Basslink Pty Ltd
A National Grid Project

Basslink Project

Final Environmental Impact Statement and Supplement to the Draft Integrated Impact Assessment Statement

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1. Introduction

1.1 Proposal Overview

Basslink is a proposal for a privately funded, electricity interconnector between Victoria and Tasmania. The proponent is Basslink Pty Ltd (BPL), a wholly-owned subsidiary of National Grid Group of the UK, who won a competitive tender to build, own and operate the link.

Basslink allows Tasmania to join the National Electricity Market by linking the mainland and Tasmanian electricity grids. A fibre optic communication and control cable will be installed and will have spare capacity commercially available.

Basslink has a 36-month construction period and is planned to enter service in 2005.

1.2 The Decision Process and the Role of the IIAS

Basslink requires environmental and planning approvals from the Commonwealth, Victorian and Tasmanian governments to proceed to development. The applications for these approvals are to be based on an Integrated Impact Assessment Statement (IIAS) under a special joint federal-state combined assessment and approvals process. This process is summarised in Figure 2.1 of the Draft IIAS (DIIAS) and discussed below.

Two bodies have been established with defined roles in the combined assessment and approvals process:

- Joint Advisory Panel (JAP): defined by a Memorandum of Understanding between the Commonwealth, Victorian and Tasmanian governments. This panel is responsible for reviewing IIAS documentation, conducting panel hearings and reporting to decision-making ministers.

- Victorian community consultative committee (Basslink Consultative Committee [BCC]): established in accordance with the guidelines prepared under the *Environment Effects Act 1978* (Vic.). This committee has had responsibility for advising BPL and the Joint Advisory Panel on the scope of the DIIAS.

While not having an official role in the combined assessment and approvals process, a Tasmanian community consultative committee (George Town Consultative Committee [GTCC]) was established by the Basslink Development Board and continued by BPL to provide for local community input to the scope of the DIIAS.

The main steps in the combined assessment and approvals process are as follows:

- Stage 1: preliminary studies were undertaken for the Basslink Development Board to assess corridor options.

- Stage 2: Draft Scope Guidelines for the IIAS were reviewed by the BCC and GTCC and then put on public exhibition; the JAP then finalised the guidelines and issued them.

- Stage 3: for the DIIAS, studies were commissioned to assess alternative alignment and technology options as requested by the Victorian Minister for Planning and, after selection of the preferred general arrangement, to assess impacts of the proposal. The DIIAS was reviewed by the BCC and GTCC, finalised by BPL and submitted to the JAP. The JAP endorsed the DIIAS as

suitable for public exhibition. The DIIAS was placed on public exhibition (60 days), and the JAP considered submissions and conducted public hearings in Victoria and Tasmania during October and November 2001. The JAP then prepared a Draft Panel Report (DPR), placed it on public exhibition in March 2002 (for a nominal 28 days, but with extensions to allow public consideration of submissions by Basslink Pty Ltd) and considered submissions. The JAP then held further public hearings in Victoria during May 2002 to consider tactical routing issues in relation to individual properties.

- Stage 4 to date: the Joint Advisory panel has issued advice to BPL on matters to be addressed in this Supplement to the DIIAS (SDIIAS), which together with the DIIAS comprises the Final IIAS (see Section 1.3).

- Stage 4 future: the JAP will prepare a Final Panel Report for the Commonwealth Minister for Environment and Heritage, the Victorian Minister for Planning and the Tasmanian Resource Planning and Development Commission. The latter will prepare a report for the Premier of Tasmania.

The conclusion of the combined assessment and approvals process is the approval or otherwise of Basslink by the decision-making ministers.

1.3 Requirements of the Joint Advisory Panel

The Joint Advisory Panel's advice on matters to be addressed in the SDIIAS comprised a letter to BPL dated 28 May 2002 and this is provided as Annexure 1.

1.4 Report Structure

This SDIIAS (which together with the DIIAS comprises the Final IIAS) contains the following:

- A review of submissions and responses to new issues since the 2001 panel hearings (Chapter 2).

- An update on the project scope (Chapter 3).

- Implementation of DPR recommendations (Chapter 4).

- References.

The appendices to this report include the following documentation:

A Submissions cross-referenced to issues
B Responses to submission issues
C Errata for DIIAS and other BPL documents
D Level of interest in main issues
E Marine impact assessment
F Strategic EMP Version 2
G Deed amending Hydro Tasmania's Water Licence.

2. Review of Submissions

Submissions were received from all states of Australia except Western Australia and the Northern Territory, with 3 originating from overseas and 12 of unspecified origin. Appendix D shows the distribution of Australian respondents by geographic origin. A total of 786 submissions were received with 75% originating in Victoria and 21% originating in Tasmania.

2.1 Cross-referencing

Submissions received in Victoria and Tasmania have been given a sequential number and are listed in a table in Appendix A[1]. This table provides the submitter's name, affiliation, geographical region and the issues raised (represented by unique issue numbers). These issues have been categorised under major headings in Appendix B and responses to each issue have also been provided in Appendix B.

An analysis of level of response to the main issues according to region is provided in Appendix D.

2.2 Submissions on DIIAS

There have been 155 submissions on the DIIAS in Tasmania and 381 in Victoria.

The submissions on the DIIAS have been the subject of rounds of panel hearings during 2001 in Victoria and Tasmania, and have been addressed by the DPR. For completeness, the submissions have been indexed according to issue in Appendix A, and each issue has then been addressed in Appendix B.

The indexing system enables individual submitters to locate (from Appendix A) the place (in Appendix B) where the issues raised in their respective submissions have been addressed.

2.3 Submissions on Draft Panel Report

2.3.1 Overview

There have been 35 submissions on the DPR in Tasmania and 215 in Victoria.

BPL has addressed these as follows:

- Any issues raised by these submissions that are new since the 2001 panel hearings have been addressed in sections 2.3.2 or 2.3.3 below.
- Those that raise issues of transmission line routing or the location of other infrastructure are addressed in Chapter 3, which deals with changes to the nature and arrangement of project facilities.
- All other issues are addressed in Appendix B.

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[1] Numbers Vxx and Txx are for submissions on the DIIAS received in Victoria or Tasmania respectively. Numbers V*xx and T*xx are for submissions on the DPR received in Victoria or Tasmania respectively.

2.3.2 Issues (Direct Impacts)

BPL Inconsistent on Cost Margin; Project Not Viable

Submissions V*26, V*52, V*63, V*67, V*68, V*80, V*86, V*88, V*89, V*91, V*99, V*117, V*122, T*10 and T*18 allege that BPL has been inconsistent on the relationship between additional costs and project viability.

They argue that BPL was inconsistent in saying at one time that the project could not sustain additional costs, only for the additional costs of a metallic return to be subsequently accepted.

The situation is as follows. The competitive parameters of BPL's successful tender and subsequent contract with Basslink Development Board to build Basslink have been the basis for BPL's position on the commercial infeasibility of technology alternatives, such as undergrounding, metallic return or bipole. The project parameters arising from the bid process were the subject of BPL's presentation to the BCC on 15 March 2000 in Traralgon: Policy and National Electricity Market; Deliverables, System Requirements, Technology, Environment, Return on Investment. The parameters were reiterated in the DIIAS (Chapter 9 and Summary Report). BPL's statements of what BPL could and could not afford were correct within these bid parameters, which BPL was not at liberty to change.

Submissions T*10, T*16, T*18, T*19, T*26.1 and T*28 say that the project is not viable. The evidence of Hydro Tasmania is that the project is viable.

BPL's Corrosion Analysis

Submissions V*110 and T*6 refer.

BPL's expert corrosion consultants brought to Basslink the experience of solving problems of electrode stray current corrosion in the Baltic Sea, where interconnectors co-exist with numerous long metallic infrastructures. The DPR accepted the evidence of BPL's experts, but said that the owners of long metallic infrastructures in and adjacent to Bass Strait must agree the mitigation measures. These owners, for their own reasons, did not agree on any of the mitigation measures that have worked elsewhere and would only accept a metallic return.

Process and Fairness Issues

Insufficient Assessment of the Merriman–McGaurans Route

Submission V*119 refers.

The DIIAS assessed the Merriman–McGaurans Route (MMG) as it was configured in June 2001. Since then, the DPR has required BPL to review the section of the MMG between South Gippsland Highway and McGaurans Beach. This was the subject of BPL's Submission 1 of 3 on the DPR of 28 March 2001. It included a tabular comparison of land use and biodiversity conservation impacts of the alternatives within this section, in the same format as the one used to compare MMG with the original BPL proposal of the Old Rosedale Road. All landowners have been consulted by BPL and their concerns addressed to the extent practical. The recommendations arising from the Special Panel hearings in Traralgon on 10 and 23 May are addressed by Section 3.1 of this report.

Tender Process Undermined by Project Scope Changes, Revisit Original Tenders for Metallic Return Proposals

Submissions T*10, T*18 and V*37 refer.

The possibility of changes in project scope emerging out of the Combined Assessment Process was explicitly recognised in the bid conditions, and the fact that changes in scope have occurred neither nullifies nor in any other way warrants reopening the original bid process. (See also Section 1.2 of this report.)

The Metallic Return Proposal Warrants Revisiting Western Port Bay

Submissions V*46, V*47, V*85, V*91,and V*121, refer.

The Basslink Development Board assessed a cable corridor across Bass Strait to a Victorian landfall at Flinders at the western edge of Western Port Bay. In May 1999, the Board's consultants, Woodward-Clyde (1999) found this route to be "highly constrained" by environmental, engineering, social, engineering and technical factors and the Board withdrew this corridor from further consideration by the bidders (see DIIAS, pp 1-7 to 1-8).

The Metallic Return Proposal Mandates New Process

Submissions V*64 and T*26.1 refer.

The environmental impacts of the metallic return are less than—and in all material senses fall entirely and without exception within the scope of—the proposal assessed by the DIIAS. There are no new environmental impacts and the cost implications for the project are commercial-in-confidence. There is therefore no case for re-opening the assessment process.

Parity Status for Undergrounding with Mitigation Measures (Metallic Return) Adopted to Meet Requirements of Metallic Infrastructure Owners.

Submissions V*40, V*48 and V*85 refer.

The DPR required BPL to reach agreement on corrosion mitigation with the owners of long metallic infrastructure. This agreement took the form of a metallic return. There were no comparable findings by the DPR in relation to undergrounding.

The Byrnes Road Landfall Obviates the Need for a Metallic Return, which would then Pay for Undergrounding

Submission V*77 refers.

Infrastructure owners have made no representation that they would accept BPL's corrosion mitigation measures if the project used the Byrnes Road landfall. Even if that were the case in Victoria, the issue would remain unresolved in Tasmania.

Fisheries Observer Required on Lay Vessel

Submission T*10 refers.

The lay vessel's position and movements will be publicised, and it will be attended by tender boats, that will maintain the moving exclusion zone during laying and protect the lay vessel from collision or interference. The possibility of an observer has been considered in the draft code of practice between BPL and the fishing industry as referred to on page 10-26 the DIIAS (Section 10.3.4)

Impact on TV and Radio Reception

Submission T*9 refers.

The DIIAS, Chapter 9 'Land Impacts in Victoria' (p. 9-169) notes:

> The separation between the transmission line and residences is such that there should be no impact on TV or radio reception.

The same comment applies in Tasmania.

Cable should not Disrupt Important Marine Habitat

Submission T*25 quotes the DPR (p. 96) that the cable route

> will be aligned on the basis of engineering and cost criteria, and to avoid conflicts with other users (e.g., commercial fishermen) and shipwrecks.

The detailed marine survey, on which the final alignment is being based, has identified a route centreline meeting these criteria. The effect is to achieve the routing objective sought by T*25, because the high-value seabed habitats, typically reefs, are precisely those avoided by the application of the engineering criteria. Appendix E of this report shows the detailed scale at which the centreline has been aligned.

Extend Undergrounding to Lacys Plantation

Submission V*35 refers.

This is not part of the proposal and it is not recommended in the DPR.

Kingston House Wrong Location and 300m to Line

Submission V*88 refers.

