

PREPARATION & PLANTING
IN THE
SOFTWOOD SHAREFARMING SCHEME

ALBANY DISTRICT

1987

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ALBANY

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1.0

INTRODUCTION

This report details the preparation and planting of three separate pine plantations totalling 585 hectares. The aim of the report is to highlight successes and difficulties to enable accurate analysis of the planting season past and preparation for the planting season to come.

SUMMARY OF EVENTS

Three separate areas were planted with *Pinus radiata* in 1987. These were:-

- a) Milgraum Plantation - 219 ha
- b) Lockhart Plantation - 242 ha
- c) Cantwell Plantation - 124 ha

Preparation of these areas commenced on 22/4/87 and finished on 21/6/87. Planting commenced on 13/5/87 and finished on 26/6/87. Major problems encountered included:-

- a) Lateness of signing of Sharefarming contracts
- b) Preparation of areas for planting
- c) Setting up of Pine Planting Contractors equipment
- d) Size of plants
- e) Quality of fertiliser
- f) Variation in soil conditions of planting areas

Recommendations for next year include:-

- a) Aim to have all Sharefarming contracts signed by December 1st
- b) Commence clearing, roading and scrub control in December/January
- c) Ensure nursery plants are of an acceptable size and quality
- d) Ensure planting machines and tractors are in good condition prior to commencement of planting season
- e) Define planting areas into areas for -
 - i) Sunklands Planting Machine
 - ii) Quickwood Planting Machine
 - iii) Hand Planting
- f) Call planting contract in January to allow adequate time for contractors to set up
- g) Have at least 2 Quickwood and 3 Sunklands planting machines, equipped with fertiliser dispensers, available for planting as of May 1st 1988
- h) At least 2 mounds, 1 blade plough and 1 Connershea Baby Giant plough need to be made available from January 1st for pre planting preparation

PREPARATION OF PLANTING AREAS

(For costs - see Appendix 1)

3.1. CLEARING

Clearing of small patches of bush (less than 5 ha each) was done by AD Contractors and commenced on 22/4/87. This was two months later than planned. There were two reasons for this lateness. These were:

- (a) Lateness of finalising sharefarming contracts
- (b) Over-commitment of AD Contractor's machinery.

Clearing continued through Milgraum's to Lockhart's and Cantwell's and finished on 26/5/87. Clearing was done with a D6 instead of the D7 specified on the contract. Clearing standards were good and price was only slightly above that budgeted.

3.2. ROADING

Roading was done by AD Contractors at the same time as the clearing. A total of 2.9 km of road was constructed on Milgraum's and Lockhart's. No roading was done on Cantwell's due to Cantwell's contract not being signed until 24/4/87 and hence doubts as to having suitable weather to complete the roading.

Source of gravel was a problem, with inadequate supplies being found on Lockhart's and Cantwell's. Gravel supply needs to be determined at management plan stage to prevent delays at roading.

Extent and quality of roads established in 1987 was probably more than was required. Again this should be determined at the management plan stage.

3.3. FENCE REMOVAL

Pushing up and burying unwanted fences with a D6 proved to be very effective and reasonably cost efficient.

Because of the lateness of signing the contract on Cantwell's property more fences were left than originally planned. This had the effect of decreasing lengths of planting lines. Agreement was reached with Mr Cantwell that he would plant small areas alongside fences where planting machines could not operate.

Note - discussions on fence removal need to be done at the management plan stage to enable compartment boundaries to be sited along fence lines and hence cause as little area loss and inconvenience as possible.

3.4. RUSH CONTROL BURNING AND PLOUGHING

Burning and double ploughing of 40 ha of rushes was an effective means of controlling the problem on Milgraum's property. Ideally by blade ploughing in January total eradication of rushes should be achieved but cost effectiveness of treating small areas is doubtful (ie cost of delivering blade plough on site would probably be prohibitive).

3.5 MOUNDING

Of the 585 hectares planted, 70 hectares were mounded. Planting on mounds was approximately 10-15% slower than planting on pasture. If the mounds are of good, even size (eg., Lockharts, Cantwells) planting speed does not vary significantly from planting on pasture.

