable to this operation, in this case, the **“Utilisation Schedule for Graded and Salvage Grade (Interim) Sawlogs on Crown Timber Lands within Eden Management Area”** and the **“Wood Supply Agreement” between State Forests of NSW (now Forests NSW) and Harris Daishowa (Australia) Pty Ltd (trading as “South East Fibre Exports P/L”) (29th September 1999)**;
- the Code of Procedure for the measurement of timber and other products applicable to this operation, in this case, the **“Code of Procedure for Sale of Hardwood Sawlogs by Gross Volume Measurement from within Eden Management Area using Truck Delivery Dockets”** and the **“Code of Procedure between Harris Daishowa (Australia) Pty Ltd (trading as “South East Fibre Exports P/L”) and Forestry Commission of NSW (now Forests NSW) for Sale of Native Hardwood Pulpwood by Weight using Truck Delivery Dockets as a Basis for Account within Southern Forestry Region (Edition IV – October 1994)”**; and
- the **“Protocol for Fuel Management - Eden Management Area”**.

Variations, additions or amendments to the above documents may be made by the responsible authorities at any time, and must be implemented immediately by the Forests NSW Licensee.

In preparing this Harvesting Plan, the requirements of Part V of the *Environmental Planning and Assessment Act 1970* (as amended) and Section 92 of the *National Parks and Wildlife Act 1967* have been considered.

11.2: BREACHES AND INFRINGEMENTS.

Non-compliance with any condition or instruction set out in this Harvesting Plan will be dealt with in accordance with Section 6 of the **“Forest Practices Code, Part 2, Timber Harvesting in Native Forests - State forest and Crown-timber Lands”**. Serious breaches may lead to the issue of a Penalty Notice, licensee suspension or prosecution.

11.3: VARIATIONS AND AMENDMENTS TO THIS HARVESTING PLAN.

Conditions and requirements relating to the Environment Protection Licence cannot be varied in the field without the prior approval of the Regional Manager, other than those areas consistent with Condition 16.1 of the Environment Protection Licence. Variations and other specified approvals consistent with Condition 16.1 of the Environment Protection Licence, may be made by the SFO to this Harvesting Plan, subject to the Regional Manager's counter approval. Other approvals may only be made by the Supervising Forester and are also subject to the Regional Manager's counter approval.

All approvals must be recorded on the SFOs' Advise and Comments Form attached to all operational copies of this Harvesting Plan.

This Plan must not be amended by a licensee or contractor.

11.4: HARVESTING PLAN AVAILABILITY.

Copies of this Harvesting Plan must be held available by the contractor or bush supervisor at the site of logging operations at all times that felling, snigging or environmental work is being undertaken within the area covered by this Harvesting Plan.

11.5: HARVESTING PLAN DISTRIBUTION LIST.

NAME	PARTS	MINIMUM NO. COPIES
Timber Licensees:	Maps,1-13 App. 1.	1
S.E.F.E.	Maps,1-13 App. 1.	1
Blue Ridge Hardwoods	Maps,1-13 App. 1	1
Davis & Herbert Nowra	Maps,1-13 App. 1	1
Davis & Herbert Narooma	Maps,1-13 App. 1	1
Big River Timbers	Maps,1-13 App. 1	1
Contractors	Maps,1-13 App. 1.	2
Operator(s) (where required)	Maps,1-13 App. 1.	
Supervising Forest Officer [SFO(s)]	Maps,1-13 App. 1.	1
Supervising Forester(s)	Maps,1-13 App. 1.	1
Regional Office Compartment History File	All	1
Soil Specialist (FNSW)	All	1
Forestry Unit - DECC Sydney South	Summary of Operations	1 – E mailed

11.6: INDUSTRY ENDORSEMENT.

I endorse this Harvesting Plan on behalf of the industry.

At final inspection n S.E.F.E. supervisor must be present. If a S.E.F.E. supervisor is not present, final clearances will not be given.

Company:

Signature:

Licence No :

Date:

Title:

Company:

Signature:

Licence No:

Date:

Title:

12: PRE OPERATION BRIEFING

12.1: HARVESTING CONTRACTOR ACKNOWLEDGEMENT – (SFO COPY).

