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MANUAL OF SPECIFICATIONS

FOR CONTROL OF HARDWOOD LOGGING

OPERATIONS IN THE

NORTHERN JARRAH FOREST

1 NOVEMBER 1986

DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT
50 HAYMAN ROAD
COMO WA 6152

TIMH 1

MANUAL OF SPECIFICATIONS FOR CONTROL OF HARDWOOD LOGGING OPERATIONS IN THE NORTHERN JARRAH FOREST

1 NOVEMBER 1986

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INTRODUCTION

This manual has been produced by the Timber Production Branch of the Conservation and Land Management Department. Any queries should be referred to the Manager, Timber Production Branch or the Regional Manager of the appropriate Forest Region.

This manual complements the "Code of Hardwood Logging Practise". It contains all detailed specifications necessary for the control of all hardwood logging operations conducted in State Forest, or other Crown land under C.A.L.M. control north of the Preston River (see map attached).

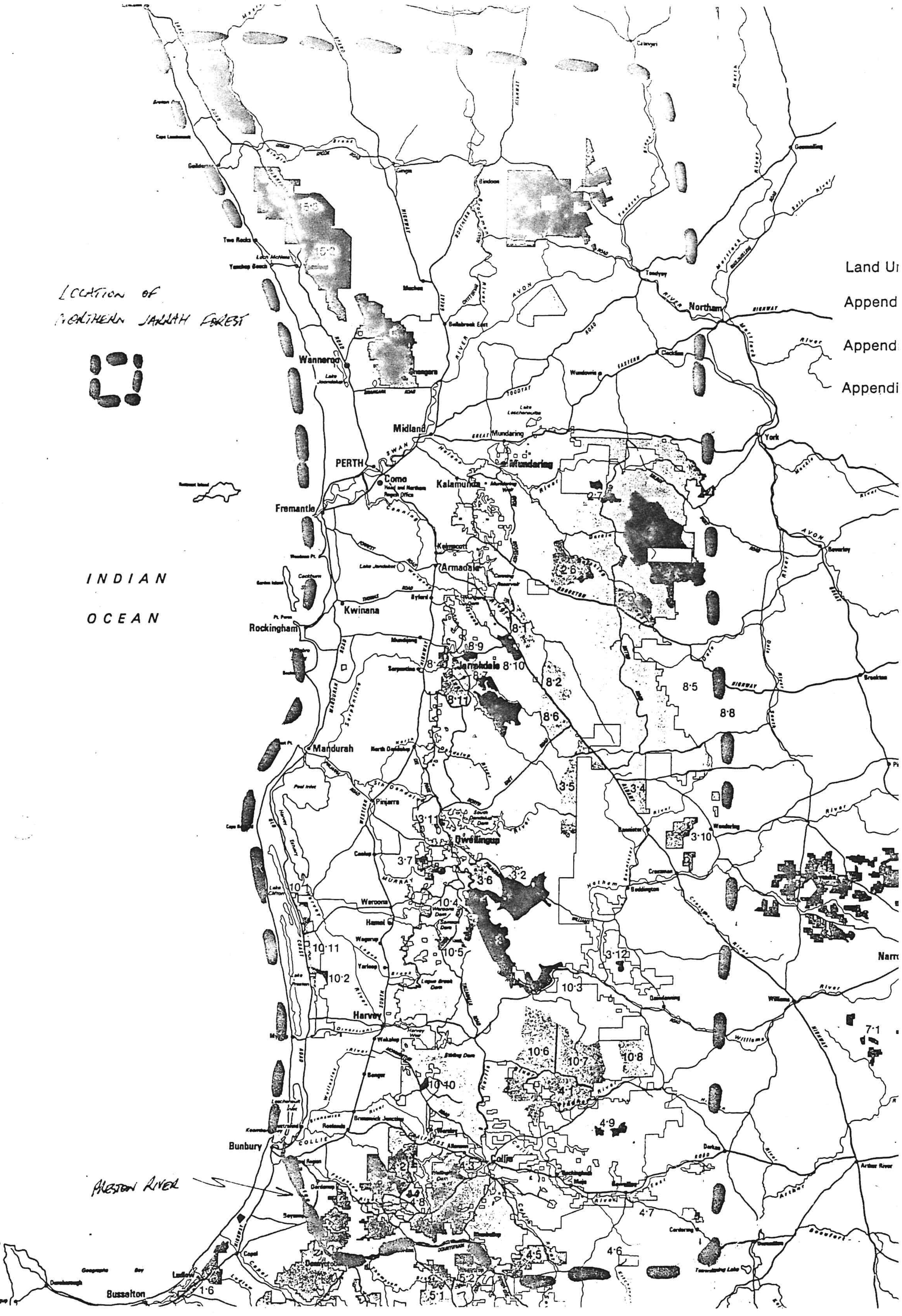
This manual is therefore relevant to all hardwood logging operations in the C.A.L.M. Districts of Wanneroo, Mundaring, Jarrahdale, Dwellingup, Harvey & Collie. Logging operations in jarrah forest in the Districts of Nannup, Kirup and Busselton may also be controlled using all of this manual.

The individual specifications contained in this manual will be updated annually, or more often if necessary, by arrangement between the Regional Managers of the Northern and Central Forest Regions. Industry representatives will be consulted as required during such updates.

Technical forestry terms used in this manual are as defined in the booklet "Forestry Terminology in Western Australia", Technical Paper No. 1 by F.H. McKinnell, 1982.

A copy of this manual should be available to every C.A.L.M. officer involved in hardwood logging operations in the Northern Jarrah Forest. Copies should also be provided for relevant Industry personnel, including bush bosses if considered necessary.

Any suggestions for improvement should be forwarded in writing to Timber Production Branch, S.O.H.Q.



LOCATION OF NORTHERN JARRAH FOREST
INDIAN
OCEAN
PRESTON RIVER
Land Ur
Append
Append
Appendi
Wanneroo
Midland
PERTH
Como
Fremantle
Kalamunda
Mundaring
Northam
York
Kelmscott
Armadale
Kwinana
Rockingham
Jarrahdale
Mandurah
Pinjarra
Dwellingup
Harvey
Bunbury
Collie
Bussolton
Beverley
Brookton
Wandering
Williams
Narro
8·1
8·2
8·4
8·5
8·6
8·7
8·8
8·9
8·10
8·11
2·6
2·7
3·2
3·4
3·5
3·6
3·7
3·10
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10·3
10·4
10·5
10·6
10·7
10·8
10·10
10·11
4·5
4·6
4·7
4·9
5·1
5·2
7·1
1·6

SECTION 1 - PLANNING

SPECIFICATION 1.1 LOGGING PLANS

1. Regional Inventory Sections are responsible for the preparation of rolling, five year logging plans for all licenced sawmills. Updating of these plans must be completed not later than one month prior to the start of the licence year. The plans will be prepared after due consultation with District staff and Timber Industry representatives. The plans must be approved by the relevant Regional Manager.

2. The Five Year Logging Plan shall tabulate, for each licensed sawmill, or operative Contract of Sale, the following information:-

   i) year of cutting;
   ii) forest block;
   iii) compartment;
   iv) cutting prescription
   v) area;
   vi) estimated volume by species.

   The cutting compartments will be illustrated on 1:50,000 scale forest block plans. Attachment 1.1.1 is an example of a page from a Five Year Logging Plan.

3. Plans covering the first two years of the five year plan (Two Year Logging Plan) shall wherever possible include the following individual plans:-

i) Logging plan - highlighting the following information -
   (a) moist soil (dieback) logging areas;
   (b) moist soil (low potential risk) logging areas
   (c) moist soil (secure dieback-free) logging areas
   (d) dry soil logging areas
   (e) stream, amenity and road reserves
   (f) location of existing moist and dry soil roads
   (g) coupe boundaries and numbers
   (h) research plots (no logging)
   (i) special care zones
   (j) areas previously cut over

ii) Hygiene Plan - highlighting the following information -
   (a) secure dieback-free areas
   (b) dieback areas
   (c) low potential risk areas
   (d) high potential risk areas
   (e) not-effectively quarantined areas
   (f) uninterpretable areas

iii) Impact Plan - highlighting the following information -
   (a) low impact areas
   (b) moderate impact areas
   (c) high impact areas

iv) Landform/Site Vegetation Plan - highlighting the following information -
   (a) landforms as per the System 6 study
   (b) vegetation site types as assessed by field assessment

v) Management Level Inventory Plan - highlighting the following information -
   (a) total sawlog volume in the cutting section
   (b) stocking of SEC quality poles.

1 November, 1986

Attachment 1.1.1 (a)

5 YEAR SAWLOG PLAN 1986/87 - 1990/91

SAWMILL MILLARS - YARLOOP FP(S)L 1648

PERMISSIBLE INTAKE 50,000m (46,000m^3 after Dec 86)

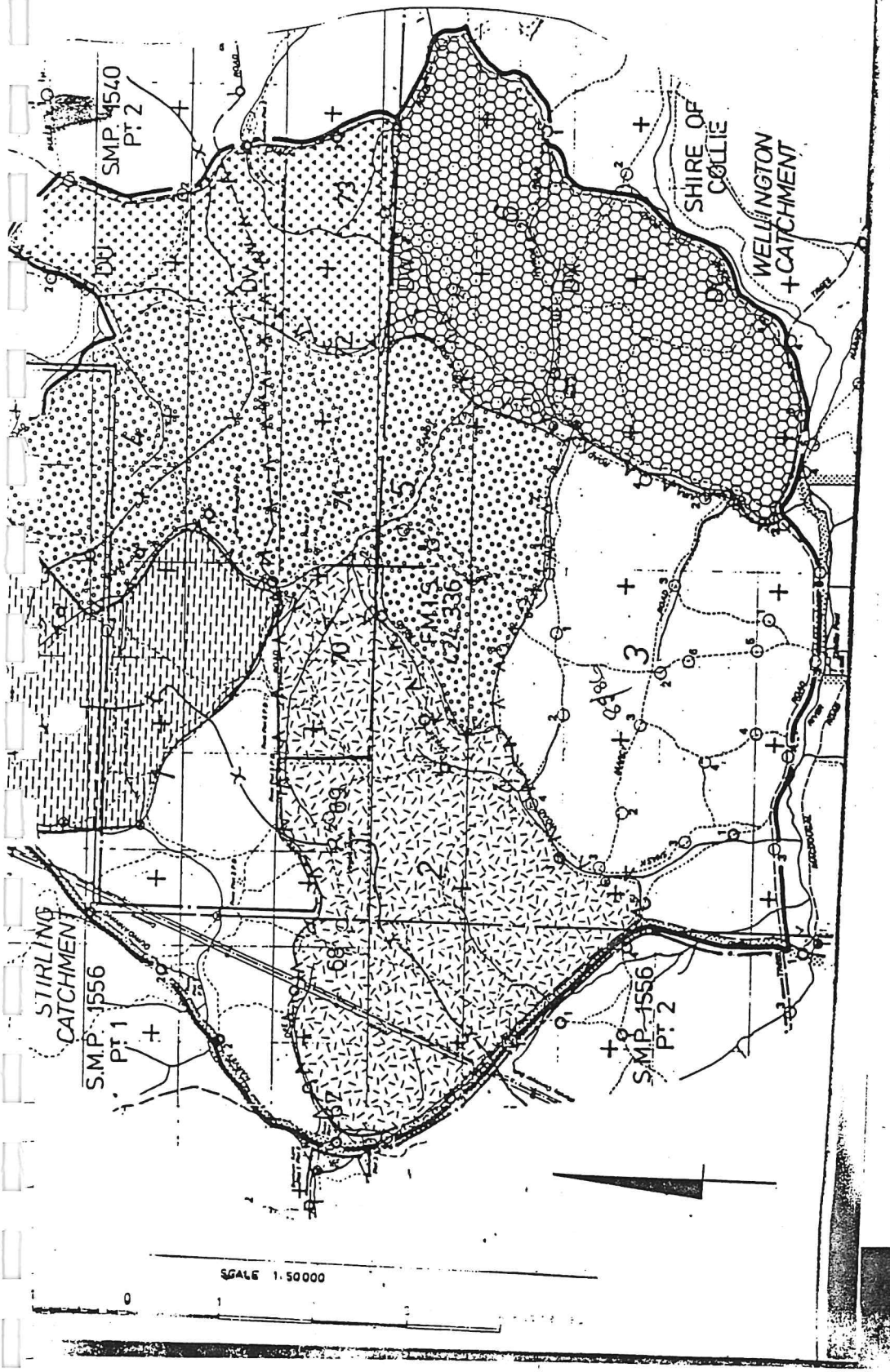
YEAR	FOREST BLOCK	COMPT	PRESC.	AREA (HA)	M^3 JARRAH	M^3 MARRI	COMMENTS
1986-87	ROSS	2	CUT J.	651	26,700		(6,000m^3 allowed for Collie in Con 2)
	EDWARD	1	CUT J.	678	20,400		
					47,100		
1987-88	ROSS	1	CUT J.	625	17,500		
	ROSS	4	CUT J.	210	5,400		
	EDWARD	2	CUT J.	737	22,100		
					45,000		
1988-89	ROSS	4	CUT J.	630	18,900		
	ROSS	5	CUT J.	820	24,600		
	BELL	1	CUT J.	320	4,800		
					48,300		
1989-90	ROSS	4	CUT J.	240	2,900		Consider change in cutting from ROSS 6 to CHALK 7
	ROSS	6	CUT J.	280	5,000		
	CHALK	2	CUT J.	670	12,000		
	CHALK	3	CUT J.	1270	22,800		
	BELL	1	CUT J.	157	4,700		
					47,400		
1990-91	ROSS	6	CUT J.	1100	27,500		
	CHALK	1	CUT J.	525	16,300		
	BELL	1	CUT J.	157	4,700		
					48,500		

Attachment 1.1.1 (6)

: HARVEY
: ROSS
F.D. CONTROL: 7248·8ha
V.C.L. & L.A. :
CK : 7248·8ha

SHIRE: COLLIE, HARVEY
CATCHMENTS: MURRAY, STIRLING, WELLINGTON

BASE PLAN 1



LEGEND

1986/87

1987/88

1988/89

1989/90

1990/91

SECTION 1 - PLANNING

SPECIFICATION 1.2 SEVEN WAY TESTS

1. The document "Dieback Policy 1982" requires that before any operation in jarrah forest that has the potential to introduce or spread Phytophthora cinnamomi is started the risk is assessed by means of a "Seven Way Test". If the operational arrangements fail the Test then it cannot be started.

2. Guidelines for the preparation of Seven Way Tests are contained in "Dieback Review 1982" (1983). The Seven Way Test evaluates the following seven factors of a proposed operation in jarrah forest:-

   * type of operation
   * degree of hygiene
   * risk of introducing P. cinnamomi
   * forest type
   * likely impact
   * land use
   * consequences of impact on land use.

3. Seven Way Tests must be prepared for any proposed roadworks or logging operation in the Northern Jarrah Forest. Seven Way Tests must be prepared by Districts in conjunction with the preparation of data for the first two years of the five year logging plan.

4. The area covered by an individual Seven Way Test should correspond to a discreet roading and/or logging operation. Such an area may correspond to a whole forest block, an individual compartment within a forest block, or a smaller area.

5. A Seven Way Test is prepared using form CLM 781 and must include accompanying plans at scale 1:50,000 or larger. Attachment 1.2.1 is an example of a completed Seven Way Test on form CLM 781 (excluding the maps that would accompany this test).

6. Circular 9/84 indicates the level of authority required to approve Seven Way Tests (Attachment 1.2.2.)

7. Attachment 1.2.3 is a guide to assist in assessing the level of consequences in a Seven Way Test.

1 November, 1986

EXAMPLE OF SEVEN WAY TEST

SEVEN WAY TEST

TITLE "Integrated Logging Operation in Arcadia Block, Compartment 2."

CONTENTS

DEPARTMENT OF CONSERVATION AND
LAND MANAGEMENT
DIEBACK POLICY - 1982

CLM 781
2nd EDITION

SEVEN-WAY TEST

DIVISION COLLIE

DATE 1/10/86

PURPOSE OF 7 WAY TEST IS TO WORK OUT THE IMPACT & CONSEQUENCES ON THE PRIMARY LAND USE. ATTACH – i) D/B HYGIENE MAP, ii) SITE IMPACT MAP, iii) ACCESS PLAN, iv) MOIST & DRY SOIL AREAS

1 THE WORK PROPOSED

PURPOSE Integrated hardwood logging operation for sawlogs, bridge timbers and poles.

INITIATED BY District Manager, Collie

LOCATION (block etc) Arcadia Block, Compartment 2

TYPE AND EXTENT OF THE WORK Wide ranging, intensive operation which includes (a) access for planning,
(b) construction and upgrading of logging roads,
(c) treemaking, felling and snigging to landings of all products at the same time,
(d) loading and hauling to sawmill,
in accordance with dieback logging policy N°3, dieback policy '82 and Manual of Specifications (N.J.F.)

ARE OTHER OPTIONS AVAILABLE? Specify, including "do nothing"
1. Log areas outside DRA, using poor quality dieback and impact maps.
2. Stockpile to make up deficit of wood not available under moist soil conditions.
3. Make less than permissable intake available – possible mill closure.

2 HYGIENE MEASURES REQUIRED

Summary of hygiene prescription

CLEAN MACHINERY (YES)/~~NO~~
1. All vehicles and machinery accessing forest that is free of dieback infection.
2. Snigging equipment, operating in dieback-free forest, entering logging micro-catchment from landing or adjacent micro-catchment
3. Loading equipment (moving soil) crossing dieback risk category boundary (except into dieback)

DRY SOIL YES:– road construction and maintenance; logging of nominated dry soil cutting areas
NO:– minor road maintenance, logging of nominated moist soil cutting areas.

SUPERVISION CALM: FOIC and Forest Officers
INDUSTRY: Burning supervisor and Bush Boss.

ACCESS ROUTES In DRA — Stella Road and other approved roads located low in the profile. Shunts in forest not infected with dieback may be used in dry soil conditions (see plan N°3)
Outside DRA — Mungalup Road

continued overleaf

HYGIENE MEASURES continued

DIEBACK HYGIENE PLANS - specify type
Dieback maps based on 70mm photography (flown & interpreted in 1985)
Predicted impact maps based on site vegetation mapping.

DIEBACK CATEGORIES As per hygiene risk maps.

ANY OTHER e.g. split-phase operations, mini-catchments etc.
1. Operations in dieback-free forest to use split phase landing management.
2. Roads located low in profile, as much as practically possible.
3. Washdown of all vehicles, at designated washdown points, when logging roads place a significant area of dieback-free forest at risk.

3 RISK OF DIEBACK FUNGUS (high, moderate, low)

RISK OF INTRODUCTION V.Low to Low

MULTIPLE INTRODUCTION RISK V.low to low

RISK OF SURVIVAL Low to High

RISK OF SPREAD
Artificial V.low to Low Natural Low to High

RISK OF MULTIPLE SPREAD
Artificial V.Low to Low Natural Low to High

COMMENTS Risks of introduction and spread kept V. low to low by machinery not being permitted to move soil under moist soil conditions.

4 LANDFORM AND VEGETATION

Describe according to types used in impact category tables

Logging area is 771 hectares

* Vegetation site types S-tS : 95% of logging area.
O, U, Ut, eT : 5% " " " .

* Refers to areas not infected with dieback (521 ha)

5 LIKELY IMPACT ON VEGETATION Refer to tables of impact

SITE TYPE		OVERSTOREY	UNDERSTOREY
S-tS	(a)	low - moderate	low - moderate
	(b)	moderate - high	moderate - high
O, U, Ut, eT		low - moderate	low - moderate

Areas (a) & (b) separated by Interpreters in field.

WILL INTRODUCTION OF DISEASE AND IMPACT BE MONITORED? YES

HOW? 1. Regular selective sampling during and after logging.
2. Follow-up 230 mm photography 5 years after logging.

BY WHOM? District and Interpretation staff.

6 LAND USE

GWP No. 87 Catchment Protection and Hardwood Timber Production.

WITHIN DISEASE RISK AREA? (YES)/~~NO~~ Classify A_1 A_2 etc or other (see Policy No. 10) A3.1

WITHIN ACTIVE CATCHMENT? (YES)/~~NO~~
CATCHMENT NAME Wellington

SALINITY ZONE specify using map in GWP 87 LOW
(Uncut stream buffers to be 50 m wide. BAOB will be, on average, greater than 12 m^2/ha outside buffers)

7 CONSEQUENCES ON LAND USE Refer to tables of consequences

IF HYGIENE SUCCESSFUL NIL

IF HYGIENE FAILS Areas put at risk will be confined to microcatchments in first instances. Multiple failures will result in larger areas put at risk. The land use values most seriously affected will be hardwood timber production.

see over

CONSEQUENCES continued

CONSEQUENCES ON BROADER SCALE on catchment, forest ecosystem, landscape

Level of consequence = f (risk)(impact)(landuse)
= (V.Low-Low)(Mod-High)(Mod-High)
= ACCEPTABLE for dry soil.
= (Low)(Low-Mod)(Mod-High)
= ACCEPTABLE for moist soil, no soil movement.

CONSEQUENCES OF NOT PROCEEDING WITH THE WORK on economy, employment etc

1. Logging operations will be divided to areas outside DRA, where the resource is scattered and lower quality. Higher costs to the Industry, and loss of forest values will result.
2. Higher levels of stockpiles will be required which will lead to higher costs to the Industry.
3. Failure by the mill to achieve stockpile levels in 2. will lead to mill closures, with resulting social and political disruptions.

8 EVALUATION OF 7-WAY TEST Your comments, signature and date

OIC AREA

Recommend this 7-Way Test be approved.

District Manager
1.10.86.

REGIONAL SUPERINTENDENT

Approved.

Regional Manager
2-10-86.

OIC PROTECTION

POLICY REVIEW GROUP

ACTING CONSERVATOR

LEVEL OF CONSEQUENCE ASSESSMENT

1. Low to Moderate impacting vegetation types

1.1 Moist Soil

1.1.1 Soil Movement

Level of consequences = (Mod.)(Low-Mod)(Mod-High)
= Unacceptable.

1.2.2 No Soil Movement

Level of consequences = (Low.)(Low-Mod)(Mod-High)
= Acceptable.

2. Moderate to High impacting vegetation types

2.1 Moist Soil

2.1.1 Soil Movement

Level of consequences = (Mod.)(Mod-Mod)(Mod-High)
= Unacceptable.

2.2.2 No Soil Movement

Level of consequences = (Low.)(Mod-High)(Mod-High)
= Acceptable.

2.2 Dry Soil

Level of Consequences = (V.Low)(Mod-High)(Mod-High)
= Acceptable.

Attachment 1.2.2

CIRCULAR NO. 9/84
(Updated November 1986)

DEPARTMENT OF CONSERVATION
AND LAND MANAGEMENT
50 HAYMAN ROAD
COMO 6152

REF NO: 116/83
Mr Keene

7 WAY TESTS - AUTHORITY TO APPROVE

The Policy Review Group now considers that the required standards have been set and are sufficiently well known for authority to aprove certain 7 way tests to be delegated as follows:

Forest Area Involved	**Approving Officer**	**Remarks**
1.State Forest not in DRA or FFL MPA (Sanctuary)	OIC of District	Separate file to be kept at District office for perusal by R/L Environmental Protection and/or Environmental Protection Branch Staff.
2.State Forest Within DRA	Regional Manager (Recommendation by R/L Environmental Protection)	Separate file to be kept at Regional office for perusal by Environmental Protection staff or Policy Review Group
3.State Forest within FFL MPA (Sanctuary) whether within DRA or outside DRA	Manager, Environment Branch (Recommend-ation by Regional Manager) See also Note 1 below.	Kept on same file as 2 above. The instruction regarding operations in MPA's (copy attached) still applies.

Note 1 A Policy decision may still be required for certain 7 way tests for operations without precedent or having unusual circumstances. Examples would be where other agencies are concerned, where several districts or regions are involved such as S.E.C. line maintenance project, large scale mineral exploration proposals, or projects considered to pose severe hygiene risks.

Such proposals will still be referred by the Regional Manager to Environmental Protection Branch. Approval will either be given by the Manager, Environmental Protection Branch or, where appropriate, referred to the Policy Review Group.

District Managers should encourage staff to consider the 7-WAY TEST as a check list for all forest operations involving a hygiene risk. This does not mean that a typed 7-WAY TEST is necessary in every case where established hygiene guidelines and prescriptions are available for routine operations. However, the guidelines and working drafts should be used as a training medium and be filed for future evaluation.

Regional Leaders (Environmental Protection) and Environmental Protection Branch staff will still be available to provide guidance, training and as a point of referral in the first instance.

This decision to delegate authority must not be taken to imply any relaxation of hygiene standards for operations in State forests.

Syd Shea
EXECUTIVE DIRECTOR

(updated 1.11.86) - J.D. Clarke

AUTHORISATIONS REQUIRED FOR OPERATIONS IN MANAGEMENT PRIORITY AREAS

OPERATION	FEL AND PRESERVATION	SCIENTIFIC	RECREATION	ROAD, RIVER AND STREAM BUFFERS
1. Normal Logging	-	Executive Director	Executive Director	Executive Director
2. Thinning	-	Executive Director	Executive Director	Executive Director
3. Dead Tree Removed	-	Executive Director	Regional Manager	Regional Manager
4. Ground Salvage	Executive Director	Executive Director	Executive Director	Executive Director
5. Gravel Pits	Executive Director	Executive Director	Executive Director	Executive Director
6. Road Construction	Executive Director	Executive Director	Regional Manager	Regional Manager
7. SEC, PMG Lines Construction	Executive Director	Executive Director	Regional Manager	Regional Manager
8. Entry of heavy machines for fire suppression	Controller	Controller	Controller	Controller
9. Felling trees dangerous to the public	Executive Director	Regional Manager	Normal	Normal
*10. Felling trees for fire suppression	Controller	Controller	Controller	Controller
11. Minor clearing for Parking, etc.	-	Regional Manager	-	Regional Manager
12. Planting exotic species	-	Executive Director	Executive Director	Executive Director
13. Commercial Wildflower picking	-	Executive Director	Executive Director	Regional Manager
14. Other major activity not mentioned	Executive Director	Executive Director	Executive Director	Executive Director

*10 - Controller while fire is running. Regional Manager or Regional Group in Mop-up Stages;

Attachment 1.2.3

SEVEN WAY TESTS

GUIDELINES FOR ASSESSMENT OF LEVEL OF CONSEQUENCES

Three factors need to be taken into account when making an assessment of levels of consequence for a Seven Way Test. They are: 1. Risk of introduction/spread.
2. Impact.
3. Land use.