BPL confirms the assertion by Mr and Mrs Pritchard that the Kingston house is incorrectly shown in Figure 9.72 of the DIIAS. The location of the house in that figure is indeed the stockyards. The house site has been confirmed by analysis of aerial photography and from an aerial inspection. The Kingston's house is therefore 540 m from the Panel's preferred alignment shown in the DPR. The assertion of Submission V*88 that the house is 300 m from the route is incorrect.

Biodynamic Accreditation at Risk

Submission V*62 refers.

Refer to DPR p. 117-118.

No Contact nor Maps from BPL

Submission V*71.1 and V*88 refers.

All affected landowners have been contacted following the release of the DPR.

Minimise New Gates on Property

Submission V*62 refers.

Refer Appendix F, Section 4.10.

Induced Voltages in Fences

Submission V*87 refers.

Refer DIIAS Section 9.3.6 Main Report p. 9-107.

Misapprehensions

Distribution Line Undergrounding Sets Precedent

Submission V*57, V*97 and V*102 refer.

The DIIAS acknowledges that undergrounding of lower voltage distribution lines occurs but that undergrounding of high voltage transmission lines is extremely uncommon.

The additional cost of undergrounding at distribution voltages is proportionately far less than it is for transmission voltages, and the compensating advantages of lower maintenance costs and reduced fire risk can make undergrounding of distribution lines feasible in some circumstances.

The following media report of 10 April 2002 reports on recent developments pursuant to the New South Wales Government's investigation into the feasibility and cost implications of undergrounding distribution lines (Utilicon, 2002).

> 'Blow to NSW undergrounding
>
> NSW regulator IPART has found a big gap between the cost of undergrounding overhead wires in the state's urban centres and the measurable benefits.
>
> IPART has just released an interim report on the costs, benefits and funding options for undergrounding electricity distribution wires in NSW.
>
> Its preliminary analysis shows a cost of about $1800 - $3000 per customer, plus communication cabling costs of a further $2000 per customer.
>
> The total estimated costs of undergrounding in Sydney and other urban centres of $2.6 - $4.3 billion compare with directly quantifiable benefits of $400 to $480 million.
>
> IPART Chairman Tom Parry said, however, the bulk of potential benefits are not easily quantifiable and largely comprise the amenity benefits of visual streetscape improvements.
>
>> These cost estimates are indicative only and are based on an optimally designed network. More detailed work will need to be undertaken before any widespread undergrounding program is commenced.
>
> IPART recommends that, if a statewide undergrounding program is to proceed, it should be funded largely (about 80 per cent of costs) by the local community through local government levies. Dr Parry said:
>
>> The local community is likely to receive the large part of any benefits of undergrounding and should pay for those amenity benefits. It is the Tribunal's view that local councils may be the most appropriate avenue for raising those funds from property owners.
>
> IPART recommends that state government and electricity distributors should fund the remainder of the costs (about 20 per cent).
>
> The NSW Government commissioned a study into the possibility of undergrounding overhead wires in the state's urban centres,

acknowledging the task would be a big one with around 63,000km of overhead cabling stretching across Sydney alone.'

Magnetic Fields

Submissions V*110, T*10 and T*25 are unclear about the physics of magnetic and electrical fields or take issue with the conclusion of BPL's Submission 2 of 3 that the fields are very small and of no environmental significance. The latter point is explored fully in Appendix E. As to the residual magnetic field, the following misunderstandings are clarified:

- The residual magnetic fields of a main conductor cable bundled with the return cable are thought, erroneously in some submissions, to be significant: BPL's Submission 2 of 3 of 4 April 2002 notes a small magnetic anomaly of 6.6 μT at one metre distance. At ten metres, the field is at background. This applies for the worst case overall compass alignment (N–S) and alignment relative to each other of the two cables (metallic return to the east of the main conductor). In fact the cables will twist as they are paid out, creating numerous gaps in the total magnetic field, which will produce areas of reduced magnetic field strength along the cable.

- Some submissions state that a twinned bipole has no magnetic field. However, this is incorrect, as there is still a small residual magnetic field, as there is for bundled conductors.

- One submission states that the differences in voltages between the main conductor and the return cable mean that magnetic fields are not greatly reduced. This is incorrect, as the generated magnetic fields are a function of current (not voltage), which is necessarily the same in both directions.

Note, moreover, that the extent of total magnetic fields generated by the bundled cable configuration is smaller than the fields for the originally proposed Basslink configuration (single HVDC conductor) assessed in the DIIAS as having no significant effects on whales or sharks. (See also DPR findings to this effect [Chapter 6 and more particularly pp 216, 235, 240 and 259] and Appendix E of this report.)

Cannot Assess by Biota Group (Site-specific Studies Required)

Submissions V*110, T*10 and T*26.1 refer.

The submitters presented the view that unspecified Bass Strait studies were necessary for a proper impact assessment. This was a view that received qualified support in the DPR (for example on p. 216 and elsewhere), but not to the extent that the assessment was invalid.

BPL's assessment of marine impacts in the DIIAS and Appendix E relies on the basic biology, distribution and behavioural response of the main groups of marine fauna. For example, if a tiny proportion of the habitat only is affected of a species known to be wide-ranging, then the confident inference can be drawn that the impact will be correspondingly small. Similarly, if the habitat of sessile species is affected, then the impact will be great unless that species is itself widely distributed, in which case the impact will again be correspondingly small.

On the other hand, if a species were present in small numbers (such as whales), and if a project were to introduce a significant constraint within its range, then a material question of possible impact arises. Even now, however, the most convincing answer to this question is not to be found in ground-up studies of that species, but with the evidence of analogues of the impact of similar constraints on similar species elsewhere in the world. It is a truism that every situation is new, and even studying

every conceivable specific aspect of that new situation before a decision can be made does not change this.

All human decisions are based on historical experience, which by definition is no more than a collection of analogues having varying degrees of relevance to the decision at hand. Where there is a major uncertainty and the consequences of a wrong decision are severe, then it is customary to inform that decision by an experiment directed specifically at that situation. Such experiments may be at laboratory or field scale. But they too are analogues.

In the case of Basslink, the assessment of all the potential marine impacts was able to be made in the light of extremely convincing, full-scale, real-world analogues: whales crossing cables, sharks ignoring electrical fields when they want to, magnetically disoriented turtles navigating unerringly and marine biota recovering after physical disturbance.

(See also *'Pre-construction baseline'* below.)

Pre-construction Baseline is Always Necessary for Monitoring

Submissions V*109 and V*110.

In relation to marine impacts, it has been suggested that monitoring of the area to be affected requires a pre-impact baseline. In practice, this model suits some situations, but not others.

The pre-impact (baseline) and post-impact (monitoring) model (Before/After model) typically applies when the area disturbed is large, for example the development of a capital dredging spoil ground, or where the issue involved a local or regional population of a species[1]. One would typically not consider it where the area to be disturbed is small, especially if the baseline itself is liable to change between the survey and the impact[2]. The Impact/Control model is better suited to such situations and this is set out in detail in Appendix E.

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[1] For example: the monopole sea/earth return proposed by the DIIAS required a pre-operation baseline of the gummy and school shark population of Bass Strait, against which post-Basslink shark movements could be compared by a shark tag/recapture monitoring program. Whether the Department of Natural Resources and Environment's large existing tag/recapture database was statistically adequate, or whether additional tag/recapture data were needed prior to energising the cable, has been the subject of a statistical analysis by Marine and Freshwater Resources Institute (MAFRI) on behalf of BPL. This work is approaching completion, but is now of academic interest, as far as Basslink is concerned. BPL expects that the results of this consultancy will be published in the scientific literature.

[2] This problem bedevils pre-mining biological baselines in the drier parts of Australia, and a great deal of theoretical and experimental work has been undertaken by Commonwealth Scientific and Industrial Research Organisation (CSIRO) on behalf of the mining industry to enable post-mining rehabilitation progress to be monitored in situations where the baseline itself is also changing. The current state-of-the art method relies not on the Before/After model, but on an Impact/Control model. (See Ludwig, J., Tongway, D., Freudenberger, D., Noble, J. and Hodgkinson, K 1997, *Landscape Ecology Function and Management*. CSIRO. Victoria.)

Bundle Rope Required to Last for Project Life

Submission T*10 suggests that the rope must maintain the cable bundle for the life of the project. In fact, the rope bundling the three cables must only maintain the bundle until it has settled in the seabed.

Errors in BPL's Electrolysis Products Calculations

Submission T*10 is concerned that Brown & Root's calculations of chlorine emissions as 2.66 times higher than the calculations of the DIIAS (see discussion in the DPR pp 244 to 250) mean that BPL is unable 'to accurately address…crucial issues'. Appendix B of BPL's Submission 3 of 3 (16 April 2002) restates as correct the DIIAS calculations and explains the error in the Brown & Root method.

Duke's Exclusion Zone

Submission V*110 suggested that Basslink cable occupy the same 'exclusion zone' as Duke's Tasmania Natural Gas Pipeline. The submission of the Tasmanian Government T*17 notes that there is no such exclusion zone.

Basslink Cannot Increase Supply in Victoria and Tasmania

Submission V*66 suggests that Basslink cannot increase electricity supply in Tasmania and Victoria. The core function of Basslink is precisely to do this, by the synergies of linking an energy-constrained hydro generating system with a capacity-constrained thermal generating system, with flows going in either direction according to relative demand. (See also DIIAS, Chapter 4.)

BPL is Tax Exempt

Submission V*73 refers.

Basslink Pty Ltd will operate under the same taxation laws as apply to all Australian companies.

VENCorp Ranks Basslink Last

Submission V*85 claims that VENCorp (2001) ranks Basslink last (of six scenarios for maintaining the NECA Reliability Panel's minimum reserve requirements). The table in question in the VENCorp report (p. 4) comparing the scenarios also explains that the analysis sets the total costs of Basslink against only its benefits in Victoria. The column for Basslink has this footnote:

> ***Note (a):*** *It should be noted that the full benefits of Basslink to the Tasmanian region have not been captured by this study, including the benefits of generation capital cost deferral and the reduction in unserved energy resulting from energy constraints (lack of water for hydro generation).*

It is not surprising that the exclusion of its Tasmanian benefits has made Basslink score so low.

2.3.3 Issues (Consequential Impacts)

Greenhouse

Submission T*26.1 takes the view that Basslink significantly increases greenhouse gas emissions. The DIIAS, on the other hand, found a range between a reduction of 1.6% and an increase on 0.06% of gross emissions from the National Electricity Market (NEM). Similarly, the Australian Greenhouse Office expects changes in the order of ±0.5%.

Submission 26.1 also raises the issue of increased greenhouse gas emission from the transmission losses arising from the adoption of the metallic return.

The increase in transmission losses will result in an increase in CO_2 emissions. When Tasmania is importing, there will be some additional generation dispatched on the mainland (as the transfer limit is set by the energy delivered to Tasmania). When Tasmania is exporting, there will also be additional generation on the mainland (as the maximum export from Tasmania remains at 630 MW). The increase in losses for a metallic return will result in less power received in Victoria and therefore some additional mainland generation will be dispatched to meet the demand.

For balanced trade (the scenario producing the highest Basslink transmission losses) with 90% capacity factor, the increase in losses is approximately 57 GWh per annum. This will result in an additional 58 kilotonnes per annum, which is an increase of 0.03% above the estimate for a sea/earth return. This is substantially less than the accuracy of the result, in which differences to forecast load growth or generation dispatch will have a much greater impact on total CO_2 emissions.

Furthermore, Basslink enables the export of windpower from the three Tasmanian schemes currently under development (Woolnorth) and under feasibility study (Granville Harbour and Musselroe Bay). These schemes have the potential for significant displacement of thermal generation, with consequential net reductions in greenhouse gas emissions from the NEM.

Economic Impacts of Metallic Return

Submission T*26 raised concerns about the economic impacts of adopting metallic return technology.

A joint technical team from BPL, its major suppliers and Hydro Tasmania worked to identify a solution that meets the technical requirements of a metallic return, yet is one which is commercially viable. This work led to the identification of a metallic return solution at an incremental cost substantially lower than 2001 estimates.

The specific changes that made this possible are:

1. The team redesigned the specifications of the metallic return from the 2001 position. This resulted in a more cost-effective solution than that indicated previously to the Panel and Hydro Tasmania. In particular, the team identified alternative design options for the cable, which would significantly reduce shipping and cable laying costs.

