4

Issues

Construction options

4.1 The Department of Transport and Regional Services (DoTRS) submission to the Inquiry provided for the proposed freight and passenger facilities at Rumah Baru, comprising the Offshore island, Access Bridge and Onshore facilities, to be constructed as a single project.

4.2 DoTRS argues that this option would allow for economies of scale and a one-off mobilisation of plant and equipment to the Islands, making this both a cost-effective and viable option, subject to funds availability.

4.3 DoTRS advised, however, that there are other development options, based on the Offshore Island concept, for the construction of freight and passenger facilities at Rumah Baru. These address alternative funding scenarios, namely:

- minimal level of development (Option 1); or
- staged development (Option 2).

Option 1: Minimal level of development: jetty and barge ramp

4.4 This option would provide a minimal level of development required to provide an operational facility within the potential funding available (as at Map 3). It includes:

- 200 metre long jetty;
- ferry landing alongside the jetty;
- barge ramp located alongside jetty;

- single containers transported on the *Biar Berjaya* able to be unloaded using the barge ramp;
- 200 metre long dredged channel (dredged to RL-1.5 CD);
- elevated unsealed access road and raised base for shore facilities ie carpark, container storage, semi trailer parking and manoeuvring;
- passenger shelter and ablution facilities onshore;
- allowance for engineering services ie power, telephone, water, sewerage and fuel. Power, telephone and fuel will be provided to the jetty and water and sewerage to the onshore ablution facilities; and
- design life of 50 years.

4.5 This option does not include the following features:

- Offshore Island;
- berthing facilities for the *Jasa Cocos* dumb barge;
- relocation of 50 tonne mobile crane from Home Island;
- sealing of access road, car park and hardstand area for container storage, semi trailer parking and manoeuvring for onshore facilities;
- passenger shelter to the jetty; and
- quarantine facilities.

4.6 The estimated additional cost to provide sealing to the access road, car park and hardstand area for container storage, semi trailer parking and manoeuvring for on-shore facilities and passenger shelter to the jetty in order to provide facilities of equivalent standard to Option 3 (with the exception of the Offshore Island, berthing facilities for the *Jasa Cocos* dumb barge, relocation of 50 tonne mobile crane from Home Island and quarantine facilities) is $850,000.

Disadvantages of Option 1

4.7 The jetty and barge ramp option has the following inherent disadvantages:

- the jetty is significantly more exposed to wind and wave action since no sheltered protection is provided, as would be offered by the Offshore Island;
- continuation of unacceptable levels of lagoon closures because the jetty does not offer sheltered protection for berthing of ferries and the barge;
- the jetty does not provide turning circles for freight and other vehicles as offered by the Offshore Island;

- the truck and container trailers must reverse along the entire length of the jetty to access the barge ramp;
- safety bollards are required along the sides of the Jetty since reversing of vehicles is required;
- increased pedestrian use of the jetty due to difficulties reversing the bus once passengers are transferred at the end of the jetty;
- the jetty does not provide berthing facilities for the *Jasa Cocos* dumb barge which would allow multi-container freight movements. As a result, the barge ramp could only transfer single containers on trailers from the *Biar Berjaya* barge;
- no provision for the 50 tonne mobile crane to operate at the end of the jetty;
- fuel lines would be suspended over the water since fuel facilities need to be located onshore at Rumah Baru due to difficulties for the fuel tanker accessing the end of the jetty; and
- difficulties in maintaining continued operation of the jetty facilities during construction of an Offshore Island, if this is added in the future.

Option 2: Staged development: Offshore Island and Access Bridge

4.8 This option would allow for completion of the Offshore Island, Access Bridge and onshore facilities in two stages over a period of 5 years.

Stage 1

4.9 Stage 1 would provide a minimal cost Offshore Island development relative to the potential funding available.

4.10 This would allow for construction between financial years 2001/2002 and 2003/2004 and would provide a minimal island solution without the provision of any engineering services. It would allow for the relocation of freight and passenger transport operations to Rumah Baru, but critically would not provide any refuelling facilities. In addition, the revetment wall provided would have a limited design life of approximately three years. Although the Longard tube construction material used in the revetment wall is durable to exposure from ultraviolet rays, sizeable punctures in the tubes could be expected to occur after approximately three years. This would be caused by external abrasion from sharp coral fragments coming into contact with the Longard tubes due to wave action.

4.11 The Stage 2 option includes the following:

- 200 metre long access bridge;
- Offshore Island (55metres x 85metres) with limited design life (approximately three years) revetment wall constructed from Longard tubes, but excluding concrete block armoured revetment wall and pavement;
- a barge landing ramp;
- ferry berthing facilities at Offshore Island;
- 400 metre long dredged channel (dredged to RL-2.0 CD) and berthing swing basin;
- 50 tonne mobile crane relocated from Home Island; and,
- elevated unsealed access road and raised base for shore facilities ie carpark, container storage, semi trailer parking and manoeuvring.

4.12 This option does not include the following:

- allowance for engineering services ie power, telephone, water, sewerage and fuel;
- passenger shelter and ablution facilities on-shore;
- passenger shelter on the Offshore Island;
- sealing of access road, car park and hardstand area for container storage, semi trailer parking and manoeuvring for shore based activities;
- concrete block armoured revetment wall;
- provision for water treatment and drainage at the Offshore Island;
- Offshore Island pavement;
- Offshore recreation boat launching ramp; and
- quarantine facilities on Offshore Island.

4.13 DoTRS advised that Stage 1 should not be constructed if funds are not agreed for Stage 2 as it has only a limited design life.

Stage 2

4.14 Stage 2 is scheduled for financial years 2004/2005 – 2005/2006 and would provide the additional facilities necessary to allow for completion of the Offshore Island, Access Bridge and onshore facilities as per Option 3.

4.15 This stage would include the provision of engineering services, construction of ferry jetty, recreation boat launching ramp, construction of passenger waiting hall and ablution facility on-shore, construction of passenger shelter on the Offshore Island, concrete block armoured revetment wall, provision of Offshore Island pavement, sealing of access road and on-shore areas for parking, container storage and manoeuvring.

Additional costs in Option 2 for staging

4.16 The estimated additional cost for a staged solution is $2 million. This includes the costs for letting two separate smaller scale contracts in comparison to a single contract with resulting economies of scale. It also includes additional escalation between Stage 1 and Stage 2 contracts, remobilisation costs for Stage 2 and making good and rework of Stage 1 elements in the construction of Stage 2.

Option 3: Offshore Island and Access Bridge development without staging

4.17 DoTRS argues that this option is the most cost effective option subject to funds availability and includes the minimum facilities for freight and passenger transport considered necessary to meet the needs of the Cocos (Keeling) Islands Community (as at Maps 4-9).

4.18 This option includes the following:

- 200m long Access bridge;
- Offshore Island (55m x 85m);
- Offshore Island pavement;
- Offshore Island barge landing ramp;
- Offshore Island recreation boat launching ramp;
- ferry berthing facility at Offshore island;
- piled jetty for small vessel berthing and transfer of passengers and supplies;
- 50 tonne mobile crane to be relocated from Home Island;
- passenger shelter on the Offshore Island;
- quarantine facilities on Offshore Island;
- provision for water treatment and drainage on the Off-Shore Island;
- provision of services on Offshore Island including Power, Telephone, Water and Fuel;

- 400m long dredged channel (dredged to RL-2.0 CD) and dredged berthing swing basin;
- passenger shelter and ablution facilities on-shore;
- elevated sealed access road and raised base for shore facilities including carpark, container storage, semi trailer parking and manoeuvring for on-shore activities; and
- design life of 50 years.[1]

Cost of the project

4.19 GHD informed the Committee that the estimated cost of Option 1 is $10.2 million, which can be funded by an adjustment of priorities.[2] The scope was developed to match the $10.2 million funding available for the project.

4.20 The estimated cost of Option 2 - the staged option - is $18 million. Stage 1 is estimated at $10.55 million and Stage 2 at $7.45 million.[3]

4.21 The estimated cost of Option 3 is $16 million.

4.22 The Committee was advised that there is a penalty of $2 million between Option 2 and Option 3 because of the cost escalation between the two separate contracts, the two separate stages and also the loss of economies of scale. There is likely to be a three to five year window between completing Stage 1 and Stage 2 within Option 2.

4.23 Therefore, the estimated cost of the preferred option, that is the construction of the proposed facilities as a single project, is $16 million, inclusive of escalation costs, contingencies, professional fees and authorities' charges.

4.24 DoTRS considers that the development under the Option 3 proposal would take 18 months to two years to complete.[4]

Location of the proposed facilities

4.25 The proposed site for the freight handling and passenger transport facilities is at Rumah Baru which is located on the eastern side of West

1 Submissions, pp. 12-16.
2 Evidence, p. 11.
3 Evidence, p. 12.
4 Evidence, p. 14.

Island in a cleared area surrounding an existing boat ramp. This is two kilometres south of the jetty at the north end of West Island. The area of the site above the high water mark is Trust Land held by the Council, with the remaining area below high water mark owned by the Commonwealth Government.[5]

4.26 DoTRS advised that alternative sites for the development were considered in the early stages of the proposal, both the north and south of Rumah Baru.

4.27 In determining the location of the proposed facilities, it was necessary to take into consideration the amount of dredging required to provide an access channel, the need to be located in a protected and stable region of West Island and the impact on the sensitive environment.

4.28 After an assessment of alternative sites for the proposed facilities on West Island, the consultants for the Environmental Investigation (Halpern Glick Maunsell) and for the Freight Management Study (PPK Environment and Infrastructure) concluded that Rumah Baru is the most appropriate location for the development of new passenger and freight handling facilities.

4.29 The site at Rumah Baru offers a sheltered location protected from significant wave action, northerly swells and shoreline instability.

4.30 With respect to potential terrestrial impacts, the largely cleared existing boat ramp area at Rumah Baru is the preferred development site. Rumah Baru also represents the best location because it offers the closest location from the West Island settlement to deeper water at a relatively low energy, stable beach environment. Contributing factors are:

- it is not subjected to the increased wave action, northerly swells and shore line instability which are experienced towards the northern end of West Island;
- construction of the site at Rumah Baru would only affect *Cocos Nucifera* (coconut palms) and introduced herb species. These are considered to be of only minimal conservation value;
- development on a site further south would be subjected to flooding events from the smaller internal North lagoon and access to deeper water is reduced; and

[5] Submissions, p. 22.

- sites further north would increase the likelihood of impact on mature *Calophyllum* stands, which have a high level of conservation significance and should not be removed as part of the proposed development.[6]

Consultation with the community

4.31 DoTRS advised the Committee that, throughout the planning and development stages of the proposed freight and passenger facilities at Rumah Baru, extensive consultation had been undertaken with the various stakeholders both on Cocos (Keeling) Islands and the mainland. These included:

- Department of Transport and Regional Services
- Cocos (Keeling) Islands Administration;
- Environment Australia;
- Parks Australia North;
- Cocos (Keeling) Islands Shire Council;
- Indian Ocean Territories Environmental Officer;
- Coastal Information and Engineering Services (CIES);
- University of Melbourne (Department of Geography and Environmental Studies, Dr Paul Kench);
- Australian Heritage Commission;
- Ecowise Environmental (Mr Tony Falkland);
- Gutteridge Haskins and Davey Pty Ltd - Project Management, Design and Contract Administration Consultants;
- PPK Environment and Infrastructure - Freight Management Consultants;
- Halpern Glick Maunsell - Environment Engineers;
- Cocos Cooperative; and
- Cocos (Keeling) Islands community.[7]

6 Submissions, p. 22.

7 Submissions, p. 19.

4.32 DoTRS advised that a Community Consultation Program was implemented in 1999 to communicate the objectives of new passenger and freight facilities and to provide a mechanism to receive community comments and ideas on such facilities. A full report has been prepared on the outcomes of the Community Consultation process.[8]

4.33 Several witnesses at the public hearing confirmed that they were satisfied with the levels of consultation on the proposed project.[9]

4.34 Mr Alan O'Grady, Cocos Islands Cooperative Society, expressed satisfaction with the levels of consultation which had occurred with DoTRS:

> … It has been a project a long time in the making and there have been many discussions on island about it.[10]
>
> There has been a fair bit of publication on this project. The cooperative Malay committee … meet once a month, and probably every two or three months comes up … I think most of the issues they have been concerned with have been raised and, to GHD's credit, they seem to have addressed them.[11]

Community support for the proposed works

4.35 The Committee found a high level of support for the proposed new freight and passenger facilities.

4.36 In response to the Committee's questions on support for the proposal, Mr Cree Haig commented:

> … I am really keen to see the new project go ahead on West Island, it will avoid the risk from the current jetty on West Island.[12]

4.37 Mr Haji Adam Anthony added:

> …I think the proposal we have here covers everything we require from the community point of view.[13]

8 This report was made available to the Committee.
9 Evidence, pp. 3, 36.
10 Evidence, p. 32.
11 Evidence, p. 34.
12 Evidence, pp. 3-4.
13 Evidence, p. 3.

4.38 Ms Wendy Murray, Australia Parks North, expressed total support for the project and with the levels of consultation which had occurred.[14]

4.39 Mr Allan Curyer, Marine Officer, observed that from the point of view of passenger safety:

> …we should be looking very seriously at getting this project off the ground as soon as possible.[15]

4.40 According to the Administrator, Mr William Taylor:

> … a decision on this is long overdue … The system that we have here at the moment is highly inefficient; it is inappropriate; it is very weather dependent and, in the extreme, it is downright dangerous.[16]

4.41 Support for the project was drawn from the promoters of tourism on the Islands. Mr M J Carmichael, in his submission to the Committee, observed that he was:

> … concerned with what seems undue procrastination in getting the project completed. I was on island when the last cyclone threatened (April '01). It was only a category 2-3 but it still managed to damage the existing jetty and rendered it unsafe by knocking out several wooden planks. It made me realise how difficult and dangerous it would be to maintain satisfactory marine services without a berthing facility for passenger ferries … I am wholeheartedly in favour of option 3 proceeding and look forward to seeing it completed.[17]

4.42 Mr Robert Haythornthwaite contended that:

> … For tourism to develop in the Cocos Islands, infrastructure such as well planned freight and passenger facilities are paramount … it is with great hope that the committee and the Commonwealth Parliament decide on Option 3, full development.[18]

4.43 Mr Colin Freshwater, of Saltwater Ventures, urged that the project be completed as soon as possible for the benefit of everyone on the island.[19]

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14 Evidence, p. 40.
15 Evidence, p. 42.
16 Evidence, p. 6.
17 Submissions, p. 43.
18 Submissions, p. 47.
19 Evidence, p. 37.

Passenger safety

4.44 Witnesses representing the community at the public hearing expressed their concerns about passenger safety during turbulent conditions, particularly of children travelling from Home Island to West Island to school.

4.45 Mrs Olbio, Chairperson of Kaum Ibu (Women's Group) commented:

> … as a mother of two girls travelling from Home Island every day to go to school on [West Island] … During rough weather you have to be very careful in getting off the ferry. I have been travelling to and from Home for nearly 11 years. I find it is very difficult on those days. During the cyclone season, when we have a lagoon closure the kids actually miss one to three days of school.[20]

4.46 Mr Cree Haig, Congress of the Territory of Cocos (Keeling) Islands added:

> … We are concerned in relation to the people with children, the elderly and the people with disabilities.[21]

4.47 Mr Alan O'Grady outlined his concerns with the current passenger facilities:

> … we crew feel that sometimes it is dangerous to unload passengers; it is sometimes dangerous at night when the swell is up. We have one ferry later at night for people to go across to Home Island to the restaurant or other functions. It is very unprotected during wet weather, which means that ferry passengers have quite a long walk down to West Island jetty in the rain. There is also no shelter or seating at the current West Island jetty for passengers to wait for the ferry to arrive. It is a bit hit and miss when the bus pulls up; it pulls up in various locations and passengers have to step out in all weathers onto the sand – there are often mothers carrying babies, passengers carrying goods, et cetera. There is no proper bus parking or alighting facilities at the West Island jetty.[22]

4.48 Mr Allan Curyer, Marine Officer, who operates the ferry, the *RJ Hawke* and the *Jasa Cocos* dumb barge on behalf of the Administration, informed the Committee that the ferry service operates almost 35 services per week.

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20 Evidence, p. 3.

21 Evidence, p. 3.

22 Evidence, p. 30.

Between 6,000 and 7,000 people are carried each month. Mr Curyer observed that:

> … Over the 2½ years that I have been here, how we have not had a serious accident has really got me amazed. On our performance, I think we have been very lucky.[23]

4.49 The Committee noted, however, that on the basis of evidence provided, a high level of care was taken by the crew of the passenger vessels to ensure the safety of both children and adults traversing the lagoon.[24]

Freight handling concerns

4.50 Mr Haji Badlu Feyrel, Chairman, Territory of Cocos (Keeling) Islands Cooperative expressed concerns about current handling procedures:

> … It is not really acceptable in terms of the handling of the situation on the West Islands. I am concerned about the handling of the passengers and stevedoring during heavy storms … I am also concerned about the refuel barge being at the jetty during rough seas and the delivery of goods on West Island using the barge.[25]

4.51 Mr Alan O'Grady contended that, particularly in wet weather, stevedoring procures can be dangerous:

> … The sand really gets almost like mud and the containers on the trailers move up and down. The bulldozer is a powerful bulldozer but it really struggles sometimes when there is 16 tonnes on a container which the bulldozer is trying to drag out of almost a very muddy situation.[26]

Employment opportunities

4.52 Haji Mr Adam Anthony, Chairman, Congress of the Territory of Cocos (Keeling) Islands told the Committee that in addition to concerns about safety with the existing arrangements:

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23 Evidence, p. 42.

24 Evidence, pp. 42-43.

25 Evidence, p. 2.

26 Evidence, p. 30.

> … we are looking to have these facilities go ahead because we are concerned about the long-term job opportunities for the local community on the Cocos (Keeling) Islands … the unemployment percentage on the Cocos (Keeling) Islands is very high at the moment – 60 per cent plus.[27]

Refuelling of the ferries

4.53 The passenger ferries and the barge are currently refuelled at the West Island Jetty. Mr O'Grady told the Committee that:

> … we currently have to refuel whilst ferry passengers are waiting. That means that they are often standing by no more than six inches away from all the hoses, pipes and everything else needed to refuel the ferry.[28]

4.54 Mr O'Grady advised that the ferries were refuelled on the seaward side which meant that the ferries and the barge move up and down with the swell with the hoses attached. He warned that there was also the possibility of the pipeline which runs down the length of the West Island Jetty breaking:

> … The engineers may recount some instances last year where we had a bad storm surge. The underside of a jetty was washed away and the piping was hanging by a few stirrups. I would be much happier if there were a separate refuelling area supplied so that we could refuel the ferry and the *Biar Berjaya* so that they do not cross over with passengers waiting.[29]

Recreational boat access and other small craft

4.55 Mr Colin Freshwater, of Saltwater Ventures, currently operates two charter vessels. One vessel mainly carries tourists to North Keeling National Park. A smaller vessel is used for fishing charters, scuba diving and cartage of small materials between the islands.

27 Evidence, p. 2.

28 Evidence, p. 30.

29 Evidence, p. 30.

4.56 Passengers for the charter vessels currently embark at the West Island Jetty. Mr Freshwater stated that:

> … We suffer constant damage to our vessels from pounding as we tie up. We have constant concerns for the safety of our passengers getting on and off the vessels. We also suffer from congestion if we are refuelling at the time when the ferries are due to come in. We try to alleviate that by choosing our times. The new facility is quite important to our operation for those reasons. Obviously we do not want damage to our vessels and we want to have our passengers on and off safely where possible.[30]

4.57 Ms Murray explained that the existing launching facilities at Rumah Baru are frequently problematic:

> … The boat ramp gets covered in silt and sand and you usually need a four-wheel drive even to put a little boat into the water. The new facility will provide safer and more frequently accessible facilities, even for recreational fishers and people going over to Direction Island.[31]

4.58 With respect to the Parks Australia North vessel Ms Murray told the Committee that:

> … We have a boat which is out on a mooring off Rumah Baru and we have to use our tender to get out to it, so we regularly have problems at the little ramp at Rumah Baru just getting to and from our boat. With this new facility, if we can moor our vessel right alongside the jetty, response times in search and rescue situations will be vastly increased. Of course, in a search and rescue operation it is often rough weather anyway, so when you have a little boat trying to get into a bigger boat that is another safety issue. If this new facility combines with being able to moor vessels alongside the jetty structure, it will improve safety, increase the speed and response times and be much more efficient.[32]

4.59 Mr Freshwater observed that the offshore island is a good design and will provide sheltered access on the western side. However, access and facilities for recreational boats may need further consideration.[33]

4.60 Mr M J Carmichael asked whether mooring rings or suitable bollards could be built into the bridge to facilitate secure moorings for small private craft and hired or leased to private users.[34]

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30 Evidence, p. 36.

31 Evidence, p. 39.

32 Evidence, p. 39.

33 Evidence, p. 37

Approval by the Shire

4.61 The Shire of Cocos (Keeling) Islands advised the Committee that the Shire is acknowledged as the owner of the land which is currently leased to the Commonwealth. DoTRS will be required to submit a detailed Development Application to the Shire for its approval before any work can commence. The proposed use is discretionary under the Shire's Town Planning Scheme and will need Council approval. The access road is also a Shire road and any upgrade would require Council's consideration.

4.62 The land in question is held by the Shire, but is also the subject of a trust deed which requires the Shire to use the land for the benefit of the Cocos Malay community. The Shire as trustee will require a formal consultation with the beneficiaries of the Trust as part of the approval process.

4.63 The Shire advised that:

> … These issues have been raised repeatedly with GHD, the engineering body acting on behalf of the Commonwealth, so the above should not be any surprise … there are some formal steps which will need to be taken before the proposal can proceed.[35]

4.64 The Committee noted that DoTRS had acknowledged the requirement to apply for Shire approval.[36]

Environment

4.65 The Committee noted the very detailed environmental impact assessment provided by DoTRS in its submission to the Inquiry.

4.66 DoTRS advised that a Notice of Intent (NOI) for the proposed development was submitted to Environment Australia for assessment. The NOI was accompanied by relevant associated information, including an environmental assessment.[37]

4.67 According to the submission, the environmental issues related to this proposal have been thoroughly investigated and assessed by Halpern Glick Maunsell Environmental Engineers (HGM). The consultants identified and documented the existing terrestrial and marine environments surrounding the proposed site, including seasonal

34 Submissions, p. 44.

35 Submissions, p. 45.

36 Submissions, p. 20.

37 This document was made available to the Committee.

variations in the ecosystem, and determined the level of impact the proposed development will have on the environment.

4.68 The construction of the proposed Offshore Island and Access Bridge, a dredged channel, 50metres wide by 2 metres deep and approximately 400 metres long, extending to deeper water in the lagoon from the jetty, is expected to have minimal impact on the overall terrestrial and marine environments.

4.69 The proposed development of passenger and freight handling facilities at Rumah Baru is not expected to have any significant impact on the terrestrial environment for the following reasons:

- the proposed location of the facilities in a largely cleared area devoid of rare or endangered flora will minimise the impact on vegetation. An area of strand vegetation, *Cocos nucifera*, and introduced herb species, will be affected by the proposal, but the areas of higher conservation to the north, will remain unaffected;
- construction work to upgrade the existing access road will have minimal impact on the natural filling of the internal lagoon and periodic flooding north to the main lagoon; and,
- a report prepared by Cocos (Keeling) Islands groundwater specialist Tony Falkland of Ecowise Environmental on the freshwater lens in the area, determined that the development is not expected to impact on the quality of groundwater in this area.

4.70 The impact of the proposal on the marine environment is also considered to be minimal. The major marine issues include minimising the impact on littoral processes, the impact upon local seagrass and algal communities, disposal of dredging spoil, noise and waste minimisation. The proposed development at Rumah Baru is not expected to have any significant impact on the marine environment for the following reasons:

- the proposal does not include the construction of groynes at Rumah Baru. They would have a significant impact on littoral processes, in particular longshore sediment transport;
- the relatively small size of the proposed dredged channel (50 metres by 400 metres) is considered too small to significantly affect local hydrodynamics including the wave climate and regional sediment transport processes;
- the area of benthic flora (seagrass and algae) requiring removal represents less than 1% of the benthic flora on the north-eastern coast of West Island. Therefore, in a local context, the area of benthic flora that would be lost directly from dredging is not considered to be significant;

- the effects of turbidity plumes and dredge plume advection on the ecosystem will be minimal as the plumes are short lived, dispersed by local currents and have no long term effects. The algae and seagrass are unlikely to be sensitive to short term changes in light attenuation. Observations suggest that plumes of suspended sediment and other natural forms of disturbance in the lagoon are common;
- the likelihood of requiring a significant dredging maintenance program for the channel and basin is very low, given the estimated sedimentation rate of 25mm / annum. The impact of suspended sedimentation plumes generated during maintenance dredging is not expected to have an adverse impact on the ecosystem as plumes will be dispersed by local currents;
- spoil material recovered during dredging of the channel would be used to backfill behind sheetpiling to provide an elevated area for the Offshore Island facilities and ancillary onshore facilities. The dredged spoil is also required as construction material to raise the level of the access road into Rumah Baru;
- excess spoil recovered during dredging operations will be dewatered in stilling basins located adjacent to the onshore facilities. The areas required to be cleared for such installations would be kept at a minimum and areas with flora of high conservation value would be avoided;
- the nearest existing residence is located over 2km away and hence localised noise at the construction site is not expected to impact on residences;
- a future tourist development is proposed to be located along Sydney Highway approximately one kilometre south-west of Rumah Baru. The proposed freight and passenger facilities at Rumah Baru are not expected to have a significant impact on the proposed tourist development; and
- all construction activities will be carried out with the principles of cleaner production and waste minimisation in mind. The use of local labour and on-site fabrications, where possible, will limit the amount of waste generated.

4.71 All environmental protection measures, safeguards, recommendations and standards outlined in the Notice of Intent submitted in 2000 will be implemented during design, construction and operation of the proposed freight and passenger facilities to minimise the level of potential environmental impact.

4.72 Specific actions to be implemented in this development will include:

- environmental monitoring to continue through the construction and dredging period and for two years after completion of the facilities;
- preparation of a Dredge Management Plan prior to construction to address management and monitoring issues associated with the proposed channel and berthing swing basin dredging;
- preparation of a Pollution Control Management Plan prior to construction to address the management of fuel, fuel spills, runoff, sewerage, sewerage spills or other pollutants;
- minimal native vegetation removal, with replacement of non-native vegetation with native species. Consultation with the Government Conservator will occur prior to construction;
- the control of all stormwater run-off to prevent any potential pollutants reaching the lagoon or waterways;
- the treatment of sewage from the shore based ablution facility by way of a nutrient removing Aerobic Treatment Unit;
- installation of pollution control equipment on both the Offshore Island and the on-shore facilities to treat and control potential pollutant spills;
- maintaining air quality at the site and surrounding areas in accordance with best management practices; and
- construction of the freight and passenger facilities will comply with noise control regulations under the *Environmental Protection Act, 1986 (WA)*.

4.73 There will be no significant sociological change arising from the proposal other than the positive effect of improved freight handling and passenger transport safety resulting from the new facilities. Construction work will create job and training opportunities for the local community in the short-term. The operation and maintenance of the facilities will generate long-term job opportunities for both local and mainland Australians.[38]

4.74 Parks Australia North representative appearing at the public hearing stated that:

> … From our point of view, the environmental concerns have been met.[39]

38 Submissions, pp. 16-18.

39 Evidence, p. 39.

4.75 A particular concern related to the freshwater lens:

> … it is planned that when the dredge material is taken out of the water it will be put in what is called stilling basins on dry land. Environment Australia was concerned about whether, as that water soaked down, it would affect the water lens … [which] will be monitored and at the sign that there is something going wrong they will be lined to prevent salt water permeating into the freshwater lens.[40]

4.76 Another concern related to the silt which may float in the water as a result of dredging and affect the seagrass beds. The Committee was told that the problem can by contained by the use of *silt curtains* which are made of fine fabrics and used to trap silt.[41] Ms Murray explained that:

> … seagrasses can go for a certain amount of time without getting access to light, after which they starve to death. So the silt curtains reduce the time that the silt is floating around in the water … The studies that have been done have said that they do not think it would be required. But … as soon as it went beyond what we thought was a safe limit then silt curtains would be employed.[42]

Heritage

4.77 DoTRS advised that a Heritage Study undertaken in 1996 identified Rumah Baru as a place of possible local significance to be protected within the local town planning scheme. It was not, however, recommended for entry into the Register of the National Estate.

4.78 Rumah Baru is believed to be the site of Alexander Hare's first settlement and also the site of a World War II army camp. No buildings, fabric or other relics have been uncovered during surveys.

4.79 The Heritage Study recommended continued public access and use for boat launching at the site as desirable and did not preclude consideration of any new development proposals for the site.[43]

40 Evidence, p. 39.
41 Evidence, p. 39.
42 Evidence, p. 40.
43 Submissions, pp. 18-19.