They can be expressed as a factorial equation,

i.e.: level of consequences = f (risk) (impact) (landuse) (Acceptable/Unacceptable)

Assessment of Factors

1. Risk: rate as - very low, low, moderate, high.

   Very Low: dry soil, 230mm maps, hygiene
   Low: moist soil, 230mm maps, hygiene
   Moderate: moist soil, no 230mm maps, hygiene
   High: moist soil, no 230mm maps, no hygiene

2. Impact: rated as low, moderate, or high, on vegetation types or landforms.

   Low: few species susceptible, some individuals killed
   Moderate: most species susceptible, some individuals killed
   High: most species susceptible, most individuals killed
   (see Seven Way Test Guidelines - Impact)

3. Landuse: rated as low, moderate, high.

   Low: water production
   Moderate: timber production, recreation
   High: catchment protection

Examples of Acceptable Factorial Equations are:

Case 1: dry soil, all vegetation types, any land use.
L. of C. = (very low) (low-high) (low-high)

Case 2: moist soil, lower impacting vegetation, any land use.
L. of C. = (low) (low-moderate) (low-high)

NOTE: for moist soil operations in forest not infected with dieback good maps and maximum hygiene are required.

Summary

Whenever a Seven Way Test is drawn up it is recommended that this method of assessment is attempted. A rough guideline is (i) when risks are rated as very low or low, levels of consequence are only acceptable if impact is rated as low ~~as~~ or moderate, and (ii) when risks are rated as moderate or high, levels of consequence are only acceptable if impact is rated as low, eg. in Karri forest types.

SECTION 1 - PLANNING

SPECIFICATION 1.3 COUPE CUTTING PRESCRIPTIONS AND PLANS

1. Preparation of coupe cutting prescriptions and plans is the responsibility of the District in charge of a logging operation. The prescriptions are prepared for use by all C.A.L.M. officers involved in the logging operation, and for all relevant Industry personnel including bush bosses. The coupe plans must be used to record the progress of cutting and extraction, by individual fallers blocks. The certification of completed logging areas relate directly to such coupe plans.

2. For each coupe or set of similar coupes, a Coupe Cutting Prescription must be prepared on the prescribed form (Attachment 1.3.1). This document requires the District to decide on silvicultural objectives and marking techniques and contains a checklist of work required before cutting starts.

3. A Coupe Plan or plans must accompany the Coupe Cutting Prescription. Coupe plans shoud be prepared on 1:25,000 scale, or larger, base maps, or they may be drawn freehand as "blow-ups" of a given area.

   Coupe Plans should show the following information:-

   * individually numbered coupes and sub-coupes
   * all access roads
   * all watercourses
   * all areas reserved from cutting
   * dieback hygiene boundaries
   * ridgelines
   * location of landings
   * individually numbered faller blocks
   * major snig tracks
   * any other information considered necessary

Attachment 1.3.1

CLM .....

COUPE CUTTING PRESCRIPTION

A. DESCRIPTION

1. District .....
2. Forest Block .....
3. Compartment No.....
4. Coupe No's.....
5. Catchment Zone .....
6. Catchment Name .....
7. Land Use Priority .....
8. Seven Way Test No.....

B. SILVICULTURE

1. Cutting History: .....
   .....
   .....
2. Forest Type/Structure: .....
   .....
   .....
3. Status of Regeneration: .....
   .....
   .....
4. Silviculture Objective: .....
   .....
   .....
5. Tree Marking Technique: .....
   .....
   .....

C. CHECKLIST FOR COUPE PREPARATION

	TASK	DATE COMPLETED
1.	Roading	.....
2.	Dieback Line Marking	.....
3.	Coupe Demarcation	.....
4.	Road, Stream & Amenity Reserve Demarcation	.....
5.	Sub-Coupe Demarcation	.....
6.	Treemarking	.....
7.	Preparation, and forwarding to Region, of CLM 709	.....

D. LOGGING ARRANGEMENTS

1. Licence or Contract to Supply No: .....
2. Logging Company: .....
3. Bush Boss: .....
4. Logging Method: .....
   .....
5. Stockpiling Arrangements: .....
   .....
   .....
6. Haul Routes: .....
   .....
7. Log Product Priorities:

Priority	Log Product	Destination
1.	.....	.....
2.	.....	.....
3.	.....	.....
4.	.....	.....
5.	.....	.....

E. OTHER

.....
.....
.....
.....
.....
.....

F. CALM STAFFING

1. Forest Officer in Charge .....
2. Other Staff

Name	Responsibility
1.	.....
2.	.....
3.	.....

Officer Compiling: .....

Date: .....

SECTION 1 - PLANNING

SPECIFICATION 1.4 RENEWAL OF SAWMILLING LICENCES

1. A range of sawmilling licences are available for issue to individual sawmillers to conduct their own logging operations in land controlled by C.A.L.M. A sawmiller must have a current sawmilling licence before the start of the cutting period. SOHQ licences are generally issued for 1 year on either 1 January, 1 July, or 1 November. Most sawmilling licences for the Northern Jarrah Forest are issued for 1 November to 31 October. This covers as closely as possible the onset of dry soil logging conditions to enable immediate entry to the bush and if required concentrated operations to build stockpiles for winter milling when the bush may be closed. Local licences are issued by Districts and may be for 1 year but more commonly have been issued for only 3 months.

2. Each SOHQ licence holder must apply to renew his licence on a form CLM 49A. This form is sent by SOHQ to each licence holder approximately two months prior to expiry of the licence. The licence holder then fowards the signed application to the relevant District Manager. The District Manager must then sign the 49A after making comment on the operation of the licence over the previous 12 months. The completed 49A is then sent to SOHQ via the relevant Regional office.

3. The District Manager must forward, with the 49A, three copies of completed form CLM 49B. The 49B is a plan of all areas proposed for cutting in the next 12 months. The plans should be drawn at scale 1:50,000, and should correspond to the appropriate Two Year Logging Plan. The 49B plans must be approved at the Regional office, the originals forwarded to the licence holder, and a copy forwarded to SOHQ.

4. If, during a cutting year, it becomes necessary to cut areas not covered by a 49B, then a 49B must be prepared and processed as outlined in 3 above.

5. At the time a licence holder is asked to apply to renew his licence, he is invited to complete a form CLM 818 which is an "Application for permission to stockpile sawlogs and for deferment of royalty thereon". This application is to allow cutting in the bush at above average daily volumes to build stockpiles for winter milling and if required defer royalty payment on the stockpile by averaging to a fixed monthly dollar amount.

1 November, 1986

SECTION 2 - ROADING

SPECIFICATION 2.1 SELECTION OF LOG HAUL ROUTES

1. Conceptual plans of log haul routes must be obtained by Districts from (a) relevant Industry representatives or (b) contractors operating under Contracts to Supply, at least two years in advance of cutting. Using this information, and subject to Seven Way Tests, the precise alignment of proposed logging routes is determined and included in the Two Year Logging Plan.

2. Guidelines to be followed in selecting logging routes include:-

   * use low profile roads
   * avoid stream reserves, except for stream crossings
   * use ~~optimum~~ MINIMISE number of roads to provide economic snigging (maximum snig distance in Northern Jarrah Forest is 400m generally)
   * avoid new roading unless required to protect dieback-free forest
   * use roads in dieback-affected forest in preference to roads in dieback-free forest. Where roads in dieback-free forest must be used, minimise the crossing of dieback categories and minimise the areas of forest placed at risk.
   * where consistent with dieback hygiene practices, and economics, use systems of one-way roads.

3. The exact alignment of proposed new roads must be approved by the District Manager. In instances where proposed new roads intersect Shire or M.R.D. roads, Shire or M.R.D. engineers must be consulted.

1 November, 1986

SECTION 2 - ROADING

SPECIFICATION 2.2 ROAD CONSTRUCTION

1. Road construction must take place in dry soil conditions only.

2. Specifications for new roads and upgrading of existing roads.

	Major Haul Rds		Other, Including In-Coupe, Rds	
	For dry soil use	For wet soil use	For dry soil use	For wet soil use
Clearing width	10m	10m	5m	5m
Road formation width	8m	8m	4m	4m
Gravel thickness	Nil or as Req.	15cm	Nil or as Req.	15cm
Culvert spacing	See (a) below	See (a) below	See (a) below	See (a) below
Culvert size	See (b) below	See (b) below	See (b) below	See (b) below
Table drain depth	20cm	20cm	10cm	20cm
Major stream crossings	See (c) below	See (c) below	To be avoided	To be avoided
Off-shoots	See (d) below	See (d) below	See (d) below	See (d) below
Maximum grade	7^{o}	5^{o}	10^{o}	8^{o}

(a) Culvert Spacing:

* Culvert spacing depends on the grade of the road and the amount of water which reaches the road from the hillside.
* A culvert must be installed at the bottom of every grade.
* The number of culverts required per km will generally vary from 2 to 12.

(b) Culvert size:

* The size of culvert required depends on the catchment area, the run-off conditions, and the maximum incidence of rainfall. The following table is a guide showing maximum watersheds for a range of pipe sizes:

Pipe Diameter	Maximum Catchment Size
30cm	36ha
37.5 cm	56ha
45cm	80ha
60cm	144ha
75cm	244ha
90cm	324ha

(c) Major Stream Crossing:

* Must be contracted with pipes or a bridge - full earth/log fills are not permitted.
* Approach must be as close to but not at right angles to contours, keeping in mind road alignment and safety.
* Borrow areas must be > 20m from watercourse.
* Water from borrow areas must be directed into silt trap or vegetative filter.
* Off-shoots must be constructed at regular intervals to turn water into silt traps of natural vegetation.
* Fill must be consolidated to minimise erosion of loose soil and risk of slumping.
* Embankments must be left rough surfaced or corrugated.
* Machine activity in the watercourse and disturbance of stream vegetation must be minimised.
* No heaps of debris to be created within 40m of watercourse.
* A compacted, gravel pavement must be cleared on both sides of a stream crossing (In some specific instances this may have to be sealed.)

(d) Off-Shoots:

* Off-shoots must be sufficient in number to prevent table drain erosion.
* Off-shoots into dieback-free forest must be kept to a minimum. Wherever possible these off-shoots should be at the lowest point in the topography.
* Off-shoots carrying water from dieback-infected forest must not discharge into dieback-free forest. If necessary the water must be carried in the table drains until it can be discharged into sumps or vegetation filters close to a watercourse.
* Off-shoots must have a flared outlet into a vegetation filter strip or silt sump.
* Care must be taken when locating off-shoots near stream zones, to ensure adequate vegetation filter to prevent stream siltation.

3. The location and use of gravel pits must be approved by the FOIC. Gravel for use on roads in dieback-free forest must be obtained from uninfected gravel pits. Small stockpiles of suitable road surfacing material should be established at the time of construction for later use in areas likely to cause problems and for gravel road maintenance.

4. New gravel should be compacted with a vibrating roller prior to use by log trucks.

5. Road signposting must meet the requirements of the T.I.R. Act and conform to M.R.D. standards.

6. Road names must be approved by the Department's Nomenclature Committee. Road name signs must conform with the Department's Sign Manual.

1 November, 1986

SECTION 2 - ROADING

SPECIFICATION 2.3 ROAD MAINTENANCE

1. The cost of road maintenance will be borne by the road user, as decided and directed by the Forest Officer in Charge.

2. Maintenance, using earth moving machinery, of roads located inside dieback-free forest must be restricted to dry soil conditions only. Maintenance of these roads by hand, for example cleaning culverts or filling potholes, may and should be done at any time as required.

3. Maintenance grading must aim to shape the road profile, and to clean table drains, to improve drainage off and away from the road surface.

4. A road that deteriorates may be closed by the Forest Officer in Charge until repairs are effected. Bypasses must not be constructed to avoid boggy sections of road.

5. A failure in a wet weather road resulting in road closure should be investigated by C.A.L.M. and relevant Industry personnel to ascertain the cause and prevent repetition if possible.

6. Roadside scrub clearing must be carried out according to T.I.R. Act requirements. The cost of such work must be borne by the road user, as decided and directed by the Forest Officer in Charge.

1 November, 1986

SECTION 2 - ROADING

SPECIFICATION 2.4 GRAVEL PIT SELECTION WORKING AND REHABILITATION

Note: The term "gravel" also applies to other basic raw materials such as sand, limestone and quartz.

1. The use of existing or new gravel pits for logging road construction and/or maintenance must be approved by the Forest Officer in Charge, and must confirm with Policy Statement Number 2 (January, 1986) a summary of which is attached (Attachment 2.4.1).

2. The Pit selection must be carried out in conjunction with the planning of log haul routes. This implies a two year lead time. Selection of pits must take into account the following:

   * Location of pits must be rationalised to avoid numerous small, scattered pits.
   * No pit shall be located within road, amenity or stream reserves.
   * Pits must be located out of sight of features such as public roads, scenic lookouts and recreation areas.
   * Pits must not be located in areas likely to create severe drainage and/or erosion problems particularly if rehabilitation is likly to be delayed.
   * Access tracks into pits must be located to avoid direct line of sight into the pits.
   * Access tracks into pits must be constructed to allow vehicular use under all weather conditions.

3. The dieback status of pits must be decided by C.A.L.M., with sampling and laboratory testing if necessary.

4. Operation of pits:

* Boundary of clearing must be marked by a Forest Officer with white paint crosses.
* Utilization of forest produce must be arranged by the Forest Officer in Charge.
* Debris, free of topsoil, must be cleared into heaps or windrows at a distance of not less than 5m from standing trees.
* Top soil to a depth of at least 30cm must be stripped and stockpiled in conveniently situated heaps on the perimeter of the cleared area, at distances of not less than 5m from standing trees or heaps of debris.
* If the pit is classed as dieback-free, then removal of gravel resource must be strictly in accordance with split phase standards; that is:-

  (a) a log barrier must be strategically positioned on the perimeter of the pit entrance to prevent entry of gravel trucks onto the pit floor occupied by the loader,
  (b) loading facilities will be designed to prevent ground contact between the loader and gravel trucks, and
  (c) loaders entering or re-entering the pit must be thoroughly cleaned down.
  (d) the flow of water into the pit, from dieback-infected forest or roads, must be prevented.

* Pits developed specifically for logging roads must be physically closed when logging is complete.

5. Rehabilitation of pits:

An exhausted pit, or exhausted parts of a large pit, must be rehabilitated by the user when, and as directed by, the Forest Officer in Charge, using the following guidelines:

* Clearing debris must be burnt and the ashes spread over the floor of the pit.
* Stockpiled top soil must be spread evenly on the floor of the pit.
* Banks of the pit must be battered to an angle no greater than 10^{o}.
* The floor of the pit must be ripped, along the contour, to a depth of 70cm at 1m intervals. Ripping may take place before or after spreading of topsoil, depending on the depth of topsoil. In most instances it is best to rip after spreading of topsoil.
* The pit must be drained where necessary to prevent ponding of ground water.
* Erosion control drains or barriers must be constructed as required.
* If the pit is completely exhausted, the pit access road must be ripped to a depth of 70cm at 1m intervals, parallel to its length.
* Indigenous, dieback resistant tree species, and nitrogenous understorey species must be planted on the rehabilitated pit and access road during the first winter period following preparation for rehabilitation.

1 November 1986

Attachment 2.4.1

SUMMARY OF CALM POLICY STATEMENT N° 2 (JANUARY 1986)

BASIC RAW MATERIALS

AGENCY	TENURE	MINING TENEMENT	CALM LEASE	REHABILITATION PITS	COMPENSATION TO CALM	ROYALTY		APPROVALS	REMARKS
						M.D	CALM		
1. CALM	Use on CALM lands	No	No	Yes	No	No	N/A	CALM District	Minimal pits on National Parks, Nature Reserves and Flora, Fauna and Landscape priority areas. All pits to be rehabilitated after use.
2. CALM agents authorised works	Use on CALM lands	No	No	Yes	No	No	N/A	CALM District	Minimal pits on National Parks, Nature Reserves and Flora, Fauna and Landscape priority areas. All pits to be rehabilitated after use.
3. Shires, MRD or other authorised agencies	* Roads on or servicing CALM land or within 5km	No	Yes	Yes	No	No	N/A	CALM District	Minimum of new pits on National Parks, Nature Reserves or Flora, Fauna and Landscape priority areas. Existing pits to be phased out and rehabilitated.
4. Shires, MRD or other agencies	* Commercial use or land not adjacent (more than 5km)	Yes	No	Yes	Yes	Yes	No	CALM would oppose mining tenements	No new pits on National Parks, Nature Reserves or Flora, Fauna and Landscape priority areas. Existing pits to be phased out and rehabilitated.
5. Contractors	For use on other tenures or on P.P.	Yes	No	Yes	Yes	Yes	No	CALM would oppose mining tenements	No new pits on National Parks, Nature Reserves or Flora, Fauna and Landscape priority areas. Existing pits to be phased out and rehabilitated.
6. Private Individuals - small lots	For use on P.P.	-	No	-	-	-	-	-	Obtain from contractors.

* Doubtful cases to be referred to General Manager

SECTION 3 - SILVICULTURE

SPECIFICATION 3.1 JARRAH SILVICULTURE

1. Jarrah silviculture prescriptions are the responsibility of the Silviculture Branch, Forest Resources Division. Two documents are relevant to jarrah silviculture, and must be understood by all CALM staff involved in hardwood logging operations in the Northern Jarrah Forest. The two documents are:-

   (a) "Silviculture Treatment of Jarrah Forest for Wood Production", J. Bradshaw (Nov 1983), and
   (b) "Treemarking and Silviculture in the Jarrah Forest", J. Bradshaw (1985).

2. A summary of the current jarrah silviculture is as follows:

   2.1 Objectives: In an area to be cut silviculture should aim to achieve one of the following objectives -

   (a) reduce competition to allow seedlings to develop into ground coppice (i.e. with large lignotubers). In these instances a part of the overstorey is removed, thus allowing seedlings to emerge and develop into ground coppice.

   (b) allow ground coppice, or advance growth, to develop into saplings, poles and ultimately merchantable trees, without impediment. In these instances the complete overstorey is removed.

(c) promote growth on retained (crop) trees. This is the most common objective in the N.J.F. because of the prevalence of jarrah regrowth from past cutting. In these instances a basal area of at least $10m^2$/ha of crop trees must be retained.

Only one of the above three objectives should be pursued in any one patch of forest at any one time. The desirable minimum size of this patch is four times the mature tree height in diameter.

2.2 Advance Burning: Areas of the N.J.F. due to be cut within the next three years should not be burnt. This ensures dieback indicator plants are available for interpretation.

2.3 Tree Marking: Because of the variability of the jarrah forest, a fixed tree marking prescription will not work for every stand. Rather, the tree marking prescription adopted should suit the stand in question and be flexible enough to cater for changes in the stand. Tree markers must therefore have a sound understanding of the document "Tree Marking and Silviculture in the Jarrah Forest" (Bradshaw, 1985) and any specifications issued to complement this document.

1 November, 1986

SECTION 3 - SILVICULTURE

SPECIFICATION 3.2 WANDOO SILVICULTURE

1. In areas where wandoo is cut, C.A.L.M. staff should consult the booklet "Interim Rehabilitation and Protection Programme for Wandoo", J. Bradshaw (Nov. 1983).

1 November, 1986

SECTION 4 - COUPE CONTROL

SPECIFICATION 4.1 COUPE DEMARCATION

1. Coupe boundaries must be identified prior to commencement of cutting using white painted crosses facing into the coupe. A coupe boundary should correspond to (i) the boundary of a single "macro catchment" or (ii) roads, watercourses, reserve boundaries or dieback boundaries low in the profile.

2. Sub coupes must be identified prior to cutting using red flagging tape, increasing to three red tapes on corners and defined junction points. Sub coupe boundaries must correspond to boundaries of individual, self-draining "Micro catchments" within a coupe, and/or dieback hygiene plan boundaries. Sub coupe boundaries must be marked by the Forest Officer and Industry Bush Boss together.

3. Ridge lines may be marked permanently using white painted blazes on four sides of trees.

4. Stream reserve, road reserve and amenity reserve boundaries must be identified prior to cutting in the same way as coupe boundaries, that is with white painted crosses facing the cutting area. The exact location of boundaries of stream, road and amenity reserves is as decided by the Forest Officer in Charge, using the following guidelines:-

4.1 Stream Reserves

- Width of stream reserves is dependent of vegetation type, slope and susceptibility of the soil to erosion.
- A stream reserve is measured from the outside edge of the stream zone vegetation.

- For all second or third order watercourses within 3km of a catchment reservoir, the width of the stream reserve must be a minimum of 100m on each side of the watercourse, and a minimum of 50m for other streams.
- For watercourses outside the 3km zone, but within harnessed catchments, the respective minimum widths must be 50m and 25m.
- For watercourses in non-harnessed catchments, stream reserve widths will be at the discretion of the Forest Officer in Charge.

4.2 Road Reserves

- 100 to 200m in width, on both sides of major roads or tourist roads.
- Between 0 and 100m on both sides of other roads.
- Some selective cutting may be allowed within road reserves, as directed by the Forest Officer in Charge.

4.3 Amenity Reserves

- These reserves should be demarcated to screen certain areas such as recreation sites from logging operations. A "line of sight" reserve may be necessary on steep slopes. Some selective cutting may be allowed within amenity reserves, as directed by the Forest Officer in Charge.

1 November, 1986

SECTION 4 - COUPE CONTROL

SPECIFICATION 4.2 FALLING (INCLUDING TREE MARKING TECHNIQUES)

1. Fallers' Blocks

- Control of falling is by the system of fallers' blocks i.e. the allocation of areas of forest in approved coupes to individual registered fallers or individual tree harvesting machines. The areas must be demarcated by white tape prior to commencement of cutting.
- Fallers' blocks must be demarcated by the bush boss and approved by the Forest Officer.
- The size and shape of a faller's block can vary, depending on the quality of forest, terrain, access or other factors, but must not be greater than about two weeks of cutting for the individual faller or tree harvesting machine.
- Normally, all timber on a faller's block will be extracted to a single landing, on the edge of that faller's block.

A faller will not be allocated more than two faller's blocks at any one time. Unless specifically approved by the Forest Officer, a third faller's block will not be allocated until one of the first two blocks is cut to the satisfaction of the Forest Officer.

2. Tree Marking

Trees to be removed from an area may be indicated to fallers by marking either those trees to be removed or those trees to be retained as crop trees. The Forest Officer in Charge will decide which method is to be used depending on the type of bush being cut and other practicalities. Once this decision is made, the tree marking method must not be changed within an individual coupe.

2.1 Tree marking for removal: trees may be marked for removal using -

(a) an axe, or (b) paint.

(a) Axe: Trees marked for removal with an axe must be blazed on two sides at a comfortable height and toemarked to indicate the desired direction of fall.

(b) Paint: Trees marked for removal with paint must be painted on two sides, at least 1.5m above the ground, with a cross with strokes about 60cm long, and a dot at the base of tree to indicate the desired direction of fall. Only orange or blue paint, clearly visible to fallers, may be used for tree marking for removal.

In areas where trees are marked for removal by either of the two methods described, no other trees may be felled.

2.2 Tree marking for retention: trees may be marked for retention using (a) paint or (b) tape.

(a) Paint: trees marked for retention with paint must be painted at least 1.5m above the ground, with a band about 4cm wide completely around the tree. Only orange or blue paint may be used.

(b) Tape: trees marked for retention with tape must have a single tape tied around the tree at a height of at least 1.5m above the ground. Only orange or blue tape may be used.

In areas where trees are individually marked for retention, fallers may cut any other trees they consider contains usable produce under the terms of the relevant licence or contract.

A group of trees may be marked for retention by using orange or blue tape tied around trees along the perimeter of the group. At least one tree in every 10m of perimeter must be marked, and the knots in the tape must face away from the centre of the group. The Bush Boss must be advised by a Forest Officer of areas containing groups marked for retention.

3. Stump Height

Stumps must be as low to the ground as possible, provided safety is not compromised. Any decision regarding safety rests ultimately with the faller. For a solid mature tree, the stump should not be higher than approximately 45cm above the ground at the base of the tree on the uphill side. 45cm is approximately "knee height". For solid regrowth trees, including trees cut for poles or mining timbers, the stump should not be higher than approximately 7cm above the ground at the base of the tree on the uphill side.

4. Trees leaning into road, stream or amenity reserves must not be felled unless specifically indicated for removal by a Forest Officer.

5. All stumps, and all logs prepared by a faller, must be branded with the faller's brand immediately after cutting. (This rule does not apply if felling is carried out by a tree harvesting machine).

1 November, 1986

SECTION 4 - COUPE CONTROL

SPECIFICATION 4.3 EXTRACTION

1. Extraction (or snigging) of logs is controlled by the system of faller's blocks in the same way as felling. That is, an individual logging unit will be allocated two fallers's blocks and will not be allocated a third block until one of the first two is utilised to the satisfaction of the Forest Officer.

2. Snig track patterns in individual sub coupes must be planned and demarcated by the Forest Officer and Industry Bush Boss together, or, when approved by the Forest Officer in Charge, by the Bush Boss alone. Snig tracks should adopt a herringbone pattern leading downhill whenever possible. Snig tracks are to be indicated using (a) red and white flagging tape together on individual trees or bushes, or (b) axe blazes on trees or bushes.

3. The location of landings must be planned and marked, using the same techniques as for snig tracks, by the Forest Officer and Industry Bush Boss together. Normally, one landing will be allocated to each faller's block.

4. Landings must use existing gaps in the forest whenever possible, and clearing debris must be heaped at least 5m away from retained crop trees.

5. Split phase logging:
   In dieback-free forest, extraction of logs must conform to the techniques of "split-phase logging". This separates the snigging phase of logging from the loading and hauling phase. This is done to minimise the risk of introducing dieback fungus into a sub coupe from material that may be dropped at a landing by log trucks. There are four different techniques in "split-phase logging":

5.1 Separation of extraction and loading in time: in this technique, extraction in a sub coupe or faller's block must be completed before loading and hauling commence. That is, once loading and hauling commences, a skidder must not return to the sub coupe or faller's block. If a skidder is required to return, it must be cleaned down before each trip into that sub coupe or faller's block.

5.2 Separation of extraction and loading by a physical barrier at the rear of a landing: in this technique, a physical barrier such as a log is situated at the rear of the landing, and logs skidded to this landing are pushed, or preferably lifted over the barrier onto the landing proper. The skidder and loader are thus physically separated, avoiding the risk of transfer of soil, brought in by log trucks, into the sub coupe. Skidding and loading can take place concurrently.

5.3 Separation of extraction and loading by a physical barrier at the front of a landing: in this technique, a physical barrier such as a log is placed at the front of a landing, adjacent to where log trucks are parked for loading. This barrier separates the loader and skidder from the path of the log trucks, thus avoiding the risk of transfer of soil, brought in by the log trucks, into the sub coupe. Skidding and loading can take place concurrently.

5.4 Use of a stationary loading machine: in this technique, a stationary machine, such as a "heel-boom loader" is used to load trucks. Such machines are set up on the roadside below a landing, thus avoiding the transfer of any soil onto the landing. Skidding and loading can take place concurrently.

