STATE FORESTS OF N.S.W
URBENVILLE DISTRICT

HARVESTING PLAN AMENDMENT
Compartments 115 & 116 Beaury State Forest

As a result of prescriptions imposed by the National Parks and Wildlife Service for the inclusion of the above mentioned compartments on Temporary Section 120 Licence No. TS0005, the Harvesting Plan is amended in the following way.

Habitat Tree Retention:

Habitat tree retention in Dry Hardwood and Moist Hardwood forests with a xeromorphic understorey shall be four trees per hectare. For the purposes of this prescription a xeromorphic understorey is considered to be one composed predominately of grasses, heath, and/or shrubs with sclerophyllous leaves.

Habitat tree retention in Dry Hardwood and Moist Hardwood forests with a mesic understorey shall be six trees per hectare. For the purposes of this prescription a mesic understorey is considered to be one composed predominately of moist elements such as vines, shrubs with mesophyllous leaves and/or rainforest ferns.

Habitat trees will be hollow bearing trees. They are to be well spaced throughout the compartment being harvested consistent with the size of canopy gaps required for adequate regeneration and growth for the species of these forest types. Where the specified density of habitat trees is not present the existing density is to be retained. Sufficient recruitment of habitat trees to sustain the retained density of habitat trees into perpetuity are also to be retained. Stags shall not be counted as habitat trees.

In addition, all practical precautions shall be taken to protect identified habitat trees during logging operations. The following shall be adhered to:

1. All practical precautions shall be taken to avoid tree heads landing adjacent to identified habitat trees. In gapping operations tree heads shall be moved to the centre of gaps prior to burning.

2. In forests with a xeromorphic understorey tree heads will be removed from within approximately a 5 metre radius of identified habitat trees. Tree heads shall be removed with minimum disturbance to understorey vegetation and ground logs.

3. In forests with a mesic understorey heads of trees within a radius of 10 metres of identified habitat trees are not to be burnt. Alternatively, if a ground burn can be carried in this forest type then burn conditions shall follow those agreed upon for xeromorphic understorey described in point 2 above.

Koala

Where a koala or recent evidence of a koala is located, the tree will be retained, together with all other trees within a radius of 100 metres of the location, subject to a further survey. Until such time as State Forests has suitably qualified personnel to adequately survey for Koala core breeding areas, operations may only proceed within the 100 metre radius once State Forests has undertaken an inspection to determine Koala use in the area and the Services Northern Regional Manager has authorised approval of the proposed tree retention within the 100 metre radius.

Recent evidence of Koala activity is indicated by the presence of Koala dung pellets beneath trees used by Koalas or by characteristic claw mark scratchings on the trunks of trees used by Koalas.

The Service agrees to determine authorisation within 24hours of receipt of notification.

Glossy Black Cockatoo

Protection of Glossy Black Cockatoo feed trees. All practical attempts shall be made to minimise disturbance to mature seeding forest oaks throughout the logging area.

Black-Striped Wallaby

If during the marking or logging operations Black-striped Wallabies are observed, logging is not to start or recommence until a survey is undertaken to determine the extent of the population within the logging area.

Black-breasted Button Quail

The marking foreman and logging contractors shall be informed of how to identify Black-breasted Button Quail and their feed scrapings. If any of these are observed during marking or harvesting the Services Northern Regional Manager is to be informed. Operations within 250 metres of this location are to cease until the level and extent of Black-breasted Button Quail is assessed.

Rufous Scrub-bird.

Any observation of Rufous Scrub-birds should be followed up by survey work to identify territory boundaries. Logging and hazard reduction burning should be excluded from within a 250m radius of the centre of any mapped territory.

Amendment prepared and approved by:

S.R. Schubert

Scott Schubert
Marketing Forester

8 March 1994.

HARVESTING PLAN - URBENVILLE DISTRICT

NORTHERN REGION

URBENVILLE DISTRICT

PART A GENERAL DETAIL

1. General Detail of Operation

1.1 General Description of Harvesting Operation and Products

Selective hardwood logging for sawlogs, poles and girders, salvage and non-compulsory logs.

1.2 Licensees — Ford Timbers Pty. Ltd.

1.3 Contractors — To be specified.

2. Area Description

2.1 Location

State Forest	Beaury No. 2
Compartments	115, 116
Gross Area	298 hectares
Net Area (to be logged)	185 hectares
Mapping Details	Tooloom 1:25,000 Map
Co-ordinates	4364E 8442N (south west corner) 4387E 8455N (north east corner)

2.2 Volume Estimates (of products to be removed)

Products	Volume (cubic metres)
Quota (assessed)	2,000
Poles/Girders	Nil/negligible
Thinnings	500

2.3 Lessee/Permittee — Tenure - Occupation Permit No. 12055 over the eastern part of Cpt 116.
The OP is in the name of R.J. and L.J. Brown
Care is to be taken when logging near internal and boundary fences. Any damage to maintained fences is to be repaired immediately.

2.4 Map — See attachment

PART B OPERATIONAL REQUIREMENTS

3. Codes and Procedures for operators

3.1 Plan availability - operators must have a copy of the Harvesting Plan available at the area of operations at all times when felling, snigging or erosion control work is proceeding.

3.2 Order of Working - Log Dumps, the approximate location of which is illustrated on the attached map, have been allocated a letter. The proposed order of working is as follows: F, A, B, C, D, E, G, H, I, J.

The order of working may be varied following consultation with the Supervising Foreman or Forester.

3.3 Product specification

Compulsory Hardwood Sawlogs - minimum length 2.4m. Maximum defect levels specified in the Schedule of Compulsory Utilisation for Urbenville District.

