

Gunns Limited

Bell Bay Pulp Mill

Draft Integrated Impact Statement

Report

Volume 4 Strategic Management Plan and Conclusions

Quality, Health and Safety Management
Plans

Monitoring Plan

Environmental Management System Outline

Conclusions

Commitments

Bibliography

Glossary and Abbreviations

Contents

| | | |
|------|---|------|
| 1. | Introduction | 1-1 |
| 1.1 | Introduction | 1-1 |
| 1.2 | Project Summary | 1-2 |
| 1.3 | Context of the Mitigation Management Plans | 1-3 |
| 1.4 | Legislative Context | 1-4 |
| 2. | Safety, Health, Environment and Quality Management System (SHEQ-MS) | 2-6 |
| 2.1 | Overview of the SHEQ-MS | 2-6 |
| 2.2 | SHEQ-MS Structure and Process | 2-6 |
| 2.3 | Policies and Strategic Objectives | 2-9 |
| 2.4 | Leadership and Commitment | 2-10 |
| 2.5 | People, Resources and Documentation | 2-11 |
| 2.6 | Training, Awareness and Competence | 2-15 |
| 2.7 | Communication and Consultation | 2-15 |
| 2.8 | Regulatory Requirements and Standards | 2-17 |
| 2.9 | Hazard Management | 2-17 |
| 2.10 | Change Management | 2-19 |
| 2.11 | Operational and Maintenance Procedures | 2-20 |
| 2.12 | Activity Planning and Procedures | 2-20 |
| 2.13 | Emergency Prevention and Response | 2-21 |
| 2.14 | Incident and Hazard Reporting | 2-25 |
| 2.15 | Non-Conformance and Corrective and Preventative Action | 2-26 |
| 2.16 | Implementation | 2-27 |
| 2.17 | Monitoring and Reporting | 2-27 |
| 2.18 | Auditing | 2-28 |
| 2.19 | Performance Improvement and Learning | 2-29 |
| 2.20 | Summary of Key SHEQ Requirements | 2-30 |
| 3. | Environmental Management Plans | 3-31 |

| | | |
|-----|--|-------|
| 3.1 | Environmental Management Process | 3-31 |
| 3.2 | Mitigation Management Plan Framework | 3-31 |
| 3.3 | Environmental Management Plan – Pulp Mill | 3-33 |
| 3.4 | Mitigation Management Plan – Wharf Facility | 3-61 |
| 3.5 | Mitigation Management Plan – Landfill, Quarry and Local Water Supply Reservoir | 3-86 |
| 3.6 | Environmental Management Plan - Water Supply Pipeline | 3-109 |
| 3.7 | Environmental Management Plan - Effluent Pipeline and Ocean Outfall | 3-133 |
| 3.8 | Environmental Management Plan - Accommodation Facility | 3-162 |
| 4. | Monitoring Plan | 4-184 |
| 4.1 | Foreword | 4-184 |
| 4.2 | Background | 4-184 |
| 4.3 | Point Source Monitoring | 4-185 |
| 4.4 | Ambient Monitoring | 4-197 |
| 4.5 | Monitoring Associated With Construction | 4-245 |
| 4.6 | Social, Economic and Community Effects | 4-245 |
| 4.7 | Implementation, Quality Assurance and Review | 4-245 |
| 5. | Conclusion | 5-255 |
| 5.1 | Project Impact Summary | 5-255 |
| 5.2 | Management Strategies to Mitigate Impacts | 5-256 |
| 5.3 | Tasmania’s Resource Management and Planning System | 5-258 |
| 5.4 | Overview of Net Impacts | 5-262 |
| 5.5 | Emission Guidelines | 5-263 |
| 5.6 | Conclusions | 5-264 |
| 6. | Commitments | 6-266 |
| 7. | Bibliography | |
| 8. | Glossary | 7-290 |
| 9. | Abbreviations | 295 |

