Revised Proposal - Increase in Iron Ore Export through the Port of Esperance to 8 million tonnes per annum

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Esperance Port Authority

Report and recommendations
of the Environmental Protection Authority

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1. Introduction and background

This report provides the advice and recommendations of the Environmental Protection Authority (EPA) to the Minister for the Environment on the environmental factors relevant to the revised proposal by the Esperance Port Authority (EsPA) to increase iron ore export from the Esperance Port at a rate of up to 8 million tonnes per annum (Mtpa).

Background

In August 2004, the EsPA sought approval from the Minister for the Environment to increase iron ore export from 4 to 8 Mtpa under Section 45C of the *Environmental Protection Act 1986* (Changes to proposals after assessment). Based on advice from the EPA and the Department of Environment (DoE), the Minister indicated that it was not within her capacity to approve the change to increase iron ore export under Section 45C. A revised proposal would therefore have to be referred to the EPA. The EsPA referred a revised proposal for the export up to 8 Mtpa of iron ore to the EPA in February 2005.

By way of clarification, this proposal is a revision to the previously approved Esperance Port Upgrade proposal which was assessed by the EPA (EPA Bulletin 989) and approved by the then Minister for the Environment on 31 October 2000. The approval for the Esperance Port Upgrade consisted of the following components: the upgrading of marine facilities which consists of deepening berths 1 and 2; dredging of the harbour basin and shipping channels; construction of a new deepwater berth; reclamation of approximately 15 hectares of land; construction of a new iron ore shed; ship loading and conveyor systems; and increasing the export of iron ore from 2 to 4 Mtpa.

The additional volume of iron ore to be received and exported as part of the revised proposal will continue to be stored, conveyed and loaded onto ships through the existing enclosed structures. As the existing port facilities and infrastructure do not require significant modification to facilitate the increase in iron ore throughput, the EsPA is seeking approval to change the rate of iron ore export component of the approved proposal from 4 to ‘up to 8 Mtpa’.

The proponent has submitted a referral document, which accompanies this report, setting out the details of the revised proposal, potential environmental impacts and whether the existing Implementation Conditions (Implementation Statement 555) and Part V Licence conditions are able to manage those impacts. Based on the information provided in the referral document the EPA considered that, while the revised proposal has the potential to affect the environment, it could be managed subject to the implementation of the recommended revised Conditions and Procedures.

The EPA has therefore determined under Section 40(1) of the Environmental Protection Act that the level of assessment for the revised proposal is Assessment on Referral Information (ARI), and this report provides the EPA advice and recommendations in accordance with Section 44(1).

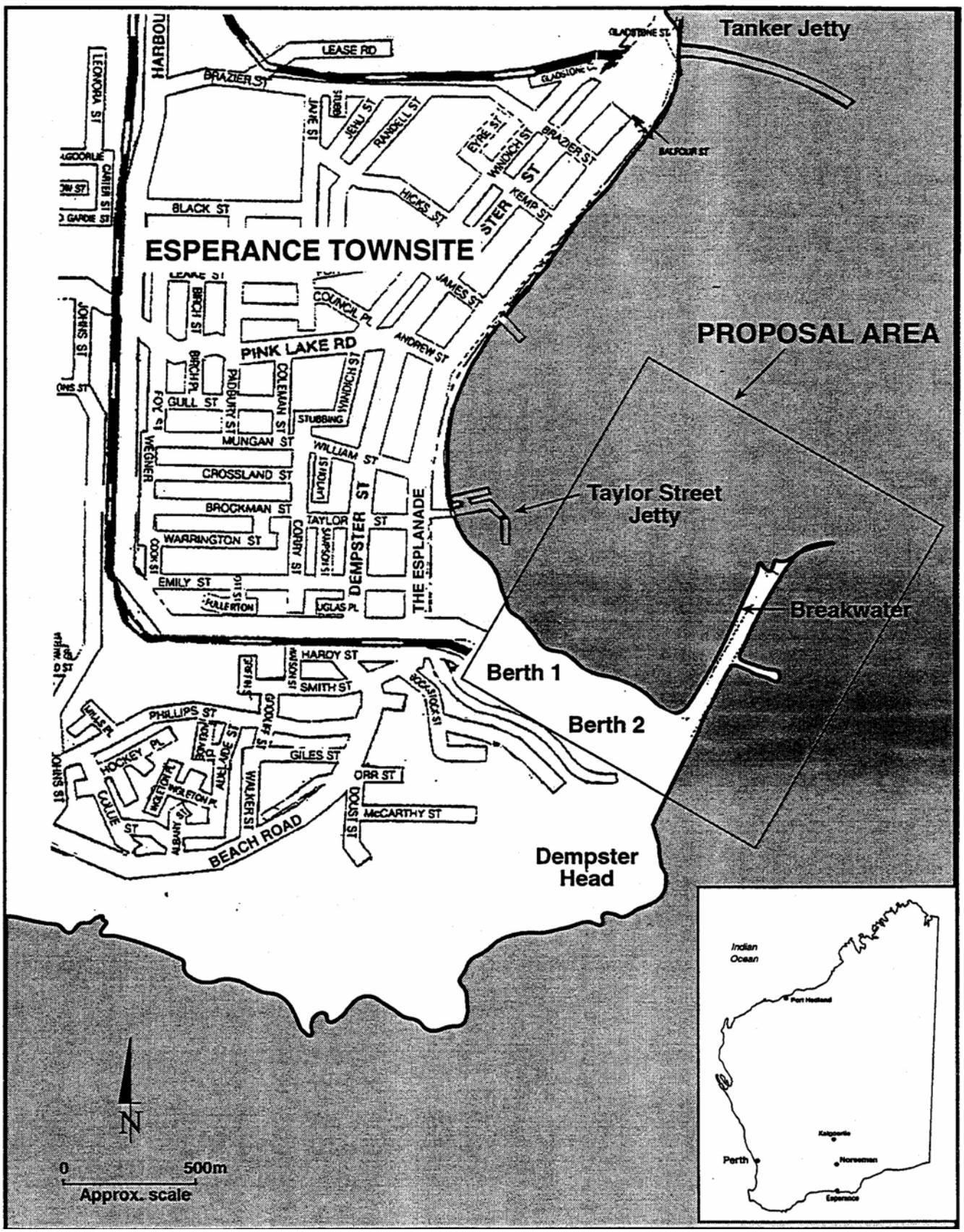

Figure 1: Location Plan

2. The revised proposal

As indicated above, the revised proposal is essentially to provide for an increase in the rate of iron ore export from the Port of Esperance to 8 Mtpa. No significant modifications to the port facilities and infrastructure are required.

The main characteristics of the existing approved proposal compared to the revised proposal are summarised in the table below.

Table 1: Summary of key proposal characteristics

Element	Description of existing Proposal (Implementation Statement 555)	Description of Revised Proposal
Dredge the harbour basin and Berths 1 & 2.	• Deepen Berths 1 & 2 from -12.5 metres (reduced level) to -14.7 metres (reduced level). • Deepen harbour basin from approximately -12.8 metres (reduced level) to -15.1 metres (reduced level). • Dredge an area of approximately 50 hectares. • Generate approximately 1,500,000 cubic metres of dredged material.	No revisions proposed.
Extend the existing groyne, relocate the existing breakwater and construct a new breakwater.	• Extend existing 170 metre groyne by an additional 100 metres. • Widen the base of the existing breakwater by approximately 200 metres. • Build a new breakwater, approximately 700 metres long. • Construct a sand apron seaward of the breakwater as a protective measure against erosion.	No revisions proposed.
Reclaim land on the south easterly side of the Port.	• Pump dredged material to behind the new breakwater. • Reclaim approximately 15 hectares.	No revisions proposed.
Construct third berth.	• Construct new deep draft berth and shipping channel along the shoreward side of the existing harbour breakwater. • Deepen new berth and shipping channel to -19 metres (reduced level).	No revisions proposed.
Construct iron ore ship outloading and handling equipment.	• Construct an iron ore shiploader designed to suit Cape Class vessels. • Construct new iron ore conveyor and handling equipment.	No revisions proposed.

Element	Description of existing Proposal (Implementation Statement 555)	Description of Revised Proposal
Construct an additional iron ore storage shed.	• Construct shed with a capacity of 200,000 tonnes (nominally 300 metres x 60 metres, and 22 metres high).	No revisions proposed.
Timing of construction activities.	• The proposal will commence as soon as all approvals are granted and will take approximately 20 – 24 months to complete. • Dredging and breakwater relocation is expected to take 9 months. • Construction of the third berth and the iron ore shiploader is expected to take 15 months. • Construction of additional iron ore storage and handling facilities is expected to take 12 months.	No revisions proposed.
Ongoing Operation.	• Iron ore delivered to the Port by rail will increase from 2 to 4 million tonnes per annum. • The number of trains from the mine will increase from 7 to 14 trains per week. Train movements in and out of the Port will increase from 26 to 46 movements per week. • Iron ore export will increase from 2 to 4 million tonnes per annum. • An additional 15 – 25 iron ore ships will be added to the current 35 – 40 iron ore ships per year. Note, total number of ships entering the port is currently approximately 120. An additional 15 - 25 ships will thus increase annual shipping by approximately 20%.	• Iron ore will be accepted and exported by the proponent at a rate of up to 8 million tonnes per annum. • The number of iron ore trains from mine to rail yard will increase from 14 trains per week to an average of 20 trains per week. • Acceptance of up to 80 iron ore trains per week (with and without wagons).