I acknowledge that I have received a copy of the Harvesting Plan No HP_ED_2002T_09 and that I understand the conditions of the Plan as explained to me by a Supervising Forest Officer. I will brief other operators not present at this briefing prior to them starting operations.

Company:

Signature:

Licence No:

Date:

Title:

12.2: SFO ACKNOWLEDGEMENT – (SFO COPY).

I acknowledge that I have received a copy of the Harvesting Plan No HP_ED_2002T_09 and that I have been briefed on the conditions of the Plan and understand the supervision and operational control requirements as explained to me by the Sales Forester or their delegate.

Acknowledged:

Signature:

Title:

Supervising Forest Officer

Date:

Acknowledged:

Signature:

Title:

Relief Supervising Forest Officer

Date:

13: CERTIFICATION**PLAN PREPARATION**

Prepared by:

Signature:

Title: **Harvest Planning
Team Leader**Date: **31/08/09.****EXTERNAL AUTHORITY NOTIFICATION**

(To be completed by the person who originally prepared the Plan and who must attach the relevant notifications to the office copy of the Harvesting Plan.)

Notification to DECC.

Name of Authority.	Date of Notification by E-mail
DECC	

REGIONAL APPROVAL

I note notification of this Harvesting Plan to the above-mentioned authority, together with the amendments that have been included in the Final Plan.

This Harvesting Plan comprises pages 1 - 24 attached, the Roding Plan (Appendix 1) and the Harvesting Plan Operational Map marked and referenced to this Harvesting Plan. This is Harvesting Plan No HP_ED_2002T_09.

I approve the issue of this Harvesting Plan subject to any amendments and endorsements that may be made following notification to the Department of Environment and Climate Change.

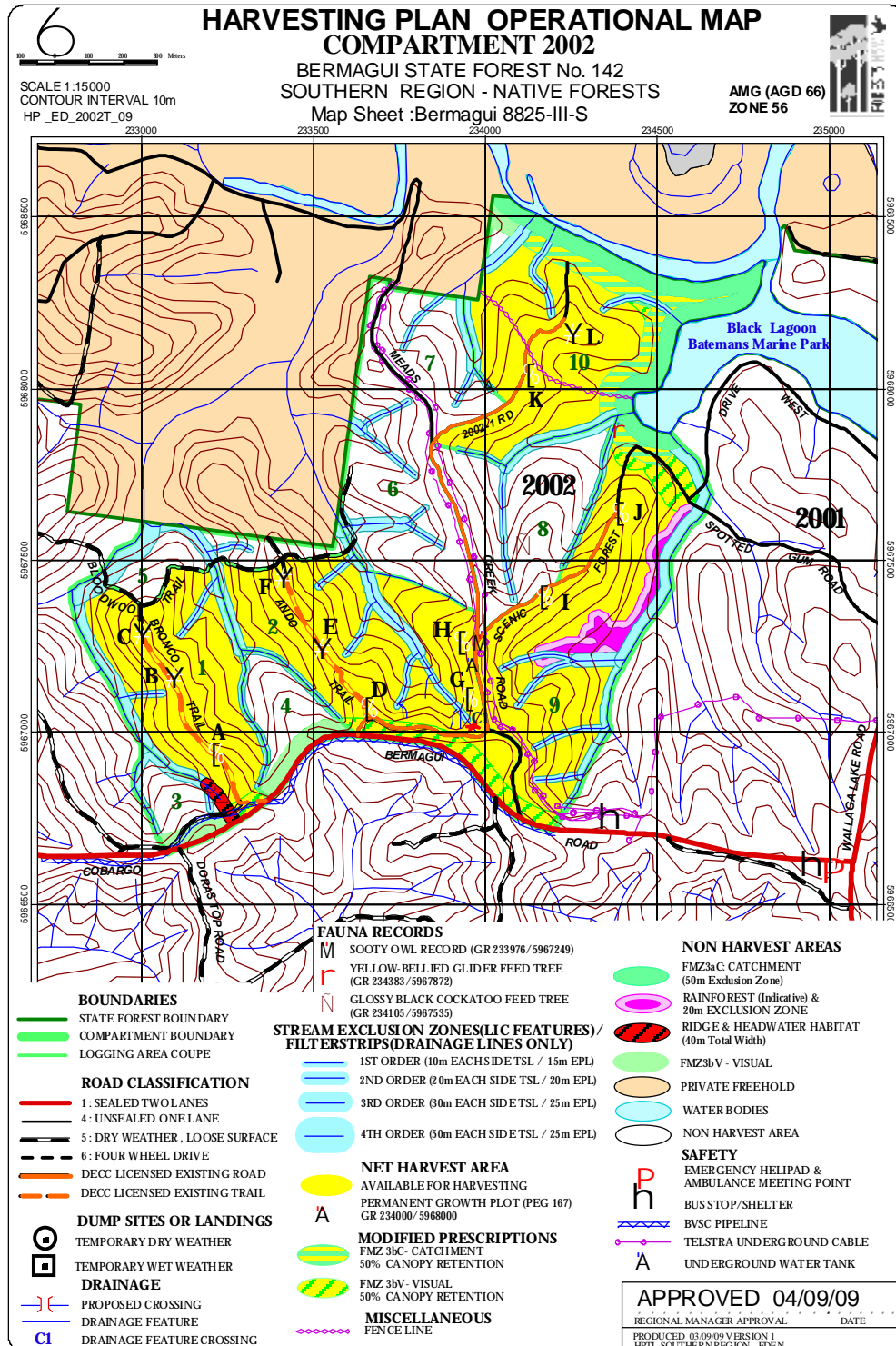
Approved by:

Signature:

Title: **Regional Manager**

Date:

OPERATION COMMENCEMENT DATE: _____



Road Assessment			
Length to be used/reopened/realigned	Used: 1300m & 600m Realigned: Nil	Are there any borrow/gravel pits to be used & are they stable?	Nil
Max. pavement width (m)	8 & 4	Site specific spoil management?	As required flatten, seed & mulch.
Max. clearing outside road prism (m)	2	Types of existing road drainage	Relief pipes, mitre drains & crossfall.
Max. road grade / dist if > 10 degrees	6 degrees	Spacing of road drainage comply with EPL	Yes
Site specific techniques to lower grade?	Nil	Max. length/height/condition of batters	1000m / < 2 m / stable 250m / < 1 m / stable
Maximum groundslope (degrees)	20 deg. & 14 deg.	Condition of existing drop down structures	Not Applicable
		Site specific techniques for soil erosion & sediment control	As per drainage

FEATURE WORKS REQUIRED (FNSW 1 & Contractor Responsibility)		FINAL ROAD USE: RETAIN	
		START DATE	FINISH DATE
Pavement	Meads CK Rd: Requires patch grading (FNSW).		
Roadside Clearing	None required.		
Gravelling	None required.		
Drainage	On completion drainage structures to be left in an effective working manner. Logging debris to be removed from table and mitre drains. Road surface to be left in a similar or better condition than prior to the operation. SFO to monitor road surface if crown drainage becomes ineffective rubberflaps are to be installed as per the EPL (Contractor).		
Erosion Control	As above.		
Underground Cable	See Teslra's Duty of care attached to this plan. SFO to monitor road sinkage/compaction at the cable crossing point during haulage. To avoid damage to the cable additional fill to be added if required.		

PRODUCED BY HPTL: EDEN 21/08/09

Road Assessment			
Length to be used/reopened/realigned	Used: 600m Realigned: Nil	Are there any borrow/gravel pits to be used & are they stable?	Nil
Max. pavement width (m)	5	Site specific spoil management?	As required flatten, seed & mulch.
Max. clearing outside road prism (m)	2	Types of existing road drainage	Relief pipes, Mitre drains and crossfall.
Max. road grade / dist if > 10 degrees	8 degrees	Spacing of road drainage comply with EPL	Yes
Site specific techniques to lower grade?	Not Applicable	Max. length/height/condition of batters	500m/1m/Stable
Maximum groundslope (degrees)	16 degrees	Condition of existing drop down structures	Not Applicable
		Site specific techniques for soil erosion & sediment control	As per drainage