6. In dieback-free forest, extraction can take place only when the machinery used does not transport or move soil or vegetable matter. This means that the types of skidders must not pick up and move any soil or vegetable matter. If soil becomes wet following rain, and begins to stick to machinery tyres, the skidding operation ~~must~~ MUST cease until the soil dries sufficiently. The decision as to when skidding ceases and recommences is the responsibility of the Forest Officer in Charge.

7. In dieback-infected forest, the extraction operation is subject to the rules detailed in Specification 5.3 (Protection of Soil).

8. At the completion of extraction, all major snig tracks in dieback-free forest must be blocked by a physical barrier such as a log.

9. No extraction machine may enter a road, stream or amenity reserve without the specific approval of a Forest Officer.

1 November, 1986

SECTION 4 - COUPE CONTROL

SPECIFICATION 4.4 LOADING AND HAULING

1. In dieback-free forest, the loading operation must conform with the techniques of "split-phase logging", described in Specification 4.3.

2. The log hauling route or routes used must be approved by the Forest Officer in Charge. Traffic control signs must be displayed along these routes as required by the Forest Officer in Charge or the T.I.R. Act Inspectors. All signs displayed must conform with M.R.D. standards. A list of standard signs, and their use follows:-

   (a) **"TRUCKS ENTERING"** - 15cm letters, black lettering on yellow background. These signs must be erected on major roads on either side of the junction of the major road and a lesser road used by log trucks. The signs must be removed immediately after the operation is complete, or if there is a break in carting exceeding five days.

   (b) **"LOG TRUCKS ON ROAD"** - 15cm letters, black lettering on yellow background. These signs must be erected at both ends of major roads used by log trucks. The signs must be removed immediately after the operation, or if there is a break in carting exceeding five days.

   All signs mounted on posts must be of diamond configuration. Signs placed temporarily on the ground must be rectangular.

3. The Forest Officer in Charge may stop haulage on any road in wet weather if, in his opinion, continued haulage is likely to result in damage to the road or excessive turbidity in adjacent streams.

1 November, 1986

SECTION 4 - COUPE CONTROL

SPECIFICATION 4.5 LOGGING OPERATION INSPECTIONS AND CERTIFICATION

1. Forest Officers must check logging standards periodically on a faller's block by faller's block basis to ensure falling and extraction standards are maintained. Whenever possible the Industry Bush Boss should accompany the Forest Officer on these inspections so that problems found can be rectified immediately.

   Aspects of logging to be inspected include:
   - stump height
   - stump and log branding
   - in-forest treatment of logs
   - trees indicated for removal but not felled
   - trees felled by not removed
   - damage to retained (crop) trees by falling and/or skidding
   - extraction pattern
   - soil damage
   - dieback hygiene
   - tops disposal.

2. **Formal Inspections**

   There are two types of formal inspection of a logging operation:-

   (i) General inspection of all aspects of a logging operation by senior staff, and

   (ii) Inspection of a logging operation with the specific intention of certifying as complete one or more faller's blocks in that operation.

2.1 General inspection - This inspection should be carried out as often as considered necessary by senior staff in a District or Region. This inspection should be carried out with at least the treemarker and the bush boss in attendance. At the completion of such an inspection a report must be completed on the prescribed form, a copy of which is attached (Attachment 4.5.1). These forms should provide a permanent record of the standards achieved at that particular logging operation for the benefit of the Region, the District and the logging company.

2.2 Fallers block certification: - this inspection must be regularly carried out on a systematic basis, in order to formally certify to the logging company that specific areas in an operation have been completed to CALM's satisfaction. The unit area in these inspections in the fallers block. Inspections must be carried out with sufficient regularity to ensure a large backlog of non-certified fallers blocks does not eventuate.

The progress of these inspections must be recorded on the prescribed form, a copy of which is attached (Attachment 4.5.2). One of these forms must be kept by the officer in charge of each logging coupe. This form is the official permanent record of the progress of completed cutting. The logging company will not be expected to return to a fallers block once it has been certified, except for any rehabilitation work that may be required.

The authority to certify fallers blocks may only be allocated to experienced Forest Officers. These "Certifying Officers" must be authorised by the relevant Regional or District Office. Attachment 4.5.3 is a list of currently authorised Certifying Officers for logging operations in the Northern Jarrah Forest.

3. During any inspection the Forest Officer must use only yellow lumber crayon to initial and date stumps, and cross out unmerchantable timber. These markings will indicate that the area has been inspected. The Industry Bush Boss must use only white lumber crayon to mark trees or logs.

4. Yellow flagging tape must be used to indicate trees to be felled and logs to be cut and/or snigged.

November 1986

Attachment 4.5.1

CLM .....

HARDWOOD LOGGING INSPECTION REPORT
NORTHERN JARRAH FOREST

District .....
Block .....
Compartment .....
Coupe .....
Logging Operator .....

Present doing inspection:

Name	Role
.....	
.....	
.....	

Inspection Checklist	**Comments/Action required**
1. Coupe Preparation	
1.1 Demarcation (boundaries, ridge-ridge, fallers blocks etc.	.....
1.2 Coupe sign	.....
1.3 Coupe cutting prescription/plan	.....
1.4 Treemarking standard	.....
2. Logging Operation	
2.1 Roads	.....
2.2 Location of landings or snig tracks	.....
2.3 Hygiene measures	.....
2.4 Protection of soil	.....
2.5 Protection of crop trees	.....
2.6 Protection of water	.....
2.7 Landing rehabilitation	.....
2.8 Safety	.....
3. Utilisation	
3.1 Stump height	.....
3.2 Stump/log branding	.....
3.3 Product preparation	.....
3.4 Completion of blocks/landings	.....
4. Other	.....

Officer compiling ..... Industry rep .....

Date of Inspection .....

Distribution: Original-industry; Duplicate-region; Triplicate-District

Attachment 4.5.2

Form CLM .....

FALLERS BLOCK CERTIFICATION SHEET

NORTHERN JARRAH FOREST

DISTRICT ..... **BLOCK/CPT** .....

COUPE ..... **OFFICER IN CHARGE OF COUPE** .....

Fallers Block No.	Items found* During Insp. by Cert. Officer	Branding Standard	Tops Disp. Std.	Rehab. Req'd. (Y//N)	Block Cert. (Y/N)	Landing Cert. (Y/N)	Date	Cert. Officer

* Abbreviations: SL = Sawlog
SV = Salvage Log
P = Pull
F = Fall
C = Cut

Attachment 4.5.3

LIST OF CERTIFYING OFFICERS

Northern Forest Region:	A. Holland
Dwellingup District:	K. Vear
	R. Mead
	W. Towie
Jarrahdale District:	D. Allen
	T. Ashcroft
	G. Lange
Mundaring District:	T. Raven
	W. Adams
Central Forest Region:	J. Skillen
	F. Vince
Harvey District:	P. Henderson
	P. Keppel
	H. Quicke
	R. Hunter
	J. Howesmith
Collie District:	R. Breidahl
	J. McKenzie
	J. Raper
Kirup District:	A. Seymour
	B. Forster
	M. Zwartz
Nannup District:	R. Armstrong
	R. Simmonds
	W. Tiedemann
Busselton District:	D. Hilder
	C. Broadbent.

1 November, 1986

SECTION 4 - COUPE CONTROL

SPECIFICATION 4.6 BUSH STOCKPILING

1. Bush stockpiling is the practice of stockpiling logs in the forest to supplement mill stockpiles. Bush stockpiles are not designed to replace mill stockpiles, but are to enable Industry to continue log haulage during periods of the year when extraction is not permitted. Mill stockpiles must always be preferred to bush stockpiles.

2. Industry must obtain permission for bush stockpiling from the Forest Officer in Charge. Bush stockpiling must not start before the onset of cooler weather in early autumn. This coincides with a reduction in activity of the Lyctus Borer.

3. The location of bush stockpiles ~~msut~~ must be approved by the Forest Officer in Charge. Bush stockpiles must be located in areas accessible in all weather conditions.

4. All logs in bush stockpiles must be removed to a mill by 15 October in any year.

5. To prevent degrade, the ends of all logs should be painted with a sealing compound after placement in a bush stockpile. Once a log is placed in a bush stockpile, no docking is permitted at any later date.

6. A firebreak of 4m width must be constructed around every bush stockpile.

1 November, 1986

SECTION 4 - COUPE CONTROL

SPECIFICATION 4.7 SUMMARY OF BUSH SIGNS AND MARKINGS

1. White painted crosses on the side of a tree (permanent)
   - coupe boundary
   - road reserve
   - stream reserve
   - amenity reserve
   - gravel pit boundary

2. Yellow painted blazes on three sides of a tree (permanent)
   - boundary between dieback-infected forest and dieback-free forest, with the third painted blaze facing the dieback-free forest.

3. White painted blazes on four sides of a tree (permanent)
   - ridge line.

4. Red Flagging Tape (i.e. tape with ends able to move in breeze)
   - sub-coupe boundary
   - ridge line

5. White Flagging Tape
   - faller's block

6. Orange or blue painted band around a tree
   - tree marked for retention (crop tree)

7. Orange or blue tape tied around a tree
   - tree marked for retention (crop tree)

8. Orange or blue tape tied around a number of trees in a rough circle
   - a group of trees marked for retention (crop trees); the knots in the tape in this situation must all face away from the centre of the group of trees to be retained.

9. Orange or blue painted crosses on two sides of a tree with same coloured dot at base of the tree
   - tree marked for removal, the dot indicating desired direction of fall.

10. Axe blaze on two sides of a tree with a "toemark" cut into the base of the tree
   - tree marked for removal, the toemark indicating the desired direction of fall.

11. Red flagging tape and white flagging tape tied, one above the other, around a tree or bush
   - landing extremity
   - major snig track

12. Yellow flagging tape tied around a tree
   - tree, missed by faller, which must be felled (if considered by faller to be safe).
   - initial dieback line (must be removed by a Forest Officer prior to commencement of cutting).

13. Yellow flagging tape tied around a log, or stick or bush adjacent to a log
   - log, missed by feller or skidder, which must be cut and/or extracted.

14. Yellow lumber crayon on a stump or log
   - used by a Forest Officer to instruct Industry and/or record inspection of a logging operation.

15. White lumber crayon on a stump, log or tree
   - used by Industry bush boss to instruct ~~to~~ bush crew and/or record inspection of a logging operation.

1 November, 1986

SECTION 5 - ENVIRONMENTAL PROTECTION

SPECIFICATION 5.1 PROTECTION FROM JARRAH DIEBACK DISEASE

1. All CALM staff involved in hardwood logging in the Northern Jarrah Forest must have a sound working knowledge of the biology and management of the dieback fungus, Phythophthora cinnamomi.

   References which should be readily available to staff include:-

   - Forest Focus No's 14 and 31
   - Landscope No. 2
   - Information Sheet No. 4
   - Research Papers Nos. 3,10,40 and 65.
   - Bulletins 84 and 85.
   - Miscellaneous publication No. 1 - "Jarrah Root Rot".
   - Tech Papers No's 2 and 3
   - Dieback Hygiene Manual (July 1986)
   - Dieback 82
   - Policy Statement No.3 (attachment 5.1.1)

2. The implications of jarrah dieback must be considered during all phases of a logging operation in the Northern Jarrah Forest, in particular during:
   (a) Planning (specifications 1.1, 1.2 and 1.3)
   (b) Roading (specifications 2.1, 2.2, 2.3 and 2.4) and
   (c) Coupe Control (specifications 4.1, 4.3 and 4.4)

3. Machinery/vehicle cleandown

   3.1 A key part of forest management with respect to dieback is the cleaning down of vehicles and machinery prior to entering dieback free forest.

   3.2 The aim is to clean the vehicle or machine of all soil, mud, dust and vegetable matter, especially from wheels or tracks, and from underneath the chassis.

3.3 Cleaning down may be carried out using a variety of equipment involving water, compressed air or brushes, either at a CALM District headquarters, at a contractor's headquarters or in the field. When everything is dry and provided a machine or vehicle can be cleaned by such technique compressed air is the preferred cleaning down technique.

3.4 If water is used, then the fungicide sodium hypochlorite must be added to the washdown water at the rate of 1:2000. Sodium hypochlorite is corrosive and must not be added to drinking water, nor used in excessive quantities. Sodium hypochlorite, when added to water, has an effective life of only 24 hours. A new dosage must therefore be added to washdown water in a tank as soon as any additional water is put in the tank.

3.5 Washdown sites (that is sites involving water) in the field must be approved by the Forest Officer in Charge. A washdown site must be on a well drained ramp or pad in dieback forest immediately adjacent to dieback-free forest. Such sites must be identified by a CALM Department "Washdown Site" sign.

3.6 All vehicle/machine drivers/operators must ensure that their vehicle/machine is clean prior to entering dieback-free forest. Forest Officers must regularly check the standard of vehicle/machinery cleanliness.

4. Dieback Sampling

Dieback sampling is an integral part of the job of dieback interpretation, and is not normally a task of CALM hardwood logging operations staff. If sampling is necessary for any reason, a detailed prescription and assessment sheet may be found in the CALM booklet "Dieback Hygiene Manual" (July 1986).

5. Dieback Demarcation

5.1 The initial marking of dieback boundaries in the field is done by CALM specialist staff responsible for dieback interpretation using large scale aerial photography. These officers will mark dieback boundaries using yellow flagging tape on trees or bushes. The Forest Officer in Charge is then responsible for the permanent marking of the dieback boundaries using yellow painted blazes on three sides of trees. The FOIC must follow the yellow tape marking, but may use his discretion to "smooth off" corners for practical purposes, provided the dieback line is shifted into dieback-infected forest only. More detail on dieback demarcation procedures are contained in Environmental Guidelines General No. 1 (Attachment 5.1.2)

5.2 The FOIC may use wages employees to assist in the permanent marking of dieback lines. Close supervision must be carried out in such instances.

5.3 Yellow tape, used for initial dieback line marking, must be removed prior to the commencement of cutting of the area.

1 November 1986

POLICY STATEMENT NO. 3 - DIEBACK AND LOGGING

This statement was revised in September 1986. It has now been approved by the Policy Directorate and is to be implemented as from 1 October 1986.

The revised policy places greater responsibility on the Timber Industry, particularly in the forests north of the Preston River. Logging operations in dieback-free areas of these forests will now only be allowed subject to:

(a) the most up-to-date hygiene prescriptions; and
(b) with no soil movement (irrespective of season of the year).

The Timber Industry will be required to stockpile logs, to provide for those days when logging will not be permitted. If these stockpiles prove inadequate, alternative supplies of wood will not be made available.

Naturally it would be preferable if logging was restricted to dry conditions in the summer months only (December to March). This is not considered to be workable in practice. I believe that the new policy is workable. It is also a significant achievement over logging operations in past years.

I look forward to the Industry and Department's cooperation in implementing the policy.

Syd Shea

Syd Shea
EXECUTIVE DIRECTOR

DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT

POLICY STATEMENT NO. 3 - DIEBACK AND LOGGING

NOVEMBER 1985 (Revised September 1986)

DIEBACK AND LOGGING POLICY - CALM DEPARTMENT

INTRODUCTION

The Policy Directorate is developing policies for the protection of National Parks, Nature Reserves and State Forests from dieback.

As the first step in this process, the Directorate has reviewed the former Forests Department's Dieback policy 1982 and its application to logging in State Forests. Decisions arising from this review are spelt out in this Policy Statement, together with guidelines for implementation.

POLICY

(1) CALM WILL CONTINUE TO IMPLEMENT DIEBACK POLICY 1982, IN ALL HARDWOOD LOGGING OPERATIONS IN STATE FORESTS.

(2) CALM WILL CONTINUE WITH THE EVALUATION OF OPERATIONAL PROPOSALS ON ALL ITS LANDS, USING THE 7-WAY TEST.

(3) CALM WILL CONTINUE WITH THE IMPLEMENTATION OF "POLICY 12".

COMMENT

These decisions recognise that although our dieback knowledge is incomplete (e.g., the terminal impact of the disease on all forest types is not yet clear) the Dieback Policy and the 7-Way Tests are still appropriate management tools. This decision will stand until an integrated Departmental Dieback Policy for all CALM lands is developed, or until new research findings which affect the policy become available.

Operations on all Departmental lands must consider protection from dieback spread. However, the remainder of this paper will focus on HARDWOOD LOGGING operations in State forests.

IMPLEMENTATION OF POLICY

Guidelines for the implementation of the Dieback Policy and 7-Way Tests for LOGGING different areas of hardwood forest are as follows:

(1) Forests South of the Preston River (see attached map - area 3)

1.1 Logging equipment will be cleaned down before entering and leaving a Karri dominant coupe. Current arrangements with respect to soil damage will continue, as prescribed in the Departmental Code of Practice and Industry Control Specifications Manual (ICSM).

1.2 Jarrah types will be logged using the most up-to-date hygiene prescriptions. On low to moderate impact sites skidding under moist soil conditions with soil movement will be permitted. Current arrangements with respect to soil damage will continue, as prescribed in the (ICSM).

1.3 On sites where high impact is anticipated or the consequences are high (e.g., areas around Kirup, or where karri is upslope of high impact sites) logging under dry soil conditions only may be required. These areas will be automatically identified in the evaluation of the 7-Way Test, and appropriate conditions laid down before the 7-Way Test is approved.

Comment

This decision is based on the fact that few areas in the Southern forest show signs of high impact, though some deaths in the understorey and of jarrah trees have occured on some sites.

Cessation of logging in the bush for a minimum of one month each year may be necessary to prevent soil disturbance and for hygiene in these vegetation types. These periods do not relate to specific calendar months.

(2) Forests in the Sunklands - (see map - area 2)

Jarrah types will be logged using the most up-to-date hygiene prescriptions. On low to moderate impact sites skidding under moist soil conditions with soil movement will be permitted. Arrangements with respect to soil damage will continue as prescribed in the Departmental Code of Practice and Industry Control Specifications Manual.

Comment

This decision recognises that many areas of the Sunklands forest are dieback-free and that some are of high quality. Dieback hygiene, including dieback-free and impact mapping is required. Dry soil logging is preferred.

Comment

These decisions recognise the sensitivity and importance of these forests, especially those on catchments in the zone of high salinity. Sensitive areas will be identified by the 7-Way Test and appropriate conditions laid down before the 7-Way Test is approved.

Syd Shea
EXECUTIVE DIRECTOR

September 19, 1986


1
2
3
SOUTHERN
OCEAN

Attachment 5.1.2

ENVIRONMENTAL GUIDELINE - DIEBACK NO. 1

SUBJECT - DIEBACK DEMARCATION PROCEDURES

GENERAL

This guideline was prepared primarily by Mr A. Brandis (I&P), in consultation with I & P, Operations and Protection staff. Officers of the Dieback Mapping Group (D.M.G.) should complete dieback demarcation within areas of forest for which Hygiene Maps have been prepared, as well as assisting Operations staff already involved in demarcation in forest outside D.R.A. (where Hygiene Maps do not exist). It is desireable to have a standard procedure for the completion of this task.

TIMING

All forest classified as Dieback, or Suspect should be demarcated as close to the time of logging as possible. If it is imperative that forest be burnt prior to logging, demarcation must be completed before burning.

When an operation has not taken place within six months of demarcation, it will be necessary to recheck (and demarcate again) all areas of forest downslope from dieback or suspect, particularly on moderate to steep slopes (greater than 5°). Areas of forest that have been mapped as secure dieback-free (ie. upslope from dieback, suspect, NEQ, uninterpretable) or that are relatively flat, should be rechecked after a period of twelve months.

DEMARCATION

Field demarcation of dieback or suspect is best achieved by blazing and painting non merchantable trees that occur at or near the boundary. All demarcation must be easily seen, even where dense scrub occurs. Trees should be blazed on three sides; two of the blazes should face along the boundary while the third blaze should face away from dieback or suspect. Blazes should be painted yellow.

The delineation of dieback or suspect should occur close to the visible disease symptoms. Officers should rationalize dieback or suspect boundaries when demarcating.

BUFFER ZONES

The system of mapping disease occurrence is based on visible symptoms that take varying periods of time, after infection, to manifest. As the most recent indicator plant deaths occur at or near the edge of disease infections, it is logical to conclude that P. cinnamomi may be in the

soil, or root systems of both susceptible and resistant plants outside the visibly effected area, but that the susceptible plants may not have died. That is to say there may be some risk of transporting infected soil and root material from within a zone outside of but in close proximity to the infection. It is necessary therefore to have a zone which buffers forest operations from disease infections.

The buffer zones should be varied to account for the potential for disease to be present, but not manifest, under different vegetation, topographic, and edaphic situations. Two variables must be considered in varying buffer width - slope and disease impact. Where disease impact is low, it is often difficult to detect and interpret symptoms of the disease and the risk of incipient disease is greatest in this situation. The following table sets out the downslope buffer width under different slope and impact situations.

DOWNSLOPE BUFFER WIDTH (m)

SLOPE (DEGREES)	LOW	MOD	HIGH
20	50m	50m	40m
15	50m	40m	30m
10	40m	30m	20m
5	30m	20m	20m
0			

IMPACT (CURRENT)

Buffer zones on the uphill side of infections should not be less than 20m and increased to 30m in situations where the uphill gradient is small and disease impact is low. Buffers should not cross over a drainage line (ridgeline or gully).

Demarcation should preferably be done by officers of the dieback mapping group working in liaison with Operations staff. Where there is competition for the available staff time, it is the responsibility of the Regional OIC (I&P) to make a decision on the use of interpreters in a particular operation. In making the decision the OIC will take into account:

(i) the complexity of the operation;

(ii) the priority of other items on the works programme;

(iii) the availability of trained interpreters on the staff of the district concerned.

Frank Batini.

F. BATINI
A/MANAGER ENVIRONMENTAL PROTECTION

May 23, 1985

SECTION 5 - ENVIRONMENTAL PROTECTION

SPECIFICATION 5.2 PROTECTION OF SOIL (INCLUDING REHABILITATION MEASURES)

1. Soil Damage

1.1 Damaged soil is soil that has either:

(a) had the A horizon (topsoil) removed,
(b) had the A horizon (topsoil) mixed with the B horizon (subsoil usually containing clay)
(c) suffered severe compaction (meaning compaction which will affect germination or growth of plants). This normally applies to all landings, and
(d) been affected by all 3 of the above

1.2 Soil is usually damaged by skidding operations in wet soil conditions.

1.3 Soil damage must not exceed 10% in area of any single faller's block, including the landing. If a Forest Officer considers that damage is approaching 10% then he must:

(a) survey the faller's block (compass and pace method), plot on graph paper and calculate total area,
(b) measure the perimeter of the landing and calculate area,
(c) plot four parallel lines at right angles to the general snigging direction, the four lines positioned to divide the faller's block into five approximately equal sections,
(d) pace along each sample line, classifying each pace as damaged or undamaged soil, and

(e) record all the above data on a "Field Assessment of Soil Damage" sheet, and calculate percentage of damaged soil.

If the total area of soil damage, including the landing, is greater than 10% then skidding in that fallers block must cease immediately.

Attachment 5.2.1 is an example of a completed "Field Assessment of Soil Damage" sheet, with accompanying plot of faller's block.

1.4 If skidding is stopped in a faller's block because of excessive soil damage then it cannot recommence in that block until the Forest Officer in Charge decides that the soil is dry enough. This decision cannot be made until the local Soil Dryness Index Exceeds 500.

1.5 Soil damaged during the winter must be rehabilitated by Industry by the following first day of March, as directed by and to the satisfaction of the Forest Officer in Charge.

Rehabilitation will require the ripping and levelling of all damaged soil on affected snig tracks and landings. Ripping must be carried out to a depth of 500mm and at 1 metre spacing. Industry must make available suitable machinery to carry out this work.

2. Erosion Control

2.1 CALM staff and Industry personnel must be aware of the potential for soil erosion along snig tracks during wet weather.

2.2 When skidding is completed in any faller's block, and prior to machinery leaving it, interceptor banks and drains must be constructed across all snig tracks with exposed soil, to the following standards:

(a) Inteceptor bank/drain spacing:

Slope	On lateritic gravels	On all other soils
0 - 2°	Nil	Nil
3 - 5°	200m	100m
6 - 10°	100m	50m
11 - 15°	60m	30m
16° +	30m	15m

(b) Size of interceptor banks:
40cm high and 40cm thick, using soil or logging debris

(c) Angle of interceptor banks:
60° to flow of water

(d) Dispersal of water from interceptor drains:
The interceptor banks/drains must be constructed so that water is directed into vegetation or silt traps without ponding. Water must not be diverted into another drainage line. Water must not be diverted into dieback free forest.

2.3 During logging of a faller's block, erosion control work must be done at any time, if the Forest Officer in Charge so requires. Such work will be on snig tracks and to standards as directed by the FOIC.

3. Rehabilitation of Landings

3.1 All landings in fully integrated logging operations must be rehabilitated by the logging operator to the satisfaction of the FOIC. Rehabilitation must be completed by the first day of May following the completion of logging. Logging is deemed to be complete when the cutting section, including landings, has been certified complete by an authorised certifying officer.

3.2 In areas where logging is carried out concurrently by more than one logging operator, the task of rehabilitation of landings must be shared by the different logging operators as directed by the FOIC.

3.3 In areas where a logging operation is carried out over an extended time period by more than one logging operator, the task of rehabilitation of landings must be shared by the different logging operators as directed by the FOIC.

3.4 Rehabilitation of landings will involve:

(a) the ripping of any damaged soil to a depth of 500mm at a spacing of 1 metre, parallel to the natural contour of the land, and

(b) the heaping or windrowing of clearing and logging debris along the sides and rear of landings, such heaps or windrows to be no closer than 5m from crop trees.

3.5 All rehabilitation must be carried out in strict accordance with dieback hygiene principles, as directed by the FOIC.

3.6 Any burning of debris, seeding or planting considered necessary will be carried out by the relevant CALM District during the winter following rehabilitation.

Attachment 5.2.1

CLM .....

FIELD ASSESSMENT OF SOIL DAMAGE

DISTRICT ..... FALLERS BLOCK .....

BLOCK/CPT..... INDUSTRY DETAILS .....

COUPE .....

CUTTING PRESCRIPTION .....

.....

PLOT OF FALLERS BLOCK (ATTACHED)

SURVEY SUMMARY

1) Total area of faller's block ____ m^2

2) Area of landing ____ m^2 (5.7%)

3) Skidding damage:

Line	Damaged	Undamaged	Total
1	14	80	94
2	17	85	102
3	19	86	105
4	10	77	87
Total	60 (a)	328 (b)	388 (c)

Skidding damage = $\frac{(a)}{(c)}$ x 100 = ...%

4) Total damage = 2) + 3) = ...%.