The potential impacts of the revised proposal within the Port itself are discussed by the proponent in the referral documentation, which accompanies this report.

3. Consultations

The proponent has advised that it has completed a program of consultation with the community on all matters associated with the proposed increase in iron ore exports. This has occurred by way of communications through its Port Development Consultative Committee (representatives include local environmental action forum (LEAF)), a Port information day on the 18 December 2004, Port newsletters and media releases. The EsPA has indicated that no significant community concerns have been raised in relation to the revised proposal.

4. Relevant environmental factor

Section 44 of the *Environmental Protection Act 1986* requires the EPA to report to the Minister for the Environment on the environmental factors relevant to the proposal and the conditions and procedures, if any, to which the proposal should be subject. In addition, the EPA may make recommendations as it sees fit.

It is the EPA's opinion that the following environmental factor relevant to the revised proposal requires evaluation in this report:

1) Noise emissions from rail transport of iron ore to the Port of Esperance.

Further details on the relevant environmental factor of noise from the rail transport of iron ore to the Port are discussed below.

4.1 Noise emissions from rail transport of iron ore

Description

Noise from trains is generated along the entire rail corridor from the Koolyanobbing iron ore mine to Esperance, but is experienced for longer duration along the section between the Esperance rail yard and the port (section referred to as the Esperance Port Access Corridor (PAC)). This is due to the requirement to split the train at the Esperance rail yard and bring the train down to the port in sections.

In terms of the sources of noise emission, train movements generate noise with intrusive noise characteristics resulting from braking, the engine itself, wagons, rails and horns at rail crossings. Variations and curves in the track can also lead to high levels of high frequency noise referred to as 'wheel squeal'. Noise is also generated from trains at the Port when locomotives are left idling.

The EsPA has advised that in increasing the rate of iron ore export through the Port, the number of trains from the mine to the Esperance rail yard will remain almost the same as currently occurs, at an average of 18 per week, or increase to an average of 20 per week. Trains will also be pulling a greater number of wagons (up to 126 wagons) to cater for the increase in iron ore throughput.

In its previous assessment of the proposal to upgrade facilities at the Port (Bulletin 989, 2000) the EPA considered only 14 trains per week and this was included in Schedule 1 of Implementation Statement 555.

The number of train movements that would result from the revised proposal is clearly greater than that considered by the EPA when it assessed the original proposal (Implementation Statement 555), and in particular will require increased movements during night time. As highlighted above the noise impacts from each train is exacerbated because each iron train requires between 6 to 8 movements between the yard and the Port. This includes up to 4 train movements without wagons (referred to as 'locomotive light' movements). The need to split trains is largely due to the infrastructure at the Port, which is unable to accommodate the unloading of a full-length train. Specifically this relates to the location of the car dumper with respect to the Esplanade rail crossing and also the length of the Port reclamation area.

While the EPA notes the advice of the EsPA that it has no direct control over rail operations outside the Port area, in assessing the environmental impacts of the revised proposal to increase the rate of iron ore export, the EPA is obliged to consider all environmental impacts which may result from the implementation of the revised proposal. As indicated above, increasing throughput at the Port will result in additional rail movements between the yard and the Port.

Assessment

The receptors of relevance considered for assessment of this factor are the noise sensitive premises and urban areas along the PAC, particularly between the rail yard and the Port.

The EPA's environmental objective for this factor is to protect the amenity of nearby residences from noise impacts from rail movements as a result of the transport of iron ore to the Port. As noise emissions from road and rail transport are exempt from the provisions of the *Environmental Protection (Noise) Regulations 1997* the EPA has assessed the noise emissions from the transport of iron ore having regard for the noise 'Exposure Criteria' in the recently released draft Western Australian Planning Commission *Statement of Planning Policy 5.1: Road and Rail Transport Noise* (WAPC, 2005) (hereafter referred to as the draft SPP) and other relevant technical material.

(i) Assessment of noise

The key issue is the movement of trains at night through the town of Esperance, and the associated potential for sleep disturbance. Sleep disturbance may take the form of noise-induced changes of sleep state, and it should be noted that this pattern may not result in specific awakenings and may not manifest itself in noise complaints. The DoE has advised the EPA that there are potential long-term health effects associated with regular disturbance of sleep patterns through noise exposure, but that the issue is difficult to define in terms of objective noise criteria. It is well accepted however that sleep disturbance is in part related to the number of events, and their noise level and the extent to which the noise event "emerges" above the ambient noise.

The EPA and the DoE have in the past recommended an indoors night time "average" (L_{Aeq}) noise criterion of 35dB(A) for sleep quality in homes adjacent to transport corridors, in keeping with an earlier World Health Organisation (WHO) position (WHO, 1980). It should be noted that, currently, WHO recommends 30dB(A) as the internal noise criterion for sleeping areas (WHO, 1999). To achieve an internal noise level of 35dB(A), inside a typical residence with the windows closed, the outside L_{Aeq} noise level would need to be in the range 50-55dB(A). This noise level range corresponds to the 'Exposure Level 2' range in the draft SPP. Exposure Level 2 refers to "a level of outdoor noise exposure that would be acceptable for residential and other noise-sensitive development, subject to appropriate measures to ameliorate noise impact".

The EPA notes that the noise study in the referral documentation predicts that the night time noise levels along the Esperance rail corridor would have been below Exposure Level 2 in the year 2000, but that the current and future noise levels would

be at or near the upper end of Exposure level 2, with all trains included and iron ore trains being the dominant component. This assessment would indicate the need for further measures to ameliorate noise along the corridor in order to achieve acceptable indoor noise levels.

In addition to the above assessment based on L_{Aeq} noise or 'average' noise levels, the EPA also considers that the numbers and the noise levels of events associated with train movements into and out of the Port should be included in the assessment. The Australian Government enHealth Council recommends that the maximum indoors noise level should not exceed 45dB(A) more than 10 or 15 times in a night (enHealth, 2004). For future iron ore trains (each train requiring up to 8 movements), each movement would exceed this value, resulting in 8 such exceedances. Other train movements occurring at night would further add to this number of exceedenaces.

Sleep disturbance researchers Jansen, Griefahn, Scheuch and Spreng advocate a "critical load" criterion of 6 events per night at a maximum indoors level of 60dB(A), based on a cortisol excretion model for aircraft noise (Jansen et al, 2003). The EPA notes that an indoors noise level of 60dB(A), in a typical house with windows closed, would correspond to an outdoors maximum noise level of 75-80dB(A), which again corresponds to Exposure Level 2 in the draft SPP.

Future iron ore train movements would account for at least 5 of these 6 permissible events in a night. In areas adjacent to level crossings, the use of the train horn would result in external noise levels greater than 80 dB(A) which corresponds to Exposure Level 3 under the draft SPP, i.e. a level that is 'not generally regarded as acceptable for conventional residential or other noise-sensitive development'. In this case, all 8 passes would cause indoor noise levels greater than 60dB(A) inside the nearest houses, resulting in an exceedance of the 'critical load' criterion recommended by Jansen et al.

With regard to the factor of 'emergence' above the ambient noise, the DoE has advised that Esperance is generally a quiet area, and the train noise events are likely to be highly emergent above the ambient noise. The EPA assessment in terms of the numbers and noise levels of events is therefore consistent with the assessment in terms of 'average' noise levels, indicating the need for ameliorative measures along the PAC.

Taking into account the above, the EPA considers that the examination and development of noise mitigation measures along the PAC (further described in *(iii)* below) should aspire to achieve as far as practicable the following noise targets for the protection of residents against sleep disturbance: 6 events at a maximum indoors level of 60dB(A), and 15 events at a maximum indoors level of 45 dB(A) between the hours of 2200 and 0600 hours.

In summary, it is evident that iron ore trains dominate noise from overall train movements between the rail yard and the Esperance Port; and this activity is likely to increase under the revised proposal. Noise emissions are likely to continue to cause significant sleep disturbance for residents, particularly in areas adjacent to level crossings. Based on the DoE's advice, the EPA is concerned that this noise exposure is likely to cause unreasonable impacts on the amenity of people living in the vicinity

of the PAC and lead to increased risk of health impacts if the noise exposure is continued unabated over a long period.

(ii) EPA's recommended approach

As indicated in i) above, the EPA's key concern is the number of train movements and consequent number of noisy events that occur during night time within the Esperance town-site (between the hours of 22:00 and 6:00).

In simple terms, it would be open for the EPA to recommend the imposition of a Condition on the EsPA (as the proponent for the revised proposal) to limit the acceptance of iron ore trains to Port Authority land during night time. However, there are a number of issues and limitations that need to be considered with this approach.

