Scale: 1:15,000
Datum: GDA94
Projection: MGA
Map Sheets:
1:25,000 Byabara 9434-4N
1:100,000 Camden Haven 9434
Contour Interval: 10m

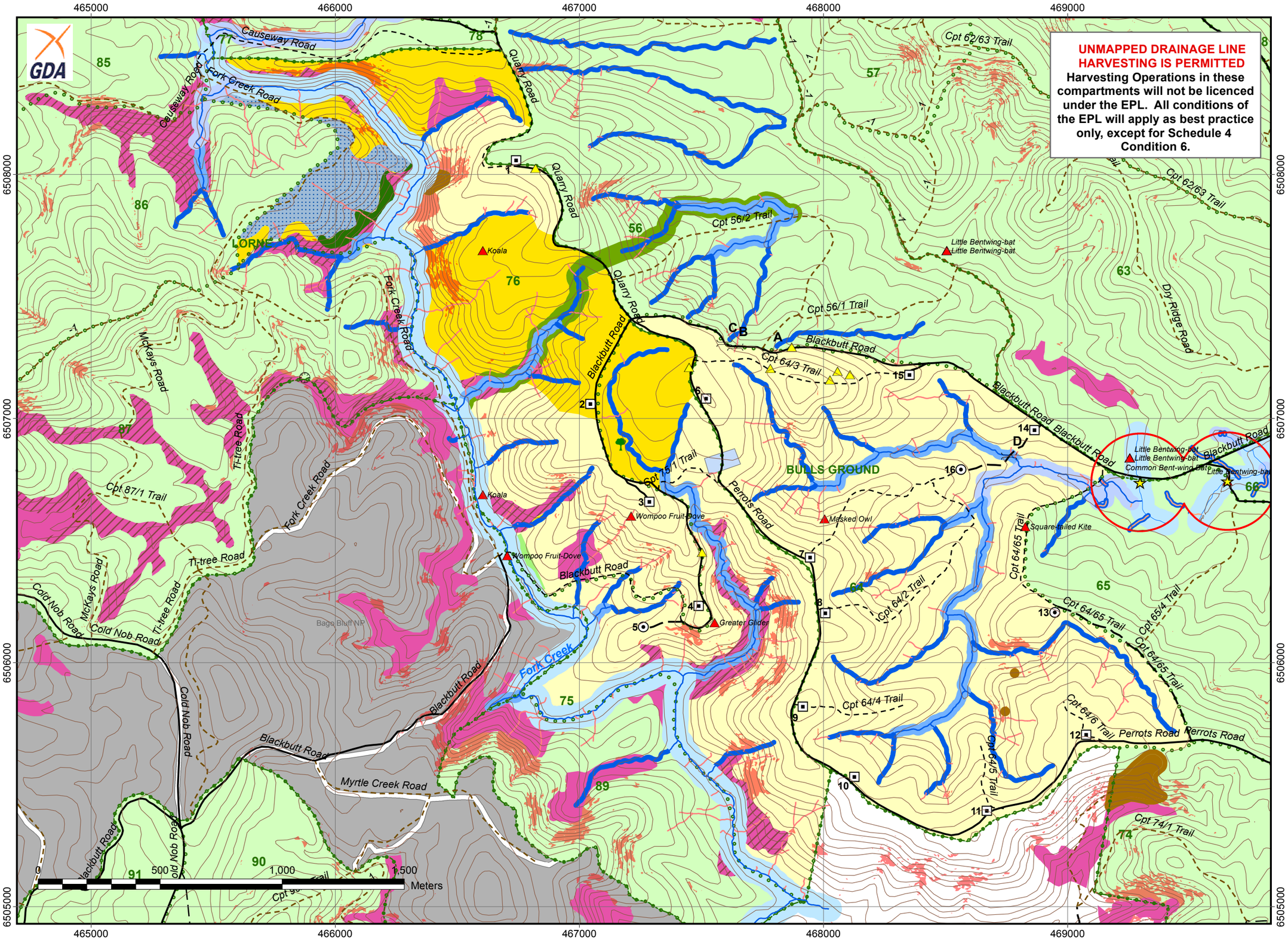
Harvest Plan Operational Map
Compartment 64 Bulls Ground State Forest & Compartments 75 & 76 Lorne State Forest
Hardwood Forests - Kendall Management Area

AUSTRALIAN FORESTRY STANDARD
AFS/01-21-05

Approval Date: 24/03/2016
Controlled Map: BG_64_Lorne_75_76_HPOM

Prepared by: Sarah Gormley
Date: March 2016

Forestry Corporation



UNMAPPED DRAINAGE LINE HARVESTING IS PERMITTED
Harvesting Operations in these compartments will not be licenced under the EPL. All conditions of the EPL will apply as best practice only, except for Schedule 4 Condition 6.