RECOMMENDATION

1. Operation can continue; survey to be repeated .....
(Nominate when)

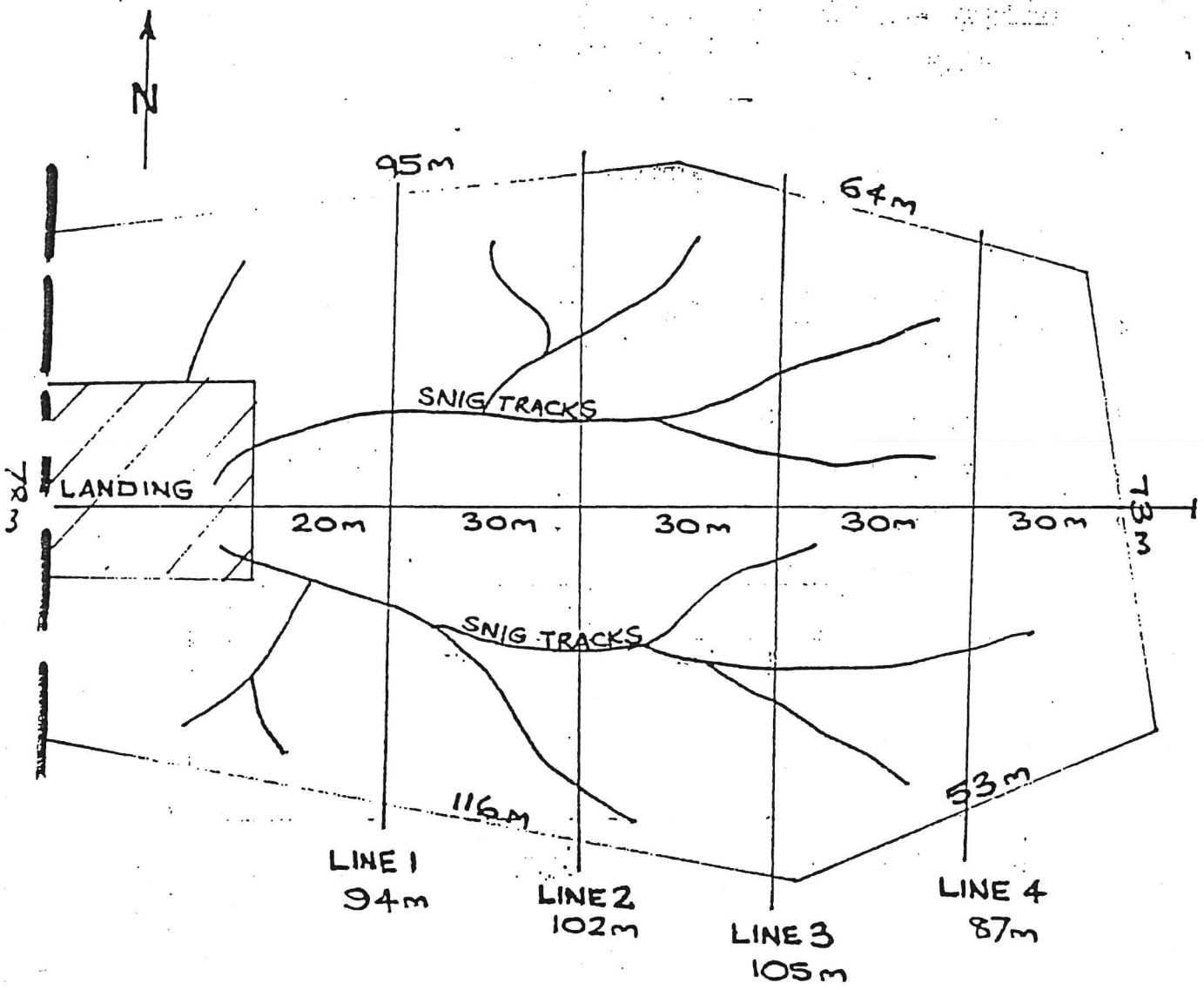
✓ 2. Fallers block closed.

Date of assessment - .....

Officer compiling - .....

Distribution: 1. Bush Boss
2. R/L Procurement
3. District File

LOCATION PLAN



SECTION 5 - ENVIRONMENTAL PROTECTION

SPECIFICATION 5.3 PROTECTION OF WATER

1. Many catchments in the Northern Jarrah Forest are harnessed, that is the water from such catchments is collected in man-made reservoirs for industrial and/or domestic use. It is therefore essential that effective water protection measures are undertaken during all phases of logging in the NJF.

2. During logging operations measures must be taken to protect water from unnatural increases in:

   (i) salinity (the salt content of water)

   (ii) sedimentation (the deposition downstream from a source of disturbance) of material across the full range of particle size

   (iii) siltation (the deposition of particles larger than clay but smaller than sand)

   (iv) turbidity (discolouration of water due to suspended silt, clay or organic matter)

3. Water protection measures are necessary during:

   (a) planning (specifications 1.1 and 1.3)

   (b) road construction and maintenance (specifications 2.2 and 2.3)

   (c) gravel pit working and rehabilitation (specification 2.4)

   (d) coupe demarcation (specification 4.1)

   (e) extraction (specification 4.3)

   (f) haulage (specification 4.4)

   (g) protection of soil (specification 5.3)

   CALM staff and industry personnel must be totally familiar with the requirements for protection of water as detailed in the above specifications.

4. No roading or logging may take place within 500m of the high water mark of any reservoir without prior notification of the relevant Water Authority.

1 November 1986

SECTION 5 - ENVIRONMENTAL PROTECTION

SPECIFICATION 5.4 PROTECTION OF CROP TREES

1. In coupes where crop trees are marked for retention, Industry personnel must make every effort during all phases of logging to protect the crop trees from physical damage. Physical damage is any damage resulting in one or more of the following:

   (a) The exposure of more than 100cm^2 of cambium on the bole of a crop tree.
   (b) The falling, breaking, or uprooting of a crop tree, or
   (c) The removal of more than 30% of the crown of a crop tree.

2. Periodical assessments of crop tree damage must be carried out by a Forest Officer using the "Assessment of Crop Tree Damage" form (attachment 5.4.1). In carrying out these assessments, a Forest Officer must assess a random sample of:

   (i) at least 100 crop trees in a given faller's block excluding those crop trees immediately adjacent to landings and major snig tracks and
   (ii) at least 50 crop trees immediately adjacent to landings and major snig tracks.

   If more than 5% of trees assessed in category (i) or 10% in category (ii) are damaged, then the Industry will be charged for all damaged trees in that faller's block at rates determined by the Executive Director. Copies of all damage assessments must be handed immediately to:

   (i) the relevant District Manager, and filed at the District office, and
   (ii) the relevant Industry Bush Boss.

3. As well as avoiding physical damage, Industry must ensure that all logging debris resulting from a logging operation is removed from the base of crop trees. This task is commonly known as "tops disposal", and is designed to protect crop trees from fire damage. The debris to be removed includes all woody material greater than 75mm diameter. This material must be moved at least 1m away from the bole of a crop tree. Tops disposal must be completed before a faller's block is certified complete. Industry Bush Bosses should encourage fallers and skidder drivers to carry out tops disposal on a day by day basis during the course of a logging operation.

1 November 1986

Attachment 5.4.1
CLM .....

ASSESSMENT OF CROP TREE DAMAGE

DISTRICT ..... FALLERS BLOCK .....

BLOCK ..... INDUSTRY DETAILS .....

COUPE ....

SUB COUPE..... .....

DATE OF ASSESSMENT .....

A. CROP TREES IMMEDIATELY ADJACENT TO LANDINGS AND MAJOR SNIG TRACKS

Number of trees assessed ..... (minimum sample of 50 trees)

Number of trees damaged .....

Percentage of trees damaged .....

B. OTHER CROP TREES

Number of trees assessed ..... (minimum sample of 100 trees)

Number of trees damaged .....

Percentage of trees damaged .....

C. COMMENTS

.....

.....

.....

D. RECOMMENDATIONS

.....

.....

.....

Officer compiling .....

Information re completing this form:

1. Damaged trees are those crop trees that:
   (a) have more than 100cm^2 of cambium exposed,
   (b) have been felled, broken in two or uprooted, or
   (c) have more than 30% of crown removed.
2. In "Industry Details" specify name of company, type of machinery involved and names of faller and skidder driver.
3. In "Comments" write down:
   (i) any environmental or other factors, if any, that may have affected the result of the assessment and
   (ii) whether this assessment has indicated an improvement or worsening of performance by the Industry.
4. If, in "Recommendations" it is recommended that the Industry be charged for crop tree damage, the total number of crop trees in the faller's block must be assessed and the total number of damaged crop trees determined.
5. Forward this form immediately to District Manager; a copy to Industry Bush Boss.

SECTION 6 - LOG SPECIFICATIONS AND MEASUREMENT

SPECIFICATION 6.1 GENERAL DESCRIPTION AND SPECIFICATIONS OF LOG PRODUCTS

1. Definitions

1.1 Sawlogs

Sawlogs are logs prepared in the bush for cutting at a registered sawmill, into sawn products such as, for example, sleepers, boards or scantling. Any log that is considered by a sawmiller to be merchantable, that is, worth cutting into products, may be classed as a sawlog. For commerical purposes however, five types of sawlogs are recognised:

1.1.1 General Purpose (Old Growth) sawlogs - this is the most common type of sawlog cut in the Northern Jarrah Forest, and includes all sawlogs supplied to all licensed sawmills, or "G.P. Sawmills", that is sawmills that are guaranteed a specific volume of sawlogs each year by the State Government. The minimum length and minimun crown diameter under bark of a G.P. Sawlog is generally 2.1m and 250mm respectively, and the minimum amount of solid or defect-free wood in such a log is generally set at 50% as assessed on the worst end.

1.1.2 Small Old Growth Sawlogs - these are sawlogs below 250mm crown diameter under bark, cut from old, or non-regrowth forest.

1.1.3 Large Regrowth Sawlogs - these are sawlogs, of minimum length 2.1m and minimum crown diameter under bark of 250mm, cut from regrowth forest.

1.1.4 Small Regrowth Sawlogs - these are sawlogs below 250mm crown diameter under bark, cut from regrowth forest.

1.1.5 Salvage sawlogs - these are sawlogs below the standard of all other types of sawlogs, but are considered merchantable by a registered sawmiller. Most salvage sawlogs in the N.J.F. are produced during or after cutting by, or for, licensed sawmills. Unless otherwise indicated, the minimum standard of a salvage sawlog is 2.1m in length and 250mm in crown diameter under bark, with at least 30% of solid or defect-free wood assessed on the worst end.

1.2 Veneer Logs:

Veneer or peeler logs are logs intended for slicing or peeling into sheets for the production of veneer or plywood. The minimumlength and minimum crown diameter under bark for veneer logs is generally 2.6m and 450mm respectively. Veneer logs must be of a consistently high quality, with much less allowable defect than sawlogs.

1.3 Bridge and Jetty Timbers

Bridge and Jetty Timbers are logs intended for use in the construction of bridges, wharves and jetties. Like Veneer Logs, Bridge and Jetty Timbers must have a consistently higher quality than sawlogs. Most Bridge Timbers are produced for use by the Main Roads Department. Most Jetty Timbers are produced for use by the Marine and Harbours Department. There are four types of Bridge and Jetty Timbers:

1.3.1 Piles

These are high quality, straight logs, driven into the ground, in bridges, wharves and jetties.

1.3.2 Stringers

These are high quality, straight logs, placed lengthwise on piles.

1.3.3 Corbels

These are short lengths of high quality log, placed lengthwise, on top of piles, to support stringers.

1.3.4 Bedlogs

These are logs placed lengthwise on the ground, used to support stringers.

1.4 Poles

Poles are long, straight logs used in an upright position to support loads above ground. Poles are usually of smaller diameter than Bridge Timbers, but must be of similar high quality. Most poles are produced for use by the State Energy Commission in supporting transmission and other lines. The amount of defect allowable in poles can vary depending on whether or not the pole is to be treated with preservative.

1.5 Chip Logs

Chiplogs are logs for conversion into woodchips at the W.A. Chip and Pulp Company, Manjimup. In the N.J.F., only marri trees in certain areas are prepared into chiplogs.

1.6 Mining Timbers

Mining Timbers are generally short, straight lengths of jarrah log, of crown diameter under bark between 125 and 250mm, used to support underground coal mines at Collie. Three terms commonly used are:

1.6.1 Props

These are short lengths, say 2.4 or 2.7m, used in an upright position in direct contact with the roof of a mine.

1.6.2 Legs

These are similar to props, but are used to support Bars.

1.6.3 Bars

These are longer lengths, say up to 5.1m, and are placed horizontally on top of Legs. They support the roof of a mine.

1.7 Minor Forest Produce

Minor Forest Produce is a general term used to describe all products, other than the products listed above, that may be extracted from the Northern Jarrah Forest. In most cases the individual piece size, and total volume per unit area, of Minor Forest Produce is small. Specification 6.9 in this Manual lists the types of Minor Forest Produce that may be produced in the N.J.F.

2. Log Defects

The assessment of defect or fault in the log products listed above is a task that requires considerable knowledge, experience and judgement. Below is a list of common log defects:-

2.1 Pinholes - these are small holes approximately 1.0mm in diameter, caused by a beetle known as the Pinhole borer (Atractorcenis kreuslerae). Pinholes are easily visible on the surface of a log. The depth of pinholes can only be assessed by inspecting the ends of a log.

2.2 Dry Side - a dry side is a dead section of a log, usually extending for several metres and usually affecting from one third to one-half of the circumference of a log. A dry side is usually caused by wildfire.

2.3 Shake - This is a separation between adjoining layers of wood due to causes other than drying. Shake parallel to growth rings is commonly known as ring shake.

2.4 Shatter - This is the term used to describe the facture of a log resulting from falling.

2.5 Rot - Rot is the decay of timber due to fungal attack. Such fungi are of two types:

(i) Primary Attacking Fungi (parasitic fungi) which survive in growing trees, and

(ii) Secondary Attacking Fungi (saprophytic fungi) which survive in dead timber.

The two most common and significant types of rot in N.J.F. are both caused by parasitic fungi:

(i) Heart or Column Rot - results in a column of rot in the centre of the bole of a tree extending from the point of infection and

(ii) Jarrah Straw Rot - results in decayed wood that resembles straw.

2.6 Gum - is liquid exudate of trees, commonly resulting from injury. Gum can collect in pockets, rings or veins. Gum is the major defect in Marri (Eucalyptus calophylla).

2.7 Wind - this is the term used to describe non-straight grain in a log or tree; also known as cross-grain or spiral grain.

2.8 Split - this is a lengthwise separation of wood fibres extending through a log from one surface to another. Splitting at the ends of logs (end splits) is a common defect in young, fast grown logs.

2.9 Heart - this is the central portion of a log consisting of unstable and/or decaying wood. In all hardwood sawlogs the heartwood must be sawn out ("boxed out"). The size of the heart varies but often comprises up to 20% of a log.

2.10 Double Heart - the ends of some logs may display two hearts or "double heart". Double heart represents the growth of branches in trees. The existence of double heart reduces the amount of millable wood in a log.

2.11 Check - This is a separation of fibres along the grain forming a fissure, but not extending through a log. Checks form as a log dries.

2.12 Knots - knots are unstable areas of wood corresponding to the junction of the main trunk of a tree and a branch. A knot that is relatively tight, solid and free from decay is known as a "sound knot", otherwise it is referred to as a "loose knot". A "knot hole" results when the wood in a knot is removed.

2.13 Bend - Bends in a log affect:

(i) the strength of a round piece of timber or

(ii) the percentage recovery of a sawlog. Bend in a log is referred to as

(i) Sweep - a gradual bend in one direction; or

(ii) Mulitple Sweep - gradual bends in more than one direction; or

(iii) Crooks or kinks - one or more sudden or sharp bends.

2.14 Sapwood - This is the outer layer of the wood of a tree which at the time of felling contains living cells and reserve materials such as starch. Sapwood represents the non-durable portion of hardwood timber.

2.15 Butt Spurs - These are irregular growths near the base of a tree, providing strength in the support function of the truck. A more uniform increase in size of a trunk near ground level is known as "buttswell".

2.16 Pith - Pith is a term used to describe the soft, generally decaying centre or heart section of a log.

For a complete glossary of all terms used to describe timber, refer to the booklet: "Terms Used in Timber Standards", Australian Standard 01 - 1964, published by the Standards Association of Australia.

The acceptable size or extent of each type of log defect varies depending on the log product in question. The Detailed specifications for each log product are listed in Specifications 6.2 to 6.9 inclusive in this Manual.

3. Log Treatment

3.1 Log Treatment is the process of applying sawcuts to a log to prepare it for measurement, prior to the log leaving the bush. Terms used in log treatment are:-

3.1.1 Long butting - immediately after felling, the cutting off of one or more short lengths from the butt end of a tree to remove obvious defect.

3.1.2 Crown cutting - after felling, the cutting off of the crown or top of a tree. In the absence of log defect, the crown cut must correspond to the minimum crown diameter specifications for the desired log product.

3.1.3 Queen cutting - the application of two cuts to a log to remove a section of log, usually containing defect.

3.1.4 Docking - the cutting off of one of more short lengths of log, usually at a landing,to remove defect.

3.1.5 Trimming - the removal of branches, epicormics and other growths from the side of a log.

3.2 The extent or amount of treatment permitted on a particular log depends on:

(a) the priorities for production of the varous log products, and

(b) the minimum specification for the particular type of log product being sought.

In an integrated logging operation, that is in an operation where most or all log products are extracted to the same landings at the same time, then the Forest Officer in Charge has the ultimate responsibility of deciding the extent or amount of log treatment. This requires a clear understanding of log product priorities, product specifications and the Department's "In Forest Log Treatment" Policy, 1986.

3.2.1 Log Product Priorities

The priorities for production of the various log products are set by Timber Production Branch, and relayed to FOIC's via the relevant Regional staff. Normally the priorities are:-

1. Veneer or Peeler logs
2. Bridge and jetty timbers
3. S.E.C. poles.
4. G.P. Sawlogs
5. Salvage Sawlogs

3.2.2 In-Forest Log Treatment

Attachment 6.1.1 is a copy of the "In-Forest Log Treatment" policy. This policy applies to integrated logging operations producing both G.P. Sawlogs and Salvage Sawlogs. The aim of the policy is to ensure that (a) total utilisation of sawlogs is maximised, and (b) the quality of (i) G.P. sawlog and (ii) salvage sawlog is maintained. This is not an easy task and all FOIC's must work hard at applying the rules fairly and consistently.

Attachment 6.1.1.

IN-FOREST TREATMENT OF SAWLOGS - POLICY

Following discussions with representative officers in the field, it has been decided to change the policy regarding the practise of long butting or crown cutting defective portions of logs in the bush.

At present the generally accepted, though unwritten rule, is that a log (provided it is of sufficient diameter) is a general purpose sawlog without further docking if it has 50% or more of defect free wood on the worst end of the log.

If the log is worse than this, it has been the practise to produce a general purpose sawlog by long butting or crown cutting sufficient of the defective portion so that the remainder of the log shows at least 50% sound wood on the worst end. Salvage logs are then of a lower standard, ie, at least one third sound wood on the worst end.

To maximise the total volume of timber utilised from each hectare of forest cut over, particularly with the current demand for salvage type logs in excess of the supply, changes to our policy have been made as follows.

For jarrah:

1. At the stump, no docking of any fault in a log will be permitted provided 30% or more of the worst end displays solid wood. On the bush landing, any docking will be the responsibility of the forest officer in charge.

2. On the bush landing, for logs greater than 4.2 metres or longer, the minimum length of docking permitted will be 2.1 metres, and if longer, in multiples of 0.3 metres when producing logs to the GP standard of 50% sound wood.

3. On the bush landing, docking of logs less than 4.2 metres in length will not be permitted without the specific individual permission of the forest officer in charge. He will be required to decide whether the best return to the Department is achieved by selling the log without docking as a salvage log, or allowing docking to produce a GP log with loss of total volume sold.

4. The license holder will then have the first option of taking all logs from each landing, resulting from any allowable docking outlined above.

5. Logs not taken will be classed as salvage logs and offered to other customers by tender or auction.

.../2

For karri:

The above rules will apply except that the minimum log length allowed for docking will vary depending on the minimum length log which can be milled at a given mill. It will be the responsibility of the Regional Manager to set the standard applicable in each case.

Effects of the changes are expected to include the following

1. An overall increase in volume of timber harvested per unit area.

2. An improved standard of log utilisation of general purpose mills.

3. A reduction in the amount of bush supervision required but additional resultant supervision of log utilisation at the bush landing. The net effect should be a saving once the system settles down.

4. A possible increase in the volume of timber available for sale to salvage mills by the auction or tender system.

Implementation

1. To ensure that the majority of doubtful logs do in fact reach the licence holders mill a penalty system resulting from poor utilisation is being investigated, based on deductions from the permissible intake. Initially, if from any coupe more than 10% of the total volume removed is sold to salvage operators, the volume so sold will be deducted from the permissible intake of the main mill.

   Calculation of this volume will necessarily include that subsequently obtained from marked not taken (MNT) trees and have the effect of encouraging the mill to try all trees offered. The intention is to eliminate the need for a separate later salvage operation.

2. Before such a penalty system can be implemented, it will be necessary to measure accurately the amount of wood removed from each coupe by setting up a coupe numbering system through the hardwood computer system for the Northern and Central Forest regions, as is current in the Southern Forest Region.

   These regions should contact Mr Sclater without delay to implement the changes required.

.../3

3. The penalty system will not be applied for the first 6 months of operation on any licence area. However, this period will be used to check the level of performance of the GP mill and to advise the mill where necessary that improvements are required.

   As experience dictates, the actual percentage volume figure of salvage logs to be used as the threshold for the penalty will be varied.

4. Naturally it is expected officers administering the changed arrangements in the field will exercise their competence in interpreting the policy with respect to particular types of log defects such as sharp bends, relative position of log defects etc when for practical reasons obvious in the field it is not possible for the rules outlined to apply.

5. The key to success will be continued consultation and education of industry personnel at all levels, with the application of penalties seen as the last resort.

Syd Shea
EXECUTIVE DIRECTOR

(reference SOHQ, 369/84, 8 May 1986)

SECTION 6 - LOG SPECIFICATIONS AND MEASUREMENTS

SPECIFICATION 6.2 G.P. SAWLOG SPECIFICATION AND MEASUREMENT

1. Specifications:

(i) Minimum length - 2.1m

(ii) Minimum crown diameter under bark - 250mm

(iii) Amount of solid or defect-free wood on worst end - 50%, as assessed by the FOIC

2. Measurement

G.P. Sawlogs may be measured in two ways:

(i) True volume under bark measured on individual logs, or

(ii) Application of the appropriate weight-volume conversion factor.

The method of measuring individual logs is detailed in the C.A.L.M. booklet: "Cubic Contents of Hardwood Logs", 1985.

1 November, 1986

SECTION 6 - LOG SPECIFICATIONS AND MEASUREMENTS

SPECIFICATION 6.3 SALVAGE SAWLOG SPECIFICATION AND MEASUREMENT

1. Specifications:

(i) Minimum length - 2.1m

(ii) Minimum crown diameter under bark - 250mm

(iii) Amount of solid or defect-free wood on worst end - 30%, as assessed by the FOIC

2. Measurement

Salvage logs may be measured in two ways:

(i) True volume under bark measured on individual logs, or

(ii) Application of the appropriate weight-volume conversion factor.

The method of measuring individual logs is detailed in the C.A.L.M. booklet: "Cubic Contents of Hardwood Logs", 1985.

1 November, 1986

SECTION 6 - LOG SPECIFICATIONS AND MEASUREMENTS

SPECIFICATION 6.4 VENEER LOG SPECIFICATION AND MEASUREMENT

1. Specifications:

Veneer, or peeler, logs are prepared from high quality jarrah or karri logs according to the specification below:-

(a) Girth - Minimum diameter 310mm. Maximum diameter 650mm, but any logs greater than 580mm or less than 360mm must not be significantly out of round. The best size is between 410mm and 580mm.

(b) Length - 2.1, 2.4, 2.7, 3.0, 4.0, 5.0, 6.0, metres subject to change depending on instructions from Forest Officer in Charge. Logs to be square cut.

(c) Rot - Not acceptable except at core. Specifications as for (e) below.

(d) Heart - may be up to 120mm out of centre provided that the heartwood will be covered by the lathe chuck. Chuck sizes are 120mm for small logs and 210mm diameter for large logs.

(e) Pipe - provided that the log diameter is 440mm or greater a pipe up to 150mm in diameter is permissable so long as the pipe is straight and central in log and that there is sufficent sound wood around the pipe to hold a 210mm chuck.

(f) Borers, Pinholes - not permissable.

(g) Shakes - Radial falling shakes, ring shakes and loose rings not acceptable. Star shakes acceptable so long as there is no associated rot and the shake diameter is not more than one half of the log diameter.

(h) Shape - all logs to be reasonably cylindrical.

(i) Limbs - sap limbs only are permitted.

(j) Dry Sides - recent dry sides acceptable where the dry wood and checks are not more than 50mm in depth.

(k) Gum - logs having large swellings indicating large pockets of gum not suitable. Gum rings are not acceptable but small gum pockets up to two per log face are acceptable.

(l) End Coating - All logs to be coated both ends with petroleum jelly or some other suitable end coating to prevent end checking. Gang nail plates supplied by WESFI are to be fitted by the contractor to both ends of peeler logs immediately after preparation to assist in controlling end splitting.

2. Measurement

Veneer logs may be measured in two ways:

(i) True volume under bark measured on individual logs, or

(ii) Application of the appropriate weight-volume conversion factor. The method of measuring individual logs is detailed in the CALM booklet: "Cubic Contents of Hardwood Logs", 1985.

1 November, 1986

SECTION 6 - LOG SPECIFICATIONS AND MEASUREMENTS

SPECIFICATION 6.5 BRIDGE TIMBER SPECIFICATION AND MEASUREMENT

1. Specifications:

All Bridge Timbers prepared for sale to the Main Roads Department of W.A. must conform to the following specification:-

"Specification for Supply of Untreated Round Timber" (May 1986) for untreated jarrah bridge timbers. (Attachment 6.5.1)

Bridge Timbers prepared for other orders may vary in specification depending on the requirements of the customer. Species other than jarrah may be used. All bridge timbers must be inspected and appropriately marked by a C.A.L.M. inspector prior to sale.

2. Measurement

Bridge timbers are measured by recording

(i) length rounded down to the nearest 0.1m and

(ii) crown diameter under bark rounded down to the nearest cm.

1 November, 1986

SPECIFICATION FOR SUPPLY OF UNTREATED ROUND TIMBER

1. SCOPE

This Specification applies to the supply of untreated round timber for use in the construction of MRD standard timber bridges.

2. TIMBER SPECIES SUITABLE FOR ROUND TIMBERS

Untreated round section timbers for use as piles and stringers and corbels shall be Jarrah (Eucalyptus Marginata).

3. INTERPRETATION OF TERMS

The meaning of timber engineering terms in this Specification shall be as defined in Australian Standard 01 "Terms used in Timber Standards".

4. GRADE DESCRIPTION

4.1 General

Round section timbers shall be of sound wood free from defects other than those listed in clause 4.2 and have a maximum thickness of 20 mm of sapwood at any point on their circumference.