- Large Hardwood sawlogs: 40cm cdub or larger.
- Small Hardwood sawlogs: 30cm cdub and larger, less than 40 cm cdub.
  Minimum toe 25cm dub.
  Minimum butt 36cm dub.
- Salvage Hardwood sawlogs: Bloodwood and Turpentine species.

Non-compulsory Hardwood Sawlogs

- logs not meeting above specifications.

Poles and Girders

- Specifications as per Hardwood Pole, Pile and Girder Sales System (1992) and Timber Poles for Overhead Lines (AS2209-1979).

Hardwood Round and Split Posts

- logs not meeting specifications for compulsory hardwood sawlogs that have been marked for post utilisation.

3.4 Logging Modification/Exclusion Areas

The major gully running from north to south through compartment 116 has a Preferred Management Priority classification of 1.1.7 "Flora and Fauna Protection - Special emphasis". **A corridor of 40 metres width either side of the gully shall have all logging activity excluded.**

The compartments contain areas of Rainforest, principally Forest Types 1/21 - Booyong/Hoop Pine. **Logging activity shall be excluded from Rainforest stands.** Trees shall not be fallen into Rainforest and logging machinery shall be excluded. Rainforest types are shown on the attached map.

The remainder of the logging area is zoned PMP 1.1.1 "Multiple Use Native Forest - General". Selective logging is permitted within this zone under the direction of the Supervising Foreman in accordance with the stated tree marking requirements and environmental considerations.

Logging shall not be carried out on **slopes in excess of 30 degrees.** No trees shall be marked in these areas.

RESEARCH AND INVENTORY - There are no assessment plots in the logging area.

3.5 Tree and Area Marking Code

3.5.1 Tree Marking Code

Pink Dot	- Tree marked for removal, to produce sawlog/s.
Pink 'P'	- Tree marked for removal, to produce pole.
Pink 'G'	- Tree marked for removal, to produce girder/s.
Pink 'S'	- Tree marked for removal, to produce sleepers.
Pink Horizontal Line	- Tree marked for retention.
2 Pink horizontal lines	- Tree marked for retention, trees may be felled past this point, but machinery is not permitted.
3 Pink horizontal lines	- Tree marked for retention, and neither the faller nor machinery may go past this point.
Pink 'H'	- Those Habitat trees that are likely to be damaged will be marked. No damage is permitted to those marked trees.
Pink 'R'	- those Recruitment trees likely to be damaged will be marked. No damage is permitted to those marked trees.
Pink 'Posts'	- Trees marked for removal, to produce round or split posts.

3.5.2 Area Marking Code

Blue	:	Compartment Boundary
Pink 'D'	:	Dump Site
Orange	:	Road or track Location

3.6 Environmental Prescriptions

3.6.1 Minor Roads

Where possible existing roads from past logging shall be used to gain access to the logging area.

All earth works shall be carried out in accordance with the "Guidelines for Construction of New Roads". The intended centre lines are defined by orange flagging tape. The location of the roads is shown on the attached map.

Wherever the type of operations permit and as far as practicable, minor roads should be constructed with cross-fall drainage.

"Blading-off" of minor roads shall be permitted only where damage is minimal and subsequent repair and drainage is possible. Each "blading-off" operation must be specifically approved. Where "blading-off" is permitted, the material removed must be placed in a recoverable position and replaced where practicable.

Attention is drawn to the Standard Erosion Mitigation Guidelines (SEMGL) 1993. The common SEMGL conditions for this operation are attached as Part B of this Plan. Conditions 3 to 17 pertain to road construction and drainage.

3.6.2 Log Dumps

The approximate location of log dumps is shown on the map. Changes to log dump locations are to be approved by the Supervising Foreman or Forester.

Refer to the proposed Order of Working, part 3.2 of this Plan.

In constructing Log Dumps, topsoil is to be stockpiled in a recoverable position unless otherwise specified. Upon temporary cessation or completion of logging, dumps are to be levelled and drained so that runoff is directed onto surrounding vegetation, and unless otherwise specified the topsoil spread evenly over the dump.

Loading Ramps shall be dismantled when no longer required.

Refer also to common conditions 32 to 37 of the SEMGL's attached as Part B.

3.6.3 Drainage Line Protection

Filter Strips - shown on the map with a width of 20 metres either side of the watercourse. No tree shall be fallen within a filter strip, however trees may be fallen into the Filter Strip under the direction of the Supervising Foreman. No machinery is permitted to enter a filter strip unless for a designated crossing.

Protection Strips - shown on the map are 10 metres wide each side of the drainage line. Trees may be fallen within the protection strip if marked or otherwise with the authorisation of the Supervising Foreman. Logging machinery shall not enter protection strips except at designated crossings.

Additional Drainage Line Protection - see SEMGL condition 40 attached.

Common conditions 38 to 45 and condition 47 of the SEMGL's attached in Part B also relate to drainage line protection.

3.6.4 Snig Track and Road Drainage Banks

Cross banks shall be constructed to a height of approximately 50cm, and the following bank spacings shall apply:

Maximum Bank Spacings for various track slopes

Slope (degrees)	Maximum bank spacing (metres)
<5	as may be specified
>=5 - <10	60
>=10 - <15	40
>=15 - <20	30
>=20 - 25	20
>=25 - 30	15

Spacing may be varied to utilise the most suitable drainage disposal area.

Cross banks must not divert water onto other tracks or roads. The exits of cross banks must allow water to drain readily from tracks.

Where a temporary cessation of operations occurs, temporary cross banks shall be installed. Cross banks must not be constructed of waste material such as bark.

Crossfall drainage must be re-established where ever practicable and this may obviate the need for the construction of cross banks.

Refer to SEMGL common conditions 18 to 31 attached which relate to snigging and timber extraction tracks.

3.7 Wet Weather Prescriptions

Wet weather dumps are shown on the map.