2. The move to the use of a metallic return as the corrosion protection measure resulted in savings in the corrosion mitigation program previously identified by BPL.

Negotiations are continuing with all parties to identify further savings and to better refine the allocation of costs and the assignment of commercial risks resulting from the need to construct the metallic return. The sensitivity of these negotiations precludes any further details being made public at this stage.

As the CREA report (Appendix 1 to the DIIAS) submitted by BPL to the Panel (this report is still valid) identified, there will be significant economic benefits delivered by Basslink. These benefits flow to a wide range of parties who benefit from the links existence but are not required to contribute. These include:

1. Victorian Consumers who benefit from lower peak electricity prices as a result of up to 600MW of peaking power being available at times of high prices.

2. Victorian Generators who have an expanded market by having access to Tasmania for the first time.

3. The Victorian economy from the indefinite deferral of a partially used $400m gas fired generation plant that Basslink displaces.

4. Tasmanian consumers who benefit from increased security of supply and lower electricity prices.

5. The Tasmanian and Victorian economies which will benefit from increases in direct and indirect employment, both during the construction phase and throughout the life of the project estimated by CREA at $215m.

6. The Tasmanian and Victorian economies which will benefit, with increases in regional economic growth, throughout the life of the project estimated by CREA at $162m pa. A clear example of this growth that will only occur with Basslink is the decision by Vestas for Tasmanian manufacture of wind generation equipment.

7. New Tasmanian generators, especially the Duke Energy-operated Bell Bay Power Station and new biomass plants at George Town and Brighton as well as independent wind operators, which have reduced stranded asset risk with access to the NEM.

In this context, it should be noted that the additional cost of the metallic return (spread over the 40 year life of the cable) does not change materially the substantial economic benefits of Basslink derived by the Tasmanian and Victorian economies from the link's construction and long term operation.

Hydro Tasmania presented material at the October 2001 panel hearings which outlined the sensitivity of the Basslink business case to cost increases. This was done so that the Panel could have an understanding of the cost/benefit position of Hydro Tasmania within the project. This is separate from the overall economic position of Basslink as an infrastructure project. At that time, Hydro Tasmania identified that the project had a 65% probability of achieving its break even. Hydro Tasmania also identified that, all other things being equal, an increase in costs of around 10% could render the project non-viable commercially.

As indicated above, work undertaken by BPL and Hydro Tasmania recently has resulted in a substantial reduction in net additional costs for the metallic return approach compared to the sea return. Since the 2001 public hearings, Hydro Tasmania has been able to refine its projections of the revenues that it now believes will be generated if Basslink is constructed. The combined effects of lower costs and improved revenue projections are such that it is still possible to maintain the project within the commercial parameters outlined to the Panel during the public hearings in October 2001.

A format of commercial probabilities of successful outcomes was presented to indicate that Hydro Tasmania will be influenced by hydrological conditions on a year to year basis and absolute calculations of returns do not properly reflect all the commercial considerations in the business.

Hydro Tasmania continues to review this matter with the Hydro Tasmania Board in the context of the business' obligations to act in a commercially sound manner under State Government Business Enterprise legislation.

Additional Transmission Losses due to Adoption of Metallic Return

A number of submissions (T*19, T*6.1 and T*26.1) raised concerns about additional transmission losses due to metallic return.

The adoption by BPL of metallic return technology will result in an increase (in the order of an average of 6 MW) in transmission losses associated with Basslink, compared with sea/earth return technology.

At high loads the increased transmission losses attributable to metallic return will simply result in Basslink delivering marginally less power to Victoria, with no increase in power sent from Tasmania. At intermediate and lower loads there could be marginal increases in Tasmanian generation of up to 0.4%. This will have a minimal impact on transmission losses in the Tasmanian and Victorian transmission systems.

In Victoria, the effect of delivering less power across Basslink will be marginally higher thermal generation than would be the case for a sea/earth return configuration.

Losses can be examined in three parts – losses across the HVDC link (Basslink losses), losses in Tasmania's AC system, and losses in Victoria's AC system. Losses in the HVDC connection will vary approximately as the square of the current on the link, whilst losses in AC transmission systems depend on a number of factors. Implications for Tasmanian riverine impacts are also described below.

Basslink Losses

- Metallic Return Losses

The use of a metallic return cable instead of sea/earth return technology will increase the circuit resistance of the HVDC connection and losses will consequently increase by approximately 30%.

At highest power transfer levels this increase is estimated to be about 10 MW. At lower loadings the additional losses will be correspondingly lower. At 300MW loading, they are estimated to be less than 3MW.

Basslink will operate at high flows for limited periods only, due to cable rating restrictions and subject to trading opportunities. It is estimated that average additional losses due to the use of a metallic return will be approximately 6 MW.

- AC Transmission Losses in Tasmania

There will be no material increase in Tasmanian transmission losses due to the adoption of metallic return technology. During full export, the Tasmanian system will generate the MW output as before, therefore no additional losses are expected. At lower levels of export the potential marginal increases in Tasmanian generation (up to 0.4%) will result in no significant changes to transmission losses. During import there will be no change in power delivered to Tasmania as the limits are dictated by system security issues.

- AC Transmission Losses in Victoria

There will be no material increase in Victorian transmission losses due to the adoption of metallic return technology.

The Latrobe Valley is connected to the Melbourne load centre at 500kV, resulting in relatively low transmission losses. Average losses in this part of the Victorian transmission system are 1.8%. As the Victorian system is relatively strong and Basslink transfers are a small component of transmission system loading, average losses associated with Basslink operation are likely to remain at around 1.8%.

TEMSIM Modelling and Riverine Impacts

When evaluating the change in transmission losses associated with metallic return from the analysis presented at the 2001 panel hearings, there was an insignificant

change in the operation of the Gordon and other power stations in the Tasmanian system.

There is only minimal change in generation in the Tasmanian system. At full export generation remains the same. At lower levels of power flow there may be marginally more generation in the Tasmanian system (of the order of 0.4%). Such an increase has an insignificant effect on generation at the Gordon and other power stations. Therefore, the change in riverine impacts due to a metallic return is minimal.

Legal Issues Associated with Potential Impacts on the Tasmanian Wilderness World Heritage Area

Submissions T*26 and T*32 rejected the Panel's analysis of the potential implications of Basslink for the Tasmanian Wilderness World Heritage Area (TWWHA) in the DPR and endorsed advice from Mr David Haigh and Mr John Basten QC in relation to Australia's obligation to protect World Heritage properties.

Hydro Tasmania supports the analysis of the Panel in section 8.3 of the DPR and refers to the relevant statement of the law contained in Hydro Tasmania "Part 5 - Legal Submissions" document, (S. Gough and Clayton Utz) (Exhibit TE70), section 3.2(b), which includes an opinion from Gavin Griffith QC.

Hydro Tasmania also notes the endorsement by Environment Australia (submission V*109) of a "values-based" approach to considering any likely environmental impacts of Basslink upon the natural heritage or cultural heritage values of the TWWHA.

Aquaculture Impacts in Macquarie Harbour

Submission T*30 claimed that the DPR is contradictory in that it stated that there will be no significant changes to either Macquarie Harbour circulation patterns or pollution risk under Basslink, yet also stated there will be an increase in the scour of sediments and an increase in the visual occurrence of visual plumes of suspended sediments with the (John Butters) power station turning on more frequently. These points are not contradictory for the reasons outlined below.

The tailings expected to scour due to more frequent operation of the John Butters Power station are coarse-grained material, resident primarily in the *bed* of the river. This material is likely to be transported along the bed of the river towards the delta. This is not the present source of plumes in the harbour and is not expected to become a source in the future either with or without Basslink.

'Plumes' occur in the King River or Macquarie Harbour when acidic water is mixed with higher pH water, and iron and other metals precipitate from solution creating very fine-grained suspended sediments.

Bank Seepage Plumes

In the King River, this process occurs when the water level has been low for at least 2 – 3 days, and the tailings on the banks between high and low water level have the opportunity to oxidise and produce acidic, metal rich pore water in the banks. When water level rises (either due to a storm event or power station operation) this acidic water is flushed out, and if the pH of the river is sufficiently high, the metals precipitate creating a localised, short lived bank seepage plume. These plumes are diluted and dispersed within the King River and near the river mouth. These plumes are *not* the plumes which cause acute harm to the aquaculture operations in Macquarie Harbour.

These bank seepage plumes were predicted to increase under Basslink because of the greater frequency of operation of the John Butters Power station, but each plume event is likely to be smaller in terms of pollutants released than compared to present, because the duration of shut-down is expected to decrease, thus decreasing the amount of time the tailings can oxidise during periods of low water level. The cumulative duration of power station shut down predicted under Basslink is slightly less than present operations, so the overall generation of pollutants from the banks is not likely to differ greatly from present conditions. It must be remembered that >95% of the pollutants in the King River are attributable to the acid drainage discharged from the Mt Lyell leases site, with the banks contributing <5%.

Harbour Plumes

The major harbour plumes that pose acute risks to aquaculture in Macquarie Harbour generally occur following a large storm event following an extended dry period. Under these conditions, the acid drainage discharged from Mt Lyell contains very high metal loads, and if the surface salinity in the harbour is low (due to high rainfall in the Gordon catchment and low wind) the metals can remain in solution and be transported around the harbour.

A second mechanism that creates large harbour plumes is when acid drainage accumulates in the King River during periods of relatively low river flow. During these periods, the pH of the King River may decrease to <4 pH units, and iron and other metals remain in solution (the King River water appears clear). If this large volume 'plug' of acidic water enters Macquarie Harbour under low wind conditions, it can persist as a metalliferous plume on the surface of the harbour and be distributed by river and tidal currents.

The processes controlling the formation of these large harbour plumes in Macquarie Harbour are not expected to change under Basslink, as they are dependant on rainfall, acid drainage discharge from Mt Lyell, wind, and the natural inflows from the Gordon catchment.

Modelling of the harbour indicated that under typical flow conditions Basslink will not alter the circulation of the harbour, and may actually reduce the movement of pollutants into the central and western harbour because both power stations will be run at the same time a greater proportion of time. This creates a strong Gordon flow that can promote mixing of the fresh, metal-rich King River water in the north-eastern harbour.

Environmental Flows

In Submissions T143 and V*109 Environment Australia prefers a 19/38 cumecs summer/winter minimum environmental flow instead of a 10/20 cumecs summer/winter minimum environmental flow.

Following the release of the DPR, Hydro Tasmania engaged in extensive dialogue with the Tasmanian Department of Primary Industry, Water and Environment (DPIWE) and Environment Australia (EA) in relation to the issue of minimum environmental flows in the Gordon River. DPIWE indicated that it was yet to be satisfied as to the scientific justification for the proposed three year 10/20 cumecs minimum environmental flow trial proposed. DPIWE's position is that Hydro Tasmania must provide more scientific evidence of the merits of a trial minimum environmental flow before it will recommend to the Minister administering the Water Management Act 1999 (the "Minister") that a trial flow be approved.

Hydro Tasmania has agreed to investigate conducting further scientific studies prior to the commencement of Basslink in order to establish the predicted benefits of a three-year trial minimum environmental flow. Hydro Tasmania has agreed that

following those investigations, if it wishes to proceed with a trial minimum environmental flow, it will present the information to the Scientific Reference Committee (to be established by the Minister) for consideration. Hydro Tasmania may then seek the Minister's approval to undertake the trial minimum environmental flow for a period of three years from the commencement of Basslink. Importantly, if the Minister does not approve the conduct of a trial minimum experimental flow, Hydro Tasmania would remain legally bound under its Water Licence to deliver a 19/38 cumecs minimum environmental flow for a period of six years from the commencement of Basslink.

The Deed amending Hydro Tasmania's Water Licence (set out in Appendix G) has been amended to reflect Hydro Tasmania's modified commitment in relation to the provision of a minimum environmental flow.

Hydro Tasmania has agreed to provide the minimum environmental flow from the Gordon Power Station irrespective of total natural inflows into Lake Gordon. The Deed amending Hydro Tasmania's Water Licence (set out in Appendix G) has been amended accordingly.