4.2 Permissible Defects

(i) Primary Rot — Primary rot will be permitted at the butt end only when the area of rot is less than 50 mm² for piles and 100 mm² for stringers and corbels.

(ii) Included Sapwood — Included sapwood will be permitted at the butt end only when its width does not exceed 20% of the heartwood diameter and its individual circumferencial length does not exceed 50% of heartwood diameter.

(iii) Gum Rings — Gum rings will be permitted providing they are well separated, tight and do not extend for more than 50% of the circumference of the growth ring in which they occur.

(iv) Pipes — Pipes will be permitted only at the butt end when they do not exceed 20% of the butt diameter.

(v) Single Splits or Shakes — Single splits or shakes will be permitted at either end providing they do not exceed 450 mm in length.

(vi) Radial Shakes or Star Shakes — Shakes will be permitted at either end providing they do not exceed 300 mm in length.

(vii) Knots — Knots resulting from the removal of sound limbs will be permitted in the centre half of the log length providing their diameter does not exceed 5% of the log's circumference at the point where the knot occurs. Knots resulting from the removal of sound limbs will be permitted in the end quarter lengths providing their diameter does not exceed 10% of the logs circumference at the point where the knot occurs.

(viii) Knot Holes — Knot holes will be permitted only in the end quarter lengths providing the surrounding wood is sound and their diameter does not exceed 5% of the log's circumference at the point where the knot hole occurs. Knot holes will not be permitted if they connect directly to a pipe.

5. PERMISSIBLE TOLERANCE OF ROUND SECTION TIMBERS

5.1 Straightness

Round section timbers shall be straight with a maximum sweep of 10L millimetres, where L is the length of the log in metres.

The sweep shall be measured by stretching a line along the log from the mid point at the crown to the mid point at the butt and measuring from this line to the centre line of the log where the deviation is the greatest (Figure 1).

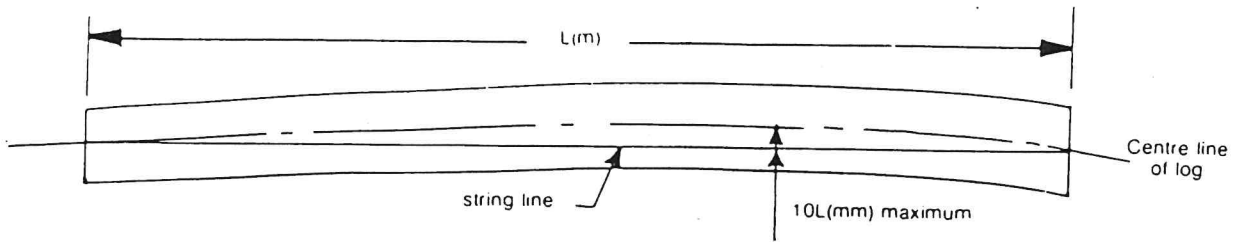


Figure 1: Measurement of Sweep

5.2 Short Bends or Kinks

Short bends or kinks shall occur in one direction only and not exceed 2 m in length with a deviation from the straight not greater than 25 mm for each 1 m of length of bend. Bends or kinks shall not occur within the end quarter lengths of piles.

5.3 Length

Logs shall measure the full ordered length when ends are squared. Ends shall be free from slovens. The length of the logs supplied shall not be less than the ordered length plus 75 mm.

5.4 Measurement of Diameters of Stringers and Piles and Corbels

5.4.1. Crown and Butt Measurements of Stringers and Piles

The smallest measured diameter shall not be less than the minimum diameter specified by more than 25 mm and the largest measured diameter shall not be more than the maximum diameter specified by more than 25 mm. The average of any two diameters measured at right angles to each other shall not be less than the minimum or greater than the maximum diameter specified.

5.4.2 Mid Diameter Measurement of Stringers and Corbels

The mid diameter for stringers and corbels shall be measured as the theoretical diameter derived from the measured circumference at the mid point of the log and shall not be less than the minimum mid diameter specified.

5.5 Taper

The diameter at the butt end shall not exceed the diameter at the crown end by more than 30 mm for every metre of length between the ends of the stringer or pile.

6. PROTECTION AND STORAGE OF ROUND SECTION TIMBER

The logs shall be stored at a CALM storage dump in a manner such that they will be kept moist by water sprinkler during the complete storage period.

The logs shall not have the bark removed while they are in storage. Bark shall only be removed when the final order is confirmed and not more than one month before acceptance for delivery to the bridge site.

All round section timber shall be strapped at both ends immediately after debarking to reduce end splitting. Ends of the logs shall then be sealed with a suitable moisture retarding agent.

7. IDENTIFICATION

Logs shall be identified on one end after passing inspection with

Length, for stringers and piles
and 1 5 x Number off. for corbels

UNTREATED ROUND TIMBER SUPPLY SCHEDULE FOR PILES

MRD DIVISION: .....

BRIDGE No.: ..... MRD WORKS ORDER No.: .....

RIVER: ..... ORDERED BY: .....

ROAD: ..... DATE ORDERED: .....

LOCAL GOVT.: ..... DATE REQUIRED: .....

PILES DRIVEN LESS THAN 6.0 m		PILES DRIVEN MORE THAN 6.0 m	
Crown Diam: 300 mm min. to 400 mm max. Butt Diam : 500 mm min. to 700 mm max.		Crown Diam: 280 mm min. to 400 mm max. Butt Diam : 500 mm min. to 700 mm max.	
LENGTH	**QUANTITY**	**LENGTH**	**QUANTITY**

ALL TIMBER SUPPLIED TO THIS SCHEDULE SHALL CONFORM TO THE REQUIREMENTS OF MRD SPECIFICATION FOR SUPPLY OF ROUND TIMBER.

UNTREATED ROUND TIMBER SUPPLY SCHEDULE FOR STRINGERS AND CORBELS

MRD DIVISION .....

BRIDGE No.: ..... MRD WORKS ORDER No.: .....

RIVER: ..... ORDERED BY: .....

ROAD: ..... DATE ORDERED: .....

LOCAL GOVT.: ..... DATE REQUIRED: .....

STRINGERS

6.0 m SPAN Crown Diam: 520 mm min. Mid Diam : 530 mm min. Butt Diam : 600 mm max.		**7.5 m SPAN** Crown Diam: 520 mm min. Mid Diam : 580 mm min. Butt Diam : 650 mm max.	
LENGTH	**QUANTITY**	**LENGTH**	**QUANTITY**
6.3 m		7.8 m	
6.5 m		8.0 m	
6.7 m		8.2 m	

CORBELS

6.0 m SPAN Mid Diam : 480 mm min		**7.5 m SPAN** Mid Diam : 530 mm min	
LENGTH	**QUANTITY**	**LENGTH**	**QUANTITY**
1.5 m		1.5 m	

ALL TIMBER SUPPLIED TO THIS SCHEDULE SHALL CONFORM TO THE REQUIREMENTS OF MRD SPECIFICATION FOR SUPPLY OF ROUND TIMBER.

SECTION 6 - LOG SPECIFICATIONS AND MEASUREMENTS

SPECIFICATION 6.6 POLE SPECIFICATIONS AND MEASUREMENT

1. Specifications:

1.1 S.E.C. Poles

Poles prepared for sale to the State Energy Commission of W.A. (S.E.C. poles) are classified according to: (i) length and (ii) strength. Nominated lengths increase in 1.5m increments from a minimum of 9.5m to a maximum of 20.0m. Strengths are specified in kiloNewtons and vary from a minimum of 2 to a maximum of 10. All poles prepared for sale to the S.E.C. are inspected by a qualified C.A.L.M. pole inspector. Only those poles passed, and identified by the inspector's brand and by the appropriate alluminium identification disc, may be sold to the S.E.C. The specifications for S.E.C. poles are detailed in the following two documents:

1.1.1 S.E.C. of W.A. Specification No. ES/39/86 for jarrah poles for use without full length preservative treatment (June 1985 revision). (Attachment 6.6.1).

1.2.1 S.E.C. of W.A. Specification No. ES/37/86 for jarrah, marri and blackbutt poles for use after full length preservative treatment. (Sept. 1986 revision)(Attachment 6.6.2)

1.2 Other Poles

Poles, other than for sale to the S.E.C. may be prepared. There is no written specification for "other poles" because of the varying end use and hence standards of such poles. "Other poles" may be produced to any nominated length or diameter.

2. Measurement

2.1 S.E.C. Poles

S.E.C. poles are measured by individual tally of poles in each length class.

2.2 Other Poles

"Other Poles" are measured by recording:

(i) length rounded down to the nearest 0.1m and

(ii) crown diameter under bark rounded down to the nearest cm.

1 November, 1986

SPECIFICATION NO. ES/39/86

TECHNICAL SPECIFICATION

for

JARRAH POLES

FOR USE WITHOUT FULL LENGTH PRESERVATIVE TREATMENT

SECTION A - QUALITY OF TIMBER

1. STRAIGHTNESS

Poles shall meet all of the following straightness requirements.

a) MULTIPLE SWEEP AND BUTT SWEEP - a straight line through the centre of the cross-sections at the top and ground line of a pole shall be within the pole throughout the full length of the pole. The size and shape of the pole below groundline shall be such that it will fit in a 635 diameter (2000mm circumference) hole with the pole in an upright position.

b) CROOKS AND KINKS - the maximum deviation for crooks and kinks shall be 5Lmm measured over any quarter length of pole above ground line. (Where l is pole length in metres). This shall be reduced to 3Lmm if there is another crook or kink or any other defect which will affect the utility or appearance of the pole in the vicinity of the crook or kink. It shall also be reduced to 3Lmm for 11m 6kN and 12.5m 6kN poles.

c) SINGLE SWEEP - the maximum deviation between the surface of the pole and a line stretched between the top of the pole and ground line shall be 10Lmm. (Where L is the pole length in metres). This shall be reduced to 7Lmm for 11m 6kN and 11mm 6kN poles.

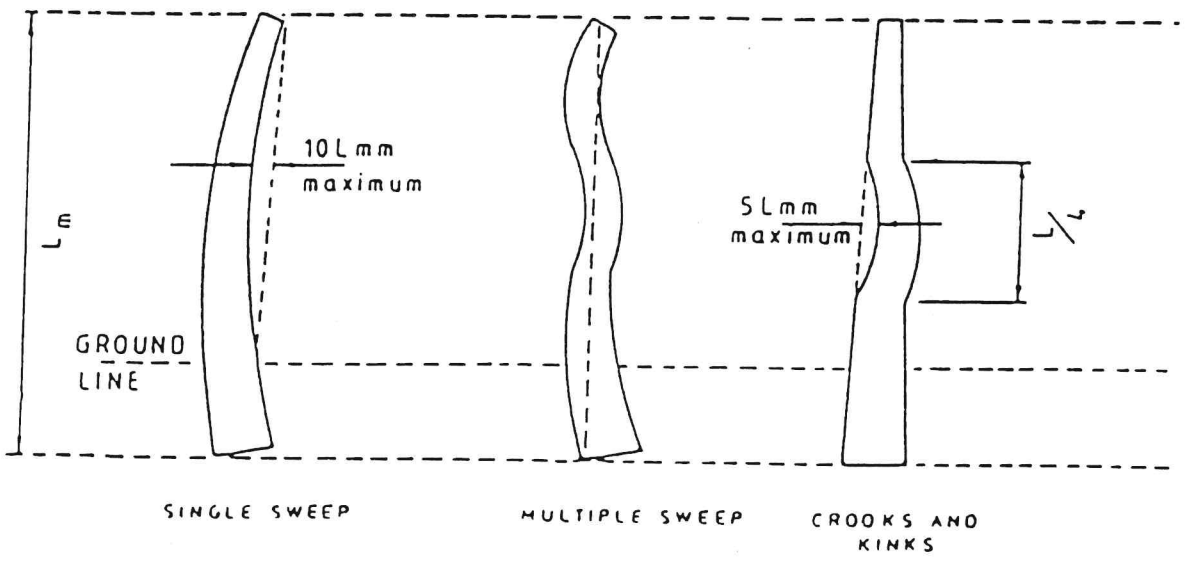


Fig 1. Determination of Straightness

2. CIRCULARITY

The maximum diameter of a pole shall not exceed:

- 125% of the minimum diameter of the same plane over 80% of the length of the pole.
- 150% of the minimum diameter of the same plane over the remaining 20%.

3. DEFINITIONS

For the purpose of this specification, the terms listed in AS 01 and the following definitions apply:

a) CRITICAL ZONE - the 1.6m length of pole measured from a point 1m above the nominal ground line to 600mm below the nominal ground line.

b) KNOT SOUND - a tight knot solid across its face, at least as hard as the surrounding wood, and free from decay. A limb shall be classified as a knot.

c) SAPWOOD - the outer layers of the wood of a tree which at the time of felling contained living cells and reserve materials, e.g. starch.

d) NOMINAL GROUNDLINE - a plane normal to the axis of the pole located a distance of 600mm plus 10 percent of the nominal length from the butt end.

e) DRY SIDE - a strip of exposed deadwood, bordered by callus and formed by injury to the living tree.

4. GRADE DESCRIPTION

a) GENERAL - the grade requirements specified in this clause apply to unseasoned poles, i.e. poles inspected within 14 days of cutting. Should inspection occur after this period, allowance shall be made for splitting, checking and other normal changes occurring during the drying of timber.

Poles shall be generally of sound wood, free from active termite attack, rot pockets and centre rot but the imperfections listed in b) and c) below are permitted.

NOTE - where there is a reference to circumference in the following subclauses it shall be taken as the pole circumference immediately above the defect or characteristic referred to.

b) ALLOWABLE IMPERFECTIONS CONFINED TO SAPWOOD - any, but not unduly detracting from the appearance of the pole and provided that decayed or decaying sapwood is trimmed off.

c) ALLOWABLE IMPERFECTIONS IN HEARTWOOD - the following imperfections are permitted provided that not more than four types of the following imperfections i) to x) occur throughout the length of the pole; also, that not more than two types of the imperfections i) to v) occur in any 600mm length of pole:

i) INSECT HOLES - radial; not clustered in a manner liable to impair the strength of the pole; and diameter of single holes not exceeding 12mm.

ii) GUM POCKETS - not within the critical zone.

iii) GRUB HOLES - not exceeding 25mm diameter, provided that holes over 12mm diameter do not exceed five in number and are spaced not less than 1m apart, and provided also that no grub hole over 12mm diameter occurs within 600mm of the ground line or within 600mm of an unsound knot.

iv) UNSOUND KNOTS - not within the critical zone; elsewhere the diameter of individual knots shall not exceed 5% of the circumference of the sapwood of the pole.

vi) PIPE - at the butt only; not associated with active decay; not exceeding 20 percent of the diameter of the heartwood of the pole and not exceeding 600mm in length.

vii) RING SHAKES AND/OR LOOSE GUM VEINS - visible on cut ends:

a) if within 25mm of the heartwood/sapwood interface of the pole - not exceeding two in number; and individual circumferential measurement not exceeding 10 percent of the circumference of the sapwood of the pole less 12m.

b) elsewhere - unlimited.

c) ringshakes shall be considered as end splits and meet the requirements of subclause (xii) in addition to the requirements to items a) and b) of this subclause.

viii) SOUND KNOTS, CLUSTERED - diameter of cluster not exceeding 20 percent of the circumference of the sapwood of the pole less 24mm.

ix) SOUND KNOTS, NOT CLUSTERED - individual diameter not exceeding 20 percent of the circumference over the sapwood of the pole less 24mm. (Knots shall be trimmed level with surface of pole prior to measurement). Within one metre of the crown the diameter shall not exceed 10 percent of the circumference over the sapwood of the pole less 12mm.

x) DRY SIDE - at the butt only; width not exceeding 30 percent of the circumference of the sapwood, top of exposed deadwood not closer than 300mm to critical zone and heartwood to be of sound wood.

xi) BARREL CHECKS - width not exceeding 5mm and not exceeding numerical rating 2 in Fig 2.

xii) END SPLITS -

a) at the top of the pole - length not exceeding 300mm and not exceeding numerical rating 2 in Fig. 3.

b) at the butt of the pole - length not exceeding 600mm and not exceeding numerical rating 4 in Fig. 3.

xiii) SPIRAL GRAIN - not exceeding 1 in 40.

5. MEASUREMENT DATA

a) KNOTS - the size of a knot shall be measured as the distance between two lines parallel to the longitudinal axis of the pole and enclosing the knot or cluster of knots.

The diameter of an encased knot shall be measured to the sound wood of the pole on either side of the knot.

b) CRITICAL ZONE - the location of the critical zones and the discs for the various pole lengths, is given in Table 1.

TABLE 1

POLE LENGTH (m)	NOMINAL GROUNDLINE DISTANCE FROM BUTT (mm)	CRITICAL ZONE DISTANCES FROM BUTT (mm)	DISC LOCATION DISTANCE FROM BUTT (mm)
9.5	1550	950 - 2550	3150
11.0	1700	1100 - 2700	3300
12.5	1850	1250 - 2850	3450
14.0	2000	1400 - 3000	3600
15.5	2150	1550 - 3150	3750
17.0	2300	1700 - 3300	3900
18.5	2450	1850 - 3450	4050
20.0	2600	2000 - 3600	4200

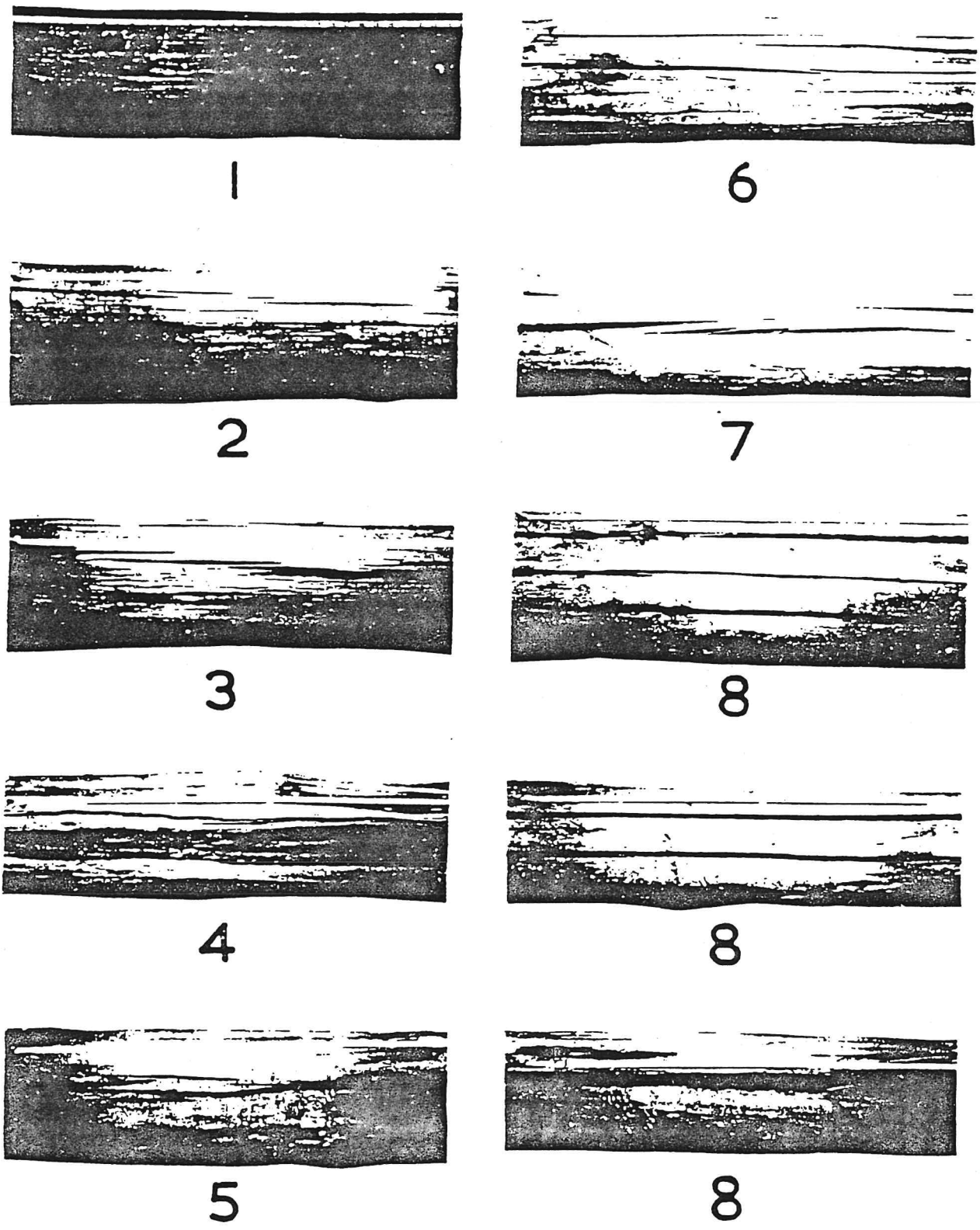
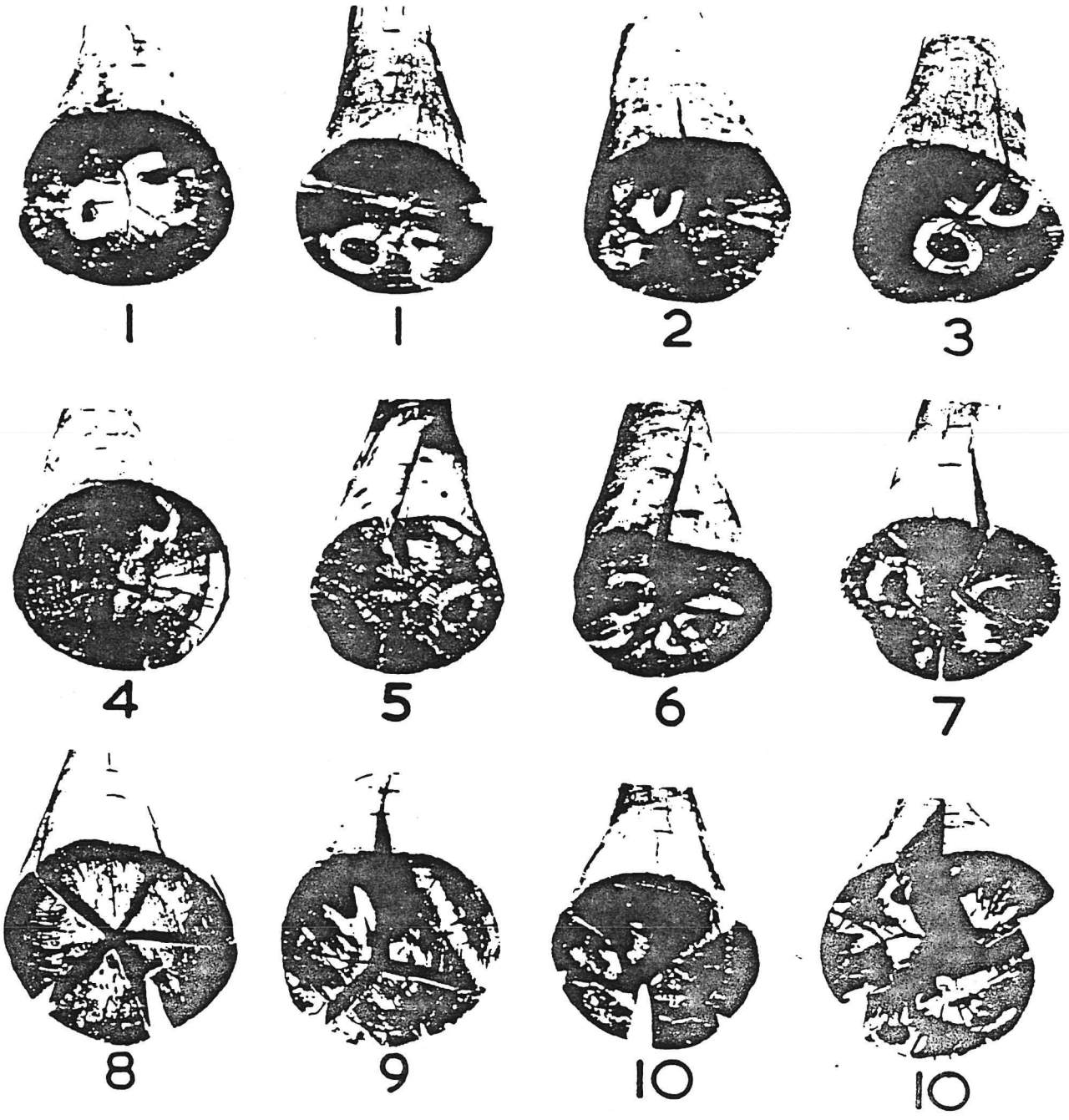


Fig. 2. NUMERICAL RATINGS FOR BARREL CHECKING



NOTE: Sections 1 m long.

Fig. 3. NUMERICAL RATING FOR END SPLITTING

SECTION B - PREPARATION

1. SURFACE

Poles shall be supplied for inspection with all bark removed. All branches, limbs and knots but not enclosed knots or bumps shall be flush trimmed prior to inspection and sealed with grease after inspection. Nothwithstanding this, the Inspector may trip suspect knots or bumps.

2. END TREATMENT

Poles shall be sawn generally square at the but and crown. The crown of the poles shall be shaped and after greasing, fitted with a galvanised steel pole cap made in accordance with SECWA Drawing L86-0333. After shaping, the crown diameter shall not be less than the minimum allowable values shown in Table 2. The supplier shall carry a wide range of pole cap diameters in increments of 25mm or less.

The butt, crown and the area within 400mm of the crown of each pole shall be liberally coated with hot petrolatum anti-split grease as soon as possible after inspection, but not later than 7 days after inspection and not before inspection.

3. BINDING

Poles shall be banded tightly, 125mm from the point of the crown and 200mm from the butt. Poles shall be banded immediately following inspection.

The binding shall consist of galvanised steel straps, applied and secured by a 'Bandit' tool and 'Bandit' fastenings respectively. (Similar products to 'Bandit' may be used provided they are approved by the Commission's authorised officer who for the purposes of this specification shall be the Supply Development Engineer). The minimum width of strap shall be:-

19mm for circumferences up to 1500mm; 32mm for circumferences over 1500mm.

Each strap shall be nailed to the pole by a minimum of three only 50mm galvanised spring head nails spaced approximately 120° apart.

4. IDENTIFICATION

The design load shall be determined by the Inspector from the dimensions and relationships shown in Table 2. Every pole classified and approved by the Inspector shall be fitted with the appropriate aluminium identification disc supplied by the Commission and struck with the Inspector's mark on the butt. The disc will indicate the pole length, the design load in kiloewtons, and the year of felling.

