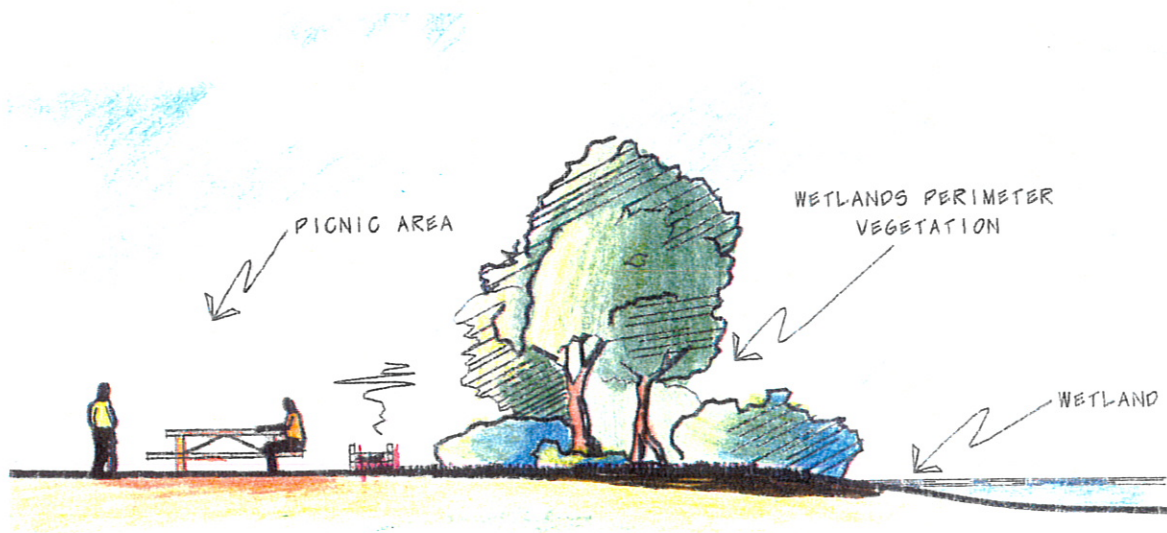


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REPORT TO:  
GENERATION VICTORIA  
MORWELL MINE

# MORWELL MINE REHABILITATION CONCEPT MASTER PLAN

BY DPS PTY LTD



DECEMBER 1994

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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 Horticulure, 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<br>In The Latrobe Valley Victoria<br>(Consultant Ecological Horticulture, Author Carr et al) | October 1992 |
| 8 | Morwell Open Cut<br>Land Capability Analysis Plan<br>(Internal Plan, Author A Noy)  | January 1993 |
| 9 | Morwell Open Cut<br>Preliminary Hydrological Study<br>On Formation Of Lake<br>(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.