| Appendix No. | Report Title | Volume |
|---------------------|--|---------------|
| | Volume 1 Into, Legislation, Consultation, Detailed Description etc | 1A 1B |
| | Volume 2 Pulp Mill, Wharf, Landfill, Quarry and Water Reservoir | 2A 2B |
| | Volume 3 – Effluent Pipeline, Water Supply Pipeline, Workers Accommodation Facility | 3A 3B |
| | Volume 4 – Environmental Management Plans | 4 |
| 1 | Cross-reference to guidelines and IIS | 5 |
| 2 | Environment Protection Biodiversity Conservation Act 1999 Referral and Response Letter | 5 |
| 3 | Final Scope Guidelines | 5 |
| 4 | Development of New Environmental Guidelines Volume 1 | 5 |
| 5 | Development of New Environmental Emission Limit Guidelines Volume 2 | 5 |
| 6 | Other Legislation | 5 |
| 7 | Jaakko Poyry – Main Report | 6 |
| 8 | Jaakko Poyry - Drawings | 7 |
| 9 | Jaakko Poyry – Annexes | 7 |
| 10 | Social Impact Assessment Report | 8 |
| 11 | Gunns Consultation Report | 8 |
| 12 | Supplementary Consultation Report / Environment and Community Group Interview Report | 8 |
| 13 | Archaeological Services Tasmania | 8 |
| | Historic Heritage Desktop Assessment Pipers River | 8 |
| | Historic Heritage Sruvey Additional Survey Areas | 8 |
| | Historic Heritage Survey Big Bay and Longreach | 8 |
| | Histroic Heritage Survey Big Bay and Williams Creek | 8 |
| | Historic Heritage Survey Longreach | 8 |
| | Historic Heritage Survey Pipelines and Workers Accommodation Facility Temporary Accommodation Area | 8 |
| 14 | Indigenous Heritage Report | 8 |
| 15 | Economic Report | 9 |
| 16 | Air Quality Assessment Pulp Mill Emissions | 9 |
| 17 | Air Quality Construction | 9 |
| 18 | Pulp Mill Noise Report | 9 |
| 19 | Pacific Air Report | 9 |
| 20 | Greenhouse Gas Emissions | 9 |
| 21 | Air Emissions Report | 10 |
| 22 | Human Health Risk Assess Bell Bay Pulp Mill Effluent | 10 |
| 23 | Comment on Bell Bay Effluent and Potential Impact on nearby Seal Colonies Report | 10 |

| Appendix No. | Report Title | Volume |
|---------------------|--|---------------|
| 24 | Marine Outfall Report | 11 |
| 25 | Wharf Report | 11 |
| 26 | Environmental Investigation at Proposed Tamar River Crossing for Water Supply Pipeline | 11 |
| 27 | Marine Monitoring Spring 05 | 11 |
| 28 | Donovans Bay Assessment Report | 11 |
| 29 | Flora Report | 12 |
| 30 | Bell Bay Pulp Mill Fauna Report | 13 |
| 31 | Effluent Pipeline Forest Practices Plan | 13 |
| 32 | Pulp Mill Forest Practices Plan | 13 |
| 33 | Water Pipeline Forest Practices Plan | 13 |
| 34 | Workers Accommodation Forest Practices Plan | 13 |
| 35 | Eagle Nest Search Report | 13 |
| 36 | Survey for Tasmanian Masked Owl on Proposed Pulp Mill Site | 13 |
| 37 | Workers Accommodation Facility Report | 14 |
| 38 | Pulpwood Supply | 14 |
| 39 | Quarry Application Report | 14 |
| 40 | Subdivision Plan Report | 14 |
| 41 | Soil Baseline 2006 | 14 |
| 42 | Lighting Assessment | 14 |
| 43 | Transport Assessment | 15 |
| 44 | Water Report - Concept Design for Water Supply from Lake Trevallyn | 15 |
| 45 | Effluent Pipeline Design Basis | 15 |
| 46 | Gas Pipeline Lateral and Station Report | 15 |
| 47 | Bell Bay Pulp Mill Wharf Facility Report | 15 |
| 48 | Preliminary Hazard Analysis | 15 |
| 49 | Blasting Risk Analysis | 15 |
| 50 | Gunns Pulp Mill Effluent Pipeline Four Mile Beach Dune Remediation and Revegetation | 16 |
| 51 | Geomorphological Assessment Proposed Shoreline Crossing Area Effluent Pipeline | 16 |
| 52 | Effluent Pipeline Ocean Outfall Investigation | 16 |
| 53 | Gunns Pulp Mill Effluent Pipeline Four Mill Beach Dune Crossing Geological Setting | 16 |
| 54 | Donovan's Bay Construction Management Plan | 16 |
| 55 | Gunns Pulp Mill Solid Waste Landfill Conceptual Design | 16 |
| 56 | Tamar River Crossing report | 16 |
| 57 | Operational Monitoring Program | 16 |
| 58 | Toxicity of Effluent Pine Pulping | 17 |
| 59 | Toxicity of Effluent Eucalypt Pulping | 17 |
| 60 | Toxicity of Chlorate to Brown Algae | 17 |
| 61 | Onshore Geotechnical Investigation | 18 |
| 62 | Pulp Mill Geotechnical Investigations | 18 |
| 63 | Hydrodynamic modelling ocean outfall | 18 |
| 64 | Hydrodynamic modelling Tamar River | 18 |