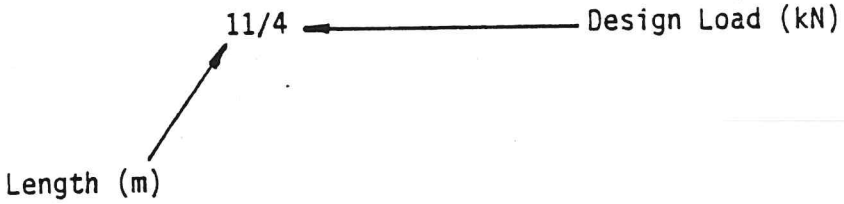
The species identification shall be read from the Inspector's mark.

Every pole rejected by the Inspector shall be struck with a reject mark on the butt and/or crown.

The centre of the discs shall be located at the distance from the butt shown in Table 1.

The discs shall be fitted into a 50mm diameter, 20mm deep hole. At 100mm and 200mm above the disc, a 50mm diameter, 20mm deep hole shall be made for use by SECWA in service. The holes shall be liberally coated with hot petrolatum anti-split grease immediately after drilling.

The specified length and strength of the pole shall be clearly painted on the butt end in the following manner:



SECTION C - REQUIRED DIMENSIONS

1. All dimensions shall be not less than the minimum shown in Table 2. The size and shape of the pole below groundline shall be such that it will fit in a 635mm diameter (2000mm circumference) hole with the pole in an upright position if the length of the pole is 14.1m long or less, and in a 915mm diameter (2875mm circumference) hole with the pole in an upright position if the pole is longer than 14.1m.

   The tolerance on pole length is nominal minus 50mm plus 100mm.

2. Although a range of strength ratings are listed in Table 2, only those strength poles indicated in separate correspondence by the State Energy Commission's Manager Distribution Engineering shall be supplied.

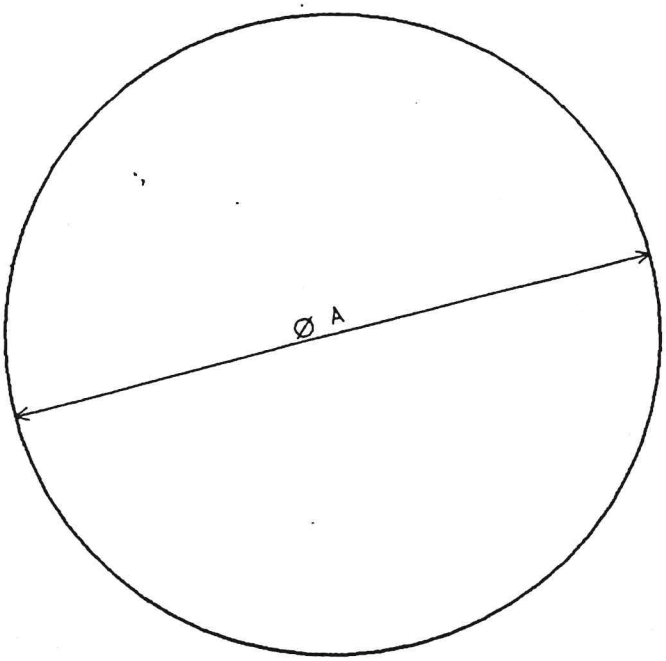
TABLE 2

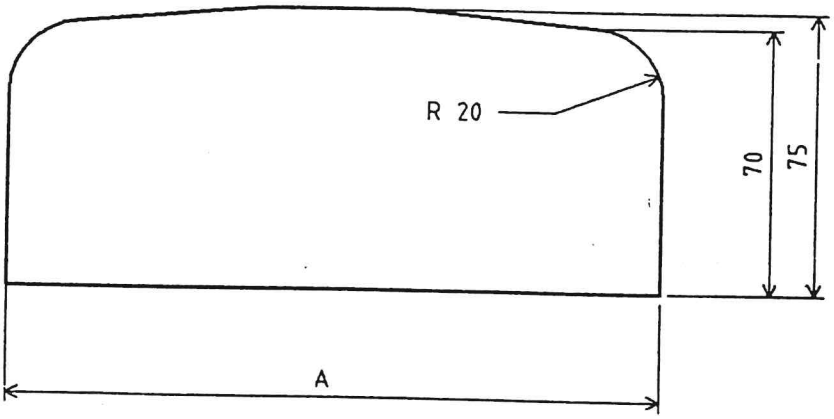
Length (m)	Strength (kN)	Min. Groundline Circumference (mm)	Min. Crown Diameter (mm)
9.5	2	780	130
9.5	3	875	150
9.5	4	950	170
9.5	5	1015	180
11.0	2	840	150
11.0	3	915	160
11.0	4	1000	170
11.0	5	1065	180
11.0	6	1125	180
12.5	4	1050	180
12.5	6	1180	190
14.0	5	1145	180
14.0	7	1270	200
15.5	5	1185	190
15.5	7	1315	210
17.0	6	1290	200
17.0	10	1510	220
18.5	10	1550	220
20.0	10	1590	230

Note: The maximum groundline circumference is 1200mm for 9.5m 5kN poles, 1350mm for 11m 6kN poles and 1450mm for 12.5m 6kN poles. Their maximum crown diameter is 0.2 times the groundline circumference for circumferences within 200mm of the maximum.

3. If a pole has an average sapwood thickness of between 20mm and 30mm then it shall be assigned a strength rating one less than the rating applicable to its groundline circumference and crown diameter.

   Poles with an average sapwood thickness of more than 30mm are unacceptable.





A=I D 150 UPWARDS IN INCREMENTS OF 25mm

MATERIAL 1mm GALVANIZED SHEET

CAPS FOR WOOD POLES

STATE ENERGY COMMISSION OF W.A.
SUPPLY DEVELOPMENT BRANCH

Scale 1·2	Drawn B P	DRG No.
	Checked	
	D.I.C.	L86 0333
Engr-in-Chge	Project Engr.	Revision

STATE ENERGY COMMISSION OF WESTERN AUSTRALIA

SPECIFICATION NO. ES/37/86

TECHNICAL SPECIFICATION

for

JARRAH, MARRI AND BLACKBUTT POLES
FOR USE AFTER FULL LENGTH PRESERVATIVE TREATMENT

SECTION A - QUALITY OF TIMBER

1. STRAIGHTNESS

Poles shall meet all of the following straightness requirements.

a) MULTIPLE SWEEP AND BUTT SWEEP - a straight line through the centre of the cross-sections at the top and ground line of a pole shall be within the pole throughout the full length of the pole. The size and shape of the pole below ground line shall be such that it will fit in a 635mm diameter (2000mm circumference) hole with the pole in an upright position.

b) CROOKS AND KINKS - the maximum deviation for crooks and kinks shall be 5L mm measured over any quarter length of pole above ground line. (Where L is pole length in metres.)

This shall be reduced to 3L mm if there is another crook or kink or any other defect which will affect the utility or appearance of the pole in the vicinity of the crook or kink. This shall also be reduced to 3L mm for 11m 6kN and 12.5m 6kN poles.

c) SINGLE SWEEP - the maximum deviation between the surface of the pole and a line stretched between the top of the pole and ground line shall be 10L mm. (Where L is the pole length in metres.) This shall be reduced to 7L mm for 11m 6kN and 12.5 mm 6kN poles.

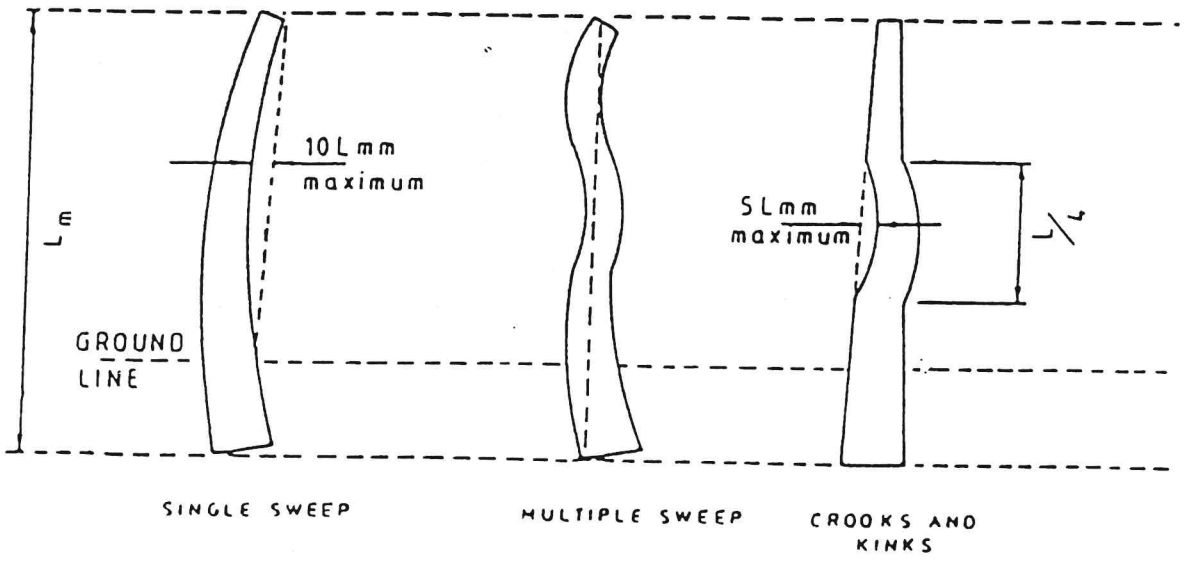


Fig 1. Determination of Straightness

2. CIRCULARITY

The maximum diameter of a pole shall not exceed:

. 125% of the minimum diameter of the same plane over 80% of the length of the pole.

. 150% of the minimum diameter of the same plane over the remaining 20%.

3. DEFINITIONS

For the purpose of this specification, the terms listed in AS 01 and the following definitions apply:

a) CRITICAL ZONE - the 1.6m length of pole measured from a point 1m above the nominal ground line to 600mm below the nominal ground line.

b) KNOT SOUND - a tight knot solid across its face, at least as hard as the surrounding wood, and free from decay. A limb shall be classified as a knot.

c) SAPWOOD - the outer layers of the wood of a tree which at the time of felling contained living cells and reserve materials, e.g. starch.

d) NOMINAL GROUND LINE - a plane normal to the axis of the pole located a distance of 600mm plus 10 percent of the nominal length from the butt end.

e) DRY SIDE - a strip of exposed deadwood, bordered by callus and formed by injury to the living tree.

4. GRADE DESCRIPTION

The grade requirements specified in this clause apply to unseasoned poles, i.e. poles inspected within 14 days of cutting. Should inspection occur after this period, allowance shall be made for splitting, checking and other normal changes occurring during the drying of timber.

The poles shall be essentially of sound wood free from active termite attack, internal rot pockets and centre rot, but the imperfections listed shall be permitted provided that not more than four types of the imperfections (a) to (k) occur in any one pole, and not more than two of the imperfections (a) to (e) occur in any 600mm length of pole:

NOTE - where there is a reference to circumference in the following subclauses it shall be taken as the pole circumference immediately above the defect or characteristic referred to.

a) Surface rot pockets - cleared for drainage; not within the critical zone of the pole; depth of pockets not exceeding the thickness of the sapwood; width of individual pockets not exceeding 5 percent of the circumference of the pole; aggregate width of pockets in any 600mm length of pole not exceeding 10 percent of the circumference of the pole.

b) Insect holes - radial; any number not clustered in a manner liable to impair the strength of the pole or the integrity of the sapwood.

c) Grub holes - not exceeding 25mm diameter, provided that holes over 12mm diameter do not exceed five in number and are spaced not less than 1m apart, and provided also that no grub hole over 12mm diameter occurs within 600mm of the nominal ground line or within 600mm of an unsound knot.

d) Gum pockets - not within the critical zone; elsewhere scattered and not exceeding 20mm deep.

e) Unsound knots - not within the critical zone; elsewhere the diameter of individual knots shall not exceed 5 percent of the circumference of the pole if cleared for drainage.

f) Mechanical damage:
   i) Axe marks -
      A. across the grain - radial depth not exceeding 5mm, but none in the critical zone;
      B. parallel with the grain - to be considered as barrel checks and meet the requirements of subclause p).
   ii) Tong and cant-hook punctures - not in the critical zone; elsewhere few and individual areas not exceeding an area equivalent to 40mm x 40mm.
   iii) Other mechanical damage -
      A. in critical zone - radial depth not exceeding 2mm, minimum thickness of remaining sapwood to be as stated in Table 1.
      B. elsewhere :-
      machine damage -radial depth not exceeding 5mm, width not exceeding 10 percent of the circumference of the pole.
      natural damage - not adversely affecting the appearance, utility or strength of the pole.

g) Pipe - at the butt end only; not associated with active decay; diameter not exceeding 20 percent of the diameter of the heartwood of the pole; and not exceeding 600mm in length.

h) Dry side:
   i) Jarrah - at the butt - not exceeding one in number; width not exceeding 20 per cent of the circumference of the pole; exposed deadwood to be further than 300mm from critical zone; heartwood to be of sound wood; and sapwood to be of sound wood and have minimum thickness of 12mm.
   above the critical zone - width not exceeding 20% of the circumference of the pole; heartwood to be sound wood; sapwood to be of sound wood and have a minimum thickness of 5mm.
   ii) Other Species: at the butt only; not exceeding one in number; width not exceeding 30 percent of the diameter of the heartwood; exposed deadwood to be further than 600mm from critical zone; heartwood to be of sound wood; and sapwood to be of sound wood and have minimum thickness stated in Table 1.

iii) All Species: above the critical zone only; not exceeding one in number; radial depth not exceeding 5mm; diameter not exceeding 20 percent of the circumference of the pole; exposed deadwood to be further than 1000mm from critical zone; and sapwood to be of sound wood.

j) Heartrot in butt - diameter not exceeding 10 per cent of the diameter of the heartwood, not exceeding 200mm in length and remainder of butt to be free of rot.

k) Rot pockets in butt - not exceeding one in number; width not exceeding 10 per cent of the diameter of the heartwood, circumferential measurement not exceeding 30 per cent of the diameter of the heartwood, not exceeding 300mm in length and remainder of butt to be free of rot.

l) Included sapwood in butt - not exceeding two in number; sapwood to be of sound wood; width not exceeding 15 per cent of the diameter of the heartwood, individual circumferential measurement not exceeding 50 per cent of the diameter of the heartwood.

m) Ring shakes and or loose gum veins -

i) All Species: if within 25mm of the surface of the pole - not exceeding two in number and individually not exceeding 10 percent of the circumference of the pole;

elsewhere - unlimited

ii) All Species: ring shakes shall be considered as end splits and meet the requirements of subclause q) in addition to the requirements of item i) of this subclause.

iii) Marri: at the butt and crown - not within 10mm of the surface of the pole.
in the critical zone - no visible gum ring or ring shake; no gum ring or ring shake indicated by the pole surface condition.

n) Sound knots, clustered - the diameter of individual knots shall not exceed 12mm.

o) Sound knots, not clustered - the diameter of individual knots shall not exceed 20 percent of the circumference of the pole. Within 1 metre of the crown the knot diameter shall not exceed 10 per cent of the circumference of the pole.

p) Barrel checks - width not exceeding 5mm and not exceeding numerical rating 2 in Fig 2.

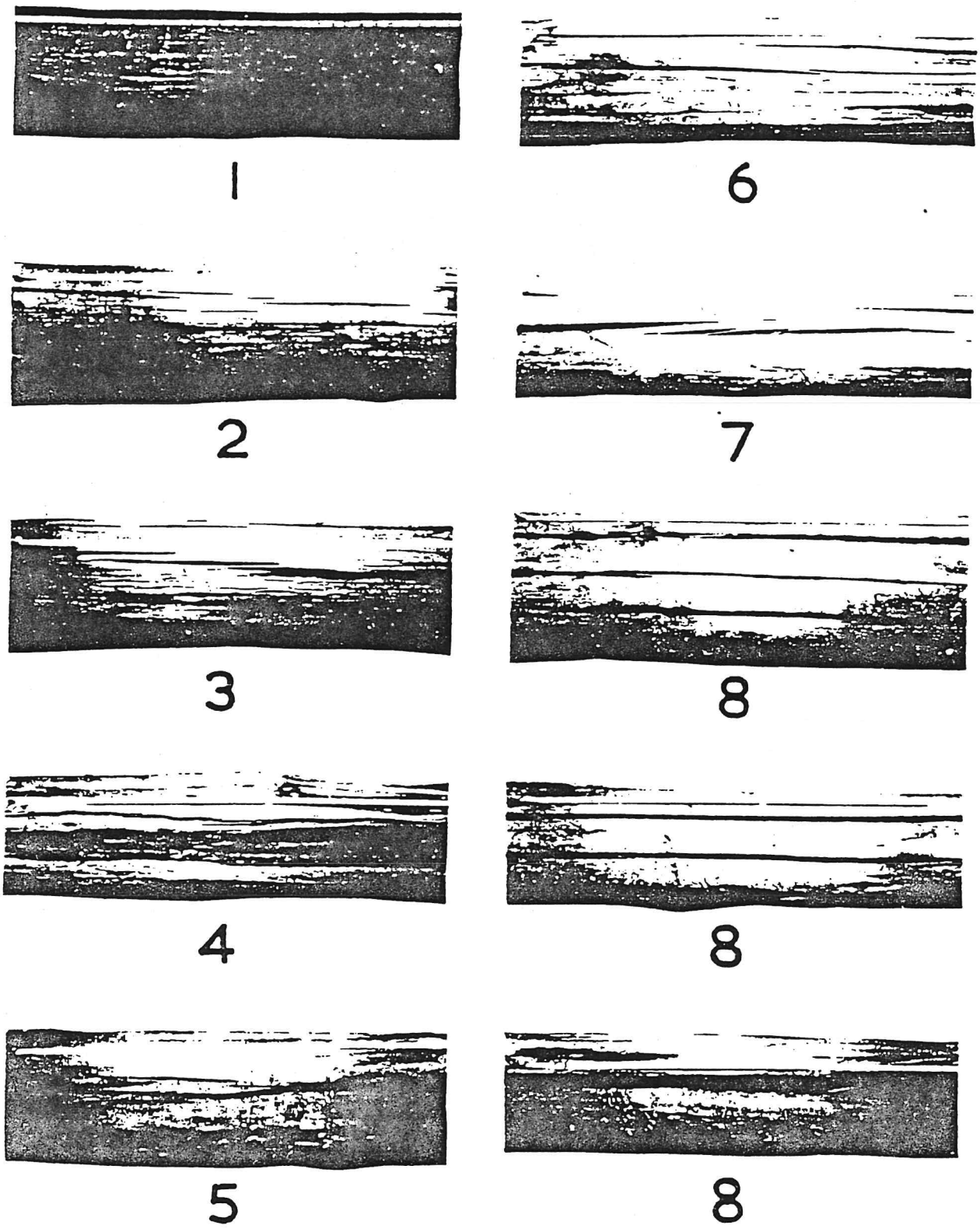
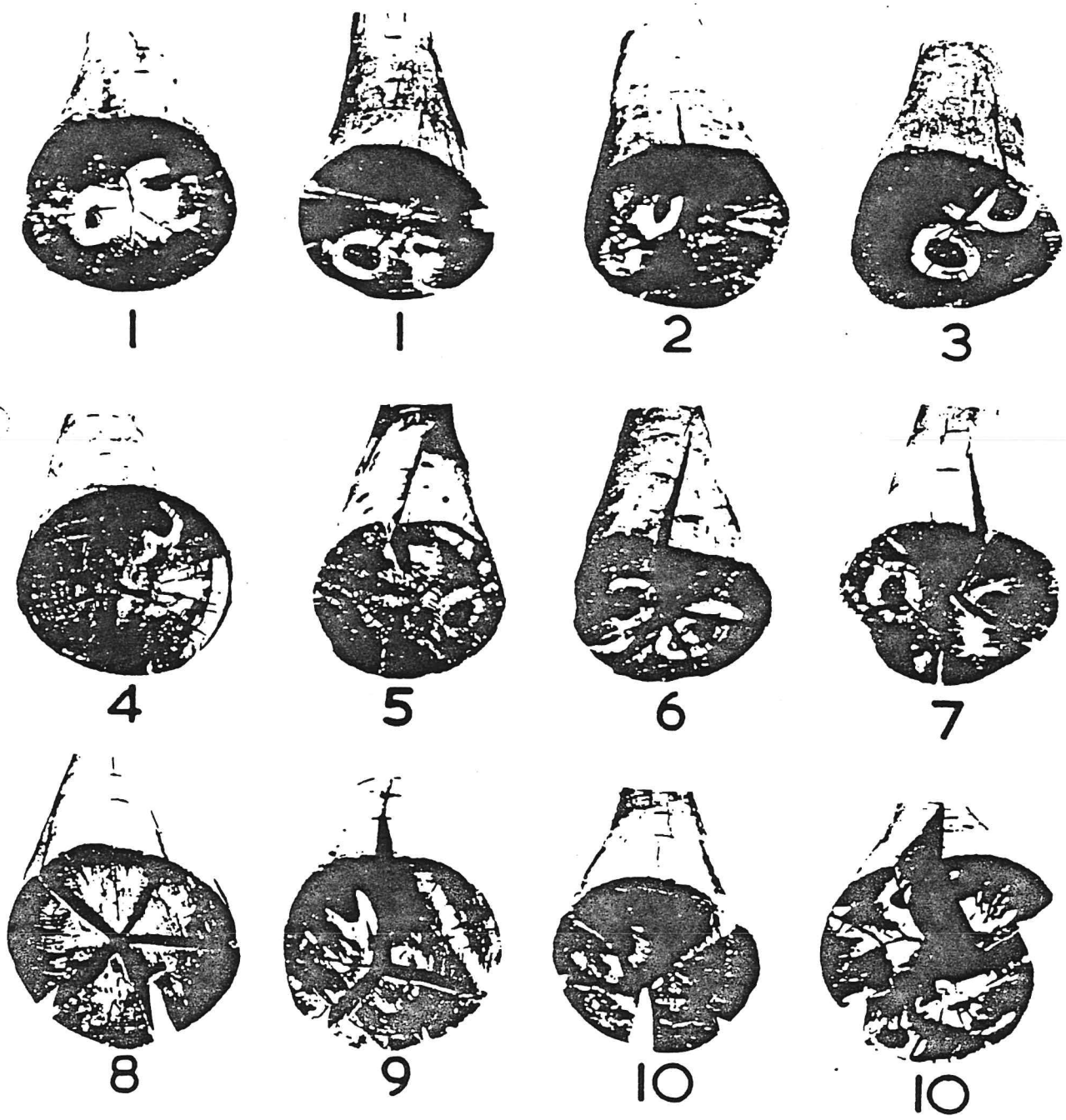


Fig. 2. NUMERICAL RATINGS FOR BARREL CHECKING



NOTE: Sections 1 m long.

Fig. 3. NUMERICAL RATING FOR END SPLITTING

q) End splits -

i) at the crown - length not exceeding 300mm and not exceeding numerical rating 1 in Fig.3 and such that they will not exceed numerical rating 2 in Fig. 3 after seasoning, treatment and drying.

ii) at the butt - length not exceeding 600mm and not exceeding numerical rating 4 in Fig. 3.

r) Spiral grain - not exceeding 1 in 40.

5. SAPWOOD

The thickness of sapwood on the unseasoned pole shall be sufficient to ensure that after seasoning the minimum thickness at any point on either end shall be not less than as specified in Table 1.

TABLE 1

MINIMUM THICKNESS OF SAPWOOD AT ANY POINT AFTER SEASONING

Timber Species	Minimum thickness of sapwood (mm)
Jarrah	12
Blackbutt	16
Marri	20

6. MEASUREMENT DATA

a) KNOTS - the size of a knot shall be measured as the distance between two lines parallel to the longitudinal axis of the pole and enclosing the knot or cluster of knots.

The diameter of an encased knot shall be measured to the sound wood of the pole on either side of the knot.

b) CRITICAL ZONE - the location of the critical zones and the discs for the various pole lengths, is given in Table 2.

TABLE 2

Pole Length (m)	Nominal Ground Line - Distance from Butt (mm)	Critical Zone - Distances from Butt (mm)	I.D. Location - Distance from Butt (mm)
9.5	1550	950-2550	3150
11.0	1700	1100-2700	3300
12.5	1850	1250-2850	3450
14.0	2000	1400-3000	3600
15.5	2150	1550-3150	3750
17.0	2300	1700-3300	3900
18.5	2450	1850-3450	4050
20.0	2600	2000-3600	4200

SECTION B - PREPARATION

1. SURFACE FINISH

Poles shall be supplied with all bark removed. All branches, limbs and knots but not enclosed knots or bumps shall be flush trimmed prior to inspection and sealed with log end seal after inspection. Notwithstanding this, the Inspector may trim suspect enclosed knots or bumps.

2. SURFACE TREATMENT

Within seven days of debarking, all marri poles shall be fully sprayed with a suitable diesoleum based anti borer spray.

3. STACKING

Within 7 days of debarking, all poles shall be stacked clear of the ground in an orderly manner.

Within 14 days of debarking, all poles shall be presented in accordance with the Commission's Inspector's requirements, for inspection.

Within 14 days of debarking, all poles shall be removed from the forest/plantation and strip stacked. The strips or stickers shall be of similar diameter, the minimum diameter being 250mm. The strips shall be horizontal and be placed vertically above each other. The strips shall be of sound wood, free of decay.

The stack foundations shall be built up to approximately 400mm above ground level. The bearers shall correspond with the strips and be adequately spaced to prevent the poles bending.

The stacks shall be constructed to permit rapid and event drying and be adequately separated.

4. END TREATMENT

Poles shall be sawn generally square at the butt and the crown.

The butt, crown and the area within 400 mm of the crown of each pole shall be liberally coated with hot petrolatum anti-split grease as soon as possible but not later than 7 days after inspection and not before inspection.

5. BINDING

Poles shall be banded tightly, 125mm from the point of the crown and 200mm from the butt. Poles shall be banded immediately following inspection.

The binding shall consist of galvanised steel straps, applied and secured by a 'Bandit' tool and 'Bandit' fastenings respectively. (Similar products to 'Bandit' may be used provided they are approved by the Commission's authorised officer who for the purposes of this specification shall be the Manager Distribution Engineering). The minimum width of strap shall be:-

19mm for circumferences up to 1500mm; 32mm for circumferences over 1500mm.

Each strap shall be nailed to the pole by a minimum of three only 50mm galvanised spring head nails spaced approximately 120° apart.

6. IDENTIFICATION

The design load shall be determined by the Inspector from the dimensions and relationships shown in Table 3.

Every pole classified and approved by the Inspector shall be struck with the Inspector's standard mark and treatment mark, on the butt and 1600 mm above nominal ground line. At 100 mm below the Inspector's mark the pole shall be very firmly stuck with the month and year of pole inspection.

