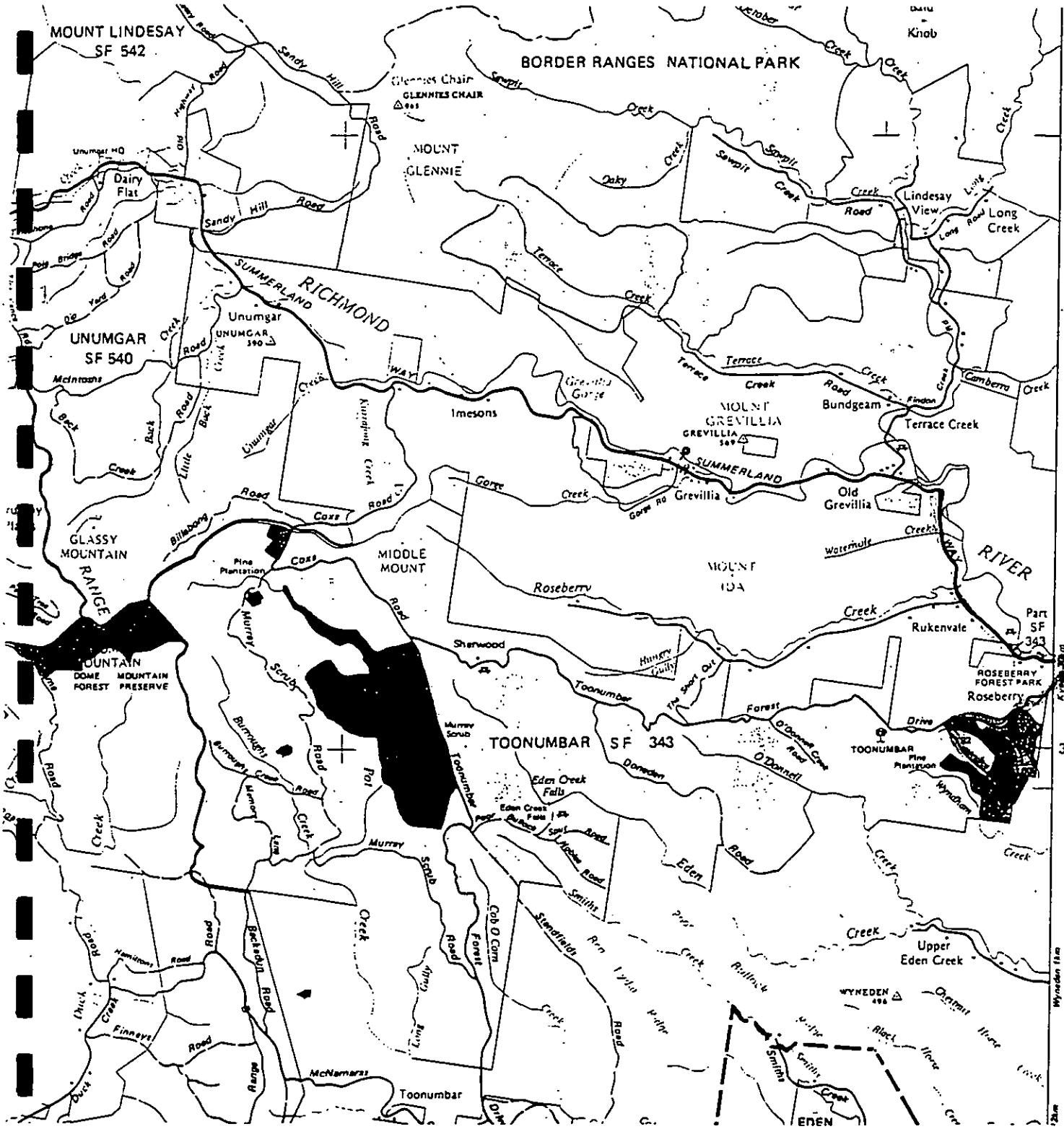
TOONUMBAR
1947

Urbenville District
Northern Region

LOCATION MAP

DISTRICT : URBENVILLE
STATE FOREST : TOONUMBAR No. 343
COMPARTMENTS: 308/2, 309/2/3 (Plantation)



TN

SCALE : 1: 125,000

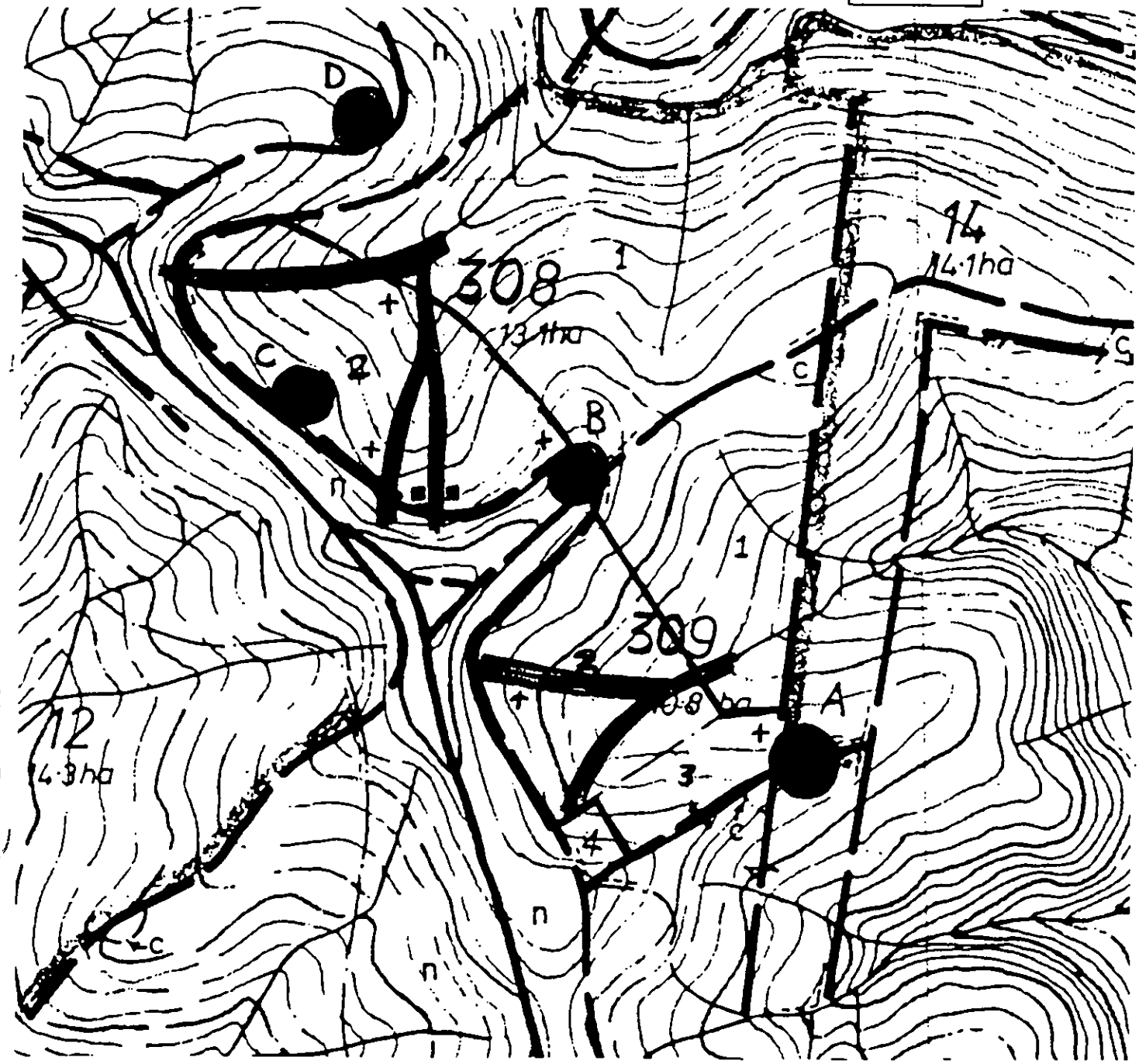
Location Of Compartment .....
Forestry Road Access .....
Major Sealed Road .....

HARVESTING PLAN MAP

DISTRICT : URBENVILLE
STATE FOREST: TOONUMBAR No. 343
COMPARTMENTS : 308/2, 309/2/3PLANTATION

RECEIVED 79 22/6/95 NORTH

STATE FORESTS NORTHERN REGION



MAP REFERENCE : AFTERLEE
N.W. CORNER : E 449040 N 684610
S.E. CORNER : E 449095 N 684650

NORTH
SCALE 1 : 5000 , (1 cm = 50 metres)
CONTOUR INTERVAL 5 m

Compartment Boundary ..(PART)...
Fence.....
Existing Feeder Road , Dump Site .
Filter & Protection Strips .....
Approved Crossings.....
Wildlife Corridor.....
Trial Planting Plot .....

Area To Be harvested .....
Special Emphasis .....
Wet Weather Dumps In Red .....
New road construction .....
Soil Sample Locations .....
Rainforest.....
Inventory Plots.....

HARVESTING PLAN
(GREVILLIA MANAGEMENT AREA -Northern Region)

Harvesting Plan No GMA 308-2,309-2-3/95

TABLE OF CONTENTS

HARVESTING PLAN
(GREVILLIA MANAGEMENT AREA -Northern Region)

Condition 2 FOREST MANAGEMENT & ENVIRONMENTAL CONSIDERATIONS

NATURAL AND ARTIFICIAL PHYSICAL FEATURES

Description 1 Physical description of the area

STATE FOREST	Toonumbar No. 343	**DISTRICT**	Urbenville
REGION	Northern	**AGE CLASSES**	1947
COMPARTMENTS	308-2, 309-2-3	**PLANNING UNITS**	GMA308-2,309-2-3
THINNING STATUS	CLEAR FALL		

The area consists of 7.6 hectares (nett) of Taeda,Caribaea,Patula and Hoop pine plantation established in 1947. Elevation is 280 -340 metres asl. The Toonumbar Pine Plantation occupies hilly to steep southerly slopes near the eastern extremity of the main range extending eastward from Dome Mountain on the Richmond Range. Drainage is into Wyndham Creek which feeds the Richmond River via Eden Creek. A filter strip forms the boundary on the southern edge. No other major water courses transverse the planning unit. There are no unusual physical or artificial features in the area. (See also Description 12.)

See attached Harvesting Plan Operational Map and the Locality Map.

Description 2 Special warning of critical boundaries or non-harvest areas

Boundary lines are clearly marked by roads and part boundaries are evident by differing species. Boundaries will be marked by the SFO if any uncertainty exists.

FOREST MANAGEMENT AND SILVICULTURAL OBJECTIVES

Description 3 Forest Crop Types

Compartment 308-2 & 309-2 consists of Pinus taeda , Pinus caribaea and Compartment 309-3 Pinus patula and Auracaria Cunninghamiana (Hoop pine) scheduled for clear fall.

308-2
- First thinned (T1) in 1972 to a basal area of ca. 35m²/ha.
- T2 in 1992/3 to a basal area of approximately 30m²/ha.
- Basal area at present averages 31 m²/ha
- Target **Clear Fall operation**

309-2-3
- First thinned (T1) in 1992/3 to a basal area of ca. 30m²/ha.
- Basal area at present averages 31 m²/ha
- Target **Clear Fall operation**

Description 4 Endangered flora and fauna.

There is no endangered flora in the area. There are no known endangered fauna (Schedule 12) species found in this part of Grevillia Management Area .

References Austeco work for Urbenville EIS 1993, NPWS North East forests Biodiversity Study 1991/93, Forestry recordings (Foresters and Employees)

Description 5 Harvesting Method

Harvesting aims to clear fall parts 2,3 of cpt 308 & 309. It is anticipated that this operation will yield 1000m^3 of veneer and 330 m^3 of sawlog.

The harvesting method comprises:

Ground based mechanised felling/processing at stump, maximising utilisation;

Extraction by a wheeled skidder and a tracked machine on steeper slopes. Walkover extraction will result in minimal soil disturbance on extraction tracks;

Debarking , soughting and loading will be carried out by a tracked excavator with a log clamp;

Haulage involving the use of existing natural surface roads and gravelled roads as shown on the Map. Log stockpiles and loading areas ,(Dump sites) are marked on the map as A,B,C,D.and will be used as directed by the Supervising Forest Officer.

EROSION AND WATER POLLUTION CONTROL STRATEGY

Description 6 Site soil and water data and other information

(a) **Location** See Map

(b) **Climate**

Rainfall

Average annual rainfall is 1300mm p.a. Rainfall shows a marked monsoonal influence and is characterised by periods of intensive precipitation from cyclonic activity in the summer months compared with relatively dry periods in winter and spring.

Annual rainfall erosivity for the area **R = 3320**. Monthly maximum erosivity occurs in January, representing **R = 664**.

Temperature

Mean temperatures for Roseberry Park, 3 km to the north of Cpt 308-2, 309-2-3 Toonumbar SF are summer 18 -29 ° and winter 4 - 19°. Frosts are rare.

These conditions result in very rapid establishment of groundcover species when soils are exposed and moist. However, this is not relevant to erosion hazard or water pollution as soil erosion mitigation and water pollution control will be effected by retention of pine needle litter and logging slash rather than the recovery of ground-cover vegetation.

Generally weather conditions will allow harvesting operations to continue throughout the year subject to normal wet weather restrictions. Occasionally operations may be stopped altogether by periods of wet. See Code of Logging Practice for Conifer Plantations.

References Rosewall C.J. & Turner J.B. *Rainfall Erosivity in New South Wales.* **Technical Handbook No. 11 (1st Edition), Soil Conservation Service of New South Wales**(1992)

Pilgrim D. H. (ed) *Australian Rainfall and Runoff - A guide to flood estimation,* **The Institute of Engineers of Australia**, (1987)

(c) Geology

The prominant geology comprises Tertiary lava sheets overlaying the Mesozoic sediment of the clarence Moreton Basin.

Bedding planes

There are no obvious bedding and fracture planes in the area. Similarly this geology is now very stable with no porous rocks or other strata overlying impermeable layers. The geology of the area presents no problems in relation to road construction.

Mass Movement

There are no signs of mass movement in the harvest area and no problems are contemplated as no road construction is needed and timber extraction will use walkover techniques.

References *1:250,000 Geological Survey (Map & Commentary) Warwick Sheet.* **NSW Dept Minerals & Energy** 1972

d) Soils

Soil types

The soils of Toonumbar S.F. are fine grained volcanics comprising moderate to high fertility chocolate kraznozems over basalt parent material. Depth above basalt rarely exceeds 1.5 m and the surface texture is clay loam grading into a heavy clay subsoil. Soil groups and soil properties are given in the report of Veness and Associates (V&A August 1993).
Five sampling sites were selected in the Compartment , representing typical locations within the nett harvest area. Soil sampling sites are shown on the Harvesting plan Operational Map. Soil samples verify dispersibility in the field.

Description and profile

These soils consist of a thick plant layer over a brownish black or darkish red brown, strongly structured loamy clay topsoil layer with a self mulching surface. This layer is underlain by a dark reddish brown strongly structured light clay A2/B1. All topsoil layers are characterised by abundant faunal mixing, moderate coherence and slight to moderate acidity. These layers overlie a dark reddish brown, strongly structured, strong, acid, strongly cherent main subsoil layer which usually grades into strongly weathered basalt parent material below 46 cm depth.

All sites within the net harvest are deep enough to allow cross bank or roll-over bank construction associated with roads or snig tracks.

Reference ; Soils Report for UMA EIS. Veness & Associates 1994, Field sampling May 1995.

Erodibility

Soil erodibility factor K is taken from the Urbenville soil report of Veness & associates. Values range from 0.004 (topsoil ridgeline) to 0.021 (subsoil upper slope). A figure of **K = 0.02** has been adopted as a worst case scenario.

Texture

The topsoils are clay loams, grading to a light to medium clay in the B horizon subsoil. they are moderately well drained with a high proportion of angular and sub-angular strongly weathered rock fragments throughout the profiles on the steeper terrain.

Dispersibility

Soil Landscape Map		Soils Report Urbenville EIS (1993)
Map Scale		1:125,000
Map source		Veness & Associates (1993)
Soil type		Chocolate kraznozems
Texture class - A horizon		clay loam
B horizon		medium clay
Method of determination		Soil landscape map
Comment:		
K value	**A horizon**	K = 0.004 (A1)
	B horizon	K = 0.021 (A2/B)
Method of determination		Soil landscape map
Comment:		
% clay	**A horizon**	35%
	B horizon	46%
Method of determination		Soil landscape map
Comment		
EAT class	**A horizon**	8 (5 samples)
(if known)	**B horizon**	8 (5 samples)
Method of determination		Soil Scientist EAT Report
Comment:		Not dispersible
% dispersion	**A horizon**	2%
	B horizon	2%
Method of determination		Soil landscape map

Inherent fertility

Whilst these soils are of moderate-high fertility, aspect is the major factor effecting vegetative growth. Ground cover establishment will be rapid on moister slopes, and particularly dependent on the soil moisture regime following harvesting on the drier aspects. Post harvest establishmnet of up to 90% ground-cover is expected within 12 months.

Depth to sub soils and bedrock

Topsoil depth: 15-20 cm Depth to decomposed rock : 50-150 cm

Existing erosion

There are no areas of active erosion evident. Most erosion banks appear to have stabilised and should not become active following harvesting.

Qualified soil scientist

Rob Towler B Sc.Ag. (Soils)

(e) Landform (See Description 1.)

Slope

Approximate percentages of plantation area by slope class are:

70 % of the area is less than 18 degrees , while only 5 % is greater than 25 degrees.

Average slope has ben estimated as 10 degrees in the harvesting plan.

Terrain (See Table 2 under Description 13.)

The general landscape of the areas includes hilly to steep southerly slopes near the eastern extremity of the main range extending eastward from Dome mountain on the Richmond range. Drainage is into Wyndham Creek which feeds the Ricmond River via Eden creek.

Drainage line condition

Drainage lines are well defined and stable.

Aspect

Generally south and south west into Wyndham Creek.

Rockiness

There is no surface rock.