3. Project Update

The Basslink Combined Assessment Process has embodied a number of milestones, at which the arrangement of project facilities and technology proposed by BPL come under external examination. This can give rise—as expressly contemplated by the environmental planning and assessment process in the three jurisdictions—to changes in the project scope. To recapitulate:

- During the tenure of the Victorian and Tasmanian consultative committees:
  - The Victorian land route moved from the Basslink Development Board route to the Old Rosedale Road (preferred), backed up by a feasible and prudent alternative of Merriman–McGaurans.
  - The Tasmanian land route moved from the Basslink Development Board route to the Eastern Corridor.
- Arising out of the recommendations of Draft Panel Report:
  - The Victorian land route moved once again, to Merriman–McGaurans.
  - The submarine link technology changed from a monopole with sea/earth return to a monopole with metallic return.

  These recommendations were accepted in BPL's own submissions on the DPR, from which extracts are reproduced in sections 3.1 and 3.3 of this report.
- Special panel hearings in Victoria:
  - Tactical refinements have been made for the section between South Gippsland Highway and McGaurans Beach landfall.
  - Tactical refinements have been made for the section between Bayliss Gully and Stradbroke West.

This stage in the combined assessment and approvals process is represented by this SDIIAS.

Looking ahead is one point, at which further changes to the project scope are possible:

- The decision on whether Basslink proceeds and, if so, under what conditions by the responsible ministers in the three jurisdictions, having regards to the Final Panel Report.

Thereafter, in the detailed design phase, BPL's contractors will carry out clearance surveys to locate significant flora species or items of Aboriginal or historic cultural heritage significance. If necessary, individual items of infrastructure may be relocated. These changes, if any, are expected to be localised.

The sections below describe the changes to the project up to the end of the special panel hearings in Victoria.

3.1 Victorian Land Route

The final Victorian land route incorporates elements of BPL's non-preferred alignment, the Merriman McGaurans alignment and tactical re-alignments recommended by the Panel.

The tactical re-alignments recommended by the Panel arise from the supplementary Panel hearings held on 10 and 23 May 2002, at which submissions by the affected landowners were considered. BPL has accepted the alignment recommendations set out in the Panel's letter of 28 May 2002.

This section describes the final alignment, which is shown in Figures 3.1 to 3.10, and comments on tactical re-alignment options proposed in submissions on the Draft IIAS and Draft Panel Report. The commentary addresses all options and not just those endorsed by the Panel.

Travelogue

Loy Yang to Flynns Creek

Figure 3.1 shows the alignment of the 500-kV, AC transmission line, which connects Loy Yang switchyard to the converter station. The entry to Loy Yang switchyard (Bay 14) has been revised to include an additional angle tower (Tower 1A). The revision was required to reduce the angle at which Basslink connects to the switchyard infrastructure, in particular the rack structure. The revised arrangement has been discussed with, and approved by, Loy Yang Power.

The location of the converter station has been revised in accordance with Draft Recommendation 7 of the Draft Panel Report. It is located northeast of the Fire Service Dam and north of the Saline Wastewater Outfall Pipeline (SWOP) as shown in Figure 3.1.

An additional strain tower (Tower 10) immediately east of the converter station has been introduced into the design to enable the Loy Yang overburden stackers to travel to the Loy Yang Mine when the internal overburden dump is established in 2006–2007. Initially only one stacker will be moved to the mine, with the second to follow some 5–7 years later. The inclusion of a strain tower will enable the conductors between towers 9A and 10 to be temporarily removed, so as to enable the stacker to pass.

East of the converter station, the alignment crosses private freehold (Towers 10 to 11) before entering softwood plantations. The farmland is utilised by the owner as a bull paddock and the owner sought a re-alignment to the south and west of his property (Submission V*153). The owner noted that the paddock had special qualities which are ideal for bulls and that these qualities would be adversely affected by the proposed alignment. No towers will be constructed in the paddock. The only impact is the easement for the overhead transmission line. A number of standing trees will need to be felled on the easement. By agreement the felled trees could be retained on the easement to provide further refuges for the bulls.

Relocation of the alignment to the south and west of the property would involve the introduction of right-angle towers and increase impacts on the adjacent commercial plantations. The re-alignment is not supported by BPL.

Flynns Creek to Bayliss Gully

From Flynns Creek to Bayliss Gully, the alignment accords with that proposed in the Draft IIAS, which is reproduced in Figures 3.2, 3.3 and 3.4.

In their submission (Submission V*90) on the Draft Panel Report, Grand Ridge Plantations sought a tactical re-alignment to remove a diagonal cut of their plantation estate between towers 18 and 23 (refer Figure 3.3).

The section of alignment between towers 18 and 23 was designed to align with an existing infrastructure corridor—the SWOP easement—and plantation coupe boundaries. The alignment between towers 18 and 20 is fixed by the alignment between towers 20 and 23. In the later section, the alignment follows the SWOP easement. In the section between towers 18 and 20, the alignment generally traverses the common boundary of a softwood and hardwood plantation.

Removing the diagonal cut would introduce two right-angle towers and increase the length of alignment by approximately 700 m. It would also increase the loss of plantation resource from 10.4 ha to 14.3 ha. BPL does not support the requested re-alignment.

Bayliss Gully

BPL in their Submission No 3 (Submission T*6.2) on the Draft Panel Report contested the Panel's recommendation that Option B of the Merriman McGaurans alignment be adopted for Bayliss Gully. In Option B, the alignment follows the southern and eastern boundaries of a plantation coupe avoiding a diagonal cut. The Panel cited reduced impacts on plantation operations as the reason for recommending Option B. BPL argued that the alignment in Option A was preferable from a design perspective—it removed the need for two right-angle towers—noting residual conservation benefits resulting from the restoration of riparian vegetation in those parts of Bayliss Gully on the easement. The Panel has not accepted BPL's preference for Option A. Figure 3.5 shows the alignment recommended by the Panel and accepted by BPL.

Bayliss Gully to Stradbroke West

The Panel wrote to BPL on the 2 May 2002 seeking advice on the design elements of, and general comments on, re-alignment options, in particular the proposal included as an attachment to the letter. This proposal was intended to reduce the land use impacts identified by the landowners whose properties are traversed by the alignment between towers 75 and 83.

BPL investigated the re-alignment option and other alternatives, advising the Panel in the letter dated 17 May 2002 that re-design of the alignment would not deliver the perceived benefits and the proposed re-alignment option involved the introduction of additional angle towers.

The landowners supported their submissions (Submissions V*62, V*71 & V*88) in presentations to the supplementary Panel hearing held on 23 May 2002. In the hearing, the submitters proposed alternative re-alignment options that traversed the northern Mullungdung State Forest adjacent to and south of their properties. These options comprised various alignments between towers 74 and 94.

At the hearing BPL was asked by the Panel to identify the re-alignment option it considered feasible. BPL proposed a re-alignment that followed the southern boundary of the affected properties and increased the distance to the house on the Kingston property (V*71), but did not introduce additional right-angle towers. The re-alignment option proposed by BPL (refer Figures 3.5 and 3.6) was endorsed by the Panel in their letter to BPL dated 28 May 2002.

Stradbroke West Airstrip

The Panel recommended BPL's alignment (Option A) between towers 87 and 105 (refer Figures 3.6 and 3.7) be adopted. This alignment affects the Stradbroke West airstrip of Grand Ridge Plantations. In their submission on the Draft Panel Report (Submission V*90) Grand Ridge Plantations expressed concerns the strategic airstrip at Stradbroke West has been rendered useless.

Two options were considered for the section of alignment between towers 94 and 105. Option B traversed the plantation some 700 m south of the airstrip, whilst Option A utilised the airstrip. BPL nominated Option A as its preferred alignment for the Merriman McGaurans alignment, as it reduced the impact on plantation resource. Option B, although 700 m offset to the airstrip, would still have posed a safety hazard to aircraft where it crossed the take-off and landing flight path and would have most probably resulted in the airstrip being rendered useless.

In recommending Option A the Panel noted BPL must negotiate a satisfactory alternative arrangement for the airstrip (Draft Panel Report pp163). BPL accepts the Panel's recommendation.

Stradbroke West to Monkey Creek

BPL's preferred alignment (Option A) between towers 105 and 119 (formerly tower 118) has been recommended by the Panel. This section of the alignment cuts diagonally across the property that abuts the Stradbroke West Plantation of Grand Ridge Plantations, as shown in Figure 3.7. The landowner in Submission V*115 on the Draft Panel Report expressed concerns that the alignment will restrict opportunities to develop the property, in particular irrigation utilising the 100-ML dam on the eastern boundary of the property.

The landowner noted that the Panel gave consideration to, but did not support, a re-alignment that followed the western and southern boundaries of the property. The Panel did not support the re-alignment, as a further 1.5 km of transmission line would be required (Draft Panel Report pp165).

The alignment traverses the property generally along the divide between the flatter ground in the southwest and the undulating ground in the north and northeast. Irrigation development would tend to occur on the flatter ground and so would not be unduly affected by the alignment. Piping of water from the 100-ML dam to the irrigated land would not be impeded by the transmission line.

Monkey Creek to McGaurans Beach

The Panel's draft report requested BPL to consult with the landowners of Giffard (Submissions V*35, V*52 & V*181) about re-alignment options that might address conflicts with existing and proposed centre-pivot irrigation developments. BPL in its Submission No 1 (Submission T*6.2) on the Draft Panel Report proposed four options for reducing impacts on the irrigation developments. The supplementary Panel hearing of 10 May 2002 provided the affected landowners with the opportunity to comment on the options. In the course of the hearing, a further option was proposed by one of the affected landowners. This option, the impacts of which are contained within the affected landowner's property, was subsequently adopted by the Panel. BPL accept the recommendation of the Panel as set out in their letter to BPL dated 28 May 2002.

The alignment recommended by the Panel and accepted by BPL is shown in Figures 3.8, 3.9 and 3.10. From Tower 119 (formerly Tower 118), the alignment runs east across Little Monkey Creek to follow the general alignment of Clements Road. At

the eastern end of Clements Road, the alignment traverses the northern edge of the private plantation to its eastern boundary, which abuts the Native Plants Reserve.

From Tower 133 the alignment runs south, initially along the eastern boundary of the plantation, before traversing Grand Ridge Plantations' Lacey Plantation on the general alignment of plantation firebreaks and access tracks. On entering farmland south of Lacey Plantation, the alignment turns southeast (Tower 141) to traverse the western edge of remnant stands of native vegetation and existing centre-pivot irrigators. At Tower 147, the alignment turns south to the transition station which is located 200 m north of the SWOP.

From the transition station the underground cable alignment generally follows the alignment proposed in the Draft IIAS. The section of cable between joint bays JB-V1 and JB-V4 has been relocated to the western side of the fenceline to avoid the windbreak on the east of the fenceline and reduce the distance from the fence to the cable trench. The landfall is as described in the Draft IIAS.

This alignment fulfils the requirements of the JAP in that it removes existing and potential conflicts with existing and proposed centre-pivot irrigation developments on the affected properties, locates the transition station site back from Giffard-Giffard West Road and Middle Road, and avoids conflicts with the SWOP.

3.2 Tasmanian Land Route

The Panel has accepted BPL's preferred alignment (Eastern Option 1) for the Tasmanian land route. This section describes tactical re-alignment options proposed in submissions on the Draft IIAS and Draft Panel Report and by BPL.

Landfall

The Draft IIAS proposed HDD along the alignment of the existing breach in the coastal dunes. BPL accepts the requirement in the Draft Panel Report (p.276) to implement HDD at the Tasmanian shore crossing at Four Mile Bluff unless it is shown to be technically infeasible. BPL's third submission (p.31) records BPL's intention to examine the alternative of a shallow drill (through the dune) and also investigate open trenching.

Transition Station

Submission T*9 on the Draft Panel Report requested the transition station be re-located to Tower 155 (south of Aerodrome Road) to reduce impacts on the coastal view, as seen from the road.

The transition station was sited north of Aerodrome Road to minimise the length of access track required and most importantly to enable the remnant vegetation on the adjacent sandy hillocks to be overflown. The sandy hillocks are potential habitat for the New Holland Mouse, a threatened species.

Aerodrome Road is a dead-end road and does not provide access to the coast. The coastal views the submitter sought to be protected, being views from Bellbuoy Beach, Four Mile Bluff and Five Mile Bluff, are protected by 1.7 km of underground cable.