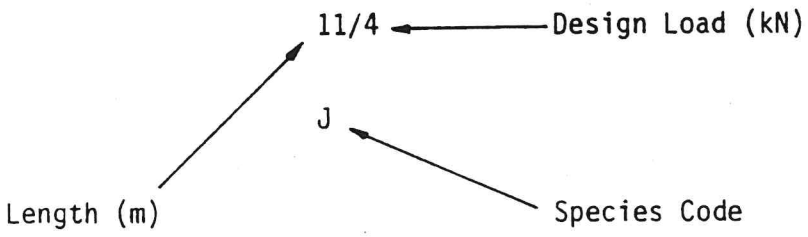
At 100 mm and 200 mm above the treatment mark a 50 mm diameter, 20 mm deep hole shall be made for use by SECWA in service. The holes shall be liberally coated with hot petrolatum anti-split grease immediately after drilling.

The discs shall be fitted into a 50mm diameter, 20mm deep hole.

The species identification shall be read from the Inspector's mark.

Every pole rejected by the inspector shall be struck with a reject mark on the butt and/or crown.

The specified length and strength of the pole and the species code shall be clearly painted on the butt end in the following manner:



The following codes shall be used for painting:

Jarrah - J
Blackbutt - BA
Marri - ME

SECTION C - REQUIRED DIMENSIONS

1. All dimensions shall be not less than the minimum shown in the table below. The size and shape of the pole below groundline shall be such that it will fit in a 635mm diameter (2000mm circumference) hole with the pole in an upright position if the length of the pole is 14.1m long or less, and in a 915mm diameter (2875mm circumference) hole with the pole in an upright position if the pole is longer than 14.1m.

   The tolerance on pole length is nominal minus 50mm plus 100mm.

2. Although a range of strength ratings are listed in Table 3 only those strength poles indicated in separate correspondence by the State Energy Commission's Manager Distribution Engineering shall be supplied.

TABLE 3

Length (m)	Strength (kN)	Min. Groundline Circumference (mm)	Min. Crown Diameter (mm)
9.5	2	630	150
9.5	3	720	150
9.5	4	800	160
9.5	5	870	175
11.0	3	760	150
11.0	4	850	160
11.0	5	930	170
11.0	6	1005	175
12.5	4	900	175
12.5	6	1060	180
14.0	5	935	170
14.0	7	1045	190
15.5	5	970	180
15.5	7	1085	200
17.0	6	1065	190
17.0	10	1265	210
18.5	10	1300	210
20.0	10	1335	220

Note: The maximum groundline circumference is 1200 mm for 9.5m, 5kN poles, 1350 mm for 11m 6kN poles, and 1450 mm for 12.5m 6 kN poles. Their maximum crown diameter is 0.2 times the groundline circumference for circumferences within 200 mm of the maximum.

SECTION 6 - LOG SPECIFICATIONS AND MEASUREMENTS

SPECIFICATION 6.7 MINING TIMBER SPECIFICATIONS AND MEASUREMENT

1. Specifications:

All timber supplied must comply with the Coal Mines Regulations Act 1946-76, Reg 70 (2)(b) and (c) which state:

(b) "Timber from which the bark has not been removed shall not be sent into the mine for any purpose.

(c) For the purpose of this regulation, timber which has a short grain shall not be suitable and on no account shall black butt be used as roof or side supports, nor shall red gum be used, except in the round for temporary props in pillar extraction.

Species

All timber supplied must be jarrah unless specific approval is obtained from the Superintendent of Underground Operations, WCL.

Size

Diameter

All timber supplied will be within the nominal crown diameter under bark sizes 100, 125, 150 or 200mm. The allowable variation on each size is as follows:-

100mm	-12mm or +25mm
125mm	-12mm or +25mm
150mm	-12mm or +50mm
200mm	-12mm or +50mm

Crown size will be specified according to length and purpose of material ordered.

N.B. Any variation in the nominal crown sizes specified will be the result of a special order from WCL.

Length

All timber supplied will be within nominal lengths commencing at 1.8m and increasing in 0.3 increments to a maximum of 5.1m. Lengths outside this range will be supplied by special order from WCL. Lengths will be supplied with ends sawn square. No under-length is accepted but up to 100m overlength will be accepted.

Quality

All timber supplied must be green, that is, recently felled, and free from any bark, rot, cracks, splits or knots as far as practicable.

All timber supplied must be reasonably straight and must not deviate by more than half the crown diameter throughout the length of the prop, leg or bar.

Double heart will be accepted in the crown end provided heart centres are not separated by more than 33% of the diameter.

Insect and mechanical damage is acceptable provided it is confined to the sapwood.

Limbs, knots and branch stubs, must be trimmed flush with the sapwood surface. They must be sound and tight and not exceed 20% of the piece circumference measured immediately above the knot.

Tight gum rings are acceptable. Included sapwood and gum pockets must not exceed 12mm in radius, or 100mm in circumference.

To allow man-handling the surface of all timber supplied must be reasonably smooth and free of splinters.

2. Measurement

Mining timbers are measured by recording:-

(i) length rounded down to the nearest 0.1m and

(ii) crown diameter under bark rounded down to the nearest cm.

1 November, 1986

SECTION 6 - LOG SPECIFICATIONS AND MEASUREMENTS

SPECIFICATION 6.8 CHIPLOG SPECIFICATIONS AND MEASUREMENT

1. Specifications:

1.1 Dimension

1.1.1 Karri

Minimum small end diameter under bark will be 150mm. The minimum length will be 2.1m.

1.1.2 Other Eucalypt Logs

Minimum small end diameter under bark will be 230mm. The minimum length will be 2.1m. In the early stages of the contract there will be a preponderance of logs with a minimum length of not less than 3.4 metres.

1.2 Defects

The following log defects are not permitted:

Charcoal in any form or quantity

Sharp kinks

Rot extending more than 50% of end face diameter

Saw cuts (test cuts) in logs greater than 900mm diameter

The following log defects are permitted within the limits shown:

Double heart

Limbs which protrude less than 75mm from the stem.

Curved logs provided the maximum deviation from straight does not exceed 150mm in any 3m length.

Saw cuts (test cuts) in any log less than 900mm in diameter.

End face shatter of 50% acceptable in logs under 900mm in diameter.

Debarked logs mean logs with 99% of the bark removed.

2. Measurement

Chip logs supplied to W.A. Chip and Pulp Company are measured by weight with subsequent conversion to true volume under bark using the appropriate weight/volume conversion factor. Conversion factors are listed in Appendix 9 of the Hardwood Logging Computer System User Manual.

1 November, 1986

SECTION 6 - LOG SPECIFICATIONS AND MEASUREMENTS

SPECIFICATION 6.9 MINOR FOREST PRODUCE SPECIFICATIONS AND MEASUREMENT

The following list of minor forest products may be sold under pre-paid local Minor Forest Produce licences, using the appropriate, up-to-date royalty:-

1. **Sheoak**
   Sheoak timber (Allocasuarina fraseriana) may be sold to authorised sheoak mills (that is, authorised by Timber Production Branch S.O.H.Q.). Sheoak timber is sold "in the square", that is, by the volume of sawn timber produced.

2. **Firewood**
   Any dry or near dry timber lying on the ground may be sold as firewood. Standing dead trees may be cut for firewood also, however local CALM staff must satisfy themselves that firewood licensees do not cut trees that may contain millable timber. Jarrah is considered the best firewood species. Firewood is sold by the tonne, and must be cut into short (less than 0.5 metre) lengths prior to removal from the forest. Members of the public may obtain small quantities of firewood for their own use without any special written authority. Only ground salvage material however may be obtained.

3. **Chopping Logs**
   Chopping logs are short lengths (about 65cm) of jarrah, karri or pine, used in the sport of log chopping. Chopping logs are sold individually.

4. **Fencing Timber**
   Fencing timbers include:
   (i) posts (either in the round or split)
   (ii) Strainers and
   (iii) Struts

All fencing timbers are measured in length (to the nearest 0.1m) and crown diameter under bark (to the nearest cm). For split posts, an average crown diameter must be estimated.

5. **Garden Paving Slabs and Rings**

These are rings, about 7.5cm thick, cut from logs about 40cm in diameter. They are sold individually.

6. **Burls**

Burls, commonly known as "Niggerheads", are dense outgrowths on the sides of trees. It is thought that they result from a tree's reaction to attack from insects or viruses. Burls may be cut from felled trees only. They are cut in slabs, about 7.5m thick, and are sold by the slab.

7. **Hollow Logs**

Hollow logs are used for landscaping and in aviaries. Only logs that may be handled manually are sold as hollow logs. They are sold individually.

8. **Blackboy Stumps**

Blackboy stumps are used in the woodcraft industry. Only dead blackboys may be used. Blackboy stumps are sold individually.

9. **Bean Sticks**

These are the long thin stems of various species of Melaleuca or Leptospermum (commonly known as "T-Tree"). The cut stems are used as plant supports in the market garden industry. Bean sticks are sold by the 100.

SECTION 7 - ADMINISTRATION

SPECIFICATION 7.1 HARDWOOD LOGGING COMPUTER SYSTEM

1. The CALM Department Hardwood Logging Computer System is an integrated data processing and recording system for financial, operational and resource information. The system aims to cover all recording and calculation requirements for all hardwood logging operations in the Department. The system, which commenced live running in April 1986, is yet to be fully developed.

2. The system, as it involves hardwood logging operations, is described in detail in the "Hardwood Logging Computer System User Manual". This manual consists of two loose leaf folders. An individually numbered copy of this manual is held and must be carefully maintained by each District involved in hardwood logging.

3. The key points of the system which must be clearly understood by all CALM staff involved in hardwood logging, and by the Industry, are as follows:-

   3.1 Each and every truck carting logs to Crown Land Mills, from State Forest or other Crown land controlled by the CALM Department or from private property, must carry a Hardwood Log Delivery Note Book.

   3.2 For each and every truck load of logs carted to Crown Land Mills a Hardwood Log Delivery Note (D/Note) must be completed, in as much detail as possible, before the truck leaves its point of loading.

   3.3 All payments to Contractors, and all invoices to Customers, are based on the original data written on the D/Notes as summarised by the computer every half month.

   3.4 D/Notes are individually numbered documents subject to audit and must be treated with care at all times.

3.5 Completed D/Notes must be delivered by Industry personnel to the relevant District office for computer input as soon as possible after delivery of the logs.

3.6 At the District Office, a nominated officer, usually the OIC of the bush operation, must ensure that all D/Notes are correctly coded prior to computer input.

3.7 Following input, an officer other than the one above must check the printout of the processed D/Notes ("Input audit report").

4. CLM 823 and CLM 821B

There are two types of D/Notes:-

i) CLM 823 - this is the D/Note for use when logs are measured individually. Attachment 7.1.1a is a copy of a CLM 823 along with a copy of the instructions found on the inside cover of each D/Note book.

ii) CLM 821B - This is the D/Note for use when logs are measured by weight. (Attachment 7.1.1b)

The instructions for field and office use of these D/Notes are detailed in Sections D2, D3, D4 and D5 of the Hardwood Logging Computer System User Manual.

At each mill details of individual D/Notes must be summarised in the mill log book. (The mill landing book is no longer in use.)

5. Computer file maintenance

The acceptance by the computer of completed D/Notes from a specific operation relies on the prior input of certain base information into the computer's files. This is known as "file maintenance" as distinct from input of D/Notes ("data entry"). File maintenance is the responsibility of either Timber Production Branch at S.O.H.Q., the relevant Regional Inventory Section, or the relevant District. Section C of the Manual details the file maintenance requirements.

6. CLM 709H

Districts must provide information on every logging operation on form CLM 709H ("Hardwood Logging Operation Prescription") (Attachment 7.1.2). This form must be completed and forwarded to the relevant Regional Inventory Section before an operation is started. The completion of this form requires a clear understanding and knowledge of the Hardwood Logging Computer System and the details of the specific operation.

Before the start of each licence year, it is advisable that District staff and Regional Inventory staff meet to jointly prepare all CLM 709H forms to cover all planned operations for the forthcoming licence year. To assist in the compilation of the CLM 709H form, the attached copy contains references to the relevant Appendices in the Hardwood Logging System Manual.

7. Recording Timber from Private Property

Timber from private property delivered to a "Crown Land Mill" (that is a mill operating under a Departmental licence or Contract of Sale) must be recorded on D/Notes. However, as private property timber is not considered part of the P.I., the source of the timber must be given a special code, as explained in Section E4 of the Hardwood Logging Computer System User Manual.

.M623

DEPT. OF CONSERVATION AND LAND MANAGEMENT

HARDWOOD LOG DELIVERY NOTE

(INDIVIDUAL LOG MEASUREMENT)

Attachment 7.1.1a
129

PECIES (✓)

K ☐ KARRI
J ☐ JARRAH
☐ MARRI
B ☐ B/BUTT
☐ OTHER (Specify)

LOG TYPES (✓)

SL ☐ G.P. SAWLOGS
SS ☐ SMALL OLD GROWTH S/L
SR ☐ LARGE REGROWTH S/L
SB ☐ SMALL REGROWTH S/L
SV ☐ SALVAGE SAWLOGS
VL ☐ PEELER LOGS
BP ☐ PILES
PS ☐ SEC POLES
☐ OTHER (Specify)

.....

Date / /

LICENCE No.

Delivered by C.A.L.M. Contractor Y ☐ or N ☐

CODE
QTE ☐
PRS ☐
FOR ☐
FIS ☐

To BUNNINGS

Customer Name

.....

Delivery Address

.....

CONTRACTOR NAME

CONT

TRUCK No.

WORKCODE

.....

Carter's Signature

BLOCK NAME & COUPE No. .....

'P BLOCK NAME & LOCN. No.)

DIS BLOCK COMP COUPE

LOG No	LENGTH	MID DIA	VOLUME	BRAND	LOG No	LENGTH	MID.DIA.	VOLUME	BRAND

SUB TOTAL VOL M³ SUB TOTAL VOL M³

TOTAL No. OF LOGS ..... TOTAL LOG VOLUME..... M³ ☐ BUSH LANDING ☐ ON ROAD ☐ AT MILL

Mill Rep. Signature..... Forest Officers' Signatures .....

COMPUTER CODING CHECKED & O.K. ☐ ....(Signature)

WHITE ORIGINAL TO C.A.L.M. PINK DUPLICATE TO CUSTOMER GREEN TRIPLICATE TO CARTAGE CONTRACTOR YELLOW QUADRUPLICATE – BOOK COPY

DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT

HARDWOOD LOG DELIVERY NOTE
(INDIVIDUAL LOG MEASUREMENT)

INFORMATION TO BE COMPLETED BEFORE TRUCK LEAVES BUSH LANDING

1. Species
2. Log Type
3. Date
4. Conservation & Land Management Contractor or not (tick)
5. Customer, Name
6. Delivery Address
7. Contractor Name and Truck Number
8. Carter's Signature
9. Coupe Name and Number
10. Total Number of Logs on Trip

TO BE COMPLETED AT THE MILL (IF NOT ALREADY DONE).

1. Log Details (N.B. Bridge timber and S.E.C. pole details differ slightly from the headings on the D/note).
   - — number
   - — measurement
   - — sub totals
   - — total
2. Customer representative's signature — N.B. Any change to the number of logs listed must be by mutual agreement of carter and customer representative and initialled.

Enquiries to:

Northern Forest Region D/F Holland Dwellingup	(095) 38 1078
Central Forest Region D/F Vince Bunbury	(097) 25 4300
Southern Forest Region D/F Kitson Pemberton	(097) 76 1207

Distribution:
White Copy — To C.A.L.M. DISTRICT OFFICE
(payment will be made ONLY on this copy)
Pink Copy — To CUSTOMER
Green Copy — To CARTAGE CONTRACTOR
Yellow Copy —To REMAIN IN BOOK

CP21562/12/85 — 1000 bks

CLM 821B

DEPT. OF CONSERVATION AND LAND MANAGEMENT

HARDWOOD LOG DELIVERY NOTE

(WEIGHT MEASUREMENT)

LICENCE No. _____

To..... **BUNNINGS**
Customer Name

..... **DEANMILL**
Delivery Address

Gross Line

Tare Line

Bridge	Time	Date	Weight (Tonnes)
			Gross
			Tare
			Net

Fallers Brand

SPECIES (✓)

- K ☐ KARRI
- J ☐ JARRAH
- M ☐ MARRI
- B ☐ B/BUTT
- ☐ OTHER (Specify)

.....

LOG TYPES (✓)

- SL ☐ G.P. SAWLOGS
- SS ☐ SMALL OLD GROWTH S/L
- SR ☐ LARGE REGROWTH S/L
- SB ☐ SMALL REGROWTH S/L
- SV ☐ SALVAGE SAWLOGS
- VL ☐ PEELER LOGS
- ☐ OTHER (Specify)

.....

Delivered by C.A.L.M. Contractor Y ☐ or N ☐

CONTRACTOR NAME ORDER No. (if necessary)	BUNNINGS ☐☐☐
TRUCK No. (Identification)	**WORK CODE** ☐☐☐
HAUL DISTANCE (km)	
FALLER'S BRAND	
Carter's Signature (Driver's)	

TOTAL No. OF LOGS.....

BLOCK NAME & COUPE No......
(PP BLOCK NAME & LOCN. No.)

☐ DIS ☐☐ BLOCK ☐☐ COMP ☐☐ COUPE

FOREST OFFICERS CHECKS. ☐ BUSH LANDING ☐ ON ROAD ☐ AT MILL

Forest Officer's Signature.....

COMPUTER CODING CHECKED & O.K. ☐ .....(Signature)

CP 21442/1/86.150BKS

WHITE ORIGINAL TO CALM — PINK DUPLICATE TO CUSTOMER — GREEN TRIPLICATE TO CARTAGE CONTRACTOR

/31

DEPT. OF CONSERVATION AND LAND MANAGEMENT

CLM 709 H1

HARDWOOD LOGGING OPERATION PRESCRIPTION

OPERATION CODE: ☐ ☐☐☐ ☐☐☐ ☐☐☐

1.0 LOCATION:

DISTRICT: Appendix 4

BLOCK: Appendix 13

CMPT:

COUPE:

PLAN AREA: Appendix 17 ☐☐

ROYALTY AREA: ☐☐ Appendix 18

☐☐

☐☐

☐☐

DRA (Y/N): ☐

% CUT OVER: ☐☐☐

2.0 OPERATION:

SPECIES		PRESCRIPTION		AREA (HA)	PRODUCT YIELD DATA									
					SAWLOG		CHIPLOG		SALVAGE					
Appendix 1	CODE	Appendix 10	CODE		EST.	ACT.	EST.	ACT.	EST.	ACT.	EST.	ACT.	EST.	ACT.

SOURCE OF YIELD ESTIMATE:

3.0 APPROVED PERIOD: (As per License or Contract of Sale)

FROM: ☐☐ DAY ☐☐ MONTH ☐☐ YEAR

TO: ☐☐ DAY ☐☐ MONTH ☐☐ YEAR

Attachment 1.1.2

HARDWOOD LOGGING OPERATION PRESCRIPTION

CLM 709 H2

4.0 CUSTOMERS:

PRODUCT	CODE	MILL	CODE	MILL DISTANCE (km)	LICENCE TYPE & NUMBER
Appendix 2		Appendix 6			

5.0 CONTRACTORS:

PRODUCT	CODE	CONTRACTOR	CODE	WORK CODE	COMMENTS
		Appendix 12		Appendix 15	

6.0 GENERAL COMMENTS:

7.0 AUTHORISATION:

COMPILED BY:.....

OP. APPROVED BY:.....

CONTRACTOR APPROVED BY:.....

SECTION 7 - ADMINISTRATION

SPECIFICATION 7.2 LOGGING CONTRACTS

1. There are two types of logging contracts initiated by CALM:
   (i) Contracts to supply, and
   (ii) Contracts of sale.

1.1 Contract to Supply

This is where a logging company is contracted to supply, to CALM, one or more types of forest produce from State Forest, as planned and directed by CALM. In this case "supply" may involve one or more of the following:-

(i) "production" of the produce (i.e. falling, extracting, and preparation and sorting).
(ii) loading and
(iii) hauling.

Contractors may be engaged by CALM by:

(i) the acceptance of a tender after advertisement of a Contract to Supply, or
(ii) by the acceptance of a quote requested by CALM for a specific task.

A Contract to Supply may also involve measurement of logs before they leave the bush.

When logging in D.R.A. under a Contract to Supply the current policy is to restrict the haulage component for all products from that operation to the in-bush contractor to minimise the risks of introduction and spread of dieback. In some cases, provided dieback hygiene is not compromised, a different company may be engaged to carry out the haulage component of a logging operation in D.R.A.

Contracts to supply are numbered according to:-

(i) The year the contract was signed,

(ii) The species of timber involved, and

(iii) The number of the contract in that particular year. For example, Contract 86/J3 was commenced in 1986, it involves jarrah, and it was the third contract signed in 1986. If more than one species is involved, the letter H, indicating hardwood, is used.

1.2 Contract of Sale

This is where a customer contracts to buy a specified quantity of forest produce from CALM. Produce sold under Contracts of Sale is supplied by a CALM contractor under a Contract to Supply. Contracts of Sale are entered into:

(i) after an agreement is reached between a customer and CALM or

(ii) after a specified quantity of produce is sold by auction or tender. Contracts of Sale are identified by a three digit number. In all Contracts of Sale the Department aims to recoup at least the following:-

i) the cost of production and delivery (as per the Contract to Supply)

ii) a sum of money to cover administration of the Contract to supply and the Contract of Sale.

iii) the Royalty for the produce

iv) a sum of money for roading,

v) a sum of money for "in-forest-costs" (for example, the costs of tree marking), and

vi) the cost of timber inspection by CALM Timber Inspectors (if applicable).

The total of the above costs is sometimes referred to as the "upset" or "reserve" price.

SECTION 7 - ADMINISTRATION

SPECIFICATION 7.3 MILL LANDING INSPECTIONS

1. Log landings at all Crown Land Mills within a CALM administrative District must be inspected by a District Forest Officer. The inspections should be carried out at least twice per month, but not on the same days each month.

2. At each inspection, the Forest Officer must check the measurements on about six logs on the landing. The measurements taken must be checked against the measurements previously recorded by the mill on the appropriate D/Note. The Forest Officer must initial and date the D/Note entries checked.

3. The party responsible for measuring individual logs (either the customer or the logging contractor) must record the following information on the end of each log measured.
   (i) D/Note number
   (ii) Log Number (for that D/Note)
   (iii) Length
   (iv) Diameter

4. Any discrepancies, or departure from the correct procedure, with regard to numbering and measuring logs and the recording of measurements on the D/Notes, must be reported promptly to S.O.H.Q. via the District Manager and the Regional Office.

5. To check log measurements a Forest Officer must have a clear understanding of the method of measuring hardwood logs, as described in the CALM booklet: "Cubic Contents of Hardwood Logs", 1985.

6. Specification 7.7 lists all Crown Land sawmills in the Northern and Central Forest Regions with the CALM District responsible for landing inspections.

1 November, 1986

SPECIFICATION 7.4 REGISTRATION OF TIMBER WORKERS AND BRANDS

1. All persons regularly engaged in the cutting and removal of timber from State Forest or timber reserves must be registered, as required in Section 128(1)(d)(v) of the CALM Act. "All persons" includes the manager of any mill obtaining log supplies under a licence granted by the Department, but does not include persons employed at that mill. Persons who only occasionally cut and remove timber from the forest, for example once-off or occasional minor forest produce operators, are not required to be registered.

2. To be registered, a timber worker must complete an Application For Registration as a Timber Worker (Form CLM 14, Attachment 7.4.1). This application must be recommended by a Local Forest Officer then forwarded to S.O.H.Q. After endorsement by S.O.H.Q., a local Forest Officer may then issue that person with a Timber Workers Certificate (CLM 430) in return for the appropriate fee. A Timber Workers Certificate must be renewed annually.

3. **Fallers Brands**

   Every person engaged in felling of timber (except minor forest produce operators) must have a registered brand. A brand, used to brand stumps of trees felled, and all logs produced, must be applied for in the same way as a Timber Workers Registration Certificate.

   Before recommending an application for registration of a brand, a Forest Officer should satisfy himself that the faller is sufficiently proficient to be a registered faller. This may involve the observation of the applicant as he works under the guidance of an experienced faller, or the performance of the applicant in a short test. A forest officer should not recommed issue of a brand until he is satisfied that the applicant is competent.

4. Timber from Private Property

All sawlogs, and bridge and jetty timbers, cut on private property, must be distinctly branded with the registered brand of the owner of the private property, before such timber leaves that property. To obtain a brand a private property owner must complete an Application for Registration of Private Property Brand (Form CLM 83, Attachment 7.4.2). This form must be fowarded to S.O.H.Q. with the appropriate fees. Once a brand is issued, the holder may use that brand on all timber cut on any property he lawfully owns.

In cases where timber is "resumed" from private property, for example by the Main Roads Department, then the private property owner is not required to hold a brand. In these cases, a written authority will be issued by the Government Department concerned to the contractor removing the timber.

Form ~~F.D.~~ 14
CLM 139

FORESTS DEPARTMENT

APPLICATION FOR REGISTRATION AS A TIMBER WORKER

I,	Christian Names in Full	Surname
	.....	.....

(Print names in block letters.)

of ..... (Postal Address) hereby apply for registration as a timber worker, under the provisions of the Forests Act, 1918-1976, and Regulations thereunder, to be employed by ..... as a ..... (State whether Faller, Hewer, Carter, etc.) on ..... (Sawmilling, Hewing, etc.) Permit No. ..... in the ..... District.

(a) I have not previously been registered as a timber worker in this State; or

(b) I was previously registered as a ..... during the years .... but I am unable to produce my previous registration certificate.

(c) I apply for registration of brand [ ]

(d) I desire to purchase a branding hammer.

NOTE.—Either (a) or (b) must be struck out and (c) and (d) should also be struck out if they do not apply.

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

Recommendation by Forester.

Fees Collected

Receipt No. .....

Date .....

	$	c
Application for Registration		
Application for Duplicate Certificate		
Registration of Brand		
Branding Hammer		
Total		

..... Forester.

NOTE.—This application, together with the necessary fees, must be forwarded to the District Forester.

FOR OFFICIAL USE ONLY.

Certificate No. ..... issued ..... 19 .....

..... Officer's Initials.

106472/12/78—2M—R74

Attachment 7.4.2
CLM 83

DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT

Executive Director
50 Hayman Road
COMO WA 6152

Pursuant to the provisions of the Conservation and Land Management Act,

I ..... Please print name clearly

of ..... Please print address

..... clearly

* (1) the registered proprietor of the following locations

or

* (2) claim ownership of the following locations by virtue of

.....

.....

Name of Land District	Location Nos.	Title or Lease Nos.

and being the lawful owner of the timber growing or standing thereon, hereby apply to be registered as the holder of a brand to be supplied by the Department of Conservation and Land Management.

And I hereby undertake that the said brand shall be used for the purpose of marking the timber obtained from the said land (or any other private property in connection with which it shall be competent for me to use this brand in accordance with the Conservation and Land Management Act, 1984 and the regulations thereunder), and for no other purpose whatsoever and I hereby agree that any Forest Officers authorised by you may, for the purpose of ascertaining the quantity and description of timber removed therefrom, enter upon such private property.

