Victoria Government Gazette

No. S 104 Thursday 12 September 1996
By Authority. Victorian Government Printer

SPECIAL

MINISTER FOR AGRICULTURE AND RESOURCES

ELECTRICITY INDUSTRY ACT 1993

ORDER GRANTING MINING LICENCE PURSUANT TO SECTION 47A

RECOMMENDED to the Governor in Council that the attached order:

(a) Revoking the Order of 14 May 1996 granting Mining Licence 5004 to Hazelwood Power Corporation, and.

(b) Granting Mining Licence Number 5004 to Hazelwood Power Corporation Limited, and

(c) Approving the authority to commence work and the work plans (including a rehabilitation plan) for the mine, and

(d) Specifying the amount, the form of the rehabilitation and the conditions when the rehabilitation bond must be paid for the mine, and

(e) Specifying that the order does not come into operation until immediately after completion of the sale of all of the shares in the Hazelwood Power Corporation Limited pursuant to the Share Sale agreement dated 4 August, 1996;

be made pursuant to Section 47A of the *Electricity Industry Act 1993.*

PATRICK JOHN McNAMARA
Minister for Agriculture and Resources

ELECTRICITY INDUSTRY ACT 1993

ORDER GRANTING MINING LICENCE

The Governor in Council under Section 47A of the Electricity Industry Act 1993, on recommendation of the Minister for Agriculture and Resources:-

1. Revokes the Order of 14 May 1996 granting Mining Licence 5004 to Hazelwood Power Corporation.

2. Grants the Mining Licence Number 5004 attached hereto including the schedule of conditions attached thereto to Hazelwood Power Corporation Limited.

3. Approves:

   (a) the authority to commence work set out in schedule A to this order, and

   (b) the work plan (including a rehabilitation plan for the relevant land) set out in schedule B to this order.

   which are included in and form part of the Order.

4. Specifies that:

   (a) any references to Hazelwood Power Corporation in the licence, the authority to commence work and the work plan are to be construed as references to Hazelwood Power Corporation Limited;

   (b) the amount of the rehabilitation bond required to be entered into by Hazelwood Power Corporation Limited be $15 million;

   (c) the rehabilitation bond be in the form of a bank guarantee issued by a bank licensed under the Banking Act 1959 (Cth);

   (d) the rehabilitation bond must be entered into upon Hazelwood Power Corporation Limited ceasing to be owned by State Electricity Commission of Victoria and upon Hazelwood Power Corporation Limited being directed to do so by the Minister for Energy and Minerals, and

   (e) This order does not come into operation until immediately after completion of the sale of all of the shares in Hazelwood Power Corporation Limited pursuant to the Share Sale Agreement dated 4th August, 1996.

Date: 10 SEP 1996

Responsible Minister:
Hon P J McNamara
Minister for Agriculture
and Resources

A/ **Clerk of the Executive Council**

ELECTRICITY INDUSTRY ACT 1993

MINING LICENCE NO 5004

This mining licence is granted to **Hazelwood Power Corporation Limited C/- PO Box 195 Morwell 3840**. This licence is granted under section 47A of the Act, for a term of thirty years from the date of issuing this licence by the Generation Council.

This licence is subject to the following Conditions and Schedule of Conditions attached:-

1. The authority given under this licence applies only within the land indicated on the attached plan and is subject to the depth restrictions, if any, indicated on that plan under Section 15(9) or 16(5) of the Mineral Resources Development Act 1990.

2. The licensee must keep a copy of -

   (a) this licence; and

   (b) any approved work plan or approved variation to a work plan; and

   (c) any registered authority to commence work at a location near the licensed area;

   so that an Inspector and any other authorised officer can readily inspect them.

3. On receiving a registered authority to commence work, the licensee must notify an Inspector of Mines and if required by that Inspector must arrange an on-site briefing for any people the Inspector may nominate.

4. On discovering additional economic deposits of minerals, the licensee must report the occurrence to the Minister giving the estimated size, grade, suitability for mining, and an estimate of value at the time of discovery.

5. Pursuant to Section 47A of the Electricity Industry Act 1993 the work plan, including the rehabilitation plan and the authority to commence work are deemed to be registered from the date of issuing of this licence by the Governor in Council.

Department of Energy and Minerals

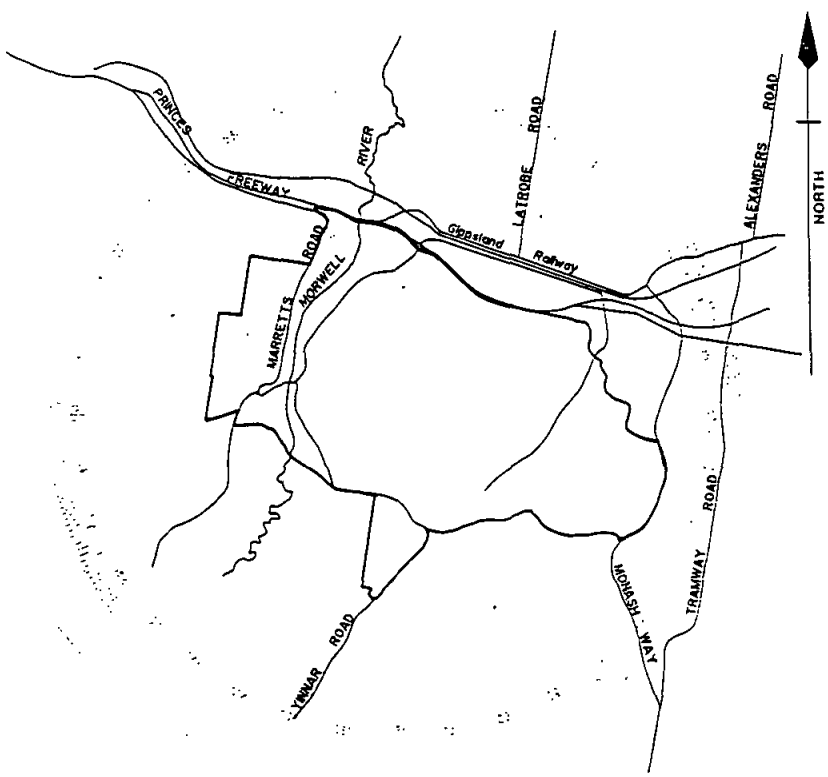
PLAN OF AREA

APPLIED FOR ON LICENCE
under Mineral Resources Development Act 1990

Min. No. 5004

Name of Applicant Hazelwood Power Corporation Ltd.

SHIRE OF LATROBE	TOTAL AREA ± 2725 Hectares NET AREA Hectares



1 0.5 0 1 2 KM
MEASUREMENTS IN KILOMETRES

* General Location Plan (Subject to survey)

* Land Ownership Detail Not Shown

* HAZELWOOD POWER STATION EXCLUDED FROM THIS LICENCE

Certified correct Licensed Surveyor AS PER WORKING PLAN Date	Checked Christy Thiagarajah Date 16 / 06 / 95 Record plan

SCHEDULE OF CONDITIONS
MINING LICENCE NO. 5004

1. WORK PLANS & ENVIRONMENTAL MANAGEMENT

1.1 Work shall be carried out in accordance with the aproved work plan, (incorporating a rehabilitation plan) as amended from time to time in accordance with the Mineral Resources Development Act 1990 (MRD Act). Where any inconsistency occurs between the work plan and other licence conditions or regulations, the licence conditions and regulations have precedence.

1.2 The licensee shall, within 60 days of being requested by the Executive Director, Minerals and Petroleum of the Department of Natural Resources and the Environment, submit a report on the status of work as per Schedule 14 of the MRD Act.

1.3 An Environmental Review Committee (ERC) shall be formed, comprising appropriate representatives from the Department of Natural Resources and the Environment (DNRE), representatives of the licensee, the Environment Protection Authority, the responsible water authority and a representative of the Minister responsible for the Water Act 1989, the LaTrobe Council and any other relevant agency with an interest or control over the site or operations. The community shall also be represented, with nominations to come from the Latrobe Council. Up to two community representatives may be selected for renewable fixed terms. The ERC shall be convened at least once in every 6 months to review environmental effects of the project.

1.4 Results of environmental monitoring conducted under the Environmental Monitoring Program (EMP) shall be regularly reported to the ERC in a format agreed to by the Committee to enable it to assess environmental performance.

1.5 The ERC may from time to time recommend variations to the EMP and licence conditions where appropriate. Any variations to the EMP as accepted by the licensee and DNRE shall be registered as a variation to the work plan and shall be implemented.

2. FENCING AND SECURITY

2.1 Where public access is a safety hazard within the mining licence, the licensee must fence and signpost the area to ensure public safety is maintained.

2.2 When directed by an Inspector of Mines (hereinafter referred to as an Inspector), a fence or fences shall be erected around specified work site areas to a written specification which may include time limits. Gates of a similar standard shall be provided when directed. Gates and fences shall be maintained during the term of the licence to the satisfaction of an Inspector.

3. ROADS

3.1 Internal roads additional to those shown in the working plan shall be sited as approved or directed by an Inspector after consultation with the Department of Natural Resources and the Environment in the case of Crown land.

3.2 Subject to the approval of the Mine Manager and appropriate site induction any such road may be used:

(a) officers of or persons authorised by the DNRE or employees or persons engaged in fire control. (Mine Managers approval not required by authorised fire fighters in an emergency provided they are under the supervision of a mine employee).

(b) for the extraction of forest produce or for mining purposes by any other licensee under the MRD Act 1990 or Forests Act 1958 (or any successor legislation) under such conditions as may be determined by agreement between the parties concerned; and

(c) by the landowners or their agents where the licence covers private land.

3.3 The licensee shall ensure that all internal roads are properly formed, drained, surface treated and maintained to the satisfaction of an Inspector and that any dust nuisance originating from use of the roads by the licensee shall be controlled to the satisfaction of an Inspector.

4. SURFACE DISTURBANCE

4.1 The area of surface disturbance must be kept to a minimum.

4.2 Adequate provision shall be made for the separate stockpiling or immediate utilisation for rehabilitation of any soils. These materials, if stored, are to be stored in neat and tidy dumps not exceeding 2 metres in height and such dumps are to be protected from erosion.

4.3 No area shall be opened up for exploration, mining and ancillary operations, except where approved as part of the approved work plan.

4.4 Where the licence covers Crown land, all surface activity may be subject to compliance with the Forests Act 1958 and Regulations.

4.5 Where the licence covers private land, such fire fighting equipment and appliances shall be kept on site in working order as may be required by the Country Fire Authority. With respect to public land, the Forest Fire Regulations 1992 require the provision of fire fighting equipment and the provision of spark arrestors on engine powered equipment.

4.6 Burning of any timber at the site shall be done in accordance with any requirements of the Local Municipality, DNRE and the Country Fire Authority.

5. DRAINAGE AND DISCHARGE CONTROL

5.1 Any discharges from the licence area shall be minimised and any water discharged must be as free as possible of pollutants, save as provided by any licence issued pursuant to the Environment Protection Act.

5.2 All discharges shall meet the standards required under the State Environment Protection Policies under the Environment Protection Act 1970.

5.3 Sediment retention structures, including dams, shall be constructed in accordance with the approved work plan. An Inspector may also direct such works to be undertaken, where necessary, to control drainage from any disturbed area.

5.4 Rainfall and other natural waters shall be diverted away from works area so as to control erosion, pursuant to Condition 7. However, such works shall, as far as practicable, not cause undue alteration to the general drainage pattern beyond the licensed area.

6. TAILING DAMS

6.1 All proposed work associated with the construction of tailing dams or other tailing impoundment areas, shall be subject to written approval by the Chief Administrator (or his delegate) following certification by an approved geotechnical engineer.

7. GROUNDWATER

71. Any aquifer dewatering and/or depressurisation must be carried out in accordance with the conditions specified in the Groundwater Licence issued by the Minister responsible for the Water Act 1989.

7.2 A monitoring program consistent with the programs previously carried out by the State Electricity Commission of Victoria and Generation Victoria to determine the impacts of dewatering/depressurisation both on site and regionally must be maintained to the satisfaction of an Inspector and the responsible Minister under the Water Act 1989 or his delegate.

The licensee shall ensure that results of the monitoring program are reported to the responsible Minister under the Water Act 1989 or his delegate and the Environmental Review Committee annually and at whatever times required by the Groundwater Licence.

7.3 In the event that the monitoring program in 7.2 indicates material adverse impacts beyond those evident at the date of issue of the licence which are attributable to the dewatering/depressurisation by the licensee after the date of issuing of the licence then the licensee must institute such reasonable remedial action as may be required by the Inspector and the responsible Minister under the Water Act 1989 or his delegate to ameliorate these effects, proportionate to the licensee's contribution.

7.4 For the purposes of 7.3 material adverse impacts comprise effects on aquifers in the LaTrobe Valley such that the interests of other users are materially prejudiced or subsidence on a significant scale occurs as a direct result of ground water extraction which materially adversely affects private property or public lands.

7.5 Any remedial action under 7.3 must be to the satisfaction of the Inspector and the responsible Minister under the Water Act 1989 or his delegate.

8. EROSION

8.1 The licensee shall undertake all necessary works to ensure that the potential for erosion of land affected by mining is minimised.

8.2 Should erosion occur, the licensee shall take all practical steps to minimise the erosion to the satisfaction of an Inspector.

9. HYDROCARBONS

9.1 Storage of hydrocarbons shall be undertaken in general accordance with AS 1940. Bunding or other methods to the satisfaction of an Inspector, capable of containing 125% of the maximum volume stored, shall be constructed around all fuel and lubricant storage facilities.

9.2 Any drainage from an area that may be subject to hydrocarbon spillage, such as a machinery maintenance area, shall be free from hydrocarbon contamination and directed to a sump or interceptor trap.

10. DUST EMISSIONS

10.1 Dust control measures must be in place to minimise dust generation so that detriment is not caused to surrounding areas and residents.

10.2 Dust resulting from all operations including extraction, loading, transport and stockpiling shall be controlled to the satisfaction of an Inspector. The licensee must install any dust control measures to the satisfaction of an Inspector.

11. NOISE

11.1 Precautions to the satisfaction of an Inspector shall be taken to ensure that noise emissions comply with the provisions of any regulations under the MRD Act as they relate to noise exposure to workmen. Noise emissions measured at any residence within the vicinity of the licensed area shall comply with limits set using the procedures described in State Environment Protection Policy No. N1 (SEPPN-1) or any other limit set under the Environment Protection Act where SEPP N-1 is not applicable.

11.2 The mines are permitted to operate 24 hours per day 7 days per week.

12. PARKING AREAS

Parking areas are to be provided within the licensed area for all vehicles used in connection with the operation, including private vehicles used by employees and visitors.

13. DERELICT AND REDUNDANT PLANT

All derelict and redundant plant, vehicles, machinery and equipment shall be either:

- removed from the licensed area and deposited at an appropriate waste disposal site; or
- properly stored/stockpiled on the licensed area in a location and manner approved by an Inspector.

14. BUFFER ZONES AND VISUAL SCREENING

14.1 No excavation shall take place within 20 metres of the licence boundary, except that this requirement shall not apply with respect to any common licence boundary with an adjacent mining licence.

14.2 Existing vegetation outside of the area subject to surface disturbance shall be preserved and maintained provided due regard is taken of fire protection arrangements.

14.3 The licensee shall supplement existing vegetation by additional planting to provide a screen for mining and allied operations as required by the rehabilitation plan and any additional plantings as required by an Inspector. The fire protection at the site shall be considered.

14.4 Unless otherwise approved by an Inspector, the licensee shall take precautions to ensure that no species inconsistent with the surrounding vegetation are introduced to the area.

15. PROGRESSIVE REHABILITATION

15.1 Progressive reclamation will be conducted as per the rehabilitation plan. In addition, any further rehabilitation work will be carried out at the direction of an Inspector.

15.2 As and when directed by an Inspector of Mines, despite any compensation agreements between the licensee and the owner of any private land in the licence, the licensee shall undertake progressive reclamation of land on the area subject to surface disturbance.

16. FINAL REHABILITATION

16.1 Final reclamation will be in accordance with the rehabilitation plan and any additional requirements as directed by an Inspector.

16.2 Failure to complete works in accordance with the rehabilitation plan or in accordance with the directions of an Inspector, shall constitute grounds upon which the rehabilitation bond may be forfeited either in whole or in part in accordance with Section 83 of the MRD Act.

17. HERITAGE SITES

17.1 Any significant historic sites or relics that are to be removed shall be accurately mapped and documented prior to the commencement of any mining or allied operations. Such documentation shall be made available to the relevant section of the Department of Natural Resources and the Environment.

17.2 Tenure of this licence does not exempt the holder from the following provisions of the Archaeological and Aboriginal Relics Preservation Act 1972:

Section 21(1) - "A person who wilfully or negligently defaces or damages or otherwise interferes with a relic or carries out an act likely to endanger a relic shall be guilty of an offence against this Act"; and

Section 23(1) - "A person who discovers a relic shall forthwith report the discovery .... unless he has reasonable grounds to believe that the relic is recorded in the register ....". Reports in compliance with Section 23(1) should be submitted to:

The Director
Aboriginal Affairs Victoria
Department of Human Services
2nd Floor
115 Victoria Parade
FITZROY VIC 3065
(Telephone (03) 9412 7498)

18. BUILDINGS

18.1 No buildings shall be erected before any relevant building permits have been obtained.

18.2 All fixed plant and buildings shall be painted or surface treated in a colour to blend with the surroundings to the satisfaction of an Inspector in consultation with the local municipality and in the case of Crown land, Department of Natural Resources and the Environment.

19. ROYALTY

19.1 Each mining company must pay to the Minister for payment to the Consolidated Fund in each financial year an amount equal to the prescribed amount in respect of each gigajoule unit of coal produced from its brown coal workings in the State and used or sold by the company in the last preceding financial year.

19.2 For the purposes of 19.1, a gigajoule unit of coal is a quantity of coal which, when mined, has a net wet specific energy content of 1 gigajoule.

19.3 The net wet specific energy content of coal produced by a company from its brown coal workings and used or sold by the company in a financial year shall be calculated in such manner and in accordance with such method of sampling as is agreed to by the Minister and the company or as is, in default of the agreement, determined by the Governor in Council.

19.4 For the purposes of 19.1, the prescribed amount shall be the amount derived by multiplying $0.0239 by

$$\frac{A}{B}$$ where-

A is the consumer price index number in respect of the relevant quarter; and

B is the consumer price index in respect of the quarter ending on 30 June 1993.

19.5 The payment of the amount to the Minister under 19.1 shall be made in accordance with the Mineral Resources (Royalties) Regulations 1991.

19.6 In this section -

"consumer price index number" means the all groups consumer price index number for Melbourne published by the Commonwealth Statistician in respect of the quarter ending on 30 June in each year or, if that statistic is no longer calculated, the nearest substitute for it;

"relevant quarter" means the quarter ending on 30 June immediately preceding the financial year in relation to which the prescribed amount is being calculated.

20. REHABILITATION BOND

20.1 The licensee shall lodge with the DNRE a rehabilitation bond as described in Section 80(1) of the Act when required in accordance with these conditions. The bond must be lodged in the form of a bank guarantee issued by a bank licensed under the Banking Act 1959 (Cth).

20.2 The licensee shall be required to lodge that bond upon the licensee ceasing to be a State Owned Corporation and upon being directed to do so by the Minister for Agriculture and Resources.

20.3 The level of this bond has initially been assessed at $15 million.

21. APPLICATION OF REGULATIONS

21.1 The Mineral Resources (Health and Safety for large Open Cut Mines) Regulations 1995 will apply to the licensee.

21.2 Any subsequent Regulations issued under the act will also apply

AUTHORITY TO COMMENCE WORK

Sec 42 of the MRD Act 1990

MINING LICENCE NUMBER:	Mining Licence 5004
NAME(S) OF LICENSEE(S):	Hazelwood Power Corporation Ltd
ADDRESS(S) OF LICENSEE(S):	P O Box 195 Morwell Vic 3840
AREA TO WHICH AUTHORITY TO COMMENCE WORK RELATES:	As per workplan dated 1.6.95
LOCATION OF LICENCE:	La Trobe Valley

AN AUTHORITY TO COMMENCE WORK IS HEREBY GRANTED

Date of Registration
___/____/___

Time of Registration
_____am/pm

MINING REGISTRAR
MRDA 1990

SCHEDULE A

Victoria Government Gazette S 104 12 September 1996 13

HAZELWOOD POWER CORPORATION

SCHEDULE B

5 YEAR ROLLING MINE REHABILITATION PLANS

SUMMER - AUTUMN 1996

D P S PTY LTD
CIVIL ENGINEERS &
ENVIRONMENTAL DESIGNERS
5th. Floor
8 Market Street Ph.(03) 629 3088
Melbourne 3000 Fax.(03) 629 3161

Victoria Government Gazette
12 September 1996
S 104
14

HAZELWOOD POWER CORPORATION (HPC)
5 YEAR ROLLING MINE REHABILITATION PLANS
SUMMER - AUTUMN 1996

1 INTRODUCTION

The drawings enclosed in this document form the scope of the proposed rehabilitation work for the Mine from Summer - Autumn 1996. These works are part of the 5 Year Rolling Mine Rehabilitation plans which are to be read in conjunction with the HPC Mine Rehabilitation Master Plan.

The rehabilitation works in this document have been divided into seven areas to the North-East, West, South and Eastern Area of the Mine (including the Eastern Overburden Dump). The drawings detail the following works associated with each of these areas:

A Landform shaping, drainage and grass sowing

B Tree Planting

C Fencing (Stock, Tree Planting, Fox Proof)

2 SCOPE

The areas covered by the drawings include:

Area 1	Land immediately to the south of the Western External Overburden Dump;
Areas 2 & 3	The Western Perimeter Wetlands and Landscaped Embankment;
Area 4	The Southern Corner of the proposed Mine South East Field;
Area 5	Land adjacent to the Hazelwood Transfer Area;
Area 6	Land in proximity to the Eastern Mine batters and Eastern Overburden Dump;
Area 7	Land on the Eastern Overburden Dump.

3 METHOD OF PRESENTATION

Drawing No. F47/197/46 shows an overview of the work areas as detailed above.

Drawing No.s F47/197/47-53 detail the proposed works with plans and sections as required.

Drawing No.s F47/197/54-58 comprise vistas of areas to be planted as viewed from appropriate vantage points in the field. These include plastic overlays of the proposed plantings in order to visualise the enhancing effect of the trees on the area.

4 DESCRIPTION OF WORKS

4.1 Area 1 - Land Immediately To The South Of The Western External Overburden Dump

The segment of land adjacent to the existing SILCAR Maintenance Depot and Car Park is to be reshaped with the existing drain cleared of debris and erosion repaired. The entire area is to be topsoiled and sown with grass seed to reduce runoff.

4.2 Areas 2 & 3 - The Western Perimeter Wetlands and Landscaped Embankment

The recently constructed wetlands, existing Old Morwell River meanderings, and an existing gully line on the Landscaped Embankment are to be planted with indigenous tree species. The plantings have been chosen to suit to the wetland environment and the layout has been designed in a manner that highlights the watercourse character rather than obscuring it.

The watercourses and tree plantings are to be fenced off for protection from grazing pressure. An erosion resistant "Stock Water Access Point" is to be constructed at one Billabong to allow water consumption without eroding the water edge.

"Fox-proof" fences are to be installed in selected locations on the River Meanderings to allow protected "Tortoise Breeding Areas". These areas allow laying of eggs in specially provided sand layers in suitable environments protected from predators.

HAZELWOOD POWER CORPORATION (HPC)
5 YEAR ROLLING MINE REHABILITATION PLANS
SUMMER - AUTUMN 1996

4.2 Areas 2 & 3 - The Western Perimeter Wetlands and Landscaped Embankment (Cont.)

An existing batter area is to be cleared of poisoned blackberries and sown with grass seed.

A segment of unrehabilitated land is to be smoothed, shaped then topsoiled and sown with grass seed.

4.3 Area 4 - The Southern Corner Of The Mine South East Field

This area provides an uninterrupted view from Brodribb Road to the rather unsightly Solar Dried Slurry site and Hazelwood Transfer Area Settling Pond. Tree screening has been designed to block this view and harmonise with existing plantings along the road.

The plantings are to be fenced off for grazing pressure protection and have been planned to remain clear of the existing overhead transmission line.

4.4 Area 5 - Land Adjacent To The Hazelwood Transfer Area

This area is to be visually enhanced with indigenous tree planting in order to -

i) Obscure unsightly existing Standpipes;

ii) Stabilise an existing gully line; and

iii) Augment former roadside planting.

The tree planting areas are to be fenced off for protection from grazing pressure.

4.5 Area 6 - Land In Proximity To The Eastern Mine Batters And Eastern Overburden Dump

Stage 3 of the Eastern Batters is to be shaped and grassed, and drainage provided.

A wetland that has been developed in a former quarry site adjacent to the Eastern Overburden Dump is to be planted with indigenous wetland species on the edge and on islets within the pond.

4.6 Area 7 - Land On The Eastern Overburden Dump.

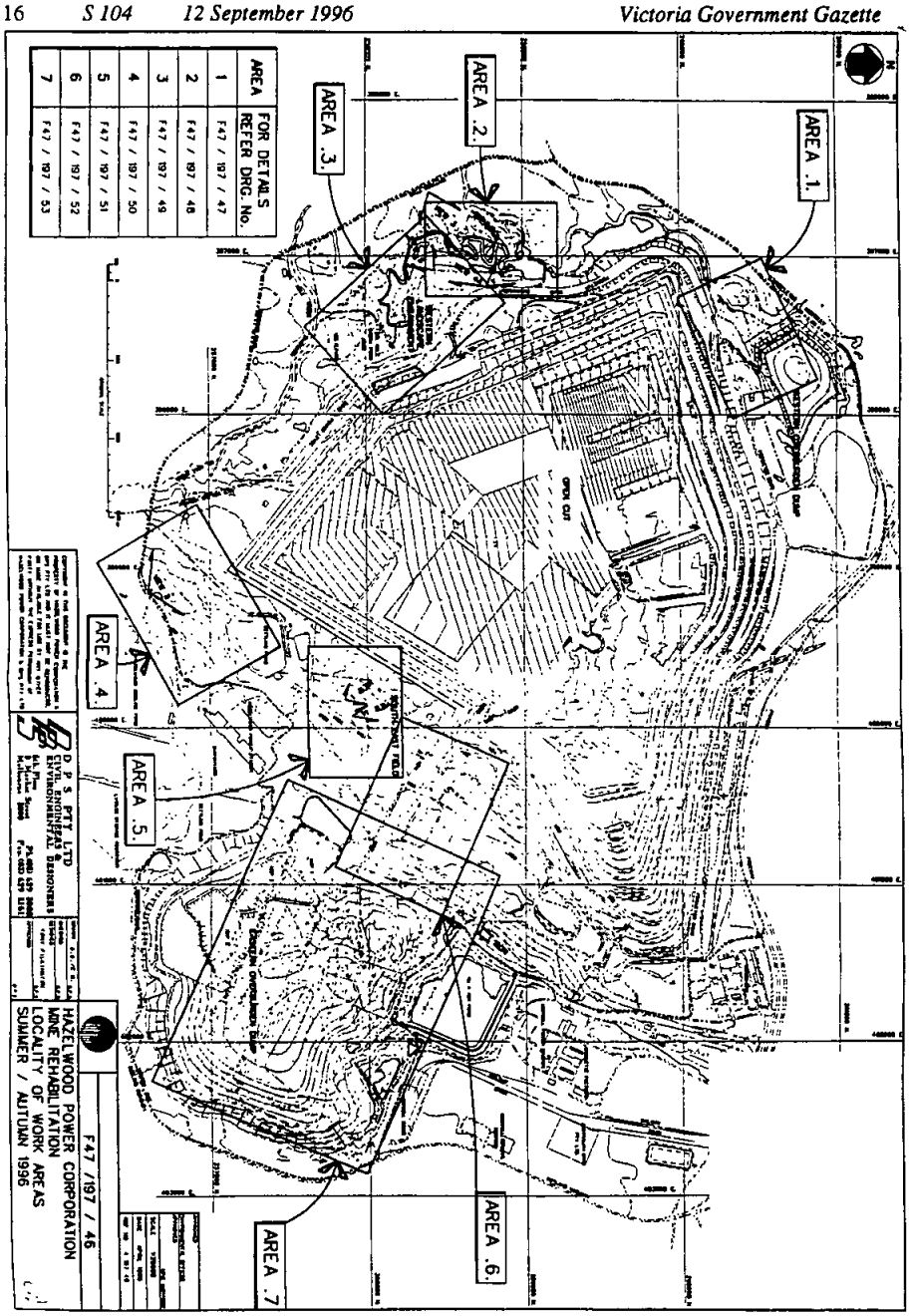
This area includes a previously rehabilitated segment which is to have additional fencing constructed to extend the existing grazed areas. Sites have been set aside for future tree planting.