Quality of mounds varied according to speed. On Milgraums property mounding speed was 7.5 kph. This resulted in uneven mounds and created difficulty in planting.

Mounding on Lockharts and Cantwells was done at 4.5 kph with even, easy to plant mounds resulting.

This year mounding was done for two reasons:-

- 1) In boggy areas to keep the pines from being waterlogged.
- 2) In normal pasture to see the difference in growth between pines on and off mounds.

Areas most requiring mounding appear to be the dark grey sands or dark grey loamy sands. Mounding should generally be done across the contour. Where mounding is done on the contour, drains across mounds needs to be installed to prevent puddling.

3.6 LANDOWNER DOING WORK

All the ploughing and mounding on properties planted in 1987 was done by the owners/managers. This has some advantages and some disadvantages. Advantages are:-

- 1) The owner "knows" the property. Hence knows the wet spots and problem areas.
- 2) Because he owns or manages the property, it is more natural for him to do a good job.

Disadvantages are:-

- 1) New operators have to be trained with each different property.
- 2) Quality varies greatly between operators.
- 3) A higher degree of supervision is required.

4.0

PLANTING

4.1 PERIOD OF PLANTING

Planting commenced on 13/5/87 and finished on 26/6/87. Planting was done on 33 days during this period. Planting was stopped on 1½ days during the same due to strong winds.

4.2 TOTAL AREA PLANTED

A total of 585 ha on 3 separate properties were planted with Pinus radiata. Individual property areas were:-

..	Milgraums	-	219 ha	
..	Lockharts	-	242 ha	
..	Cantwells	-	124 ha	: 12.5 ha of which was cuttings

4.3 QUALITY OF PINES

Quality of pines varied greatly between nurseries.

One year old pines from Wanneroo were too small and two year olds from Wanneroo had not had sufficient root pruning. Cuttings from Wanneroo appeared to be of good quality - time will tell! Both one and two year old plants from Nannup were of good quality, though further topping of some two year olds would have been desirable.

Size of pines had a considerable effect on planting speeds. For example, planting two year old pines was 25% slower than planting one year olds. This was not because planting speed changed but because three times the number of bags have to be handled when planting two year olds compared with one year olds. Surprisingly enough, contractors preferred planting cuttings to either one or two year old pines. This was because cuttings were of a consistent, reasonable size, also because cuttings were planted further apart faster speeds could be achieved.

Planting the one year old seedlings from Wanneroo caused problems because of their size - or, rather, lack of it. Mounds especially tended to bury the pines and approximately 13,500 were thrown away because they were impossible to machine plant.

4.4 AVAILABILITY OF PINES

There was no problem with availability of pines.

4.5 TRANSPORTATION OF PINES

Transportation of one and two year olds from Wanneroo was done by Brambles. No problems were experienced. One load of pines from Nannup was carted by Brambles, the rest were done by the CALM on plant truck from Manjimup. (For Comparative cost - see Appendix 4).

4.6 RAINFALL AND WEATHER

(See Appendix 2)

Planting was able to start on 13/5/87 because of good rains (in excess of 30mm) the weekend before. Planting was stopped because of strong winds (in excess of 60 kph) for 1½ days during the planting season. Rainfall during the planting season was just sufficient to keep the soil moist and allow planting to continue.

4.7 PLANT OPERATIONS

4.7.1 Milgraum Plantation

Two days were spent setting up tractors and planting machinery. The CALM Massey 290 worked well from the start. Contractors' tractors needed adjustments to hydraulics but after these were fixed all machines worked well. Lack of maintenance on planting machines showed up quickly - eg., packing wheel adjustments bolts seized etc.

Continual minor problems were experienced with welds cracking, planting machines requiring straightening and tips on digging shoes coming loose. These are normal wear and tear. A one half hectare area of mounds was too wet for machine planting. This area was planted by hand.

4.7.2 Lockhart Plantation

Very few mechanical problems were experienced while planting Lockharts property. Weekly maintenance was carried out by mechanics from Manjimup and Nannup. Daily maintenance was done by contractors and Overseer Colin McKittrick. The spray pump unit on the Massey 290 broke its casing, requiring purchase of a new pump. Excessive dust in the fertiliser caused buildup on slides and blockage of dispensers. Use of Ensic fluid on slides alleviated much of this problem.