To accommodate the anticipated increase in rates of iron ore export, it is understood that the Port, mining company and rail operator will continue to require ongoing 24-hour operations to satisfy freight demand. This means that it is unlikely that the rail operators will be able to practically address the noise issue through scheduling of train arrivals outside of night hours. It is therefore noted that this approach of restricting the arrival of train at the Port may not provide a practicable solution for the relevant operators nor would it satisfactorily address night time noise impacts from other users of the corridor i.e. trains and trucks transporting other products to the Port (eg. grain, nickel, potentially woodchips and sulphur in the future etc.).

Furthermore, the EsPA has indicated in the referral that while trains were in the past generally scheduled to avoid sensitive hours, train schedules were rarely adhered to and trains often arrived at all time of the day and night. It has also previously been noted in EPA Bulletin 989 that the EsPA has no control over train scheduling and operations and hence this raises limitations in terms of the ability of the proponent, by it self, to meet a Condition which would restrict the acceptance of iron ore trains at night.

In view of the above limitations, the EPA is recommending an alternative approach to address noise management from train movements along the PAC. Such an approach would require collaboration between the relevant Government agencies, local government and private operators in order to facilitate the timely implementation of a range of noise mitigation measures for the PAC. The EPA considers that this approach would avoid the need to impose impracticable constraints on the proponent particularly in terms of restricting the Port's acceptance of iron ore trains during night time. This approach also recognises that there needs to be shared responsibility for the management of noise emissions from the Corridor and that the implementation of noise mitigation measures such as the construction of noise barriers (discussed further below in (*iii*)) extends outside the sole jurisdiction of the EsPA and hence would require the participation of various agencies.

Ensuring the timely implementation of the various noise mitigation measures will require further work particularly in terms of scoping, costing and prioritising the various options described below in (*iii*). The EPA considers that this further work is most appropriately pursued through an Implementation Working Group with

membership of various Government agencies with a responsibility in transport infrastructure and planning.

Membership of the Group should include the EsPA, Shire of Esperance, Department for Planning and Infrastructure (DPI), Public Transport Authority, Main Roads Western Australia (MRWA) and the DoE with the potential involvement of users and the lessee of the transport corridor. The Working Group would have the objective of examining and recommending options for the timely implementation of the noise mitigation measures along the PAC to achieve as far as practicable the target noise levels described in *(i)* above. The EPA considers that the DPI as the agency with responsibility for preparing regional land and infrastructure capital investment proposals and timetables would be an appropriate agency to commission or facilitate the preparation of an (Staged) Implementation Program and hence give effect to the options recommended by the Working Group.

Taking into account the above, the EPA recommends that a revised Procedure be introduced into the recommended revised Implementation Statement (in Appendix 2) which provides for the establishment of a Working Group to examine the various noise mitigation measures available (further described below in (iii)), and recommend practicable options. The Procedure also provides for the development of an (Staged) Implementation Program which should include timelines for the staged implementation of noise mitigation measures, responsibilities for action, and allocation of resources and funds.

(iii) Potential Noise Mitigation Measures

There have been several studies which have recommended noise mitigation measures along the PAC. This includes the DPI commissioned draft report *Esperance Port Access Corridor Review: Stage 2 – An Assessment of Noise Impact and Land Use Planning Measures Along the Esperance Port Access Corridor* (hereafter referred to as the Stage 2 Report) and a strategic transport study commissioned by the Shire of Esperance (ERM, 1997). The EPA is aware that officers of the DoE have held discussions with representatives of the EsPA, Shire of Esperance, Australian Rail Group (ARG), and the DPI on potential noise mitigation measures that could be applied along the Corridor. Based on the previous studies and the advice of the DoE, noise mitigation measures relevant to the PAC are broadly considered to be:

- land use planning measures;
- measures to minimise train movements between the yard and the Port;
- infrastructure improvements along the Esperance Port Access Corridor; and
- freight operational measures.

These measures are further discussed below.

Land Use Planning Measures

It is has been observed that urban development in close proximity to the Corridor has continued over time with some urban developments being constructed as close as 40 meters to the railway line within the last four years. Controlling and influencing the standard of future urban development near the PAC to avoid conflict between

ongoing/increasing freight movement and urban amenity will therefore be an important part of any ongoing noise mitigation measure.

In broad terms, DPI's Stage 2 Report quantifies the noise impacts to surrounding residential areas, provides guidelines in terms of strategic land use planning and recommends appropriate ameliorative measures for new developments that could be required as a condition of planning approval (eg. development approval, subdivision approval).

The EPA is aware that the Shire of Esperance adopted an amendment to its Town Planning Scheme (Town Planning Scheme No 22, Amendment 20) in January 2004 which establishes a Special Control Area (Special Control Area No. 1 – Noise Attenuation Through Building Design) on both sides of the corridor and includes provisions where *'Council may require the design and construction of any dwelling approved within Special Control Area No 1 to include noise attenuation measures to minimise the impacts from the port service corridor upon the amenity of residences'*.

In terms of the interaction between the two, the Stage 2 Report provides the necessary technical noise information and guidance that the Shire requires to make informed planning decisions within the Special Control Area No. 1 to ensure future developments are not subject to unreasonable noise impacts from the Corridor. The information in the Stage 2 Report may also result in further detailed refinements to the Scheme provisions relating to the Special Control Area.

The EPA supports the use of the Stage 2 Report to guide and potentially refine the land use planning controls that have been initiated by the Shire. This would have the effect of reducing the potential noise impacts of current and future freight activity on the amenity of future urban developments that may occur along the corridor. It is noted that this work is progressing and does not require examination by the Working Group recommended in the revised Procedure.

Measures to minimise train movements between the yard and the Port

As indicated above, the extent of impacts on noise levels within the Esperance townsite, due to the current and predicted increase in the number of trains entering the Esperance rail yard, is exacerbated by the fact that each train requires six to eight movements between the rail yard and the Port.

Some of these movements (up to 4 movements per train) are generated when the locomotive returns to the rail yard by itself while the wagons are being unloaded at the Port. The locomotive then returns to collect the empty wagons when unloading has completed. ARG has advised that complaints about noise from the locomotives idling at the Port, refuelling the locomotives and the need to undertake maintenance work at the yard are the main reasons for these additional movements.

The acoustical study included in the referral documentation (Herring Storer Acoustics, 2005) commissioned by ARG, recommends that *'Consideration be given to keeping the locomotives at the Port rather than returning to the yard. Although this would not decrease the average noise levels, there would be less pass-by events and hence less maximum noise levels from the locomotives and train horns.'*

This recommendation is supported as it could halve the number of train movements required for the unloading of each train. Consideration needs to be given to providing facilities at the Port to give effect to this recommendation. Such facilities could include the construction of an acoustically treated shed at the Port to house idling locomotives and facilities to allow maintenance and refuelling work to be carried out on the locomotives while the wagons are being unloaded at the Port. Such facilities would need to be considered and examined by the Working Group and the relevant train operators such as ARG.

Infrastructure improvements along the Esperance Port Access Corridor

A real option for noise mitigation involves the attenuation of noise transmission through the use of barriers and/or bunds along the corridor. The EPA notes that the Stage 2 Report shows indicative noise barriers along the corridor where residential areas are susceptible to noise impacts from freight traffic. While it is noted that they are notional barriers, acoustical information presented in the Stage 2 Report suggests that the introduction of barriers at some locations could reduce noise levels by up to 6 dB(A). Subject to land availability, landscaped noise bunds together with barriers and/or dense vegetation could also be considered as an alternative to plain barriers in order to improve the visual amenity.

The EPA considers that the practicability of constructing the notional barriers and/or landscaped bunds should be further evaluated in terms of the engineering and land constraints, their effectiveness in terms of noise reduction potential and their practical implementation progressed as a matter of priority.

At the point of reception, mitigation can also be achieved by acoustic treatment of buildings (eg. heavy weight glazing and mechanical ventilation) or the relocation of sensitive land uses. Where noise barriers/bunds are found to be impracticable, the Working Group may need to consider this mitigation option for existing dwellings where the construction of the dwelling lends itself to such measures.

Other infrastructure improvements suggested in previous studies (ERM, 1997) and the Stage 2 Report, which would warrant further examination by the Working Group, include closing certain rail crossings or grade separations (i.e. building a bridge). These measures would have the effect of avoiding the need for sounding train horns at crossings. In addition to minimising noise emissions, it is understood that there are also traffic safety benefits associated with these measures.

Freight operational measures

The referral documentation included ARG's commitment to continue current operational measures for trains such as providing advanced train driver education and driver protocols aimed at reducing train noise. These include initiatives such as introducing operating methods to minimise rail braking noise and to reduce noise associated with train departures from the Port. It is noted that most of these measures are currently being implemented by ARG on a voluntary and an ongoing basis. While these measures are supported, the EPA notes that these measures, by themselves, are unlikely to effect significant reductions to the level of noise impacts on nearby urban areas to acceptable levels.

In addition to the measures currently being implemented by ARG, there needs to be further examination of other operational measures that could have the effect of minimising train noise from horns, wheel squeal and minimising movements.

Additionally, it is noted that the Stage 2 Report recommends that *'…alternative safety measures at level crossings should be investigated. For instance, a remote siren could be used that is activated by the driver, however the alarm itself is located at the crossing. This would allow the level of the alarm to be significantly lower as it is sounded from 100 metres away.'* This recommendation is supported as it would have the effect of reducing the extent of noise emissions from train horns and should be given due consideration by the Working Group and relevant rail operators.

Summary

Having particular regard to the:

- current and anticipated number of iron ore train movements between the yard and the Port being greater than the number of train movements considered by the EPA in its previous assessment of the Port Upgrade (EPA Bulletin 989);
- current and anticipated levels of noise impacts from the transport of iron ore to the Port are at the upper end of Exposure Level 2 and are likely to cause sleep disturbance to residents near the Corridor;
- limitations of imposing Conditions on the EsPA to address transport noise issues;
- need for an alternative approach involving the relevant Government agencies and local government to examine and implement various noise mitigation measures along the PAC; and
- range of noise mitigation measures that have been recommended through previous studies and by the DoE that are available as practical mitigation measures to achieve the target noise level described in (i) above,

it is the EPA's opinion that the revised proposal can be managed to meet the EPA's environmental objective for this factor provided that the recommended revised Procedure, which provides for the examination and timely implementation of noise mitigation measures by the relevant Government agencies and local government (by way of a Working Group) with the potential involvement of the relevant private operators, is satisfactorily implemented.

5. Conditions and Commitments

Section 44 of the *Environmental Protection Act 1986* requires the EPA to report to the Minister for the Environment on the environmental factors relevant to the proposal and on the Conditions and Procedures to which the proposal should be subject, if implemented. In addition, the EPA may make recommendations as it sees fit.

As indicated in Section 1, the previously approved proposal was 'Esperance Port – Upgrading of Marine Facilities' (1277) Statement 555. The revised proposal being assessed in this report provides for the increase in iron ore export from the Port of Esperance to a rate of up to 8 Mtpa.

The Conditions and Commitments imposed under Implementation Statement 555 (eg. in relation to seagrass and sediment monitoring) are still applicable to the overall proposal and have been reproduced in the recommended revised Implementation Statement in Appendix 2 along with the introduction of a revised table in Schedule 1 to specify the revised rate of iron ore export and revised numbers of train movements between the yard and the Port. As described in Section 4, the EPA has also recommended a new Procedure (Recommended Procedure 4) which provides for the examination and timely implementation of a range of noise mitigation measures for the PAC.

In summary, the revised recommended Implementation Statement in Appendix 2, broadly consists of; the Conditions and Commitments from the previous Statement 555, a revised Schedule 1 and a new Procedure (Procedure 4). If approved, the revised Implementation Statement would apply to the whole of the revised proposal and supersede the Conditions and Procedures in the previous Implementation Statement 555. This follows from Section 45B of the *Environmental Protection Act 1986,* where a set of Implementation Conditions would continue to apply to a revised proposal subject to a new set of revised Conditions and Procedures being agreed or decided under section 45 in relation to the revised proposal after the revised proposal has been referred to the EPA and assessed.

6. Other Advice

The focus of the EPA's assessment has been on noise emissions from the transport of iron ore trains as it is a direct result of the proponent's revised proposal to increase the rate of iron ore export from the Port. However, from the results of acoustical work made available in proponent's referral documentation and the DPI's Stage 2 Report, there are other notable sources of noise from the Corridor including trains carrying grain and nickel and also from heavy trucks carrying other products to the Port. Nickel trains are of particular concern as the louder L Class locomotives are currently being used, as opposed to the quieter Q Class. Heavy truck movements are also of concern with intrusive noise resulting from braking, engine noise on acceleration and gearbox noise. The standards of surface treatment of the road at some sections are also likely to influence noise from road freight.

In addition, the EPA has been made aware of the potential for freight activity to increase in the future from the increase in demand for products such as woodchips, sulphur and nickel.

In terms of addressing overall noise emissions generated by all users of the Corridor, the EPA considers that the noise mitigation measures discussed in Section 4.1 *(iii)* of this report such as the construction of barriers, closing rail crossings, treatments to existing residences and land use planning measures would have the benefit of not only reducing noise impacts from iron ore trains, but also noise from other freight activity.

In view of the different users of the corridor and the projected increase in freight traffic within the PAC, the EPA considers that the examination of the relevant noise mitigation measures by the Working Group would need to consider overall sources of noise emissions from the corridor and also anticipated increases in freight traffic as a

result of future development proposals. Timelines for the implementation of various measures should be accelerated where there are proposals resulting in an increase freight activity along the PAC.

Future development proposals that would result in an increase in freight activity along the PAC and hence further increase noise emissions are unlikely to be regarded by the EPA as environmentally acceptable unless it can be demonstrated that the implementation of relevant noise mitigation measures are being satisfactorily progressed.

Where such proposals are referred to the EPA, the EPA will consider the following in making a decision on those proposals:

- the advice provided in this report;
- the level of progress being made in relation the implementation of the various noise mitigation measures along the PAC; and
- the level of progress being made in relation to the target noise levels described in Section 4.1 *(i)* of this report.

7. Conclusion

The EPA has considered the revised proposal by EsPA to increase the rate of iron ore export from the Port to 8 Mtpa.

Based on the information provided in the referral documentation, the EPA considers that the existing Implementation Conditions (Ministerial Statement 555), together with the licence conditions issued by the DoE under Part V of the *Environmental Protection Act 1986* are able to satisfactorily manage the environmental impacts associated with the export of iron ore within the Port itself. In terms of noise emissions from within Port boundaries, the EPA notes that the proponent currently holds a Regulation 17 Approval, the *Environmental Protection (Port of Esperance Noise Emissions) Approval 2001*, and that an application to renew this approval has been submitted by the EsPA. In terms of dust emissions, iron ore will continue to be stored, handled and conveyed using existing enclosed infrastructure, dust extraction systems and managed under existing environmental management plans and procedures.

Noise from the rail transportation of iron ore to the Port is the key issue requiring consideration by the EPA. It is noted that current and anticipated number of iron ore train movements between the yard and the Port is clearly greater than the number of train movements considered by the EPA in its previous assessment of the Port Upgrade, and this increase requires assessment. Based on results of acoustical studies, the DoE has advised that noise emissions are likely to continue to cause significant sleep disturbance for residents, particularly in areas adjacent to level crossings. The EPA is concerned that this noise exposure is likely to cause unreasonable impacts on the amenity of people living in the vicinity of the PAC and lead to increased risk of cause health impacts if the noise exposure is continued unabated over a long period.

The EPA considers that if the revised proposal is to be approved without onerous restrictions on the proponent in relation to the acceptance of trains at the Port at night time, collaboration between the relevant Government agencies and local government will be required to examine and facilitate the timely implementation of noise mitigation measures along the Corridor.

A revised Procedure has been recommended as a means to achieve this. The revised Procedure provides for the establishment of an Implementation Working Group consisting of relevant Government agencies and the Shire of Esperance with potential involvement from the operators and lessee of the Corridor in order to examine and recommend practical noise mitigation options. Through this Working Group the EPA encourages detailed consideration to be given to ways and means of reducing the noise impacts of freight movement along the PAC. The most effective noise mitigation measure seems likely to be that of constructing noise barriers along the PAC combined with measures to minimise the number of train movements between the yard and the Port.

It is recommended that an Implementation Program be prepared to give effect to the recommendations of the Working Group by including timelines for implementation and by allocating responsibilities and resources to the relevant Government agencies.

In view of the above, the EPA considers that the environmental impacts associated with the revised proposal can be managed in an acceptable manner subject to the recommended revised Conditions and Procedures being imposed.

8. Recommendations

The EPA submits the following recommendations to the Minister for the Environment:

1. That the Minister notes that the revised proposal being assessed is to increase the rate of iron ore export from the Port to 8 Mtpa;
2. That the Minister considers the report on the relevant environmental factor as set out in Section 4;
3. That the Minister notes that the EPA has concluded that it is unlikely that the EPA's objectives would be compromised, provided there is satisfactory implementation by the proponent of the recommended revised Conditions and Procedures as set out in Appendix 2; and
4. That the Minister imposes the revised Conditions and Procedures recommended in Appendix 2 of this report.

Appendix 1

References

EnHealth Council (2004) *The health effects of environmental noise – other than hearing loss*. Department of Health and Ageing, Canberra.

EPA (2000) *Esperance Port Upgrade of marine facilities, incorporating change to existing Environmental Conditions and technical advice in support of Environmental Protection Noise Regulation 17 Approval Notice.* EPA Bulletin 989, Perth, Western Australia.

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Jansen G et al (2003) *Evaluation of Aircraft Noise – Protection of Residents*. Proceedings of the 8th International Congress on Noise as a Public Health Problem, Foundation ICBEN 2003, Schiedam, ed. The Netherlands, 2003.

Lloyd Acoustics (2005) *Esperance Port Access Corridor Review: Stage 2, An Assessment of Noise Impacts and Land Use Planning Measures Along the Esperance Port Access Corridor (Final Draft).* Prepared for Department for Planning and Infrastructure, April 2005.

World Health Organization (1999) *Guidelines for Community Noise*. Geneva.

World Health Organization (1980) *Environmental Health Criteria 12*. Geneva.

Western Australian Planning Commission *(Draft) Statement of Planning Policy: Road and Rail Transport Noise*. Perth, 2005.

Appendix 2

Recommended Environmental Conditions and Proponent's Consolidated Commitments

Statement No.

REVISED STATEMENT THAT A PROPOSAL MAY BE IMPLEMENTED (PURSUANT TO THE PROVISIONS OF THE ENVIRONMENTAL PROTECTION ACT 1986)

ESPERANCE PORT - UPGRADING OF MARINE FACILITIES &

INCREASE IN IRON ORE EXPORT THROUGH THE PORT OF ESPERANCE TO 8 MILLION TONNES PER ANNUM

Proposal: The upgrading of marine facilities consists of deepening berths 1 and 2, dredging of the harbour basin and shipping channel, construction of a new deepwater berth, reclamation of approximately 15 hectares of land, construction of a new iron ore shed and associated shiploading and conveyor systems, and an increased throughput of iron ore to 8 million tonnes per annum, as detailed in schedule 1 of this statement.

Proponent: Esperance Port Authority

Proponent Address: PO Box 35, ESPERANCE WA 6450.

Assessment Numbers: 1277 & 1576

Report of the Environmental Protection Authority: Bulletins 989 & 1184

The revised conditions and procedures of this statement supersede those conditions and procedures of statement 555 in accordance with section 45B of the Environmental Protection Act 1986.

The revised proposal to which the above report of the Environmental Protection Authority relates may be implemented subject to the following revised conditions and procedures:

1 Implementation

1-1 Subject to these revised conditions and procedures, the proponent shall implement the revised proposal as documented in schedule 1 of this statement.

2 Proponent Commitments

2-1 The proponent shall implement the environmental management commitments documented in schedule 2 of this statement.

3 Proponent Nomination and Contact Details

3-1 The proponent for the time being nominated by the Minister for the Environment under section 38(6) or (7) of the Environmental Protection Act 1986 is responsible for the implementation of the revised proposal until such time as the Minister for the

Environment has exercised the Minister's power under section 38(7) of the Act to revoke the nomination of that proponent and nominate another person in respect of the proposal.

3-2 If the proponent wishes to relinquish the nomination, the proponent shall apply for the transfer of proponent and provide a letter with a copy of this statement endorsed by the proposed replacement proponent that the revised proposal will be carried out in accordance with this statement. Contact details and appropriate documentation on the capability of the proposed replacement proponent to carry out the proposal shall also be provided.

3-3 The nominated proponent shall notify the Department of Environment of any change of contact name and address within 60 days of such change.

4 Commencement and Time Limit of Approval

4-1 The proponent shall substantially commence the revised proposal within five years of the date of this statement or the approval granted in this statement shall lapse and be void.

Note: The Minister for the Environment will determine any dispute as to whether the proposal has been substantially commenced.

4-2 The proponent shall make application for any extension of approval for the substantial commencement of the revised proposal beyond five years from the date of this statement to the Minister for the Environment, prior to the expiration of the five-year period referred to in condition 4-1.

The application shall demonstrate that:

1 the environmental factors of the proposal have not changed significantly;

2 new, significant, environmental issues have not arisen; and

3 all relevant government authorities have been consulted.

Note: The Minister for the Environment may consider the grant of an extension of the time limit of approval not exceeding five years for the substantial commencement of the proposal.

5 Compliance Auditing and Performance Review

5-1 The proponent shall prepare an audit program and submit compliance reports to the Department of Environment which address:

1. the status of implementation of the revised proposal as defined in schedule 1 of this statement;

2. evidence of compliance with the conditions and commitments; and

3. the performance of the environmental management plans and programs.

Note: Under sections 48(1) and 47(2) of the *Environmental Protection Act 1986*, the Chief Executive Officer of the Department of Environment is empowered to monitor the compliance of the proponent with the statement and should directly receive the compliance documentation, including environmental management plans, related to the conditions, procedures and commitments contained in this statement.

6 Environmental Management System

6-1 In order to manage the environmental impacts of the project, and to fulfil the requirements of the conditions and procedures in this statement, prior to commissioning of the new port facilities, the proponent shall demonstrate to the requirements of the Minister for the Environment on advice of the Environmental Protection Authority that there is in place an environmental management system which includes the following elements:

1 An environmental policy and corporate commitment to it;

2 Mechanisms and processes to ensure:

- planning to meet environmental requirements;
- implementation and operation of actions to meet environmental requirements;
- measurement and evaluation of environmental performance; and

3 Review and improvement of environmental outcomes.

6-2 The proponent shall implement the environmental management system referred to in condition 6-1.

7 Seagrass Management

7-1 Prior to the commencement of dredging operations, the proponent shall incorporate management measures for seagrass management within the Dredging and Reclamation Management Plan (See commitment 2.1), to the requirements of the Minister for the Environment on advice of the Environmental Protection Authority.

7-2 Prior to commencing post reclamation and breakwater construction activities, the proponent shall determine and document the area of seagrass coverage within the provisional seagrass management unit (see Figure 3, schedule 1), to the requirements of the Minister for the Environment on advice of the Environmental Protection Authority.

The objectives of this investigation are to:

- confirm that seagrass losses are consistent with management objectives for seagrass communities in the management unit; and
- determine total seagrass coverage for future management decisions.

This determination shall include:

1. confirmation of the seagrass management unit area and boundary limits;
2. an estimate of historical losses;
3. confirmation of losses due to the implementation of the proposal; and
4. cumulative losses to date.

7-3 Within two weeks following completion of reclamation, the proponent shall record baseline seagrass coverage along the seaward edge of the reclamation area, and then immediately commence a monitoring program of seagrass habitat to determine further seagrass community losses resulting from reclamation activities, to the requirements of the Minister for the Environment on advice of the Environmental Protection Authority.

This monitoring program shall be undertaken at six monthly intervals and run initially for a period of two years. At the end of this two-year period, the proponent shall report the results to the Environmental Protection Authority.

7-4 The Environmental Protection Authority will review the need for further monitoring after two years.

7-5 In the event that unexpected or adverse impacts are detected, the proponent shall report these to the Environmental Protection Authority within one month.

8 Sediment Quality Management

8-1 On commencement of reclamation activities, the proponent shall analyse tri-butyl tin and nickel levels in the reclamation fill material to confirm tri-butyl tin and nickel levels in that material. The results of these analyses shall be reported to the Environmental Protection Authority throughout the reclamation activity.

8-2 The proponent shall compare the tri-butyl tin and nickel levels in sediment immediately adjacent to the reclamation site, as determined in the proponent's monitoring program referred to in commitment 8, with the Southern Metropolitan Coastal Waters Study (1996) criteria, or other criteria as appropriate, to ensure that acceptable criteria are met, to the requirements of the Minister for the Environment on advice of the Environmental Protection Authority.

Note: As part of the Dredging and Reclamation Management Plan (See commitment 2.1), the proponent is required to outline contingency measures to be implemented in the event that tri-butyl tin and nickel levels in the reclamation fill material exceed agreed criteria (agreed between the Environmental Protection Authority and the proponent) as determined in the harbour sediment survey undertaken during the preparation of the public environmental review document.

8-3 Within three months following completion of construction of the new port facilities, the proponent shall prepare a Sediment Quality Management Plan for port operations to:

• ensure that sediment quality outside the inner harbour complies with Environmental Quality Criteria identified in the Southern Metropolitan Coastal Waters Study (1996), or

other criteria as appropriate, consistent with identified Environmental Quality Objectives outside the inner harbour; and

• ensure that operational activities have no significant impact on beneficial users outside the inner harbour,

to the requirements of the Minister of the Environment on advice of the Environmental Protection Authority.

This plan shall address:

1 Potential impacts of port operations;
2 Monitoring protocols, including frequency and duration of sampling;
3 Sediment quality criteria;
4 Management measures; and
5 Contingency plans in the event of spill incidents or unexpected results demonstrated by the plan.

8-4 The proponent shall implement the Sediment Quality Management Plan required by condition 8-3.

8-5 The Environmental Protection Authority will review the need for further monitoring after two years pending the results reported.

8-6 In the event that unexpected or adverse impacts are detected, the proponent shall report these to the Environmental Protection Authority within one month.

9 Shutdown Provisions

9-1 In the event that dust from iron ore operations is affecting, or likely to affect, surrounding landuses, the proponent shall cease iron ore handling operations to the requirements of the Minister for the Environment.

10 Decommissioning Plan

10-1 At least six months prior to the anticipated date of decommissioning, or at a time agreed with the Minister for the Environment, the proponent shall prepare a Decommissioning Plan designed to ensure that the site is left in a suitable condition, with no liability to the State, to the requirements of the Minister for the Environment on advice of the Environmental Protection Authority.

The Decommissioning Plan shall address:

1 removal or, if appropriate, retention of plant and infrastructure;

2 rehabilitation of all disturbed areas to a standard suitable for the agreed new land use(s); and

3 identification of contaminated areas, including provision of evidence of notification to relevant statutory authorities.

10-2 The proponent shall implement the Decommissioning Plan required by condition 10-1 until such time as the Minister for the Environment on advice of the Environmental Protection Authority determines that decommissioning is complete.

10-3 The proponent shall make the Decommissioning Plan required by condition 10-1 publicly available, to the requirements of the Minister for the Environment on advice of the Environmental Protection Authority.

11 Performance Review (Dust and Noise)

11-1 Each three years following the commissioning of the new port facilities, the proponent shall submit a Performance Review report to the Department of Environment:

- to document the outcomes, beneficial or otherwise;
- to review the success of goals, objectives and targets; and
- to evaluate the environmental performance with respect to dust and noise over the three years;

relevant to the following:

1 environmental objectives reported on in Environmental Protection Authority Bulletin 989;

2 proponent's consolidated environmental management commitments documented in schedule 2 of this statement and those arising from the fulfilment of conditions and procedures in this statement;

3 environmental management system environmental performance targets;

4 environmental management programs and plans; and/or

5 environmental performance indicators;

to the requirements of the Minister for the Environment on advice of the Environmental Protection Authority.

Note: The Environmental Protection Authority may recommend changes and actions to the Minister for the Environment following consideration of the Performance Review report.

Note

1 The Minister for the Environment will determine any dispute between the proponent and the Environmental Protection Authority or the Department of Environment over the fulfilment of the requirements of the conditions.

2 The proponent is required to operate in accordance with a Licence for this project under the provisions of Part V of the *Environmental Protection Act 1986*.

3 Conditions to manage noise related to this proposal will form part of an Approval Notice to be gazetted pursuant to Regulation 17 of the Environmental Protection (Noise) Regulations 1997.

Procedures

1 Where a condition states "to the requirements of the Minister for the Environment on advice of the Environmental Protection Authority", the Environmental Protection Authority will provide that advice to the Department of Environment for the preparation of written notice to the proponent.

2 The Environmental Protection Authority may seek advice from other agencies or organisations, as required, in order to provide its advice to the Department of Environment.

3 Where a condition lists advisory bodies, it is expected that the proponent will obtain the advice of those listed as part of its compliance reporting to the Department of Environment.

4 To minimise and ameliorate the adverse impacts of transport noise from the Esperance Port Access Corridor serving the Port of Esperance, the Minister for the Environment and the Minister for Planning and Infrastructure have agreed that the following agencies: Shire of Esperance; Department for Planning and Infrastructure; Esperance Port Authority; Main Roads Western Australia; Public Transport Authority; and Department of Environment will collaborate to facilitate the examination and timely implementation of noise mitigation measures for the Corridor during the implementation of the revised proposal.

a) The above will occur by way of the Department for Planning and Infrastructure establishing an Esperance Port Access Corridor Working Group to examine and recommend the implementation of noise mitigation and amelioration measures.

b) The Working Group will have the following membership:

- Department for Planning and Infrastructure;
- Esperance Port Authority;
- Main Roads Western Australia;
- Public Transport Authority;
- Department of Environment; and
- Shire of Esperance.

Note: The WestNet Rail as the lessee of the rail corridor and the Australian Railroad Group and other users of the Corridor may be involved in providing advice to the Group.

c) The Working Group referred to in b). will *inter alia*:

Infrastructure Improvements

i) identify and examine the practicability of potential infrastructure improvements at the Esperance Port with the objective of minimising the number of train movements required between the rail yard and the Esperance Port;

ii) identify and examine the practicability of potential for infrastructure improvements along the Esperance Port Access Corridor (particularly between the rail yard and the Esperance Port) with emphasis on examining the practicability of staged construction of noise barriers and/or alternative noise attenuating structures (eg. earth bunds together with barriers and dense vegetation);

iii) identify sensitive residences along the Esperance Port Access Corridor (particularly between the rail yard and the Esperance Port) that could be targeted for amelioration measures where the construction of the noise barriers referred in ii) is found to be impracticable;

iv) identify and examine the practicability of road/rail intersections along the corridor that would benefit from infrastructure improvements such as road bridges;

Operational Improvements

v) examine and recommend alternative safety measures for vehicles and pedestrians at road/rail crossings to avoid the need for sounding train horns; and

vi) examine and recommend logistic and operational improvements to freight activities in order to minimise noise emissions and the number of train movements required between the rail yard and the Esperance Port.

Note: Further details on items i) to vi) are provided in the Report and Recommendations of the Environmental Protection Authority, Bulletin 1184.

d) The Working Group will substantially complete a report which examines the costs and benefits of the items referred to in c) and recommend preferred options for the practical and staged implementation of noise mitigation and management measures for the Esperance Port Access Corridor to the Minister for Planning and Infrastructure and the Minister for the Environment for endorsement by 31 December 2005.

e) The Department for Planning and Infrastructure will develop an Implementation Program based on the recommendations of the Working Group's report referred to in d) by 31 March 2006. The Program will include timeframes for the staged implementation of noise amelioration measures, responsibilities for action, and allocation of resources.

Schedule 1

The Revised Proposal (1277 &)

Esperance Port is situated immediately east to south-east of the town of Esperance and provides a dominant feature in the region (Figure 1).

The upgrading of marine facilities consists of:

1. deepening berths 1 and 2;
2. dredging of the harbour basin and entry channel;
3. construction of a new deepwater berth;
4. reclamation of approximately 15 hectares of land;
5. construction of a new iron ore shed; and
6. installation of associated shiploading and conveyor systems.

The proposal is totally within Port Authority boundaries and port-controlled waters.

The revised proposal involves exporting iron ore from Esperance Port at a rate of 8 million tonnes per annum.

See Table 1 – Key Proposal Characteristics (attached).

Plans (attached)

Figure 1: Proposal location, showing proximity of port to townsite.
Figure 2: Esperance Port Upgrade - key proposal characteristics.
Figure 3: Proposed seagrass management unit.

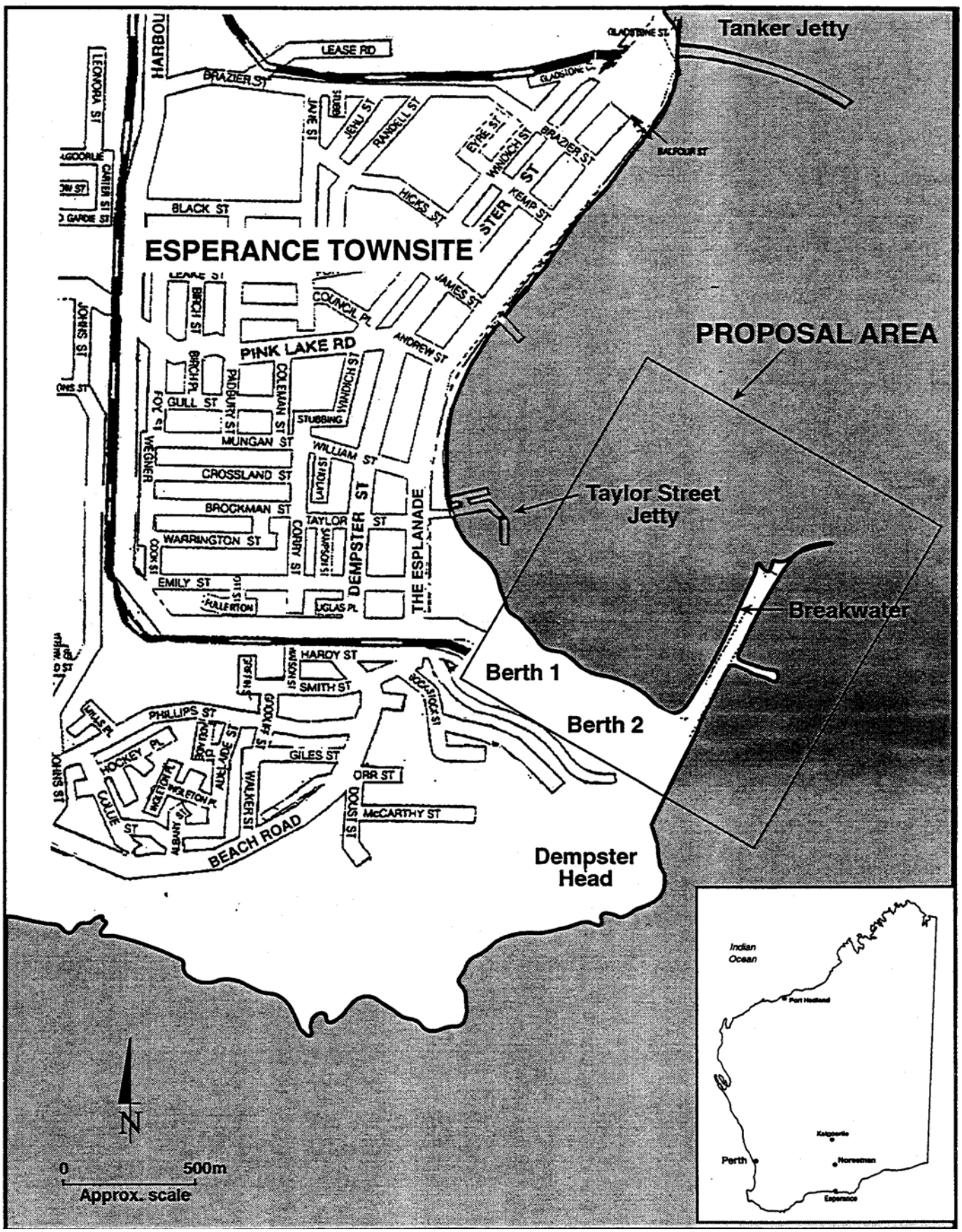

Figure 1: Proposal location, showing proximity of port to townsite.