Table Index

| | | |
|-----------|--|-------|
| Table 1: | Hazard Analysis Techniques | 2-18 |
| Table 2: | Emergency Response Planning Structure | 2-23 |
| Table 3: | SHEQ Audit Schedule | 2-29 |
| Table 4: | Test required for consultants to be NATA accredited | 4-187 |
| Table 5: | Emission Limits and Sampling Schedule for Point Source Air Emissions | 190 |
| Table 6: | Effluent Monitoring Program – Indicative Core Chemical, Biological and Other Parameters. NOTE finally suite and sampling frequency to be determined by DTAE. | 4-194 |
| Table 7: | Ambient Air Quality Monitoring Schedule | 4-198 |
| Table 8: | Effluent Outfall Monitoring Program- Marine Water | 207 |
| Table 9: | Effluent Outfall Monitoring Program- Sediment | 216 |
| Table 10: | Effluent Outfall Monitoring Program- Combined Algae, Biota and Fish | 226 |
| Table 11: | Sampling Schedule for Surface and Leachate Monitoring at the Landfill Site | 4-235 |
| Table 12: | Groundwater Monitoring Schedule for the Landfill Site | 4-238 |
| Table 13: | Listing of Commitments | 6-267 |

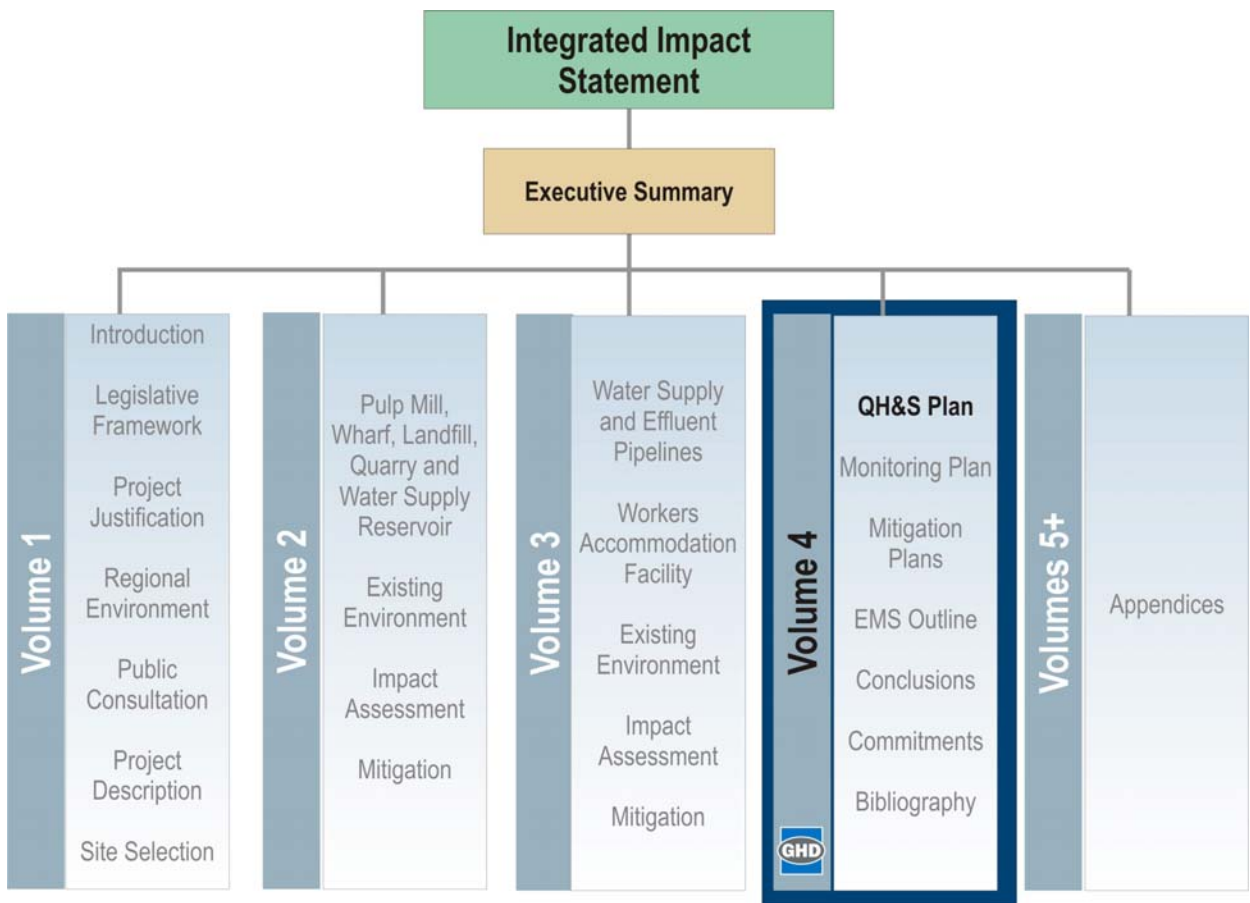
Figure Index

| | | |
|------------|-------------------------------------|-----|
| Figure 1-1 | Strategic Management Plan Framework | 1-3 |
| Figure 2-1 | SHEQ Management System Process | 2-8 |

1. Introduction

1.1 Introduction

Volume 4 of the Draft IIS sets out the proposed framework for managing and minimising adverse environmental and social effects of the project by the preparation and implementation of a range of management plans grouped under one Strategic Management Plan. These management plans will provide a framework to control, mitigate, monitor, report and audit environmental effects resulting from construction and operation of the proposed pulp mill and ancillary infrastructure. The position of Volume 4 within the Draft IIS is shown below.



The proposed Strategic Management Plan framework includes a project, Safety, Health, Environment and Quality Management System (SHEQ-MS) that has been developed to manage safety, health, environment and emergency response issues at this design stage of the proposal. The SHEQ-MS is described in Section 2, and will provide the framework and principles for developing the individual management plans.

Each major component (that is, the pulp mill, wharf, pipelines, ocean outfall, landfill) of the pulp mill project will potentially be contracted to different construction contractors and operators, and consequently the environmental management requirements for each component may be implemented separately. Therefore, individual draft Mitigation Management Plans (MMP) have been developed for each project component and are presented in this volume. Mitigation strategies have been considered holistically for the project as part of the assessments contained in Volumes 2 and 3 of the draft IIS, and will form the basis for preparing individual Environmental Management Plans (EMP) for detailed design, construction and operation phases for each key aspect of the project (subject to the requirements of environmental approvals and consents). The MMPs are detailed in Section 3.