(f) Hydrology

The compartment lies in the drainage of Wyndham Creek within the Richmond River catchment and flows to the Richmond River via Eden creek. Drainage lines are well developed and initiate as drainage depressions from the main ridgelines and quickly become clearly defined, stable drainage lines. No swamps or wetlands are found within the net harvest area.
There are no major water storages within 100 metres of the compartments.

Representative water monitoring sites

A representative water quality monitoring site with similar geology and rainfall erosivity to Toonumbar State forest is found at Chaelundi S.F, Karuah S.F. ,and Mebbin S.F.Rainfall at the compartment is greater than Chaelundi but much less than Mebbin and similar to Karuah.

Reference Forest Planning Branch *Water quality monitoring program* **SF NSW** 1994

Previous harvesting

Toonumbar Plantation has an history of thinning from the late 60's to the present day. Compartment 308-2,309-2-3 was last thinned in 1992/3 . To date compartment 308-2 has had two thinnings and compartment 309-2-3 one thinning.

Upstream catchment water use

Forestry. The compartment is in the top of the catchment.

Downstream catchment water use

Agricultural (cattle grazing and cropping) and domestic use.

Domestic water use

Whilst many people may pump from the Wyndham Creek for agricultural reasons, human consumption is typically based on rainwater.

(g) **Vegetation and ground-cover** See Descriptions 3-4.

Understorey comprises generally of lantana and scrubby species (estimated 90% of harvest area) together with an amount of tree litter and logging debris from previous operations.

Live ground-cover recovery within twelve months is anticipated provided normal seasonal rainfall conditions prevail. Because walkover timber extraction techniques will be used, disturbed areas will be minimal and are expected to achieve greater than 70% ground-cover re-establishment within twelve months.

(h) **Proposed operation system** See Description 5.

Use of existing plantation roads

Compartment 308-2,309-2-3 is served by a permanent, well maintained stable plantation road network which complies with SEMGL & PCL conditions.. No new roading is proposed in connection with this harvesting operation. Pre-operational grading and patch gravelling will be undertaken where required. Toonumbar Forest Drive will be used to to connect the Summerland Way to Kyogle.

Harvesting

The harvesting operation set out in Description 4 results in a cover factor **C = 0.114** in areas where a skidder is to be used.

Location of log dumps/log assembly areas

Log dumps are located as indicated on the Harvesting Plan Operational Map. Log dumps must be drained using crossfall drainage and runoff from dumps must not be discharged directly into drainage features or onto extraction tracks or snig tracks.
Uphill snigging will be used except for dump C , where downhill snigging is proposed. Measures to prevent the concentration of water must br taken by way of crossfall drainage and approaching tracks to direct water flow away from the dump immediately before reaching it.

Post-Harvesting Re-establishment

Under current Mangaement Practices the harvest area will be spelled for a period of at least twelve months and then prepared for re-planting with *Araucaria cunninghamii* hoop pine.

HARVESTING PLAN
(GREVILLIA MANAGEMENT AREA -Northern Region)

Description 7 Evaluation of soil and water data

(a) Soil Erosion & Water Pollution Hazard Categories

Water Pollution Hazard Categories for the harvest area have been assessed using SOILOSS 5.1. The rating has then been used to assess Water Pollution Hazard categories for the net harvest area for both forwarder and skidder operations.

Skidder (Used on areas 15° to 25° - Calculations taken for range 0° to 25°.)

WPHR = R x K x LS x C (5.1) where

R = 3320,	
K = 0.021	**Subsoil (maximum recorded)**
S = slope	**As factored in SOILOSS 5.1**
L = 20 metres	
C = 0.114	**Plantation thinning with skidder**
P = 1.0	**Support Practice Factor**

Table 2 Cpt 308-309 WPH Categories

	Slope Boundaries	Water Pollution Hazard Rating	Water Pollution Hazard Category	Indicative % of Net Harvest Area
Skidder	0° - <6°	<10	1	30
Skidder	>=6° -= 30°	11 - 50	2	70
Skidder	> 30	n/a	n/a	n/a
Roads/tracks		n/a	3	n/a

Dispersibility

Percentage dispersible soil

	TOPSOIL	SUBSOIL	
PDS	(2% x 35%) = 1	(2% x 46%) = 1	Method D1

(b) Other factors

There are no other EHSCS/PCL factors which need to be considered in relation to the planned harvesting of the compartment.

References Standard Erosion Mitigation Guidelines for Logging in New South Wales **Soil Conservation Service, CaLM, NSW** 1993

Rosewall C.J. SOILLOSS A program to assist in the selection of management practices to reduce erosion **Soil Conservation Technical handbook No.11 First Edition** 1990, **2nd Edition** 1993.

(c) Need for additional special conditions

Not applicable

FOREST ZONING AND SPECIAL ATTRIBUTES

Description 8 Forest zoning and Special Attributes

(a) Research plots

Two Growth plots exist in cpt 308-2.(see attached map) Trees within this plot must be measured and recorded prior to clear felling.

(b) Special attributes of the area.

The area is classified "Native Species Plantation - General ".

No other special zonings (PMP) occur within Cpt 308-2,309-2-3.

HARVESTING PLAN
(GREVILLIA MANAGEMENT AREA -Northern Region)

Condition 3 AUTHORISATION

Condition 3.1 Area Identification

URBENVILLE DISTRICT
Toonumbar State Forest No. 343
1947 Age Class
Taeda,Caridaea,Patula,Hoop pine.
Compartment 308-2 ,309-2-3
Grevillia Management Area

Condition 3.2 Authorisation

(a)

This Harvesting Plan is prepared by State Forests of New South Wales (State Forests) 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.

(b)

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:

Licence conditions issued by State Forests under the Forestry Act 1916;

the " **Code of Logging Practice for Conifer Plantations** (1991);

the **"Standard Erosion Mitigation Guidelines for Logging in New South Wales" (SEMGL 1993)** issued by the Soil Conservation Service.

the conditions of **Pollution Licence No 4017** issued by the Environment Protection Authority under the Pollution Control Act 1970. Those general conditions which affect licensees are set out in Schedule "A" attached to every Timber, Contractors and Operators Licence. Where a Pollution Control Licence condition is more stringent than an equivalent in either of the other above-mentioned documents, the Pollution Control Licence condition must prevail.

conditions attached to any relevant licences issued by the National Parks and Wildlife Service under the Endangered Fauna (Interim Protection) Act 1992 and the National Parks and Wildlife Act 1967 (NPW Act);

conditions resulting from any relevant determination of an Environmental Impact Statement;

the regional silvicultural specifications applicable to this operation,

the schedule of specifications for the harvesting and utilisation of timber applicable to this operation, in this case, ***the NORPLY Wood Supply Agreement*** and subsequent amendments.

the Code of Procedure for the measurement of timber and other products applicable to this operation, in this case, ***the NORPLY Wood Supply Agreement*** and subsequent amendments.

Variations, additions or amendments to these Codes, instructions and conditions may be made and implemented at any time.

Condition 3.3 Environmental Planning & Assessment Act requirements

In preparing this Harvesting Plan, the requirements of Part V of the EPA Act (as amended) and Section 92 of the NPW Act have been considered and an Environmental Impact Assessment (EIA) has been prepared.

Condition 3.4 Breaches and infringements

Non-compliance with any condition or instruction set out in this Harvesting Plan will be dealt with in accordance with Section 3 of **the "Code of Logging Practice - Conifer Plantations"**. Serious breaches may lead to the issue of a Penalty notice, licensee suspension or prosecution.

Condition 3.5 Variations and amendments to this Harvesting Plan

Variations and other specified approvals to this Harvesting Plan may be made by the Supervising Forest Officer, where indicated in Condition 5.1(c), subject to the District Forester's counter approval. Other approvals may only be made by the Supervising Forester and are also subject to the District Forester's counter approval. Such approvals must be recorded on a variation advice, attached as Condition 6. to all operational copies of this Harvesting Plan. This Plan must not be amended by a licensee or contractor.

Condition 3.6 Harvesting Plan availability

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

HARVESTING PLAN
(GREVILLIA MANAGEMENT AREA -Northern Region)

CERTIFICATION

Condition 3.7 Plan Preparation (by Forester, Forest Assistant)

Prepared by ....**K .W .PETTY**.....Signature.....

Title ....**Forest Assistant**.....Date .....**5nd May 1995**.....

Condition 3.8 **District Approval** (by District Forester)

I approve the issue of this Harvesting Plan subject to any amendments, endorsements or approvals that may be made following submission to the Environment Protection Authority.

The date that operations will need to commence is ...**JUNE 1995**.....

Signature.....District Forester. Date.....22/5/95.....

This Harvesting Plan is approved without amendment/subject to the amendments detailed in the covering letter/document attached. (To be completed by person who originally prepared the Plan who must attach the relevant amendments to the Plan.)

Signature .....Position .....Date.....

Authority (EPA) .....

Signature .....Position .....Date.....

Authority (Other) .....

I note approval of this Harvesting Plan from the above-mentioned authority, together with the amendments they have required to be included in the Plan.

These amendments have been included in the final Plan. This Harvesting Plan comprises pages 1 - 23 attached and the Operational Map marked and referenced to this Harvesting Plan. This is Harvesting Plan No GMA 308-2,309-2-3/95.

Signature .....District Forester Date.....

Condition 3.9 **Date for commencement of operations.....JUNE 1995.....**

HARVESTING PLAN
(GREVILLIA MANAGEMENT AREA -Northern Region)

DISTRIBUTION

Condition 3.10 *(Schedule to be attached to each copy and highlighter marked to recipient)*

One copy of the plan is required in each case unless otherwise noted.

Timber Licensee	Parts 1,3,4
Contractors	Parts 1,3,4
Operator(s) (where required)	Parts 1,3,4
Supervising Forest Officer(s) (SFO(s))	Parts 1 ,3-5 , (2 optional)
Supervising Forester(s)	All Parts
District Forester	All Parts
District Office Register	All parts
Compartment History File	All Parts
Regional Office (optional)	All Parts
Soil Conservationist (Forestry)	All Parts
Forest Planning Branch, Head Office, for distribution to:	
Environment Protection Authority	All Parts (2 copies)

Condition 3.11 INDUSTRY FIELD SUPERVISORS/BUSH SUPERVISORS ACKNOWLEDGEMENT

I acknowledge that I have received a copy of Harvesting Plan No GMA 308-2,309-2-3/95 and that I understand the Conditions of the Plan as explained to me by a State Forests officer.

Signature .....Licence No. .....Date .....

Position.....

Signature .....Licence No. .....Date .....

Position.....

Signature .....Licence No. .....Date .....

Position.....

Signature .....Licence No. .....Date .....

Position.....

Condition 3.12 Industry endorsement

This Plan has been signed and endorsed on behalf of industry prior to commencement of operations.

Signature .....Position.....Date .....

HARVESTING PLAN
(GREVILLIA MANAGEMENT AREA -Northern Region)

Condition 4 OPERATIONAL CONDITIONS

Condition 4.1 Harvesting Activity Description

Clear Fall of thinned 1947 Age Class *Pinus taeda,caribaea,patula and Araucaria cunninghamii* stand.

Condition 4.2 Tree-marking and Harvest Regulation

Tree-marking colour 2 Pink lines = Trees marked for retention and not to be damaged.
Trees that are to be removed in the harvest area will not necessarily be marked by the SFO, since it is a clearfall operation. Boundaries will be identified and marked in the field by the SFO. Harvesting will be directed and supervised by the SFO.

Area Marking colour	Blue	= Compartment boundary
	Pink 'D'	= Log dump site
	Orange	= Road or track location

Condition 4.3 Order of Working

(a) Wet weather (winter), dry weather (summer) and intermediate harvesting areas

Wet weather, dry weather and intermediate weather areas allocated for harvesting are shown on the Plan Map. These areas must be harvested in accordance with seasonal conditions unless otherwise approved by the SFO.

(b) Wet weather controls -roads

During wet weather, the wet-weather controls set out in Section 8 of the Code of Logging Practice will apply. In particular, where runoff occurs from a road surface, haulage must cease on natural surface roads.

(c) Wet weather controls - timber extraction and skidder snigging

During wet weather, timber extraction tracks and snig tracks must not be used where:

(i) there is runoff from the track surface, and/or;

(ii) rutting is, or is likely to approach 100mm below the natural surface within the compartment or 200mm within 30 metres of a log assembly area.

HARVESTING PLAN
(GREVILLIA MANAGEMENT AREA -Northern Region)

Condition 4.4 Application of erosion and water pollution control Conditions

(a) Basic Water Pollution Hazard Categories

The following categories apply

	Table 3 Slope Boundaries	Cpt 308-309 Water Pollution Hazard Category	WPH Categories Indicative % of Net Harvest Area
Skidder	0° - <6°	1	30
Skidder	>=6° - 30°	2	70

(b) Approved timber harvesting and extraction method

Mechanised felling/processing/bunching;

Extraction by wheeled skidder . Extraction outrows must not be parallel to / & immediately adjacent to the protection strips. No box cuts are to be used. Walkover extraction will result in minimal soil disturbance on extraction tracks.;
All snigging will be uphill except for dump C , where drainage will be used tp prevent the flow of water onto the dump. Dumps will be drained by crossfall drainage.
Dump rehabilation will be achieved by stockpiling topsoil and levelling the dump on completion of logging.

Haulage involving the use of existing natural surface roads and gravelled roads as shown on the Map. Log stockpiles and loading areas are indicated on the Map.

Harvesting operations may be conducted throughout the year subject to the application of normal wet weather closure procedures and restriction to wet weather areas as set out in Condition 4.4. Operations may be stopped altogether for safety reasons for short periods of time because of snowfalls. See Conditions 4.3 and the Code of Logging Practice - Conifer plantations , Section.8.

c) Slope limits for the area

No restrictions. All areas are available for harvesting.

(d) Drainage feature protection

HARVESTING PLAN
(GREVILLIA MANAGEMENT AREA -Northern Region)

Water courses and drainage lines must be protected by filter strips, and protection strips in accordance with Table 4.

Table 4

				FILTER STRIP (Width on each side of the drainage feature)	PROTECTION Strip
WHPC	1	Skidder	< 100 ha catchment	5m	
WHPC	2	Skidder	< 18' slope	5m	
WPHC	2	Skidder	> 18° slope	10m	10m
					Plantation Buffer strip 5 m

Protection strips are indicated on the Plan Map.

Protection strips will not be marked in the field. It is the contractor's responsibility to identify the correct distance from drainage lines and protection strip widths.

Drainage depressions

Buffer strips must be provided along all drainage depression within the planning units. Buffer strips must be 5 metres wide each side of the drainage depression.

It is the contractor's responsibility to identify plantation drainage depressions encountered in the field.

(e) Operational Protection

Felling and extraction in filter strips and protection strips

Trees may be felled and machinery may operate within filter strips and protection strips, subject to the following conditions:

directional felling must be used to minimise felling of trees into drainage lines;

trees and crowns felled into drainage lines must be removed with minimal disturbance to the bed and banks;

machinery must not approach closer than 5 metres from the bank of a drainage line, except at crossing points;

soil disturbance must be minimised by the following techniques:

(i) maximum use of skidders and minimal use of tracked machine;

(ii) minimal use of blades;

(iii) use of slash to protect the soil during extraction;

(iv) minimise skewing on tracks;

(v) deliberate spreading of slash over disturbed areas at the completion of extraction in each section.

Where outrows cross drainage lines, slash must be placed in the drainage line to protect the bed and bank from disturbance. Slash crossings must be removed at the completion of the operation unless approved by the SFO.

Felling and extraction in drainage depression buffer strips

The measures described in (i) to (iv) above must be used to minimise soil disturbance in buffer strips. In addition, no snigging along drainage depressions is permitted.

Slash must be placed in drainage depression crossings and should be left in situ at the completion of operations.

Track drainage

Maximum use of slash must be made on extraction tracks to minimise soil compaction and to provide drainage. On areas > 10 degrees where skidders are used, drainage must be provided by the following:

(i) slash should be deliberately placed on disturbed areas to divert water and/or;

(ii) crossbanks must be constructed at 50 metre intervals. Banks must be 35cm high unconsolidated;

(iii) drainage must be established within 2 days of the completion of operations on each track, or where operations are temporarily suspended,for more than one week.

Roads

No construction of new roads is permitted under this Harvesting Plan.

Drainage structures must be cleared every two days where damage to the road surface, or table drains could result if a rain event occurred.

Roads and associated drainage structures must be cleared of debris on completion of each section of the operation, to the standard they were prior to harvesting.

Forwarding is permitted along roads by machines without tracks where no running tracks exist, only during dry conditions. Tracked machines must only be used on roads where approved by the SFO.

Blading-off of roads is not permitted unless approved by the SFO.

Condition 4.5 Research and Inventory Plots

Two Growth plots are situated in cpt 308-2. Measurements must be recorded prior to clear felling.

Condition 4.6 Modified harvest conditions for special emphasis areas

(a) Native forest retention area

An area , part 4 of cpt 309 (Gympie Messmate) is to to be retained and care must be taken not to damage any standing trees.(see attached map).

(b) Boundary fences

Care must be taken not to fall trees over the boundary fences which are indicated on the Plan Map. Fences must be repaired immediately if damage results. Tree/slash falling adjacent to fence lines should be removed for a distance of 1.5 metres on either side.

HARVESTING PLAN
(GREVILLIA MANAGEMENT AREA -Northern Region)

Condition 4.7 Specification of type of products to be removed.

Product 1 **Veneer**
- Minimum length 2.7 metres
- Minimum diameter 20 cm small end under bark
- Minimal sweep and bend

Product 2 **Sawlog**
- Minimum log length 2.4 metres
- Minimum diameter 14cm small end under bark
- Minimum diameter 20cm large end under bark
- Logs not meeting veneer specifications are available as sawlogs.

Condition 4.8 Yield information for planning unit GMA 304/95

Product 1	Veneer	1000 cubic metres
Product 2	Sawlog	330 cubic metres

HARVESTING PLAN
(GREVILLIA MANAGEMENT AREA -Northern Region)

Condition 5 INSTRUCTIONS TO SUPERVISING FOREST OFFICERS (SFOs)

Condition 5.1 SFO' authority to supervise harvesting operations

(a) General

The Supervising Forest Officer responsible for the direct field supervision of this harvesting operation, including tree-marking, log measuring and/or log check measurement, safety, implementation of wet weather controls, and monitoring and reporting generally will be:

The Plantation Marketing Foreman, Toonumbar SF.