During wet conditions, roads and/or snig tracks shall not be used for log extraction where there is run-off from the road and/or snig track surface (automatic closure) or where significant damage to the road and/or snig track surface (including rilling and rutting) is likely to occur.

3.8 Additional Prescriptions

3.8.1 Fauna

The following is a list of Schedule 12 species (Vulnerable, rare and threatened species) known or likely to be found in the compartment, and considered to be sensitive to logging. Sighting of any of the listed species should be reported directly to Urbenville Forestry Office. The procedure to be adopted upon identification is defined for each species.

Koala - *Phascolarctos cinereus*

Koalas have been recorded in many locations in the Management Area.

Where a Koala or recent evidence of a Koala is found the tree shall be retained together with all other trees within a 100 metre radius of the location subject to further investigation.

Operations may only proceed within the 100 metre radius once State Forests has undertaken an inspection to determine Koala use in the area and the NPWS Northern Regional Manager has authorised approval of the proposed tree retention within
the 100 metre radius.

Recent evidence of Koala activity is indicated by the presence of dung pellets beneath trees being used by Koalas or by characteristic claw mark scratchings on the trunks of trees.

NPWS will determine authorisation within 24 hours of the receipt of State Forests notification of Koala sightings.

Yellow-Bellied Glider - *Petaurus australis*

Have been recorded in several locations in the Management Area.

Where a Glider feed tree with V-notch markings is located, a 100 metre radius shall be retained around the tree, with the following procedures to be implemented:

* a brief inspection shall be undertaken to determine the tree with the most active V-notch markings;

* this tree shall then become the centre of the 100 metre radius;

* all trees with V-notch markings shall be retained;

* a minimum of 30 trees (>10cm dbh) of the V-notch tree species shall be retained within the 100 metre radius;

* a minimum of 16 mature gum bark trees, with their bark shedding in long strips, shall be retained if available within the 100 metre radius. Examples of relevant bark shedding species include Flooded Gum, Blue Gum, Grey Gum, Forest Red Gum, and White Gum groups;

* where the density of these tree species does not permit the above specified number of trees to be retained, all existing species appropriate to the above shall be retained.

If there is more than one V-notch tree within the 100 metre radius the additional V-notched trees can be included in those trees to be retained.

Tiger Quoll - *Dasyurus maculatus*
The Tiger Quoll has been widely recorded the Management Area, as well as the north eastern part of the State, in some cases (e.g. Dorrigo District) becoming a common inhabitant around camp sites. It uses logs and tree hollows for nesting. Retention of filter strips and protection strips, no logging in rainforest and minimisation of disturbance to fallen logs and ground cover will mitigate against loss of habitat.

Brush-tailed Phascogale - *Phascogale tapoatafa*
Known to inhabit a range of forest types. It uses small tree hollows for nesting, feeding in the canopy and ground vegetation. Has been found in numerous locations in the Management Area. Adherence to prescriptions for the retention of habitat trees will mitigate against loss of habitat.

Long-nosed Potoroo - *Potorous tridactylus*
Inhabits rainforest and moist hardwood at higher elevations, as well as heath. Has been recorded in the management area, including Beaury State Forest. It appears to require dense understorey. Adherence to tree retention prescriptions to retain forest cover, as well as the drainage line protection and the fauna corridor will mitigate against any significant impact on the species.

Red-legged Pademelon - *Thylogale stigmatica*
Inhabits rainforest to moist sclerophyll forest, feeding mostly on leaves and berries. Is thought to prefer gully forest. Seems to be reasonably well distributed throughout northern NSW. Exclusion of logging from rainforest in particular, as well as filter and protection strip and the fauna corridor prescription will mitigate against any impact on this species.

Rufous Bettong - *Aepyprymnus rufescens*
Generally found in open forest with a grassy understorey, nesting on the ground and feeding at night on grasses, herbs and other vegetative matter. Known to occur from Sydney to north Queensland.

The drier forest types of the eastern and southern ends of Compartment 116 contain grassy understorey. In these areas however less than 25% of the understorey is likely to be affected by the operation. It is unlikely that this operation will have any significant impact on this species.

Common Planigale - *Planigale maculata*
Occupies a wide variety of habitats, including Rainforest and Sclerophyll forests, sheltering under rocks, logs and utilising burrows. Given its very wide ecological range it is not expected that the operation will have a significant effect on the species. Retention of filter strips and protection strips, no logging in rainforest and minimisation of disturbance to fallen logs and ground cover will mitigate against loss of habitat.

Black-Striped Wallaby - *Macropus dorsalis*
It would appear that this wallaby is locally common in some parts of the management area, and the Wallaby Creek area may be a stronghold. As its preferred habitat is forest with dense shrub layers, including rainforest margins, care shall be taken to minimise snig track disturbance to the understorey, particularly adjacent to any cleared grassy areas where it may feed. Prescriptions for filter/protection strips and the fauna corridor in compartment 116 shall be observed.

Golden-tipped Bat - *Kerivoula papuensis*

The habitat of this bat ranges from eucalypt to sub-tropical rainforest, and it has been found in Beaury State Forest to the north of these compartments. Exclusion of logging from rainforest will be beneficial. Adherence to filter/protection strip, fauna corridor and tree retention prescriptions is important.

Little Bent-winged Bat - *Miniopterus australis*
Common Bent-winged Bat - *Miniopterus schreibersii*
These bats use caves as roosting sites. There is no evidence of caves or other suitable roosts in the compartments, however they may use the forest for foraging. Adherence to the tree retention prescriptions, and filter/protection strips and the fauna corridor will mitigate against loss of habitat.

Greater Broad-nosed Bat - *Scoteanax rueppellii*
Has been recorded in Beaury State Forest. It utilises hollows for roosting and is known to favour watercourses and wet gullies for foraging for insects. Adherence to the hollow tree retention prescriptions and tree retention prescriptions along watercourses and the fauna corridor will help mitigate against disturbance to its habitat and food sources.