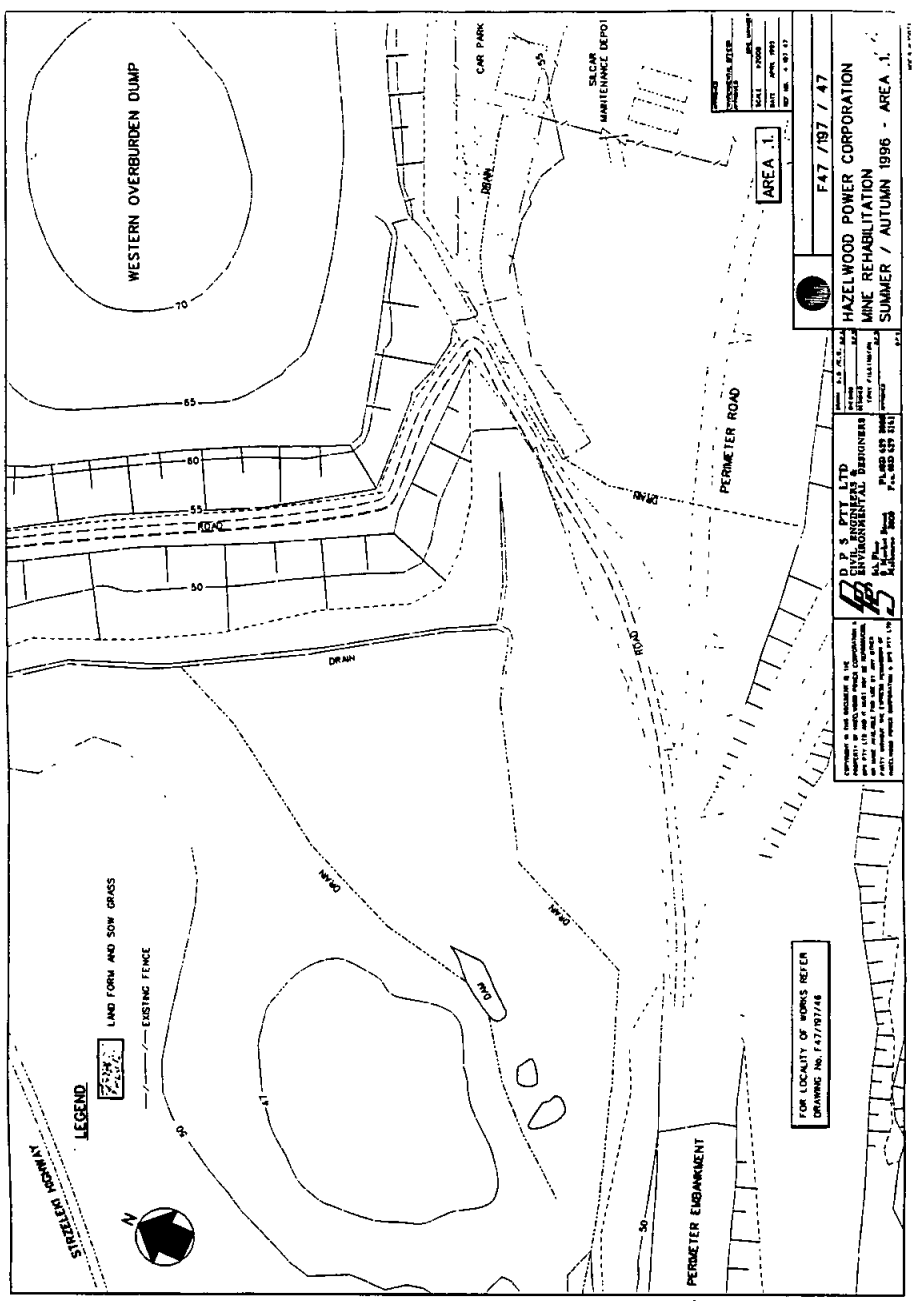
Two further areas are to be shaped and sown to pasture. One area is the normal yearly extension of the overburden dump and the other is a smaller area requiring filling and regrading.

5 NON-DISTURBANCE OF PRIOR WORKS

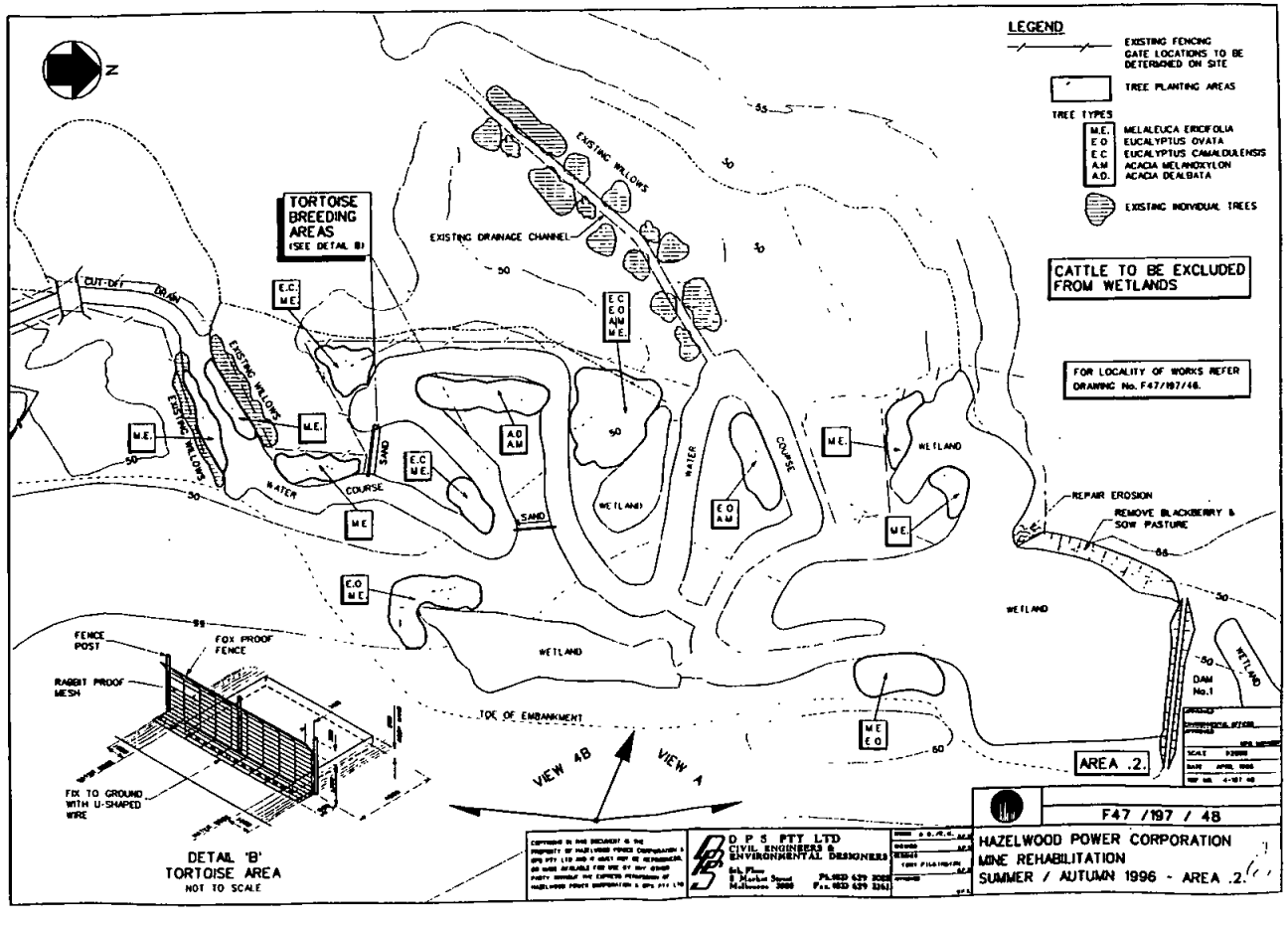
Care is to be exercised during implementation of these works in order to not disturb existing vegetation, prior tree planting, drainage works, pastured areas or land prepared for pasture.

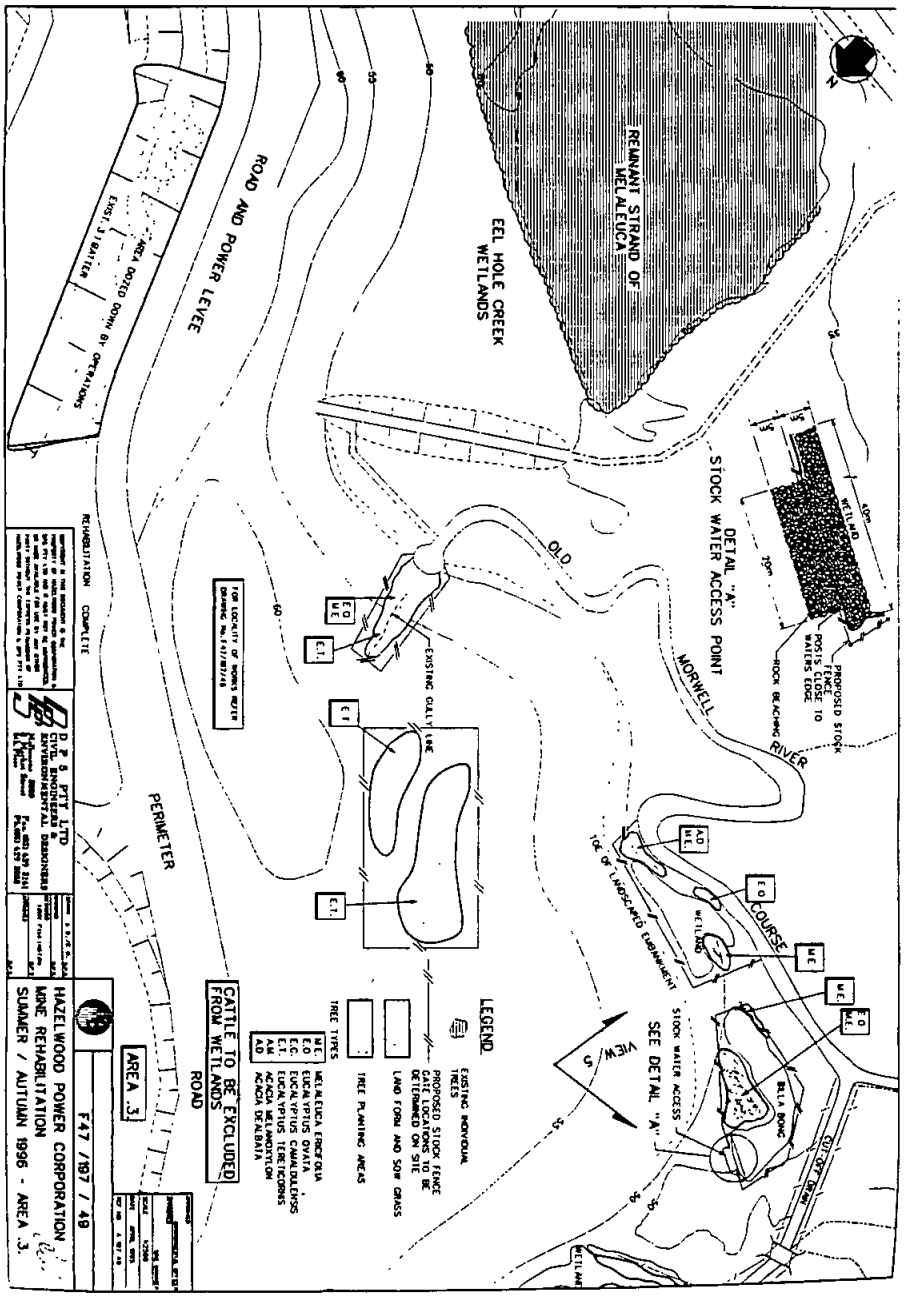
Vehicles are not to be driven on graded areas prepared for grass as the tyre tracks will form the basis of rilling erosion. Permission is to be obtained from the appropriate HPC officer before accessing these areas.



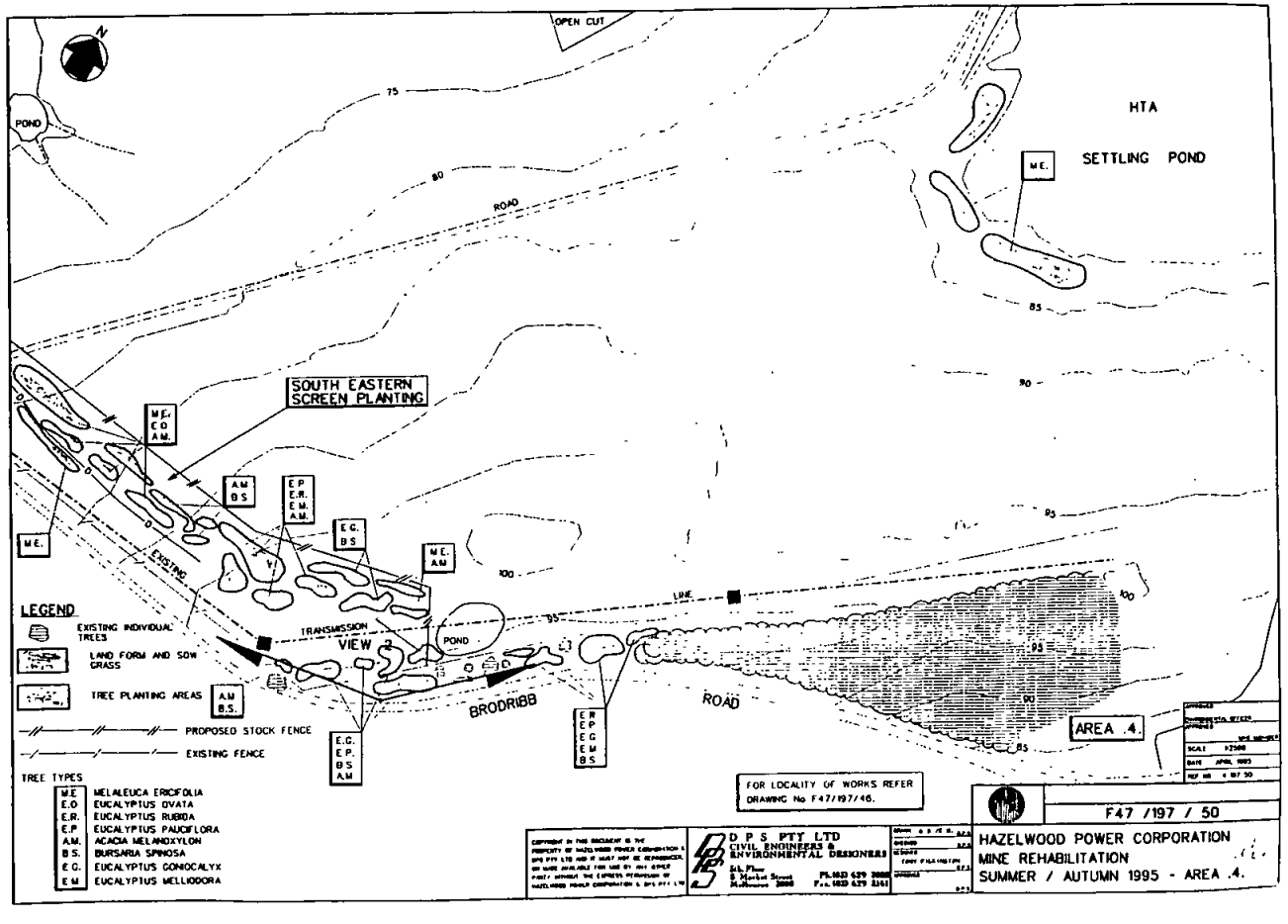

WESTERN OVERBURDEN DUMP
CAR PARK
SLCAR MAINTENANCE DEPOT
AREA .1.
F47 /197 / 47
HAZELWOOD POWER CORPORATION
MINE REHABILITATION
SUMMER / AUTUMN 1996 - AREA .1.
D.P.S. PTY. LTD.
PERIMETER ROAD
DRAIN
ROAD
PERIMETER EMBANKMENT
STRZELECKI HIGHWAY
LEGEND
LAND FORM AND SOW GRASS
EXISTING FENCE
FOR LOCALITY OF WORKS REFER DRAWING No. F47/197/46

Victoria Government Gazette 12 September 1996 S 104 18

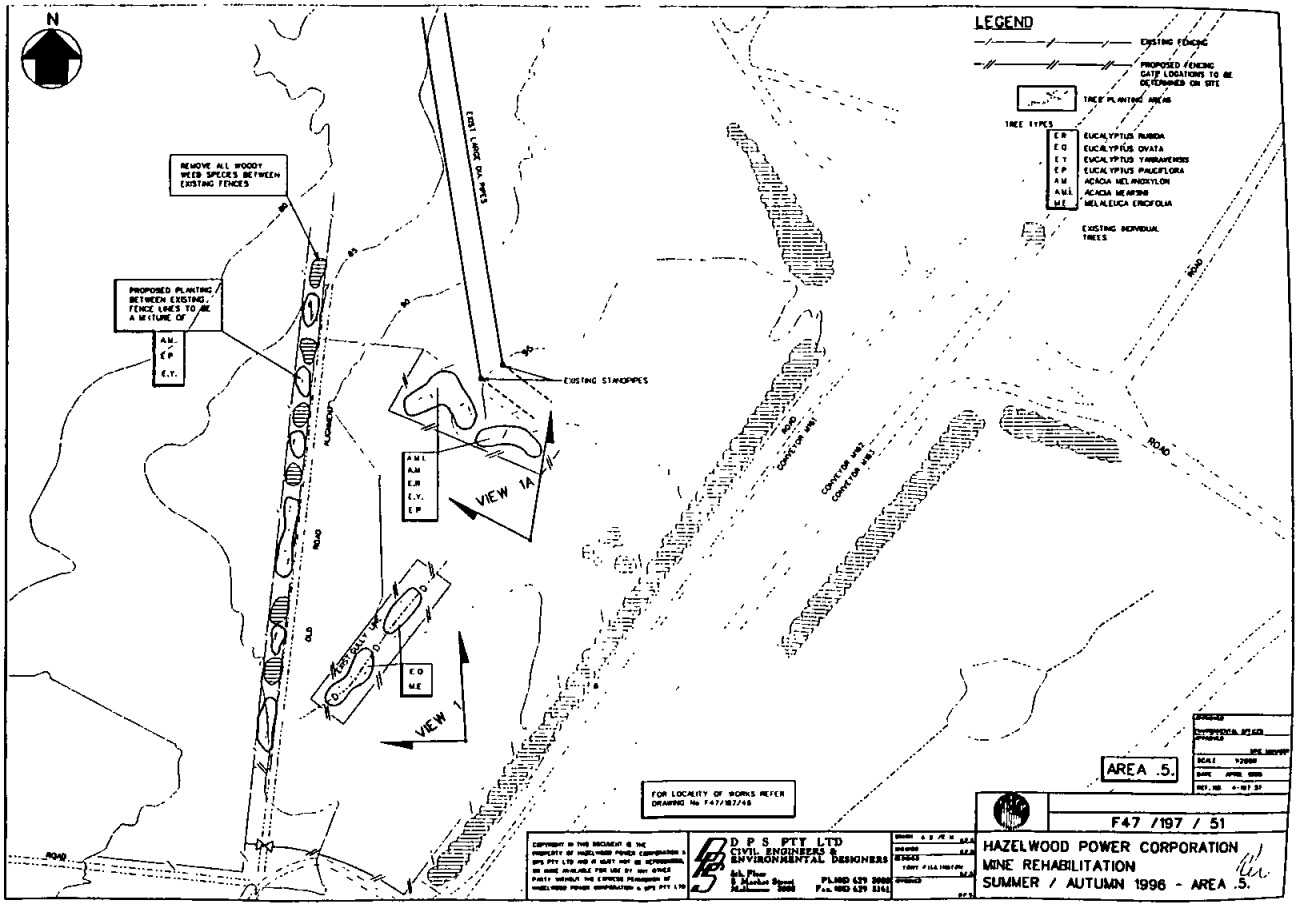


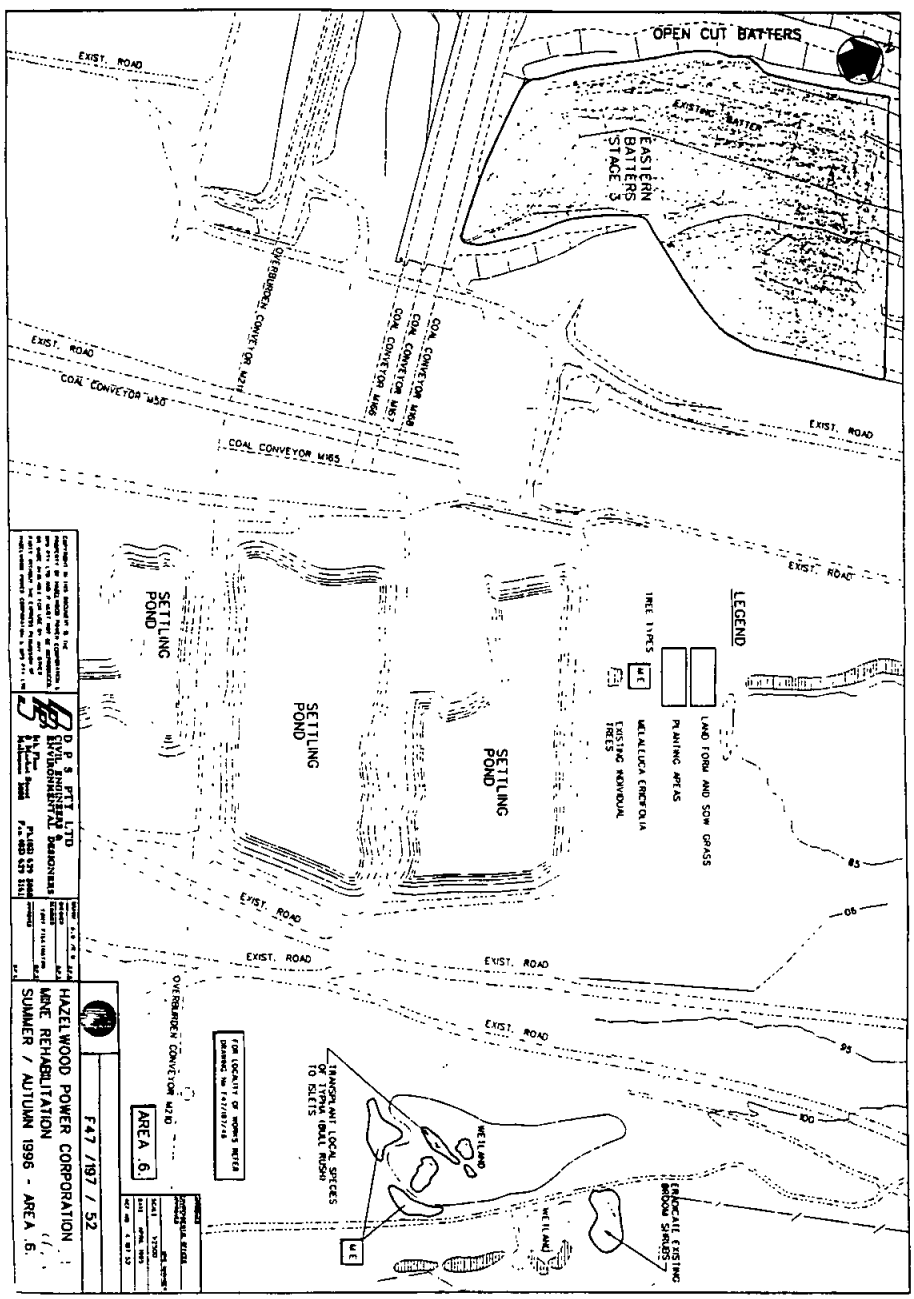


Victoria Government Gazette 12 September 1996 S 104 20

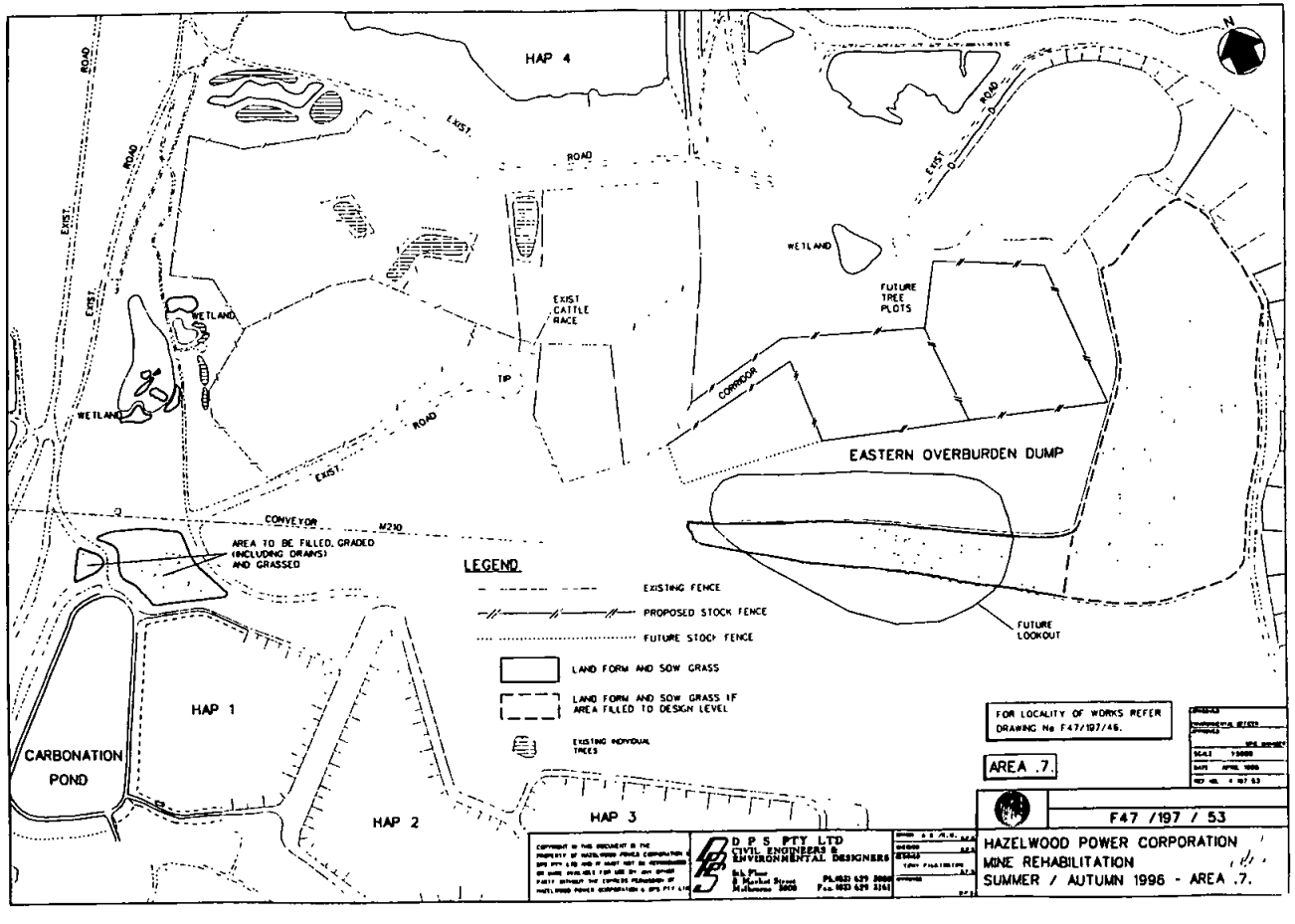


Victoria Government Gazette S 104 12 September 1996 21





Victoria Government Gazette S 104 12 September 1996 23



VIEW 1

VIEW 1A

HAZELWOOD POWER CORPORATION

VIEW .1

F47 /197 / 54

FOR LOCATION OF VIEWS REFER DRAWING No F47/197/46

D P S PTY LTD
CIVIL ENGINEERS &
ENVIRONMENTAL DESIGNERS

HAZELWOOD POWER CORPORATION
MINE REHABILITATION
SUMMER / AUTUMN 1996
PLANTING VIEW No .1.