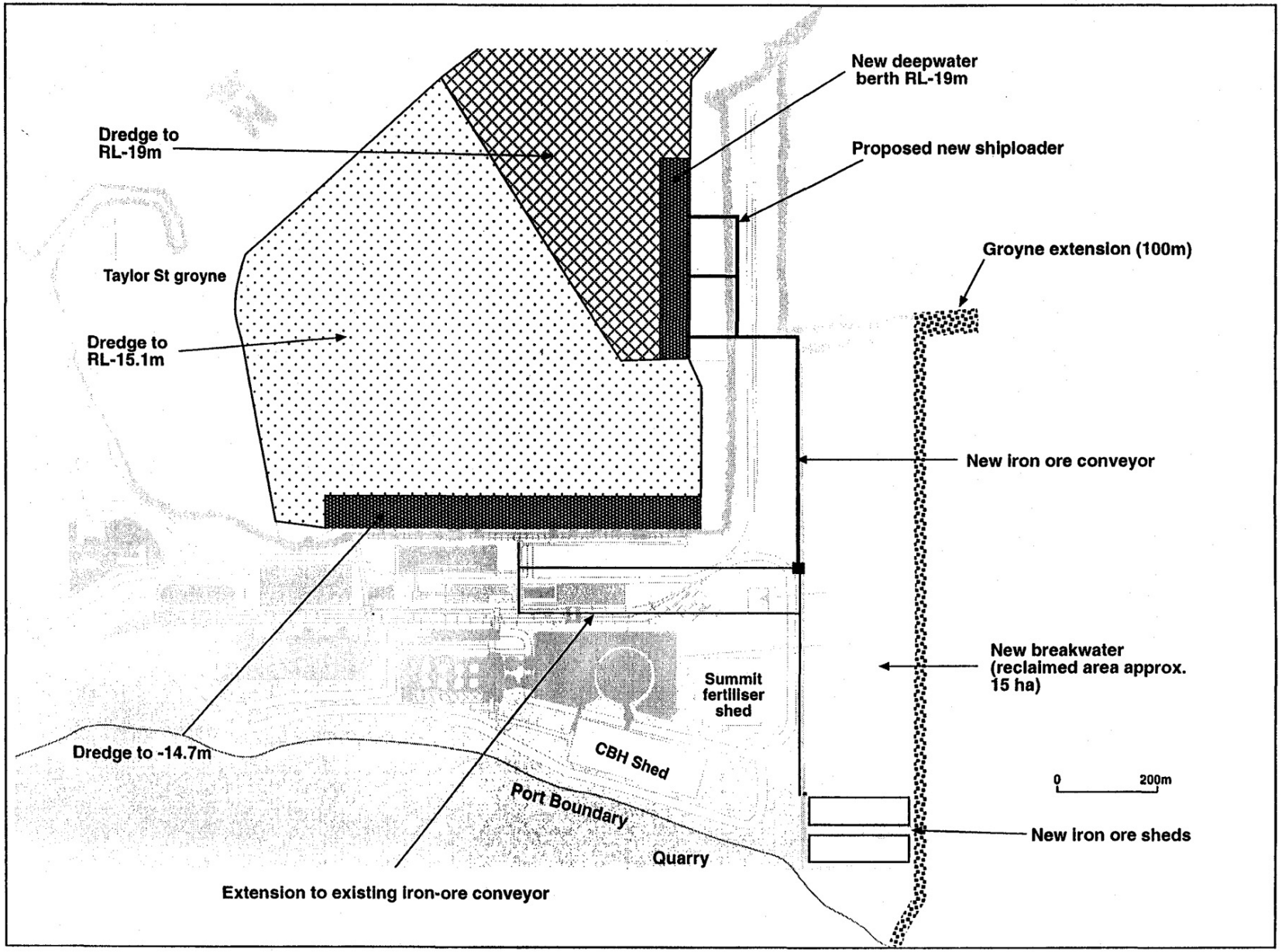

Figure 2: Esperance Port Upgrade - key proposal characteristics.

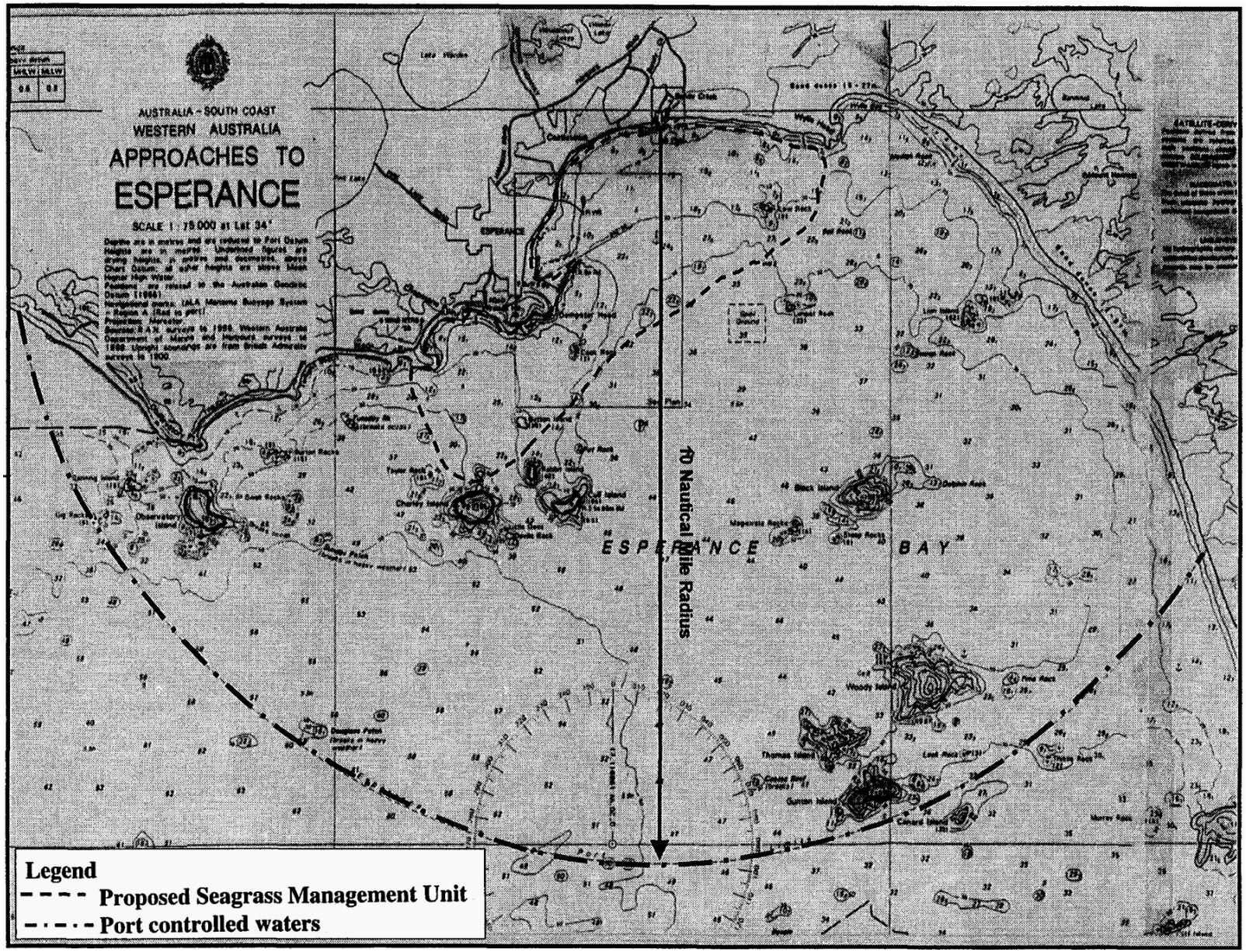

Figure 3: Proposed seagrass management unit.