Glossy Black Cockatoo - *Calyptorhynchus lathami*
This bird has been recorded in the locality, although not in these compartments. It nests in tree hollows and feeds almost exclusively on Casuarina. Trees identified as nest trees will be retained, and atleast three surrounding buffer trees. Areas containing Forest Oak shall not be unnecessarily cleared or destroyed during logging operations in order to maintain food sources for these birds.

Red Goshawk - *Erythrotriorchis radiatus*
Not recorded for the District and is thought to be extremely rare. Any nest sites should be reported to a forest officer and a buffer of 250 metre radius immediately placed around the tree pending confirmation of the sighting.

Alberts Lyrebird - *Menura alberti*
It has not been recorded in the locality, although there are records for Richmond Range. In any case, because of its preferred habitat of viney scrub/rainforest the mitigative prescriptions in this Plan in respect of protection of rainforest will protect its habitat.

Powerful Owl - *Ninox strenua*
Sooty Owl - *Tyto tenebricosa*
Masked Owl - *Tyto novaehollandiae*
These owls have a wide ranging habitat in NSW, distributed throughout the Great Dividing Range as well as the coastal and escarpment forests. However, despite this wide range they are listed as rare. There are a number of records for these owls in the District.

Prescriptions relating to tree retention, the fauna corridor and prescriptions for filter and protection strips, and in the case of the Sooty and Masked Owls retention of rainforest, are to be adhered to. Nesting sites, if located, are to be preserved together with atleast 3 surrounding hollow bearing trees, and the location immediately reported to the Foreman or Forester.

Marbled Frogmouth - *Podargus ocellatus plumiferus*
This bird has not been recorded in the immediate vicinity of these compartments, although it has been recorded in Richmond Range. A rainforest inhabitant, it's habitat will be protected through adherence to the prescriptions excluding logging from rainforest.

Wompoo Fruit Dove - *Ptilinopus magnificus*
Has been widely recorded throughout the District. This bird will not be impacted upon by the operation by virtue of the fact that its habitat is rainforest. The same prescriptions as for the Marbled Frogmouth shall apply.

Rose-crowned Fruit Dove - *Ptilinopus regina*
Has been recorded in Beaury State Forest. Again as a rainforest inhabitant, providing logging is excluded from rainforest this operation will have no impact on the species.

Black-breasted Button Quail - *Tuenix melanogaster*
This bird is patchily distributed in coastal and sub-coastal areas in eastern Queensland and northern NSW, but has been recorded in Beaury State Forest further to the north of these compartments. It's favoured habitat is the edge of dry rainforest and eucalypt forests with a grassy understorey, thick overhead shrub layer and dense leaf litter.

The presence of this bird can be detected by the characteristic circular shaped markings, about the size of a dinner plate, left in the ground litter and penetrating to bare dirt, where it has been foraging for food.

Disturbance to understorey shall be minimised, and prescriptions for the exclusion of logging from rainforest, and filter/protection strip and the fauna corridor shall be adhered to.

If signs of the bird are detected, a 100 metre radius shall be placed around the site, with all logging activity to be immediately suspended within that radius. Urbenville Forestry Office is to be immediately informed.

Rufous Scrub-bird - *Atrichornis rufescens*
An inhabitant of moist forests, particularly rainforest and Antarctic Beech forest where it shelters in the dense understorey and is adapted to the moist micro-climate. It has been found in logged and disturbed forest, particularly where a dense understorey has been created, although it has not been recorded in this area of Urbenville District.

Adherence to prescriptions excluding logging from rainforest, and minimising disturbance to moist understorey will mitigate against significant impact on this species. In addition, any sighting of this bird shall be reported to the Forester, and an immediate reserve of 200 metres radius created around the bird's territory.

Coxen's Fig Parrot - *Psittaculirostris diophthalma coxeni*
A rainforest inhabitant, feeding on fig trees. There is no record of the species in the immediate vicinity of the logging area, although it has been previously recorded in the District in the Richmond Range area and Beaury State Forest. Exclusion of rainforest from logging will mean that the species is not impacted upon.

Mountain Frog - *Philoria kundagungan*
An inhabitant of the higher altitude or montane rainforest, sheltering in leaf litter and mud. It has been recorded in Beaury State Forest. However the exclusion of logging from rainforest will mean that this species will not be impacted upon by the operation.

Fossirial Skink - *Coeranoscincus reticulatus*
An inhabitant mainly of rainforests and sometimes moist hardwood, living under leaf litter and rotting logs. Not recorded in the immediate area, but has been found in Richmond Range and Yabbra. Adherence to tree retention, filter and protection strip prescriptions, fauna corridors and excluding logging from rainforest will assist in reducing canopy loss.

3.8.2 Flora

Tree marking and supervision of felling and extraction operations shall aim at minimising damage to trees specifically retained for future growth or vegetation cover, especially adjoining rainforest stands, and minimising soil disturbance in excess of that required for successful regeneration establishment.

3.8.3 Safety

Trees falling onto or near roads. Where trees are to be felled within two tree lengths of any road, the road must be CLOSED by either physically blocking the road or by the erection of temporary barriers and a flagman.

Stump Heights. In addition to section 4.1 of the Coffs Harbour Code of Logging Practices, no stump is to be higher than shoulder height of the faller.

3.8.4 Litter

All rubbish is to be removed from the logging area as specified in Section 5.15 of the Coffs Harbour Code of Logging Practices.

3.8.5 Aboriginal Relics and Places

There are no known aboriginal sites in the logging area.

Under the National Parks and Wildlife act 1974 it is illegal for any person to knowingly destroy or damage or permit the destruction or damaging of a relic or an Aboriginal Place.