VIEW 2

FOR LOCATION OF VIEWS REFER DRAWING No F47/197/45

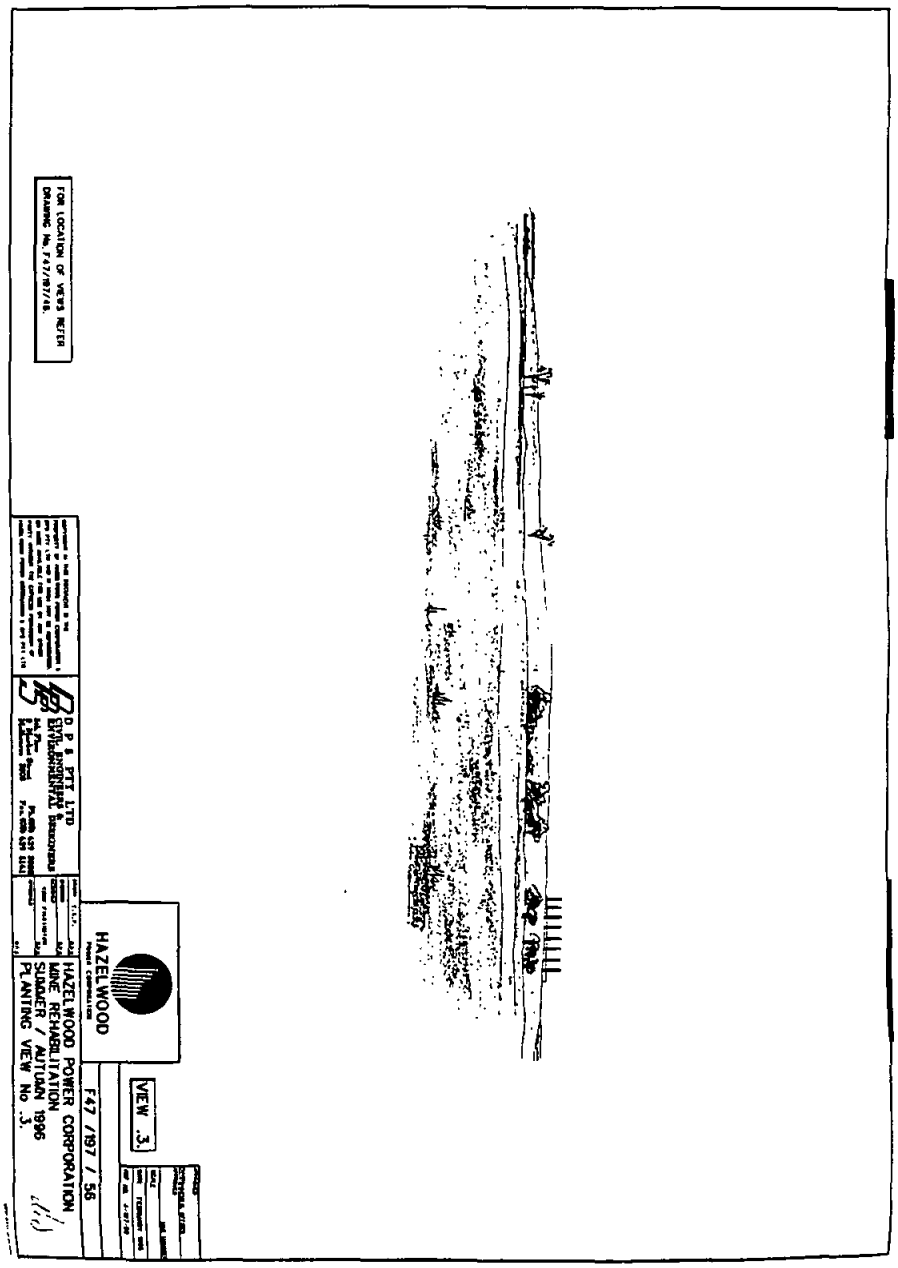
D P S PTY LTD
CIVIL ENGINEERS & ENVIRONMENTAL DESIGNERS

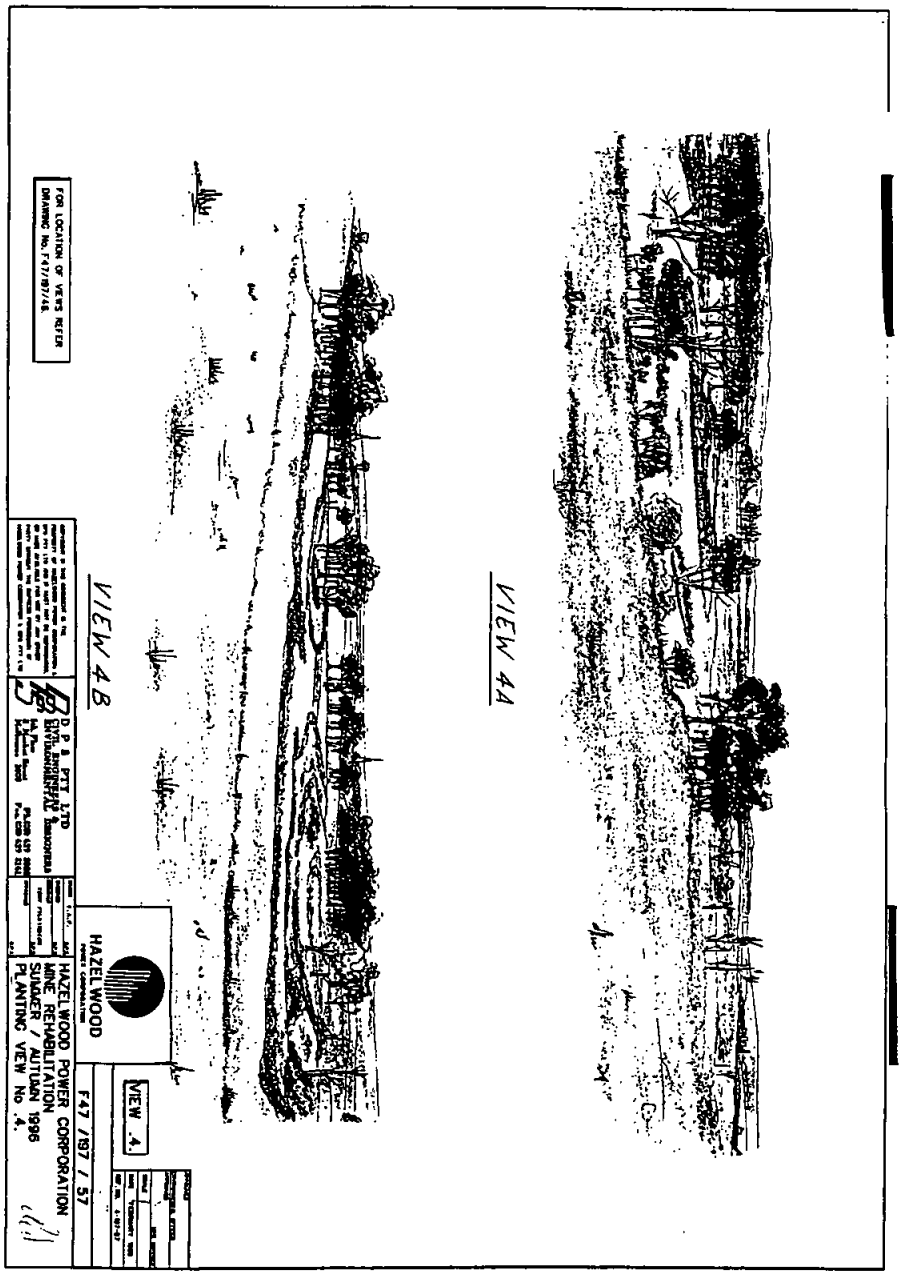
HAZELWOOD
POWER CORPORATION

VIEW .2.

F47 /197 / 55

HAZELWOOD POWER CORPORATION
MINE REHABILITATION
SUMMER / AUTUMN 1996
PLANTING VIEW No .2.





Victoria Government Gazette 12 September 1996 S 104 28

VIEW 5

FOR LOCATION OF VIEWS REFER DRAWING No F47/197/48.

HAZELWOOD POWER CORPORATION

VIEW .5.

F47 /197 / 58

D P S PTY LTD
CIVIL ENGINEERS &
ENVIRONMENTAL DESIGNERS

HAZELWOOD POWER CORPORATION
MINE REHABILITATION
SUMMER / AUTUMN 1996
PLANTING VIEW No .5.

REPORT TO:
GENERATION VICTORIA
MORWELL MINE

MORWELL MINE REHABILITATION CONCEPT MASTER PLAN

BY DPS PTY LTD

DECEMBER 1994

CONTENTS

1 INTRODUCTION

2 PREVIOUS STUDIES

3 POLICY BACKGROUND

4 MINE REHABILITATION POLICY

5 PURPOSE OF THE MORWELL MINE REHABILITATION MASTER PLAN

6 MORWELL MINE REHABILITATION CONCEPT MASTER PLAN

7 5 YEAR ROLLING IMPLEMENTATION PLANS

8 FURTHER STUDIES

THE CONCEPT MASTER PLAN

1 INTRODUCTION

In recent years Morwell Mine has followed a consistent path of providing all necessary planning in progressively rehabilitating the Mine and its environs. A number of significant discreet areas around the Mine have been rehabilitated to design drawings, and in some cases, following extensive reports on land-use and landform. The purpose of this document is to draw on the work provided in these previous studies to produce one overall Rehabilitation Concept Master Plan for land disturbed by mining.

This document will form the framework for rehabilitation against the background of Generation Victoria's "Rehabilitation Policy - Land Affected By Coal Mining Activities". It will detail the purpose of the Rehabilitation Master Plan for Morwell Mine and outline further studies required before final rehabilitation of the Mine.

2 PREVIOUS STUDIES

A number of extensive studies have been undertaken which have provided valuable assistance in the conservation and rehabilitation of areas around Morwell Mine. The recommendations from these studies have been followed throughout progressive rehabilitation of the Mine. These are outlined below:

	REPORT	DATE
1	Morwell Eastern External Overburden Dump Rehabilitation Plan (Internal Report, Author D Seymour)	June 1988
2	Morwell Open Cut Western Overburden Dump Draft Rehabilitation Plan (Consultant Tract, Author unknown)	April 1989
3	Soil and Land Capability Analysis Of The Eastern Overburden Dump Morwell Open Cut (Consultant and Author Dr J Jenkin)	June 1989
4	Management of Melaleuca Ericifolia Swamp Forest at Morwell Open Cut (Consultant Ecological Hoticulture, Author G W Carr)	August 1990
5	Visual Management Analysis (Internal Report, Author P Jones)	September 1990
6	Morwell Open Cut Strategic Plan for Mine Rehabilitation (Internal report, Author T Pilkington)	September 1992

7	The Distribution Of Remnant Vegetation In The Latrobe Valley Victoria (Consultant Ecological Horticulture, Author Carr et al)	October 1992
8	Morwell Open Cut Land Capability Analysis Plan (Internal Plan, Author A Noy)	January 1993
9	Morwell Open Cut Preliminary Hydrological Study On Formation Of Lake (Internal report, Author P Tang)	June 1993

The first report was prepared by Tract Consultants and produced a plan for the ultimate rehabilitation of the Eastern Overburden Dump with land use and landscape concepts. Generation Victoria has followed the plan in concept, changing some detail to suit site conditions.

The second report was prepared internally and provided a final landform and drainage design for the Western Overburden Dump. Landscape plans were produced separately following the earthworks and grassing for each stage. Rehabilitation of the area has recently been completed.

The third report was prepared by the consultant Dr John Jenkin and provides a comprehensive study of soils, erosion, and Land Capability of the Eastern Overburden Dump.

The fourth report was prepared by the consultant Ecological Horticulture, and recommended a strategy for managing the Melaleuca Ericifolia Wetlands to the south-west of the Mine. The main recommendation was to maintain an efficacious hydrological regime for the tree species by controlling summer and winter water tables. The area has continued as a viable Eco-system.

The fifth report was prepared internally, originally to provide a system to monitor the progress and satisfactory completion of rehabilitation of the Western External Overburden Dump. The system monitored landscape pattern, program, cost-effectiveness, land-use and community factors. The system can be extended for use with other rehabilitation projects.

The sixth report was prepared internally and set the initial framework for overall rehabilitation at Morwell Mine by detailing broad ongoing strategies. The report included recommendations for long term rehabilitation and a time frame for production of a Rehabilitation Master Plan. These strategies have since been refined and included in the recent Generation Victoria Rehabilitation Policy.

The seventh report was prepared by the consultant Ecological Horticulture and provides details of the distribution of plant communities throughout the Latrobe Valley. The indigenous species and their habitat are described for revegetation purposes.

The eighth item is a Land Capability Analysis (LCA) plan produced internally following field analysis and subsequent land-use assessment. The plan was intended to provide the basis for land use information on a large scale. The plan basically divides the mine and environs into land units based on slope class and broad soil type. From this, the capability of these units to sustain particular land-uses were assessed. Land uses rated were Grazing, Conservation, Recreation (Active/Passive) and Forestry (Open Woodland/Plantation). These intended uses have been shown on the Concept Master Plan.

The ninth item is a report prepared internally to investigate the feasibility of all or part of Morwell Mine becoming a Lake at the end of mining operations. The report examined the possibility of diverting water from Hazelwood Cooling Pond and Morwell River. However, there are potential problems which will require further investigation particularly in the water quality, geotechnical and hydrological areas.

3 POLICY BACKGROUND

Generation Victoria (formerly the SECV) decided in the early 1980's through consultation with other government agencies and local community groups that a policy on rehabilitation of land disturbed by mining was required. It was anticipated that the policy would provide overall direction for rehabilitation work. After several months, the SECV Rehabilitation Policy For Open Cuts And Overburden Disposal Areas (1986) was produced. The principal objective of this policy was:

> *"to ensure that land disturbed by coal-winning activities is stabilised and landscaped to blend into or complement existing natural features, allowing further beneficial use at the earliest practical time. Proposals will be developed in consultation with agencies, interest groups and the public".*

This policy formed the basis for rehabilitation planning and design for the ensuing years until the recent development of the Generation Victoria Rehabilitation Policy.

4 MINE REHABILITATION POLICY

The Mine Rehabilitation Policy was formed by a revision process from the former policy after a comprehensive review following five years of practical experience.

The policy provides directives for the three phases of mine operation as follows:

i) **Operational Phase**

* where physically practical, screen operational work areas to minimise visual intrusion; and

* minimise disturbance to waterways, vegetation and landforms in non-operational areas.

ii) **Post Operational Phase**

* during the life of the project, progressively, and at the earliest practical opportunity after land is no longer required for operations, shape, landscape, revegetate and return disturbed land to its pre-mined capability for agricultural and silvicultural uses in order to:-

  . stabilise slopes,

  . manage water runoff to control erosion,

  . provide a sustainable landform and vegetation pattern that blends into or complements the existing natural features of the region,

  . provide ultimately for other sustainable beneficial uses, and

  . comply with the Rehabilitation Master Plan.

iii) **Mine Closure Phase**

With mine closure imminent, consolidate activities of the post operational phase and liaise with agencies and the public to ensure that:

* sustainable beneficial land uses have been achieved, and

* rehabilitated land is safe to return to public or private holding.

5 PURPOSE OF THE MORWELL MINE REHABILITATION MASTER PLAN

The aim of the Rehabilitation Master Plan is to provide an overall vision for the ultimate rehabilitation of all disturbed land at Morwell Mine in compliance with policy requirements. The Rehabilitation Master Plan will encompass the following aspects:

A Screening Operations

Concept plan showing plantings or screenings to soften the visual intrusion of mining and associated operations.

B Final Land Use

. identification of potential future land use opportunities based on the return of the land to its pre-mined capability for agricultural and silvicultural uses.

. built-in flexibility of the plan to adapt to changing conditions.

C Water Management

. Concept plan showing major drainage patterns, wetlands, ponds and interaction with surrounding areas.

D Visual Management

. Concept plan showing final landform.

. Concept plan indicating broad vegetation type planned for each area.

E Ecological Management

. Objectives for the re-establishment of a sustainable ecological regime for the area.

. Indication of conservation areas.

F Fire Protection

. an explanation of the way in which fire protection has been taken into account.

G Timetable

. An indicative timetable for rehabilitation works.

H Critical Decision Points

. A list of key decisions and timing which have a significant effect on rehabilitation.

6 MORWELL MINE REHABILITATION CONCEPT MASTER PLAN

The concept plan for Morwell Mine together with the Five-year Rolling Implementation Plans contain the requirements of points A, B, C, D, E, G in section 5 above. Point F (Fire Protection) is governed by the internal documents, "Open Cut Fire Protection Policy" and "Trees And Fire Protection".

Point H (Critical Decision Points) will be formulated when key decisions are required. At this stage, key decisions on the long term future of the mine are yet to be made.

A copy of the draft Rehabilitation Concept Plan is attached to this document. This plan provides a vision for the ultimate rehabilitation of the mine and draws on the previous work detailed in section 2 of this report.

The concept includes the following:

* The Mine flooded with water to form a Lake;
* Removal of operational infrastructure such as Conveyors, Power Lines and Sludge Ponds to allow beneficial land uses to the community;
* Concepts for the following land uses in and around the Mine:

  . Grazing
  . Conservation Zones
  . Recreation (Active/Passive)
  . Forestry (Open Woodland/Plantation)

* Conceptual landscaping and tree screening; and
* Existing and proposed water courses and wetlands.

7 THE 5-YEAR ROLLING IMPLEMENTATION PLANS

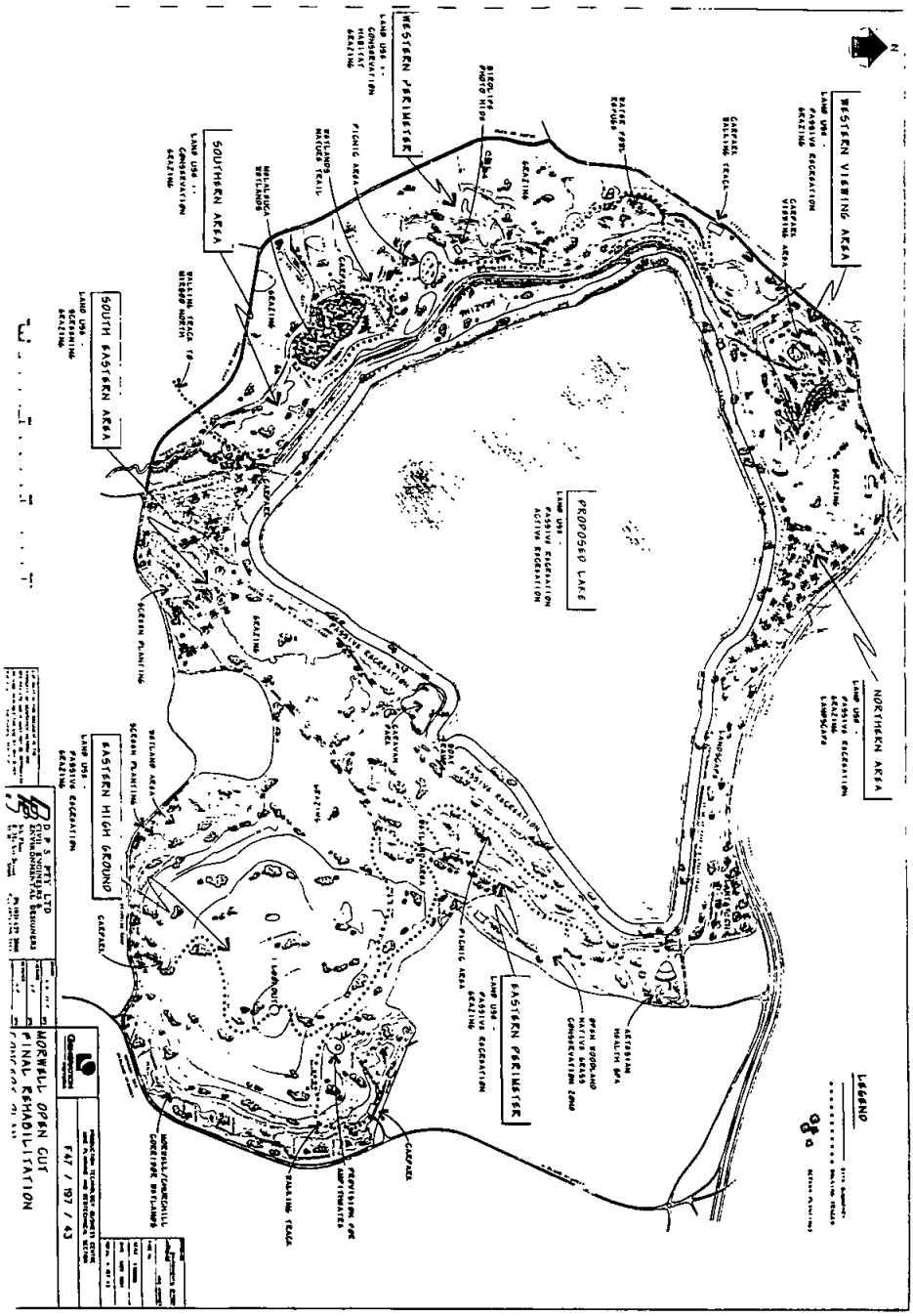
The 5-Year Rolling Implementation Plans are intended to provide the scheduling of ongoing rehabilitation to a five year projection. These are to be revised annually or as required. Detail plans for each area will be produced and updated on an ongoing basis. These plans will contain sufficient detail to enable field works to be carried out to achieve the ultimate concept of the Rehabilitation Master Plan.

8 FURTHER STUDIES

It may be necessary with some aspects of rehabilitation during the ongoing design and implementation process for further studies to provide all the information to make appropriate decisions. One example of this is the flooding option for the open cut to form a lake.

The formation of a lake in the Open Cut is the preferred option for ultimate rehabilitation, however further investigation of the potential effects of flooding the Mine would be required prior to implementation. Areas which will require further study on potential flooding option impacts are:

* Methods, costing and timing of flooding the mine;
* Stability of the mine batters;
* Earthmovement impacts, both local and regional;
* Water quality ramifications, both local and regional;
* Groundwater impacts, both local and regional;
* Micro-climate impacts.



HAZELWOOD
POWER CORPORATION

LAND CAPABILITY ANALYSIS HAZELWOOD POWER CORPORATION MINE AND ENVIRONS

PREPARED BY

DPS PTY LTD
DE STEFANIS PILKINGTON SULEYMAN
CIVIL ENGINEERS &
ENVIRONMENTAL DESIGNERS

FOR HAZELWOOD POWER CORPORATION

MAY 1995

CONTENTS

1 INTRODUCTION

1.1 Study Objectives

2 LAND CAPABILITY ASSESSMENT BACKGROUND

3 LAND UNIT DETERMINATION

3.1 Undisturbed Land

3.2 Disturbed Land

4 LAND USE DETERMINATION

4.1 Undisturbed Land - LCA Land Use Ratings

Land Unit GS
Rating Table
Recommendations
Land Unit MS
Rating Table
Recommendations
Land Unit SS
Rating Table
Recommendations

4.2 Disturbed Land - LCA Land Use Ratings

Land Unit GSd
Rating Table
Recommendations
Land Unit Po/GSo
Rating Table
Recommendations
Land Unit MSo
Rating Table
Recommendations
Land Unit BSc
Rating Table
Recommendations

LAND CAPABILITY ANALYSIS PLAN

1 INTRODUCTION

This report provides a broad Land Capability Assessment (LCA) for the Hazelwood Power Corporation (HPC) Mine and environs. LCA used in the production of the LCA Plan (see attachment) is based on guidelines developed by the Land Protection Division, Department of Conservation and Natural Resources. The LCA guidelines have been refined and modified to assist in the assessment of disturbed land-forms such as mines and overburden dumps.

1.1 Study Objectives

One of the main aims of LCA is to rate the capability of units of land to sustain various uses. Full documentation of pre-disturbed (before mining) land capability has been refined and extended as experience has been gained in rehabilitation planning over the past few years. The major reasons for this refinement are, a) disturbed land forms have little in common with the pre-disturbed condition, and b) it is appropriate to rate and effectively utilise the disturbed land conditions.

A major underlying factor of rehabilitation planning is to maximise land use opportunities following mine closure. The final land uses may or may not reflect pre-disturbance conditions, and it is prudent to take advantage of some of these land use opportunities following changes resulting from mining. For example, the option to create a large lake for passive and active recreation in the mine will exist at the end of operations; this opportunity did not exist prior to mining.

The objective of this report is to apply broad LCA to the site in the following stages:

* divide the site into discrete LCA land units
* identify land uses suitable to rehabilitation principles
* Broadly rate each unit for its capability of sustaining these uses
* Make broad recommendations on land use and management

The broad recommendations from this report and the accompanying plan can then be used to guide rehabilitation planners in choosing land use options for the Rehabilitation Concept Master Plan (RCMP).

Further detailed LCA may be required on a site by site basis for areas around the mine on a smaller scale.