MAP FEATURES

- State Forest Boundary
- Compartments Boundary
- 1 Km Grid
- 10m Contour
- State Forest
- Private Property/Cadastre boundary
- Slopes >30° (LiDAR indicative)
- Dangerous tree location
- Elite/Plus Tree
- Quarry

ROADS, DUMPS & CROSSINGS

- Sealed road
- Wet weather, unsealed
- Dry weather, unsealed
- Not to be used for haulage
- Roads outside harvest area
- Dry weather dump
- Wet weather dump
- Approved Crossing

HARVEST AREA & EXCLUSION ZONES (Inherent Hazard Class 2)

Harvest Area
- General Management (FMZ 4 and 8)
- Future Treatment Area (not to be logged this event)
- Research Plot (treat as surrounding NHA)

Exclusions
- Plantation
- National Park Estate

4 Bar Exclusions
- Rainforest - Crafti + RN17

3 Bar Limited Falling
- High Conservation Value Old Growth
- Special Management (FMZ 2)
- Rocky outcrop / cliff and buffer (20m)
- Harvesting Protection (FMZ 3A)
- Ridge & Headwater Habitat (80m wide exclusion)
- Rocky Outcrop/Cliff (to be buffered in field)
- Owl Landscape Protection

Drainage features
Spatially corrected LIC drainage (LiDAR)
- Drainage line (5m Operational Zone)
- Un-mapped drainage features (LiDAR)
- 1st Order (Protection 10m)
- 2nd Order (Protection 20m)
- 3rd Order (Protection 30m)
- 4th order & above (Protection 50m)

Threatened Species Records
Records requiring prescription
- Golden-tipped bat (Kerivoula papuensis) 30m exclusion on all 1st & 2nd order streams + No UMDL harvesting within 200m of record
- Glossy Black-Cockatoo (Calyptorhynchus lathami) Retain feed trees

Other records of presence
- Ecology point site (labelled on map)

HARVESTED CODES
HS_H - STS heavy
HS_M - STS medium
HS_L - STS light
HS_R - Regen STS
HA - AGS
HM - Mixed silviculture
HT - Thinning

NON-HARVEST CODES
NG - Basal Area Retention
NT - Topographically Inaccessible
NP - Pre-merchantable
NS - Steep
NL - Logistics (i.e. unable to fall trees onto road)
NE - Not economic (i.e. harvestable but poor quality)
NU - Unfinished
NM - Missed
NN - Non-commercial forest types
NH - Harvested in last five years
NO - Not forest (cleared)
NQ - Research
NK - Rock
NW - Wildlife
NC - Catchment, unmapped creeks

Logged Area
(Indicate Month & Harvest Type)
eg: 08/12 H-STS

Available Area NOT Logged
(Indicate Reason for Non-Harvest)
eg: NE

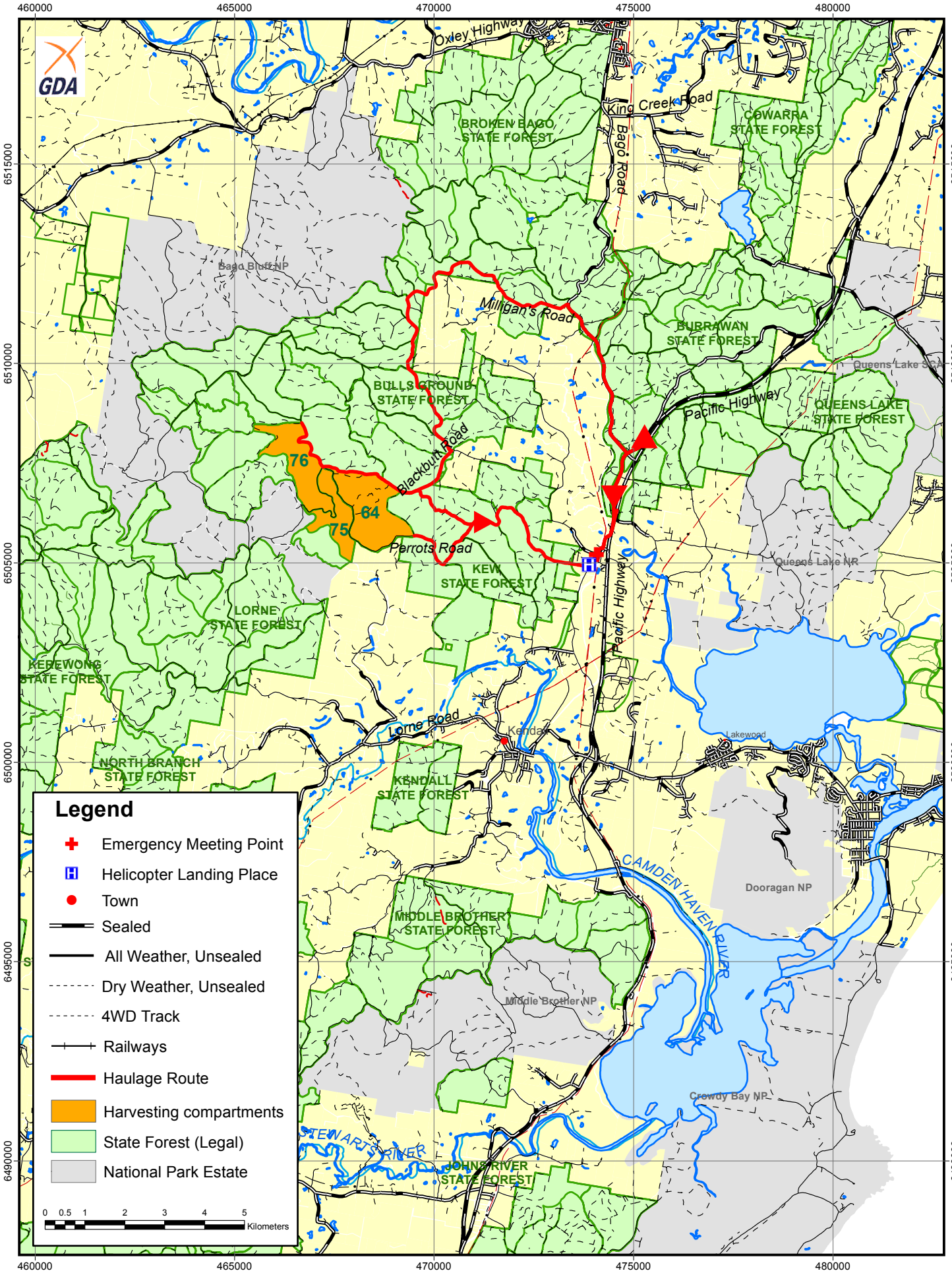
Hardwood Forests - Kendall MA
Locality Map
Compartment 64 Bulls Ground State Forest & Compartments 75 & 76 Lorne State Forest

N

Scale 1:125,000
Datum: GDA94
Map Sheets
1:25,000; Byabarra 9434-4N
1:100,000; Camden Haven 9434

Forestry Corporation

Prepared by: Sarah Gormley
Date: March 2016



Emergency Telephone 000 / 112 Forestry Corporation of NSW (02) 6585 3744

Hardwood Forests Division

Harvest and Haul Plan

Forestry Corporation

State Forest	Bulls Ground / Lorne	Compartments	64 / 75 & 76
Management Area	Kendall	IFOA Region	Lower North East
Harvest Plan No.	32773	Supply Zone	3 OR Coastal South
Legal Conditions	Native Forest Harvesting in accordance with IFOA conditions. To implement this plan you must hold a current Contractors Licence. Standard Harvest Plan Conditions and Operating Procedures apply. Survey expiry date for this plan is **31/10/2021.**		
Certification	Timber products removed from the plan area are within the Defined Forest Area covered by Australian Forestry Standard and ISO14001 Certificate 13761		
Prepared by	Planner Sarah Gormley		Date: 22/03/2016
Approved by	Planning Supervisor Brent Bailey		Date: 22/3/2016
Abbreviations	FT = Forest Technician, HC = Harvesting Coordinator, PtS= Protection Supervisor, HS = Harvesting Supervisor, RC = Roading Coordinator, Crew = Harvest Contractor/Forest Operators, IFOA = Integrated Forestry Operations Approval, TSL = Threatened Species Licence, EPL = Environment Protection Licence, FL = Fisheries Licence, CH = Cultural Heritage, SOP = Standard Operating Procedure.		

1. Harvest Area Details

	Cpt 64	Cpt 75	Cpt 76	Total
Event ID	**44162**	**44163**	**44164**	**32773**
Gross Area (ha)	233	117	187	540
NHA	211	82	124	417
Harvest Area	133	44	44	221
Estimated Yield	4800	1200	800	6800
Yield/ha	37	26	18	
Slope (% 0-20 degrees)	89	58	55	77
Slope (% 20-25 degrees)	9	22	30	15
Slope (% 25-30 degrees)	2	14	11	6

Contractor must ensure timber removed is allocated to the correct compartment when entered into Electronic Delivery Docket.

2. Management Conditions on Boundaries

Boundary	Conditions
National Park	Fork Creek separates Bago Bluff National Park to the west of compartment 76.
Private Property	Adjoining PP along the southern boundary of compartment 64 is fenced at least in sections. Most of the boundary has been cleared on the PP side – boundary must be located and marked by the FT in locations where it is unclear.
SMZ / FMZ	Areas of authorised plantation occur within the harvest area. The area east of Fork Creek Road & south of Fork Creek Road in cpt 76 will not be harvested this event. The small section in the west of cpt 75 will be harvested as per the surrounding area and reverted to native forest. There is a small area of FMZ3A off Blackbutt Road at the south-western boundary of cpt 75 excluded for a picnic area. Other FMZ3A exclusion areas appear as Rock &Rainforest. There is also an FMZ2 (Flora) exclusion in cpt 76.
Research	There is a research trial located on Perrots Road on the boundary between compartments 64 & 75 (Expt C H4/3.2 8). No special treatment is required – treat as surrounding SF.
Cultural Heritage	Surveys have been conducted. If any potential heritage sites are identified notify the planner immediately, and an interim 20m buffer to be observed.

3. Expected Yields

Product Estimates	Volume (m3)
HQ Large Sawlog (Quota)	1100
HQ Small Sawlog	1400
Poles, Piles and Girders	650
LQ Sawlog (Salvage)	3300
Residue	350
Total	6800

Species	Species Mix (Sawlog)
BBT	72%
TWD	13%
SBG	<1%
BBX	4%
OTHER	11%

4. Haulage

Haul Route	By negotiation only, timber to Heron's Creek Mill may go East along Blackbutt Road/Perrot's Road→Bull's Ground Road to the western gate at Heron's Creek Mill. There is no access to the Pacific Highway from Heron's Creek. All other timber will go north via Blackbutt Road→Dividing Ridge Road→Milligan's Road→Bago Road
School Bus Routes	Haulage contractor must contact Busways on UHF channel 24 Haulage contractor must apply Kendall School Bus Communication protocol.
Traffic Control Plan	The crew and HC must develop a strategy for managing traffic when snigging across Blackbutt Road to Dumps 3 & 4, Perrot's Road to Dumps 6-9, and Quarry Road to Dump 1. A plan must also be in place before falling within 2 tree lengths of roads.

Dust and Mud	All vehicle operators are responsible for minimising dust on Blackbutt road adjacent to homes. Hauliers must ensure mud is not dragged onto Blackbutt Road and Heron's Creek Road during haulage.

5. Community

Issue	Detail	Conditions
Notifications Required	Nil	All relevant notifications have been conducted. A notification list for FCNSW staff is available from the planner.
Forest Permits	Apiary permittees x 2 across these compartments.	All relevant notifications have been conducted. HC must contact Bee Permit holder at least two weeks prior to commencement to allow any hives to be moved, and again on completion.

6. Infrastructure

Infrastructure	Conditions
Utilities Underground	Nil
Transmission lines	Nil
Snigging over Haulage Roads	All roads which will have snigging over or along them, must be re-instated to similar or better condition to that prior to snigging.
Gravel Pits	Gravel to be used from Bulls Ground Quarry (outside these compartments)

7. Harvesting Conditions

Silviculture Type	Harvesting Objectives and Condition for each stand condition
STS Medium – Mixed Dry Hardwood e.g. Dumps 1-3	In the two-aged mixed dry hardwood stand the objective is to harvest the merchantable component of the mature aged crop and retain the vigorous younger age class trees for a future cut. FTs to mark growers (<40cm dbhob) for retention. Crew is to select trees for removal and avoid damage to retained growers.
STS Medium – BBT Moister areas, lower down ridges	In stands with a higher proportion of commercial endpoint Blackbutt, the objective is to implement harvesting to establish a new, vigorous Blackbutt Stand. Crew to retain well formed, dominant BBT seed trees at ~40m spacing. Crew to remove as many merchantable stems not marked for retention and ensure disturbance creates a suitable seed bed for regeneration. Crew is responsible for selecting retained seed trees and retaining/protecting patches of advanced regeneration.

Future Treatment Area	As mapped on HPOM. To be retained for future harvesting treatments and to manage IFOA basal area limits for this harvesting event.
Monitoring	HC is to monitor BA retention during harvesting using 30 BA post-harvest sweeps randomly located across different stand types to ensure average BA is maintained. **Evidence of BA monitoring and the approximately plot location should be documented by HC. Ideally monitoring of BA should occur prior to leaving each dump to ensure any variance to planned outcomes can be rectified.** Retained BA can be lower in BBT stands if suitably offset in mixed hardwood. Any changes to treatment and offset areas need to be endorsed by the Planning Supervisor.

IFOA Limits	STS M – Mixed Dry Hwd	STS M - BBT	Future Treatment	Total
STS Tract	121 (55% NHA)	100 (45% NHA)	196	417
Pre-harvest BA	26	26	8	7314
Post harvest BA	13	13	8	4441
Planned Removal	50%	50%	0%	39%

8. Tree Retention - refer to TSL booklet for full conditions

Prescription	Condition/Responsibility
Mark-Up – the FT is responsible for marking up the forest ahead of harvesting operations consistent with SOP 2 Exclusion Zone Boundary Management, and SOP 3 Forest Mark Up and Tree Retention	
Compartment Mark-Up Survey 5.1, 5.2 & 5.13	Compartment mark-up surveys must be conducted at least 300m in advance of operations. The survey must search for threatened and protected species features listed in conditions 5.1 and 5.2 of the TSL. No Koala star search triggers were identified during pre-harvest surveys.
Hollow-bearing and Recruitment tree retention (H and R)	**Regrowth Zone** - 5.6 d), e), & f) conditions apply. Additional H trees for Greater Glider condition does not apply. FT must select and mark 5 H trees/ha where available and one R for each H retained.
Significant Food Resources 5.6g	FT must mark for retention: 6 Eucalypt feed trees/2 ha where they occur, glider sap feed trees, stands of forest oak and forest oak feed trees. White Mahogany, Bloodwood and Ironbark are suitable E tree species present in these compartments.
Harvesting - crew and HC responsibilities	
Protection of Retained Trees 5.6h	Trees marked or selected for retention must not be felled. The crew must minimise damage to H, R and E trees must by using directional felling.

	Harvesting debris should not accumulate within 5 m of retained trees. Where debris does accumulate the crew must remove or flatten to < 1m high. The HC must be notified of any badly damaged retained trees and they must assess and record if a replacement retained tree is required.
Stag Retention - Dead standing trees 5.6f	The crew should retain stags where safe to do so. The crew must record the date, DBH, risk and location of unsafe stags removed
Significant food resources 5.6g	The crew should avoid damaging flowering or fruiting banksias or grass trees.
Elite/Plus Trees	Retain and protect the elite tree (Yellow-band) identified off Blackbutt Rd and any others encountered (whether mapped or not).
Impenetrable Understorey	In areas mapped by the FT as Impenetrable Understorey procedures for harvesting in un-marked forest must be implemented by the HC and Crew.