(b) Relieving SFOs

Relieving SFOs, if required, will be:

The Acting Plantation Marketing Foreman, Toonumbar SF,
The Forest Assistant (Marketing) Urbenville District,
The Marketing Forester, Urbenville District.

(c) SFOs authority

The SFO has authority to approve:

use of natural surface roads as extraction tracks to log assembly areas where running tracks do not exist, provided restoration of the road is undertaken as necessary;

slash drainage line crossing being left *in situ*.

All approvals must be noted on a Harvesting Plan Variation Form and copies attached to the relevant master copies of the Harvesting Plan.

Condition 5.2 Tree-marking and other harvesting control requirements.

Tree marking

Tree marking is not required in the harvest area,since it is a clearfall operation. However care must be taken to ensure minimal damage occurs to the areas retained along the part compartment boundaries. The SFO will supervise and direct the sequence of logging and will mark trees for retention.

Condition 5.3 Monitoring and reporting

Daily and Fortnightly reporting

The standard Regional procedures for daily and fortnightly reporting on the conduct of operations must be followed.

The SFO must report the following matters and record their location if necessary on thir copy of the Plan Map, or the recording map attached to the Plan for that purpose:

(i) instances where trees and/or crowns are not removed from drainage lines

(ii) instances where slash crossings are left in situ;

(iii) instances where the track drainage is not affected within 2 days of completion of operations.

Condition 5.4 Other instructions

There are no other special instructions concerning harvesting supervision.

Condition 5.5 SUPERVISING FOREST OFFICERS ACKNOWLEDGEMENT

I acknowledge that I have received a copy of Harvesting Plan No GMA 308-2,309-2-3/95 and that I have been briefed on the Conditions of the Plan and the supervision and operational control requirements as explained to me by the District Marketing Forester.

Signature .....Date .....

Position.....
Supervising Forest Officer

Signature .....Date .....

Position.....
Relieving Supervising Forest Officer

HARVESTING PLAN
(GREVILLIA MANAGEMENT AREA -Northern Region)

HARVESTING PLAN PREPARATION CHECKLIST

POLLUTION CONTROL LICENCE CONDITION CHECKLIST
PLAN PREPARATION PCL Sch2 Div 3

Condition No.	Condition Title/Enquiry	Entry	Plan Ref.
C 42	Representative water monitoring site	Yes	D6(f)
	Have the Water Pollution Hazard Categories (WPHC)s and the Proportion of Dispersible Soil (PDS) been calculated for the area?	Yes	D7(a) C4.4 (a)
	Method for soil sampling for K factor	Yes	D6(d)
	Field sampling - sites?	Yes	Map
	- lab analysis?	Yes	
	- field analysis?	Yes	
1b	Site specific conditions	No	D7(c)
4.	Are areas >30° outside net harvest area?	Yes	Map C4.4(c)
5.	Are areas in WHPC4 outside net harvest area?	Yes	Map C4.4(c)
6.	Drainage feature & protection	Yes	D6(f) C4.4(d) C4.8(g)
7.	Any major water storage?	No	D6(f) C4.4(d)
8.	DDBS conditions included?	Yes	C4.4(d)
9.1(c)	Filter strip on Map?	Yes	Map
9.2	Protection strip on Map?	Yes	Map
10.	Conditions for marking/ identifying:		
	- filter strips & protection strips	Yes	C4.2 C4.4(d)
	-buffer strips		C4.4(d)
	in the field		C4.4(d)
13.	Reporting accidental felling into filter strips	Yes	C5.3
14.,20.,22.	See 10		
24.	Specify techniques in DDBS	Yes	C4.4(e)

HARVESTING PLAN
(GREVILLIA MANAGEMENT AREA -Northern Region)

HARVESTING PLAN PREPARATION CHECKLIST

POLLUTION CONTROL LICENCE CONDITION CHECKLIST
PLAN PREPARATION PCL Sch2 Div 3

Condition No.	Condition Title/Enquiry	Entry	Plan Ref.
47.	Road design, etc. for 1:10 yr. storm event: What techniques for 12 month stabilisation?	Yes	D6(h) C4.4(f)
48.	Are roads shown on Map?	Yes	Map
49.	If road traverses area over 30° what techniques for 1:10 storm event?	No	D6(h)
	What techniques for 6 month stabilisation of road?	No	D6(h)
50.(a),(b)	What is maximum road grade?	Yes	C4.4(f)
51.	Who will mark roads in field?	Yes	C4.4(f)
52.	What is maximum clearing width for road formation?	Yes	C4.4(f)
53.	Is any roadside clearing proposed? If so what techniques for 70% ground-cover within 12 months?	No	D6(h)
57.	Any borrow or gravel pits? If so what batter and stabilisation techniques are required?	No	D6(c) C4.4(f)
60.	What design criteria for stable road batters within 12 months?	No	C4.4(f)
63.	Do road drainage techniques specify - peak flow 1:5 year storm capacity? - stable surface water diversion? - minimisation of unchecked flow? - use of sediment traps if necessary?	Yes	C4.4(f)
64.	What is spacing and type of road drainage structures?	Yes	C4.4(f)

HARVESTING PLAN PREPARATION CHECKLIST

POLLUTION CONTROL LICENCE CONDITION CHECKLIST
PLAN PREPARATION PCL Sch2 Div 3

Condition No.	Condition Title/Enquiry	Entry	Plan Ref.
65.	Is an alert condition needed for cutting of roadside waterholding windrows?	No	
66.	Is an alert condition needed to emphasise 2 day removal of debris from drainage structures?	No	
67.	Is an alert condition needed for reporting of blading off approvals?	No	
71.	Are drainage feature crossing structures for roads specified for location, type and capacity?	Yes	C4.4(f)
74.	Is a report condition included to cover spoil non-removal from drainage features?	Yes	C5.3(c)
76.	Is a report condition included to cover reporting that crossing stabilisation is not completed within five days?	Yes	C5.3 (c),.
77.	Are techniques listed to leave crossing sites stable?	Yes	C4.4(c)
78	Are techniques specified for stabilisation of roads that are no longer required?	Yes	D6(h), C4.4(f)
79.	Have any old roads been evaluated?	No	D6(h)
80	Are alert conditions required for dispersible soils?	No	D13(a)
81.	Are protection techniques spelt out for roads traversing dispersible soils?	No	

HARVESTING PLAN
(GREVILLIA MANAGEMENT AREA -Northern Region)

HARVESTING PLAN PREPARATION CHECKLIST

POLLUTION CONTROL LICENCE CONDITION CHECKLIST
PLAN PREPARATION PCL Sch2 Div 3

Condition No.	Condition Title/Enquiry	Entry	Plan Ref.
82.	Are alert conditions for wet weather restrictions included for roads?	Yes	C4.3(b)
83.	Is a report condition included to cover crossing stabilisation not being completed within 5 days?	Yes	C5.3
84.	Are techniques listed to leave crossings stable?	Yes	C4.4(e)
85.	Is a report condition needed to cover none removal of temporary crossings?	Yes	C5.3
86.	Are there any crossings of drainage features other than drainage depressions by extraction tracks?	Yes	C4.4(e) C5.1
	Are extraction track crossing locations type and capacity specified?	Yes	C5.1
	Is a reporting condition included for SFO approvals for crossings?	Yes	C5.1(c)
	is a report condition included for non-removal of spoil from drainage features?	Yes	C5.3
89.	What conditions are specified for effective extraction track drainage?	Yes	C4.4(e)
92.	Is an alert condition needed for timber extraction along roads?	No	
93	Are alert conditions for wet weather restrictions included for timber extraction tracks?	Yes	C4.3(c)

HARVESTING PLAN
(GREVILLIA MANAGEMENT AREA -Northern Region)

HARVESTING PLAN PREPARATION CHECKLIST

POLLUTION CONTROL LICENCE CONDITION CHECKLIST
PLAN PREPARATION PCL Sch2 Div 3

Condition No.	Condition Title/Enquiry	Entry	Plan Ref.
99	Do specifications for drainage of timber extraction tracks include: - capacity for peak flow in a 1:2 year storm event? - diversion onto stable surfaces? - minimise unchecked flow into drainage features? - divert water at minimum damage to structure?	Yes	C4.4(e)
103.	Is minimum specification for bank height used?	Yes	C4.4(e)
105.	Is a reporting condition needed for non-drainage of timber extraction tracks over two days after use has ceased?	Yes	C5.3
107.	Is an alert condition for temporary cessation of use drainage condition required?	No	
112	Is timber extraction being undertaken on dispersible soils?	No	D6(d) D7(a)
	If so, have alert conditions have been included?	No	
119	Have specifications for log dump location and drainage been included?	Yes	C4.8(h)
120	Is an alert condition for the use of traxcavators and wheeled loaders in relation to wet weather necessary?	No	

HARVESTING PLAN
(GREVILLIA MANAGEMENT AREA -Northern Region)

HARVESTING PLAN PREPARATION CHECKLIST

POLLUTION CONTROL LICENCE CONDITION CHECKLIST
PLAN PREPARATION PCL Sch2 Div 3

Condition No.	Condition Title/Enquiry	Entry	Plan Ref.
	What other conditions listed in Sch 2 Div 3 need to be included as alert conditions in this Plan?	None	
	Are any appendices required?	No	

HARVESTING PLAN
(GREVILLIA MANAGEMENT AREA -Northern Region)

NOTES

Copies of variations and approvals which apply to this Plan should be attached here.

HARVESTING PLAN
(GREVILLIA MANAGEMENT AREA -Northern Region)

NOTES

HARVESTING PLAN
(GREVILLIA MANAGEMENT AREA -Northern Region)

NOTES

HARVESTING PLAN
(GREVILLIA MANAGEMENT AREA -Northern Region)

CLEARANCE CERTIFICATE

HARVESTING PLAN No. ...GMA 308-2,309-2-3/95.....

TOONUMBAR..STATE FOREST.....URBENVILLE..DISTRICT

To M.....Supervising Forest Officer

I request approval for me to move my logging crew and all associated machinery from the above mentioned area to the next Planning Unit in accordance with Section 2.6 of the Code of Logging Practice.

I certify that:

(a) all permanent roads, trails and mitre drains have been cleared of harvesting debris;
(b) butt damage to retained trees has been kept to acceptable limits;
(c) all trees marked for removal have been felled;
(d) utilisation limits have been satisfactorily met;
(e) stump heights conform to requirements;
(f) all hanging trees have been felled and brought down;
(g) all log dump sites/landings/log stack sites have been satisfactorily restored as required;
(h) harvesting debris is not accumulated around retained trees;
(I) all accumulated litter has been disposed of properly;
(j) all filter, protection and buffer strip requirements have been complied with;
(k) all snig track, extraction track and temporary logging road drainage has been installed satisfactorily and other required rehabilitation work has been completed;
(l) all necessary repairs to damaged roads, signs, fences and other structures have been carried out.

I believe that I have met all my obligations under the conditions of the Timber Licence, the Pollution Control Licence which applies to the Planning Unit just completed.

Signature.....Licence No.....Date .....
Contractor/licensee

As a result of inspections of the logging operations made in accordance with this Harvesting Plan, I am satisfied that, to the best of my knowledge, the licensee/ contractor responsible for this harvesting operation has satisfactorily completed all work and approval is given for her/him to remove her/his machinery and equipment and leave the area/ commence operations in another Planning Unit.

This clearance does not release the licensee/contractor from any obligation to undertake any remedial work if subsequent deficiencies are found during any inspections of the area made within 12 months of the date of this post- harvesting inspection.

Last inspection was made on .....(Date)

Signed (Supervising Forest Officer).....(Date).....

CERTIFIED MAIL

C939806

FORESTRY COMMISSION OF NSW
LOCKED BAG 23 P.O.
PENNANT HILLS NSW 2120

Environment
Protection
Authority
New South Wales

Civic Tower
Cnr of Jacobs Street
and Rickard Road
Locked Bag 1502
Bankstown
NSW 2200

Telephone .02. 795 5000
Facsimile .02. 795 5002

Our Reference: 256183/D06/Not. Nos. 002513

Your Reference:

1 February, 1996

NOTICE UNDER SECTION 17D(3)
OF THE POLLUTION CONTROL ACT 1970

WHEREAS -

(a) FORESTRY COMMISSION OF NSW is the holder of licence number 004017 in respect of premises situated at LAND IN THE NORTHERN REGION, - which expires on 7 August, 1996.

TAKE NOTICE THAT -

In accordance with the powers vested in the Environment Protection Authority (EPA) under Section 17D(3) of the Pollution Control Act 1970, the EPA with respect to licence number 004017 from the date of this Notice hereby:-

1. Varies this licence by inserting the following compartment descriptions, corresponding water pollution hazard categories, special conditions, representative water quality monitoring site, and date of licence variation into Schedule 1:

   "Compartment Description

   Compartments 273, 274, 276, 277, 279 & 282
   Newry State Forest No. 487

Water Pollution Hazard Categories

Newry Soil Group

Water Pollution Hazard Category	Slope Ranges (degrees)
1	Less than or equal to 2.
2	Greater than 2 and less than or equal to 10.
3	Greater than 10 and less than or equal to 30.
4	Not applicable.

Proportion of dispersible soils: A horizon: 2.08%
B horizon: 5.46%

Apple Tree Creek Soil Group

Water Pollution Hazard Category	Slope Ranges (degrees)
1	Less than or equal to 1.
2	Greater than 1 and less than or equal to 8.
3	Greater than 8 and less than or equal to 20.
4	Not applicable.

Proportion of dispersible soils: A horizon: 0.54%
B horizon: less than 10%

********** F I L E C O P Y **********

South Creek and Hanging Rock Soil Groups

Water Pollution Hazard Category	Slope Ranges (degrees)
1	Less than or equal to 11.
2	Greater than 11 and less than or equal to 30.
3	Not applicable.
4	Not applicable.

Proportion of dispersible soils

South Creek Soil Group: A horizon: 4.9%
B horizon: 7.7%

Hanging Rock Soil Group: A horizon: 1.75%
B horizon: less than 10%

Special Conditions

Special conditions are those conditions contained in the harvesting plan for Compartments 273, 274, 276, 277, 279 & 282 Newry State Forest No. 487, prepared by State Forests of NSW, received by the EPA on 18 January 1996, and as amended by addendum 1 received by the EPA on 22 January 1996.

Waters Quality monitoring Site

Orara East State Forest

Date of licence variation

1 February 1996."

2. Varies this licence by inserting the following age class descriptions, corresponding water pollution hazard categories, special conditions, representative water quality monitoring site, and date of licence variation into Schedule 1:

"**Age Class Description**

Age Classes 1950-1953
Planning Unit GMA 102-4/95
Beaury State Forest No. 2

Water Pollution Hazard Categories

Water Pollution Hazard Category	Slope Ranges (degrees)
1	Less than or equal to 11
2	Greater than 11 and less than or equal to 30.
3	Not applicable.
4	Not applicable.

Proportion of dispersible soils: A horizon 2%
B horizon 2%

Special Conditions

Special conditions are those conditions contained in the harvesting plan for age classes 1950-1953, planning unit GMA102-4/95, Beaury State Forest No. 2, prepared by State Forests of NSW, received by the EPA on 24 October 1995, and as amended by:

1. addendum 1 received by the EPA on 12 January 1996; and

2. omitting the sentence in Condition 4.4 (e) on page 18 that reads "The spacing of crossbanks on extraction/snig tracks shall be in accordance with Table 2 of Schedule 4 of the pollution control licence." and inserting in its place "The spacing of crossbanks on extraction/snig tracks must be in accordance with Table 2 of Schedule 4 of the pollution control licence".

Waters Quality monitoring Site

To be determined

Date of licence variation

1 February 1996."

3. Varies this licence by inserting the following age class description, corresponding water pollution hazard categories, special conditions, representative water quality monitoring site, and date of licence variation into Schedule 1:

"Age Class Description

Age Class 1945
Planning Unit GMA 304/95
Toonumbar State Forest No. 343

Water Pollution Hazard Categories

Water Pollution Hazard Category	Slope Ranges (degrees)
1	Less than or equal to 9
2	Greater than 9 and less than or equal to 30
3	Not applicable.
4	Not applicable.

Proportion of dispersible soils: A horizon 1%
B horizon 1%

Special Conditions

Special conditions are those conditions contained in the harvesting plan for Age Class 1945, Planning Unit GMA 304/95, Toonumbar State Forest No. 343, prepared by State Forests of NSW, received by the EPA on 24 October 1995, and as amended by:

1. addendum 1 received by the EPA on 24 January 1996; and

2. omitting the sentence in Condition 4.4 (e) on page 20, that reads "On areas >= 9 degrees where skidders are used, drainage must be provided by the following:" and inserting in its place "Where skidders are used, drainage must be provided by the following:"

Waters Quality monitoring Site

To be determined

Date of licence variation

1 February 1996."

4. Varies this licence by inserting the following age class description, corresponding water pollution hazard categories, special conditions, representative water quality monitoring site, and date of licence variation into Schedule 1:

"Age Class Description

Age Class 1947
Planning Units GMA 308-2, 309-2-3
Toonumbar State Forest No. 343

Water Pollution Hazard Categories

Water Pollution Hazard Category	Slope Ranges (degrees)
1	Less than or equal to 6
2	Greater than 6 and less than or equal to 30
3	Not applicable.
4	Not applicable.

Proportion of dispersible soils: A horizon 1%
B horizon 1%

Special Conditions

Special conditions are those conditions contained in the harvesting plan for Age Class 1947, Planning Units GMA 308-2, 309-2-3 Toonumbar State Forest No. 343, prepared by State Forests of NSW, received by the EPA on 12 January 1995, and as amended by:

1. addendum 1 received by the EPA on 24 January 1996.

2. omitting the sentence in Condition 4.4 (e) on page 19 that reads "On areas >6 degrees where skidders are used, drainage must be provided by the following:" and inserting in its place "Where skidders are used, drainage must be provided by the following:"

Waters Quality monitoring Site

To be determined

Date of licence variation

1 February 1996."

NEIL SHEPHERD
Director-General

Per .....
Geoff Noonan
Manager - Waters &
Catchments Policy
WATERS AND CATCHMENTS
(by Authorisation)

For Action or Noting by		
Originator	H.L.	1.2.96
1. A/HWCPIP	JG	1/2/96
2. MWCP		1.2.96
3.		
4.		