Otherwise, all equipment worked well.

4.7.3 Cantwell Plantation

After initial access problems caused by heavy rain and some areas of rock in the first paddock, few problems were experienced while planting Cantwells property.

4.8 AREAS PLANTED/SPECIES

..	Milgraums	-	219 ha	-	Pinus radiata
..	Lockharts	-	242 ha	-	Pinus radiata
..	Cantwells	-	124 ha*	-	Pinus radiata

(* - 12.5 ha of which was cuttings)

Four trial areas of approximately 1 hectare each are included in the area planted. Two of these are to examine the effects of different fertilisers on pine growth and the other two are to test the effect of different chemicals on sorrel and rushes.

Hopefully these trials will give us information regarding current fertiliser regimes for pines and economic chemical control of specific weeds in the Albany area.

4.9. UNIT COSTS/HA

(Planting, spraying, fertilising, transportation and Unloading of Pines, Accommodation and wages of Overseer, vehicle running)

..	Milgraums	-	\$192.15
..	Lockharts	-	\$176.17
..	Cantwells	-	\$169.33

Average - \$180.70

4.10. POST PLANTING PROBLEMS

Although the planting season has only been finished three weeks, two problems have already appeared. These are:

- (i) Cropping of pine on Milgraum plantation
- (ii) Post planting deaths.

Cropping of pines has occurred in the eastern section of compartment 1 in Milgraum's plantation. It was initially thought to have been done by rabbits but further investigation indicates that kangaroos have been ripping off the tops. John Edwards, The manager of the Milgraum properties, is at present clearing the bush for pasture adjacent to the problem area. Hopefully this will prevent any further losses.

Subsequent to planting, up to 20% of the two year old seedlings in Lockhart's and Milgraum's have died and 28% of 1 year old seedlings over a 30 hectare area in Cantwell's have died. Reasons for these deaths are not as yet known but cause(s) need to be determined to prevent similar problems in future years.

5.0

CONTRACTOR PERFORMANCE

Over the duration of the planting season the Contractors performed well. Planting techniques, spacing and speed were good and co-operation with Departmental personnel was good.

Initially doubts were held over the ability of small local contractors to come up with the equipment and performance required for planting pines on a large scale. Ideally two contractors would have been employed - one a larger 'recognised' firm and the other a small local contractor. Prices however prohibited the larger firms from being awarded a contract. Having completed the first season, I would have little hesitation in going 'local' again if the price is right.

6.0

DEPARTMENTAL SUPERVISION/MECHANICAL ASSISTANCE

Supervision provided by Overseer Colin McKittrick from Nannup was excellent and his knowledge of planting machines and planting techniques was very valuable. Technical support organised by Lyn Marshall and done by mechanics from Manjimup and Nannup greatly assisted in keeping machines going for the duration of the season.

7.0

CONCLUSIONS

Despite being the first season of planting under the pine sharefarming scheme and the first time contractors have been used for pine planting, the planting season went extremely well.

RECOMMENDATIONS FOR 1988

- 8.1 All planting machines to be thoroughly reconditioned at the end of the 1987 planting season.
- 8.2 Trials to be done in August 1987 on rocky "D" class sites. Quickwood and Sunklands type planting machines to be compared during trial.
- 8.3 At least 5 planting machines (3 Sunklands and 2 Quickwood - pending trial results) should be available for 1988 planting season. (Assume season runs from May 1st to July 31st). All machines to be equipped with fertiliser dispensers. Exact numbers of machines available for 1988 season must be determined by December 1987 to allow adequate time for calling the planting contract and setting up of planting machines.
- 8.4 Pine seedlings in nurseries need to be of sufficient size to allow machine planting to commence on May 1st.
- 8.5 CALM needs to provide one overseer per contractor for the 1988 planting season.
- 8.6 A mechanic experienced with planting machines needs to be made available on a fulltime basis for the 1988 planting season. A rough guide for mechanic time required would be one day per week per 300 hectares planting. This mechanic would need to be equipped with all the spare parts required to repair planting machines (eg., the 1987 Keith Pears/Lyal Guthridge set up from Nannup was ideal).
- 8.7 Spraying set ups need to be altered. Preferably would go to electric pumps and one or two nozzles with larger droplet size rather than the three nozzles used this year.
- 8.8 All Sharefarming contracts should be signed by December 1st, 1987 to allow adequate time for preparation for the 1988 planting season.
- 8.9 Clearing roading and scrub control should be done in the December/January prior to planting.
- 8.10 Planting boundaries should be defined into:-
 - i) Areas for planting with Sunklands machine
 - ii) Areas for planting with the Quickwood machine
 - iii) Areas for Hand planting
- 8.11 Investigate reasons for high losses of two year old seedlings and take remedial action.
- 8.12 Investigate reasons for losses of one year old seedlings on 30 hectares at Cantwell's and take remedial action.

APPENDIX 1

PINE ESTABLISHMENT AND PLANTING COSTS

JOB	JOB NO	OVERALL COSTS								
		MILGRAIM		LOOKHART		CANTWELL		TOTAL		COST/HA/KM
		ACTUAL	BUDGET	ACTUAL	BUDGET	ACTUAL	BUDGET	ACTUAL	BUDGET	
HEAPING/CLEARING	17	2271	2265	5876	5212	2762	2940	10909	10417	\$460/HA
FENCE REMOVAL		1089	600					1089	600	\$300/HA
TRIAL RIPPING				200	300			200	300	
EROSION CONTROL		600	300					600	300	
ROADING	23	6562	7000	4459	3000	1029	6868	12050	16868	\$4155/KM
RAMPS		200	200				75	200	275	
CULVERTS		531	1400	1062	2200	856	1200	2449	4800	
PLOUGHING RUSHES	27	2310	1200					2310	1200	\$55/HA
PLOUGHING EX FOREST		105	105	437	354	254	180	796	639	\$46/HA
MOUNDING		1260	900	623	690	525	-	2408	1590	\$30/HA
COST OF PLANTS		20402	17893	19450	15812	10988	8315	50840	42020	\$89/HA
PLANT TRANSPORT	43	4010)		3190)		716)		7916)		\$13.53/HA
CHEMICALS		7521)		8446)		4290)		20257)		\$34.62/HA
FERTILISER		8769)	38152	9666)	44840	4922)	23850	23357)	106572	\$39.93/HA
PLANTING		18745)		19340)		10068)		48153)		\$82.31/HA
UNLOADING PLANTS		115)		9)		14)		138)		
OVERSEER ACCOMMODATION		744)		436)		166)		1346)		
OVERSEER WAGES		1295)		863)		432		2590		
VEHICLE RUNNING		882)		683)		389		1954		
RABBIT CONTROL			300	43)	360			43	660	
LIGHTING HEADS						28		28		
		77411	70315	74783	72768	37439	43158	189633	186241	

NOTE:

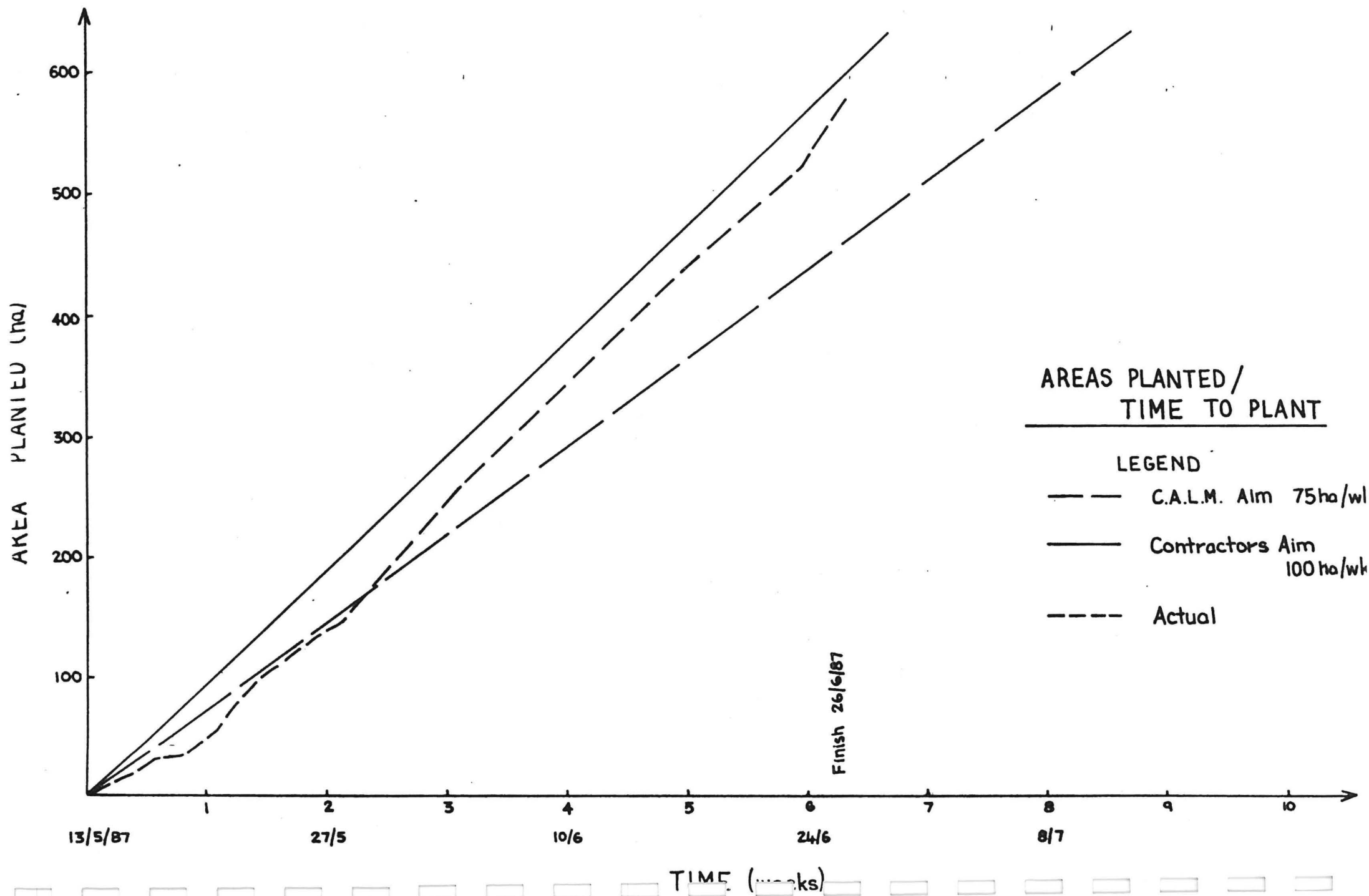
- Budget figures were based on a planting area at 560 hectares - total area planted was 585 hectares.
- There is still 2.2 km of roading to do - ie approximately \$4 500 worth
- Figures were obtained from general ledger report to Pay 26 and records kept in office.

APPENDIX 2

RAINFALL DURING 1987 PLANTING SEASON

(OBTAINED FROM "TANDARA", TWO PEOPLES BAY"

DATE/MONTH	MAY	JUNE	JULY
1	1.5		
2	4		
3			
4			2
5			
6			
7		1	
8			5.5
9	8		4
10		7	
11	36		
12	2.5	21.5	
13			1
14	5.5		4
15		2	2
16			4
17			2.5
18			9
19			4
20			
21		25	
22		2	
23			
24	10.5		20
25			2
26	1.5		
27			
28			
29			3.5
30		8	29
31	2.5		10
TOTAL:-	72	66.5	102.5



APPENDIX 4

PLANT TRANSPORTATION - COMPARATIVE COSTS

TRANSPORTED BY	FROM	TOTAL COST	NO'S T'PORTED	COST/1000
BRAMBLES	WANNERCO	\$4400	390,000	\$ 11.28
BRAMBLES	NANNUP	\$ 605	80,000	\$ 7.56
CAIM	NANNUP	\$2600	273,800	\$ 9.50
TOTAL WEST	WANNERCO	\$ 56	10,000	\$ 5.60

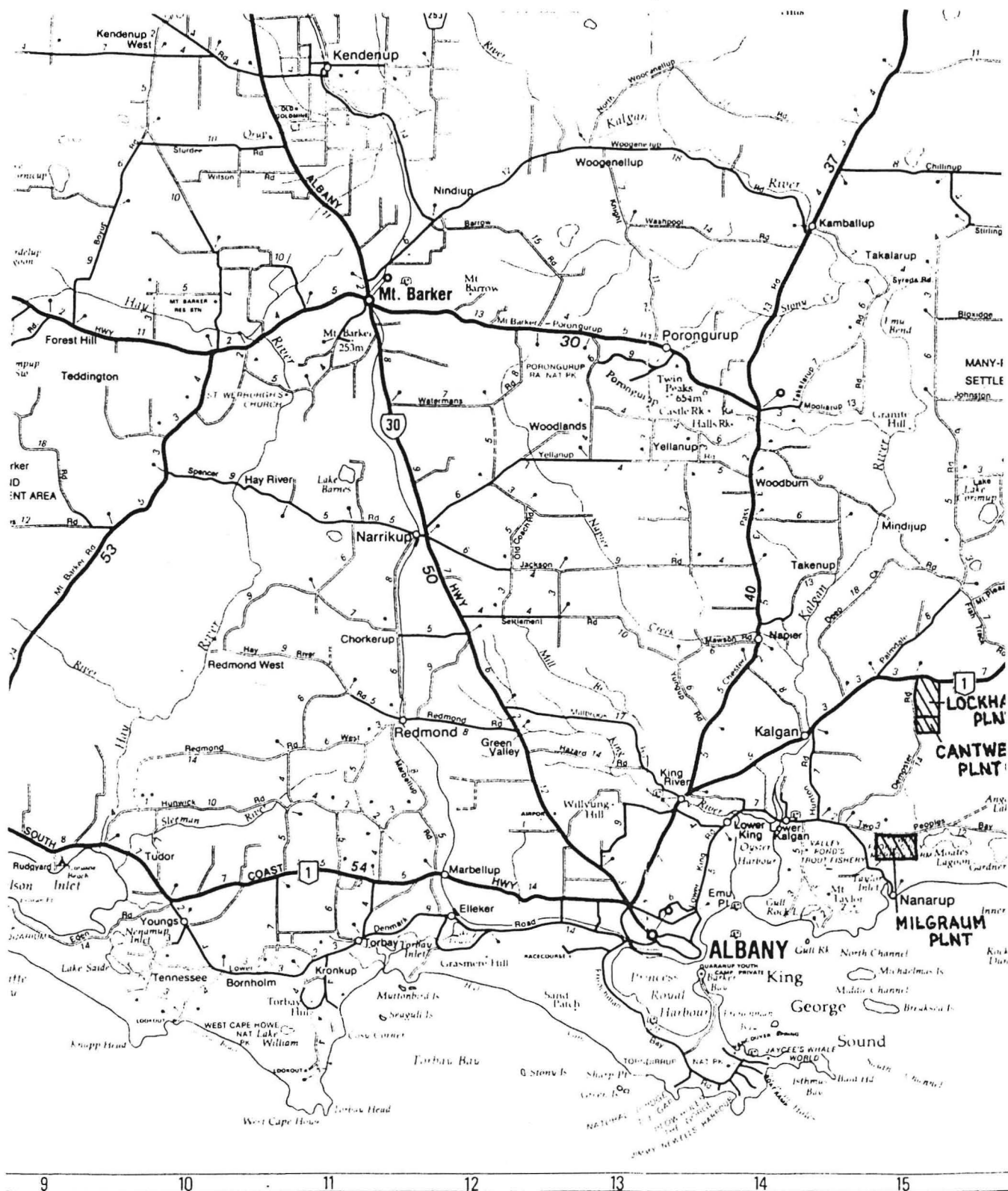
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