9. Site-Specific Flora and Fauna

Condition	Boundary Type	Prescription
Riparian Habitat Protection 5.7 (The HPOM indicates LIC drainage order Corrected by LiDAR)	2 bars	Implement filter strip (hard) and protection zone (soft) around drainage features as shown on the HPOM. Refer to SOP1. FT must mark the location of UMDL with a "U" and 1st order protection zone boundary with 2 bars. The crew will locate and protect all 2nd order and above streams with GPS.
Ground Habitat 5.17	N/A	Commercial firewood collection is permitted in these compartments.
Rainforest 5.4	Accidental	Mapped exclusion zone to be located by GPS in harvester.
Owl Landscape 6.9.2		Occurs in conjunction with Rainforest.
Golden-tipped Bat 6.20	Machinery	Mapped exclusion zone to be located by GPS in harvester. Within 200m of record: • NO UMDL; revert to 10m EPL protection – FT to mark these areas with 2 bars • 30m buffer on mapped 1st & 2nd order streams
Ridge & Headwater Habitat 5.8	Limited	Mapped exclusion zone to be located by GPS in harvester.
Rocky Outcrops & Cliffs 5.11	Limited	Potential areas identified on HPOM. These, and others located during mark-up to be assessed and marked by FT.

		20m buffer on outcrops >0.1ha, or cliffs >3m high
Fish	N/A	No fisheries licence conditions apply.

10. Soil & Water – Refer to EPL Booklet for full conditions

Issue	Assessment	Conditions
EPL Scheduled Activity	No	Nil
Unmapped drainage Line harvesting	Permitted	Apply UMDL BMP's.
Inherent hazard level	2	**SOP 1**
Dispersible Soils	No	Nil
Mass Movement / Instability	Low	Nil
Acid Sulphate Soils	No	Nil
Seasonality Conditions	No	Nil
Historical or existing erosion	No	Nil
Ground cover	>70%	Nil
Burning conditions	No	Nil
Log Dumps	HC	**SOP 5** - HC is responsible for authorising moving the location of a log dump.
Roading management during harvesting	HC	**SOP 6 -** HC is responsible for monitoring road and crossing drainage during haulage.
Wet Weather and Rutting	Crew / HC	**SOP 6** - Crew is responsible for implementing automatic closures and following notified closures. HC is responsible for ensuring crew notified when notified closure is lifted.
Snigging		**SOP 8** - Crew is responsible for progressive drainage of snig tracks
Snig Track Crossings	HC	**SOP 9** - HC is responsible to ensure snig track crossings are approved prior to use and rehabilitated upon completion.

11. Crossing Approvals

All crossing approvals are shown on the operational map – any other feature crossings must be assessed, recorded below and approved by the Planning Supervisor before use.

Crossing	EPA Approval	Conditions

12. Operational Plan Briefing: A briefing of this operational plan was conducted by

Person	Role	Nature of Briefing	Date

13. Acknowledgement of Briefing: I acknowledge that I have received a copy of the plan documents and that I have been briefed on the conditions of the Plan. I understand the operational control requirements as outlined in the plan and take responsibility for the implementation of plan conditions relevant to my responsibilities

Name	Role	Signature	Date

14. Standard Operating Procedures: The following SOP's apply to this plan. FCNSW staff and the crew must hold a copy on site whilst operating and comply with the conditions set out in each SOP.

Procedure Number	Title
1	Drainage Feature Protection
2	Exclusion Zone Boundary Management
3	Forest Mark-Up
4	Operating in Inherent Hazard Level 3 Areas
5	Log Dump Operation and Use
6	Road and Crossing Management and Wet Weather Controls
7	Safety Requirements
8	Snigging and Snig Track Construction
9	Tree Felling and Servicing of Logs and Products
10	Fire Precautions and other Miscellaneous Requirments for Harvesting Contractors

Operational Diary:

Date	Issue	Action Required	Action Completed	Initials
Record: Daily activities (eg tree marking, dump 2); Condition 5.2 of TSL items - EEC locations, rocky outcrops, koala scats, feed tree identification etc), discussions with stakeholders/neighbours/ site visitors; areas of impenetrable understorey; unviable areas not marked, non-conformances; harvesting issues identified, twice weekly road and crossing drainage checks				