SUBMM41-7868-KG

FACSIMILE TRANSMISSION

To	Dr. Neil Shepherd, Environment Protection Authority P O Box 1135 CHATSWOOD NSW 2057		
Attention	Mr Geoff Noonan Catchments Branch	**Date**	2 February 1996
Your Fax		**Our Fax**	(02) 980 7042
From	Kris Gounder Forest Planning Branch	**Phone**	(02) 980 4217 (015) 271 625
No of Pages	1 (including this cover page)		

STATE FORESTS

State Forests of
New South Wales
Building 2
423 Pennant Hills Road
Pennant Hills NSW
2120
Phone (02) 980 4100

RE: NOTICE UNDER SECTION 17D(3) OF THE POLLUTION CONTROL ACT 1970

In terms of Clause 13(b) of the Pollution Control Regulations, State Forests of New South Wales hereby notifies you that no appeal will be made against EPA's decision to vary Licence No. 4017 on 1 February 1996 to include the following areas:

Compartment No.	State Forest	Management Area
273, 274, 276, 277, 279 & 282	Newry	Urunga
102 - 104	Beaury	Urbenville
304	Toonumbar	Urbenville
308/2, 309/2/3	Toonumbar	Urbenville

for A. HOWE
Manager
Forest Planning Branch

For State Forests Use Only (Page 1 of 8)

District Forester Urunga & Urbenville

As required under the above legislation we advised EPA about our intention not to appeal against this Licence amendment **on 2 February 1996**. Accordingly you may start logging these compartments **on 4 February 1996.**

Manager, Forest Planning Branch

HARVEST PLAN DESK AUDIT CHECKLIST

Register No: 493 Date Received: 12 / 1 / 1996

State Forest: TOONUMBAR Compartment/Age Class: 1947

District: URBENVILLE State Forest No: 343

Region: NORTHERN. Harvest/~~Thinning~~: Clearfall

Forest Type: ~~Native Forest~~/~~Native Plantation~~/Softwood Plantation* (delete)

WATER POLLUTION HAZARD CATEGORY

Factor	Provided Yes	Provided No	Relevant Yes	Relevant No	Comment
R	✓		✓		R =
K	✓				K =
S					as factored by SOILOSS 5.1
L					L = 20 M
C	✓		✓		C =

Soil Sampling personnel named and approved: R. TOWLER (Yes/~~No~~)

CALCULATION OF WATER POLLUTION HAZARD CATEGORIES

1. Calculation provided YES/~~NO~~
2. Verified against SOILOSS YES/~~NO~~
3. Appropriate WPHC assigned YES/~~NO~~
4. Slopes associated with WPHC YES/~~NO~~
5. % Compartment per WPHC YES/~~NO~~

Soil Unit 1:

	% Cpt	Slope (°)	Catchment Size
WPHC 1	30	0° – ≤6°	
WPHC 2	70	>6° – ≤30°.	
WPHC 3			
WPHC 4			

Soil Unit 2: _____(if applicable)

	% Cpt	Slope (°)	Catchment Size
WPHC 1			
WPHC 2			
WPHC 3			
WPHC 4			

Soil Unit 3: _____(if applicable)

	% Cpt	Slope (°)	Catchment Size
WPHC 1			
WPHC 2			
WPHC 3			
WPHC 4			

PROPORTION DISPERSIBLE SOIL

Soil Unit 1:

A Horizon % D: 2 x % C: 35 / 100 = 1/.
B Horizon % D: 2 x % C: 46 / 100 = 1/

Soil Unit 2: (if applicable)

A Horizon % D: _____ x % C: _____ / 100 = _____
B Horizon % D: _____ x % C: _____ / 100 = _____

Soil Unit 3: (if applicable)

A Horizon % D: _____ x % C: _____ / 100 = _____
B Horizon % D: _____ x % C: _____ / 100 = _____

REPRESENTATIVE WATER MONITORING

Representative Water Monitoring Site: To be determined State Forest

Annual rainfall:_____ Geology:_____

Forest Type:_____

HARVEST PLAN DESK AUDIT CHECKLIST

Condition	Condition	Comply	Comment
1 b	**Site Specific conditions** Attached site specific conditions to harvesting plan	n/a	
6	**Minimum protection widths for drainage line in native forests** Any prescribed streams, swamps and wetlands	n/a	
7	Any major water storages present	n/a	
9 (1 c)	Minimum protection widths Show filter strips on harvesting plan map	Yes	
9 (2)	Show protection strips on harvesting plan map	Yes	
10	Prescriptions for marking F, P, and B strips in the field	Yes	
20	**Operations within Native Forest Protection strips** Person responsible for identifying P strips in the field	n/a	
22	**Operations within Native Forest Buffer strips** Person responsible for identifying P strips in the field	n/a	
24	Specifications of techniques for minimising soil exposure and that any disturbance will cause no channelised flow in buffer strip	Yes	
25	**Minimum protection widths for drainage feature in native plantations** (as per 6 and 7)	n/a	
32	**Operations within Native Plantation Protection strips** (as per 20)	n/a	
33	**Operations within Native Plantation Buffer strips** (as per 22 and 24)	n/a	

Condition	Condition	Comply	Comment
34	**Minimum protection widths for drainage feature in Softwoods Plantations** (as per 6 and 7)	No	Table 1 PCL incorrectly stated
40	**Operations within Softwood Plantation Filter Strips** Person responsible for determining 5 metre machinery zone	Yes	
46	**Operations within Softwood Plantation Buffer Strips** (as per 22 and 24)	Yes	
47	**Road design, construction and maintenance** Specify techniques for the road design, construction and maintenance	n/a	
48	Proposed road locations are shown on harvesting plan map	n/a	
49	Maximum slopes for road construction Specify techniques for road stabilisation within 6 months of construction for roads built on slopes > 30 °	n/a	
53	**Road Clearing** Specify techniques for clearing areas adjacent to roads with minimal disturbance to groundcover and topsoil and with 70% groundcover attained with 12 months	n/a	
57	**Borrow Pits and Gravel Pits** Specify techniques for 1. construction of stable batters 2. stabilisation at the completion of operations	n/a	

HARVEST PLAN DESK AUDIT CHECKLIST

Condition	Condition	Comply	Comment
60	**Road Batters** Specify road batter stabilisation techniques		
63	**Road Drainage** Specify road drainage structures to be used and techniques for: 1. conveying peak flow in 1:5 year event 2. diverting water onto stable surfaces 3. minimising unchecked flow of water from table drains directly to watercourses and drainage lines, snig tracks and log dumps 4. discharging onto surface or structure which provide efficient sediment trapping	Y/eo	
71	**Crossing of drainage features** Specify location and type of crossings at drainage features	n/a	
78	**Road no longer required** Specify techniques to be used to stabilise roads that are no longer used	n/a	
81	**Dispersible Soil** Specify techniques used to protect roads and dispose of spoil that is dispersible	n/a	
89	Snig Track Construction Specify criteria for ensuring that snig tracks are located and constructed where they can be drained effectively	Y/eo	

HARVEST PLAN DESK AUDIT CHECKLIST

Condition	Condition	Comply	Comment
99	**Snig Track Drainage** Specify techniques to: 1. conveying peak flow in 1:2 year storm event 2. diverting water onto stable surfaces 3. minimising unchecked flow directly to watercourses and drainage lines, snig tracks and log dumps 4. divert water at a velocity which minimises damage to the structure	Yes	
109	**Downhill snigging** Specify measures to prevent concentrated water flow where downhill snigging occurs	Yes	
112	**Snig Tracks and Dispersible Soil** Specify measures to protect dispersible soils	n/a	
115	**Log Dumps** Specify location of log dumps on harvesting plan map	Yes	
119	**Specify techniques for:** 1. drainage of log dumps during and at completion of operation 2. Log dumps being left in a stable condition at the completion of operations	Yes	

Condition	Condition	Comply	Comment
125	**Burning** Specify key and strategic and operational details of burning: 1. Objective of burn 2. Method of ignition 3. Preferred season of burn	n/a	

Additional Harvesting Plan Requirements

1. Appropriate Variation Conditions (Condition 3 of the Harvesting Plan) ~~Yes~~/No
2. Appropriate SFO Authority Conditions (Condition 5 of the Harvesting Plan) Yes/~~No~~
3. Canopy Gapping Conditions ~~Yes~~/No

****
********** User's Name **********
****

SOIL LOSS ESTIMATION

The computer program, SOILOSS, uses the procedures of the Universal Soil Loss Equation (USLE) to predict the average annual soil loss due to sheet and rill erosion. It is based on extensive research in the United States and by the Soil Conservation Service in New South Wales.

The following report was prepared by SOILOSS:

==========

Estimation prepared for : TOONUMBAR GMA308-2,309-2-3/95
Date : 12-01-1996 Time : 11:31 Report Number : 1

A = R x K x L x S x P x C

Rainfall Erosivity:	Rainfall Zone: 1	R = 3320
Soil Erodibility :	User supplied	K = 0.021
Topography :	**Slope: 6.0ø** Slope Length: 20 m	LxS = 1.188
Support Practice :	No cultivation (P = 1)	P = 1.000
Management :		
Rotation :		
Cultivations :		
Stubble Mgmt :	- User Supplied	C = 0.1140

Long-term average annual soil loss: **A = 9.4 t/ha**

==========

Estimation prepared for : TOONUMBAR GMA308-2,309-2-3/95
Date : 12-01-1996 Time : 11:32 Report Number : 2

A = R x K x L x S x P x C

Rainfall Erosivity:	Rainfall Zone: 1	R = 3320
Soil Erodibility :	User supplied	K = 0.021
Topography :	**Slope: 30.0ø** Slope Length: 20 m	LxS = 6.639
Support Practice :	No cultivation (P = 1)	P = 1.000
Management :		
Rotation :		
Cultivations :		
Stubble Mgmt :	- User Supplied	C = 0.1140

Long-term average annual soil loss: **A = 53 t/ha**

PHONE REQUEST TO DISTRICT

Register No: 492 Date: 17 / 1 /1996

State Forest: TOONUMBAR Compartment/~~Age Class~~: 308 - 309

District: URBENVILLE State Forest No: 343

Region: NORTHERN Caller: R. COWGILL

Person Spoken To: KEVIN PETTY

DUMP D IS CORRECT LOCATION FOR SNIGGING OF LOGS NORTH OF DRAINAGE LINE. PLAN WILL INCLUDE SENTENCE IN PART 4, 4(b) TO CONFIRM. ✓

VARIATIONS CLAUSES IN PART 3 TO BE UPDATED ✓

DISTRICT TO ENSURE CONSISTENCY IN PARTS 2, 4, 5 ON OPERATIONS IN FILTER STRIPS PLANTATIONS. ✓
FALLING IS CONDITIONAL. ENSURE ENFORCEABILITY. p 16 & 19.

TABLE 4 INSERT '10' FOR WHPC 2 ✓

~~EXTRACT~~ TRACK DRAINAGE TABLE NEEDS TO BE AMENDED TO 'TABLE 5' & NOT '2'. ✓

R

HARVESTING PLAN
(GREVILLIA MANAGEMENT AREA -Northern Region)

Harvesting Plan No GMA 308-2,309-2-3/95

Previous Register #79,492.

TABLE OF CONTENTS

HARVESTING PLAN
(GREVILLIA MANAGEMENT AREA -Northern Region)

Condition 2 FOREST MANAGEMENT & ENVIRONMENTAL CONSIDERATIONS

NATURAL AND ARTIFICIAL PHYSICAL FEATURES

Description 1 Physical description of the area

STATE FOREST	Toonumbar No. 343	**DISTRICT**	Urbenville
REGION	Northern	**AGE CLASSES**	1947
COMPARTMENTS	308-2, 309-2-3	**PLANNING UNITS**	GMA308-2,309-2-3
THINNING STATUS	CLEAR FALL		

The area consists of 7.6 hectares (nett) of Taeda,Caribaea,Patula and Hoop pine plantation established in 1947. Elevation is 280 -340 metres asl. The Toonumbar Pine Plantation occupies hilly to steep southerly slopes near the eastern extremity of the main range extending eastward from Dome Mountain on the Richmond Range. Drainage is into Wyndham Creek which feeds the Richmond River via Eden Creek. A filter strip forms the boundary on the southern edge. No other major water courses transverse the planning unit. There are no unusual physical or artificial features in the area. (See also Description 12.)

See attached Harvesting Plan Operational Map and the Locality Map.

Description 2 Special warning of critical boundaries or non-harvest areas

Boundary lines are clearly marked by roads and part boundaries are evident by differing species. Boundaries must be marked by the SFO if any uncertainty exists.

FOREST MANAGEMENT AND SILVICULTURAL OBJECTIVES

Description 3 Forest Crop Types

Compartment 308-2 & 309-2 consists of Pinus taeda , Pinus caribaea and Compartment 309-3 Pinus patula and Auracaria Cunninghamiana (Hoop pine) scheduled for clear fall.

308-2
- First thinned (T1) in 1972 to a basal area of ca. 35m²/ha.
- T2 in 1992/3 to a basal area of approximately 30m²/ha.
- Basal area at present averages 31 m²/ha
- Target **Clear Fall operation**

309-2-3
- First thinned (T1) in 1992/3 to a basal area of ca. 30m²/ha.
- Basal area at present averages 31 m²/ha
- Target **Clear Fall operation**

Description 4 Endangered flora and fauna.

There is no endangered flora in the area. There are no known endangered fauna (Schedule 12) species found in this part of Grevillia Management Area .

References Austeco work for Urbenville EIS 1993, NPWS North East forests Biodiversity Study 1991/93, Forestry recordings (Foresters and Employees)

Description 5 Harvesting Method

Harvesting aims to clear fall parts 2,3 of cpt 308 & 309. It is anticipated that this operation will yield 1000m^3 of veneer and 330 m^3 of sawlog.

The harvesting method comprises:

Ground based mechanised felling/processing at stump, maximising utilisation;

Extraction by a wheeled skidder and a tracked machine on steeper slopes. Walkover extraction will result in minimal soil disturbance on extraction tracks;

Debarking , sorting and loading will be carried out by a tracked excavator with a log clamp;

Haulage involving the use of existing natural surface roads and gravelled roads as shown on the Map. Log stockpiles and loading areas ,(Dump sites) are marked on the map as A,B,C,D.and will be used as directed by the Supervising Forest Officer.

EROSION AND WATER POLLUTION CONTROL STRATEGY

Description 6 Site soil and water data and other information

(a) Location See Map

(b) Climate

Rainfall

Average annual rainfall is 1300mm p.a. Rainfall shows a marked monsoonal influence and is characterised by periods of intensive precipitation from cyclonic activity in the summer months compared with relatively dry periods in winter and spring.

Annual rainfall erosivity for the area **R = 3320**. Monthly maximum erosivity occurs in January, representing **R = 664**.

Temperature

Mean temperatures for Roseberry Park, 3 km to the north of Cpt 308-2, 309-2-3 Toonumbar SF are summer 18 -29 ° and winter 4 - 19°. Frosts are rare.

These conditions result in very rapid establishment of groundcover species when soils are exposed and moist. However, this is not relevant to erosion hazard or water pollution as soil erosion mitigation and water pollution control will be effected by retention of pine needle litter and logging slash rather than the recovery of ground-cover vegetation.

Generally weather conditions will allow harvesting operations to continue throughout the year subject to normal wet weather restrictions. Occasionally operations may be stopped altogether by periods of wet. See Code of Logging Practice for Conifer Plantations.

References Rosewall C.J. & Turner J.B. *Rainfall Erosivity in New South Wales.* **Technical Handbook No. 11 (1st Edition), Soil Conservation Service of New South Wales**(1992)

Pilgrim D. H. (ed) *Australian Rainfall and Runoff - A guide to flood estimation,* **The Institute of Engineers of Australia,** (1987)

(c) Geology

The prominant geology comprises Tertiary lava sheets overlaying the Mesozoic sediment of the clarence Moreton Basin.

Bedding planes

There are no obvious bedding and fracture planes in the area. Similarly this geology is now very stable with no porous rocks or other strata overlying impermeable layers. The geology of the area presents no problems in relation to road construction.

Mass Movement

There are no signs of mass movement in the harvest area and no problems are contemplated as no road construction is needed and timber extraction will use walkover techniques.

References *1:250,000 Geological Survey (Map & Commentary) Warwick Sheet.* **NSW Dept Minerals & Energy** 1972

d) Soils

Soil types

The soils of compartment 308/309 are fine grained volcanics comprising moderate to high fertility chocolate kraznozems over basalt parent material. Depth above basalt rarely exceeds 1.5 m and the surface texture is clay loam grading into a heavy clay subsoil. Soil groups and soil properties are given in the report of Veness and Associates (V&A August 1993).
Five sampling sites were selected in the Compartment , representing typical locations within the nett harvest area. Soil sampling sites are shown on the Harvesting plan Operational Map. Soil samples verify dispersibility in the field.

Description and profile

These soils consist of a thick plant layer over a brownish black or darkish red brown, strongly structured clay loam topsoil layer with a self mulching surface. This layer is underlain by a dark reddish brown strongly structured light clay A2/B1. All topsoil layers are characterised by abundant faunal mixing, moderate coherence and slight to moderate acidity. These layers overlie a dark reddish brown, strongly structured, strong, acid, strongly cherent main subsoil layer which usually grades into strongly weathered basalt parent material below 46 cm depth.

All sites within the net harvest are deep enough to allow cross bank or roll-over bank construction associated with roads or snig tracks.

Reference ; Soils Report for UMA EIS. Veness & Associates 1994, Field sampling May 1995.

Erodibility

Soil erodibility factor K is taken from the Urbenville soil report of Veness & associates. Values range from 0.004 (topsoil ridgeline) to 0.021 (subsoil upper slope). A figure of **K = 0.02** has been adopted as a worst case scenario.

Texture

The topsoils are clay loams, grading to a light to medium clay in the B horizon subsoil. they are moderately well drained with a high proportion of angular and sub-angular strongly weathered rock fragments throughout the profiles on the steeper terrain.