DATED at ..... this ..... day of 19

(signature of applicant) .....

This application should be forwarded to the Executive Director, Como together with fees as prescribed in the Forest Regulations "Scale of Fees" plus the price of hammer and postage.

* Strike out (1) or (2). If an applicant is not the registered proprietor of the land in respect of which he makes application, it will be necessary for him to state specifically how he claims ownership, e.g. under contract of sale, etc.

SPECIFICATION 7.5 SEIZURE OF FOREST PRODUCE AND TAKING WRITTEN STATEMENTS

1. A Forest Officer may seize any forest produce which he believes has been illegally obtained. The procedures for carrying out seizure of produce, and the taking of written statements, must be understood and carefully followed.

2. **Seizure of Forest Produce**

2.1 Forest produce upon which any royalty dues or charges are payable may be seized in the forest, on a landing, on a truck, at a mill, or at some other place.

2.2 Forest produce suspected to be the property of the Crown, on private property may only be seized under warrant. The Forest Officer may complain to a Justice of the Peace, who can in turn issue a warrant to the police to search for the produce in question.

2.3 Forest produce seized must be clearly stamped or marked with:-

(i) a brand arrow punch,

(ii) the word "seized", the officers made, and the date, in timber crayon, and

(iii) a "Notice of Seizure" label, completed with a permanent marking pen.

If the above equipment is not immediately available, seized produce may be marked with any available marking material. Where forest produce in a whole or part stack is seized the stack should be clearly identified eg. with yellow tape and a section of the seized produce stamped or marked as above.

2.4 A full report on the seizure must be forwarded without delay to S.O.H.Q. via the Regional Office. Accompanying the report should be original copies of statements taken, and a completed form CLM 259 (Attachment 7.5.1). Included in the report should be a recommendation as to the method of disposal of the seized produce.

2.5 Persons from whom forest produce has been seized for non-payment of royalty dues or charges must be given at least 10 days in which to pay such royalty dues or charges.

3. Procedure for taking Written Statements

3.1 All statements from persons likely to be charged should be taken in duplicate, and in triplicate if the offender wants a copy.
The statement must be in the actual words of the offender. Each copy must be signed in ink by the offender, and any corroborating witnesses, the original copy to be held by the officer taking the statement for court evidence, if required.

3.2 Persons present as a corroborating witness should be present the whole of the time the statement is being taken.

3.3 When taking a statement, the obligation resting upon the Forest Officer is to put all questions fairly and to refrain from anything in the nature of a threat, or any attempt to extort a statement ie. no threats, violence, bribes or promises are to be used to obtain a statement.

3.4 Points to be included in the statement are:

(i) Exact Location (6 Fig. ref.) and time of apprehension.

(ii) Registration, make, type and colour of vehicle.

(iii) Name and address of offender.

(iv) What section, or sections of CALM Act, Wildlife Conservation Act, Bush Fires Act infringed.

(v) Did offender know that he had infringed any of the above acts? Was there any evidence to tell offender that he had illegally entered Quarantine area - ie. were there any 'No Entry' signs on the roads upon which he travelled?

(vi) Particulars of how and why infrigement occurred.

(vii) Names and addresses of all persons present (including Forest Officers).

3.5 The written statement should commence as follows:-
"I have been warned by (Officer's name and rank) that I am not obliged to make a statement (or say anything) unless I wish to do so, and whatever I do say will be taken down in writing and may be given in evidence."

The statement should end as follows: (in the offenders own handwriting if possible).

"I have read this statement through, and it is true and correct in detail and given at my own free will without any threat, promise or inducement, and I do not desire to make any corrections."

3.6 The person making the statement should read it aloud prior to signing the statement.

3.7 Mistakes should be crossed out, and should be initialled by the person making the statement.

Attachment 7.5.2 is a proforma for use when taking a statement.

1 November, 1986

Attachment 7.5.1
Form CLM 259

REPORT CONCERNING ILLEGAL CUTTING OR REMOVAL OF TIMBER OR OTHER FOREST PRODUCE

Full names and addresses of Offenders _____

_____

Nature of Offence _____

_____

_____

Date and Time of detection _____

By whom Reported or Detected _____

Names and addresses of any) other persons present) _____

_____

Locality (Attach plan or sketch) _____

Period of Operations _____

What indications are there of operations _____

Vehicle used _____ Registered No._____ Owner _____

If employee, employed by whom _____

Quantity of timber or forest produce removed _____

To whom supplied _____

Is it saleable_____ Value _____ Likely buyers _____

Purpose for which obtained _____

Was trespass deliberate or accidental _____
(State reasons for opinion)

_____

Was area fenced or blazed (give particulars) _____

Could direction of removal be seen by tracks etc. (Give particulars) _____

_____

Has offender been previously reported or warned _____

Is offender a registered timber worker _____

Further particulars _____

_____

_____

Recommendation: _____

Statements obtained and attached hereto: _____

Did offenders refuse to give written statements _____

Place _____

Date _____

_____
Forest Officer

Attachment 7.5.2

Statement by persons apprehended by a Forest Officer.

Please be advised that I .....
Address:
.....
.....
Occupation:
was apprehend by .....
on ..... day of ..... 19....
at ..... time .....
and was requested to make a statement.
I have been advised that I do not have to make a statement, but should I do, then anything I say will be taken down in writing and may be used as evidence.

I wish to make a statement signed:

I have read this statement through and it is true and correct in detail and given at my own free will, without any threat, promise or inducement, and I do not desire to make any corrections.

Signed .....

Witnessed by ..... In the company of .....

SECTION 7 - ADMINISTRATION

SPECIFICATION 7.6 RESPONSIBILITIES OF THE FOREST OFFICER

1. A Forest Officer is an officer of the Department of Conservation and Land Management, designated as such by the Executive Director. A Forest Officer, upon designation, will be issued with a Certificate of Authority, signed by the Executive Director. This certificate gives the Forest Officer all the responsibilities invested in a Forest Officer as specified in the CALM Act. The CALM Act also requires that the area of the State in which the Forest Officer is authorised to operate be listed in the Certificate.

2. To be designated as Forest Officer, it is likley that a graduate of the CALM Department's cadet training school will be required to complete about two years of on-the-job training.

3. To carry out the responsibilities of a Forest Officer in dealing with the hardwood logging industry, a Forest Officer must not only possess adequate knowledge and bush skills, he must possess sound people-management skills. The attached notes, written by R.J. Underwood in 1979, are relevant to this subject. (Attachment 7.6.1).

1 November, 1986

Attachment 7.6.1

DEALING WITH THE INDUSTRY
THE APPLICATION OF MANAGEMENT PRINCIPLES
TO CONTROL HARDWOOD LOGGING OPERATIONS IN THE FIELD

1. INTRODUCTION

As a Forest Officer in charge of a logging operation in the hardwood bush, you are responsible for the direction and control of the timber industry in the forest, the prevention of waste and the protection of the forest from damage and disease.

This is a complex and difficult job. It requires firstly that you have a very clear knowledge and understanding of Departmental standards and requirements and secondly, considerable management skills in achieving these requirements through other people.

In this context.

1.1 "Departmental Requirements" means maximum utilisation of the log resource of each hectare cut, but with minimum damage or disturbance to the forest, the soil and other values such as water, fauna, landscape and scenery; and

1.2 "Other People" refers to the Bush Bosses, Fallers, and drivers of Skidders, Loaders, Trucks, etc. who are employed by the timber companies to extract maximum log value at minimum cost from the forest.

Thus, there is always a conflict of interests in any logging operation. Your job is to ensure that this conflict is resolved in the best interests of the forest and the Department.

To do this, you must be an efficient manager, i.e. one who can apply these basic management principles:-

(1) Ensure everyone involved has a clear understanding of what is required of him i.e. Train Industry personnel in correct standards and procedures.

(2) Employ a control system to check whether required results are being achieved i.e. make regular inspections to prepared checklists.

(3) Take remedial action when unsatisfactory activities are discovered i.e. those not following your instructions must be identified and retrained or disciplined as required.

2. INDUSTRY TRAINING

No-one can be expected to "do the right thing" if he has not first been thoroughly trained as to what is expected of him. Effective training is basic to all good management.

An effective training programme has five parts to it: (i) Decide what needs to be known and who needs to know it; (ii) Draw up a training format; (iii) carry out the training; (iv) test to see that it has had the right effect, and (v) retrain where necessary.

Industry training must be carried out at three levels: by Region, by District and by Logging Operation. It is the responsibility of the Regional Leader (Industry Control) to co-ordinate these levels and to lay down required standards and specifications.

The Forest Officer in Charge (FORC) is responsible for the training of the Industry personnel in the operation he controls.

Here, you should start by drawing up and maintaining a chart which lists the personnel on your permit, what they need to know and records training.

For Example:

	Personnel				
	Bush Boss	Fallers	Skidder Drivers	Swampers	Grader Driver
Log Specifications Erosion Control Dieback hygiene Soil Disturbance Gravel Pit Working etc.	(Indicate Training Equipment & Progress)				

These charts can be filed in your operations folder where they can be constantly referred to and updated, and demonstrated to your senior officer when he visits the logging operation.

Training Methods can vary from a session in the office with slides to a chat around a stump with issue of notes or specifications. In all cases you must plan and organise these sessions in conjunction with the Bush Boss. His co-operation will improve the chances of success.

By constant emphasis on Departmental standards and insisting that they are met, you will enhance your overall control, personnel management expertise, and ensure that each operator really knows what is expected of him.

3. LOGGING OPERATION INSPECTIONS

A great deal of time can be wasted on inefficient logging operation inspection. To avoid this, you should always work to a checklist.

This ensures no aspects are overlooked and also forms a record you can refer back to, or discuss with a senior officer.

It is also very useful to give a copy of your completed checklist (or simlar document with an enlarged H.O.C.S. sheet if necessary) to the Bush Boss if there are problems he must attend to, or if you wish to record his excellent performance. This eliminates misunderstandings and claims that "no-one told me so".

When inspections reveal serious errors or malpractice by the industry, you must decide:-

(i) Was it due to ignorance on the part of the operator or his supervisor? If so, training needs are revealed and must be immediately and thoroughly attended to.

(ii) Was it a deliberate or repetitive act despite warnings and training. In such cases tough action (eg. letter to his employer from your OIC) is required, and essential. There have been cases when a Bush Boss deliberately sets up a young officer to see how much he can get away with. If you overlook a misdemeanour once, it becomes doubly hard to deal with next time.

All Forest Officers can be assured of strong backing from their senior officers in dealing wich such cases.

4. GIVING INSTRUCTIONS PROPERLY

Experience over many years has shown that most management problems on permit (and elsewhere) can be avoided if the process known as "Giving instructions properly" is followed. This means ensuring that you follow three essential steps each time you arrange for a job to be done.

1. Specify the Task
   Clearly state your exact requirements. This is best done by issuing a written prescription or specification.

2. Reach Understanding about the Desired Result
   Make sure the person you are dealing with really understands what you require of him. This is best done by asking questions or seeking his interpretation of the how and why and when of the job.

3. Set and Make Checkpoints

When the task is assigned or the instruction given, arrange an inspection at a set date and time.

Then you can check standards or progress and attend to unforseen problems or changed circumstances if these occur.

I regard these three steps in "giving instructions properly" as the Golden Rules of personnel management. They should be applied throughout your work in the field, and then, as in dealing with the Industry, you will find many errors are avoided and valuable time saved.

5. SOME FURTHER POINTS

5.1 Goal and Target Setting

Superior management nearly always results when people have clear goals and targets to work to. Each officer controlling a logging operation should set himself a number of personal goals which he can positively strive to achieve. For example: -

(i) Set yourself production targets for completion of various tasks. These can be incorporated into the weekly programmes you draw up in conjunction with your D/F.

(ii) Set yourself a goal that no instances of poor utilisation will be discovered by a senior officer inspection.

(iii) Set yourself the goal of gaining a reputation as the most efficient logging operation manager in the District. Develop a self-image that "you are the greatest" when it comes to supervising and controlling the Industry.

If high standards are set and achieved, morale and job satisfaction soars.

5.2 Act Consistently

If you know the rules and always insist that they are followed, you will become known as that ideal manager who is "hard but fair", someone with whom "you know where you stand". An inconsistent boss who lets some things go one time, but who rants and punishes the next, will never succeed as a manager.

In the same vein, learn to resist persistent pressure over certain issues. Certain sections of the industry have a long record of arguing and aruging over a particular ruling until the poor forester finally gives in to get a little peace. Recognise this tactic when it is used and handle it by being as tough and persistent in defence as they are in attack.

5.3 If in doubt, don't Commit Yourself

Problems will sometimes arise to whcih you don't have the answers. These most frequently involve interactions with other logging operations or the Regional Logging plan. When this occurs, say "wait" and seek a ruling from a senior officer. It is always better that you do this, than try to bluff your way through a seeming little local issue which might have repercussions across the region.

5.4 Prevention is Better than Cure

The good manager schools himself to look ahead, anticipate problems nad then nip them in the bud, rather than wait until a crisis occurs.

This is particularly relevant to demarcation of coupe boundaries and problems of soil damage on steep slopes.

5.5 Be Adaptable

The theme of much modern management training is "the challenge of Change". We live in dynamic times, with new problems and new ways of handling them cropping up almost daily. This is particularly true in hardwood logging. The key to this situation is firstly, prepare yourself for, and expect changes to occur. Secondly be flexible enough to adapt your techniques as new requirements are placed on you.

5.6 Accept Losses Gracefully

No-one wins all the time (though you should always aim to do so!). Factors beyond your control (or even the Department's control) may sometimes mean you must temporarily back down from a position of strength. The Department may sometimes see the need to create a strength somewhere else, which means accepting a loss in your area.

If this happens, whinging or sulking is not the answer. Accept that you are part of an overall offensive, whose broad implications you may not fully understand. However, this should not prevent you from listing the consequences in a calm and logical way to your senior officers, and with his help, plan your campaign to cut your losses in the most efficient way.

Similar situations are a fact of life in any organisation. You will face them again and again in such areas as Estimates and Works Programmes, Fire Control, Staff and Manpower availability.

5.7 Act the Part

That great soldier Sir William Slim, once said to his Army Commanders: "It is not simply enough to be efficient - you must also look efficient:.

When you deal with the industry, be proud of the fact that you are a highly trained forest officer, a representative of a determined and efficient organisation. You, not the Bush Boss or Skidder Driver, are the elite of the forest. Dress neatly, keep your vehicle and equipment in good order, speak with calm authority, being always courteous but firm.

Control, morale and authority is as much a pyschological thing as a physical thing, (as Slim recognised) or a matter of age or bushcraft.

5.8 Giving Credit Where Due

Remember the old adage: "criticise in private, but praise in public". If the Industry or your logging operation performs well, or perhaps goes out of its way to do the right thing, get them together as a group (over crib, for example) and say so. Recognition or praise for a job well done is one of the most effective forms of encouragement. The men in the bush seek job satisfaction as much as you do.

However, public criticism has the opposite effect and can generate group resentment. It is far better to identify the problem person and deal with him and his immediate supervisor in private.

6. CONCLUSIONS

Efficient industry control in the field can be one of the most satisfying jobs for a young officer. It is an invaluable opportunity to practise the skills of management, which can stand you in good stead in your future career as a forester.

On the other hand, when things in the field get into a mess, a miserable time is had by all.

Because of the complexities of the operation, and conflicting interest, hardwood logging control is rarely simple and straightforward. But, by the application of sound management principles, viz:

1. Know what you want.
2. Make sure the people under your control know what you expect of them, and
3. Give instructions properly,

your control will be stronger, your time spent more efficiently and the rewards from your efforts greater.

R J UNDERWOOD (INSP.)

AUGUST 1979

updated 1 November, 1986

SECTION 7 - ADMINISTRATION

SPECIFICATION 7.7 CROWN LAND SAWMILLS IN THE NORTHERN AND CENTRAL FOREST REGIONS

1. Sawmills operating under Head Office Licence (i.e. with guaranteed annual intakes of G.P. sawlog from State Forest).

Company	Head Off. Lic. No.	Location of Mill	CALM District resp. for mill land. inspection	Licence Renewal Date
1. Pickering Brook S/Mills	1649	Pickering Brook	Mundaring	31/10
2. Whittakers	1647	Welshpool	Jarrahdale	31.10
3. Millars	1645	Jarrahdale	Jarrahdale	31/10
4. Ardwick (Colli)	1601	*Mundijong	Jarrahdale	31/12
5. Cardoso (Colli)	1636	*Mundijong	Jarrahdale/ Mundaring	31/10
6. Dale Timber Co.	1604	West Dale	Jarrahdale	31/12
7. Bunnings (Coli)	1640	Dwellingup	Dwellingup	31/10
8. Millars	1648	Yarloop	Harvey	31/10
9. Bunnings	1641	Collie	Collie	31/10
10. G. Coli	1593	Darkan	Collie	31/12
11. Whittakers	1606	Kirup	Kirup	31/10
12. Whittakers	1617/1650	Greenbushes	Kirup	31/12
13. Adelaide Timber	1651	Wilga	Kirup	31/10
14. Preston Timber Co. (Coli)	1610	Argyle	Kirup	31/10
15. Millars	1646	Nannup	Nannup	31/10
16. Adelaide Timber	1652	E. Witchcliffe	Busselton	31/10
17. K.D. Power	1560	Busselton	Busselton	31/10
18. Cardoso (Colli)	1561	Busselton	Busselton	31/10
19. Monier Ltd	1626	Busselton	Busselton	31/12
20. Whiteland Milling	1642	Busselton	Busselton	31/10

* = same mill

2. Other sawmills (i.e. sawmills without guaranteed annual intakes of sawlog from State forest).

	Company	Location of Mill	CALM District responsible for mill landing inspection
1.	Hamilton Sawmills*	Osborne Park	Mundaring
2.	Jarrah Case Factory*	Bayswater	"
3.	Ashfield Sawmills*	Yokine	"
4.	Stefanelli*	Middle Swan	"
5.	Wesfi (veneer logs only)	Victoria Park	Jarrahdale
6.	Coli Timber Merchants	Gosnells	"
7.	Mandurah Sawmills (Coli)	Mandurah	Dwellingup
8.	A.H. Gordon & Sons	Boddington	"
9.	F. Muller	Wandering	"
10.	C.V. Wood	Waroona	Harvey
11.	R. Harnett	Roelands	"
12.	G.W. & N.L. Saunders	Collie	Collie
13.	S.W. Sawmill (Allen)	Waterloo	"
14.	Beulah Ind. (Vitasovic)	Cundinup	Nannup
15.	Bunbury S/mills (Biagioni)	Picton	Busselton
16.	Worsley Timber Co.	Margaret River	"

* Members of "Small Sawmillers Association"

1 November, 1986

SECTION 7 - ADMINISTRATION

SPECIFICATION 7.8 ISSUE OF QUARANTINE ENTRY PERMITS

1. No vehicle, truck or logging machine may enter a quarantine area (Disease Risk Area) without a permit signed by a Forest Officer.

2. All vehicles/machines operating inside a quarantine area must carry a quarantine entry permit at all times, and be prepared to show the permit to a Forest Officer on demand.

3. In situations where a number of vehicles/machines, belonging to or associated with a single logging company, need to enter a specific quarantine area, the local CALM District may issue a single quarantine entry permit to that logging company. A copy of this permit must be kept in every vehicle/machine, belonging to or associated with that logging company, that enters the quarantine area.

4. The driver or operator of every vehicle/machine entering quarantine under permit must be familiar with the conditions printed on the permit document.

SPECIFICATION 7.9 PRODUCTION AND SALE OF POLES AND BRIDGE AND JETTY TIMBERS BY DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT

1. The Products

- poles may be (a) SEC poles - i.e. poles produced to SEC specifications, or (b) "other" or "private" poles - i.e. poles sold to customers other than the SEC.

- bridge and jetty timbers include piles, stringers nad corbels, and are produced for sale to (a) Government Departments (e.g. MRD, Marine and Harbours), or (b) private customers.

Collectively, the above products are referred to as "round timber", because they are logs that are used "in the round".

2. Production

"Production" involves the falling, extraction, loading and carting of round timbers to CALM pole dumps, or other nominated delivery points, at rates as set out in the Contracts to Supply agreed to by CALM and the various contractors. The contract rates for production of round timbers generally include "preparation" of the material to set specifications (see 4. below).

Production of round timbers may be carried out only by authorised CALM contractors. These currently are:-

i) V & D Ridolfo (Contract 85/J3)
ii) R & N Palmer (Contract 86/J3)
iii) Bunning Bros (Contract 86/H4)
iv) AG & AM Brookes (Contract 85/H1)
v) Pine Hauliers (Contract 84/P1) for pine only.

Occasionally, other contractors may be engaged to produce round timbers on a one-off basis. In these cases, a quote is accepted by CALM.

3. Rates of Production

Unless otherwise advised by either the Manager, Timber Production Branch or the Department's Chief Utilisation Officer (Mr Des Donnelly) round timbers must always receive highest priority in any hardwood logging operation.

4. Preparation

"Preparation" is the task of preparing the produce to a set specification, and includes debarking, trimming, banding, sealing ends with sealing compound, etc. Preparation is normally carried out in a central location known as a "pole dump".

4.1 SEC poles: two contractors are currently authorised to prepare poles to SEC specifications. They are

i) V & D Ridolfo - operator of the Dirkbrook pole dump.
ii) R & N Palmer - operator at the Worsley pole dump.

Poles produced by Bunnings, Brookes and Pine Hauliers must be prepared by either Ridolfo or Palmer. Such poles are normally directed to the nearest pole dump for preparation.

4.2 Bridge Timbers: three contractors are currently authorised to prepare bridge timbers. They are:

i) V & D Ridolfo - operator of the Dirkbrook pole dump.
ii) R & N Palmer - operator at the Worsley pole dump,
iii) Bunnings Bros - operator at Deanmill pole dump.

Bridge timbers produced by Brookes must be prepared by either Ridolfo or Palmer.

5. Inspection

It is CALM's hope that all round timbers would be inspected by CALM's timber inspection service to guarantee adherence to the specifications. Currently, all round timbers prepared for sale to any Government Department must be inspected and passed by a CALM timber inspector. Round timber destined for non-Government use may or may not be inspected, depending on (i) the customer's requirements, (ii) the availability of round timber, and (iii) the decision of the Department's Chief Utilisation Officer.

6. Stockpiling and Storage

Because of dieback and soil damage it may not be possible to supply round timber all the year round from current bush operations. The SEC are prepared to accept production "as and when available" and pay accordingly. All storage and stockpiling is therefore at the SEC expense with stocks being held in either Worsley or Dirkbrook pole dumps. All other Government customers prefer year round availability and therefore CALM has accepted that stockpiling at CALM expense is needed for wanted items in short supply. The Chief Utilisation Officer is responsible for deciding

(a) which items should be stockpiled
(b) how much of each item should be stockpiled
(c) when stockpiled items can be sold
(d) to whom stockpiled items can be sold.

Stockpiled items should if at all possible be held in waterspray storage to avoid deterioration. If this can be provided the round timber is generally stored fully prepared. If waterspray storage is not available the Chief Utilisation Officer will advise how the stockpiled material is to be held e.g. bark on, unprepared etc.

7. Sale

Round timbers can be sold by CALM at one of four points:-

i) At a CALM pole dump, after the material has been prepared, inspected and passed.

ii) At a CALM pole dump, after the material has been prepared, inspected and rejected.

iii) At a CALM pole dump, as reject material (i.e. round timber that is not prepared for inspection), and

iv) At bush landing to approved customers only and only if not required for CALM priority customers.

At all times the priority customers are Government Departments, i.e. SEC, MRD, Marine and Harbours etc. All round timber delivered to a CALM pole dump must be produced with the intention that the timber be prepared to Government specifications. Forest Officers in charge of bush operations must not permit round timber of the desired sizes to be carted to pole dumps if such material has no chance of meeting Government specifications. Alternative sizes and specific production to meet individual private orders can be produced if approved by the C.U.O.

7.1 Sale of passed timber: timber passed at CALM inspection is sold under Contracts of Sale at negotiated prices. These prices include -

i) the cost of production and preparation at pole dump.
ii) an administration charge on the cost of production,
iii) a charge for in-forest costs,
iv) a roading charge,
v) an inspection fee, and
vi) royalty.

The cost of inspection of material prepared in good faith to a specific Government Department specification, inspected by a CALM inspector, and subsequently rejected is charged to that Government Department.

Round timber prepared and passed to a Government specification may be sold to a non Government customer at listed prices set by CALM, only if and when authorised by the Chief Utilisation Officer. Such customers may include CALM contractors. Such authorisation will be given only when the supply for Government orders is not likely to be jeopardized.

As this material has been passed in accordance with nominated specification royalty is to be charged on the basis listed in "Schedules of Royalty Part 6 - Hardwood Poles and Bridge Timber (except SEC poles) or Schedule of Royalty Part 8 - SEC poles.

7.2 Sale of prepared and subsequently rejected material: in many cases, round timber prepared to a set specification, then rejected by a CALM inspector, is docked by the contractor then presented again for inspection.

For material unable to meet the Specifications, despite docking, CALM can authorise sale as either:

i) "private" poles, piles etc.
ii) G.P. sawlog,
iii) salvage sawlog,
iv) fencing material, or
v) firewood.

The authority to initiate sale of this material lies with the Forest Officer in Charge of the respective pole dumps, as advised by his District Manager. As necessary, the Chief Utilisation Officer and/or Regional procurement staff should be consulted.

Private poles, fencing material and firewood are sold under a Minor Forest Produce Licence, using the appropriate royalty, to the CALM contractor. CALM does not pay the contractor to produce these products.

G.P. sawlog and salvage sawlog may be sold to a nearby G.P. sawmill or salvage samill, or it may be sold by Auction or Tender. In these cases CALM must pay its contractor.

7.3 Sale of reject material: sale of round timber that is rejected by the pole dump operator without being prepared may be sold as in 7.2 above.

7.4 Sale at Bush Landing: SEC poles and bridge timber material may be sold at bush landing only if authorised by the Chief Utilisation Officer. This authorisation will only be given when the supply of such timber for Government requirements is not likley to be jeopardised. Sale of such timber at bush landing will be authorised only to Departmental contractors, at listed prices set by CALM. These prices will include:-

i) royalty
ii) the cost of production
iii) an administration charge on the cost of production
iv) a charge for in-forest costs,
v) a roading charge.

NB: The sale of round timbers which are capable of providing poles piles or bridge timber to private customers, at the stump, using a Minor Forest Produce Licence, must be restricted to special, one-off situtions as authorised by Timber Production Branch. District staff should wherever possible direct enquiries for round timbers to -

i) the Chief Utilisation Officer if the order is large, or if the order is for high quality material, or

ii) the nearest CALM pole dump if the order is for small amounts of relatively low quality material.

1 November 1986