In the event that archaeological sites or relics are detected or unearthed during this logging operation, the Forestry Office at Urbenville shall be immediately informed. Logging is to cease in the area where the discovery was made pending an investigation.

PART C CONSIDERATIONS ON WHICH PLAN IS BASED

4.1 General Physical description of Area

The compartments fall to the east and south from the top of the range into Cullens Creek.

The eastern and south eastern boundaries of compartment 116 are private property. The north western and northern boundaries of 116, and the northern and eastern boundaries of 115 are Tooloom Hoop Pine Plantation.

4.2 Forest Types and Vegetation

i) Rainforest

There is an extensive continuous area of Rainforest (mainly Type 1 - Booyong, and Type 21 - Hoop Pine) extending in a band around the edge of the plantation and occurring in both compartments. The rainforest area is most extensive in the southern end of compartment 115.

Rainforest types are shown on the attached map.

ii) Hardwood

Type 46 (Sydney Blue Gum) - Occurs extensively in both compartments.

Type 51 (Dunn's White Gum) - Small areas in the southern end of compartment 115 and northern end and central section of 116.

Type 53 (Brush Box) - Confined to very small areas in the southern end of compartment 115, and along the major gully in the southern part of 116.

Type 62 (Grey Gum - Grey Ironbark - White Mahogany) - Two occurrences confined to the western part of compartment 116.

Type 65 (Forest Red Gum - Grey Gum - Grey Ironbark - Rough-barked Apple) - A fairly extensive area of this type in the western part of compartment 116.

Type 82 (Grey Box) - Confined to a small narrow strip along Plantation Road on the western boundary of compartment 115.

Type 92 (Forest Red Gum) - Two isolated, small areas, one on the north western boundary of compartment 115 and the other on the western side of 116.

4.3 Stand Description

Compartment records indicate that the majority of the area was last logged in 1968/69. Small areas were logged in 1975/77 (south western side of compartment 115) and 1983/84 (eastern section of 116.

The hardwood area to be logged is generally made up of mature to over-mature uneven aged stands. There is evidence of regrowth in the previously logged areas.

4.4 Slope Description

The topography of the logging area varies from flat to undulating on the western side to moderately steep to steep in the central part around the boundaries of the two compartments.

4.5 Soils, Geology and Erodibility Class

The soils in the logging area are mainly krasnozems in the higher elevations derived from basalt, with Jurassic sediments of sandstone and mudstone on the lower elevations.

The **soil erosion hazard** has been calculated using the Universal Soil Loss Equation. The soils in these compartments are of **moderate** erodibility, and there are no special restrictions on logging.

4.6 Wildlife

Refer section 3.8.1 of this plan.

5. Harvesting Strategies

5.1 Harvesting Objective

To provide wood for local industry by selectively harvesting native forest in line with 5.2 and 5.3 below.

5.2 Tree Retention Requirements

In hardwood stands with a moist understorey a minimum of six (6) mature and overmature trees containing hollows and suitable for wildlife habitat shall be retained per hectare where available. In addition a minimum of six (6) recruitment trees with the capability to form hollows and provide habitat in the future shall also be retained where available.

In hardwood stands with a dry understorey a minimum of four (4) habitat trees and four (4) recruitment trees shall be retained.

Habitat and recruitment trees shall preferably be retained in clumps of up to 5 or 6 trees scattered throughout the harvesting area.

Care shall be taken to avoid falling trees into or against retained habitat and recruitment trees.

5.3 Tree Removal Requirements

In conjunction with the stated environmental considerations for vegetation and wildlife conservation (section 4), all trees judged to have a reasonable chance of merchantable net timber value increment for economic harvesting in a subsequent cutting cycle shall be retained, except for the harvesting of :-

a) Trees the removal of which it is judged would result in more valuable increment on preferred retained stems. Such removals shall include thinnings in even-aged stands designed to concentrate growth on the better potential poles and sawlogs without loss of overall value increment.

b) Trees the removal of which is necessary to enlarge gaps created by harvesting to a sufficient size to ensure adequate regeneration of commercially favoured species.

c) Trees significantly and irrecoverably damaged, or liable to such damage, during the course of harvesting or other forest operations carried out under the prescriptions of this plan.

d) Trees suffering from dieback where it can be reasonably expected that they will not survive through to the next cutting cycle.

Harvesting shall then be directed to the most economic utilisation and marketing of trees not required for retention. Harvesting of timber other than quota logs, poles, piles or girders, or other higher value products, shall be restricted to trees or parts of trees neither suitable or required for retention as potentially suitable for poles, piles, girders or sawlogs.

PART D REGULATION AND CERTIFICATION

6. Harvesting Plan Regulation

6.1 Licences

All participants in the logging operation shall be authorised by the relevant Timber, Contractor or Operator Licences and they shall abide by the conditions therein.

6.2 Codes of Practice

All logging operations shall be subject to the Coffs Harbour Region Code of Logging Practices 1988.

6.3 Standard Erosion Mitigation Guidelines

All logging operations shall be subject to the requirements of the Standard Erosion Mitigation Guidelines 1993. The common conditions are attached as Part B.

6.4 Legislation

All operations will be subject to any relevant regulatory legislation in Acts such as the Bush Fires Act 1949, Environmental Planning and Assessment Act 1979, National Parks and Wildlife Act 1974, and the Endangered Fauna (Interim Protection) Act 1991.

6.5 Infringement Penalties

Failure to observe the instructions issued by an authorised Forestry Commission Officer or to abide by the conditions imposed by the various Acts, Regulations, Codes or Conditions, including the conditions of this Harvesting Plan, shall result in the issue of a Warning Letter, Penalty Notice or Licence Suspension. Warning Letters shall only be issued for the most minor infringements and subsequent offences shall receive a Penalty Notice or Suspension.

7. Certification

7.1 Plan Preparation

7.1.1 Preparation

Plan prepared by	M.J. O'Neill
Signature	M.J. O'Neill
Title	Contract Forester
Date	12th October, 1993

7.1.2 Approval

Approved by	S. Schubert
Signature	S.R. Schubert
Title	Acting District Forester
Date	12th October, 1993

PART B

2. CONDITIONS FOR USE WITH HARVESTING PLANS

Issued: July 1993

GENERAL

Common Conditions

1. No logging operations shall take place within 100 metres of the top water level of any major water storage.

2. Fuel reduction burning must be carried out in a manner which maintains filter strip function to the greatest extent possible.

ROADS

Common Conditions

3. The route of any new road should be determined after an assessment of environmental impact. The location must be shown on the Harvesting Plan. Roads must be surveyed with instruments where slopes exceed 6° and marked in the field by the Commission prior to construction.

4. Progressive rehabilitation and revegetation of all roads no longer required for forestry operations must take place. Revegetation by natural regeneration will be satisfactory in most cases. Specific revegetation may be required and should be shown on the Harvesting Plan or considered following post harvest inspection.

Clearing and Formation:

5. The formation of all roads is to be based on engineering principles, and the standard of design stated. Roads must be gravelled where reliable trafficability is required and to protect the road surface. Operational planning should specify where gravelling is required.

6. Where practicable, clearing for road construction should be minimised to maintain vegetative cover and, as a guide, should not exceed 3 times the proposed road surface width.

   Tree debris must be stacked:

   - outside watercourses, drainage lines and away from road culvert outlets;

- where burning will cause minimum damage to adjacent vegetation;
- so it is kept out of filter strips and protection strips; and
- outside the toe of road fill batters.

7. Every reasonable effort must be made to conserve topsoil for respreading on exposed surfaces (excluding gravel surfaces) unless specified.

8. Wherever the type of operations permit and as far as practicable, roads must be constructed with outfall drainage. This will depend on engineering design and safety considerations (use of table drains, steepness, soil type, etc).

9. **Batters:** Batters must be constructed to a slope where minor slumping in the short term is tolerable, but long term stability is assured. Height and slope of batters as well as soil/rock characterics must be considered.

10. **Road Drainage:** Relief Pipes and Table Drains.

- Relief pipe drainage, mitre drains or rollover drains must be provided in roads, consistent with sound engineering practice to control erosion of the road surface and table drains. Headwalls must be installed with all permanent pipe drainage.
- Relief pipes, mitre drains and/or sediment traps must be located so as to prevent the unchecked flow of table drain water directly into watercourses or drainage lines.
- Relief pipes, mitre drains and rollover drains are to be located and constructed so that they discharge water onto adequate groundcover or into silt traps.
- Water discharging from relief pipes must not fall onto unconsolidated fill nor shall the relief pipe outlet protrude from the fill embankment without provision for adequate drop structures and dissipaters.

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11. **Road Drainage: Watercourse/Drainage Line Crossings**

- The location and type of all crossings must be approved by the Commission's Field Supervisor prior to construction. Crossings must be stable structures comprising either causeways, pipe culverts, bridges, or log crossings.

- Bridges, culverts and causeways must be designed and constructed to wholly contain the calculated peak flows of a minimum 1:5 year average recurrence interval.

- Bridges, culverts and causeways must be designed and constructed to withstand a 1:10 year peak flow with minimal structural damage or local erosion. Reference must be made to the Forestry Commission's "Waterway Calculations for Culvert Design in Forest Catchments" for guidance in the design of crossings.

- Log crossings must be installed in such a way that they are considered to be permanent.

- Clearing and crossing construction must be undertaken at, or as close as practicable at right angles to the water flow consistent with good engineering practice.

- Watercourse/drainage line crossings must be constructed so as to minimise damage to the bed or bank or the deposition of excess spoil within the drainage line or watercourse.

- Any excess spoil from the crossing construction deposited in the drainage line/watercourse shall be removed with minimum bed or bank disturbance.

- At bridge and causeway approaches, the bed and bank must be stabilised and revegetated where there is a danger of significant erosion following construction. Culvert outlets must be designed and located to minimise scour and erosion.

- Pipe recovery, if authorised, must be undertaken with minimum soil disturbance to the bed and banks of the watercourse or drainage line. The site of crossings must be reshaped as closely as possible to the

original ground surface, topsoil replaced and resown with a recommended seed/fertiliser mixture to obtain effective ground cover if natural regeneration is not expected to be satisfactory.

12. **Borrow Pits:** The use of borrow pits for the provision of extra material during road construction must be kept to an absolute minimum and must only be used where authorised in the Harvesting Plan or at the site by the Commission supervisor.

The borrow pit floor must be graded and levelled, the sides battered and re-shaped to a stable grade and the topsoil replaced, fertilised and seeded where specified to establish effective vegetative cover. The reshaped area must have a minimum of 30 cms of soil material over bedrock.

13. **Road Surface Gradient:** The gradient of the road surface must not be greater than 15°, and should not normally exceed 10° except;

(a) to negotiate poorly drained land, rock outcrops and unstable soils;

(b) to take advantage of terrain (e.g. to reach a geologically stable bench, or saddle) or soil which is more suitable for the construction and drainage of the road;

(c) to take advantage of reducing the catchment area above the road.

14. **Maximum Side Slope:** Generally, roads should not be constructed in areas where the ground slope exceeds 30°.

Roads may be constructed where ground slopes exceed 30° only if engineering design and stabilisation techniques will ensure road and batter stability.

15. **Cross Bank Drainage:** Where roads are not constructed as permanent, and provided with table drains and relief culverts, they must be drained following completion of operations. Drainage may be by cross banks spaced according to Table 1, and constructed to a height of approximately 50 cm unconsolidated, or if future use of the road is required equivalent drainage using roll-over drains and/or natural features may be used. Cross fall drainage must be re-established where ever practicable and this may obviate the need for construction of cross banks.

2. CONDITIONS FOR USE WITH HARVESTING PLANS

Cross banks must not divert water directly onto other tracks or roads. The exits of these banks must allow water to drain readily from the roads.

Where a temporary cessation of operations will occur, temporary cross banks must be installed.

TABLE 1

Maximum bank spacings for various road grades

Gradient Slope (degrees)	Maximum bank spacings (metres)
<5	as specified
>= 5 - <10	60
>= 10 - <15	40

16. **Blading Off:** The blading off of roads will be permitted only where damage is minimal and subsequent drainage and repair is possible. Each blading-off operation must be specifically approved. Where blading-off is permitted the material removed must be placed in a recoverable position and replaced as soon as practicable.

17. **Wet Conditions:** During wet conditions, roads/must not be used in the following circumstances:

    (a) where there is run-off from the road surface;

    or

    (b) where significant damage to the road surface (including rilling and rutting that cannot be readily repaired during routine maintenance) is likely to occur.

2. CONDITIONS FOR USE WITH HARVESTING PLANS

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SNIGGING AND TIMBER EXTRACTION TRACKS

Common Conditions

18. Snigging and timber extraction must be uphill unless otherwise specified. In general, downhill snigging will only be permitted in areas so designated by a Harvesting Plan, and will be in accordance with any special provisions noted in the Plan.

19. Except for circumstances outlined in Condition 21, the drainage of snig and timber extraction tracks must be carried out in the same way as specified in condition 15 - that is:-

    Cross banks must be constructed to a height of approximately 50 cm, unconsolidated and spaced according to Table 2.

TABLE 2

Maximum bank spacings for various track slopes.

Slope (degrees)	Maximum bank spacings (metres)
<5	as specified
>= 5 - <10	60
>= 10 - <15	40
>= 15 - <20	30
>= 20 - 25	20
>= 25 - 30	15

Spacing may be varied to utilize the most suitable drainage disposal area.

Cross banks must not divert water directly onto other tracks or roads. The exits of these banks must allow water to drain readily from the tracks.

Where a temporary cessation of operations will occur, temporary cross banks must be installed.

Cross banks must not be constructed of waste material such as bark.

Crossfall drainage must be re-established where ever practical and this may obviate the need for the construction of cross banks.

20. Timber extraction by walk-over techniques must be used where specified.

21. Slash must be retained on timber extraction tracks/snig tracks as far as practicable. Note: where surface disturbance is minimal and sufficient slash can be distributed over the track to prevent the concentration of water flow, the drainage of timber extraction tracks may be dispensed with.

22. During the initial construction of tracks, other than side-cut tracks, if topsoil has to be removed it must be stripped and placed in a recoverable position. On completion of operations the track must be reshaped and topsoil replaced.

23. Blading off on snig tracks is not permitted.

24. Wet Conditions: During wet conditions, snig tracks must not be used in the following circumstances:
    (a) where there is run off from the snig track surface
    (b) where significant damage to the snig track surface is likely to occur.

25. Snig tracks must not be constructed where they cannot be drained effectively.

26. In areas of high erosion hazard, the grades of snig tracks and extraction tracks must not exceed 25°. Where the erosion hazard is less, the grade of snig tracks may exceed 25° but must not exceed 30°.

27. In areas of high erosion hazard before any "constructed" snig tracks are constructed, an assessment of the environmental impact must be carried out. If the impact is substantial, their location must be surveyed and shown on the Harvesting Plan and marked in the field.

28. Snigging and extraction of timber from areas with an extreme erosion hazard is not permitted if snig track construction is required. Techniques to reduce the erosion hazard to a lower erosion hazard classification may be employed. Snigging and extraction of timber may then be allowed.

29. Where the erosion hazard is less than extreme, snigging and extraction of timber from areas with slopes over 30° is not be permitted if snig track construction is required.

30. Snig or timber extraction tracks must not cross the beds of watercourses or drainage lines without application of the same conditions which apply to roads.

31. Snig or timber extraction tracks must not intrude into filter strips, protection strips, and drainage line protection areas except for the construction and use of watercouse/drainage line crossings.

LOG DUMPS

Common Conditions

32. Log dumps must be located as far as practicable in accordance with an uphill extraction pattern.

33. The location of dumps must be specified in the Harvesting Plan and classified as either temporary or permanent.

34. Debris from log dump operations must not be left within 10 metres of the edge of a filter strip.

35. Permanent dumps must be drained during operations as required and upon completion of logging so that runoff is safely dispersed onto surrounding vegetation.

36. In constructing temporary dumps, topsoil must be stockpiled in a recoverable position unless otherwise specified. Upon completion of logging, the dumps are to be levelled, drained so that runoff is safely dispersed onto surrounding vegetation and, unless otherwise specified, the topsoil spread evenly over the dump. Where designated the dump must be ripped, and/or revegetated.

37. Bark must be dispersed away from the log dump to prevent significant accumulations. Where specified, this condition does not apply if such bark dispersal is likely to cause a significant increase in erosion and/or reduced sediment control.

2. CONDITIONS FOR USE WITH HARVESTING PLANS

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FILTER STRIPS, PROTECTION STRIPS, DRAINAGE LINE PROTECTION

Common Conditions

38. **Filter strip:** A filter strip must be retained where the catchment area of a watercourse or drainage line exceeds 100 ha. Where erosion hazard is high the catchment area must not exceed 40 ha. The minimum width must be 20 metres on each side. Where the gradient of the adjacent ground slope exceeds 18°, the minimum width must be 30 metres.

39. **Protection strip:** A protection strip must be retained adjacent to those drainage lines, drainage plains or swamps identified on the harvesting plan. The minimum width must be 10 metres on each side of the drainage feature.

40. **Drainage line protection:** Additional drainage lines identified in the field must be protected. The minimum width must be 5 metres on each side of the drainage line.

41. Machinery must not enter filter strips, protection strips, or drainage line protection areas except to cross them in accordance with conditions 11 and 30.

42. In plantations with planted strips, extraction machinery may enter the strip to within 5 m of the bank of the watercourse or drainage line with the authorisation of the supervising officer. This authorisation must only be given where there will be minimal disturbance to the soil surface of the filter or protection strip and the bed and bank of the watercourse or drainage line.

FELLING

Common Conditions

43. **Filter Strip:** Trees must not be felled within a filter strip, but may be felled into a filter strip.

44. **Protection Strip:** Trees may be felled within a protection strip.

45. **Drainage line protection area:** Trees may be felled within a drainage line protection area.

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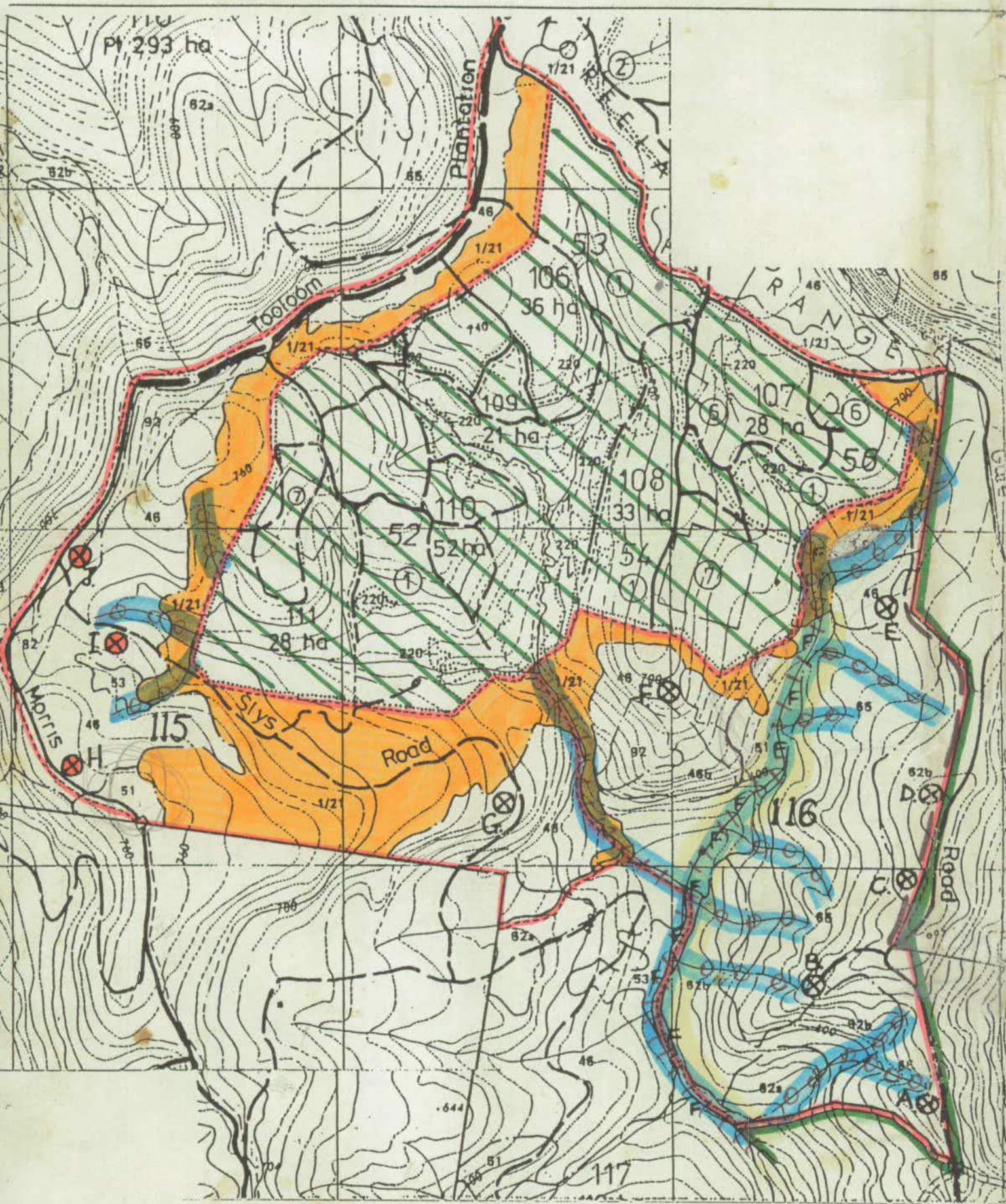
46. In plantation filter strips, trees may be felled into a stream when approved by the supervising officer, to avoid later windthrow. Approval will only be given where the tree can be removed with minimum disturbance to the stream.

47. In natural forests no trees shall be deliberately or negligently felled into a watercourse/drainage line within a filter strip or protection strip. Crowns of trees felled into watercourses/drainage lines must be removed and such removal must result in minimum disturbance to the bed and banks of the watercourse/drainage line.

Urbenville District Harvesting Plan

BEAURY State Forest Compartment 115/116

Scale 1 / 15000 Contour Interval 10 metres



Compartment boundary .....

Filter strips .....

Protection strips .....

Road, minor road .....

Dump site, Wet weather dump .....

Fence .....

State Forest boundary .....

Reserved from logging ... Rainforest

Special emphasis area ... Flora/Fauna Protection

Plantation .....