Converter Station

The conceptual design for the Eastern alignment sites the converter station perpendicular to Bridport Road and in-line with the overhead transmission line, as shown in Figure 11.8 of the Draft IIAS. This site is constrained by Four Mile Creek to the north and Bridport Road to the south.

Geotechnical investigations will be carried out prior to the detailed design of civil works to determine the location of the converter station, which may include a site parallel to Bridport Road i.e., rotated 90 degrees from the position shown in the Draft IIAS.

Submission T*8 on the Draft Panel Report expressed concerns about the Panel's draft recommendation 12 that a permit pursuant to section 42 of the *Threatened Species Protection Act 1995* (Tas) be issued to BPL to take or destroy yellow pimelea (*Pimelea flava),* which was identified on the proposed site. Impacts on the yellow pimelea or other threatened species and sensitive vegetation communities will not be increased by a revised orientation.

3.3 Metallic Return

3.3.1 Rationale

The metallic return proposal was presented in Submission 2 of 3 by Basslink Pty Ltd (BPL) in response to the DPR.

BPL accepts that, where a possible change in project scope may be involved, its response to the Panel's draft recommendations is a matter of immediate public interest.

BPL's Submission 2 reports a change in project scope arising from the Panel's recommendation that BPL seek agreement with the owners of long metallic infrastructure on measures to mitigate corrosion.

BPL's corrosion consultants have conducted studies to this end, the conclusion of which has been that corrosion mitigation measures would enable a monopole link with sea/earth return to be operated without jeopardising other installations in Bass Strait and onshore.

Notwithstanding, infrastructure owners have not been willing to agree to BPL's mitigation proposals, in the belief that the risk of corrosion from Basslink's stray currents remains unacceptable.

In these circumstances, BPL has had no option but to pre-empt the problem at source by replacing the sea/earth return by a metallic return. The six major infrastructure owners (namely Esso, Duke Energy International, Gippsland Water, Esk Water, Telstra and GasNet Australia) have confirmed that a metallic return provides the in-principle solution to their concerns about stray current corrosion.

BPL proposes to bundle the metallic return cable with the main HVDC conductor and fibre optic cable in a single installation.

Sea electrodes and electrode cables are no longer required. Therefore, construction impacts will be the physical effects of installation and of the same type, but smaller scale, than those of the originally proposed main HVDC conductor cable described in the DIIAS.

The operational impacts of the metallic return—compared to the originally proposed sea/earth return—are similar only in terms of generated heat. In all other respects:

- The metallic return presents a closed circuit, in which stray currents are eliminated;
- The magnetic fields of the bundled main and return conductors provide substantial cancellation; and

- Induced electric fields will be minimal.

The two areas of concern identified by the Panel—stray current corrosion and the generation of electrolysis products—have been eliminated entirely.

3.3.2 Cost Implications

In hearing exhibit VE10, BPL and Tas-Vic estimated that the net cost of a metallic return configuration after deducting the cost of sea electrodes was A$75-100 million. The cost estimates provided in VE10 were not based upon detailed engineering design for a metallic return, but were provided in response to requests from the JAP for cost information on various technology and route scenarios. Moreover, the estimates assumed the HVDC and MR cables would be laid in separate trenches.

Since the 2001 panel hearings, BPL and Hydro Tasmania have engaged in lengthy and extensive negotiations to work on the engineering detail of a metallic return solution, and BPL has received further advice from Tas-Vic on the cable laying method. Whilst the detailed design is still ongoing, the incremental cost of BPL's proposed metallic return configuration compared to the sea return approach (after deducting the cost of sea electrodes and avoided mitigation costs) is now expected to be in the range of approximately – a half to two thirds of the above number.

This figure differs from that provided to the JAP in VE10 for two reasons:

- The cost estimate in VE10 assumed the HVDC and metallic return cables would be laid in separate trenches. However, Submission No.2 explains that BPL now proposes to lay the cables in a single trench. This has created a significant cost saving;

- BPL and Tas-Vic have now had an opportunity to optimise the laying vessel loading to load as much cable in the vessel as possible. This process has reduced the number of cable laying campaigns from BPL's estimate of five laying campaigns (TE128, Part 2.3) to three.

While the overall project costs will therefore be impacted by the move to metallic return, the additional net costs do not materially impact the substantial economic benefits that Basslink will bring.

Hydro Tasmania explains the economic implications of BPL's proposed metallic return solution in Section 2.3.3.

3.3.3 Predicted Magnetic Fields

The following text has been extracted from Appendix E, which also discusses the impact of the predicted magnetic fields.

Magnetic fields will be generated by the bundled cables of the Basslink MR proposal, albeit greatly reduced compared to the main HVDC cable of the original Basslink sea/earth return proposal.

The Basslink cables will produce a low-intensity, static DC magnetic field, whose strength will be of the same order of magnitude as the Earth's magnetic field. The magnetic fields generated by the return current and HVDC cables will add to or subtract from each other as well as adding to or subtracting from the Earth's magnetic field to produce a total magnetic field in the vicinity of the cable bundle, which will vary in magnitude and direction from the background magnetic field.

Tables 1 to 4 provide predicted total magnetic fields for different orientations (with respect to the Earth's magnetic axis) of the Basslink cable bundle for the maximum power transmission of 600MW.

Table 1 Predicted total magnetic field in the vicinity of the Basslink cable bundle – north-south alignment (Background 61.0 µT)

Height Above Seabed	Horizontal Distance from Cable												
	-100	-50	-20	-10	-5	-1	0	1	5	10	20	50	100
	µT												
1	61.0	61.0	60.9	60.6	59.7	65.8	81.4	67.6	59.8	60.6	60.9	61.0	61.0
5	61.0	61.0	60.9	60.8	61.0	62.2	62.3	62.3	61.1	60.8	60.9	61.0	61.0
10	61.0	61.0	60.9	61.0	61.2	61.3	61.4	61.3	61.2	61.0	60.9	61.0	61.0
20	61.0	61.0	61.0	61.0	61.1	61.1	61.1	61.1	61.1	61.0	61.0	61.0	61.0
80	61.0	61.0	61.0	61.0	61.0	61.0	61.0	61.0	61.0	61.0	61.0	61.0	61.0

Note: All heights and distances are in metres. Assumes 0.4 m cable bundle burial depth.

Table 2 Predicted total magnetic field in the vicinity of the cable bundle – Victorian offshore alignment (Background 60.6 µT)

Height Above Seabed	Horizontal Distance from Cable												
	-100	-50	-20	-10	-5	-1	0	1	5	10	20	50	100
	µT												
1	60.6	60.6	60.5	60.2	59.4	66.8	81.0	65.8	59.3	60.2	60.5	60.6	60.6
2	60.6	60.6	60.5	60.3	59.8	65.0	67.5	64.7	59.8	60.2	60.5	60.6	60.6
5	60.6	60.6	60.5	60.4	60.7	61.8	61.9	61.8	60.6	60.4	60.5	60.6	60.6
10	60.6	60.6	60.5	60.6	60.8	60.9	60.9	60.9	60.8	60.6	60.5	60.6	60.6
20	60.6	60.6	60.6	60.6	60.7	60.7	60.7	60.7	60.7	60.6	60.6	60.6	60.6

Note: All heights and distances are in metres. Assumes 0.4 m cable bundle burial depth.

Table 3 Predicted total magnetic field in the vicinity of the cable bundle – Victorian nearshore alignment (Background 60.4 µT)

Height Above Seabed	Horizontal Distance from Cable												
	-100	-50	-20	-10	-5	-1	0	1	5	10	20	50	100
	µT												
1	60.4	60.4	60.3	60.0	59.2	63.5	68.5	66.5	59.8	60.1	60.3	60.4	60.4
2	60.4	60.4	60.3	60.0	59.6	62.7	64.2	63.9	60.2	60.1	60.3	60.4	60.4
5	60.4	60.4	60.3	60.2	60.3	61.2	61.4	61.4	60.7	60.3	60.3	60.4	60.4
10	60.4	60.4	60.3	60.3	60.5	60.7	60.7	60.7	60.6	60.4	60.4	60.4	60.4
20	60.4	60.4	60.4	60.4	60.4	60.5	60.5	60.5	60.5	60.4	60.4	60.4	60.4

Note: All heights and distances are in metres. Assumes 1.2 m cable bundle burial depth.

Table 4 Predicted total magnetic field in the vicinity of the cable bundle – Tasmanian nearshore alignment (Background 61.6 µT)

Height Above Seabed	Horizontal Distance from Cable												
	-100	-50	-20	-10	-5	-1	0	1	5	10	20	50	100
	µT												
1	61.6	61.6	61.5	61.2	60.5	66.2	71.6	67.17	60.7	61.2	61.5	61.6	61.6
2	61.6	61.6	61.5	61.3	60.9	64.6	66.0	65.0	61.1	61.3	61.5	61.6	61.6
5	61.6	61.6	61.5	61.4	61.6	62.6	62.7	62.6	61.7	61.5	61.5	61.6	61.6
10	61.6	61.6	61.5	61.6	61.7	61.9	61.9	61.9	61.8	61.6	61.5	61.6	61.6
20	61.6	61.6	61.6	61.6	61.6	61.7	61.7	61.7	61.7	61.6	61.6	61.6	61.6

Note: All heights and distances are in metres. Assumes 1.0 m cable bundle burial depth.

For comparison, Table 5 presents the same information for the single high voltage direct current (HVDC) cable (north-south alignment) for the original Basslink sea/earth return proposal (from page 10-57 of the DIIAS).

Table 5 Predicted total magnetic field in the vicinity of single cable for original Basslink sea/earth return system - north-south alignment (Background 61.0 µT)

Height Above Seabed	Horizontal Distance from Cable												
	-100	-50	-20	-10	-5	-1	0	1	5	10	20	50	100
	µT												
1	58.2	55.4	47.1	34.4	22.9	145.5	218.3	210.8	115.3	89.1	75.1	66.6	63.8
2	58.2	55.4	47.2	35.4	28.8	104.6	134.8	145.4	109.7	88.1	75.0	66.6	63.8
5	58.2	55.4	47.8	40.4	43.9	71.2	79.3	85.7	91.0	83.5	74.2	66.6	63.8
10	58.2	55.5	49.8	48.6	53.7	62.9	65.4	67.8	74.0	75.3	72.1	66.3	63.8
15	58.2	55.7	52.1	58.3	56.9	61.4	62.6	63.7	67.5	69.9	69.8	66.1	63.7
20	58.2	56.0	54.0	55.8	58.3	61.0	61.6	62.3	64.7	66.7	67.8	65.7	63.7
40	58.5	57.4	58.0	59.2	60.0	60.7	60.9	61.0	61.7	62.5	63.6	64.3	63.3
60	58.8	58.5	59.4	60.0	60.4	60.7	60.8	60.9	61.2	61.6	62.2	63.1	63.0
80	59.2	59.3	60.0	60.4	60.6	60.8	60.8	60.9	61.0	61.2	61.6	62.4	62.6

Note: All heights and distances are in metres. Assumes 0.4 m cable bundle burial depth.

The reduction can be seen of the magnetic field generated by the bundled metallic return and HVDC cables of the revised Basslink MR proposal (Table 1) compared to the single HVDC cable (Table 5) of the original Basslink sea/earth return proposal.

The calculations in Tables 1 to 4 assume that the return cable is on the west side of the bundle and the HVDC cable in on the east side, which generates the highest magnetic field. Reversing the cables will give a lower magnetic field. When the cable is being laid, the natural twisting experienced during cable laying will cause the main HVDC and metallic return cables to spiral around one another, such that its magnetic influence will be variable and frequently less than the case given by Tables 1 to 4 above, but fragmented in intensity and direction according to the twists.

Although overseas subsea HVDC cables have different monopole and/or bipole configurations, power ratings, voltages and material, the relative differences between total magnetic field (i.e., combined cable and Earth's magnetic fields) and background magnetic field are similar. Table 6 shows the maximum total magnetic fields at 10 m (measurement height at 10 m) from operating subsea cables in comparison with the original and revised Basslink proposals.

Table 6 Comparison of maximum total magnetic field measured at 10 m distance from operating subsea HVDC cables in comparison to Basslink and at 10 m above the seabed

HVDC Scheme	Background Magnetic Field (µT)	Maximum Total Magnetic Field (µT)	Difference (µT)
Skagerrak Link	50.0	63.0	13.0
SACOI Link	46.1	56.4	10.3
Original Basslink sea/earth return proposal	61.0	75.3	14.3
Revised Basslink MR proposal	61.0	61.0	0.0

The significance of this comparison is that the increased magnetic fields of the unbundled SACOI and Skagerrak cables pose no impediment to whale movement nor suggest any role in live strandings. Quite the reverse, in fact—see Appendix E and its Attachments A, B and C.

3.4 Overhead versus Underground

3.4.1 Equipment and Installation Costings for Overhead Lines and Underground Cables

The marginal costs for 100% undergrounding of the Merriman-McGaurans (MMG) route are estimated to be in the range of A$95 to $110 million as compared to the costs of the overhead line based on BPL's proposed transition station location. These additional costs are split approximately 40% materials and 60% installation. The cost of a transition station is approximately A$2.5 million.

The cost of the 400kV DC overhead line between Loy Yang and McGaurans Beach is in the range A$18 to 22 million. This cost is already netted off the above marginal costs for 100% undergrounding. Of this cost, approximately 60% is materials and 40% installation.

3.4.2 Operational and Maintenance Costings for Overhead Lines and Underground Cables

BPL expects overhead line routine maintenance cost to average A$1,660 per km per annum. BPL expects cable routine maintenance cost to average A$190 per km per annum. These costs have been applied to the MMG route under three undergrounding scenarios, namely all underground, 1.3 km underground and 6.3 km underground, as shown in Table 7. It should be noted that overhead and underground routes are not interchangeable, however this has been overlooked for the purposes of comparing costs.

Table 7 Operational and Maintenance Costs over 40 Years

	MMG Route All Underground	MMG Route 1.3 km Underground	MMG Route 6.3 km Underground
Cable	488,680	9,880	47,880
Overhead line	0	4,183,200	3,851,200
Total	488,680	4,193,080	3,899,080

Based on 1999 UK maintenance cost.

The Draft IIAS (Section 4.3.3 page 4-41) also provides information about the costs of underground cables and overhead lines and this is reproduced below.

> **'Operational and Maintenance Costings for Overhead Lines and Underground Cables**
>
> Meaningful comparison of operational and maintenance costs between overhead lines and underground cables is influenced by:
>
> - The extremely low usage worldwide of underground transmission cable compared to overhead transmission line. For example, Victoria has 10 circuit-kilometres of underground transmission cable compared with over 6,500 circuit-kilometres of overhead transmission line, i.e., 0.15%. This is typical of worldwide application, as illustrated in the Tables 4.17 to 4.20 below. The use of DC cables is largely limited to subsea projects, and there is virtually no operating experience of underground DC cables.
>
> - The disproportionately large cost of repairing faults to underground transmission cables. This does not take account of system-constraint costs associated with the extended return-to-service times.

In addition, data does not exist for long underground transmission cables through rural areas, such as Gippsland, because long underground transmission cables are entirely in urban areas.

NGG's UK transmission system includes over 550 circuit-kilometres of HVAC underground transmission cable. Approximate costs of maintenance on NGG's UK AC transmission system derived from 1999 cost data are:

- Overhead transmission line maintenance: £600 ($1,660)/circuit-kilometre/yr.

- Underground transmission cable maintenance: £70 ($190)/circuit-kilometre/yr.

Service experience of HVAC overhead transmission lines in the United Kingdom has turned out much as expected. Tower life-spans are achieving 60 years. Refurbishment of the conductors and fittings is required at approximately 30-year intervals.

In contrast, service experience of underground HVAC transmission cables is below expectations. Premature ageing of sections of underground cables is being experienced; and they are being replaced, at considerable capital expenditure, ahead of anticipated life expectancy. This increases the lifetime costs considerably.'

3.5 Infrastructure Near Wedge-tailed Eagle Nests in Tasmania

Commitment 425 of the DIIAS (Table 16.1) has been amended by changing 350 m to 500 m as shown in Attachment 1 of Appendix F.

3.6 Height Restrictions for Vehicles Beneath Basslink Transmission Lines

As confirmed during the hearings, BPL has specified 3 metres as the maximum height of vehicles beneath the transmission line and 10.7 metres as the minimum distance between the transmission line conductor and the ground.

The minimum ground clearance of 10.7 m differs from that proposed in the Draft IIAS as a result of meetings with the Office of the Chief Electrical Inspector regarding amendment of the *Electricity Safety (Network Assets) Regulations 1999* to incorporate standards for 400-kV DC transmission lines, in which it was agreed existing clearances for 500-kV transmission lines should be adopted for DC lines.

The former State Electricity Commission of Victoria developed a set of guidelines for the control of activities and land uses on overhead transmission line easements. These guidelines were subsequently adopted by SPI PowerNet, a successor electricity transmission company, and are detailed in the SPI PowerNet publication entitled, *A guide to living with electricity transmission line easements.* The guidelines prohibit the operation of plant and equipment in excess of 3 metres in height **without PowerNet approval.** BPL has adopted these guidelines as they are accepted industry practice in Victoria.

The 3 metre height constraint is not intended to operate as an absolute restriction, nor unduly restrict normal farming activities (if at all). The height constraint includes a

factor of safety and can be exceeded by consent under the proposed easement agreement, up to a maximum level allowed by regulation.

The *Electricity Safety (Network Assets) Regulations 1999 No.141* specifies in table 13.2 a minimum distance between aerial lines and the ground for 500kV AC systems of 10.7 metres for ground traversable by vehicles. These regulations relate to AC systems, although as stated the Office of the Chief Electrical Inspector has indicated that changes to the regulations will be made to make the clearance limits equally applicable to AC & DC systems.

Table 40 specifies that the minimum distance between vehicles, plant, machinery and vessels and overhead network assets is 6 metres for 66kV AC voltages and above. Under the regulations, this would enable vehicles or farm machinery with a height of 4.7 metres to operate beneath the 400kV HVDC Basslink overhead transmission line. In comparison, road regulations in Victoria permit certain types of vehicles including "hay trucks" and "livestock trucks" to operate up to 4.6 metres in height on public roads.

For practical purposes, it is recognised that it is easier for landowners to work within maximum heights from the ground, rather than minimum measurements from the conductor. However, by reference to the regulations, it can be demonstrated that there is some flexibility for BPL to allow landowners to operate vehicles or farm machinery greater than the 3 metres above ground level proposed in the easement agreements (and up to 4.7 metres at the lowest cable point and higher elsewhere).

4. Recommended Conditions of Approval

4.1 Environmental Management Plan

The DPR proposed conditions of approval for the Basslink Project. BPL's views on these conditions were expressed in BPL's Submission 3 on the DPR. Many of these conditions have implications for the Strategic EMP and, therefore, BPL has revised the Strategic EMP to address and implement the conditions of approval according to BPL's views. The revised Strategic EMP (Version 2) is provided as Appendix F.

4.2 Amendments to Hydro Tasmanian's Special Water Licence

The Hydro Tasmania "Part 5 - Legal Submissions" document, (S. Gough and Clayton Utz,) (Exhibit TE70) discussed in detail Hydro Tasmania's Water Licence under the *Water Management Act 1999* and its appropriateness as a regulatory mechanism to implement Hydro Tasmania's Basslink commitments.

The Hydro Tasmania "Proposed Regulatory Framework" (S. Gough) (Exhibit TE115) paper presented draft detailed amendments to Hydro Tasmania's Water Licence, which were proposed to implement Hydro Tasmania's core Basslink commitments. These amendments were contained in a draft Deed of Amendment to Hydro Tasmania's Water Licence (the Deed) annexed to the paper.

The DPR recommended (DPR, p.379) that in order to regulate Basslink consequential riverine issues, Hydro Tasmania's Water Licence under the *Water Management Act 1999* (Tas) be amended as proposed in the draft Deed.

Following the conclusion of the 2001 panel hearings, Hydro Tasmania representatives met frequently with representatives from DPIWE and EA to discuss the terms of the draft Deed. As a result of meetings, a number of changes to the Deed were agreed.

A copy of the revised Deed amending the Water Licence is set out in Appendix G.

4.3 Consequential Permits Required by Hydro Tasmania

The DPR recommended (DPR, p. 380) that all consequential permits (required in order to undertake the Gordon River, King River and the Downstream Poatina Basslink Monitoring Programs) identified by Hydro Tasmania in the Response to Information Request paper "Hydro Tasmania Proposed Regulatory Framework" (TE115) be issued if Basslink proceeds. Section 3 of that paper set out the relevant permits that had been obtained by Hydro Tasmania as at November 2001.

For all three monitoring programs, Hydro Tasmania requires an exemption permit from the Director Inland Fisheries under s.171 of the *Inland Fisheries Act 1995* in order to collect and retain freshwater fauna for monitoring purposes. Hydro Tasmania's general exemption permit (IFS Permit No. 2000/59) covering all Hydro affected waterways (including World Heritage Area for Gordon River Basslink monitoring) expired on 19 October 2001. Hydro Tasmania has subsequently obtained a new permit (IFS Permit No. 2001/62) which is valid until 17 October 2002.

Hydro Tasmania has recently obtained approval from the Director of National Parks and Wildlife under the *National Parks and Wildlife Act 1970* and the *Reserved Land Regulations 1999* authorising helicopter landing and taking off in the TWWHA for the purposes of the Gordon River Basslink Monitoring Program. The approval is valid until 1 March 2003).

Following the approval of Basslink (when the precise nature of required Gordon River Basslink monitoring is known), Hydro Tasmania will submit a Project Proposal Form (PPF) to the Tasmanian Parks and Wildlife Service seeking a permit under the *Tasmanian Wilderness World Heritage Area Management Plan 1999* for all current monitoring sites and monitoring activities under the Gordon River Basslink Monitoring Program. In addition to the current monitoring sites, the PPF would seek approval:

- To install and maintain water monitoring sites at the Gordon below Huntley (to measure inflows into Lake Gordon) and in the Gordon River upstream of the Denison River (compliance monitoring site);
- To maintain a helicopter landing site between Abel Gorge and the Splits for monitoring associated with measuring the effectiveness of the ramp down rule; and
- To maintain a helicopter landing site near the Olga River.

5. References

Locher, H. 2001. Summary Report, Basslink Integrated Impact Assessment Statement – Potential Effects of Changes to Hydro Power Generation, Hydro Tasmania, Hobart.

Ludwig, J., Tongway, D., Freudenberger, D., Noble, J. and Hodgkinson, K. 1997. *Landscape Ecology Function and Management*. CSIRO. Victoria.

Woodward-Clyde. 1999. Social and community impact assessment for the proposed Basslink development. Report prepared for the Basslink Development Board.

Utilicon. 2002. Media Services per Sean Dignum and Associates (subscriber).

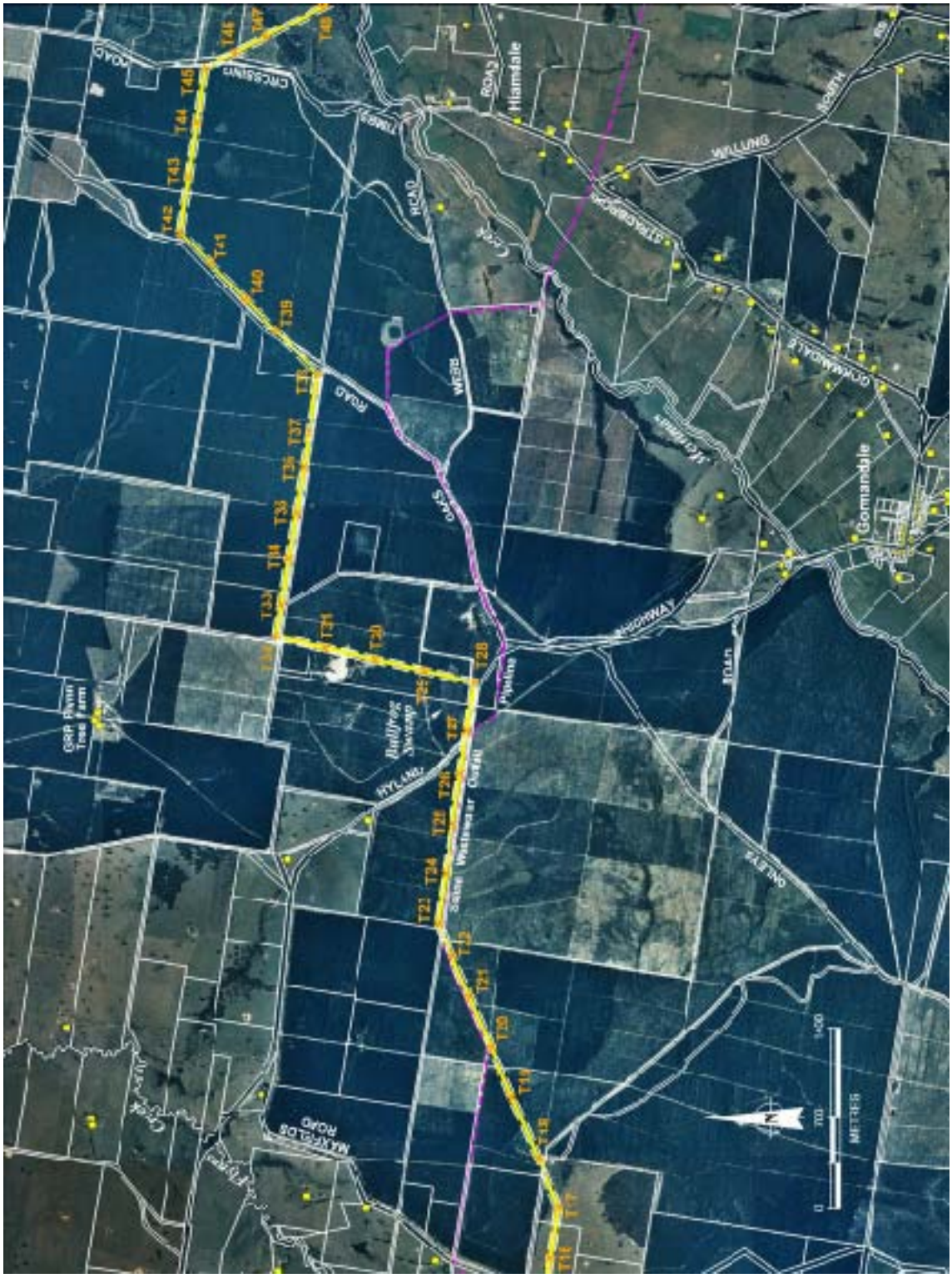
Figures

Source: Earth Tech (2002)

Figure 3.1 Loy Yang to Flynns Creek

Source: Earth Tech (2002)

Figure 3.2 Flynns Creek Valley



Source: Earth Tech (2002)

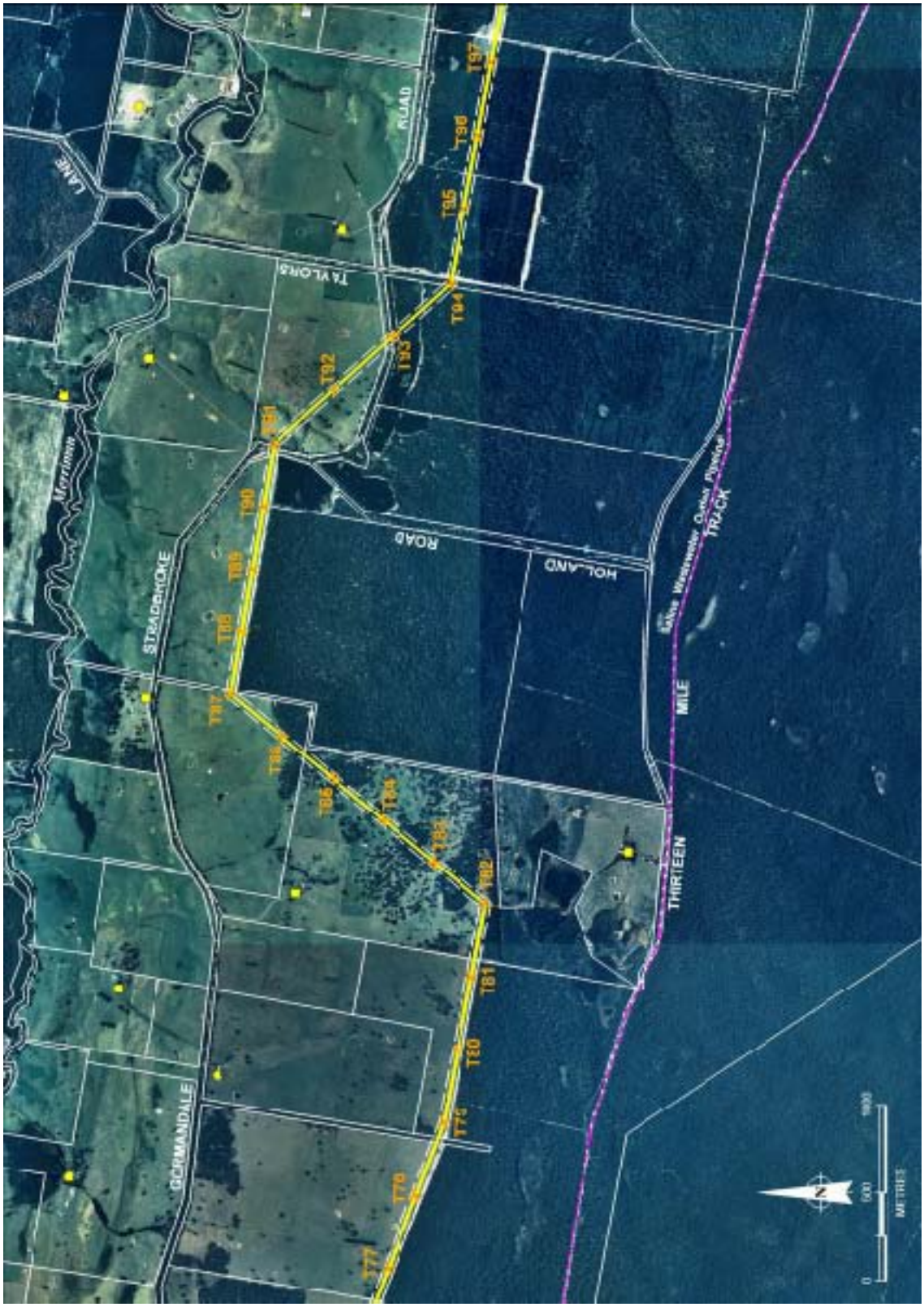
Figure 3.3 Flynns Creek to Merriman Creek

Source: Earth Tech (2002)

Figure 3.4 Merriman Creek Valley

Source: Earth Tech (2002)

Figure 3.5 Bayliss Gully

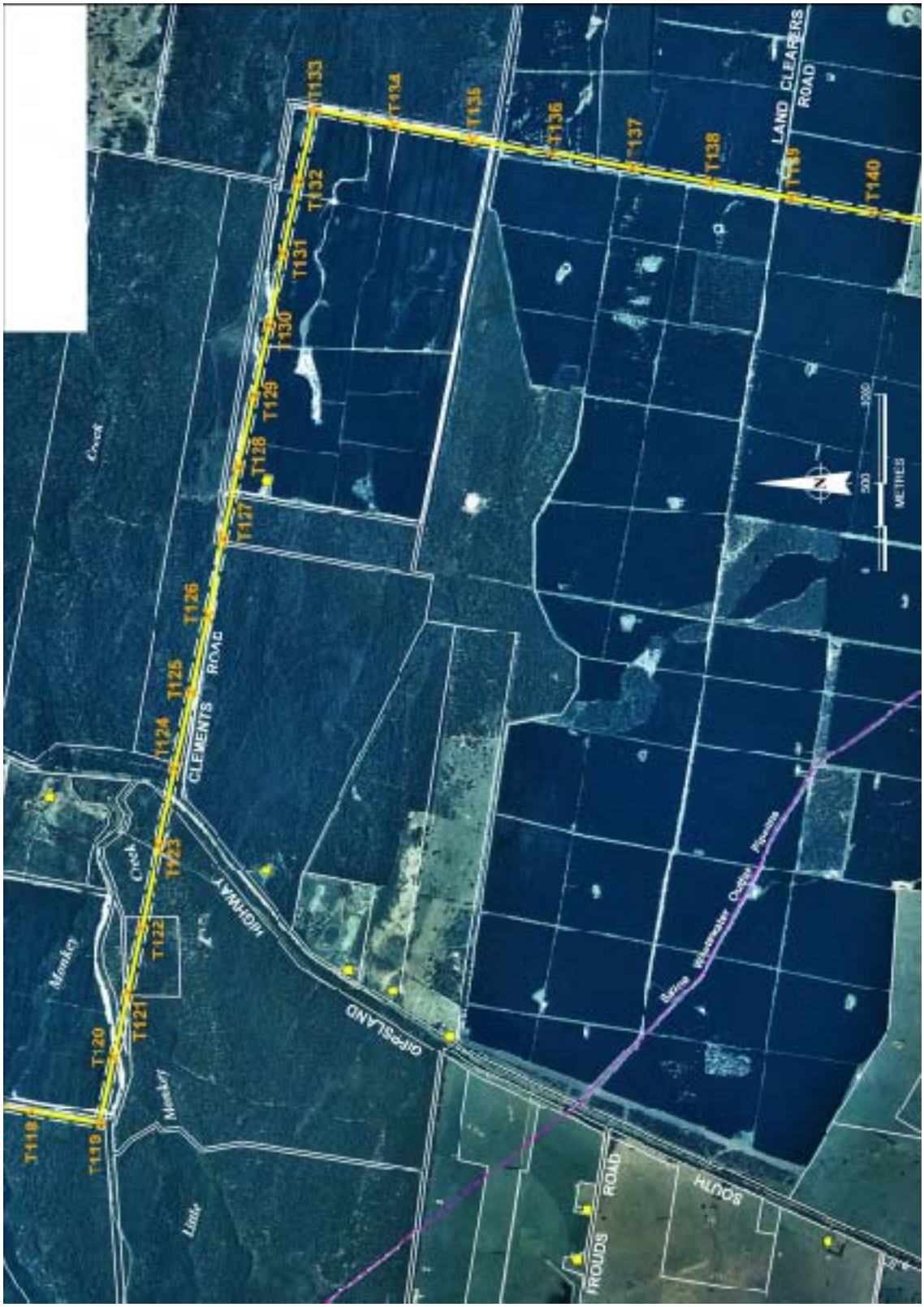


Source: Earth Tech (2002)

Figure 3.6 Bayliss Gully to Stradbroke West

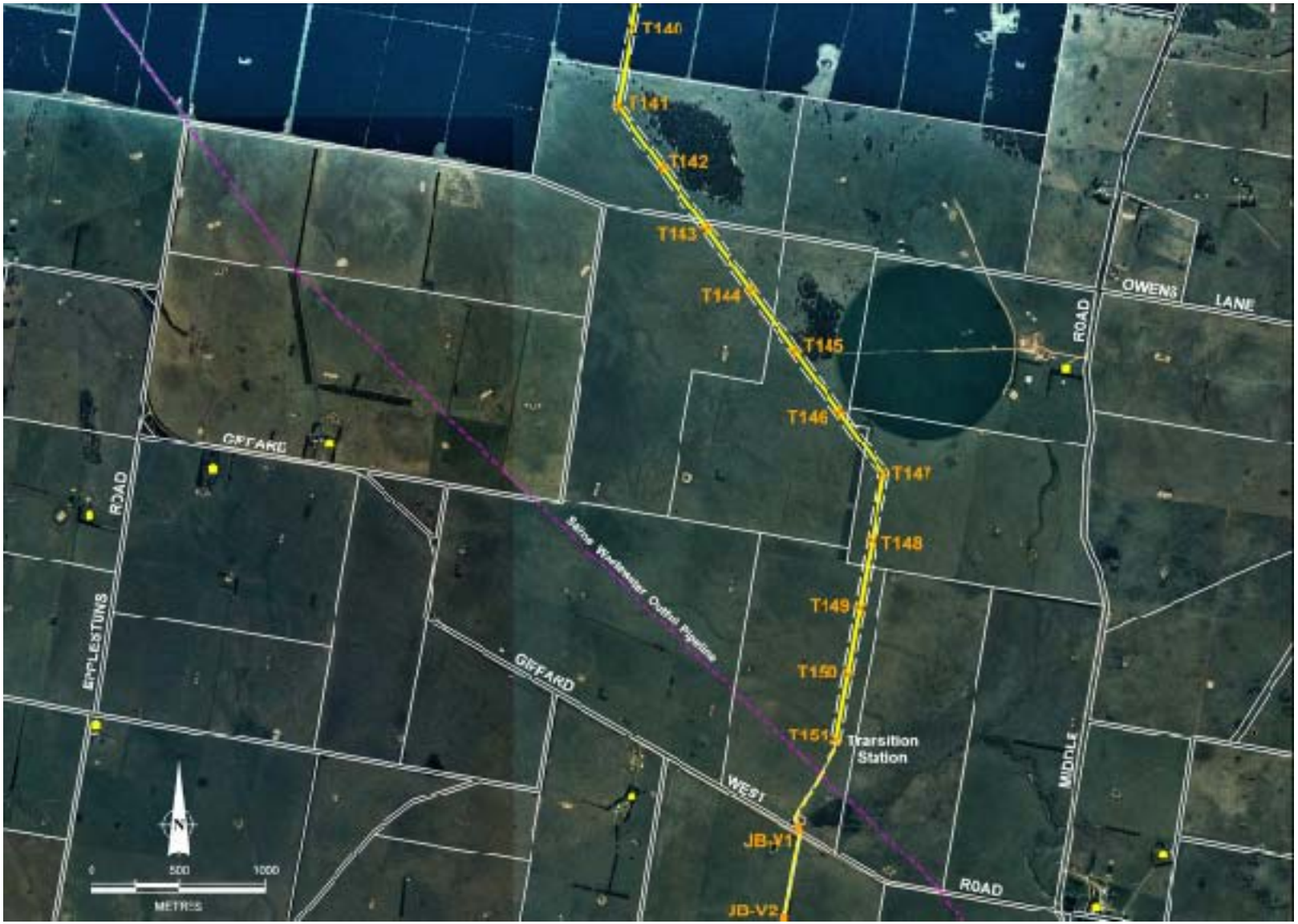
Source: Earth Tech (2002)

Figure 3.7 Stradbroke West to Monkey Creek



Source: Earth Tech (2002)

Figure 3.8 Monkey Creek to Landclearers Road



Source: Earth Tech (2002)

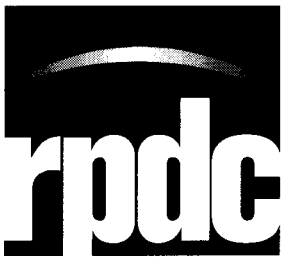
Figure 3.9 Landclearers Road to Giffard-Giffard West Road

Source: Earth Tech (2002)

Figure 3.10 Giffard-Giffard West Road to McGaurans Beach

Annexure 1

Your Ref :
Our Ref :
Officer :
Phone :
Email :



Resource Planning and Development Commission

28 May 2002

Mr Geoff Singleton
Chief Executive Officer
Basslink Pty Ltd
GPO Box 4606SS
MELBOURNE VIC 3001

Dear Mr Singleton

CHANGES TO THE INTEGRATED IMPACT ASSESSMENT STATEMENT

Step 27 of the Combined Assessment/Approvals Process requires the Joint Advisory Panel to advise Basslink Pty Ltd (BPL) of the changes required to the Final Integrated Impact Assessment Statement (IIAS).

Following publication of the Draft Panel Report I understand work has already commenced on amending the Draft IIAS in accordance with the majority of the uncontested recommended changes.

The purpose of this letter is to:

(a) acknowledge work is proceeding by BPL on preparing the Final IIAS (or supplement to the Draft IIAS) in line with the recommendations in the Draft Panel Report;
(b) confirm that the Panel expects the Final IIAS to incorporate the uncontested recommendations set out in the Draft Panel Report; and
(c) indicate the additional matters that the Final IIAS should address.

These additional matters are as follows:

- The IIAS should indicate that the monopole sea/earth return configuration is replaced by a monopole metallic return configuration. This should include revised costings for a metallic return.

GPO Box 2036, Hobart, Tasmania 7001 Enquiries: Ph : (03) 6233 2795 Fax : (03) 6233 5400 email : enquiry@rpdc.tas.gov.au
3rd Floor, TGIO Building, 144-148 Macquarie Street, Hobart, Tasmania 7000

- Quantify the impact of increased transmission losses arising from the replacement of a sea/earth return by a metallic return.
- Provide calculations of the predicted magnetic field from the bundled HVDC, fibre-optic and metallic return cables.
- Amend underground versus overhead costings for the SWOP/Merriman-McGaurans route.
- Amend the SWOP/Merriman-McGaurans alignment as follows:
  - Converter station relocation as identified in the Draft Panel Report;
  - T75 to T87 to be amended in accordance with Attachment A;
  - T118 to McGaurans Beach landfall to be amended as per the Clements Road Option, through the Mactier property to the transition station location 200 m north of the transition station location set out in the Draft Panel Report. Undergrounding from the transition station to McGaurans Beach landfall as illustrated in the Draft Panel Report. See Attachment B.
- Commitment 425 regarding wedge-tailed eagle nests be amended by changing 350 m to 500 m.
- Amend the Strategic EMP by:
  - changing all descriptions of the SWOP/Merriman-McGaurans route to the Panel's recommended revised SWOP/Merriman-McGaurans route (as described above);
  - including in section 3.3.5 Communication a requirement that there will be prompt notification to the Victorian EPA of environmental issues or incidents that may occur relevant to areas of the EPA's legislative responsibilities;
  - including in section 4.10, Aspect 10 Land use, a dot point on page 43 that the requires the inclusion of a strategy to deal with unexploded ordnance in the vicinity of the Giffard area and the removal of any such ordnance.
- Include a reference to the process that BPL proposes to adopt regarding case by case review of height controls for vehicles and machinery crossing transmission line easements, recognising that the normal prescribed height is a maximum of 3 metres and heights up to 4.7 metres may be negotiated under designated controls.

Consequential impacts

- Amend Hydro Tasmania's commitment to introduce an increased minimum environmental flow of 19/38 m^3s from the commencement of Basslink.

- Delete Hydro Tasmania's proposal to reduce the minimum environmental flow proportional to inflows to Lake Gordon.
- Quantify the impact of increased greenhouse gas emissions as a result of increased transmission losses from the change from sea/earth return by a metallic return.

***Environment Protection (Impact of Proposals) Act 1974* Administrative Procedures**

In addition to the foregoing, it will be necessary in preparing the Final IIAS to meet the requirements of paragraph 8.1 of the Administrative Procedures under the EPIP Act. This includes revisions to take account of comments received from government agencies, interested organisations and the public on the Draft IIAS, and a summary of those comments. If you have not already done so, you may wish to seek advice from Environment Australia on this aspect.

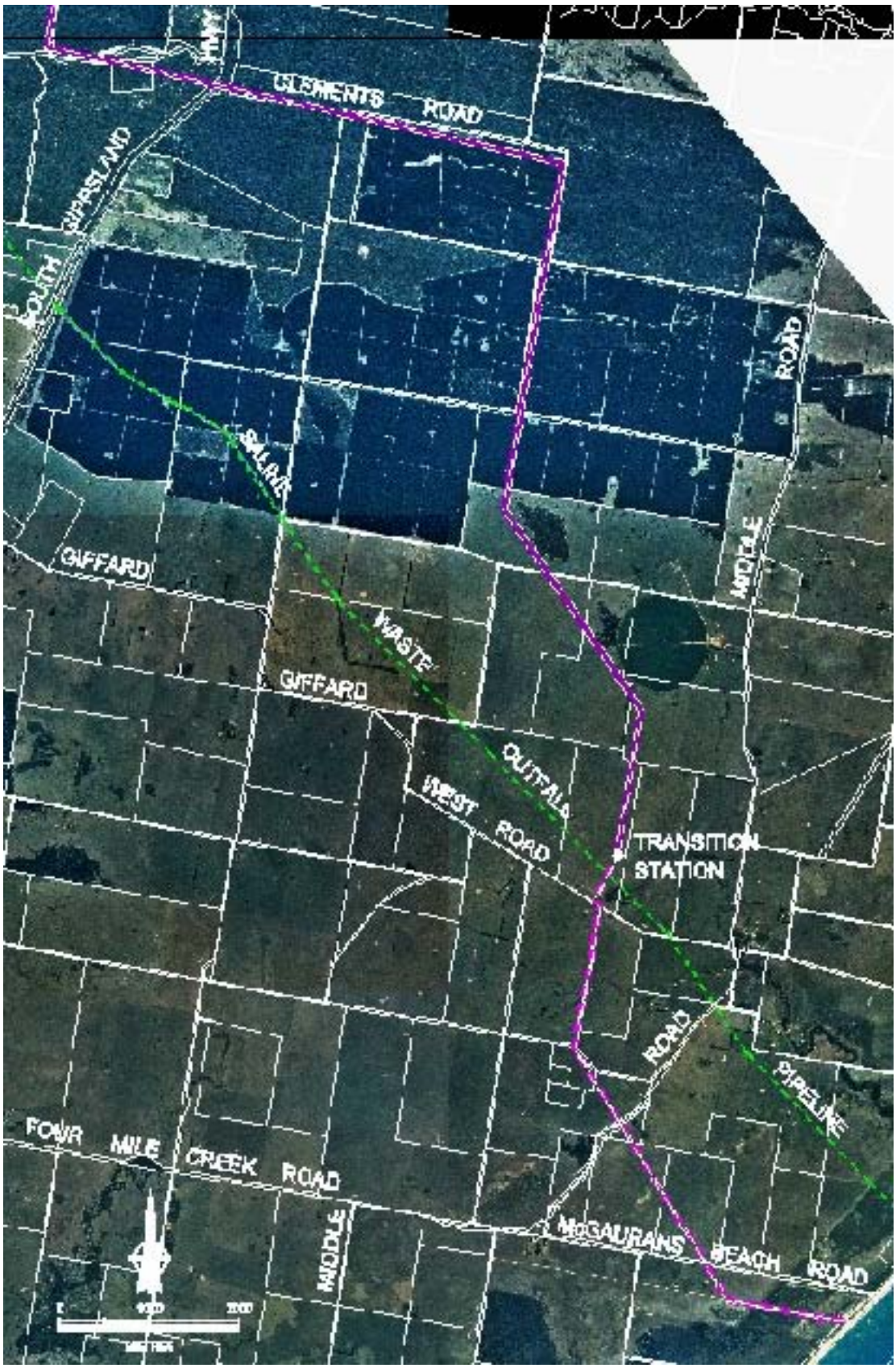
If you require clarification of the matters referred to above please contact Pam Scott on 03 6233 2506.

Yours sincerely

J O Green
Co-Chair (Tas)
JOINT ADVISORY PANEL

ATTACHMENT A

ATTACHMENT B



Our Ref J Green JAP 050602 11-100.doc

Date 5 June 2002

Basslink

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HOBART TAS 3001

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Dear Mr Green

Draft Changes to the Integrated Impact Assessment Statement

Thank you for your letter dated 28th May 2002 advising the changes required to the Draft Integrated Impact Assessment Statement (DIIAS) as per Step 27 of the Combined Assessment/Approvals Process.

This letter confirms that:

i) We are amending the DIIAS to accord with the uncontested recommended changes in the Draft Panel Report;

ii) We will address the additional matters identified in your letter; and

iii) We accept your recommended changes, including:

- Replacing the monopole sea/earth return arrangement with a metallic return.
- Amending the SWOP/Merriman McGaurans alignment by:
  - Relocating the Converter Station as identified in the Draft Panel Report.
  - Placing towers T75 to T87 as defined in Attachment A to the letter.
  - Amending the route from tower T118 to the McGaurans Beach landfall as defined in Attachment B to the letter.

Hydro Tasmania advises us that it accepts a commitment to introduce an increased minimum environmental flow of 19/38 m^3/s with effect from the commissioning of Basslink in the absence of an agreement with the Tasmanian Minister of Primary Industries, Water and Environment to introduce an alternative trial flow.

This information will be presented in the Supplement to the Draft IIAS, which together with the Draft IIAS comprises the Final IIAS.

Yours sincerely

Geoff Singleton
Chief Executive Officer