Dispersibility

Soil Landscape Map		Soils Report Urbenville EIS (1993)
Map Scale		1:125,000
Map source		Veness & Associates (1993)
Soil type		Chocolate kraznozems
Texture class -	**A horizon**	clay loam
	B horizon	medium clay
Method of determination		Soil landscape map
Comment:		
K value	**A horizon**	K = 0.004 (A1)
	B horizon	K = 0.021 (A2/B)
Method of determination		Soil landscape map
Comment:		
% clay	**A horizon**	35%
	B horizon	46%
Method of determination		Soil landscape map
Comment		
EAT class	**A horizon**	8 (5 samples)
(if known)	**B horizon**	8 (5 samples)
Method of determination		Soil Scientist EAT Report
Comment:		Not dispersible
% dispersion	**A horizon**	2%
	B horizon	2%
Method of determination		Soil landscape map

Inherent fertility

Whilst these soils are of moderate-high fertility, aspect is the major factor effecting vegetative growth. Ground cover establishment will be rapid on moister slopes, and particularly dependent on the soil moisture regime following harvesting on the drier aspects. Post harvest establishmnet of up to 90% ground-cover is expected within 12 months.

Depth to sub soils and bedrock

Topsoil depth: 15-20 cm Depth to decomposed rock : 45-150 cm

Existing erosion

There are no areas of active erosion evident. Most erosion banks appear to have stabilised and should not become active following harvesting.

Qualified soil scientist

Rob Towler B Sc.Ag. (Soils)

(e) Landform (See Description 1.)

Slope

Approximate percentages of plantation area by slope class are:

70 % of the area is less than 18 degrees , while only 5 % is greater than 25 degrees.

Average slope has ben estimated as 10 degrees in the harvesting plan.

Terrain (See Table 2 under Description 13.)

The general landscape of the areas includes hilly to steep southerly slopes near the eastern extremity of the main range extending eastward from Dome mountain on the Richmond range. Drainage is into Wyndham Creek which feeds the Ricmond River via Eden creek.

Drainage line condition

Drainage lines are well defined and stable.

Aspect

Generally south and south west into Wyndham Creek.

Rockiness

There is no surface rock.

(f) Hydrology

The compartment lies in the drainage of Wyndham Creek within the Richmond River catchment and flows to the Richmond River via Eden creek. Drainage lines are well developed and initiate as drainage depressions from the main ridgelines and quickly become clearly defined, stable drainage lines. No swamps or wetlands are found within the net harvest area.
There are no major water storages within 100 metres of the compartments.
There are no prescribed streams in the compartments.

Representative water monitoring sites

A representative water quality monitoring site with similar geology and rainfall erosivity to Toonumbar State forest is found at Mebbin S.F.Rainfall at the compartment much less than Mebbin .

Reference Forest Planning Branch *Water quality monitoring program* **SF NSW** 1994

Previous harvesting

Toonumbar Plantation has an history of thinning from the late 60's to the present day. Compartment 308-2,309-2-3 was last thinned in 1992/3 . To date compartment 308-2 has had two thinnings and compartment 309-2-3 one thinning.

Upstream catchment water use

Forestry. The compartment is in the top of the catchment.

Downstream catchment water use

Agricultural (cattle grazing and cropping) and domestic use.

Domestic water use

Whilst many people may pump from the Wyndham Creek for agricultural reasons, human consumption is typically based on rainwater.

(g) Vegetation and ground-cover See Descriptions 3-4.

Understorey comprises generally of lantana and scrubby species (estimated 90% of harvest area) together with an amount of tree litter and logging debris from previous operations.

Live ground-cover recovery within twelve months is anticipated provided normal seasonal rainfall conditions prevail. Because walkover timber extraction techniques will be used, disturbed areas will be minimal and are expected to achieve greater than 70% ground-cover re-establishment within twelve months.

(h) Proposed operation system See Description 5.

Use of existing plantation roads

Compartment 308-2,309-2-3 is served by a permanent, well maintained stable plantation road network which complies with SEMGL & PCL conditions.. No new roading is proposed in connection with this harvesting operation. Pre-operational grading and patch gravelling will be undertaken where required. Toonumbar Forest Drive will be used to to connect the Summerland Way to Kyogle.

Harvesting

The harvesting operation set out in Description 4 results in a cover factor **C = 0.114** in areas where a skidder is to be used.

Location of log dumps/log assembly areas

Log dumps are located as indicated on the Harvesting Plan Operational Map. Log dumps must be drained using crossfall drainage and runoff from dumps must not be discharged directly into drainage features or onto extraction tracks or snig tracks.
Uphill snigging will be used except for dump C , where downhill snigging is proposed. Measures to prevent the concentration of water must br taken by way of crossfall drainage and approaching tracks to direct water flow away from the dump immediately before reaching it.

Post-Harvesting Re-establishment

Under current Mangaement Practices the harvest area will be spelled for a period of at least twelve months and then prepared for re-planting with *Araucaria cunninghamii* hoop pine.

Description 7 Evaluation of soil and water data

(a) Soil Erosion & Water Pollution Hazard Categories

Water Pollution Hazard Categories for the harvest area have been assessed using SOILOSS 5.1. The rating has then been used to assess Water Pollution Hazard categories for the net harvest area for both forwarder and skidder operations.

Skidder (Used on areas 15° to 25° - Calculations taken for range 0° to 25°.)

SE&WPHR = R x K x LS x Cx P (5.1) where

R = 3320,
K = 0.021 **Subsoil (maximum recorded)**
S = slope **As factored in SOILOSS 5.1**
L = 20 metres
C = 0.114 **Plantation clearfall with skidder**
P = 1.0 **Support Practice Factor**

Table 2 Cpt 308-309 SE&WPH Categories

	Slope Boundaries	Soil Erosion & Water Pollution Hazard Rating	Soil Erosion & Water Pollution Hazard Category	Indicative % of Net Harvest Area
Skidder	0° - <=6°	<10	1 (low)	30
Skidder	>6° -= 30°	11 - 50	2 (mod)	70
Skidder	> 30	n/a	n/a	n/a
Roads/tracks		n/a	3 (high)	n/a

Dispersibility

Percentage dispersible soil

	TOPSOIL	SUBSOIL	
PDS	(2% x 35%) = 1	(2% x 46%) = 1	Method D1

(b) Other factors

There are no other EHSCS/PCL factors which need to be considered in relation to the planned harvesting of the compartment.

References Standard Erosion Mitigation Guidelines for Logging in New South Wales **Soil Conservation Service, CaLM, NSW** 1993
Rosewall C.J. SOILLOSS A program to assist in the selection of management practices to reduce erosion **Soil Conservation Technical handbook No.11 First Edition** 1990, **2nd Edition** 1993.

(c) Need for additional special conditions

Not applicable

FOREST ZONING AND SPECIAL ATTRIBUTES

Description 8 Forest zoning and Special Attributes

(a) Research plots

Two Growth plots exist in cpt 308-2.(see attached map) Trees within this plot must be measured and recorded prior to clear felling.

(b) Special attributes of the area.

The area is classified "Native Species Plantation - General ".

No other special zonings (PMP) occur within Cpt 308-2,309-2-3.

HARVESTING PLAN
(GREVILLIA MANAGEMENT AREA -Northern Region)

Condition 3 AUTHORISATION

Condition 3.1 Area Identification

URBENVILLE DISTRICT
Toonumbar State Forest No. 343
1947 Age Class
Taeda,Caridaea,Patula,Hoop pine.
Compartment 308-2 ,309-2-3
Grevillia Management Area

Condition 3.2 Authorisation

(a)

This Harvesting Plan is prepared by State Forests of New South Wales (State Forests) 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.

(b)

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:

Licence conditions issued by State Forests under the Forestry Act 1916;

the " **Code of Logging Practice for Conifer Plantations** (1991);

the **"Standard Erosion Mitigation Guidelines for Logging in New South Wales" (SEMGL 1993)** issued by the Soil Conservation Service.

the conditions of **Pollution Licence No 4017** issued by the Environment Protection Authority under the Pollution Control Act 1970. Those general conditions which affect licensees are set out in Schedule "A" attached to every Timber, Contractors and Operators Licence. Where a Pollution Control Licence condition is more stringent than an equivalent in either of the other above-mentioned documents, the Pollution Control Licence condition must prevail.

conditions attached to any relevant licences issued by the National Parks and Wildlife Service under the Endangered Fauna (Interim Protection) Act 1992 and the National Parks and Wildlife Act 1967 (NPW Act);

conditions resulting from any relevant determination of an Environmental Impact Statement;

the regional silvicultural specifications applicable to this operation,

the schedule of specifications for the harvesting and utilisation of timber applicable to this operation, in this case, ***the NORPLY Wood Supply Agreement*** and subsequent amendments.

the Code of Procedure for the measurement of timber and other products applicable to this operation, in this case, ***the NORPLY Wood Supply Agreement*** and subsequent amendments.

c)
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 State Forests Licensee.

Condition 3.3 Environmental Planning & Assessment Act requirements

In preparing this Harvesting Plan, the requirements of Part V of the EPA Act (as amended) and Section 92 of the NPW Act have been considered and an Environmental Impact Assessment (EIA) has been prepared.

Condition 3.4 Breaches and infringements

Non-compliance with any condition or instruction set out in this Harvesting Plan will be dealt with in accordance with Section 3 of **the "Code of Logging Practice - Conifer Plantations"**. Serious breaches may lead to the issue of a Penalty notice, licensee suspension or prosecution.

Condition 3.5 Variations and amendments to this Harvesting Plan

Conditions and requirements of the Pollution Control License cannot be varied in the field without prior written approval from the EPA , other than those areas detailed in condition 5.1 (c).

Variations and other specified approvals detailed in Condition 5.1 (c) , may be made by the Supervising Forest Officer to this Harvesting Plan , subject to the District Forester's counter approval.
Other approvals may only be made by the Supervising Forester and also subject to the District Forester's counter approval , and where relevant to the Pollution Control Licence , with prior approval from the EPA.

All approvals must be recorded on a variation advice , attached as Section 6 to all operational copies of this Harvesting Plan.
This Harvesting Plan must not be amended by a licensee or contractor.

Condition 3.6 Harvesting Plan availability

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

HARVESTING PLAN
(GREVILLIA MANAGEMENT AREA -Northern Region)

CERTIFICATION

Condition 3.7 Plan Preparation (by Forester, Forest Assistant)

Prepared by ....**K .W .PETTY**.....Signature.....

Title ....**Forest Assistant**.....Date .....**5nd May 1995**.....

Condition 3.8 **District Approval** (by District Forester)

I approve the issue of this Harvesting Plan subject to any amendments, endorsements or approvals that may be made following submission to the Environment Protection Authority.

The date that operations will need to commence is ...**JUNE 1995**.....

Signature.....District Forester. Date.....

This Harvesting Plan is approved without amendment/subject to the amendments detailed in the covering letter/document attached. (To be completed by person who originally prepared the Plan who must attach the relevant amendments to the Plan.)

Signature .....Position .....Date.....

Authority (EPA) .....

Signature .....Position .....Date.....

Authority (Other) .....

I note approval of this Harvesting Plan from the above-mentioned authority, together with the amendments they have required to be included in the Plan.

These amendments have been included in the final Plan. This Harvesting Plan comprises pages 1 - 23 attached and the Operational Map marked and referenced to this Harvesting Plan. This is Harvesting Plan No GMA 308-2,309-2-3/95.

Signature .....District Forester Date.....

Condition 3.9 **Date for commencement of operations.....JUNE 1995.....**

HARVESTING PLAN
(GREVILLIA MANAGEMENT AREA -Northern Region)

DISTRIBUTION

Condition 3.10 *(Schedule to be attached to each copy and highlighter marked to recipient)*

One copy of the plan is required in each case unless otherwise noted.

Timber Licensee	Parts 1,3,4
Contractors	Parts 1,3,4
Operator(s) (where required)	Parts 1,3,4
Supervising Forest Officer(s) (SFO(s))	Parts 1 ,3-5 , (2 optional)
Supervising Forester(s)	All Parts
District Forester	All Parts
District Office Register	All parts
Compartment History File	All Parts
Regional Office (optional)	All Parts
Soil Conservationist (Forestry)	All Parts
Forest Planning Branch, Head Office, for distribution to:	
Environment Protection Authority	All Parts (2 copies)

Condition 3.11 INDUSTRY FIELD SUPERVISORS/BUSH SUPERVISORS ACKNOWLEDGEMENT

I acknowledge that I have received a copy of Harvesting Plan No GMA 308-2,309-2-3/95 and that I understand the Conditions of the Plan as explained to me by a State Forests officer.

Signature .....Licence No. .....Date .....

Position.....

Signature .....Licence No. .....Date .....

Position.....

Signature .....Licence No. .....Date .....

Position.....

Signature .....Licence No. .....Date .....

Position.....

Condition 3.12 Industry endorsement

This Plan has been signed and endorsed on behalf of industry prior to commencement of operations.

Signature .....Position.....Date .....

Condition 4 OPERATIONAL CONDITIONS

Condition 4.1 Harvesting Activity Description

Clear Fall of thinned 1947 Age Class *Pinus taeda,caribaea,patula and Araucaria cunninghamii* stand.

Condition 4.2 Tree-marking and Harvest Regulation

Tree-marking colour 2 Pink lines = Trees marked for retention and not to be damaged.
Trees that are to be removed in the harvest area will not be marked by the SFO, since it is a clearfall operation. Boundaries will be identified and marked in the field by the SFO. Harvesting will be directed and supervised by the SFO.

Area Marking colour	Blue	= Compartment boundary
	Pink 'D'	= Log dump site
	Orange	= Road or track location

Condition 4.3 Order of Working

(a) Wet weather (winter), dry weather (summer) and intermediate harvesting areas

Wet weather, dry weather and intermediate weather areas allocated for harvesting are shown on the Plan Map. These areas must be harvested in accordance with seasonal conditions unless otherwise approved by the SFO.

(b) Wet weather controls -roads

During wet weather, the wet-weather controls set out in Section 8 of the Code of Logging Practice will apply. In particular, where runoff occurs from a road surface, haulage must cease on natural surface roads.

(c) Wet weather controls - timber extraction and skidder snigging

During wet weather, timber extraction tracks and snig tracks must not be used where:

(i) there is runoff from the track surface, and/or;

(ii) there is a likelihood of significant rutting leading to turbid runoff from the track surface.

Condition 4.4 Application of erosion and water pollution control Conditions

(a) Basic Soil Erosion & Water Pollution Hazard Categories

The following categories apply

	Table 3 Slope Boundaries	Cpt 308-309 Soil Erosion & Water Pollution Hazard Category	SE&WPH Categories Indicative % of Net Harvest Area
Skidder	0° - <=6°	1	30
Skidder	>6° - 30°	2	70

(b) Approved timber harvesting and extraction method

Mechanised felling/processing/bunching;

Extraction by wheeled skidder . Extraction outrows must not be parallel to / & immediately adjacent to the filter-protection strips. No box cuts are to be used.
Walkover extraction will result in minimal soil disturbance on extraction tracks.;
All snigging will be uphill except for dump C , where drainage will be used tp prevent the flow of water onto the dump. Dumps will be drained by crossfall drainage.
Dump rehabilation will be achieved by stockpiling topsoil and levelling the dump on completion of logging.
Dump D is an existing landing outside the Plantation and Harvestable area Uphill snigging will be used to extract timber from the North -western corner of compartment 308/2 to Dump D.
Haulage involving the use of existing natural surface roads and gravelled roads as shown on the Map. Log stockpiles and loading areas are indicated on the Map.

Harvesting operations may be conducted throughout the year subject to the application of normal wet weather closure procedures and restriction to wet weather areas as set out in Condition 4.4.

c) Slope limits for the area

No restrictions. All areas are available for harvesting.

(d) **Drainage feature protection**

Water courses and drainage lines must be protected by filter strips, and protection strips in accordance with Table 4.

Table 4

				FILTER STRIP (Width on each side of the drainage feature)	PROTECTION Strip
WHPC	1	Skidder	< 100 ha catchment	5m	
WHPC	2	Skidder	< 18' slope	10m	
WPHC	2	Skidder	> 18° slope	10m	10m
					Plantation Buffer strip 5 m

Filter &Protection strips are indicated on the Plan Map.

Filter & Protection strips will not be marked in the field by the SFO prior to harvesting

It is the contractor's responsibility to observe the correct distance from drainage lines and watercourses for filter & protection strip widths.

It is also the contractors responsibility to identify the 5 metre zone within the filter strip

Drainage depressions

Buffer strips must be provided along all drainage depression within the planning units. Buffer strips must be 5 metres wide each side of the drainage depression.

It is the contractor's responsibility to identify plantation drainage depressions encountered in the field.

(e) Operational Protection

Felling and extraction in filter strips and protection strips

Trees may be felled and machinery may operate within filter strips and protection strips, subject to the following conditions:

directional felling must be used to minimise felling of trees into drainage lines;

trees and crowns felled into drainage lines must be removed with minimal disturbance to the bed and banks;

machinery must not approach closer than 5 metres from the bank of a drainage line, except at crossing points;

soil disturbance must be minimised by the following techniques:

(i) maximum use of skidders and minimal use of tracked machine;

(ii) minimal use of blades;

(iii) use of slash to protect the soil during extraction;

(iv) minimise skewing on tracks;

(v) deliberate spreading of slash over disturbed areas at the completion of extraction in each section.

Where outrows cross drainage lines, slash must be placed in the drainage line to protect the bed and bank from disturbance. Slash crossings must be removed at the completion of the operation unless otherwise approved by the SFO.

Felling and extraction in drainage depression buffer strips

The measures described in (i) to (iv) above must be used to minimise soil disturbance in buffer strips. In addition, no snigging along drainage depressions is permitted.

Slash must be placed in drainage depression crossings and should be left in situ at the completion of operations.

Track drainage

Maximum use of slash must be made on extraction tracks to minimise soil compaction and to provide drainage. On areas > 6 degrees where skidders are used, drainage must be provided by the following:

(i) slash should be deliberately placed on disturbed areas to divert water and/or;

(ii) The maximum spacing of extraction track and snig track drainage structures must be designed to limit erosion of the track surface in accordance with Table 2 :

Table 5 : Maximum Spacing of Extraction/Snig Track Drainage Structures (metres)

Track grade (degrees)	Soil Erosion & Water Hazard Pollution Category		
	1	2	3
5	200	150	100
10	150	100	60
15	80	60	40
20	60	40	25
25	40	30	20
30	30	25	15
35	25	20	10

(iii) drainage must be established within 2 days of the completion of operations on each track, or where operations are temporarily suspended,for more than one week.

Roads

No construction of new roads is permitted under this Harvesting Plan.

Drainage structures must be cleared every two days where damage to the road surface, or table drains could result if a rain event occurred.

Roads and associated drainage structures must be cleared of debris on completion of each section of the operation, to the standard they were prior to harvesting.

Forwarding is permitted along roads by machines without tracks where no running tracks exist, only during dry conditions. Tracked machines must only be used on roads where approved by the SFO.

Blading-off of roads is not permitted unless approved by the SFO.

Location of log dumps/log assembly areas

Log dumps are located as indicated on the Harvesting Plan Operational Map. Log dumps must be drained using crossfall drainage and runoff from dumps must not be discharged directly into drainage features or onto extraction tracks or snig tracks.
Uphill snigging will be used except for dump C , where downhill snigging is proposed. Measures to prevent the concentration of water must br taken by way of crossfall drainage and approaching tracks to direct water flow away from the dump immediately before reaching it.

Condition 4.5 Research and Inventory Plots

Two Growth plots are situated in cpt 308-2. Measurements must be recorded prior to clear felling.

Condition 4.6 Modified harvest conditions for special emphasis areas

(a) Native forest retention area

An area , part 4 of cpt 309 (Gympie Messmate) is to to be retained and care must be taken not to damage any standing trees.(see attached map).

(b) Boundary fences

Care must be taken not to fall trees over the boundary fences which are indicated on the Plan Map. Fences must be repaired immediately if damage results. Tree/slash falling adjacent to fence lines should be removed for a distance of 1.5 metres on either side.

Condition 4.7 Specification of type of products to be removed.

Product 1 **Veneer**
- Minimum length 2.7 metres
- Minimum diameter 20 cm small end under bark
- Minimal sweep and bend

Product 2 **Sawlog**
- Minimum log length 2.4 metres
- Minimum diameter 14cm small end under bark
- Minimum diameter 20cm large end under bark
- Logs not meeting veneer specifications are available as sawlogs.

Condition 4.8 Yield information for planning unit GMA 304/95

Product 1	Veneer	1000 cubic metres
Product 2	Sawlog	330 cubic metres

Condtion 5 INSTRUCTIONS TO SUPERVISING FOREST OFFICERS (SFOs)

Condition 5.1 SFO' authority to supervise harvesting operations

(a) General

The Supervising Forest Officer responsible for the direct field supervision of this harvesting operation, including tree-marking, log measuring and/or log check measurement, safety, implementation of wet weather controls, and monitoring and reporting generally will be:

The Plantation Marketing Foreman, Toonumbar SF.

(b) Relieving SFOs

Relieving SFOs, if required, will be:

The Acting Plantation Marketing Foreman, Toonumbar SF,
The Forest Assistant (Marketing) Urbenville District,
The Marketing Forester, Urbenville District.

(c) SFOs authority

The SFO has authority to approve:

use of natural surface roads as extraction tracks to log assembly areas where running tracks do not exist, provided restoration of the road is undertaken as necessary;

slash drainage line crossing being left *in situ.*

All approvals must be noted on a Harvesting Plan Variation Form and copies attached to the relevant master copies of the Harvesting Plan.

Condition 5.2 Tree-marking and other harvesting control requirements.

Tree marking

Tree marking is not required in the general harvest area,since it is a clearfall operation.

Trees will be removed in the Filter & Protection strips.

Trees in this zone can be felled ,but in accordance with the Pollution Control Licence . Machines must not enter the 5 metre zone within the Filter or Protection at any time unless it is an authorised crossing point.(refer to section 4.4 (e))

The SFO will supervise and direct the sequence of logging and will mark any trees for retention.

Filter & Protection strips will not be marked in the field , but it is the responsibility of the contractor to identify the 5 metre zone within the Filter & protection strips.

Condition 5.3 Monitoring and reporting

Daily and Fortnightly reporting

The standard Regional procedures for daily and fortnightly reporting on the conduct of operations must be followed.

The SFO must report the following matters and record their location if necessary on their copy of the Plan Map, or the recording map attached to the Plan for that purpose:

(i) instances where trees and/or crowns are not removed from drainage lines

(ii) instances where slash crossings are left in situ;

(iii) instances where the track drainage is not affected within 2 days of completion of operations.

Condition 5.4 Other instructions

There are no other special instructions concerning harvesting supervision.

Condition 5.5 SUPERVISING FOREST OFFICERS ACKNOWLEDGEMENT

I acknowledge that I have received a copy of Harvesting Plan No GMA 308-2,309-2-3/95 and that I have been briefed on the Conditions of the Plan and the supervision and operational control requirements as explained to me by the District Marketing Forester.

Signature .....Date .....

Position.....
Supervising Forest Officer

Signature .....Date .....

Position.....
Relieving Supervising Forest Officer

HARVESTING PLAN
(GREVILLIA MANAGEMENT AREA -Northern Region)

HARVESTING PLAN PREPARATION CHECKLIST

POLLUTION CONTROL LICENCE CONDITION CHECKLIST
PLAN PREPARATION PCL Sch2 Div 3

Condition No.	Condition Title/Enquiry	Entry	Plan Ref.
C 42	Representative water monitoring site	Yes	D6(f)
	Have the Water Pollution Hazard Categories (WPHC)s and the Proportion of Dispersible Soil (PDS) been calculated for the area?	Yes	D7(a) C4.4 (a)
	Method for soil sampling for K factor	Yes	D6(d)
	Field sampling - sites?	Yes	Map
	- lab analysis?	Yes	
	- field analysis?	Yes	
1b	Site specific conditions	No	D7(c)
4.	Are areas >30° outside net harvest area?	Yes	Map C4.4(c)
5.	Are areas in WHPC4 outside net harvest area?	Yes	Map C4.4(c)
6.	Drainage feature & protection	Yes	D6(f) C4.4(d) C4.8(g)
7.	Any major water storage?	No	D6(f) C4.4(d)
8.	DDBS conditions included?	Yes	C4.4(d)
9.1(c)	Filter strip on Map?	Yes	Map
9.2	Protection strip on Map?	Yes	Map
10.	Conditions for marking/ identifying:		
	- filter strips & protection strips	Yes	C4.2 C4.4(d)
	-buffer strips		C4.4(d)
	in the field		C4.4(d)
13.	Reporting accidental felling into filter strips	Yes	C5.3
14.,20.,22.	See 10		
24.	Specify techniques in DDBS	Yes	C4.4(e)

HARVESTING PLAN
(GREVILLIA MANAGEMENT AREA -Northern Region)

HARVESTING PLAN PREPARATION CHECKLIST

POLLUTION CONTROL LICENCE CONDITION CHECKLIST
PLAN PREPARATION PCL Sch2 Div 3

Condition No.	Condition Title/Enquiry	Entry	Plan Ref.
47.	Road design, etc. for 1:10 yr. storm event: What techniques for 12 month stabilisation?	Yes	D6(h) C4.4(f)
48.	Are roads shown on Map?	Yes	Map
49.	If road traverses area over 30° what techniques for 1:10 storm event?	No	D6(h)
	What techniques for 6 month stabilisation of road?	No	D6(h)
50.(a),(b)	What is maximum road grade?	Yes	C4.4(f)
51.	Who will mark roads in field?	Yes	C4.4(f)
52.	What is maximum clearing width for road formation?	Yes	C4.4(f)
53.	Is any roadside clearing proposed? If so what techniques for 70% ground-cover within 12 months?	No	D6(h)
57.	Any borrow or gravel pits? If so what batter and stabilisation techniques are required?	No	D6(c) C4.4(f)
60.	What design criteria for stable road batters within 12 months?	No	C4.4(f)
63.	Do road drainage techniques specify - peak flow 1:5 year storm capacity? - stable surface water diversion? - minimisation of unchecked flow? - use of sediment traps if necessary?	Yes	C4.4(f)
64.	What is spacing and type of road drainage structures?	Yes	C4.4(f)

HARVESTING PLAN PREPARATION CHECKLIST

POLLUTION CONTROL LICENCE CONDITION CHECKLIST
PLAN PREPARATION PCL Sch2 Div 3

Condition No.	Condition Title/Enquiry	Entry	Plan Ref.
65.	Is an alert condition needed for cutting of roadside waterholding windrows?	No	
66.	Is an alert condition needed to emphasise 2 day removal of debris from drainage structures?	No	
67.	Is an alert condition needed for reporting of blading off approvals?	No	
71.	Are drainage feature crossing structures for roads specified for location, type and capacity?	Yes	C4.4(f)
74.	Is a report condition included to cover spoil non-removal from drainage features?	Yes	C5.3(c)
76.	Is a report condition included to cover reporting that crossing stabilisation is not completed within five days?	Yes	C5.3 (c),.
77.	Are techniques listed to leave crossing sites stable?	Yes	C4.4(c)
78	Are techniques specified for stabilisation of roads that are no longer required?	Yes	D6(h), C4.4(f)
79.	Have any old roads been evaluated?	No	D6(h)
80	Are alert conditions required for dispersible soils?	No	D13(a)
81.	Are protection techniques spelt out for roads traversing dispersible soils?	No	

HARVESTING PLAN PREPARATION CHECKLIST

POLLUTION CONTROL LICENCE CONDITION CHECKLIST
PLAN PREPARATION PCL Sch2 Div 3

Condition No.	Condition Title/Enquiry	Entry	Plan Ref.
82.	Are alert conditions for wet weather restrictions included for roads?	Yes	C4.3(b)
83.	Is a report condition included to cover crossing stabilisation not being completed within 5 days?	Yes	C5.3
84.	Are techniques listed to leave crossings stable?	Yes	C4.4(e)
85.	Is a report condition needed to cover none removal of temporary crossings?	Yes	C5.3
86.	Are there any crossings of drainage features other than drainage depressions by extraction tracks?	Yes	C4.4(e) C5.1
	Are extraction track crossing locations type and capacity specified?	Yes	C5.1
	Is a reporting condition included for SFO approvals for crossings?	Yes	C5.1(c)
	is a report condition included for non-removal of spoil from drainage features?	Yes	C5.3
89.	What conditions are specified for effective extraction track drainage?	Yes	C4.4(e)
92.	Is an alert condition needed for timber extraction along roads?	No	
93	Are alert conditions for wet weather restrictions included for timber extraction tracks?	Yes	C4.3(c)

HARVESTING PLAN
(GREVILLIA MANAGEMENT AREA -Northern Region)

HARVESTING PLAN PREPARATION CHECKLIST

POLLUTION CONTROL LICENCE CONDITION CHECKLIST
PLAN PREPARATION PCL Sch2 Div 3

Condition No.	Condition Title/Enquiry	Entry	Plan Ref.
99	Do specifications for drainage of timber extraction tracks include: - capacity for peak flow in a 1:2 year storm event? - diversion onto stable surfaces? - minimise unchecked flow into drainage features? - divert water at minimum damage to structure?	Yes	C4.4(e)
103.	Is minimum specification for bank height used?	Yes	C4.4(e)
105.	Is a reporting condition needed for non-drainage of timber extraction tracks over two days after use has ceased?	Yes	C5.3
107.	Is an alert condition for temporary cessation of use drainage condition required?	No	
112	Is timber extraction being undertaken on dispersible soils?	No	D6(d) D7(a)
	If so, have alert conditions have been included?	No	
119	Have specifications for log dump location and drainage been included?	Yes	C4.8(h)
120	Is an alert condition for the use of traxcavators and wheeled loaders in relation to wet weather necessary?	No	

HARVESTING PLAN
(GREVILLIA MANAGEMENT AREA -Northern Region)

HARVESTING PLAN PREPARATION CHECKLIST

POLLUTION CONTROL LICENCE CONDITION CHECKLIST
PLAN PREPARATION PCL Sch2 Div 3

Condition No.	Condition Title/Enquiry	Entry	Plan Ref.
	What other conditions listed in Sch 2 Div 3 need to be included as alert conditions in this Plan?	None	
	Are any appendices required?	No	

HARVESTING PLAN
(GREVILLIA MANAGEMENT AREA -Northern Region)

NOTES

Copies of variations and approvals which apply to this Plan should be attached here.

HARVESTING PLAN
(GREVILLIA MANAGEMENT AREA -Northern Region)

NOTES

NOTES

HARVESTING PLAN
(GREVILLIA MANAGEMENT AREA -Northern Region)

CLEARANCE CERTIFICATE

HARVESTING PLAN No. ...GMA 308-2,309-2-3/95.....

TOONUMBAR..STATE FOREST.....URBENVILLE..DISTRICT

To M.....Supervising Forest Officer

I request approval for me to move my logging crew and all associated machinery from the above mentioned area to the next Planning Unit in accordance with Section 3.5 of the Code of Logging Practice.

I certify that:

(a) all permanent roads, trails and mitre drains have been cleared of harvesting debris;
(b) butt damage to retained trees has been kept to acceptable limits;
(c) all trees marked for removal have been felled;
(d) utilisation limits have been satisfactorily met;
(e) stump heights conform to requirements;
(f) all hanging trees have been felled and brought down;
(g) all log dump sites/landings/log stack sites have been satisfactorily restored as required;
(h) harvesting debris is not accumulated around retained trees;
(I) all accumulated litter has been disposed of properly;
(j) all filter, protection and buffer strip requirements have been complied with;
(k) all snig track, extraction track and temporary logging road drainage has been installed satisfactorily and other required rehabilitation work has been completed;
(l) all necessary repairs to damaged roads, signs, fences and other structures have been carried out.

I believe that I have met all my obligations under the conditions of the Timber Licence, the Pollution Control Licence, and/or any licence issued under Section 120 of the National Parks and Wildlife Act, which apply to the Compartment (Section, Coupe) just completed , as stated in this Harvesting Plan.

Signature.....Licence No.....Date .....
Contractor/licensee

As a result of inspections of the logging operations made in accordance with this Harvesting Plan, I am satisfied that, to the best of my knowledge, the licensee/ contractor responsible for this harvesting operation has satisfactorily completed all work and approval is given for her/him to remove her/his machinery and equipment and leave the area/ commence operations in another Planning Unit.

This clearance does not release the licensee/contractor from any obligation to undertake any remedial work if subsequent deficiencies are found during any inspections of the area made within 12 months of the date of this post- harvesting inspection.

Last inspection was made on .....(Date)

Signed .....(Date).....

HARVESTING PLAN
(GREVILLIA MANAGEMENT AREA -Northern Region)

Relates to #79 which was withdrawn on 27/6/95

Harvesting Plan No GMA 308-2,309-2-3/95

TABLE OF CONTENTS

HARVESTING PLAN
(GREVILLIA MANAGEMENT AREA -Northern Region)

Condition 2 FOREST MANAGEMENT & ENVIRONMENTAL CONSIDERATIONS

NATURAL AND ARTIFICIAL PHYSICAL FEATURES

Description 1 Physical description of the area

STATE FOREST	Toonumbar No. 343	**DISTRICT**	Urbenville
REGION	Northern	**AGE CLASSES**	1947
COMPARTMENTS	308-2, 309-2-3	**PLANNING UNITS**	GMA308-2,309-2-3
THINNING STATUS	CLEAR FALL		

The area consists of 7.6 hectares (nett) of Taeda,Caribaea,Patula and Hoop pine plantation established in 1947. Elevation is 280 -340 metres asl. The Toonumbar Pine Plantation occupies hilly to steep southerly slopes near the eastern extremity of the main range extending eastward from Dome Mountain on the Richmond Range. Drainage is into Wyndham Creek which feeds the Richmond River via Eden Creek. A filter strip forms the boundary on the southern edge. No other major water courses transverse the planning unit. There are no unusual physical or artificial features in the area. (See also Description 12.)

See attached Harvesting Plan Operational Map and the Locality Map.

Description 2 Special warning of critical boundaries or non-harvest areas

Boundary lines are clearly marked by roads and part boundaries are evident by differing species. Boundaries will be marked by the SFO if any uncertainty exists.

FOREST MANAGEMENT AND SILVICULTURAL OBJECTIVES

Description 3 Forest Crop Types

Compartment 308-2 & 309-2 consists of Pinus taeda , Pinus caribaea and Compartment 309-3 Pinus patula and Auracaria Cunninghamiana (Hoop pine) scheduled for clear fall.

308-2
- First thinned (T1) in 1972 to a basal area of ca. 35m²/ha.
- T2 in 1992/3 to a basal area of approximately 30m²/ha.
- Basal area at present averages 31 m²/ha
- Target **Clear Fall operation**

309-2-3
- First thinned (T1) in 1992/3 to a basal area of ca. 30m²/ha.
- Basal area at present averages 31 m²/ha
- Target **Clear Fall operation**

HARVESTING PLAN
(GREVILLIA MANAGEMENT AREA -Northern Region)

Description 4 Endangered flora and fauna.

There is no endangered flora in the area. There are no known endangered fauna (Schedule 12) species found in this part of Grevillia Management Area .

References Austeco work for Urbenville EIS 1993, NPWS North East forests Biodiversity Study 1991/93, Forestry recordings (Foresters and Employees)

Description 5 Harvesting Method

Harvesting aims to clear fall parts 2,3 of cpt 308 & 309. It is anticipated that this operation will yield 1000m^3 of veneer and 330 m^3 of sawlog.

The harvesting method comprises:

Ground based mechanised felling/processing at stump, maximising utilisation;

Extraction by a wheeled skidder and a tracked machine on steeper slopes. Walkover extraction will result in minimal soil disturbance on extraction tracks;

Debarking , sorting and loading will be carried out by a tracked excavator with a log clamp;

Haulage involving the use of existing natural surface roads and gravelled roads as shown on the Map. Log stockpiles and loading areas ,(Dump sites) are marked on the map as A,B,C,D.and will be used as directed by the Supervising Forest Officer.

EROSION AND WATER POLLUTION CONTROL STRATEGY

Description 6 Site soil and water data and other information

(a) Location See Map

(b) Climate

Rainfall

Average annual rainfall is 1300mm p.a. Rainfall shows a marked monsoonal influence and is characterised by periods of intensive precipitation from cyclonic activity in the summer months compared with relatively dry periods in winter and spring.

Annual rainfall erosivity for the area **R = 3320**. Monthly maximum erosivity occurs in January, representing **R = 664**.

Temperature

Mean temperatures for Roseberry Park, 3 km to the north of Cpt 308-2, 309-2-3 Toonumbar SF are summer 18 -29 ° and winter 4 - 19°. Frosts are rare.

These conditions result in very rapid establishment of groundcover species when soils are exposed and moist. However, this is not relevant to erosion hazard or water pollution as soil erosion mitigation and water pollution control will be effected by retention of pine needle litter and logging slash rather than the recovery of ground-cover vegetation.

Generally weather conditions will allow harvesting operations to continue throughout the year subject to normal wet weather restrictions. Occasionally operations may be stopped altogether by periods of wet. See Code of Logging Practice for Conifer Plantations.

References Rosewall C.J. & Turner J.B. *Rainfall Erosivity in New South Wales.* **Technical Handbook No. 11 (1st Edition), Soil Conservation Service of New South Wales**(1992)

Pilgrim D. H. (ed) *Australian Rainfall and Runoff - A guide to flood estimation,* **The Institute of Engineers of Australia,** (1987)

(c) Geology

The prominant geology comprises Tertiary lava sheets overlaying the Mesozoic sediment of the clarence Moreton Basin.

Bedding planes

There are no obvious bedding and fracture planes in the area. Similarly this geology is now very stable with no porous rocks or other strata overlying impermeable layers. The geology of the area presents no problems in relation to road construction.

Mass Movement

There are no signs of mass movement in the harvest area and no problems are contemplated as no road construction is needed and timber extraction will use walkover techniques.

References *1:250,000 Geological Survey (Map & Commentary) Warwick Sheet.* **NSW Dept Minerals & Energy** 1972

d) Soils

Soil types

The soils of compartment 308/309 are fine grained volcanics comprising moderate to high fertility chocolate kraznozems over basalt parent material. Depth above basalt rarely exceeds 1.5 m and the surface texture is clay loam grading into a heavy clay subsoil. Soil groups and soil properties are given in the report of Veness and Associates (V&A August 1993).
Five sampling sites were selected in the Compartment , representing typical locations within the nett harvest area. Soil sampling sites are shown on the Harvesting plan Operational Map. Soil samples verify dispersibility in the field.

Description and profile

These soils consist of a thick plant layer over a brownish black or darkish red brown, strongly structured clay loam topsoil layer with a self mulching surface. This layer is underlain by a dark reddish brown strongly structured light clay A2/B1. All topsoil layers are characterised by abundant faunal mixing, moderate coherence and slight to moderate acidity. These layers overlie a dark reddish brown, strongly structured, strong, acid, strongly cherent main subsoil layer which usually grades into strongly weathered basalt parent material below 46 cm depth.

All sites within the net harvest are deep enough to allow cross bank or roll-over bank construction associated with roads or snig tracks.

Reference ; Soils Report for UMA EIS. Veness & Associates 1994, Field sampling May 1995.

HARVESTING PLAN
(GREVILLIA MANAGEMENT AREA -Northern Region)

Erodibility

Soil erodibility factor K is taken from the Urbenville soil report of Veness & associates. Values range from 0.004 (topsoil ridgeline) to 0.021 (subsoil upper slope). A figure of **K = 0.02** has been adopted as a worst case scenario.

Texture

The topsoils are clay loams, grading to a light to medium clay in the B horizon subsoil. they are moderately well drained with a high proportion of angular and sub-angular strongly weathered rock fragments throughout the profiles on the steeper terrain.

Dispersibility

Soil Landscape Map		Soils Report Urbenville EIS (1993)
Map Scale		1:125,000
Map source		Veness & Associates (1993)
Soil type		Chocolate kraznozems
Texture class - A horizon		clay loam
B horizon		medium clay
Method of determination		Soil landscape map
Comment:		
K value	**A horizon**	K = 0.004 (A1)
	B horizon	K = 0.021 (A2/B)
Method of determination		Soil landscape map
Comment:		
% clay	**A horizon**	35%
	B horizon	46%
Method of determination		Soil landscape map
Comment		
EAT class	**A horizon**	8 (5 samples)
(if known)	**B horizon**	8 (5 samples)
Method of determination		Soil Scientist EAT Report
Comment:		Not dispersible
% dispersion	**A horizon**	2%
	B horizon	2%
Method of determination		Soil landscape map

Inherent fertility

Whilst these soils are of moderate-high fertility, aspect is the major factor effecting vegetative growth. Ground cover establishment will be rapid on moister slopes, and particularly dependent on the soil moisture regime following harvesting on the drier aspects. Post harvest establishmnet of up to 90% ground-cover is expected within 12 months.

Depth to sub soils and bedrock

Topsoil depth: 15-20 cm Depth to decomposed rock : 45-150 cm

Existing erosion

There are no areas of active erosion evident. Most erosion banks appear to have stabilised and should not become active following harvesting.

Qualified soil scientist

Rob Towler B Sc.Ag. (Soils)

(e) Landform (See Description 1.)

Slope

Approximate percentages of plantation area by slope class are:

70 % of the area is less than 18 degrees , while only 5 % is greater than 25 degrees.

Average slope has ben estimated as 10 degrees in the harvesting plan.

Terrain (See Table 2 under Description 13.)

The general landscape of the areas includes hilly to steep southerly slopes near the eastern extremity of the main range extending eastward from Dome mountain on the Richmond range. Drainage is into Wyndham Creek which feeds the Ricmond River via Eden creek.

Drainage line condition

Drainage lines are well defined and stable.

Aspect

Generally south and south west into Wyndham Creek.

Rockiness

There is no surface rock.

(f) Hydrology

The compartment lies in the drainage of Wyndham Creek within the Richmond River catchment and flows to the Richmond River via Eden creek. Drainage lines are well developed and initiate as drainage depressions from the main ridgelines and quickly become clearly defined, stable drainage lines. No swamps or wetlands are found within the net harvest area.
There are no major water storages within 100 metres of the compartments.
There are no prescribed streams in the compartments.

Representative water monitoring sites

A representative water quality monitoring site with similar geology and rainfall erosivity to Toonumbar State forest is found at Mebbin S.F.Rainfall at the compartment much less than Mebbin .

Reference Forest Planning Branch *Water quality monitoring program* **SF NSW** 1994

HARVESTING PLAN
(GREVILLIA MANAGEMENT AREA -Northern Region)

Previous harvesting

Toonumbar Plantation has an history of thinning from the late 60's to the present day. Compartment 308-2,309-2-3 was last thinned in 1992/3 . To date compartment 308-2 has had two thinnings and compartment 309-2-3 one thinning.

Upstream catchment water use

Forestry. The compartment is in the top of the catchment.

Downstream catchment water use

Agricultural (cattle grazing and cropping) and domestic use.

Domestic water use

Whilst many people may pump from the Wyndham Creek for agricultural reasons, human consumption is typically based on rainwater.

(g) **Vegetation and ground-cover** See Descriptions 3-4.

Understorey comprises generally of lantana and scrubby species (estimated 90% of harvest area) together with an amount of tree litter and logging debris from previous operations.

Live ground-cover recovery within twelve months is anticipated provided normal seasonal rainfall conditions prevail. Because walkover timber extraction techniques will be used, disturbed areas will be minimal and are expected to achieve greater than 70% ground-cover re-establishment within twelve months.

(h) **Proposed operation system** See Description 5.

Use of existing plantation roads

Compartment 308-2,309-2-3 is served by a permanent, well maintained stable plantation road network which complies with SEMGL & PCL conditions.. No new roading is proposed in connection with this harvesting operation. Pre-operational grading and patch gravelling will be undertaken where required. Toonumbar Forest Drive will be used to to connect the Summerland Way to Kyogle.

Harvesting

The harvesting operation set out in Description 4 results in a cover factor **C = 0.114** in areas where a skidder is to be used.

Location of log dumps/log assembly areas

Log dumps are located as indicated on the Harvesting Plan Operational Map. Log dumps must be drained using crossfall drainage and runoff from dumps must not be discharged directly into drainage features or onto extraction tracks or snig tracks.
Uphill snigging will be used except for dump C , where downhill snigging is proposed. Measures to prevent the concentration of water must br taken by way of crossfall drainage and approaching tracks to direct water flow away from the dump immediately before reaching it.

Post-Harvesting Re-establishment

Under current Mangaement Practices the harvest area will be spelled for a period of at least twelve months and then prepared for re-planting with *Araucaria cunninghamii* hoop pine.

Description 7 Evaluation of soil and water data

(a) Soil Erosion & Water Pollution Hazard Categories

Water Pollution Hazard Categories for the harvest area have been assessed using SOILOSS 5.1. The rating has then been used to assess Water Pollution Hazard categories for the net harvest area for both forwarder and skidder operations.

Skidder (Used on areas 15° to 25° - Calculations taken for range 0° to 25°.)

SE&WPHR = R x K x LS x C x P (5.1) where

R = 3320,
K = 0.021 Subsoil (maximum recorded)
S = slope As factored in SOILOSS 5.1
L = 20 metres
C = 0.114 Plantation clearfall with skidder
P = 1.0 Support Practice Factor

Table 2 Cpt 308-309 SE&WPH Categories

	Slope Boundaries	Soil Erosion & Water Pollution Hazard Rating	Soil Erosion & Water Pollution Hazard Category	Indicative % of Net Harvest Area
Skidder	0° - <6°	<10	1 (low)	30
Skidder	>=6° -= 30°	11 - 50	2 (mod)	70
Skidder	> 30	n/a	n/a	n/a
Roads/tracks		n/a	3 (high)	n/a

Dispersibility

Percentage dispersible soil

	TOPSOIL	SUBSOIL	
PDS	(2% x 35%) = 1	(2% x 46%) = 1	Method D1

(b) Other factors

There are no other EHSCS/PCL factors which need to be considered in relation to the planned harvesting of the compartment.

References Standard Erosion Mitigation Guidelines for Logging in New South Wales **Soil Conservation Service, CaLM, NSW** 1993
Rosewall C.J. SOILLOSS A program to assist in the selection of management practices to reduce erosion **Soil Conservation Technical handbook No.11 First Edition** 1990, **2nd Edition** 1993.

(c) Need for additional special conditions

Not applicable

FOREST ZONING AND SPECIAL ATTRIBUTES

Description 8 Forest zoning and Special Attributes

(a) Research plots

Two Growth plots exist in cpt 308-2.(see attached map) Trees within this plot must be measured and recorded prior to clear felling.

(b) Special attributes of the area.

The area is classified "Native Species Plantation - General ".

No other special zonings (PMP) occur within Cpt 308-2,309-2-3.

HARVESTING PLAN
(GREVILLIA MANAGEMENT AREA -Northern Region)

Condition 3 AUTHORISATION

Condition 3.1 Area Identification

URBENVILLE DISTRICT
Toonumbar State Forest No. 343
1947 Age Class
Taeda,Caridaea,Patula,Hoop pine.
Compartment 308-2 ,309-2-3
Grevillia Management Area

Condition 3.2 Authorisation

(a)

This Harvesting Plan is prepared by State Forests of New South Wales (State Forests) 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.

(b)

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:

Licence conditions issued by State Forests under the Forestry Act 1916;

the " **Code of Logging Practice for Conifer Plantations** (1991);

the **"Standard Erosion Mitigation Guidelines for Logging in New South Wales" (SEMGL 1993)** issued by the Soil Conservation Service.

the conditions of **Pollution Licence No 4017** issued by the Environment Protection Authority under the Pollution Control Act 1970. Those general conditions which affect licensees are set out in Schedule "A" attached to every Timber, Contractors and Operators Licence. Where a Pollution Control Licence condition is more stringent than an equivalent in either of the other above-mentioned documents, the Pollution Control Licence condition must prevail.

conditions attached to any relevant licences issued by the National Parks and Wildlife Service under the Endangered Fauna (Interim Protection) Act 1992 and the National Parks and Wildlife Act 1967 (NPW Act);

conditions resulting from any relevant determination of an Environmental Impact Statement;

the regional silvicultural specifications applicable to this operation,

the schedule of specifications for the harvesting and utilisation of timber applicable to this operation, in this case, ***the NORPLY Wood Supply Agreement*** and subsequent amendments.

the Code of Procedure for the measurement of timber and other products applicable to this operation, in this case, ***the NORPLY Wood Supply Agreement*** and subsequent amendments.

Variations, additions or amendments to these Codes, instructions and conditions may be made and implemented at any time.

Condition 3.3 Environmental Planning & Assessment Act requirements

In preparing this Harvesting Plan, the requirements of Part V of the EPA Act (as amended) and Section 92 of the NPW Act have been considered and an Environmental Impact Assessment (EIA) has been prepared.

Condition 3.4 Breaches and infringements

Non-compliance with any condition or instruction set out in this Harvesting Plan will be dealt with in accordance with Section 3 of **the "Code of Logging Practice - Conifer Plantations"**. Serious breaches may lead to the issue of a Penalty notice, licensee suspension or prosecution.

Condition 3.5 Variations and amendments to this Harvesting Plan

Variations and other specified approvals to this Harvesting Plan may be made by the Supervising Forest Officer, where indicated in Condition 5.1(c), subject to the District Forester's counter approval. Other approvals may only be made by the Supervising Forester and are also subject to the District Forester's counter approval. Such approvals must be recorded on a variation advice, attached as Condition 6. to all operational copies of this Harvesting Plan. This Plan must not be amended by a licensee or contractor.

Condition 3.6 Harvesting Plan availability

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

HARVESTING PLAN
(GREVILLIA MANAGEMENT AREA -Northern Region)

CERTIFICATION

Condition 3.7 Plan Preparation (by Forester, Forest Assistant)

Prepared by ....**K .W .PETTY**.....Signature.....

Title ....**Forest Assistant**.....Date .....**5nd May 1995**.....

Condition 3.8 **District Approval** (by District Forester)

I approve the issue of this Harvesting Plan subject to any amendments, endorsements or approvals that may be made following submission to the Environment Protection Authority.

The date that operations will need to commence is ...**JUNE 1995**.....

Signature.....District Forester. Date.....

This Harvesting Plan is approved without amendment/subject to the amendments detailed in the covering letter/document attached. (To be completed by person who originally prepared the Plan who must attach the relevant amendments to the Plan.)

Signature .....Position .....Date.....

Authority (EPA) .....

Signature .....Position .....Date.....

Authority (Other) .....

I note approval of this Harvesting Plan from the above-mentioned authority, together with the amendments they have required to be included in the Plan.

These amendments have been included in the final Plan. This Harvesting Plan comprises pages 1 - 23 attached and the Operational Map marked and referenced to this Harvesting Plan. This is Harvesting Plan No GMA 308-2,309-2-3/95.

Signature .....District Forester Date.....

Condition 3.9 **Date for commencement of operations.....JUNE 1995.....**

HARVESTING PLAN
(GREVILLIA MANAGEMENT AREA -Northern Region)

DISTRIBUTION

Condition 3.10 *(Schedule to be attached to each copy and highlighter marked to recipient)*

One copy of the plan is required in each case unless otherwise noted.

Timber Licensee	Parts 1,3,4
Contractors	Parts 1,3,4
Operator(s) (where required)	Parts 1,3,4
Supervising Forest Officer(s) (SFO(s))	Parts 1 ,3-5 , (2 optional)
Supervising Forester(s)	All Parts
District Forester	All Parts
District Office Register	All parts
Compartment History File	All Parts
Regional Office (optional)	All Parts
Soil Conservationist (Forestry)	All Parts
Forest Planning Branch, Head Office, for distribution to:	
Environment Protection Authority	All Parts (2 copies)

Condition 3.11 INDUSTRY FIELD SUPERVISORS/BUSH SUPERVISORS ACKNOWLEDGEMENT

I acknowledge that I have received a copy of Harvesting Plan No GMA 308-2,309-2-3/95 and that I understand the Conditions of the Plan as explained to me by a State Forests officer.

Signature .....Licence No. .....Date .....

Position.....

Signature .....Licence No. .....Date .....

Position.....

Signature .....Licence No. .....Date .....

Position.....

Signature .....Licence No. .....Date .....

Position.....

Condition 3.12 Industry endorsement

This Plan has been signed and endorsed on behalf of industry prior to commencement of operations.

Signature .....Position.....Date .....

HARVESTING PLAN
(GREVILLIA MANAGEMENT AREA -Northern Region)

Condition 4 OPERATIONAL CONDITIONS

Condition 4.1 Harvesting Activity Description

Clear Fall of thinned 1947 Age Class *Pinus taeda,caribaea,patula and Araucaria cunninghamii* stand.

Condition 4.2 Tree-marking and Harvest Regulation

Tree-marking colour 2 Pink lines = Trees marked for retention and not to be damaged.
Trees that are to be removed in the harvest area will not necessarily be marked by the SFO, since it is a clearfall operation. Boundaries will be identified and marked in the field by the SFO. Harvesting will be directed and supervised by the SFO.

Area Marking colour	Blue	= Compartment boundary
	Pink 'D'	= Log dump site
	Orange	= Road or track location

Condition 4.3 Order of Working

(a) Wet weather (winter), dry weather (summer) and intermediate harvesting areas

Wet weather, dry weather and intermediate weather areas allocated for harvesting are shown on the Plan Map. These areas must be harvested in accordance with seasonal conditions unless otherwise approved by the SFO.

(b) Wet weather controls -roads

During wet weather, the wet-weather controls set out in Section 8 of the Code of Logging Practice will apply. In particular, where runoff occurs from a road surface, haulage must cease on natural surface roads.

(c) Wet weather controls - timber extraction and skidder snigging

During wet weather, timber extraction tracks and snig tracks must not be used where:

(i) there is runoff from the track surface, and/or;

(ii) there is a likelihood of significant rutting leading to turbid runoff from the track surface.