The MMPs have been prepared at a higher order level as it will not be until each phase that many specific design management strategies can be specified. These MMPs detail the overarching requirements for the design and construction of the pulp mill project, with the requirement that specific EMP (Detailed Design), EMP (Construction) and EMP (Operation) will be developed and approved by regulators in accordance with the requirements of environmental consents and approvals. This is discussed in further detail in Section 2.1.3 of this Volume.

1.2 Project Summary

Gunns Limited (Gunns) proposes to develop a bleached Kraft pulp mill, and ancillary and off-site infrastructure (hereinafter referred to as the 'project'). The pulp mill is proposed to be established at the Bell Bay Major Industrial Zone, south of George Town in northern Tasmania.

Pulp is a processed fibre derived from wood that can be used for making paper and other products. Wood is provided in raw form as woodchip. The wood source for this project will be primarily plantation grown eucalypts with additional native forest eucalypts, and a small proportion of plantation pine species. In order to produce pulp, woodchips undergo a series of processes including screening, cooking, bleaching and drying to separate the wood fibre from the water and natural glues (lignin). Kraft is German for 'strong', and refers to the process used to break down the lignin, and is desirable in that it gives the pulp greater strength.

In addition to the pulp mill, the project includes ancillary infrastructure for the supply of water and energy, and for the storage, transport and disposal of waste and primary and final materials.

Overall, the project consists of eight major infrastructure components:

- ▶ A bleached Kraft pulp mill at Bell Bay;
- ▶ A wharf facility at Bell Bay;
- ▶ A landfill east of the pulp mill;
- ▶ A quarry adjacent to the landfill;
- ▶ A water reservoir adjacent to the pulp mill;
- ▶ A water supply pipeline from Trevallyn Dam, near Launceston, to the pulp mill;
- ▶ An effluent pipeline from the pulp mill to Four Mile Beach, including an ocean outfall to Bass Strait; and
- ▶ A workers accommodation facility at George Town.

The Draft IIS has been structured to meet the requirements of the RPDC Final Scope Guidelines for the Integrated Impact Statement (December 2005).

The objectives and relevant sections of the Strategic Management Plan include:

- ▶ Provide an outline of the context, relevance to the stage of the project and forward plan (Section 1);
- ▶ Ensure that the project is designed in accordance with the requirements of all relevant environmental legislation and guidelines (Section 1);
- ▶ Define environmental roles, responsibilities and accountabilities of personnel (Section 2);
- ▶ Provide adequate information and instruction to ensure personnel understand and use the Strategic Management Plan (Section 2);
- ▶ Ensure that senior management and all personnel continually improve their overall environmental performance by implementing, managing and reviewing the relevant phase EMP (Section 2);
- ▶ Provide a SHEQ-MS appropriate for reducing the environmental, safety, health and emergency risks relevant to this stage of project (Section 2); and
- ▶ Consider aspects of the project that may have significant environmental impacts and adopt management measures as appropriate (Section 3).

An outline of the framework for the Strategic Management Plan is shown below in Figure 1-1.