2 LAND CAPABILITY ASSESSMENT BACKGROUND

The Land Capability Assessment system employed for this study was developed to provide a practical means of assessing land capability. LCA provides basic information for land use planning which is an essential criteria for mine rehabilitation

planning. The capability of land to support a given land use involves consideration of the following factors:

- Whether features of the land will adversely affect or limit the proposed use.
- Whether the proposed land uses will adversely affect the land in respect to a five class capability scale. On this scale, land is rated from Class 1, with a very high capability for a specified land use, through to Class 5, which has a very low capability for a specified land use.

3. LAND UNIT DETERMINATION

3.1 Undisturbed Land.

The land around the site has been broadly categorised in LCA terms as follows:

Topography	Moderately steep, rounded hills that exhibit some land-slip forms and a moderate degree of dissection. Slopes are generally less than 15%, rarely to 30%.
Soils	Variable, most commonly hard, pedal, mottled yellow duplex soils and some yellow gradational earths. Uniform sandy or loamy soils occur less frequently. The dominant soils are somewhat poorly drained and all soils are deep.
Vegetation	Generally open forest with a variety of native species, and some areas of dense wetland vegetation.
Hazards	Moderate to high sheet and gully erosion hazard, and a moderate land-slip hazard particularly on slopes greater than 15%.

For mine rehabilitation planning, the site is delineated into smaller land units which exhibit a reasonable degree of uniformity with respect to topography. Land unit delineation is first achieved using the topographical features, slope and drainage characteristics. Further factors may be used as the analysis becomes more detailed.

Three slope classes were used to delineate land units in the study area based on slope classes used for previous land capability assessments at Yallourn Mine. These classes are:

- 1 in 100 to 1 in 30 Land Unit: Gentle Slope (GS)
- 1 in 30 to 1 in 4 Land Unit: Moderate Slope (MS)
- steeper than 1 in 4 Land Unit: Steep Slope (SS)

3.2 Disturbed Land.

A number of studies have been undertaken on Latrobe Valley land in the past to assist in the development of LCA guidelines for land disturbed by mining activities - in particular for overburden disposal areas. The most notable of these studies was carried out by a Dr Jenkin, a notable academic in LCA, who in 1987 pointed out "the application of LCA to disturbed land-forms is somewhat limited in its present format". However, Dr Jenkin agreed that certain benefits could be derived by such application, if these limitations are considered when interpreting assessment data.

Based on the recommendations of Jenkin's work and subsequent experience gained in the rehabilitation planning for disturbed sites, a form of LCA suitable for disturbed land has been developed which provides practical results.

The delineation of land units for disturbed land follows the same principles used for undisturbed land; i.e. that each unit exhibits a reasonable degree of similarity. The criteria used to delineate land units for disturbed land in this study are:

Soil	The use of the term soil in context of disturbed land is very broad tending to artificial due primarily to the absence of a soil profile. The disturbed 'soil' is often a mixture of a number of soil horizons including heavy clays and coal from overburden to considerable depths.
Slope	Slope ranges are used in the same manner as for undisturbed land.
Drainage	The term drainage in the context of disturbed land forms is used broadly to describe the behaviour of water across the site. Such descriptions include ponding, infiltration, gullying and erosion effects.
Usage	Existing land uses and known future land uses should be noted.

4 LAND USE DETERMINATION

Overall LCA guidelines provide 30 different land uses to be assessed. However, based on considerable experience in recent years in applying LCA to rehabilitation planning, a smaller number of land uses have been identified as the most suitable for land management. The criteria used to assess these land uses is also applicable to most other land use categories in the Land Protection Division LCA guidelines.

The determination of land uses suitable for rehabilitation will be selected based on interim and future usage of the site, the results of LCA and mining options. Three major objectives of rehabilitation are pertinent to this study:

- to cover and stabilise the exposed coal batters of the mine,
- to improve the quality of water discharged from the site, and
- choosing land uses that do not restrict future land use opportunities or incur future significant cost penalties.

Land uses which fulfil the above criteria are -

1. Forestry/Landscaping
2. Grazing
3. Recreation Areas (paths and trails etc)
4. Wetland Areas (including gully dams)

A fifth land use - Conservation Zone is not assessed under the current LCA guidelines but is considered to be an appropriate land use for parts of the site. The implementation of this land use at the site will be based on vegetation surveys.

Conservation Zones comprise two types; remnant vegetation and wetlands. The implementation of these zones can be extremely cost effective, particularly for land units which rate poorly for other uses (forestry or grazing) due to steep slopes or poor drainage. It is important to ensure that the implementation of these zones is in strict compliance with mine Fire Protection Guidelines.

The land units GS, MS, SS, and BS are rated on the following pages and summarised on the LCA plan attached. These land unit designations have a suffix if the land rated is disturbed and BS (Batter System) will only occur as disturbed land with a slope steeper than 4H:1V. The suffix o denotes overburden, d denotes disturbed land (not overburden), and c denotes coal. For example, land unit GSd denotes gently sloping land on a disturbed surface such as crushed rock or road paving. BSc denotes a Batter System on coal.

The land ratings for each unit have a + or - or both beside them to indicate that at this broad analysis level, the figure given may be higher, lower, or both, depending on more detailed analysis.

4.1 **Undisturbed Land - LCA Land Use Ratings**

LAND UNIT GS

Land Use	Capability Rating	Limitation
Forestry:	1-	No Significant Limitation
Recreation: Paths and Trails	3±	Slope, Dispersive Clay
Grazing: (Rainfall >750mm pa)	2±	No Significant Limitations
Gully Dam	3-4±	Shrink-Swell, Dispersible Clay, USG B Horizon

Recommendations

The establishment of forestry and/or grazing on this land unit will achieve rehabilitation objectives. The implementation of these uses will have no adverse affect on the land provided good management practices are implemented and flexibility will be maximised.

Where grazing is implemented as the desired land use, it is recommended that the average carrying capacity (head per hectare) is chosen after a detailed LCA. Tree planting is encouraged on land identified for grazing and should be utilised in a manner that enhances this land use. Where ever possible the use of indigenous vegetation should be used providing it has been authorised by the appropriate fire officer.

Access tracks to grazing areas should be designed with regard to the limitations identified in the above table. There is a need to address the minimisation of sediment laden run-off emanating from such tracks. This is particularly important given that a major rehabilitation objective is to improve the quality of the water discharged from the site.

The construction of gully dams for stock watering, water and sediment retention, and, wetlands should also be designed with regard to the limitations identified. In particular, every effort should be made to minimise topsoil and vegetation disturbance except where necessary for the construction of the dam wall.

LAND UNIT MS

Land Use	Capability Rating	Limitation
Forestry:	2±	No Significant Limitation
Recreation: Paths and Trails	3-4±	Slope, Dispersive Clay
Grazing: (Rainfall >750mm pa)	2-3±	No Significant Limitations
Gully Dam	4±	Slope, Shrink-Swell, Dispersible Clay, USG B Horizon

Recommendations

Provided good management practices are implemented, the establishment of forestry and/or grazing on this land unit will achieve rehabilitation objectives. The implementation of these uses will have no adverse affect on the land and maintain flexibility of land use.

Where grazing is implemented as the desired land use, it is recommended that the average carrying capacity (head per hectare) is chosen following a detailed LCA. Tree planting is encouraged on land identified for grazing and should be utilised in a manner that enhances this land use. Where ever possible the use of indigenous vegetation should be used providing it has been authorised by the appropriate fire officer.

Access tracks to grazing areas should be designed with regard to the limitations identified in the above table. Where ever possible tracks should avoid these land units and be confined to the Land Unit GS. If it is necessary to construct access tracks on this land unit they should be located on the least sloping aspects.

The construction of gully dams for stock watering, water and sediment retention, and, wetlands should also be designed with regard to the limitations identified. In particular, every effort should be made to minimise topsoil and vegetation disturbance except where necessary for the construction of the dam wall. Natural gully lines and depressions should be utilised for siting of water retention areas to minimise excavation and disturbance of existing vegetation.

LAND UNIT SS

Land Use	Capability Rating	Limitation
Forestry:	4-	Slope
Recreation: Paths and Trails	5±	Slope, Dispersive Clay
Grazing:	3-4±	Slope, Erosion
Gully Dam	5±	Shrink-Swell, Dispersible Clay, USG B Horizon

Recommendations

All land uses assessed for this land unit would require special considerations if they were not to impose adverse effects on the land. Access tracks and gully dams should not be considered on this land unit. It is also recommended that grazing be excluded from this unit unless erosion protection is installed.

Forestry for commercial purposes would not be suitable due to the small area and fragmented distribution of this land unit. However, the establishment of trees (especially wetland type species) on this unit would be suitable. It is recommended that this land unit be planted out with indigenous vegetation and managed in such a manner that potential erosion hazards are eliminated.

Site inspections have shown that these units are often devoid of vegetation and erosive processes are active. Cattle should be restricted from access to many of these units since they actively contribute to vegetation decline and erosion.

4.2 Disturbed Land - LCA Land Use Ratings

LAND UNIT GSd

Land Use	Capability Rating	Limitation
Forestry:	2-3±	Drainage, Soil Organic Content.
Recreation: Paths and Trails	3-	Drainage.
Grazing: (Rainfall >750mm pa)	2-3±	Drainage

Recommendations

While in its present state the capability ratings for the land uses assessed would likely be lower than those presented in the table, a number of assumptions have been made. These assumptions include; that an improved drainage network will be installed and that hardstanding areas are broken up or avoided prior to pasture establishment if grazing is the preferred land use.

If grazing is implemented, regular checks should be made to inspect drainage, and if surface ponding is occurring or pasture damage resulting from cattle scouring, a decision to remove cattle will need to be made and remedial action scheduled.

Tree planting is encouraged on land identified for grazing and should be utilised in a manner that enhances this land use. Where ever possible the use of indigenous vegetation should be used providing it has been authorised by the appropriate fire officer.

Access tracks to grazing areas should be designed with regard to the limitations identified in the above table. There is a need to address the minimisation of sediment laden run-off emanating from such tracks. This is particularly important given that a major rehabilitation objective is to improve the quality of the discharged from the site.

LAND UNIT Po/GSo

Land Use	Capability Rating	Limitation
Forestry:	2-	No Significant Limitations
Recreation: Paths and Trails	3±	Dispersive Clays
Grazing: (Rainfall >750mm pa)	2±	No Significant Limitations

Recommendations

This land unit incorporates the major external overburden disposal areas including the external overburden dumps to the north and east of the mine. These areas have been identified as contributing to the poor quality of water discharged from the site. It is apparent that water is infiltrating the dump surfaces resulting in a leachate entering drainage streams at the tow of the dump. Future land uses including agriculture (cropping), grazing and forestry (agro-forestry) may be a solution to this problem.

The results in the above table suggest that such a combined land use would be suitable with no limitations anticipated providing standard forestry practices are implemented. The opportunity to repair eroded drainage lines should be taken during the implementation of forest land use.

Access tracks should be constructed taking in to account the limitations listed in the above table and it is recommended that they are kept to a minimum to reduce the amount of clay sediments entering drainage streams.

LAND UNIT MSo

Land Use	Capability Rating	Limitation
Forestry:	2-3±	Soil Organic Content
Recreation: Paths and Trails	3-4±	Slope, Dispersive Clays
Grazing: (Rainfall >750mm pa)	3+	Slope

Recommendations

This land unit represents one of the largest areas disturbed by mining operations. It has been proposed that it be returned to grazing once final earth works are completed. Noting the limitation of slope, and previous site investigations which point to low nutrient status of clay and low pH in water samples, pasture establishment will need to be monitored regularly. A pasture management procedure should be developed and maintained well into the future.

The establishment of forestry would also be suitable for this land unit. However, the nutrient status and the soil pH would need to be addressed on an ongoing basis. This also applies for any tree planting proposed in the Rehabilitation Concept Master Plan.

The use of access tracks should be kept to a minimum on this land unit and if required should be constructed taking into account the limitations listed in the table.

LAND UNIT BSc

Land Use	Capability Rating	Limitation
Forestry:	2-3-	Slope
Recreation: Paths and Trails	2±	Dispersive Clays
Grazing: (Rainfall >750mm pa)	4-	Slope

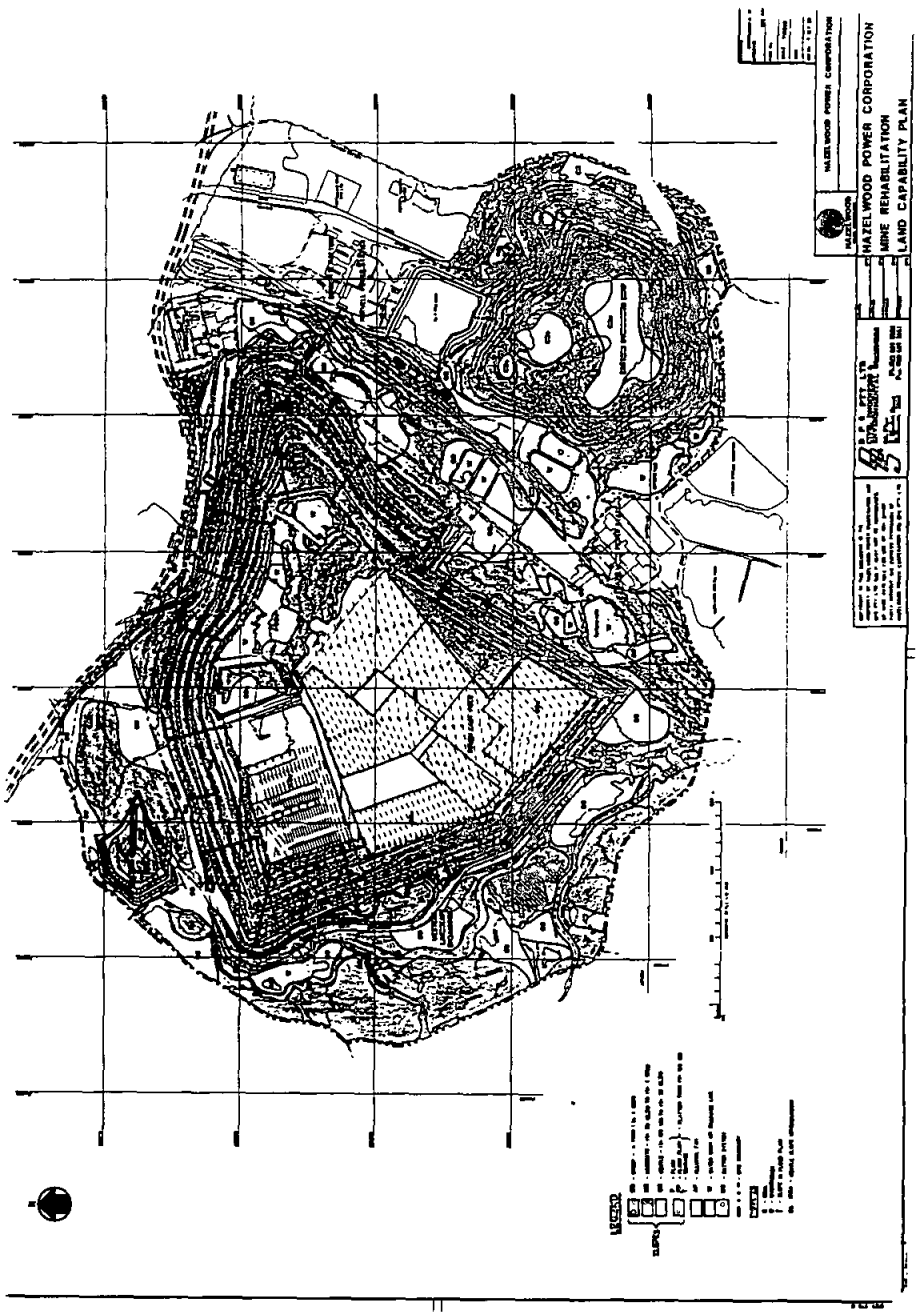
Recommendations

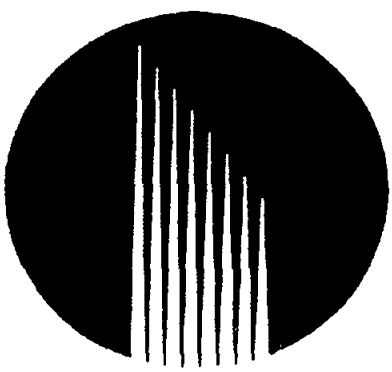
The determination of this land unit was based more on the suitability of the unit to accommodate the land uses assessed rather than the capability. It is assumed that these land units will eventually be clay covered, topsoiled and grassed. The land unit comprises batters (steep sloping) and berms (gentle sloping). These batter systems have been constructed in a manner that requires a gradual `stepping' of the longer steeper slopes for stability reasons. This stepping has created the batter/berm formation with each being quite narrow in width in land usage terms.

While berms would have a higher capability rating than batters which have a poor rating due to the steepness of the slope, they are not very suitable for grazing given the narrow land forms and the low capability of the adjacent batters.

Forestry is better suited to such a land unit and therefore has a higher capability. On the steeper batters good management practices will need to be employed as the erosion potential of these land units is higher than on the adjacent berms.

Access tracks could be installed on this land unit providing they are restricted to berms.





HAZELWOOD

POWER CORPORATION

MINING LICENCE APPLICATION

WORK PLAN SUBMISSION

1 JUNE 1995

TABLE OF CONTENTS

1. HISTORY AND OUTLINE OF MINING OPERATIONS TO DATE
2. LOCATION OF THE MINING LICENCE AREA
3. LAND OWNERSHIP OF THE MINING LICENCE AREA
4. GEOLOGICAL/RESOURCE INFORMATION FOR THE LICENCE AREA
   4.1 Geological Information for the Licence Area
   4.2 Coal Resources in the Licence Area
5. MINING OPERATIONS
   5.1 Plans for Mining Operations for the Next Year
   5.2 Plans for Mining Operations for the Next 3 Years
   5.3 Plans for Ceasing Mining Operations
   5.4 Plant Maintenance
6. MINE REHABILITATION
   6.1 Final Concept Plan
   6.2 Progressive Rehabilitation Plan
   6.3 Landscaping and Screening
   6.4 Topsoil Reclamation/Respreading
   6.5 Revegetation
   6.6 Runoff and Erosion Control
   6.7 Maintenance, Monitoring and Reporting
7. ENVIRONMENTAL CONFORMANCE PROGRAM
   7.1 EPA Water Licence Discharge Management Program
   7.2 Dust Management 8
   7.3 Hazelwood Power Station Ash Disposal
   7.4 Bushfire Mitigation Program
   7.5 Emergency Response Plan
   7.6 Fire Instructions
   7.7 Fire Protection Policy
8. AQUIFER DEPRESSURISATION MANAGEMENT PROGRAM
   8.1 Aquifer Depressurisation - Impact on Mine
   8.2 Aquifer Depressurisation - Impact on LV region
   8.3 Aquifer Depressurisation Targets and Control
   8.4 Aquifer Depressurisation Future
9. BATTER AND MINE STABILITY MANAGEMENT PROGRAM
   9.1 Batter and Mine Stability Background
   9.2 Batter Stability

LIST OF FIGURES AND SITE PLANS

FIG 1. GENERAL LOCATION PLAN
FIG 2. LAND OWNERSHIP PLAN
FIG 2A. LAND OWNERSHIP - 1 KM BUFFER
FIG 3. GEOLOGICAL COAL RESERVES
FIG 4. GEOLOGICAL COAL RESERVES - CROSS SECTIONS
FIG 5. MINE EXCAVATION PLANS 1995/96
FIG 6. MINE EXCAVATION PLANS 1996/97
FIG 7. MINE EXCAVATION PLANS 1997/98
FIG 8. PROPOSED MINE DESIGN AT COMPLETION OF SOUTH EAST FIELD (WHOLE OF LIFE EXCAVATION PLAN)
FIG 9. MINE REHABILITATION MASTER PLAN - 5 YEAR PROGRAM
FIG 10. MINE REHABILITATION MASTER PLAN - EXISTING AS AT JUNE 1995
FIG 11. FINAL CONCEPT MINE REHABILITATION PLAN
FIG 12. HAZELWOOD POWER CORPORATION ENVIRONMENTAL MONITORING - WATER, ASH, LAND, AND AIR PROGRAM.
FIG 13. INFRASTRUCTURE AND SERVICES SITE PLAN
FIG 13A. FIRE SERVICE NETWORK SCHEMATIC
FIG 14. OVERBURDEN DUMP - PROPOSED DEVELOPMENT
FIG 15. PLANT ARRANGEMENT SCHEMATIC
FIG 16. CURRENT PROGRESS PLANS
FIG 17. 1:5000 MORWELL MINE GENERAL ARRANGEMENT

APPENDICES

APPENDIX 1. 5 YEAR ROLLING MINE REHABILITATION PLAN
APPENDIX 2. REHABILITATION MASTER PLAN
APPENDIX 3. LAND CAPABILITY ANALYSIS HPC MINE AND ENVIRONS.

1 HISTORY AND OUTLINE OF MINING OPERATIONS TO DATE

Initial operations commenced in the 1950's in the north east corner of the Mine with coal supply initially to the Morwell Power Station and Briquette Factory. Development of the Mine then followed toward the west with coal supply to Hazelwood Power Station commencing in 1964. Operations commenced in the South East Field in 1991 and will advance to the south east removing the coal and overburden in the southern area of the Mine. The overburden and coal are excavated by bucket wheel excavators. Movable face conveyors and fixed trunk conveyors are used to transport the overburden and coal to dump sites and power station bunkers respectively. The external overburden disposal area known as the Eastern Dump is located east of the Mine within the boundary of the proposed Mining Licence area.

The coal is supplied to the 1600 MW Hazelwood Power Station owned by Hazelwood Power Corporation Ltd and the 170 MW Morwell Power Station and Briquette Factory owned and operated by Energy Brix Australia Corporation. Hazelwood Power Corporation was formed in February 1995 by the amalgamation of Hazelwood Power Station and Morwell Mine (renamed HPC Mine).

The current coal demand is approximately 8 Mt/annum compared with production in the 1970s and 1980s of 12-16 Mt/annum. Planned annual coal excavation over the five year period to 30 June 1999 rises from about 8 Mt currently to 14 Mt by 1998/99.

The current Mine development to the end of the South East Field is based on the life of Hazelwood Power Station (progressive closure 2006 to 2012) following the Plant Life Extension project carried out in the 1980s. The 2012 life plan is subject to review. The coal reserves within the Mining Licence area in the northern and western extensions are earmarked for further plant life extensions at Hazelwood, new generating plant and potential coal sales to new customers.

Refer Figure 13 : "Infrastructure Services and Site Plan" (Ref. 4-147-16)
Refer Figure 13A : "Fire Service Network Schematic" (Ref. M036D003)
Refer Figure 15 : "Plant Arrangement Schematic" (Ref. M163D002)

2 LOCATION OF THE MINING LICENCE AREA.

A general location plan of the Mining Licence area is attached.
Refer Figure 1 : "General Location Plan" (Ref. 4-147-5)

3 LAND OWNERSHIP OF THE MINING LICENCE AREA.

Plans of the land ownership and zoning (Coal category A, C etc.) of the Mining Licence area and in area 1Km from the boundary are attached.

Refer Report : "Latrobe Region Framework for the Future 1986"
Refer Figure 2 : "Land Ownership Plan Within Licence Area" (Ref. 4-147-6)
Refer Figure 2A : "Land Ownership Plan Within 1 km Buffer Zone" (Drg. No. 1582/257 Fisher Stewart)

4 GEOLOGICAL AND RESOURCE INFORMATION FOR THE LICENCE AREA.

4.1 GEOLOGICAL INFORMATION FOR THE LICENCE AREA

The Mine is located just south of Morwell township in an area where, as a result of tilting and subsequent erosion, most of the Yallourn group sediments have been removed, leaving the thick Morwell 1 seam beneath a relatively thin cover of overburden. The maximum thickness of the Morwell 1 seam is 165 metres but within the area of the planned Mine, ranges from 135 metres in the north to 50 metres in the south. The Morwell 1 seam is underlain at depths of from 15 metres to 25 metres by the Morwell 2 seam which has a thickness of up to 55 metres. Beneath both the Morwell 1 and Morwell 2 seams are coarse sands containing water under artesian pressures. In order to ensure stability of operating faces and permanent batters the pressure levels of both aquifers have had to be constantly lowered by pumping.

4.2 COAL RESOURCES IN THE LICENCE AREA

An assessment of the quantity and quality of the coal within the proposed Mining Licence area has been made, (Latrobe Valley Brown Coal Assessment):

The results of the assessment are:

- the mining reserve in the Planned Mine of 180 Mt at 1 February 1995 matches the coal demands predicted following the Plant Life Extension (PLE) at Hazelwood for a station closure of 2012.
- the total quantity of Morwell 1 seam coal in the Northern and Western extensions reserved for possible life extensions of the station or other purposes is 390 Mt.
- the total mining reserve is 570 Mt.

Refer Figure 3 : "Geological Coal Reserves" (Ref. 4-147-7)
Refer Figure 4 : "Geological Coal Reserves - Cross Sections" (Ref. 4-147-8)

5 MINING OPERATION PLANS

5.1 PLANS FOR MINING OPERATIONS FOR THE NEXT YEAR

Mining operations will continue on cuts 7A, 8 and 9 in the South West Field and cuts 1 - 6 inclusive in the South East Field in 1995/96. Overburden dumping will continue in the Eastern Overburden Dump.

Refer Figure 5 : "Mine Excavation Plans 1995/96" (Ref. 4-147-9)
Refer Figure 14 : "Overburden Dump Proposed Development" (Ref. 4-147-18)
Refer Figure 16 : "Current Progress Plans" (Ref. MMMP002)

5.2 PLANS FOR MINING OPERATIONS FOR THE NEXT 3 YEARS.

Mining operations in the South West Field will be completed in 1996/97 and from that point all operations will be concentrated in the South East Field cuts 1 - 8 inclusive. Overburden dumping will continue in the Eastern Overburden Dump.

Refer Figures 6 and 7 : "Mine Excavation Plans 1996/97 and 1997/98" (Ref. 4-147-10 and 4-147-11)
Refer Figure 14 : "Overburden Dump Proposed Development" (Ref. 4-147-18)

5.3 PLANS FOR MINING OPERATIONS IN THE SOUTH EAST FIELD

The life of the South East Field has been designed to match the life of Hazelwood following PLE. On that basis Mine closure was planned for 2012, but other uses for the Mine's coal are being considered as described in Section 4.2 above.

Refer Figure 8 : "Proposed Mine Design at the Completion of the South East Field - Whole of Life Excavation Plan" (Ref. 4-147-12)

5.4 PLANT MAINTENANCE

The Mine has a plant preventive maintenance policy, with work carried out by either a maintenance contractor or by its own resources. Key aspects of the policy are:

- a preventive maintenance manual which details the what, when and who regarding routine plant servicing and inspections.
- a major works program controlled by a change management request system.
- a comprehensive routine safety device testing program for major Mine machines.

Refer : Preventive Maintenance Manual - Morwell Mine
Refer : Maintenance Plan - Morwell Mine
Refer : Safety Device Testing Manual Large Open Cut Machines

6 MINE REHABILITATION

Hazelwood Power Corporation has made a strong commitment to rehabilitate land disturbed by mining operations in accordance with community expectations.

The Mine has a long standing policy to ensure that all land disturbed by mining is stabilised and landscaped to blend into or complement natural features. This policy was developed in consultation with government agencies, special interest groups and the public, chiefly through the Rehabilitation Consultative Group, which meets quarterly.

6.1 FINAL CONCEPT PLAN

A **Rehabilitation Concept Master Plan** has been produced for the Mine. Its purpose is to provide an overall vision for the ultimate rehabilitation of all land disturbed by mining activities.

The plan shows the proposed rehabilitation treatment for all areas, including the Mine proper, overburden dumps, buffer areas, transport corridors, operational areas and infrastructure.

Refer Figure 11 : Drawing No F45/197/43 "Mine Final Rehabilitation Concept Plan".

The preferred option for the worked out part of the Mine is to create a lake. At this time only preliminary studies into the creation of a lake have been carried out.

The areas surrounding the Mine will ultimately be used for grazing, conservation, active and passive recreation, wetlands habitat and forestry. A Land Capability Analysis was used to enable broad recommendations to be made on land use and management.

Refer Appendix 2 : "Morwell Mine Rehabilitation Concept Master Plan"
Refer Appendix 3 : "Land Capability Analysis HPC Mine and Environs".

6.2 PROGRESSIVE REHABILITATION

Progressive rehabilitation of the Mine overburden batters and external overburden dumps occurs each summer as operations move clear of the area.

A **5-Year Rolling Implementation Plan** has been prepared for the Mine. Its purpose is to schedule ongoing rehabilitation to a five year projection and is revised annually or as required.

Refer Figure 9 : Drawing No F45/197/38A "5-Year Program 1996 to 2000"
Refer Figure 10 : Drawing No F45/197/41A "Existing Rehabilitated Areas as at June 1995".

The rehabilitation work is subdivided into several projects, usually by location. Each project could typically contain the following elements:

- Bulk earthworks for landscaping
- Topsoil reclamation/respreading
- Drainage
- Wetlands development
- Sowing to pasture
- Planting trees
- Fencing
- Noxious weed eradication
- Maintenance

Refer Appendix 1 : "Five Year Rolling Rehabilitation Plans"

6.3 LANDSCAPING AND SCREENING

Hazelwood Power Corporation engages the services of consulting engineers and landscape architects to ensure that visual aspects from critical viewing points are enhanced by the proposed landscaping and, where practical, operational work areas are screened with plantings to soften the visual intrusion of mining and associated operations.

Mine overburden batters are being progressively laid back at 1 in 3 or flatter, topsoiled, and sown with grass to reduce erosion.

The design of the Eastern Dump, including surface treatment and revegetation, aims to create a land surface that is inherently stable with respect to infiltration rate, runoff volume and drainage. Consultants reports have recommended land forms with gentle rolling slopes as flat as 1 in 10 and an open woodland appearance. These have been constructed to conform with a Rehabilitation Practices Manual after each sector of the dump has been filled, stabilised and cleared of operating requirements.

Two years after sowing, selected areas are fenced for stock grazing and drifts of indigenous trees planted.

Relevant documents: "SECV Rehabilitation Practices Manual for Open Cuts and Overburden Dumps"; "Trees and Fire Protection - Guidelines for the Latrobe Valley"; "Morwell Open Cut Western (auxiliary) Overburden Dump - Draft Rehabilitation Plan"; Tract Consultants Report "Morwell Eastern External Overburden Dump - Rehabilitation Planning - Framework for Implementation of Rehabilitation Works".

6.4 TOPSOIL RECLAMATION/RESPREADING

Topsoil is removed from directly in front of the advancing Mine overburden face each summer and stockpiled in low windrows for later reclamation for sites which are to be revegetated. Soil and subsoil samples are analysed to determine the appropriate soil treatment and fertiliser applications. The broadcasting and harrowing method of sowing is used.

6.5 REVEGETATION

Revegetation, in keeping with the Rehabilitation Concept Master Plan, is aimed at returning the land disturbed by mining to its pre-mining state. That is, forest cleared last century to open woodland for agriculture.

Exotic grasses are sown down for pasture, and indigenous trees planted. Joint consultant/DCNR studies are likely to lead to greater utilisation of native grasses in future years.

Former wetland areas, drained to allow mining development, have been able to be reinstated and developed (as advised by consultants) into viable eco-systems.

6.6 RUNOFF AND EROSION CONTROL

During construction and development stages, practical measures are taken to minimise the effects of erosion and reduce the amount of sediment discharge from the site. Temporary cover crops (oats), settling ponds, sediment traps, wetland filters, hay bale weirs and cut off drains have all been used until grass cover is established, or permanent drainage structures can be completed.

Permanent watercourses are identified in rehabilitation plans and are lined with appropriate vegetation to minimise erosion. Where drainage slopes are unavoidably steeper than desirable, lining with jutemesh, or geofabric and spalls is used.

Where bulk earthworks have been required during the summer to flatten steep batters, or to complete sectors of overburden dumps, topsoil is placed and sown at the end of autumn.

Refer : EPA Publication No 275 "Construction Techniques For Sediment Pollution Control".

6.7 MAINTENANCE, MONITORING AND REPORTING

Each year's rehabilitation project work is audited and reported against financial and quantitative performance targets to management and the Rehabilitation Consultative Group.

The rehabilitation work has a built-in maintenance program that includes site inspection, follow-up fertilisation of sown areas, pasture maintenance, drainage repairs, pest control and noxious weed eradication. This work represents approximately 15% of the rehabilitation budget at present.

7 ENVIRONMENTAL COMPLIANCE PROGRAM

Hazelwood Power Corporation has developed an environmental policy which essentially requires that electricity production be undertaken with minimal disturbance to the local environment. An Environmental Management System to BS 7750 has been developed to ensure compliance.

Environmental compliance is overseen by an Environmental Compliance Committee with accountability at Board level. Reporting at Corporate level is done through an Environmental Management Committee. Local issues are attended to by an Environmental Management Group. There is also a formal meeting between the Environmental Management Committee and the EPA on a quarterly basis.

7.1 EPA WATER DISCHARGE LICENCE MANAGEMENT PROGRAM

The two EPA Water Discharge Licence Points within the proposed Mining Licence boundary are monitored weekly for water quality by a NATA accredited laboratory, recorded in a database and reported as per the licence requirements to the EPA.

Details of the EPA Water Discharge Licences are:

Licence No LW 488/6 the overflow of Hazelwood Cooling Pond into Eel Hole Creek.

Water Quality Parameters..... (under review)	TDS	1050	gm/cu metre
	SS	45	gm/cu metre
	Col	150	Pt-Co
	Tur	35	NTU
	pH	6.0-8.5	

Licence No LX41/1 the Mine Western Perimeter Drainage pumped to Morwell River.

Water Quality Parameters..... (under review)	TDS	500	gm/cu metre
	SS	60	gm/cu metre
	Col	60	Pt-Co
	Tur	80	NTU
	pH	6.0-8.5	

Other points are also monitored as part of an ongoing due diligence program.

Refer Figure 12 : "HPC Environmental Monitoring - Water, Ash, Land & Air Programs".

Storm water is collected in settling ponds at the base of the Mine and utilised for dust laying and fire suppression in an integrated network of pipes and sprays. Water surplus to spraying requirements must be pumped out of the mine to prevent flooding. As this waste water is contaminated with coal fines, it is treated with liquid polymer at a point adjacent to Hazelwood Power Station and discharged into the Works Effluent Pond to settle out the fines. Storm water runoff from the Eastern Overburden Dump and the Power Station site is also treated at this location. There is an EPA Licence on the operation of the the Works Effluent Pond, No. LS 47/9, which requires 6-monthly surveys of sludge deposits. About every four years, the pond is desludged using a floating dredge. Treated effluent from the Works Effluent Pond is discharged into the Hazelwood Cooling Pond, which overflows into Eel Hole Creek, a tributary of Morwell River.

Conveyor storm runoff/wash down water is directed into settling ponds and recycled for dust suppression. Conveyor surplus water and storm water runoff from the Easter Overburden Dump is pumped to the Power Station Treatment Plant.

Storm water runoff from the Mine Western Perimeter Wetlands and the Western Overburden Dump (now completely topsoiled and grassed) is pumped directly into Morwell River. The discharge from the Western Overburden Dump is treated with liquid polymer at a solar-powered dosing station and the clay fines settle out in a sump.

As part of the annual update of this program of works, the HPC will report on the key environmental performance areas and proposed action plans.

7.2 DUST MANAGEMENT

HPC has an ongoing program to ensure that dust does not become a nuisance to the immediate environment. During summer and autumn particularly, haul roads are watered regularly by mobile tankers. Chemical dust suppressants have been used as a trial in heavily trafficked areas near depots. The Mine operating levels are systematically wetted down by a system of rotating sprays as a dust laying and fire prevention measure. Bureau of Meteorology weather forecasts are received daily at the Fire Service Office and reviewed for conditions likely to cause dust or fire problems.

There is an amendment to EPA Water Discharge Licence No. LX 41/1 which covers **Abrasive Blast Cleaning** carried out within the Mine. Essentially this requires that persons or property within 500 metres of the work must not be affected by noise or dust emissions. Any prescribed wastes removed from the site must be transported in accordance with The Environment Protection (Transport) Regulations 1987, and be disposed of at a site licensed to accept such waste.

7.3 HAZELWOOD POWER STATION ASH DISPOSAL

Ash generated by combustion of the coal in the power station boilers is slurried with water and pumped to Hazelwood Ash Pond 2 (HAP2) and adjacent Hazelwood Ash Pond 3 (HAP3) located on the Eastern Overburden Dump, and Hazelwood Ash Pond 4 (HAP4) to the north of the Eastern Overburden Dump. Disposal of ash into HAP2 & HAP3 will cease as overburden dumping operations progress across the Eastern Overburden Dump and cover these ponds. Ash disposal will then transfer to HAP4 which has sufficient capacity to meet all ash disposal requirements for the planned lives of the power stations.

Ash disposal is carried out in strict conformance with the Integrated Ash Effluent Disposal System (IAEDS) under EPA Licence No. LS48/2. Licence requirements include quarterly effluent sampling, 6-monthly sampling of bores for leacheates, and annual reporting to the EPA. Return water is recycled for re-use in ash slurrying at the power station. After treatment in the Carbonation Plant to lower the pH, ash water surplus to requirements is disposed of in Bass Strait via the Saline Waste Outfall Pipeline (SWOP) in conformance with EPA Licence No EW 449/1 (held by Gippsland Water).

Refer Figure 12 : "HPC Environmental Monitoring - Water, Ash, Land & Air Programs". (Ref. 4-147-15)

7.4 BUSHFIRE MITIGATION PROGRAM

In recognition of the fact that the Mine is situated in high bushfire risk area and the potential consequences on the Mine infrastructure of a bushfire, HPC contributes to funding a Bushfire Mitigation Program in the area surrounding the Mine. The Bushfire Mitigation Program conforms with the "Latrobe Valley Open Cut Mines - Fire Service Policy and Code of Practice" - see Section 7.7 below.

7.5 EMERGENCY RESPONSE PLAN

HPC has developed an Emergency Response Plan to be followed in the event of an emergency such as fire or flood, catastrophic failure of Mine or plant, bomb threats, hazardous materials etc.

7.6 FIRE INSTRUCTIONS

As part of Fire Prevention management HPC has promulgated a set of Fire Instructions for Mine personnel, these instructions are updated prior to every fire season - usually in December. Prior to the fire season each year all Mine personnel are required to undertake fire training conducted by the Mine's fire service section. The Fire Instructions are incorporated as part of the Mine's Emergency Control Plan.

7.7 FIRE PROTECTION POLICY

HPC adheres to the "Latrobe Valley Open Cut Mines - Fire Service Policy and Code of Practice" issued April 1994 for the Mine, bunkers and their surroundings to ensure adequate:

- Management Accountability
- Preparedness and Planning
- Training of Personnel
- Installed Fire Protection Systems
- Fire Extinguishing Capability
- Emergency Procedures

The Fire Service Policy and Code of Practice contains the essential requirements and operating procedures for fire protection services for the Mine and its surrounding area.

An extensive network of water reticulation and sprays has been established in the Mine for fire protection.

Refer Figure 13A : "Fire Service Network Schematic" (Ref. M036D003)

8 AQUIFER DEPRESSURISATION MANAGEMENT

8.1 AQUIFER DEPRESSURISATION - IMPACT ON MINE

Beneath both the Morwell 1 and Morwell 2 coal seams are sands containing water under artesian pressures (aquifers). To ensure stability of operating faces, permanent batters and the mine floor, the pressure levels of both aquifers have had to be constantly lowered by pumping.

Pumping commenced in 1960 from the M1 Aquifer and 1969 from the M2 Aquifer. Current total pumping from the 12 pumps in the M1 Aquifer is 7 Ml/day and from the 12 pumps in the M2 Aquifer is 54 Ml/day.

Hazelwood Power Corporation has engaged the services of Consultants to advise on the management and control of geotechnical and depressurisation programs.

8.2 AQUIFER DEPRESSURISATION - IMPACT ON LV REGION

The draw down of aquifer pressures for Mine stability extends for some kilometres from the mine area. This has resulted in subsidence of the region which is monitored on a regular basis. The subsidence is relatively uniform, reducing with distance from the Mine and does not cause structural damage.

8.3 AQUIFER DEPRESSURISATION TARGETS AND CONTROL

Aquifer depressurisation rates are determined by Hydrogeological modelling. The predicted geometry of the Mine at one year intervals, together with known information about the location and properties of the coal seams, aquifers, and other strata are used in the model to determine the pumping required to achieve acceptable aquifer pressures.

Planned annual overburden and coal production is used to determine the geometry of the worked out mine at the end of each year.

Within the perimeter of the Mine there are 38 observation bores in the M1 Aquifer and 43 in the M2 Aquifer. Piezometric levels are measured routinely and the data recorded in a database. In the past this has been a manual process but a telemetry system which sends the piezometric data to the database electronically is currently being commissioned.

Power supplies are from alternate sources around the Mine to reduce the risk of loss of pumping capacity due to loss of power.

Monthly and quarterly reports on Aquifer Depressurisation are provided by the Consultants.

Refer : "Morwell Mine - Annual Target Level Establishment Report"
Refer : "Aquifer Depressurisation - Monthly and Quarterly Reports:

8.4 AQUIFER DEPRESSURISATION FUTURE

It is anticipated that the total flow from the 2 aquifers will decrease to 50 Ml/day at the turn of the century and to 40 Ml/day prior to mining ceasing. The amount of pumping that is required beyond the life of the Mine depends on rehabilitation strategy. If the favoured strategy of flooding is adopted it is anticipated that aquifer flows will reduce to less than 3 Ml/day.

Refer : "Groundwater Management Plan for Latrobe Valley Mines - January 1994"

Refer : "Latrobe Valley Regional Groundwater Investigation Stage 4 Mathematical Modelling - Estimates of Long Term Pumping Requirements for Morwell Mine - June 1994"

9 BATTER AND MINE STABILITY MANAGEMENT

9.1 BATTER AND MINE STABILITY BACKGROUND

Mine stability encompasses stability of the mine floor, usually governed by aquifer pressures as described in the previous section, and batter stability - both individual batters and overall pit slope - as described below. HPC utilises the services of a Consultant for advice in this area.

Surface movement surveys are made routinely both as a survey of pin line networks in the Morwell area and within the Mine.

9.2 BATTER STABILITY

Operating faces and permanent batters in overburden and coal are designed to meet stability criteria established by the geotechnical consultant.

Jointing of coal, orientation of batters, width of benches, height of faces, etc. are considered when determining safe batter slopes in coal. Operational activities such as diverting runoff away from coal joints, and installation of horizontal bores to relieve water pressure in coal joints are undertaken to maintain batter stability in worked out areas.

Bench and face geometry, and material quality are considered when determining safe batter slopes in overburden. Where weak saturated material occurs, pre-stripping is usually carried out to minimise the face length requiring flatter batters for stability.

Operational procedures require batter inspections ahead of the digging face every 12 hours - the inspecting supervisors log the results each shift.

Batters in overburden dump areas are designed with material quality and drainage criteria considered. Permanent batters are typically at 1 in 10 which also suits the visual requirements for rehabilitation in dump areas.

Refer : "Morwell Mine Batter Performance Assessment Report"

REGIONAL MONITORING PROGRAM
LATROBE VALLEY OPEN CUT COAL MINES

PREAMBLE

These requirements are to form part of the Approved Work Plan for each of the three open cut coal mines at Morwell, Yallourn and Loy Yang under the provisions of the Mineral Resources Development Act 1990. They outline the obligations and requirements in respect to monitoring and predicting changes in regional groundwater levels and land levels associated with groundwater extraction from the mines.

Over the past 20 or so years the SECV has undertaken an extensive range of groundwater studies and investigations in the Latrobe Valley. Most importantly the work includes a regional groundwater monitoring network, regional land level surveys, and modelling to predict future changes in both groundwater levels and land levels as a result of mining operations. These programs continue to be, carried out by Yallourn Energy Ltd., Hazelwood Power Corporation Ltd. and Loy Yang Power Ltd. The purpose of this attachment is to ensure the continuation of these regional monitoring and assessment programs.

The requirements specified in this attachment are directed at:

- maintaining an appropriate regional monitoring and assessment program;
- providing a mechanism to cooperatively adjust and refine the regional program to take account of:
  - results generated by the program;
  - changes in mining and depressurising activity;
  - emerging regional issues associated with depressurising activities;
  - advances in technology; and
- maintaining a cost effective program.

REGIONAL MONITORING PROGRAM

1. A regional monitoring program will be undertaken to record and predict changes in groundwater levels and land levels. The program shall include:-
   - Groundwater Monitoring;
   - Groundwater Modelling;
   - Land Level Surveying; and
   - Land Level Modelling.
2. For the purposes of this attachment, the region that shall be observed comprises the area bounded by the coordinates (AMG 436000E, 5742000N and 4250000E, 5754000N and 447000E, 5785500N and 521000E, 5801000N and 521000E, 5766000N and 476000E, 5754000N and 450000E, 5753000N) as shown in the attached plan.

Groundwater Monitoring

3. A groundwater monitoring network will be maintained in the region. Sufficient data will be collected to reliably monitor and predict regional groundwater levels and trends. Databases will be maintained to store and retrieve data related to these activities.

4. The bores included in the regional groundwater monitoring network together with the monitoring frequency are listed in Table A.

5. Standing water levels shall be measured according to standard operating procedures.

6. All data shall be verified before submitting for storage. Measurements shall be checked against previous measurements for that bore to detect anomalies such as:

   - incorrect recording of data;
   - the casing has collapsed or become perforated;
   - the screen or slots have become blocked.

7. The occurrence and cause of data anomalies shall be recorded and procedures instituted to prevent their recurrence.

8. Preventative maintenance shall be carried out to all surface fittings, bores shall be kept secure from illegal use, vandalism or contamination.

9. The structural condition of the bores shall be verified to ascertain if:-

   - the casing has collapsed or become perforated;
   - the screen or slots have become blocked.

10. All damaged or malfunctioning bores shall be repaired, substituted or replaced.

11. All unwanted damaged or failed bores shall be decommissioned.

Groundwater Modelling

12. Groundwater modelling of the region shall be performed to assist in predicting the effects of mine depressurising on regional groundwater levels.

13. Reports and results of modelling runs shall contain the predictions, previous predictions and actual values for groundwater extractions and potentiometric levels of groundwater.

Land Level Surveying

14. Land Level Surveys of the region shall be undertaken to determine the extent of land subsidence associated with mine depressurising.

15. Survey intervals and reports of survey results shall be carried out at no greater than 5 year intervals and more frequently where significant subsidence is being recorded. The next program will be

completed by the year 1996.

16. Surveys will undertaken to not less than third order accuracy.

Land Level Modelling

17. Land level modelling of the region shall be performed to assist in predicting the effects of groundwater depressurisation on land subsidence.

ARRANGEMENTS FOR MANAGING THE PROGRAM

18. The conduct of the monitoring, modelling and reporting is to be reviewed by the Regional Monitoring Committee having representatives of Yalloum Energy Pty Ltd, Hazelwood Power Corporation, Loy Yang Power, Department of Agriculture, Energy and Minerals and the Minister responsible for the *Water Act* or his delegate. The Committee may make recommendations to the Minister responsible for the *Water Act* or his delegate to amend the regional program in order to:

. maintain and/or enhance the regional monitoring and assessment program; and

. to adjust and refine the regional program to take account of:

- results generated by the program;
- changes in mining and depressurising activity;
- emerging regional issues associated with depressurising activities; and
- advances in technology.

. maintain a cost effective program.

19. The program shall be consistent with the programs previously carried out by the State Electricity Commission of Victoria to determine the impacts of dewatering/depressurisation both on site and regionally must be maintained to the satisfaction of the Inspector and the Minister responsible for the *Water Act* or his delegate.

REPORTING

20. The licensee shall ensure that results of the regional monitoring program are reported to the Minister responsible for the *Water Act* or his delegate and the Environmental Review Committee annually and at whatever times required by the Groundwater Licence.

21. An annual report shall be prepared each year by September detailing:

a. the monitoring activity undertaken in the past year
b. any amendments to the monitoring network
c. any issues arising from the monitoring results including significant variations to predicted trends

22. The annual report shall be made available to members of the public upon request.

23. A comprehensive review shall occur at not less than at 5 yearly intervals, or more frequently if circumstances change or as deemed necessary by the Regional Monitoring Committee.

24. The comprehensive review shall include:

    a. detailed analysis of measured regional groundwater levels and trends;
    b. detailed analysis of measured regional land subsidence and trends;
    c. contour maps of regional potentiometric surface levels for the main aquifers;
    d. contour maps of regional land subsidence;
    e. results from groundwater and land subsidence models;
    f. based on the modelling, detailed predictions of future regional groundwater and land level trends;
    g. any issues arising from the monitoring results including significant variations to previously predicted trends;
    h. recommendations to amend and enhance the regional monitoring program;
    i. where necessary, recommendations to manage regional issues resulting from mine depressurisation.

25. The licensee shall ensure that results of the comprehensive review are reported to the Minister responsible for the *Water Act* or his delegate.

26. The next review will be completed in 1996/97.

TABLE A

SEC Bore_id	Inter Seam-id	Seam-id	Aquifer	Easting	Northing	Transducer (m)	Monitored Interval from	Screen To (m)	Readings per year
51967	s01		Traralgon	470938	5770583		569.5	591.5	3
51979	s01		Traralgon	471063	5770578				3
52179	s02	bst	Basalt	459746	5760120		204	231	6
52204	s01	s219	Traralgon	465327	5762997		357	360	3
52310	s01		Morwell	469683	5772517		320	333	3
52472	s01		Morwell	466958	5769637		466.1	479	3
52477	s01		Traralgon	460442	5763006		171	177	3
52594	s01	s207	Traralgon	462932	5760496		110.7	123.8	3
52676	s01	s207	Traralgon	464241	5773325		672.5	692	3
52678	s01	s000	Basement	469681	5772509		694	694	3
52809	v01		Morwell	471137	5770563	449 8			3
52809	v02		Morwell	471137	5770563	430			3
52809	v03		Morwell	471137	5770563	405.3			3
52809	v04		Morwell	471137	5770563	392.6			3
52809	v05		Morwell	471137	5770563	350.1			3
52809	v06		Morwell	471137	5770563	319.9			3
52809	v07		Morwell	471137	5770563	289.7			3
52809	v08		Morwell	471137	5770563	255 7			3
52809	v09		Morwell	471137	5770563	245			3
52809	v10		Morwell	471137	5770563	230.8			3
52809	v11		Morwell	471137	5770563	205.1			3
52809	v12		Morwell	471137	5770563	180.1			3
52809	v13		Morwell	471137	5770563	149.9			3
52809	v14		Morwell	471137	5770563	125.2			3
52810	v04		Morwell	471153	5770560	595 3			3
52810	v05		Morwell	471153	5770560	587.3			3
52810	v06		Morwell	471153	5770560	580.3			3
52810	v07		Morwell	471153	5770560	543.8			3
52810	v08		Morwell	471153	5770560	507.8			3
52810	v09		Morwell	471153	5770560	480.3			3
52810	v10		Morwell	471153	5770560	458.3			3
52883	v01	s1000	Overburden	471070	5770575	69 8			3
52883	v02	s1000	Overburden	471070	5770575	36			3
52984	s01	s207	Traralgon	466677	5767549		350	353	3
52985	s01	s602	Morwell	466670	5767552		98	101	3
53038	s03	s304	Morwell	462234	5769287		327 2	0	3
53038	v01	s219	Traralgon	462234	5769287	414			3
53038	v02	s301s	Morwell	462234	5769287	387			3
53055	s01	s304	Morwell				384 5	387.5	3
53075	v01	s304	Morwell	463193	5768355	227 8			3
53075	v02	s408	Morwell	463193	5768355	177 8			3
53118	v01	s214	Traralgon	462399	5770406	542 6			3
53118	v02	s219	Traralgon	462399	5770406	523			3
53118	v03	s219	Traralgon	462399	5770406	508.7			3
53118	v04	s219	Traralgon	462399	5770406	499			3
53118	v05	s304	Morwell	462399	5770406	438.2			3
53118	v06	s306	Morwell	462399	5770406	454.4			3
53118	v07	s306	Morwell	462399	5770406	429 6			3
53118	v08	s402	Morwell	462399	5770406	413.3			3
53118	v09	s407	Morwell	462399	5770406	407.1			3
53118	v10	s500	Morwell	462399	5770406	399 6			3
53118	v11	s501	Morwell	462399	5770406	378.8			3
53118	v12	s600u	Morwell	462399	5770406	348.4			3
53118	v13	s700	Morwell	462399	5770406	336.7			3
53118	v14	s700	Morwell	462399	5770406	329			3
53118	v15	s700	Morwell	462399	5770406	303.2			3
53118	v16	s700	Morwell	462399	5770406	289			3
53118	v17	s701	Morwell	462399	5770406	263.1			3
53118	v18	s701	Morwell	462399	5770406	229.2			3
53118	v19	s800	Morwell	462399	5770406	208 4			3
53118	v20	s800	Morwell	462399	5770406	179			3
53119	v01	s801	Morwell	462411	5770403	136			3
53119	v02	s801	Morwell	462411	5770403	121.6			3