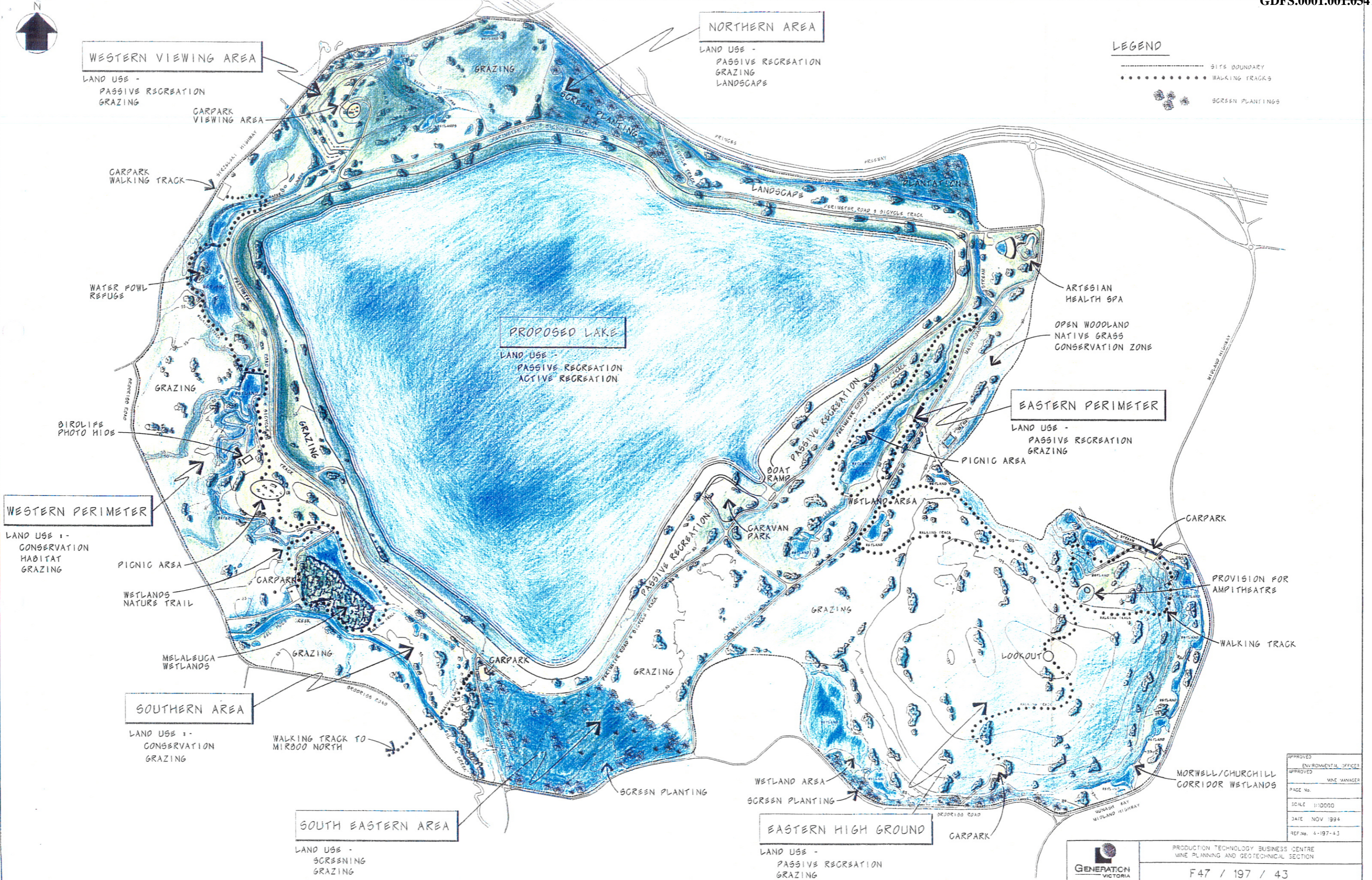
## **8 FURTHER STUDIES**

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.





**LEGEND**

- SITE BOUNDARY
- ..... WALKING TRACKS
- SCREEN PLANTINGS

**WESTERN PERIMETER**

LAND USE :-  
CONSERVATION  
HABITAT  
GRAZING

**SOUTHERN AREA**

LAND USE :-  
CONSERVATION  
GRAZING

**SOUTH EASTERN AREA**

LAND USE :-  
SCREENING  
GRAZING

**NORTHERN AREA**

LAND USE -  
PASSIVE RECREATION  
GRAZING  
LANDSCAPE

**EASTERN HIGH GROUND**

LAND USE -  
PASSIVE RECREATION  
GRAZING

**EASTERN PERIMETER**

LAND USE -  
PASSIVE RECREATION  
GRAZING

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

DRAWN	S.S. / T.P.	DPS
CHECKED	C.P.	DPS
DESIGNED	T.P.	DPS
APPROVED		DPS

**GENERATION VICTORIA**  
PRODUCTION TECHNOLOGY BUSINESS CENTRE  
WINE PLANNING AND GEOTECHNICAL SECTION  
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**MORWELL OPEN CUT  
FINAL REHABILITATION  
CONCEPT PLAN**