HARVESTING PLAN
(GREVILLIA MANAGEMENT AREA -Northern Region)

Condition 4.4 Application of erosion and water pollution control Conditions

(a) Basic Soil Erosion & Water Pollution Hazard Categories

The following categories apply

	Table 3 Slope Boundaries	Cpt 308-309 Soil Erosion & Water Pollution Hazard Category	SE&WPH Categories Indicative % of Net Harvest Area
Skidder	0° - <6°	1	30
Skidder	>=6° - 30°	2	70

(b) Approved timber harvesting and extraction method

Mechanised felling/processing/bunching;

Extraction by wheeled skidder . Extraction outrows must not be parallel to / & immediately adjacent to the protection strips. No box cuts are to be used. Walkover extraction will result in minimal soil disturbance on extraction tracks.;
All snigging will be uphill except for dump C , where drainage will be used tp prevent the flow of water onto the dump. Dumps will be drained by crossfall drainage.
Dump rehabilation will be achieved by stockpiling topsoil and levelling the dump on completion of logging.

Haulage involving the use of existing natural surface roads and gravelled roads as shown on the Map. Log stockpiles and loading areas are indicated on the Map.

Harvesting operations may be conducted throughout the year subject to the application of normal wet weather closure procedures and restriction to wet weather areas as set out in Condition 4.4.

c) Slope limits for the area

No restrictions. All areas are available for harvesting.

(d) Drainage feature protection

Water courses and drainage lines must be protected by filter strips, and protection strips in accordance with Table 4.

Table 4

				FILTER STRIP (Width on each side of the drainage feature)	PROTECTION Strip (Width on each side of the drainage feature)
WHPC	1	Skidder	< 100 ha catchment	5m	
WHPC	2	Skidder	< 18' slope	5m	
WPHC	2	Skidder	> 18° slope	10m	10m
					Plantation Buffer strip 5 m

Protection strips are indicated on the Plan Map.

Protection strips will be marked in the field by the SFO prior to harvesting. It is the contractor's responsibility to observe the correct distance from drainage lines and protection strip widths.

It is also the contractors responsibility to identify the 5 metre zone within the filter strip.

Drainage depressions

Buffer strips must be provided along all drainage depression within the planning units. Buffer strips must be 5 metres wide each side of the drainage depression.

It is the contractor's responsibility to identify plantation drainage depressions encountered in the field.

(e) Operational Protection

Felling and extraction in filter strips and protection strips

Trees may be felled and machinery may operate within filter strips and protection strips, subject to the following conditions:

directional felling must be used to minimise felling of trees into drainage lines;

trees and crowns felled into drainage lines must be removed with minimal disturbance to the bed and banks;

machinery must not approach closer than 5 metres from the bank of a drainage line, except at crossing points;

soil disturbance must be minimised by the following techniques:

(i) maximum use of skidders and minimal use of tracked machine;

(ii) minimal use of blades;

(iii) use of slash to protect the soil during extraction;

(iv) minimise skewing on tracks;

(v) deliberate spreading of slash over disturbed areas at the completion of extraction in each section.

Where outrows cross drainage lines, slash must be placed in the drainage line to protect the bed and bank from disturbance. Slash crossings must be removed at the completion of the operation unless approved by the SFO.

Felling and extraction in drainage depression buffer strips

The measures described in (i) to (iv) above must be used to minimise soil disturbance in buffer strips. In addition, no snigging along drainage depressions is permitted.

Slash must be placed in drainage depression crossings and should be left in situ at the completion of operations.

Track drainage

Maximum use of slash must be made on extraction tracks to minimise soil compaction and to provide drainage. On areas > 6 degrees where skidders are used, drainage must be provided by the following:

(i) slash should be deliberately placed on disturbed areas to divert water and/or;

(ii) The maximum spacing of extraction track and snig track drainage structures must be designed to limit erosion of the track surface in accordance with Table 2 :

Table 2 : Maximum Spacing of Extraction/Snig Track Drainage Structures (metres)

Track grade (degrees)	Soil Erosion & Water Hazard Pollution Category		
	1	2	3
5	200	150	100
10	150	100	60
15	80	60	40
20	60	40	25
25	40	30	20
30	30	25	15
35	25	20	10

(iii) drainage must be established within 2 days of the completion of operations on each track, or where operations are temporarily suspended,for more than one week.

Roads

No construction of new roads is permitted under this Harvesting Plan.

Drainage structures must be cleared every two days where damage to the road surface, or table drains could result if a rain event occurred.

Roads and associated drainage structures must be cleared of debris on completion of each section of the operation, to the standard they were prior to harvesting.

Forwarding is permitted along roads by machines without tracks where no running tracks exist, only during dry conditions. Tracked machines must only be used on roads where approved by the SFO.

Blading-off of roads is not permitted unless approved by the SFO.

Condition 4.5 Research and Inventory Plots

Two Growth plots are situated in cpt 308-2. Measurements must be recorded prior to clear felling.

HARVESTING PLAN
(GREVILLIA MANAGEMENT AREA -Northern Region)

Condition 4.6 Modified harvest conditions for special emphasis areas

(a) Native forest retention area

An area , part 4 of cpt 309 (Gympie Messmate) is to to be retained and care must be taken not to damage any standing trees.(see attached map).

(b) Boundary fences

Care must be taken not to fall trees over the boundary fences which are indicated on the Plan Map. Fences must be repaired immediately if damage results. Tree/slash falling adjacent to fence lines should be removed for a distance of 1.5 metres on either side.

Condition 4.7 Specification of type of products to be removed.

Product 1 **Veneer**
- Minimum length 2.7 metres
- Minimum diameter 20 cm small end under bark
- Minimal sweep and bend

Product 2 **Sawlog**
- Minimum log length 2.4 metres
- Minimum diameter 14cm small end under bark
- Minimum diameter 20cm large end under bark
- Logs not meeting veneer specifications are available as sawlogs.

Condition 4.8 Yield information for planning unit GMA 304/95

Product 1	Veneer	1000 cubic metres
Product 2	Sawlog	330 cubic metres

HARVESTING PLAN
(GREVILLIA MANAGEMENT AREA -Northern Region)

Condition 5 INSTRUCTIONS TO SUPERVISING FOREST OFFICERS (SFOs)

Condition 5.1 SFO authority to supervise harvesting operations

(a) General

The Supervising Forest Officer responsible for the direct field supervision of this harvesting operation, including tree-marking, log measuring and/or log check measurement, safety, implementation of wet weather controls, and monitoring and reporting generally will be:

The Plantation Marketing Foreman, Toonumbar SF.

(b) Relieving SFOs

Relieving SFOs, if required, will be:

The Acting Plantation Marketing Foreman, Toonumbar SF,
The Forest Assistant (Marketing) Urbenville District,
The Marketing Forester, Urbenville District.

(c) SFOs authority

The SFO has authority to approve:

use of natural surface roads as extraction tracks to log assembly areas where running tracks do not exist, provided restoration of the road is undertaken as necessary;

slash drainage line crossing being left *in situ*.

All approvals must be noted on a Harvesting Plan Variation Form and copies attached to the relevant master copies of the Harvesting Plan.

Condition 5.2 Tree-marking and other harvesting control requirements.

Tree marking

Tree marking is not required in the harvest area,since it is a clearfall operation. However care must be taken to ensure minimal damage occurs to the areas retained along the part compartment boundaries. The SFO will supervise and direct the sequence of logging and will mark trees for retention.
Drainage features will be identified and marked in the field prior to harvestingby the SFO.

Condition 5.3 Monitoring and reporting

Daily and Fortnightly reporting

The standard Regional procedures for daily and fortnightly reporting on the conduct of operations must be followed.

The SFO must report the following matters and record their location if necessary on thir copy of the Plan Map, or the recording map attached to the Plan for that purpose:

(i) instances where trees and/or crowns are not removed from drainage lines

(ii) instances where slash crossings are left in situ;

(iii) instances where the track drainage is not affected within 2 days of completion of operations.

Condition 5.4 Other instructions

There are no other special instructions concerning harvesting supervision.

Condition 5.5 SUPERVISING FOREST OFFICERS ACKNOWLEDGEMENT

I acknowledge that I have received a copy of Harvesting Plan No GMA 308-2,309-2-3/95 and that I have been briefed on the Conditions of the Plan and the supervision and operational control requirements as explained to me by the District Marketing Forester.

Signature .....Date .....

Position.....
Supervising Forest Officer

Signature .....Date .....

Position.....
Relieving Supervising Forest Officer

HARVESTING PLAN
(GREVILLIA MANAGEMENT AREA -Northern Region)

HARVESTING PLAN PREPARATION CHECKLIST

POLLUTION CONTROL LICENCE CONDITION CHECKLIST
PLAN PREPARATION PCL Sch2 Div 3

Condition No.	Condition Title/Enquiry	Entry	Plan Ref.
C 42	Representative water monitoring site	Yes	D6(f)
	Have the Water Pollution Hazard Categories (WPHC)s and the Proportion of Dispersible Soil (PDS) been calculated for the area?	Yes	D7(a) C4.4 (a)
	Method for soil sampling for K factor	Yes	D6(d)
	Field sampling - sites?	Yes	Map
	- lab analysis?	Yes	
	- field analysis?	Yes	
1b	Site specific conditions	No	D7(c)
4.	Are areas >30° outside net harvest area?	Yes	Map C4.4(c)
5.	Are areas in WHPC4 outside net harvest area?	Yes	Map C4.4(c)
6.	Drainage feature & protection	Yes	D6(f) C4.4(d) C4.8(g)
7.	Any major water storage?	No	D6(f) C4.4(d)
8.	DDBS conditions included?	Yes	C4.4(d)
9.1(c)	Filter strip on Map?	Yes	Map
9.2	Protection strip on Map?	Yes	Map
10.	Conditions for marking/ identifying:		
	- filter strips & protection strips	Yes	C4.2 C4.4(d)
	-buffer strips		C4.4(d)
	in the field		C4.4(d)
13.	Reporting accidental felling into filter strips	Yes	C5.3
14.,20.,22.	See 10		
24.	Specify techniques in DDBS	Yes	C4.4(e)

HARVESTING PLAN
(GREVILLIA MANAGEMENT AREA -Northern Region)

HARVESTING PLAN PREPARATION CHECKLIST

POLLUTION CONTROL LICENCE CONDITION CHECKLIST
PLAN PREPARATION PCL Sch2 Div 3

Condition No.	Condition Title/Enquiry	Entry	Plan Ref.
47.	Road design, etc. for 1:10 yr. storm event: What techniques for 12 month stabilisation?	Yes	D6(h) C4.4(f)
48.	Are roads shown on Map?	Yes	Map
49.	If road traverses area over 30° what techniques for 1:10 storm event?	No	D6(h)
	What techniques for 6 month stabilisation of road?	No	D6(h)
50.(a),(b)	What is maximum road grade?	Yes	C4.4(f)
51.	Who will mark roads in field?	Yes	C4.4(f)
52.	What is maximum clearing width for road formation?	Yes	C4.4(f)
53.	Is any roadside clearing proposed? If so what techniques for 70% ground-cover within 12 months?	No	D6(h)
57.	Any borrow or gravel pits? If so what batter and stabilisation techniques are required?	No	D6(c) C4.4(f)
60.	What design criteria for stable road batters within 12 months?	No	C4.4(f)
63.	Do road drainage techniques specify - peak flow 1:5 year storm capacity? - stable surface water diversion? - minimisation of unchecked flow? - use of sediment traps if necessary?	Yes	C4.4(f)
64.	What is spacing and type of road drainage structures?	Yes	C4.4(f)

HARVESTING PLAN
(GREVILLIA MANAGEMENT AREA -Northern Region)

HARVESTING PLAN PREPARATION CHECKLIST

POLLUTION CONTROL LICENCE CONDITION CHECKLIST
PLAN PREPARATION PCL Sch2 Div 3

Condition No.	Condition Title/Enquiry	Entry	Plan Ref.
65.	Is an alert condition needed for cutting of roadside waterholding windrows?	No	
66.	Is an alert condition needed to emphasise 2 day removal of debris from drainage structures?	No	
67.	Is an alert condition needed for reporting of blading off approvals?	No	
71.	Are drainage feature crossing structures for roads specified for location, type and capacity?	Yes	C4.4(f)
74.	Is a report condition included to cover spoil non-removal from drainage features?	Yes	C5.3(c)
76.	Is a report condition included to cover reporting that crossing stabilisation is not completed within five days?	Yes	C5.3 (c),.
77.	Are techniques listed to leave crossing sites stable?	Yes	C4.4(c)
78	Are techniques specified for stabilisation of roads that are no longer required?	Yes	D6(h), C4.4(f)
79.	Have any old roads been evaluated?	No	D6(h)
80	Are alert conditions required for dispersible soils?	No	D13(a)
81.	Are protection techniques spelt out for roads traversing dispersible soils?	No	

HARVESTING PLAN
(GREVILLIA MANAGEMENT AREA -Northern Region)

HARVESTING PLAN PREPARATION CHECKLIST

POLLUTION CONTROL LICENCE CONDITION CHECKLIST
PLAN PREPARATION PCL Sch2 Div 3

Condition No.	Condition Title/Enquiry	Entry	Plan Ref.
82.	Are alert conditions for wet weather restrictions included for roads?	Yes	C4.3(b)
83.	Is a report condition included to cover crossing stabilisation not being completed within 5 days?	Yes	C5.3
84.	Are techniques listed to leave crossings stable?	Yes	C4.4(e)
85.	Is a report condition needed to cover none removal of temporary crossings?	Yes	C5.3
86.	Are there any crossings of drainage features other than drainage depressions by extraction tracks?	Yes	C4.4(e) C5.1
	Are extraction track crossing locations type and capacity specified?	Yes	C5.1
	Is a reporting condition included for SFO approvals for crossings?	Yes	C5.1(c)
	is a report condition included for non-removal of spoil from drainage features?	Yes	C5.3
89.	What conditions are specified for effective extraction track drainage?	Yes	C4.4(e)
92.	Is an alert condition needed for timber extraction along roads?	No	
93	Are alert conditions for wet weather restrictions included for timber extraction tracks?	Yes	C4.3(c)

HARVESTING PLAN
(GREVILLIA MANAGEMENT AREA -Northern Region)

HARVESTING PLAN PREPARATION CHECKLIST

POLLUTION CONTROL LICENCE CONDITION CHECKLIST
PLAN PREPARATION PCL Sch2 Div 3

Condition No.	Condition Title/Enquiry	Entry	Plan Ref.
99	Do specifications for drainage of timber extraction tracks include: - capacity for peak flow in a 1:2 year storm event? - diversion onto stable surfaces? - minimise unchecked flow into drainage features? - divert water at minimum damage to structure?	Yes	C4.4(e)
103.	Is minimum specification for bank height used?	Yes	C4.4(e)
105.	Is a reporting condition needed for non-drainage of timber extraction tracks over two days after use has ceased?	Yes	C5.3
107.	Is an alert condition for temporary cessation of use drainage condition required?	No	
112	Is timber extraction being undertaken on dispersible soils?	No	D6(d) D7(a)
	If so, have alert conditions have been included?	No	
119	Have specifications for log dump location and drainage been included?	Yes	C4.8(h)
120	Is an alert condition for the use of traxcavators and wheeled loaders in relation to wet weather necessary?	No	

HARVESTING PLAN
(GREVILLIA MANAGEMENT AREA -Northern Region)

HARVESTING PLAN PREPARATION CHECKLIST

POLLUTION CONTROL LICENCE CONDITION CHECKLIST
PLAN PREPARATION PCL Sch2 Div 3

Condition No.	Condition Title/Enquiry	Entry	Plan Ref.
	What other conditions listed in Sch 2 Div 3 need to be included as alert conditions in this Plan?	None	
	Are any appendices required?	No	

HARVESTING PLAN
(GREVILLIA MANAGEMENT AREA -Northern Region)

NOTES

Copies of variations and approvals which apply to this Plan should be attached here.

HARVESTING PLAN
(GREVILLIA MANAGEMENT AREA -Northern Region)

NOTES

HARVESTING PLAN
(GREVILLIA MANAGEMENT AREA -Northern Region)

NOTES

HARVESTING PLAN
(GREVILLIA MANAGEMENT AREA -Northern Region)

CLEARANCE CERTIFICATE

HARVESTING PLAN No. ..:GMA 308-2,309-2-3/95.....

TOONUMBAR..STATE FOREST.....URBENVILLE..DISTRICT

To M.....Supervising Forest Officer

I request approval for me to move my logging crew and all associated machinery from the above mentioned area to the next Planning Unit in accordance with Section 3.5 of the Code of Logging Practice.

I certify that:

(a) all permanent roads, trails and mitre drains have been cleared of harvesting debris;
(b) butt damage to retained trees has been kept to acceptable limits;
(c) all trees marked for removal have been felled;
(d) utilisation limits have been satisfactorily met;
(e) stump heights conform to requirements;
(f) all hanging trees have been felled and brought down;
(g) all log dump sites/landings/log stack sites have been satisfactorily restored as required;
(h) harvesting debris is not accumulated around retained trees;
(I) all accumulated litter has been disposed of properly;
(j) all filter, protection and buffer strip requirements have been complied with;
(k) all snig track, extraction track and temporary logging road drainage has been installed satisfactorily and other required rehabilitation work has been completed;
(l) all necessary repairs to damaged roads, signs, fences and other structures have been carried out.

I believe that I have met all my obligations under the conditions of the Timber Licence, the Pollution Control Licence, and/or any licence issued under Section 120 of the National Parks and Wildlife Act, which apply to the Compartment (Section, Coupe) just completed , as stated in this Harvesting Plan.

Signature.....Licence No.....Date .....
Contractor/licensee

As a result of inspections of the logging operations made in accordance with this Harvesting Plan, I am satisfied that, to the best of my knowledge, the licensee/ contractor responsible for this harvesting operation has satisfactorily completed all work and approval is given for her/him to remove her/his machinery and equipment and leave the area/ commence operations in another Planning Unit.

This clearance does not release the licensee/contractor from any obligation to undertake any remedial work if subsequent deficiencies are found during any inspections of the area made within 12 months of the date of this post- harvesting inspection.

Last inspection was made on .....(Date)

Signed .....(Date).....