TABLE A

SEC Bore id	Inter Seam-id	Seam-id	Aquifer	Easting	Northing	Transducer (m)	Monitored Interval from	Screen To (m)	Readings per year
53119	v03	s900	Morwell	462411	5770403	118.4			3
53119	v04	s900i	Morwell	462411	5770403	110 7			3
53119	v05	s900	Morwell	462411	5770403	90			3
53298	v01	s000	Basement	459683	5761763	224.8			3
53298	v02	s000	Basement	459683	5761763	184.4			3
53298	v03	s120	Basalt	459683	5761763	170.1			3
53298	v04	s120	Basalt	459683	5761763	138.2			3
53299	v01	s120	Basalt	459684	5761767	110			3
53299	v02	s207	Traralgon	459684	5761767	79 7			3
53299	v03	s207	Traralgon	459684	5761767	52.3			3
53299	v04	s1000	Overburden	459684	5761767	27.5			3
53352	v01	s000	Basement	460222	5764647	417.5			3
53352	v02	s000	Basement	460222	5764647	382.5			3
53353	s09	s500	Morwell	460216	5764636		40 2	43.2	3
53353	v01	s120	Basalt	460216	5764636	317.9			3
53353	v02	s120	Basalt	460216	5764636	280			3
53353	v03	s213	Traralgon	460216	5764636	236			3
53353	v04	s219	Traralgon	460216	5764636	213.7			3
53353	v05	s301s	Morwell	460216	5764636	181.4			3
53353	v06	s304	Morwell	460216	5764636	138.2			3
53353	v07	s306	Morwell	460216	5764636	87.2			3
53353	v08	s403	Morwell	460216	5764636	70			3
80445	v01	s304	Morwell	458006	5769795	579.9			3
80445	v02	s408	Morwell	458006	5769795	549 7			3
80445	v03	s500	Morwell	458006	5769795	525			3
80489	t01	s214	Traralgon	457978	5766531	589.5			3
80489	v02	s214	Traralgon	457978	5766531	589.5			3
80489	v03	s216	Traralgon	457978	5766531	576 6			3
80489	v04	s219	Traralgon	457978	5766531	568			3
80489	v05	s301s	Morwell	457978	5766531	532			3
80489	v06	s301s	Morwell	457978	5766531	517.7			3
80490	t02	s216	Traralgon	458524	5766257	329 7			3
80490	v01	s214	Traralgon	458524	5766257	341 4			3
80490	v03	s216	Traralgon	458524	5766257	329.7			3
80490	v04	s219	Traralgon	458524	5766257	320 9			3
80490	v05	s301s	Morwell	458524	5766257	287.1			3
80490	v06	s303s	Morwell	458524	5766257	256.6			3
80490	v07	s306	Morwell	458524	5766257	229.3			3
80490	v08	s306	Morwell	458524	5766257	214.6			3
80490	v09	s413	Morwell	458524	5766257	189.2			3
80491	t01	s207	Traralgon	460202	5768587	524.4			3
80491	v02	s207	Traralgon	460202	5768587	524.4			3
80491	v03	s214	Traralgon	460202	5768587	500 6			3
80491	v04	s215	Traralgon	460202	5768587	484 3			3
80491	v05	s219	Traralgon	460202	5768587	470			3
80491	v06	s306	Morwell	460202	5768587	416.5			3
80491	v07	s409	Morwell	460202	5768587	399.2			3
80491	v08	s501	Morwell	460202	5768587	365.3			3
80491	v09	s601	Morwell	460202	5768587	311.8			3
80491	v10	s701	Morwell	460202	5768587	225 6			3
80491	v11	s801	Morwell	460202	5768587	124 3			3
80491	v12	s900	Morwell	460202	5768587	81.8			3
80495	s01	s120	Basalt	458454	5761926		23s	239	3
80496	s06	s1000	Overburden	458455	5761927		4 5	6	3
80496	v01	s207	Traralgon	458455	5761927	132 8			3
80496	v02	s219	Traralgon	458455	5761927	110			3
80496	v03	s301s	Morwell	458455	5761927	82.6			3
80496	v04	s1000	Overburden	458455	5761927	52.1			3
80496	v05	s1000	Overburden	458455	5761927	26 5			3
90323	s01	m2	Morwell	485442	5772772		211	214	6
90324	s01	m1b	Morwell	476082	5775537		377	384	6
90325	s01	m1b	Morwell	485681	5776745		344.5	351	6
90330	s01	m2c	Morwell	471964	5767940		478	481	6
90335	s01	m1b	Morwell	480370	5775990		398	401	6
90335	s02	m1b	Morwell	480370	5775990		385	388	6
90339	s01	t2	Traralgon	475590	5772706		632.5	652	6

TABLE A

SEC Bore_id	Inter Seam-id	Seam-id	Aquifer	Easting	Northing	Transducer (m)	Monitored Interval from	Screen To (m)	Readings per year
90340	v01	m2bco	Morwell	476111	5775526	545 4			6
90340	v03	m2c	Morwell	476111	5775526	496 4			6
90340	v04	m2a	Morwell	476111	5775526	475.7			6
90340	v05	m2co	Morwell	476111	5775526	451			6
90340	v06	m2co	Morwell	476111	5775526	443.3			6
90340	v07	m2co	Morwell	476111	5775526	429 1			6
90340	v08	m2co	Morwell	476111	5775526	405.4			6
90340	v09	m1bco	Morwell	476111	5775526	365			6
90340	v10	m1buntr	Morwell	476111	5775526	350.8			6
90340	v11	m1biatr	Morwell	476111	5775526	336.6			6
90340	v12	m1bco	Morwell	476111	5775526	300 3			6
90340	v13	m1a	Morwell	476111	5775526	275 6			6
90340	v14	m1aco	Morwell	476111	5775526	245.4			6
90340	v16	m1aco	Morwell	476111	5775526	184.4			6
90340	v17	ycn	Yallourn	476111	5775526	144.1			6
90340	v18	ycu	Yallourn	476111	5775526	129 9			6
90343	s01	m2	Morwell	480772	5770910		322	325	6
100093	s01	t2	Traralgon	496899	5770187		116	122 5	6
100094	s01	t2	Traralgon	498392	5768601		210.5	211.5	6
100094	s02	t2	Traralgon	498392	5768601		196 5	197.5	6
100096	s01	t2	Traralgon	498379	5768515		196.5	202 5	6
100097	s01	t2	Traralgon	496354	5766284		228	234	6
110032	s01	m1b	Morwell	463793	5781840		413	419	6
110034	s01	m2c	Morwell	468243	5784230		398	404 5	6
110036	s01	t2	Traralgon	471558	5778928		724.3	727.6	6
110037	s01	m2	Morwell	457565	5776816		574.5	578	6
110037	s02	m2	Morwell	457565	5776816		559	564.2	6
110038	s01	m2	Morwell	462310	5778090		529 5	533	6
110038	s02	m2c	Morwell	462310	5778090		500	506.5	6
110040	s01	m1b	Morwell	460886	5777315		317	323 5	6
110042	s01	t2	Traralgon	465399	5778355		585.5	595	6
110043	s01	hhf	Overburden	472688	5781606		604	617	6
130165	s01	m2a	Morwell	470581	5766114		254.2	257 2	6
130167	s01	t2	Traralgon	470769	5760829		172	173.9	6
130176	s01	t2	Traralgon	470515	5766073		516	517	6
130176	s02	t1	Traralgon	470515	5766073		502 5	503.5	6
130183	s01	t2	Traralgon	467810	5763371		457.5	463.5	6
130183	s02	t1	Traralgon	467810	5763371		420	423	6
130198	s01	m2c	Morwell	470132	5764486		70	73	6
130205	s01	t1	Traralgon	470056	5764145		158 5	170 5	6
130212	s01	t2	Traralgon	468075	5760566		157	163	6
180177	s01	t2	Traralgon	492005	5771760		172.5	179	6
180188	s01	t2	Traralgon	492016	5771729		196 9	199.1	6
180189	s01	t2	Traralgon	492019	5771710		196	202	6
180196	s01	t2	Traralgon	489766	5769550		312.5	319	6
180204	s01	m1a	Morwell	489982	5775902		298	304.5	6
180207	s01	t2	Traralgon	487808	5768055		351 4	354.5	6
180220	s01	t2	Traralgon	491927	5774950		218	301.5	6
180221	s01	t2	Traralgon	489043	5769555		301	311	6
190046	s01	t2	Traralgon	508376	5771796		190.2	196.2	6
210051	s01	t2	Traralgon	488413	5759579	329.4	335.2	6	
220196	s01	t2	Traralgon	479470	5765095		349.6	369 4	6
220197	s01	t2	Traralgon	479488	5765101		352	355	6
220197	s02	t2	Traralgon	479488	5765101		339	340 5	6
220197	s03	t2	Traralgon	479488	5765101		330.5	332.5	6
220197	s04	t2	Traralgon	479488	5765101		326	327.5	6
220197	s05	t2	Traralgon	479488	5765101		321	323.5	6
240047	s01	m1buntr	Morwell	478998	5778765		426	439	6
240052	s01	m2a	Morwell	482842	5786326		568.8	577.8	6
440056	s01	m1bc	Morwell	486646	5780346		398	401.5	6
440056	s02	m1bc	Morwell	486646	5780346		392	395	6
440058	s01	m2co	Morwell	484085	5779315		526	535	6
440341	s01	t1	Traralgon	490285	5787763		660	666	6
530024	s01	m2co	Morwell	471409	5792603		234	240	6
530025	s01	m2d	Morwell	467784	5787307		407	413	6
920007	s01	t2	Traralgon	508727	5764044		725	737	6

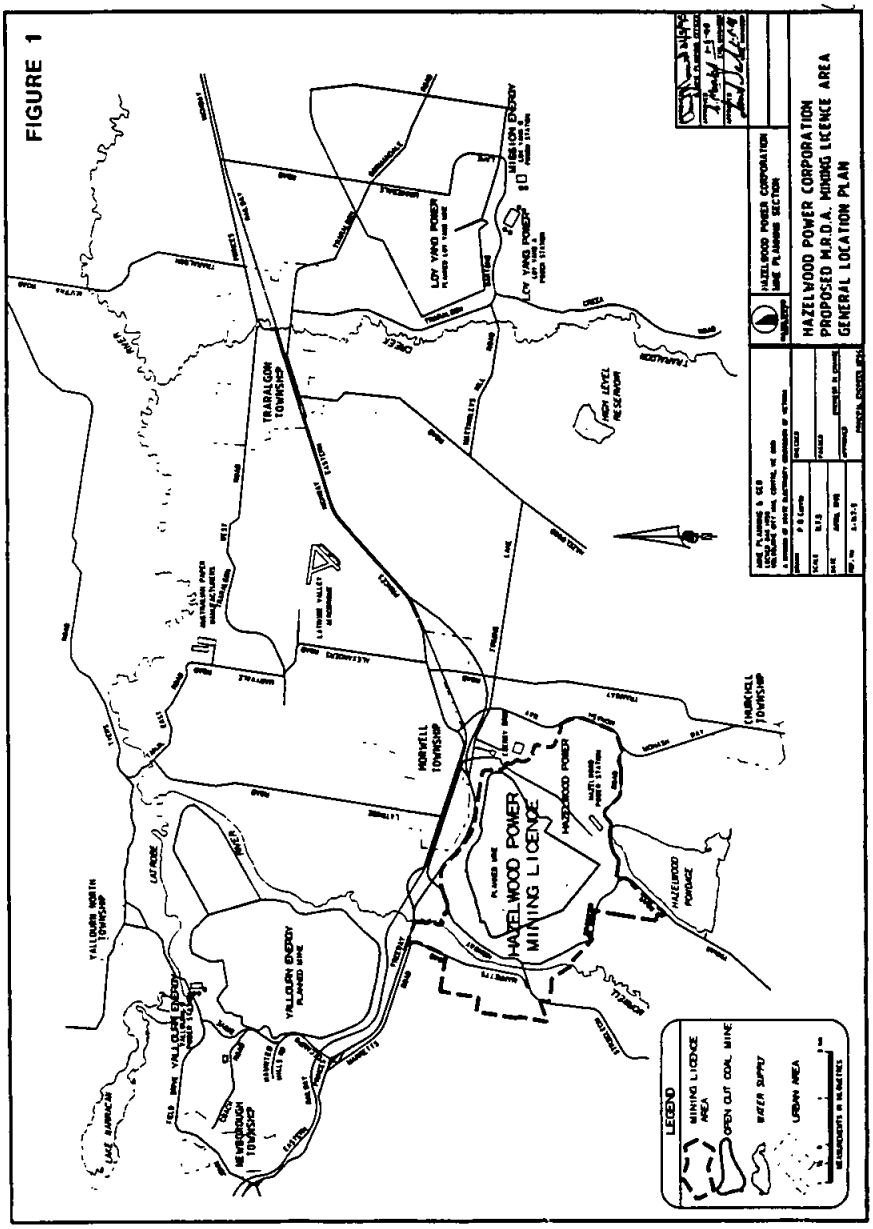
TABLE A

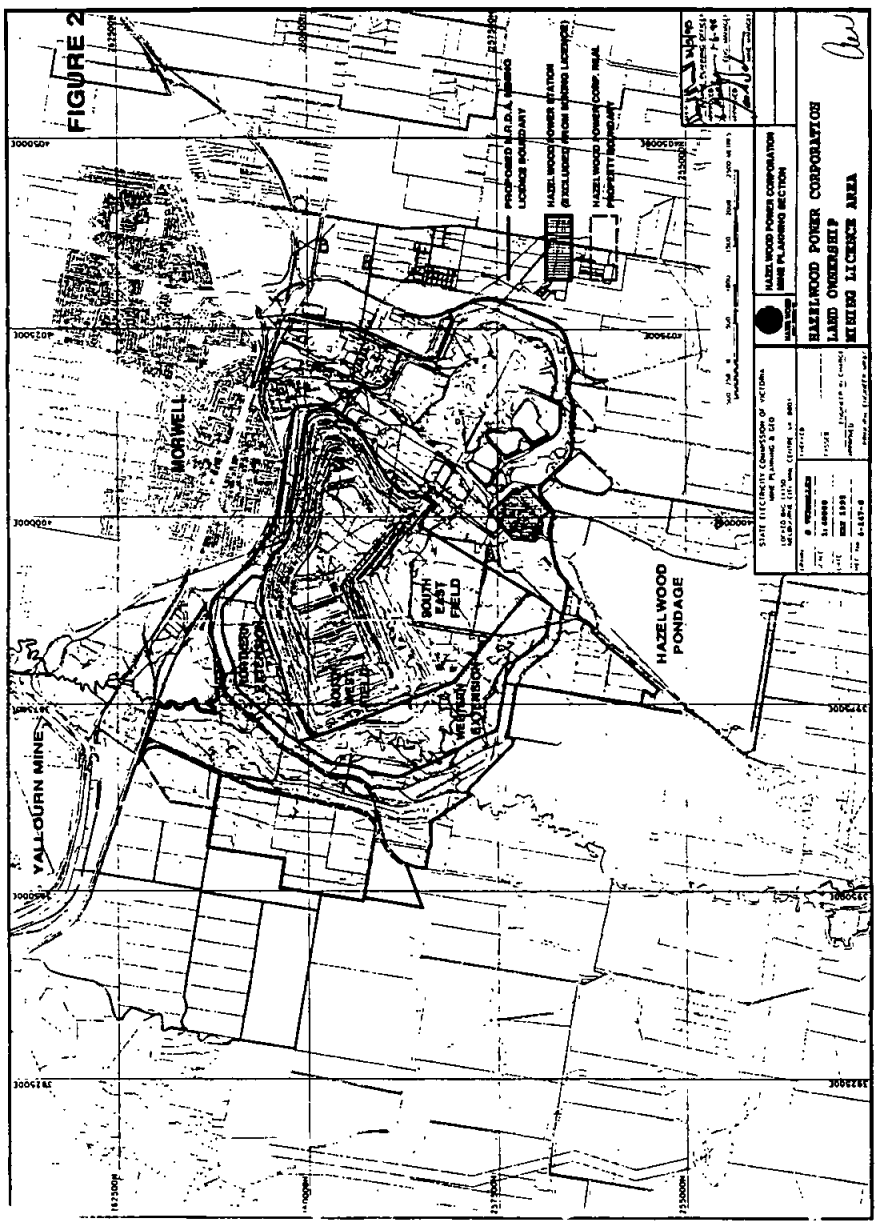
SEC Bore_id	Inter Seam-id	Seam-id	Aquifer	Easting	Northing	Transducer (m)	Monitored Interval from	Screen To (m)	Readings per year
40195	s01	m2s	Morwell	453719	5776453		456	459	12
40195	s02	m2s	Morwell	453719	5776453		449.5	452.5	12
40196	s01	m1b	Morwell	455344	5775761		331	334	12
40196	s02	m1b	Morwell	455344	5775761		309	315	12
10942	s01	m2	Morwell	451332	5773687				12
12034	s01	m2	Morwell	444974	5767679		297	301.9	3
12758	s01	m1b	Morwell	445713	5769485		258 5	263.5	12
13054	s01	m1b	Morwell	451007	5774117		324 5	344	12
13101	s01	m1s	Morwell	450630	5767792		606	613	12
13190	v01	m1b	Morwell	452103	5771191	460.4			12
13190	v02	m1b	Morwell	452103	5771191	439 6			12
13190	v03	m1b	Morwell	452103	5771191	412.3			12
13190	v04	m1a	Morwell	452103	5771191	385			12
13190	v05	m1aco	Morwell	452103	5771191	370.8			12
13190	v06	m1aco	Morwell	452103	5771191	358.2			12
13190	v07	m1aint	Morwell	452103	5771191	345.5			12
13190	v08	m1aint	Morwell	452103	5771191	327.2			12
13190	v09	m1aco	Morwell	452103	5771191	310			12
13282	v01	m1b	Morwell	448077	5769985	248.7			12
13282	v02	m1b	Morwell	448077	5769985	244 2			12
13282	v03	m1b	Morwell	448077	5769985	225 2			12
13282	v04	m1bco	Morwell	448077	5769985	210.2			12
13282	v05	m1bco	Morwell	448077	5769985	180.7			12
13282	v06		Morwell	448077	5769985	166 2			12
13282	v07	m1a	Morwell	448077	5769985	151.7			12
13282	v08		Morwell	448077	5769985	130 8			12
13282	v09	m1aco	Morwell	448077	5769985	109.7			12
13282	v10	yc	Yallourn	448077	5769985	84.7			12
22491	s01	m1s	Morwell	442511	5764494		87.5	89	12
23263	s01	m1a3	Morwell	441274	5764838		94 2	93.9	12
23263	s02	m1a2	Morwell	441274	5764838		91.1	91.4	12
23263	s03	m1a1	Morwell	441274	5764838		84 6	85.6	12
23270	s01	m1a3	Morwell	440655	5764395		45.7	46.3	12
23288	s01	m1a1	Morwell	440736	5763142		46.9	48.5	12
23369	s01	m1a1	Morwell	441501	5767590		143	144	12
23567	s01	a	Morwell	439942	5767338		124	130	12
23570	s01	bas	Basement	441817	5763673		181	187	12
23607	s01	m2a	Morwell	439335	5766552		83 6	90 1	12
23615	s01	a	Morwell	439463	5764961		59 1	66.1	12
23694	s01	m2a	Morwell	440805	5763059		65.6	66 6	12
23780	s01	m2a	Morwell	441500	5767578		187.5	194	12
24558	s01	m1a	Morwell	441178	5768165		164	170	12
24651	s01	b	Morwell	441440	5767969		170	173	12
24652	s01	a	Morwell	441526	5768866		192.5	195 5	12
61095	s01	m2	Morwell	443589	5763301		99.6	100.8	12
61320	s01	e	Morwell	446532	5761657		427.9	434	12
61333	s01	t1	Traralgon	450387	5764284		587 3	593.6	12
61348	s01	t1	Traralgon	449953	5762271		550 4	557.4	12
61502	s01	m1s	Morwell	443795	5759833		339	345	12
61502	s02	m1a	Morwell	443795	5759833		339	340.4	12
61631	v01	m1bco	Morwell	450379	5764307	294 4			12
61631	v02	m1bco	Morwell	450379	5764307	281.7			12
61631	v03	m1a	Morwell	450379	5764307	272.4			12
61631	v04	m1a	Morwell	450379	5764307	262.2			12
61631	v05	m1a	Morwell	450379	5764307	252			12
61631	v06	m1aco	Morwell	450379	5764307	234.8			12
61632	s01	t	Traralgon	450378	5764292		635.5	647.5	12
61691	v02		Morwell	447142	5758626	386.4			12
61691	v03	m2	Morwell	447142	5758626	361.7			12
61691	v04	m1	Morwell	447142	5758626	301.6			12
61691	v05		Overburden	447142	5758626	222 1			12
61719	s01	m2s	Morwell	449912	5759871		309	306	12
61726	s01	m2s	Morwell	448784	5757198		321	347	12
120122	s01	m2A	Morwell	442762	5756708		291	297.5	12
120122	s02	m2A	Morwell	442762	5756708		280	287	12
120135	s01	m2A	Morwell	440668	5756479		320	323	12

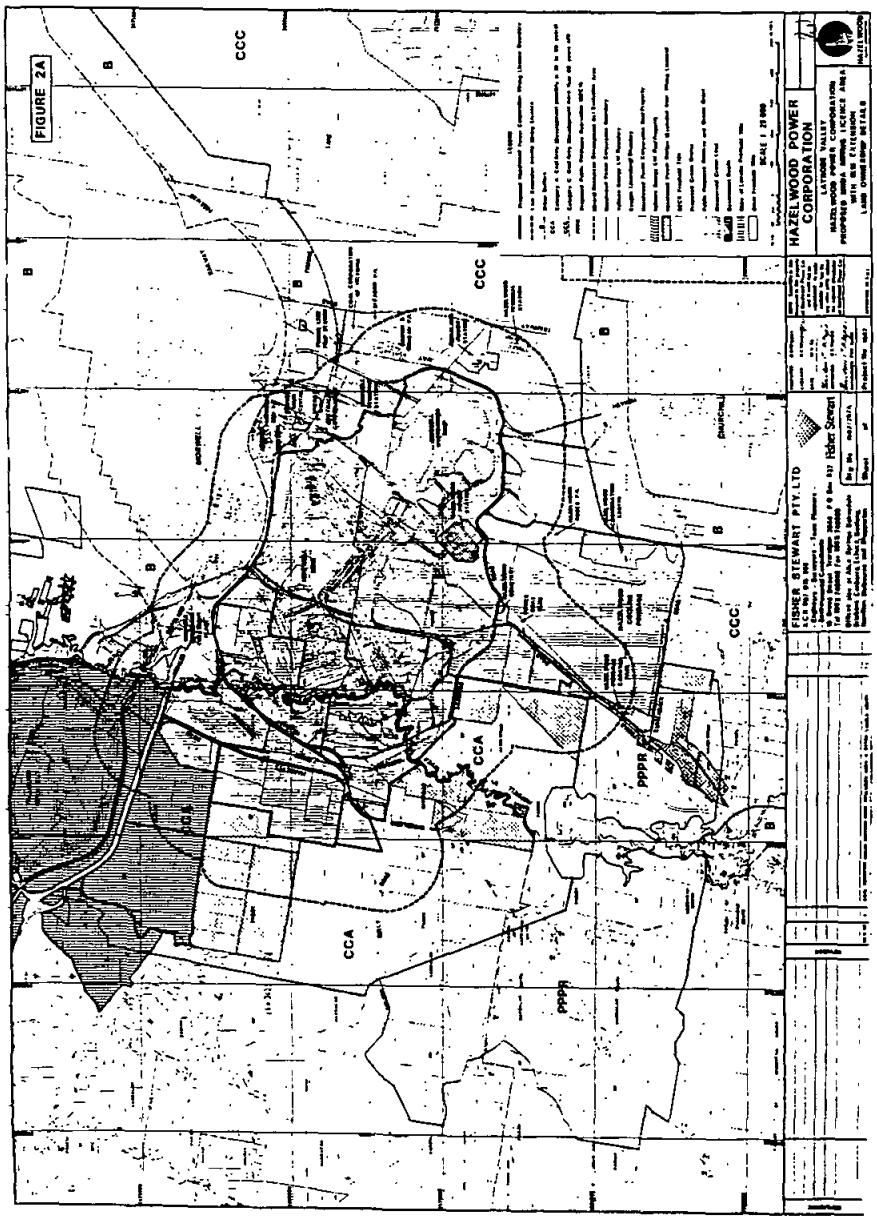
TABLE A

SEC Bore_id	Inter Seam-id	Seam-id	Aquifer	Easting	Northing	Transducer (m)	Monitored Interval Screen from	To (m)	Readings per year
120141	p01	ob	Overburden	442169	5756799				12
120141	p02	ys	Yallourn	442169	5756799				12
120141	p03	ys	Yallourn	442169	5756799				12
120141	p04	m1bco	Morwell	442169	5756799				12
120141	p05	m1bco	Morwell	442169	5756799				12
120141	p06	m1a	Morwell	442169	5756799				12
120152	s01		Traralgon	000000			32.4	638.4	12
23726	s01	m2	Morwell	438701	5773468		85	194	12
23787	s01	m1a3	Morwell	438151	5773869		09 1	215.1	12
23788	s01	m2	Morwell	436100	5775669		96.5	98	12
23789	s01	m2	Morwell	437084	5774827		158.5	164.5	12
23799	s01	a	Morwell	439674	5772504		211.5	214.5	12
230034	s01	m2	Morwell	433329	5777233		52	55	12
230043	s01	m2	Morwell	430147	5776203		144	156	12
230049	s01	m2	Morwell				210	219	12
230055	s01	m2	Morwell				176	180	12

R Nott, D Rairey 28 December, 1995
C:\office\[illegible]







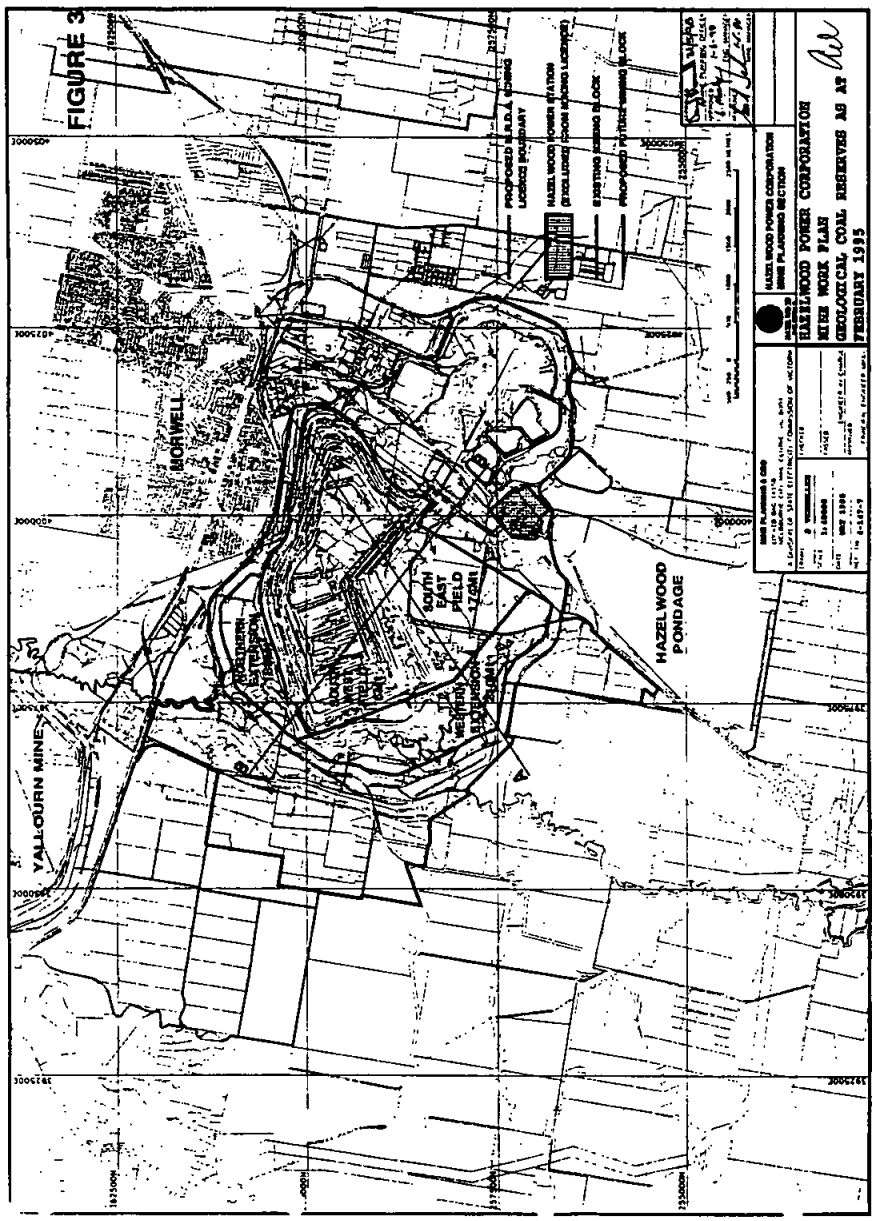


FIGURE 4

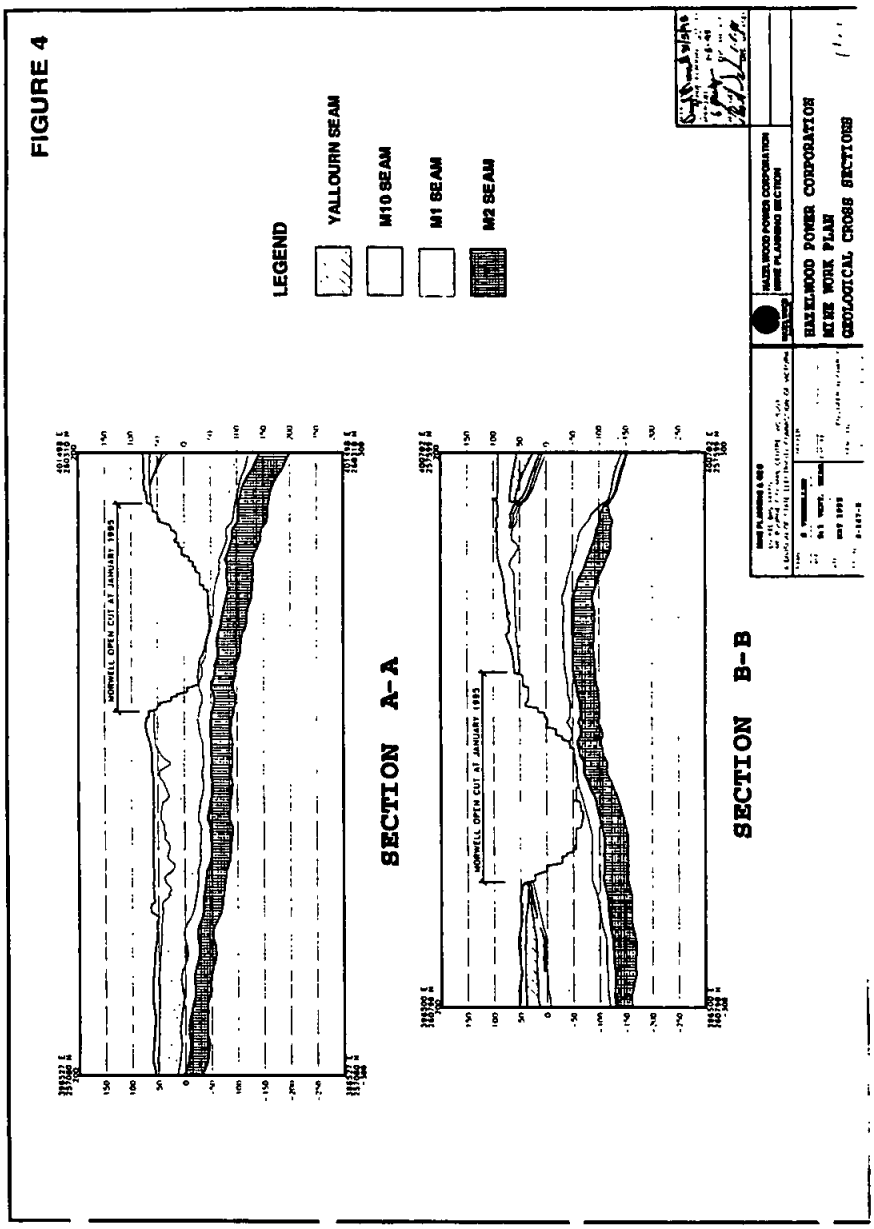


FIGURE 5

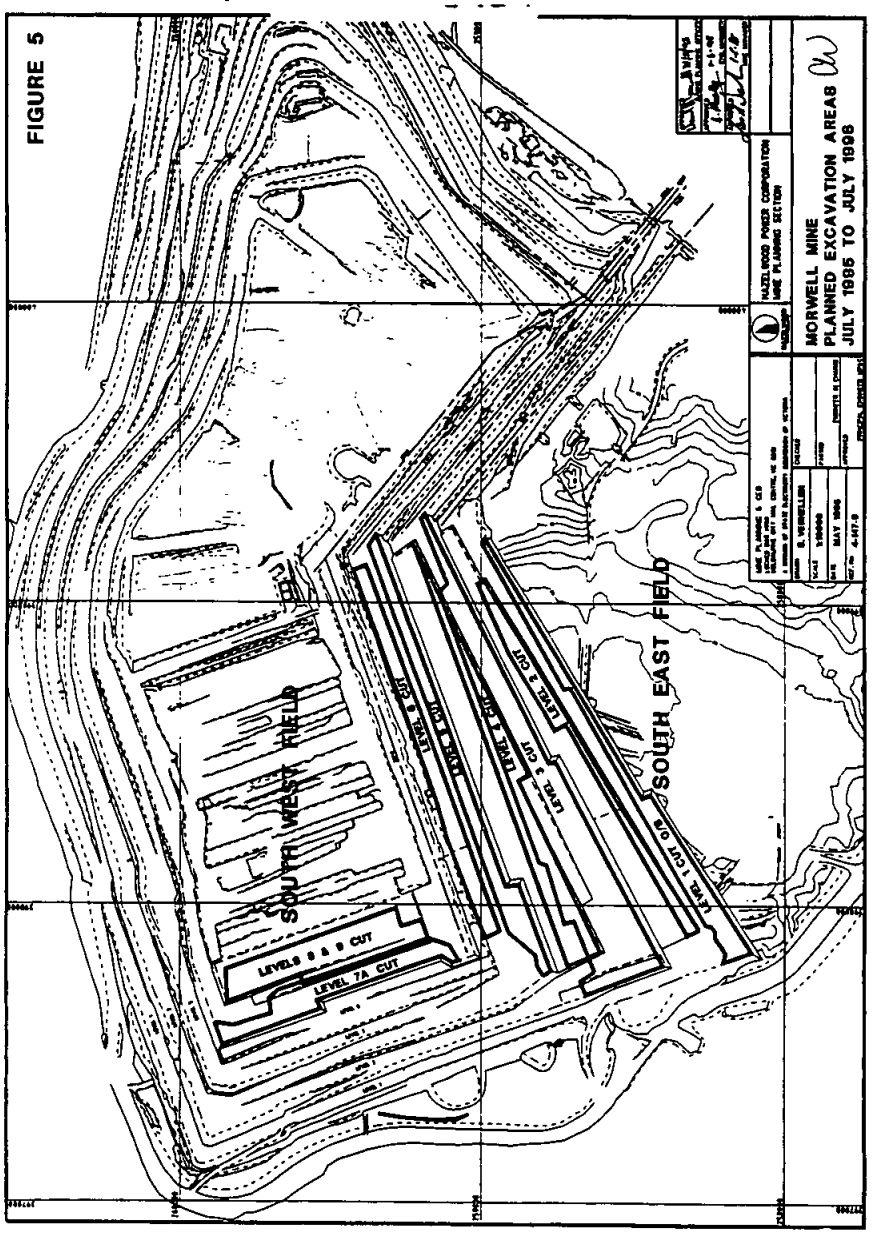


FIGURE 6

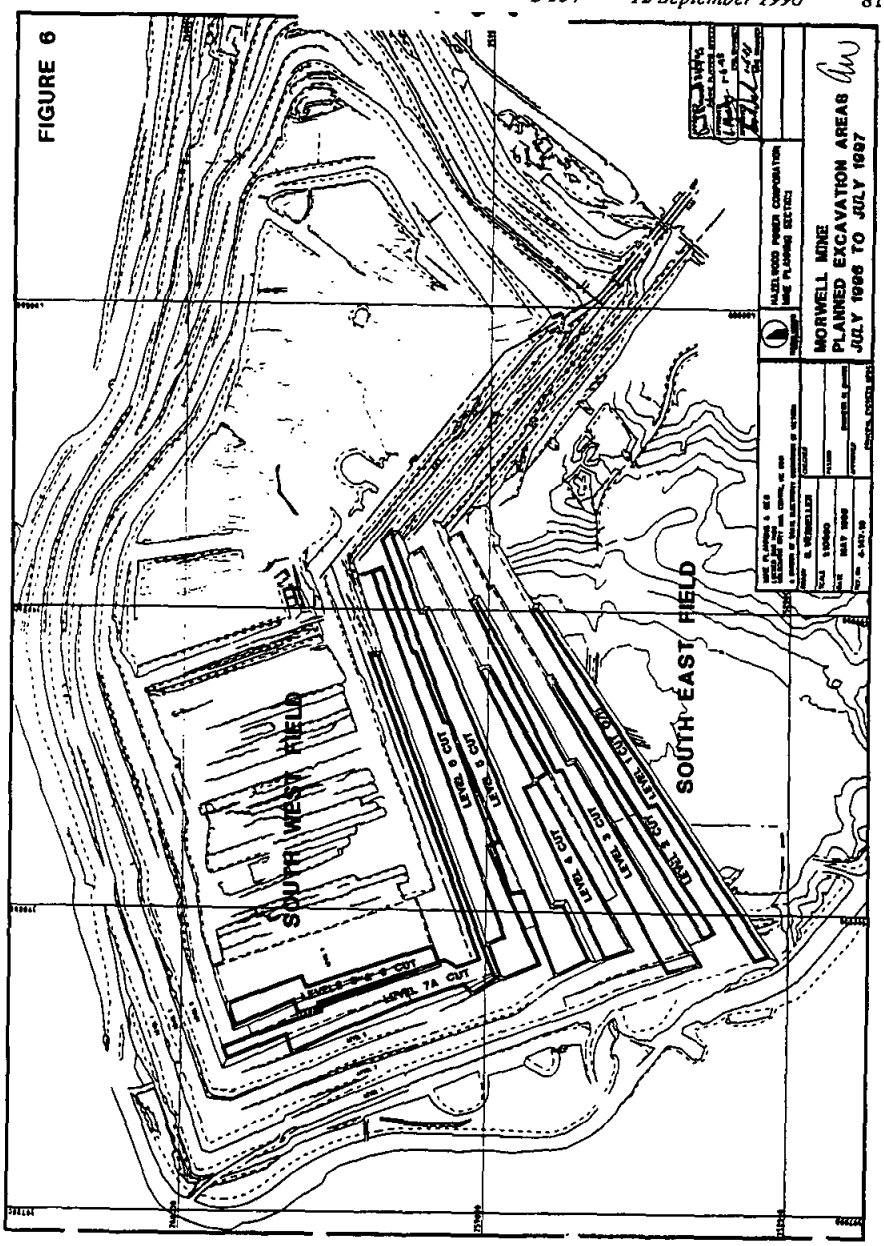
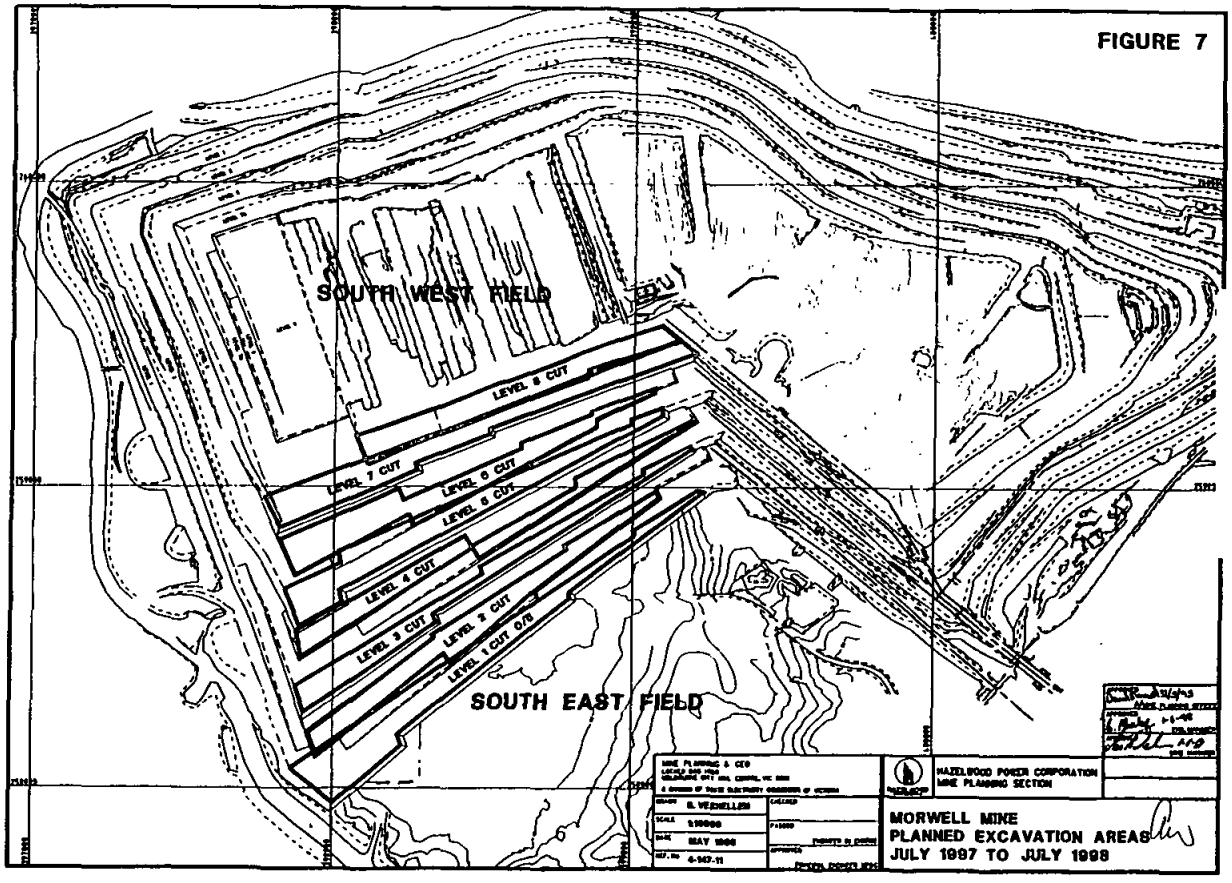

SOUTH WEST FIELD
SOUTH EAST FIELD
LEVEL 8 CUT
LEVEL 7 CUT
LEVEL 6 CUT
LEVEL 5 CUT
LEVEL 4 CUT
LEVEL 3 CUT
LEVEL 2 CUT
LEVEL 1 CUT
MORWELL MINE
PLANNED EXCAVATION AREAS
JULY 1996 TO JULY 1997

FIGURE 7


SOUTH WEST FIELD
LEVEL 8 CUT
LEVEL 7 CUT
LEVEL 6 CUT
LEVEL 5 CUT
LEVEL 4 CUT
LEVEL 3 CUT
LEVEL 2 CUT
LEVEL 1 CUT O/B
SOUTH EAST FIELD
HAZELWOOD POWER CORPORATION
MINE PLANNING SECTION
MORWELL MINE
PLANNED EXCAVATION AREAS
JULY 1997 TO JULY 1998

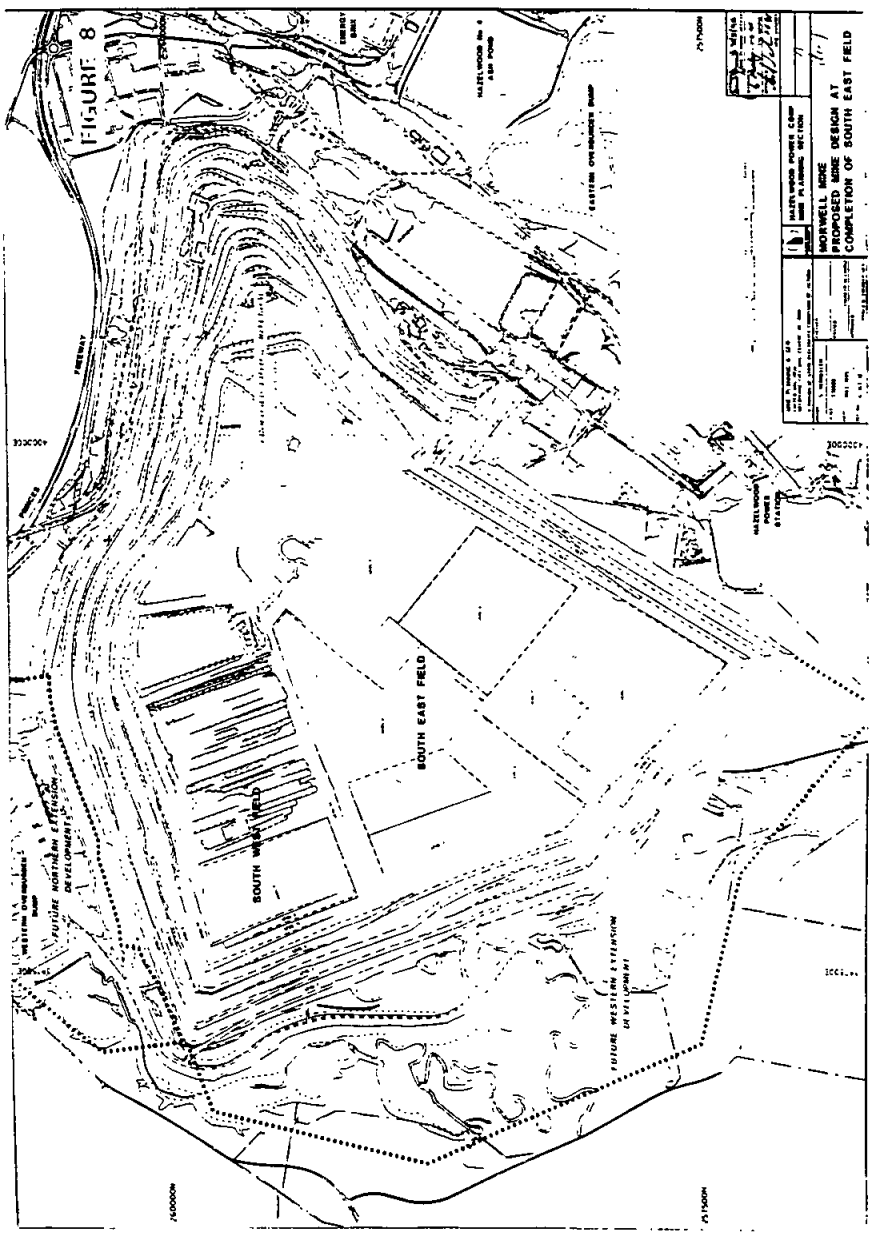
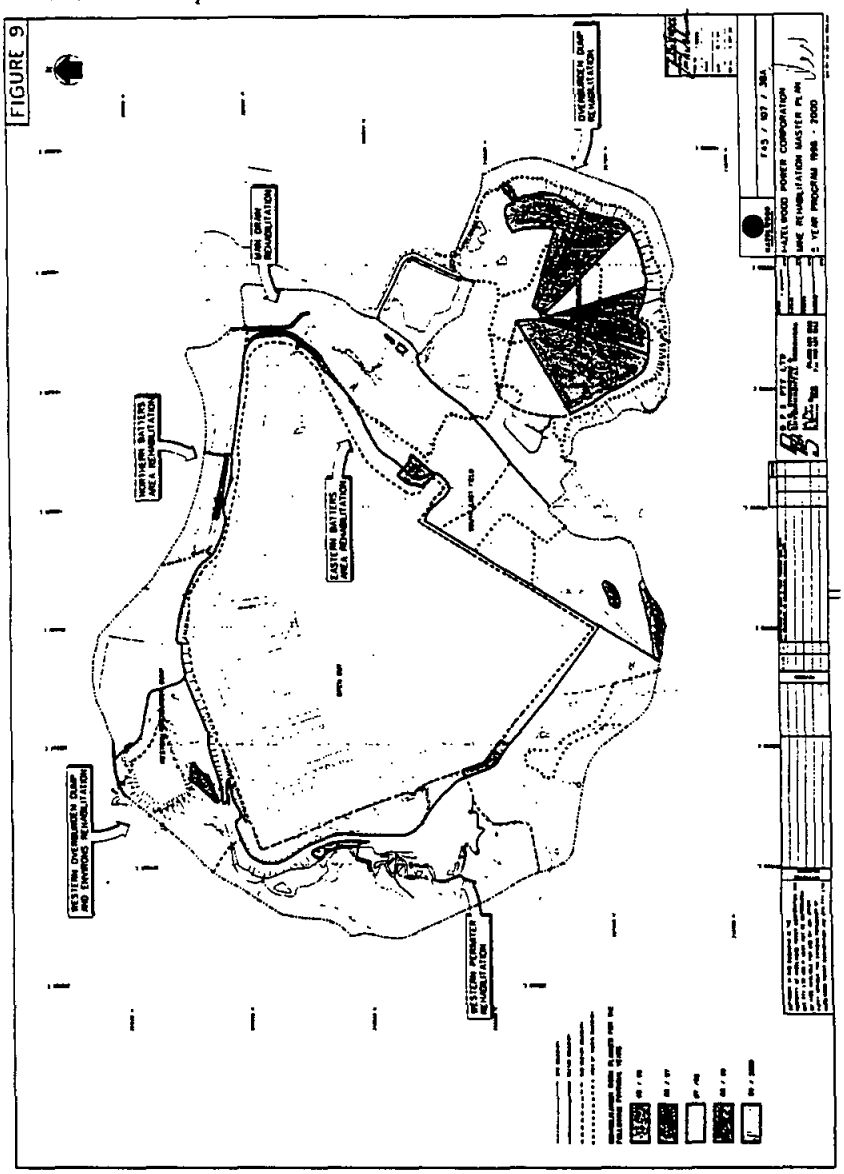