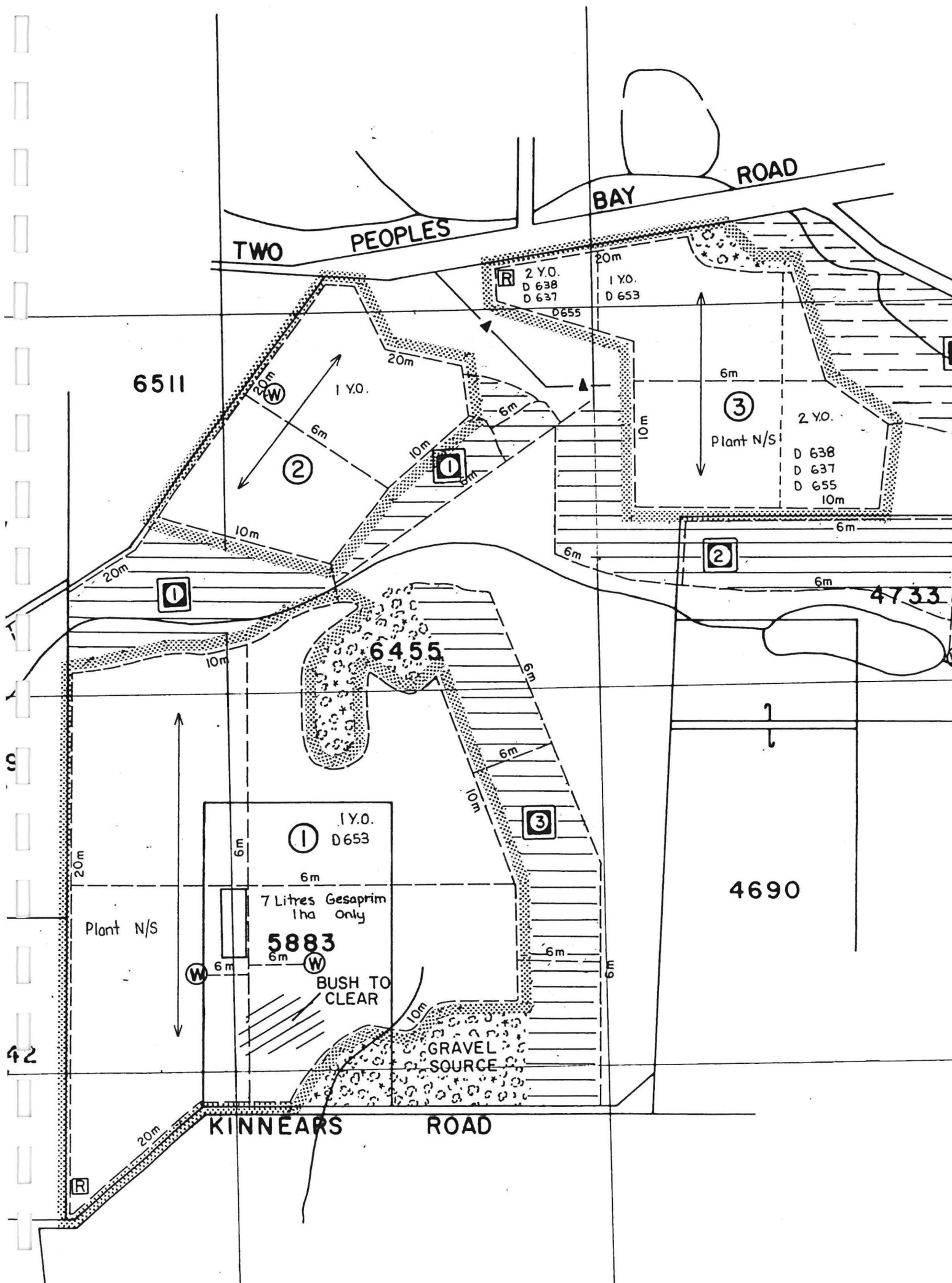
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NOTE:

The 10,000 transported by Total West were cuttings. These were delivered to the Total West depot in Perth and picked up from Total West depot in Albany. All other plants were picked up from the nurseries and delivered on site in Albany.

LOCATION MAP 1987 PLANTING AREAS





LOCKHART PLANTATION

COAST

H'WAY

SOUTH

6063

DEMPSTER

6446

PASTURE

6141C

6140I

6444

6139X

ROAD

ROAD

1 Y.O.
D 652

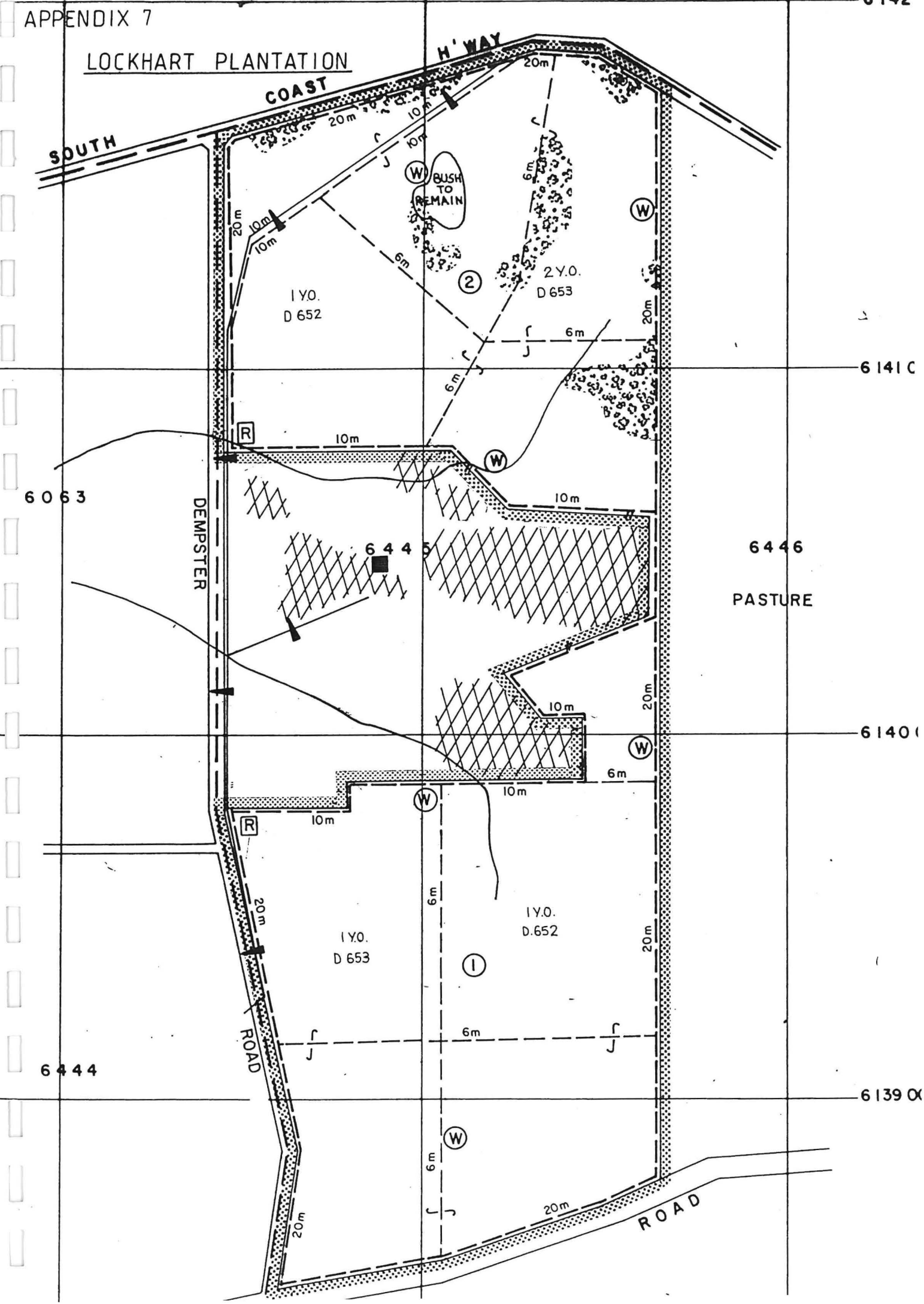
2 Y.O.
D 653

1 Y.O.
D 653

1 Y.O.
D.652

BUSH
TO
REMAIN

6445



CANTWELL PLANTATION