Table 1 - Key Proposal Characteristics (1277 &)

Element	Description
Dredge the harbour basin and Berths 1 & 2.	• Deepen Berths 1 & 2 from -12.5 metres (reduced level) to -14.7 metres (reduced level). • Deepen harbour basin from approximately -12.8 metres (reduced level) to -15.1 metres (reduced level). • Dredge an area of approximately 50 hectares. • Generate approximately 1,500,000 cubic metres of dredged material.
Extend the existing groyne, relocate the existing breakwater and construct a new breakwater.	• Extend existing 170 metre groyne by an additional 100 metres. • Widen the base of the existing breakwater by approximately 200 metres. • Build a new breakwater, approximately 700 metres long. • Construct a sand apron seaward of the breakwater as a protective measure against erosion.
Reclaim land on the south easterly side of the Port.	• Pump dredged material to behind the new breakwater. • Reclaim approximately 15 hectares.
Construct third berth.	• Construct new deep draft berth and shipping channel along the shoreward side of the existing harbour breakwater. • Deepen new berth and shipping channel to -19 metres (reduced level).
Construct iron ore ship outloading and handling equipment.	• Construct an iron ore shiploader designed to suit Cape Class vessels. • Construct new iron ore conveyor and handling equipment.
Construct an additional iron ore storage shed.	• Construct shed with a capacity of 200,000 tonnes (nominally 300 metres x 60 metres, and 22 metres high).
Timing of construction activities.	• The proposal will commence as soon as all approvals are granted and will take approximately 20 – 24 months to complete. • Dredging and breakwater relocation is expected to take 9 months. • Construction of the third berth and the iron ore shiploader is expected to take 15 months. • Construction of additional iron ore storage and handling facilities is expected to take 12 months.
Ongoing Operation.	• *Iron ore delivered to the Port by rail will occur at a rate of up to 8 million tonnes per annum.* • *Iron ore export from the Port will occur at a rate of up to 8 million tonnes per annum.* • *The number of iron ore trains from the mine to the rail yard will increase from 14 to an average of 20 iron ore trains per week.* • *The Esperance Port Authority will accept of up to 80 iron ore trains per week (with and without wagons).*

Schedule 2

Proponent's Consolidated Environmental Management Commitments

October 2000

ESPERANCE PORT - UPGRADING OF MARINE FACILITIES

ESPERANCE PORT AUTHORITY

SUMMARY OF PROPONENT'S ENVIRONMENTAL MANAGEMENT COMMITMENTS – ESPERANCE PORT – UPGRADING OF MARINE FACILITIES (1277)

No.	Topic		Action	Objective	Timing	Advice
CONSTRUCTION PHASE (RECLAMATION, DREDGING AND LAND-BASED CONSTRUCTION)						
1.	Environmental Management.	1.1	Prepare an Environmental Management Program (EMP) for construction works. Program to detail; 1. responsibility; 2. potential environmental impacts; 3. management and monitoring programs; 4. incident reporting; and 5. corrective and preventative action.	To manage environmental issues associated with construction activities.	Prior to commencement of construction.	Shire of Esperance
		1.2	Implement EMP.		During construction phase	
2.	Marine water and sediment quality	2.1	Develop a Dredging and Reclamation Management Plan (DRMP). The plan shall address: 1 Dredging and reclamation methods; 2 Assessment of potential impacts; 3 Contamination assessment; 4 Disposal of sediments and slurry; 5 Monitoring plans and water quality criteria; 6 Management measures; and 7 Contingency measures.	Maintain water quality within the inner harbour at pre-construction levels and ensure dredging and reclamation activities have no long term significant impact on overall water quality of the harbour or beneficial users outside the inner harbour	Prior to the commencement of dredging operations.	Shire of Esperance.

		2.2	Implement DRMP.		At commencement of and during dredging and reclamation operations.	
3.	Sediment Quality	3.1	Analyse levels of tri-butyl tin and nickel in all material proposed for beach renourishment.	Confirm tri-butyl tin levels in material. Ensure nickel levels within acceptable limits as specified under the National Environment Protection (Assessment of Site Contamination) Measure.	During disposal or relocation of material.	
		3.2	Report results of sediment analysis		During disposal or relocation of material	
4.	Noise	4.1	Comply with Australian Standard 2436-1981 Guide to Noise Control on Construction, Maintenance and Demolition Sites and Environmental Protection (Noise) Regulations 1997 (EPNR), in accordance with EPA Guidance No. 8, Environmental Noise (1998)	Ensure noise impacts resulting from construction activities comply with statutory requirements.	During construction.	
		4.2	Prepare a construction noise management plan (CNMP) in accordance with EPNR.	Ensure noise impacts resulting from construction activities comply with statutory requirements.	Prior to commencement of construction.	Shire of Esperance
		4.3	Implement CNMP.		During construction	
5.	Air Quality	5.1	Develop a dust management plan for construction activities.	Protect surrounding landuses and environmental values.	Prior to commencement of reclamation and land construction works.	Shire of Esperance

		5.2	Implement dust management plan		During reclamation and other construction activities.	
6.	Visual amenity	6.1	Locate and install new port infrastructure consistent with details provided in section 6.3.1 of the Public Environmental Review (See schedule 2, attachment A).	To minimise visual intrusion.	Prior to construction of land based infrastructure components.	
PORT OPERATIONS						
7.	Environmental Management.	7.1	Review and update existing port operations EMP to incorporate the individual management and/or monitoring plans/programs specified in commitments 8 – 16.	Manage environmental issues identified through the upgrade assessment.	Prior to commissioning of new port facilities.	Shire of Esperance
		7.2	Implement EMP through an Environmental Management System		Operation	
8.	Marine Flora and Fauna	8.1	Prepare a program of on-going biological monitoring. Program to include: 1 Monitoring of potential tri-butyl tin and nickel leaching from reclamation area; and 2 appropriate remedial and contingency measures.	Ensure operational phases of the proposed upgrade have no adverse off-site impacts outside the inner harbour.	Prior to the completion of reclamation works.	Coastcare

		8.2	Implement biological monitoring program.		Immediately post reclamation/ dredging activities at six monthly intervals. Review after 2 years with need for further monitoring dependent on results.	
		8.3	Report results of biological monitoring program.		Annual reporting if unexpected or negative impacts. Otherwise at 2 year review.	

9.	Coastal processes and littoral drift.	9.1	Review and update coastal processes monitoring program and incorporate management plans for long term resolution of beach erosion issues. Program to address: 1. historical aspects of beach erosion; 2. agreed amenity value of beach; 3. specifications for the quantity of suitable material for beach renourishment; 4. identification of suitable source of beach renourishment material; 5. investigation of management measures to address beach erosion; 6. a framework for appropriate management actions; 7. monitoring; and 8. participation of proponent with other relevant agencies to develop and implement management strategy to address beach erosion.	Ensure proposed upgrade: • does not exacerbate existing beach erosion problems; • provides a mechanism for implementing management measures if impacts are noted; • provides a mechanism for the development and implementation of solutions to the historical problem of beach erosion issues at Esperance.	Prior to commencing post-reclamation phase.	Coastcare, Shire of Esperance and Transport WA.
		9.2	Implement coastal processes monitoring program, incorporating management strategies.		During port operations.	
10.	Introduction of foreign species.	10.1	Participate in a recognized program of research co-ordinated by the Centre for Research on Introduced Marine Pests	Maintain diversity of local marine flora and fauna.	Within next 5 years.	CSIRO

		10.2	Adopt strategies consistent with AQIS guidelines for ballast water management.	Minimise risk of introduction of unwanted marine organisms.	Within 6 months following completion of construction activities.	AQIS
		10.3	Continue prohibiting in-water hull cleaning in port controlled waters	Minimise risk of introduction of unwanted marine organisms.	During port operations	
11.	Marine water and sediment quality.	11.1	Review and update ship/shore cargo handling procedures.	Minimise spill incidents resulting from loading operations.	Within 3 months following commencement of dredging operations.	
		11.2	Review and update oil spill management strategy.	Maintain water quality within Esperance Harbour and areas adjacent to shipping channels.	Within 3 months following commencement of increased shipping operations.	State Combat Committee for Oil Spill Management, Transport WA.
12.	Noise (operations)	12.1	Prepare noise monitoring and management plan (NMMP) consistent with any statutory mechanisms and approvals.	Ensure noise impacts resulting from on-going operations comply with statutory requirements.	Prior to commissioning new port facilities	Shire of Esperance
		12.2	Implement NMMP.		During port operations	
13.	Noise (traffic)	13.1	Establish an agreed code of conduct for train drivers and alternative locomotive practices in consultation with Westrail.	Manage impact to noise sensitive premises from increased traffic movement.	Prior to increasing iron-ore throughput.	Westrail (or other relevant rail operator).
		13.2	Implement the agreed Code of Practice		During port operations.	Westrail(or other relevant rail operator).

14.	Air Quality.	14.1	Review and update dust monitoring and management plan for port operations to accommodate upgrade (as required by Works Approval, Licence or Registration).	Protect surrounding landuses and environmental values.	Prior to increasing iron ore throughput.	Shire of Esperance.
		14.2	Implement revised dust monitoring and management plan.		During port operations	
		14.3	Enclose all iron-ore conveyors and transfer towers.	Protect surrounding landuses and environmental values.	During construction	
15.	Community liaison	15.1	Review and update community liaison procedures.	To maintain and develop communication links between the proponent and local residents to ensure the public is aware of project progress through design, commissioning and operational phases.	Prior to increase in iron ore throughput.	Shire of Esperance.
		15.2	Implement community liaison procedures.		Prior to increase in iron ore throughput.	
16.	Public Health and Safety (Traffic management)	16.1	Prepare a traffic management plan in consultation with relevant stakeholders.	Manage impacts resulting from additional rail movements associated with an increased iron ore throughput.	Prior to increased iron ore throughput.	Shire of Esperance, Westrail (or relevant rail authority), MRWA and Transport WA

		16.2	Implement traffic management plan in conjunction with relevant stakeholders.		During operations associated with increase in iron ore throughput.	Shire of Esperance, Westrail (or relevant rail authority), MRWA and Transport WA.

Abbreviations:

AQIS	Australian Quarantine and Inspection Service
CSIRO	Commonwealth Scientific & Industrial Research Organisation
DEP	Department of Environmental Protection
MRWA	Main Roads Western Australia