FIGURE 9



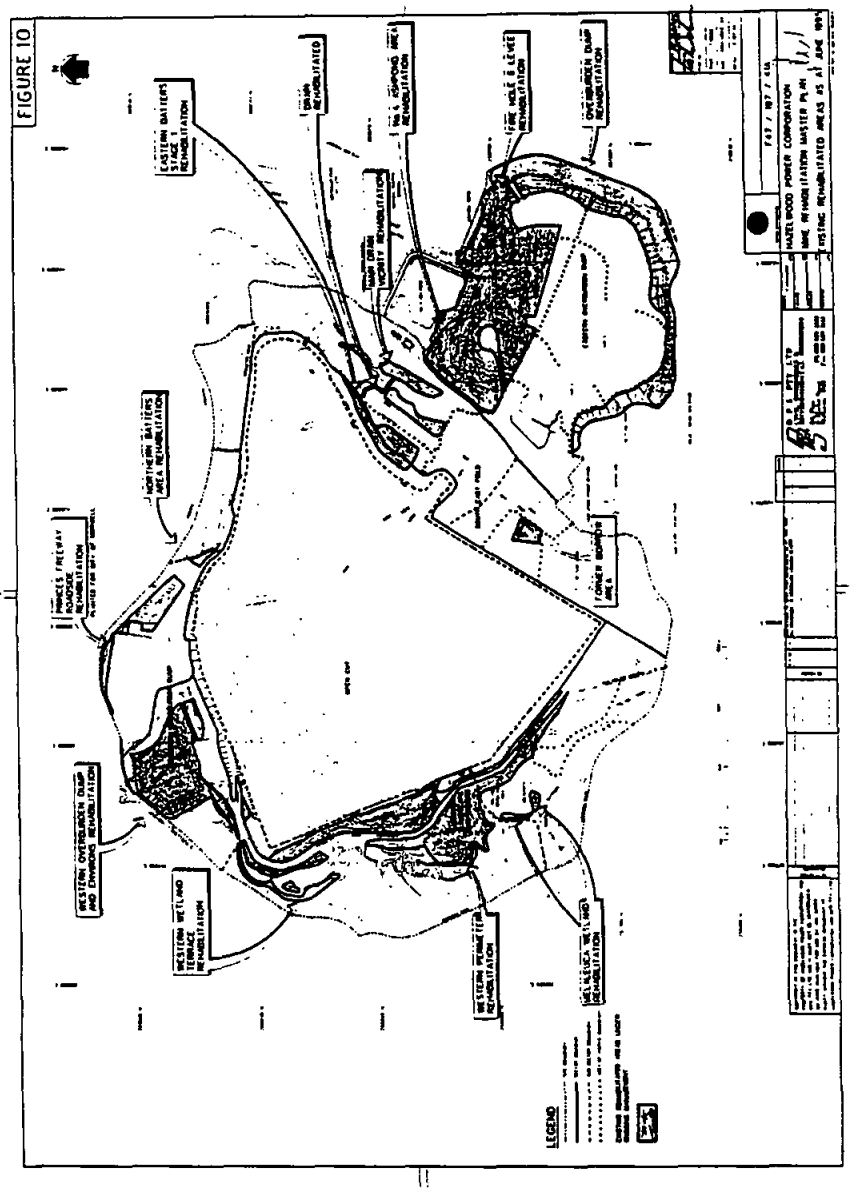
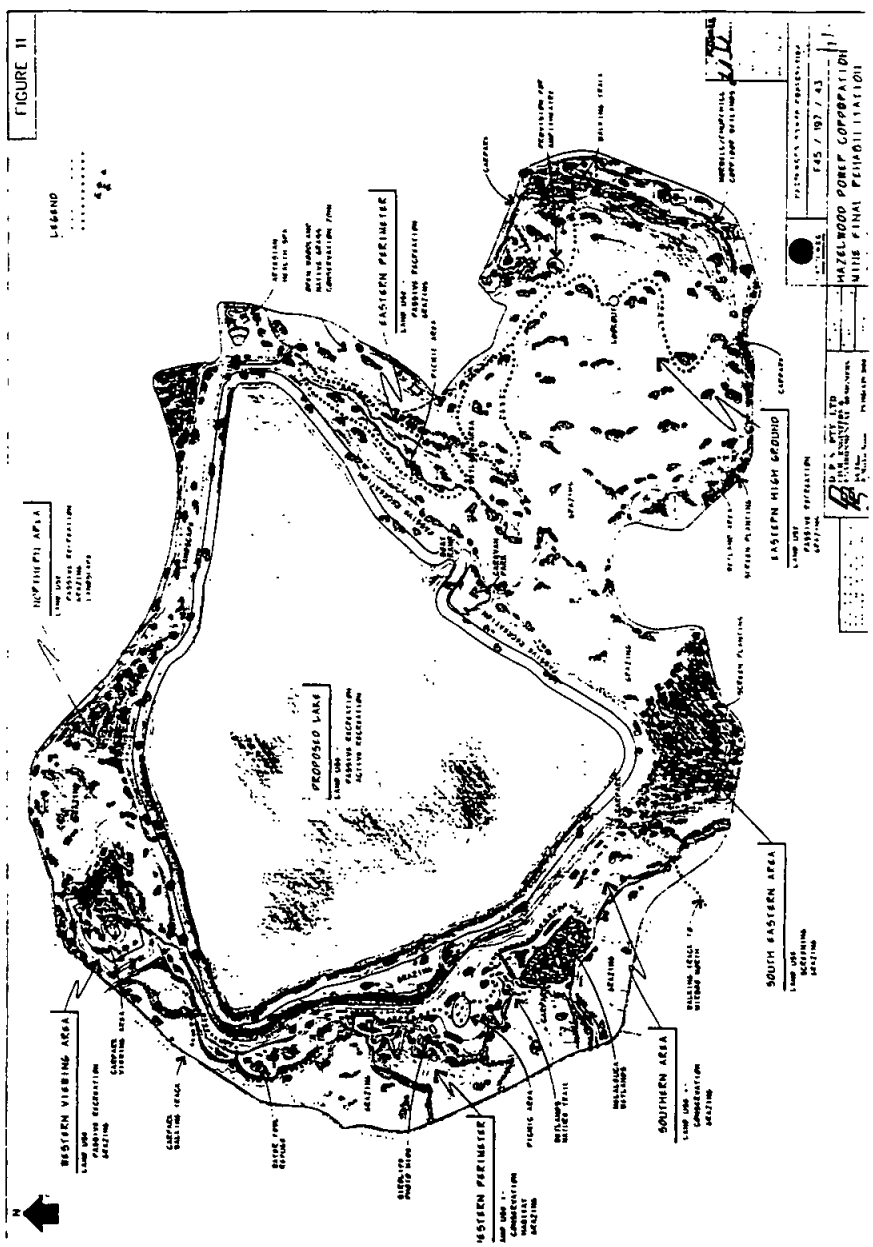
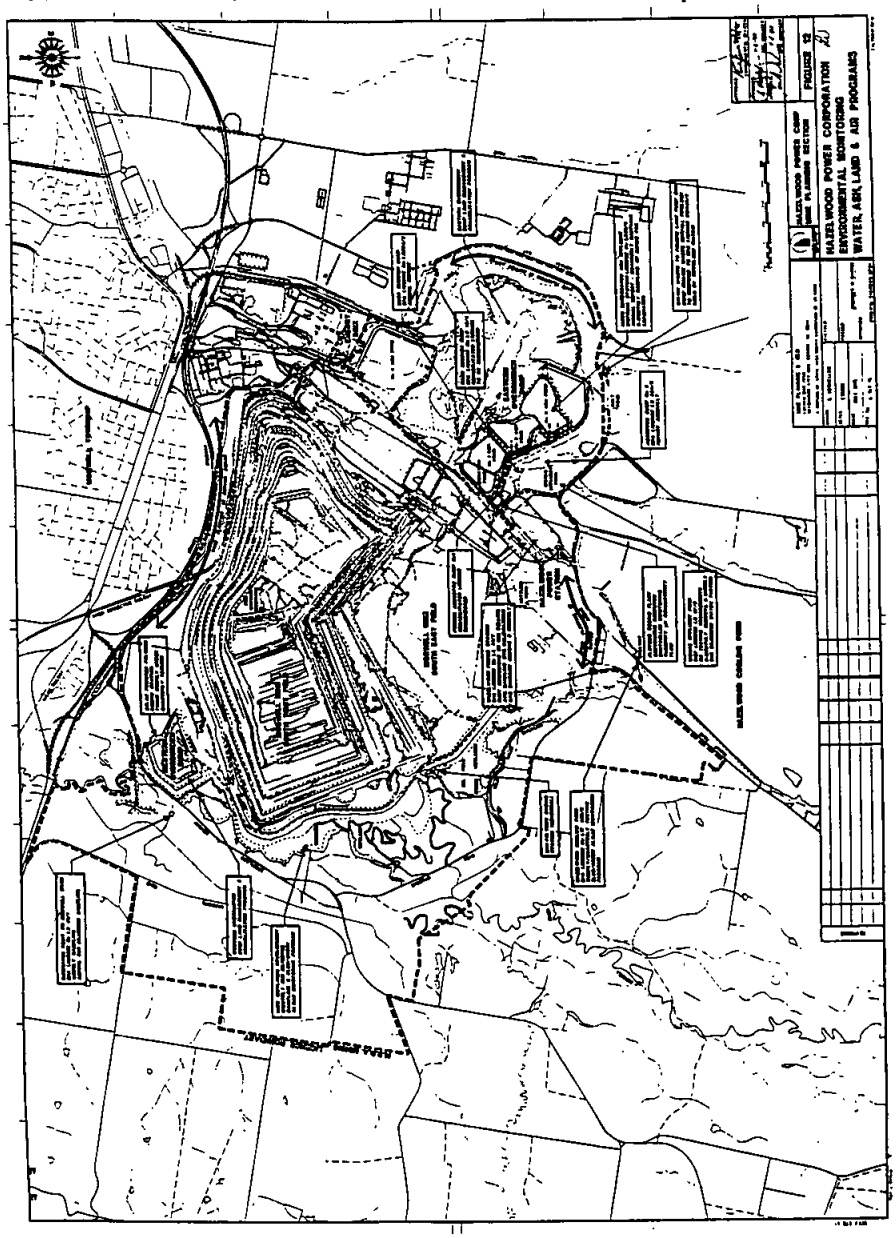
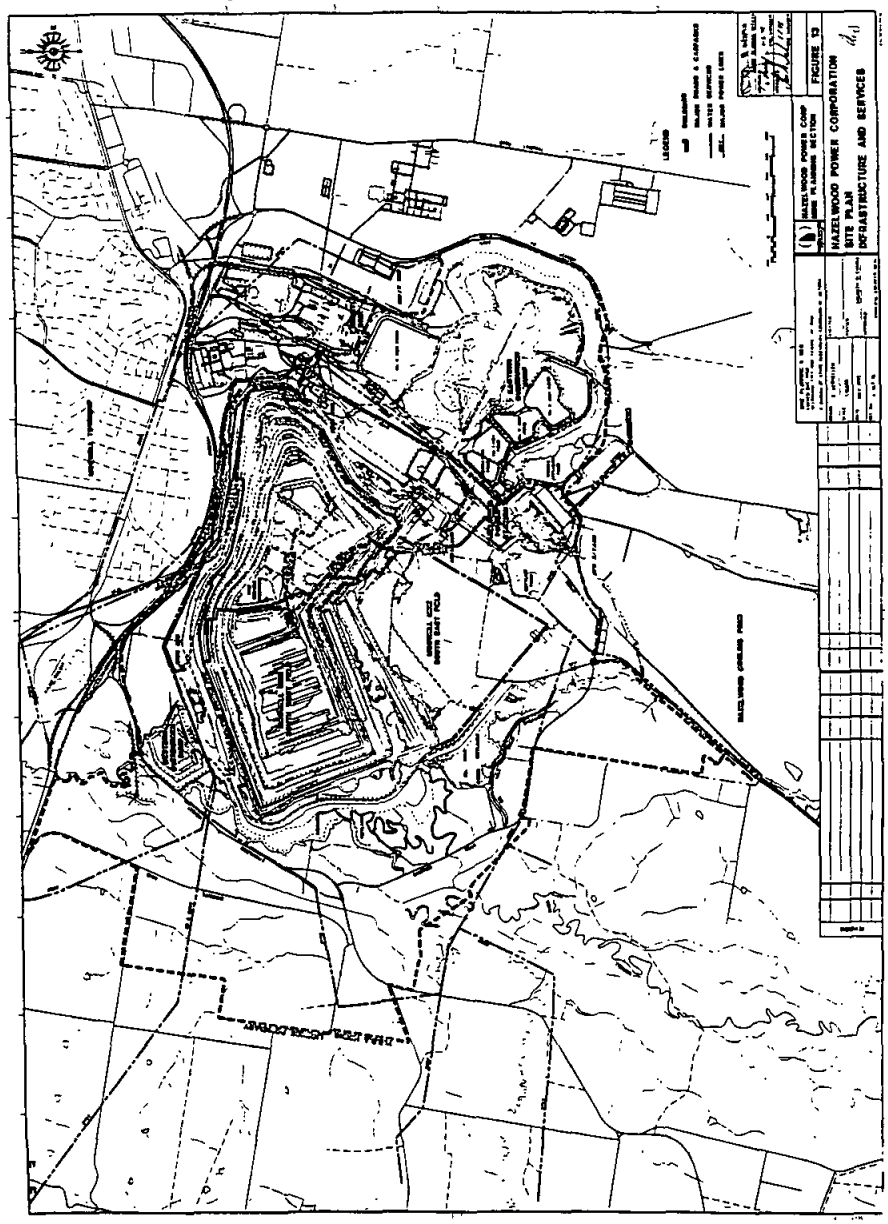


FIGURE 10
EASTERN BATTERS STAGE 1 REHABILITATION
TERRACE REHABILITATION
NORTHERN BATTERS AREA REHABILITATION
WESTERN OVERBURDEN DUMP AND EMBANKS REHABILITATION
WESTERN WETLAND TERRACE REHABILITATION
WESTERN PENINSULA REHABILITATION
HELENA'S WETLAND REHABILITATION
FIRE HOLE 8 LEASE REHABILITATION
OVERBURDEN DUMP REHABILITATION
LOWER BATTERS AREA
HAZELWOOD POWER CORPORATION
MINE REHABILITATION MASTER PLAN
EXISTING REHABILITATED AREAS AS AT JUNE 1996
LEGEND







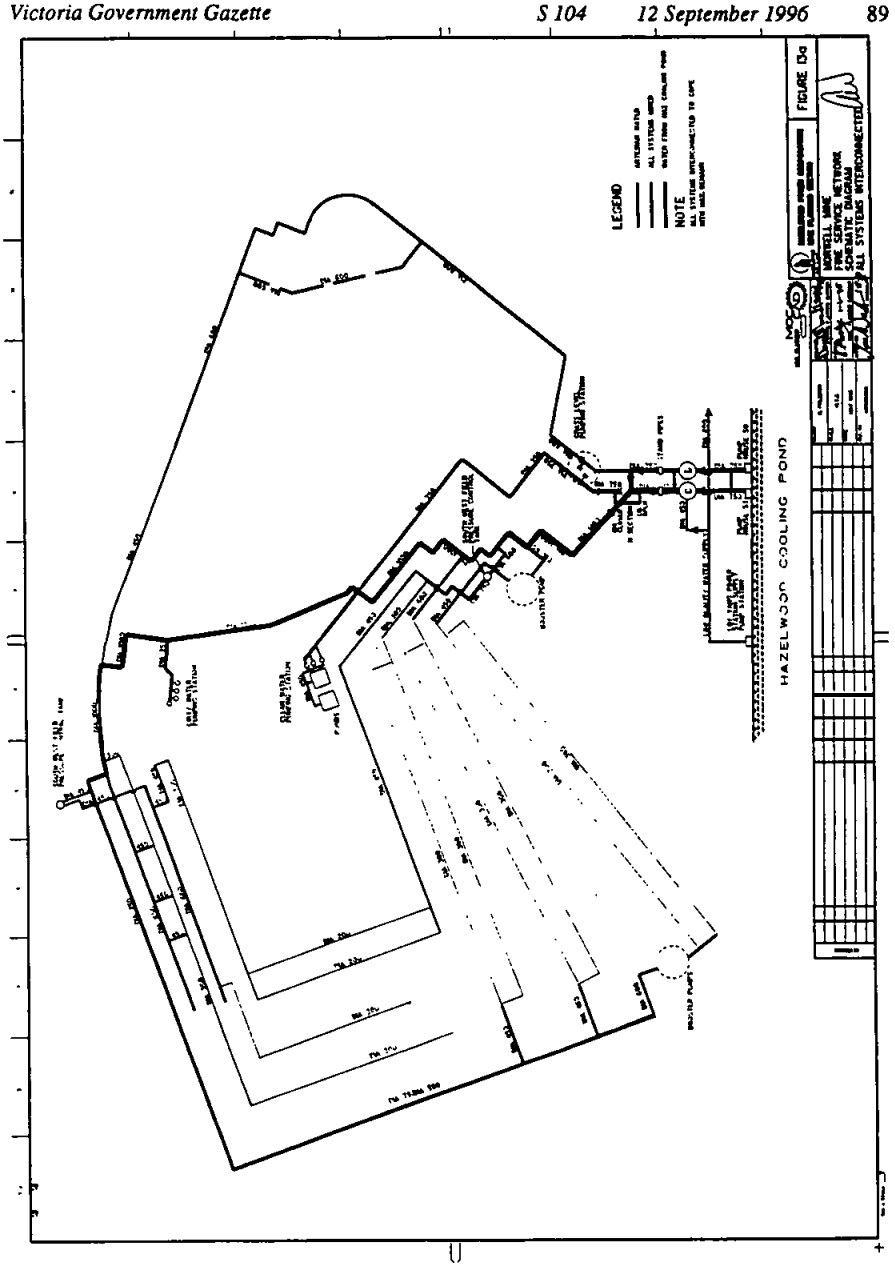
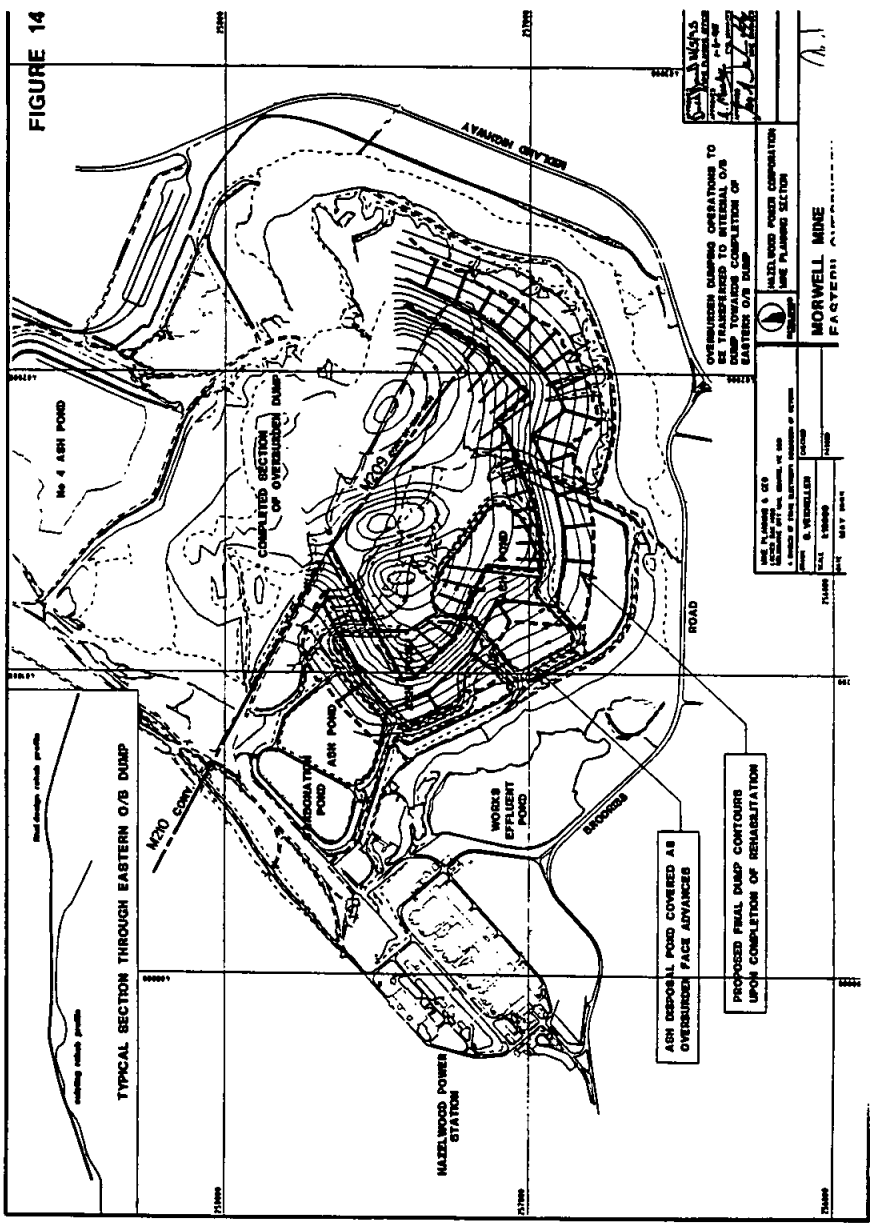
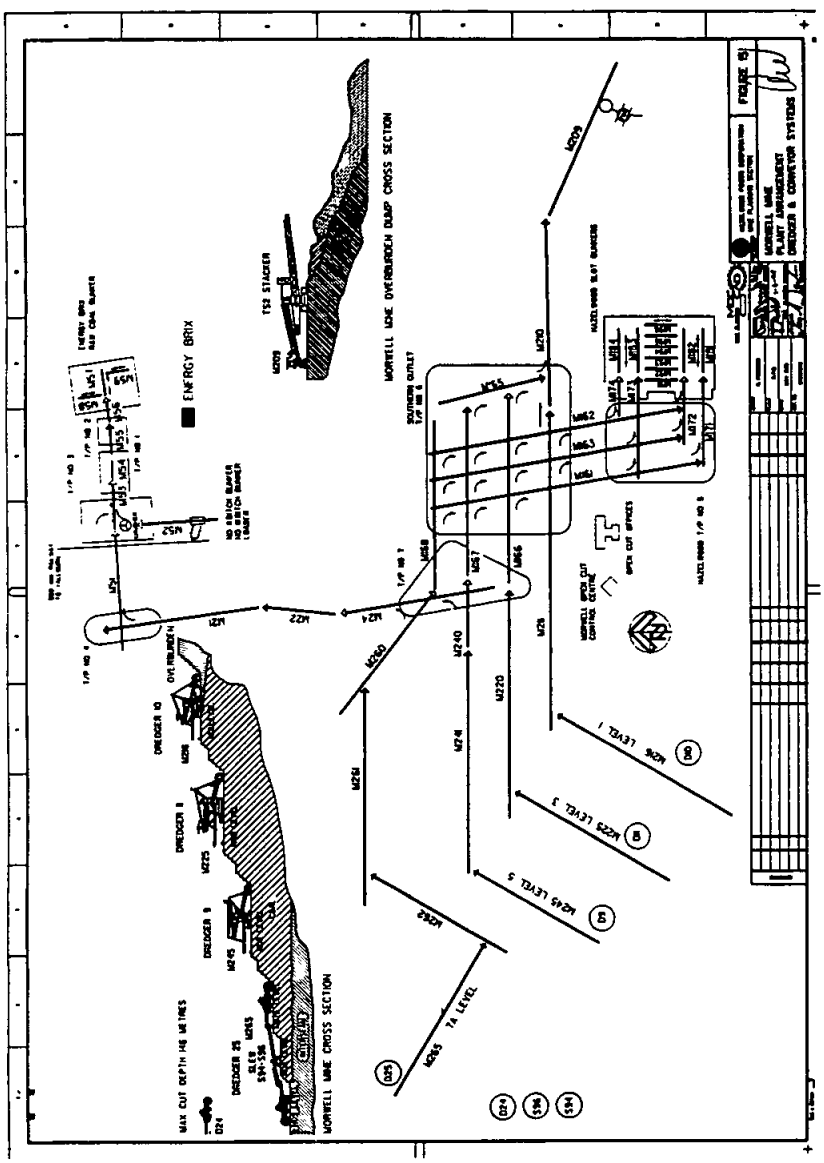
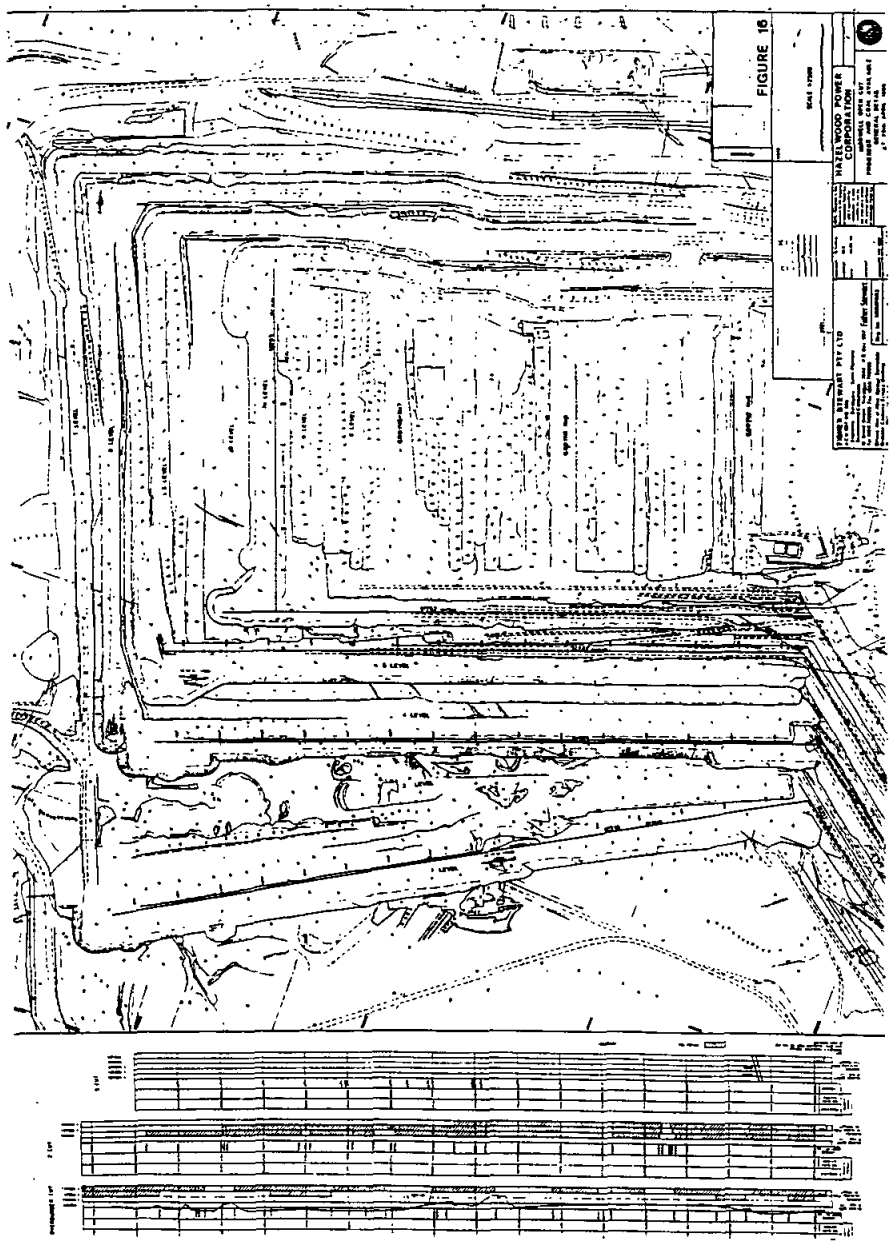
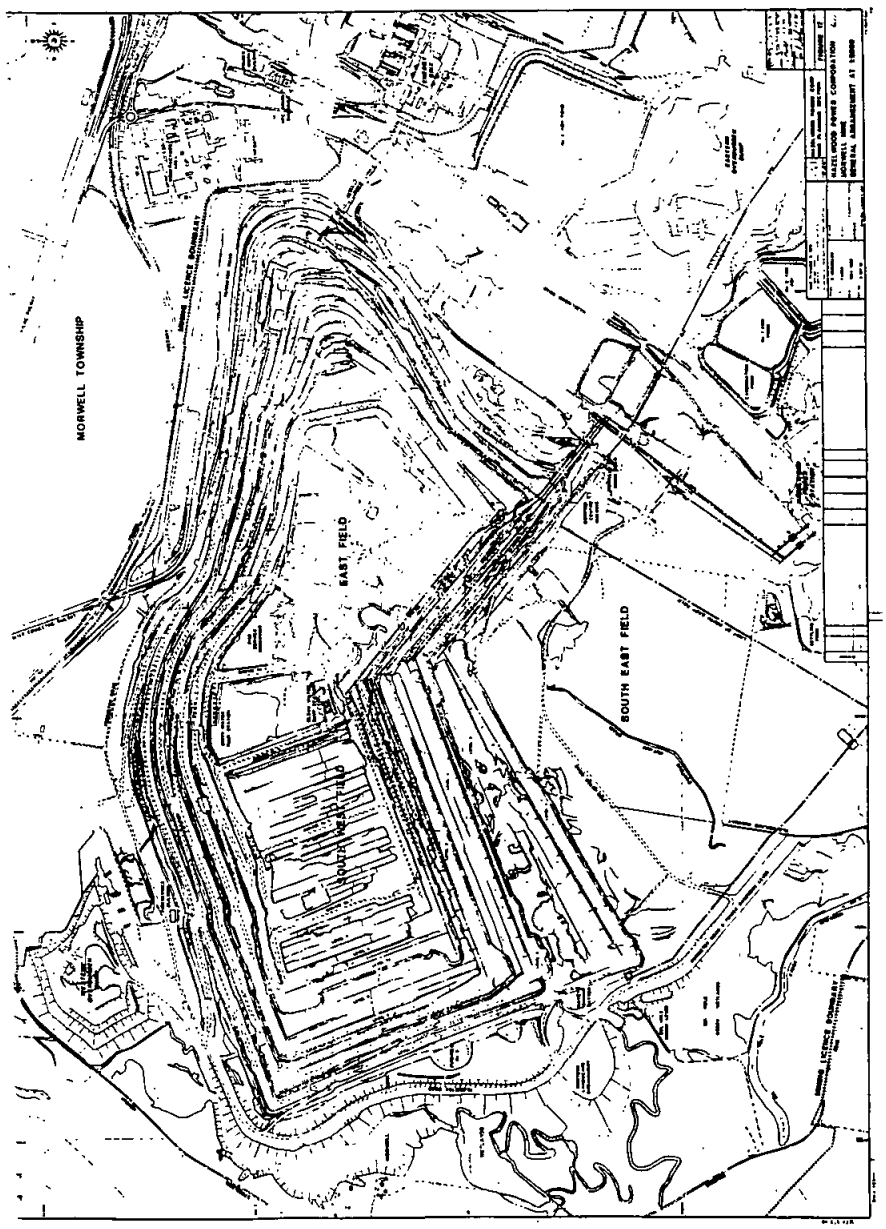

LEGEND
NOTE
HAZELWOOD COOLING POND
FIGURE 0a

FIGURE 14









Gazette Services

The *Victoria Government Gazette* (VGG) is published by AGPS Publications for the State of Victoria and is produced in three editions.

VGG General is published each Thursday and provides information regarding Acts of Parliament and their effective date of operation; Government notices; requests for tenders; as well as contracts accepted. Private notices are also published.

VGG Special is published any day when required for urgent or special Government notices. VGG Special is made available automatically to subscribers of VGG General.

VGG Periodical is published on Monday when required and includes specialised information eg. Medical, Dental, Pharmacist's Registers, etc.

Subscriptions

VGG is available by three subscription services:

General and Special—$165.00 each year

General, Special and Periodical—$220.00 each year

Periodical—$110.00 each year

Subscriptions are payable in advance and accepted for a period of one year. All subscriptions are on a firm basis and refunds for cancellations will not be given.

All payments should be made payable to AGPS Publications.

Subscription inquiries (03) 9387 8135
Fax (03) 9387 3404

An AGPS Publication
Published by AGPS Publications
Printed by AGPS Printing
a business unit of
Department of Administrative Services
Brunswick Victoria Australia

ISSN 0819—548X

Address all inquiries to:
Subscriptions
AGPS Publications
PO Box 263, Brunswick 3056
Telephone inquiries (03) 9387 8135
Fax (03) 9387 3404
Retail Sales
Information Victoria Bookshop
318 Little Bourke Street Melbourne 3000
Telephone inquiries (03) 9651 4100
Price Code D