FEATURE WORKS REQUIRED (FNSW 2 & Contractor Responsibility)		FINAL ROAD USE: RETAIN	
		START DATE	FINISH DATE
Pavement	Reinstate the crown and resheet with gravel the steep section above picnic area (FNSW).		
Roadside Clearing	None required.		
Gravelling	As above		
Drainage	SFO to monitor road surface if crown drainage becomes ineffective rubberflaps are to be installed as per the EPL. On completion drainage structures to be left in an effective working manner. Logging debris to be removed from table and mitre drains. Road surface to be left in a similar or better condition than prior to operation (Contractor).		
Erosion Control	Unlicensed section: Install relief pipe at approx 80m (GR E234400/N5967700) above existing relief pipe on steep southern section approach to Black Lagoon Picnic Area. Reinstate the crown and resheet with gravel the steep section of road above picnic area. Armour with gravel the approaches of the two unlicensed crossings to the immediate north of the junction with Spotted Gum Rd. Install sediment fencing around each of the unlicensed crossings that front Black Lagoon. Soil specialist and Ops Supervisor to discuss additional measures on site where required (FNSW).		
Underground Cable	See Teslra's Duty of care attached to this plan. SFO to monitor road sinkage/compaction at the cable crossing point during haulage. To avoid damage to the cable additional fill to be added if required.	PRODUCED BY HPTL: EDEN 21/08/09	

Roading Plan - Existing Road/Road Closure FORM 13(A) 			
APPENDIX 1		Compartment / Coupe: 2002 / 9	
Road Name: Spotted Gum Road		Assessor/date: 10.07.09	
Road Assessment		Are there any borrow/gravel pits to be used & are they stable?	Not Applicable
Length to be used/reopened/realigned	Used: N/A Realigned: Nil	Site specific spoil management?	Not Applicable
Max. pavement width (m)	Not Applicable	Types of existing road drainage	Not Applicable
Max. clearing outside road prism (m)	Not Applicable	Spacing of road drainage comply with EPL	Not Applicable
Max. road grade / dist if > 10 degrees		Max. length/height/condition of batters	Not Applicable
Site specific techniques to lower grade?	Not Applicable	Condition of existing drop down structures	Not Applicable
Maximum groundslope (degrees)	Not Applicable	Site specific techniques for soil erosion & sediment control	As per drainage
FEATURE	WORKS REQUIRED (Contractor Responsibility)	FINAL ROAD USE: RETAIN	
Pavement	Not Applicable	START DATE	FINISH DATE
Roadside Clearing	Not Applicable		
Gravelling	Not Applicable		
Drainage	Within Cpt 2002: The contractor is to install baulk drains on Spotted Gum Road immediately to the east of the junction with Scenic Forest Drive West. The location of the baulk drains are to be approved by the SFO and are not to drain directly into drainage features and must drain onto stable ground as per the EPL.		
Erosion Control	As above.		
		PRODUCED BY ROBERT YOUNG HPTL: EDEN 21/08/09	

Road Assessment		Are there any borrow/gravel pits to be used & are they stable?	Nil
Length to be used/reopened/realigned	Used: 500m Realigned: Nil	Site specific spoil management?	As required flatten, seed & mulch.
Max. pavement width (m)	4	Types of existing road drainage	Mitre drains.
Max. clearing outside road prism (m)	2	Spacing of road drainage comply with EPL	Yes
Max. road grade / dist if > 10 degrees	7 degrees	Max. length/height/condition of batters	200m / < 1 m / stable
Site specific techniques to lower grade?	Nil	Condition of existing drop down structures	Not Applicable
Maximum groundslope (degrees)	16 degrees	Site specific techniques for soil erosion & sediment control	As per drainage

FEATURE	WORKS REQUIRED (FNSW 3 & Contractor Responsibility)	FINAL ROAD USE: RETAIN	
Pavement	Requires patch grading (FNSW).	START DATE	FINISH DATE
Roadside Clearing	None required.		
Gravelling	None required.		
Drainage	Reinstate existing mitres (FNSW). On completion drainage structures to be left in an effective working manner. Logging debris to be removed from table and mitre drains. Road surface to be left in a similar or better condition than prior to operation (Contractor).		
Erosion Control	SFO to monitor road surface if crown drainage becomes ineffective rubberflaps are to be installed as per the EPL.		
Sight Distance	Western approach: Southern side of Bermagui-Cobargo Rd remove vegetation to achieve 160m sight distance.		

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Road Assessment		Are there any borrow/gravel pits to be used & are they stable?	Nil
Length to be used/reopened/realigned	Used: 600m Realigned: Nil	Site specific spoil management?	As required flatten, seed & mulch.
Max. pavement width (m)	4	Types of existing road drainage	Rollovers and Mitre drains.
Max. clearing outside road prism (m)	2	Spacing of road drainage comply with EPL	Yes
Max. road grade / dist if > 10 degrees	3 degrees	Max. length/height/condition of batters	Nil
Site specific techniques to lower grade?	Not Applicable	Condition of existing drop down structures	Not Applicable
Maximum groundslope (degrees)	14 degrees	Site specific techniques for soil erosion & sediment control	As per drainage

FEATURE	WORKS REQUIRED (FNSW 4 & Contractor Responsibility)	FINAL ROAD USE: RETAIN	
Pavement	None required.	START DATE	FINISH DATE
Roadside Clearing	None required.		
Gravelling	None required.		
Drainage	On completion drainage structures to be left in an effective working manner. Logging debris to be removed from table and mitre drains. Road surface to be left in a similar or better condition than prior to operation (Contractor).		
Erosion Control	As an interim measure sediment fencing should be installed in the drainage feature below the area of active erosion. The long term stability of the site will only be achieved through significant stabilisation works to reduce the velocity of the runoff in the table drain along Cobargo-Bermagui Rd and in the head of the drainage feature below Bronco Trail. FNSW is currently negotiating with BVSC on the nature of erosion control works. Should the parties not be able to come to a satisfactory agreement prior to harvesting of this section of the cpt, then FNSW should undertake erosion control works to reduce the impact of the runoff on the stability of the drainage feature. The nature of these works will be determined by the soil specialist and the harvest planning team leader and should be completed prior to the commencement of harvesting in this section of the compartment.		
BVSC underground water pipe	Approx 70m of this road is in the immediate vicinity of the BVSC water main. Caution should be taken in placement and depth of drainage structures to avoid damage to this pipe (FNSW).	PRODUCED BY HPTL: EDEN 21/08/09	

Native Forest Management System

FORM 14 (A): ASSESSMENT OF EXISTING DRAINAGE FEATURE CROSSINGS

REGION: Southern Region: Eden.
MANAGEMENT SECTION: Quaama.
ASSESSED BY:

STATE FOREST: Bermagui.
COMPARTMENT: 2002.

(For factors to be considered under Schedule 2 of the Environment Protection Licence)

<u>Crossing Number</u>	C1
<u>Location</u>	Snig track crossing within Coupe 2
GPS co-ordinates	E233943 N5967036.
Drainage Feature	Drainage line.
Type of drainage crossing structure	Natural causeway
Structure stability	Stable.
Width of road pavement at crossing	4.0m x 4.0 m.
Road pavement type & stability	Natural
Road pavement containment	Vegetation.
Approach road grade	+17° North-eastern, +3° South-western.
Existing approach drainage structures	North-eastern: Rollover, South-western approach: Crossfall,
Distances to approach road drainage structures (w/n 30 m?)	North-eastern approach: 5m, Western approach: Nil.
Stability of outlet discharge	Vegetated and stable.
Bed & bank stability	Vegetated and stable.
Condition of approach road (w/n 20m)	Surface stable.
*Recommended site specific soil stabilisation techniques w/n 20m of drainage feature crossing	Nil.
*Recommended site specific soil erosion & sediment control techniques	At the end of each day and on each approach install drains between 5m and 20m from the incised bank. On completion of use and on each approach install drains between 5m and 20m from the incised bank.
*Recommended site specific techniques for disposal of excess spoil material	Nil. No excess spoil.
Maintenance instructions / additional recommendations	As above.

*Also, HP to notify Soil Conservationist & refer to Soil Assessment Report.