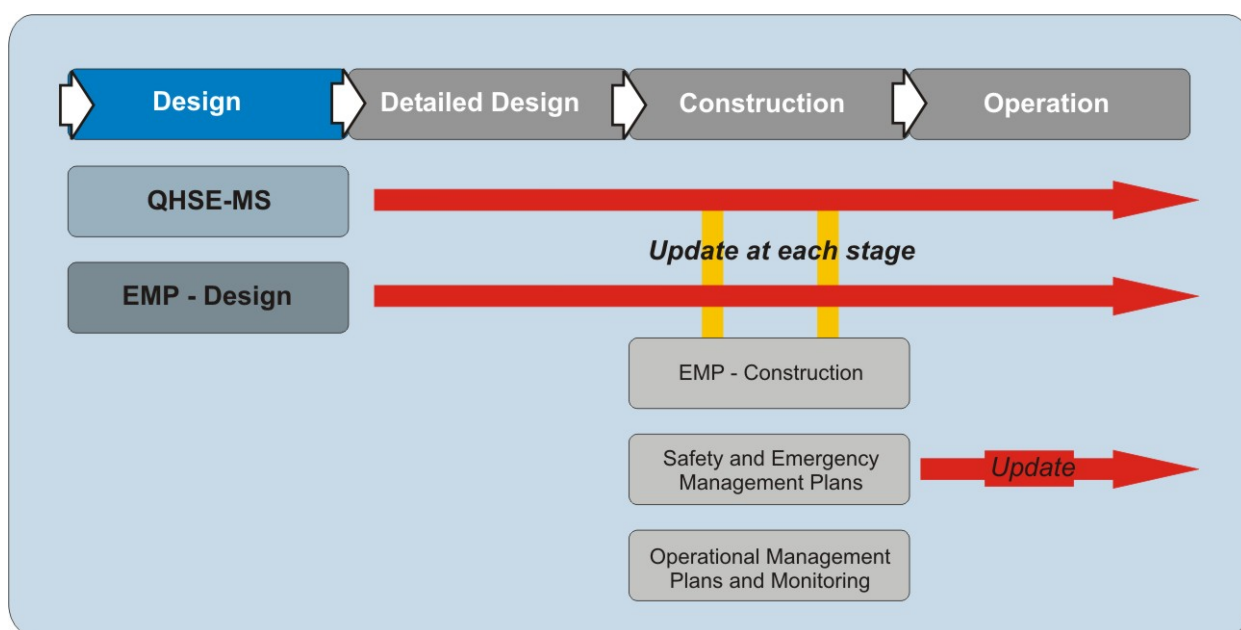


Figure 1-1 Strategic Management Plan Framework

1.3 Context of the Mitigation Management Plans

The MMPs have been written at the feasibility stage of the project, and focus on practical solutions and guidelines to assist project designers to reduce the environmental and social effects of the pulp mill and ancillary infrastructure identified in Volumes 2 and 3 of the draft IIS. The MMPs will need to be updated

as more detailed engineering design information becomes available. In effect, a specific EMP will be produced for each of the following:

- ▶ Design and Detailed Design – EMP (Design);
- ▶ Construction – EMP (Construction);
- ▶ Operation – EMP (Operation); and
- ▶ Decommissioning (if applicable) – EMP (Decommissioning).

The SHEQ-MS outlined in Section 2 will be applied during the design phase of the project for managing and responding to quality, health, safety, environment and emergency response issues. It is consistent with the present Gunns Corporate SHE system. After the project has been approved, the SHEQ-MS will be updated and expanded into a 'stand alone' system that provides context and direction for managing health, safety, quality and environmental risk for the pulp mill project.

The method of assessing implementation of each EMP, will be determined based on environmental audits undertaken at the following stages of the pulp mill project:

- ▶ completion of the detailed design of the pulp mill project, which will be undertaken on the basis of (and in accordance with) environmental consents and approvals; and
- ▶ prior to construction of the pulp mill and ancillary infrastructure commencing.

Some examples of processes and plans that are expected to be completed before the construction and operation of the pulp mill commence include:

- ▶ Baseline Monitoring Plans;
- ▶ Emergency Response Plans (ERP);
- ▶ Safety Management Plans (SMP);
- ▶ SHEQ Hazard Identification (HAZID) Workshops;
- ▶ SHEQ Risk Assessments (qualitative and quantitative);
- ▶ Risk Aspects Registers; and
- ▶ Hazard and Operability Studies (HAZOPs).

1.4 Legislative Context

A legislative review of the pulp mill project is included in Volume 1, Chapter 2 of the IIS. Principal reference documents for this Strategic Management Plan include:

- ▶ Environmental Management and Pollution Control Act 1994;
- ▶ Environment Protection Policy (Air Quality) 2004;
- ▶ Land Use Planning and Approvals Act 1994;
- ▶ Dangerous Goods Act 1998;
- ▶ Workplace Health and Safety Act 1995;
- ▶ Emission Limit Guidelines;

- ▶ State Coastal Policy 1996;
- ▶ State Policy on Water Quality Management 1997;
- ▶ Landfill Sustainability Guide 2004; and
- ▶ Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth).