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FICHE No.012943-

**CSR READYMIX
SEVEN MILE BEACH ELA 29/89**

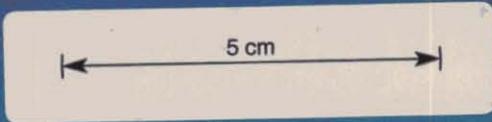
**Preliminary
Environmental Management Plan**

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July 1993

AMG REFERENCE POINTS ADDED

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CSR READYMIX 7 MILE BEACH E.L.
AERIAL PHOTOGRAPH OF THE
AREA
john miedecke and partners pty ltd
date 15/11/92 Scale 1:25,000

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1.0 INTRODUCTION

CSR Readymix have applied for an exploration licence from Mineral Resources Tasmania for an area of 2 square kilometres at the eastern end of the Seven Mile Beach Protected Area. Other Government and local government bodies have indicated a number of concerns which would have to be addressed if a sand extraction operation could proceed, including possible land use conflicts with the proposed recreation uses of the area. It is also anticipated that the granting of a exploration licence and the public advertisement will result in interest from local residents, resident groups, and other members of the public with interests in the area.

As a result, the Director of Mines will not recommend the issue of an exploration licence until he is satisfied that these concerns have been addressed in the form of an environmental management plan, although at this stage it can only be conceptual.

This report has been prepared for the Company and addresses the concerns and issues which have been raised by other government agencies and those which can be anticipated from the public in the experience of the Consultants. It outlines a proposal to explore for, and if feasible, to recover sand from the proposed Exploration Licence Area.

2.0 DESCRIPTION OF THE AREA

2.1 LOCATION AND ACCESS

Seven Mile Beach is the southern coastline of a sand spit separating Frederick Henry Bay from Pitt Water (see Figure 1). It is also the name of the proclaimed Protected Areas (about 11 square kilometres) and of the township at the southwesterly end of the beach.

Access to the area is by way of Pitt Water Road, which joins the Tasman Highway 2 kilometres east of the entrance to Hobart airport. The road junction lies about 20 kilometres east of the Tasman Bridge over the Derwent River. The access road is sealed, in good condition with ample width and available land for any upgrading. There are no residences in close proximity to the road, and only two (a farm house and the Rangers house) in the area.

2.2 GEOLOGY, TOPOGRAPHY AND DRAINAGE

The spit is composed of Quaternary sand to an average depth of 13m below sea level, overlying Tertiary clay. The spit is thought to have been formed almost entirely in the Holocene, apart from a small remnant of Last Interglacial sediments at the northern end of the airport runway, adjacent to the Tasman Highway. The Dune system has probably developed from wave built beach berms that were formed successively on sandy shores, and were stabilized into large dunes by vegetation growth.

The present sand spit is composed of about fifty sand beach ridges aligned approximately parallel to the southern shoreline. Dune heights vary from

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FIGURE 1
CSR READYMIX 7 MILE BEACH E.L.
LOCATION PLAN
 john miedecke and partners pty ltd

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one to six metres, with an average height of about three metres. Dune heights decrease from west to east along the beach due to a reduction in energy of the refracted swell. During the last century, erosion of the eastern end of the beach has been balanced by progradation of the central part. However, the frontal (primary) dunes are the most developed (widest) in the eastern area. Behind the frontal dunes is an area of gentle topography which extend to Pitt Water. Figure 2 shows a typical cross section through the dunes. They can also be seen on the aerial photograph in the frontispiece of the this report.

There is little or no surface drainage in the Exploration area because of the direct infiltration of any rainfall, which percolates through the sands to the groundwater table.

2.3 GROUNDWATER

Groundwater has been investigated in the area by the Department of Mines (Cromer and Sloane (1976), The Hydrology of Seven Mile Beach. Department of Mines unpublished Report No 1976/10). These investigations were confined to the central area of the beach.

The groundwater body assumes a tabular form 10-12 metres thick with its upper surface slightly convex. The water table is generally independent of the topography. Relative to mean sea level (MSL), the groundwater body displays a gently convex surface, attaining a maximum height of about 2.5 metres above sea level over the area investigated. Hydraulic gradients in the order of 0.0025 metres per linear metre exist seawards and towards Pitt Water. The gradients increase sharply near the high water mark and are strongly influenced by tidal effects.

The base of the body corresponds to the Quaternary/ Tertiary boundary, where the Tertiary Clay acts as an effective aquiclude. Near Pitt Water and along Seven Mile Beach, the groundwater maintains a virtual hydrostatic equilibrium with seawater. The freshwater/saltwater interface is expected to be in the form of a wedge, with salt water dipping beneath the fresh water near the high water mark. This has implications for water extraction as over exploitation may result in salt water incursion.

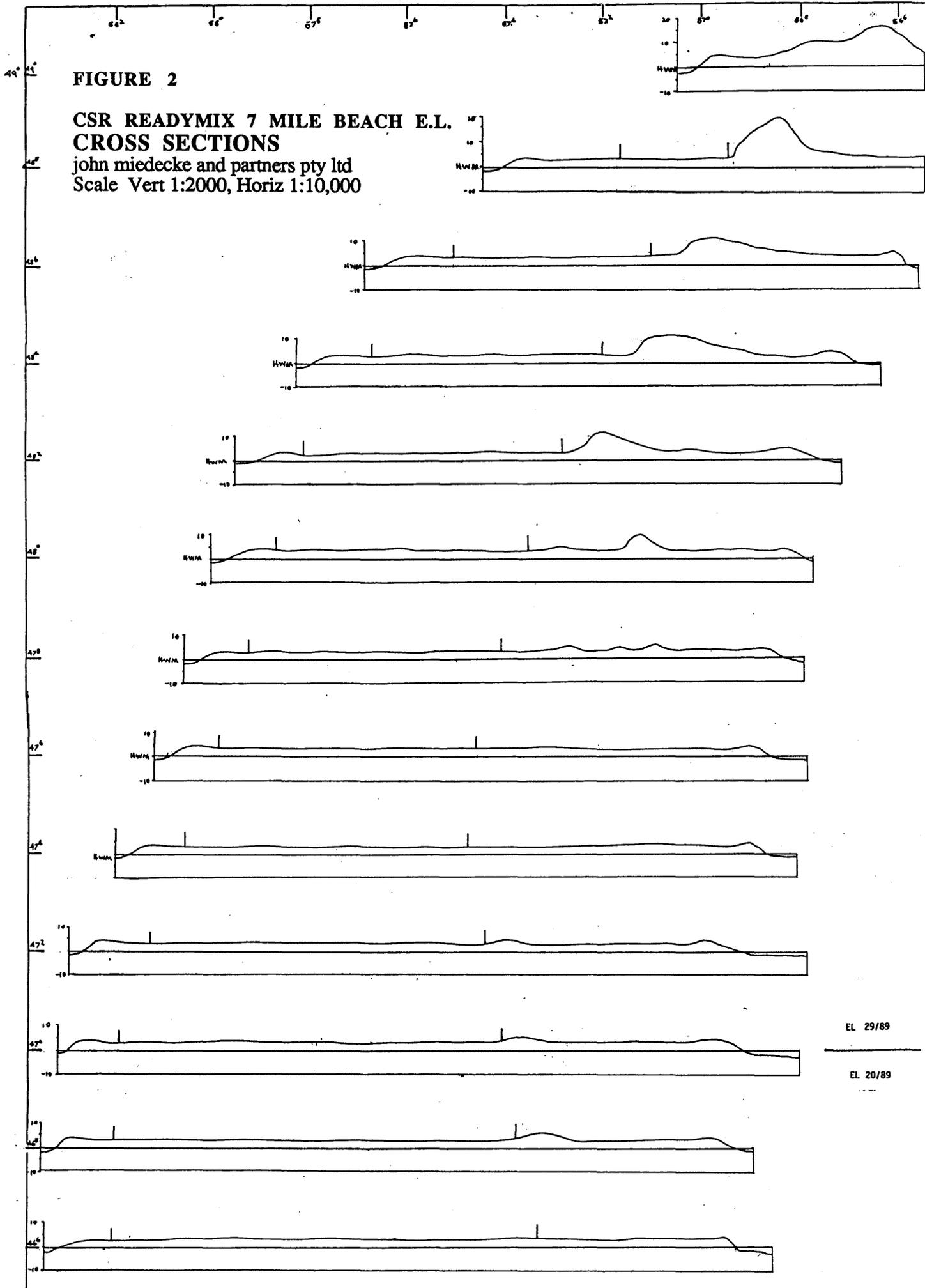
There are lateral and vertical variations in quality and it is estimated that there is a safe yield of ground water between 1 to 1.7 million cubic metres (m^3) with a total dissolved solids content of less than 1000 ppm in the unconfined aquifer to a depth of 14m. This ignores the eastern third of the beach (i.e the ELA area) and the airport). The water is suitable for agriculture but not generally for domestic consumption. Cromer and Sloane suggest that it is acceptable for domestic use if tapped from shallow wells or spear bores and not closer than 300m to the coast. There is also saline groundwater in a semi-confined aquifer below 14m which is unsuitable for domestic, agriculture or livestock.

Cromer and Sloane assumed 30% of the rainfall (550mm per year) percolates annually to the water table. Such yearly additions therefore, represent about 10% of the storage of the aquifer. It is also important to recognise that the vegetation cover has a marked effect on infiltration and

FIGURE 2

CSR READYMIX 7 MILE BEACH E.L.
CROSS SECTIONS

john miedecke and partners Pty Ltd
Scale Vert 1:2000, Horiz 1:10,000



EL 29/89

EL 20/89

5 cm

that pines (*Radiata*), are very effective water users. Such vegetation cover will therefore have a marked effect on the aquifer recharge.

2.4 VEGETATION

The EL area is composed of a segment of the entire cross section of a dune system extending from Seven Mile Beach to Five Mile Beach. For the purposes of this report it can be separated into two elements;

The southern section which composes approximately one third of the area, includes a series of sand ridges and hollows known as swales of complex topography.

Behind this are the dune slacks, flat ground which extends to the beach on the leeward side of the sandspit.

The introduced marram grass (*Ammophila arenaria*) forms the dominant cover on the dunes mostly out-competing native dune stabilising grasses although *Poa poiformis* is present. Native herbs occur between the tussocks. The swales are composed of sedgeland and herbfields known as 'marsupial lawn'. White gums (*Eucalyptus viminalis*) are unevenly scattered along with occasional honeysuckles (*Banksia marginata*). However the dominant canopy species is Monterey Pine (*Pinus radiata*) which it would seem has seeded into this area from the adjacent plantations.

The flats at the rear of the dunes have until recently (the past five years or so), been under cover with dense plantations of pine with little else present. These have now all been commercially harvested throughout the study area except for a narrow (<50 metres) strip along the northern edge. Timber extraction which would appear to have involved uprooting has dramatically disturbed the ground surface which has been subject to colonisation. Bracken (*Pteridium esculentum*) and sagg (*Lomandra longifolia*) are the dominant early colonisers along with kangaroo apple (*Solanum sp*) as well as various weed species e.g. mullein (*Verbascum thapsus*), particularly around points of infestation such as the access road. These species would appear to give over to a suite of species more typical of the habitat as is apparent where harvesting has been undertaken less recently. This may be related to changes in nutrient levels. These secondary colonisers include sedges (*Lepidosperma concavum* and *Isolepis nodosa*), rushes (*Juncus sp*) along with other coastal heath species. However, pines appear to be re-establishing and would in time return to a semblance of their former dominance to the detriment of the native species.

The area, prior to clearance and the establishment of plantations is known to have been composed of very dense vegetation. It is likely to have been typical coastal white gum (*E.viminalis*) shrubby forest with an understorey of honeysuckle (*B.marginata*) and wattles (*Acacia spp.*). There is none of this community remaining today within the study area or for that matter anywhere within this system. It is however well represented elsewhere and secure in a number of reserves.

2.5 LAND TENURE

The land is owned by the Crown and administered by the Department of Environment and Land Management. It was purchased primarily for recreation in 1980 from Loongana Pty Ltd.

An agreement was reached with Australian Newsprint Mills for the exclusive rights to the timber, which are programmed to be progressively removed over the entire area until the year 2010. All pines have been removed in the EL area (see aerial photograph).

2.6 EXPLORATION AND MINING TENURE

The Northwest Bay Co Pty Ltd holds an exploration licence over E.L. 20/89 (5 km²) and C.S.R.- Readymix has an application for mineral and stone rights over E.L.A.29/89 (2km²) to the east of E.L. 20/89 (Figure 1). The E.L.s are bounded on the north and south by a 100metre wide H.W.M. (High Water Mark) exclusion Zone (Figure 2). E.L. 20/89 was granted on the basis that heavy minerals would be extracted from the sand and the sand would then be returned to its source area, however it is now understood that a joint venture arrangement may be entered into which would consider sand extraction with a third party.

2.7 ZONING AND PLANNING SCHEME

The EL area is located within the an area proclaimed as the Seven Mile Beach Protected Area under Section 8 of the Crown Lands Act. It is zoned Active Recreation under the provisions of the Eastern Shore (Area 2) Planning Scheme 1986 administered by the City of Clarence. Under the Scheme, 'extractive industry' is prohibited in the Active Recreation Zone. This means that an amendment to the planning scheme would be required to operate an extractive industry within this Zone.

The area is considered within the Acton District. The scheme refers to the potential for a comprehensive tourist/residential development in the Seven Mile Beach Protected Area, and states that any subdivision or development should not conflict with this potential use. The Principles of Planning Control require any such development to be in accordance with the Special Area Provisions that have been prepared for the area. These provisions set the guidelines for any proposed integrated tourism and residential development of the land and cover such things as service provision, meeting the 20NEF Hobart Airport restriction, minimising dune disturbance, upgrading roads etc.

Extractive Industry is a prohibited use in the Active Recreation Zone. Northwest Bay Co. Pty Ltd objected to this provision of the scheme in 1989 and it was heard by a Special Commissioner in accordance with the statutory provisions of the Local Government Act 1962. The Clarence Council and Department of Lands, Parks and Wildlife opposed any amendment to the scheme until an Overall Management Plan was prepared. However, there was a general acceptance of the potential for controlled sand extraction where this legitimately would aid the development of recreational facilities by both the Council and the Department and reflected in the Commissioners judgement. The decision of the Special

Commissioner was to maintain Extractive Industry as a prohibited use until such time as there was an approved Management Plan for the Protected Area. Any changes were required to be as a formal alteration pursuant to the Act.

2.8 LAND USE AND HISTORY

History

The majority of the area was originally private freehold granted in the early 1800's. Mr Darling recognised the potential of the area for forestry use and planted pines in 1927 and in 1929 the holdings of both Mr Darling and Mr Lewis were bought by the Forest Pulp and Paper Company and developed as pine plantations. The Government acquired 394 acres for the Hobart airport in 1949. In 1967 the balance of the land was sold to Loongana Pty Ltd and then subsequently sold back to the Crown in 1980 and declared a Protected Area.

Land Use

The existing land use is pine plantation forestry over the majority of the area, other uses are recreation.

Australian Newsprint Mills have exclusive rights to the timber, which are programmed to be progressively removed until the year 2010. This has been completed in the EL area. There is no requirement for ANM to revegetate or manage the logged areas.

At present, there is very limited recreational use of the proposed exploration licence area. This is likely to be limited to existing trails for horse-riding and occasional walking ; with possibly some access along the foreshore by occasional boating groups. Since the pine plantation clearing there would be little interest except for passing through the area to another destination such the high dunes.

The main recreational uses that have been identified in the general Seven Mile Beach area are :

Horse riding - equestrian events (Club/school) in an area off the access road, trail riding along existing tracks and beaches. Agistment area provided off access road.

Social cricket/sport etc on oval near Rangers House.

Walking - published family walk from last day use area on Frederick Henry Bay along tracks to Pitt Water and around to dunes and back along the beach. Popular on Seven Mile Beach.

Marathon running and jogging along Seven Mile Beach and through trails in whole area.

Orienteering through the eastern part of the Protected Area.

Dog exercising generally on beach and tracks.

Picnic/barbequeing at designated day use areas, oval, beach.

Sunbathing/nude bathing occurs along dunes and Seven Mile Beach.

There may be some field naturalist interest in the dune areas backing Seven Mile Beach.

Bird watching occurs with the variety of sea birds, and amongst some of the remnant scrub.

Fishing in Pitt Water with boats usually from Dodges Ferry area.

Sailboarding from Five Mile Beach day use area and Pitt Water.

There was a trail bike circuit developed but it is uncertain if it still operates. Some signs of illegal trail bike use evident.

There may be some other Club use of the area (archery club).

2.9 FUTURE USE AND MANAGEMENT PLANNING

The general site history and future management opportunities for the site has been the subject of several government studies.

The Lands Department commissioned Tourism Consultant Ken Bailey to review the future commercial tourist potential of the Protected Area in 1981. (K. Bailey, 1981, Seven Mile Beach Protected Area : Review of Future Commercial Tourism Potential, A report to the Director - General of Lands , Tasmania)

The major findings of this report were:

likelihood of limited demand for commercial tourist facilities to be located in the area;

limited need for sporting facilities;

most attractive opportunity existed for leisure orientated housing estates;

the sandy point and dune systems facing Frederick Henry Bay be left in their natural state;

there is need for general leisure facilities such as picnic areas and nature trails;

the development plan be flexible and commercially based; and

the Seven Mile Beach Development Authority be established.

No mention was made of extractive industry use of the resources as the report concentrates on potential tourism, recreational and housing opportunities.

In 1982 the Town and Country Planning Commission prepared an Outline Development Plan for the Protected Area (M. Shields, 1982, Seven Mile Beach Protected Area : Outline Development Plan, Town and Country Planning Commission, Tasmania).

This report identified planning constraints and developed an outline concept plan for the future use of the Protected Area. This included a country club, caravan park/camping ground, sports complex, recreation camp, equestrian centre, kiosk area, day use areas and amenity forest.

The recently cut areas (124 ha and 94 ha in 1992-93) at the eastern end were identified as being amenity forest with provision for an equestrian centre in western corner near Pitt Water, nature trails linking to proposed day use areas (3 along foreshore with least one at existing road end). An area marked for Country Club was on the existing Crown land middle area (vacant but now re-seeding to pines). There was some mention of the more western area being the regional sporting centre (TFL etc) but little support from sporting bodies was shown. Access was along the track we followed.

In the late 1980's a development concept was prepared for the site by Tasarc Pty Ltd, known as the Island State Development. It involved a comprehensive development of the site for residential estates, golf courses, hotels, marina etc. Whilst the proposal was marketed for investors it is understood that it did not attract the intended overseas investment required, and subsequently has never progressed beyond a concept plan.

3.0 EXPLORATION AND FUTURE SAND EXTRACTION

3.1 POTENTIAL RESOURCE

The potential resource is assumed to be bounded by a 100 metre buffer along Pitt Water and by the northern edge of the Dune system (Figure 1).

This area of 4.4 square kilometres which includes EL's 20/89 and 29/89 is estimated (Mr V Threder) to contain an insitu reserve of 70 million tonnes to a depth of 12metres. This is comprised of 14 million tonnes of dry sand (to a depth of 2metres) and 56 million tonnes below the water table to a depth of 10metres.

EL 29/89 is estimated to contain approximately 21% of this resource.

3.2 EXPLORATION PROGRAMME

Previous literature on this area deals with heavy mineral content and groundwater hydrology but very little on grain size distribution. The area of E.L. 28/89 has not been investigated at all.

In order to evaluate the area it will be necessary to drill at least 12 holes through the complete sand sequence to clay bottom. The only drill capable of accurate sampling in wet sand is the cable tool rig which is extremely slow and therefore expensive. An alternative method of sampling by excavator with extended boom is included for comparison. This is much cheaper but less accurate, particularly under wet conditions. A mix of the two would probably be the most cost effective method as it would involve both economy and control. Drill holes would be left cased for groundwater monitoring.

A second alternative is to auger to the water table and then continue with sludge pump within PVC casing. It would produce contaminated samples comparable to the excavator method.

3.3 FUTURE SAND EXTRACTION

A dry pit excavated in the top 2 metres or so of the surface and a wet pit operation (below the water table) in selected areas is the expected extraction method. Equipment would be wheeled loaders and excavators and/or sand dredges. Previous investigations indicate that screening to remove shell would be required.

The surface area affected will be dependent on the depth of extraction and the production rate. Assuming a production rate of 100,000 tonnes per annum and production from 100% surface and 100% below the water table the surface areas are 31.25 ha and 0.52 ha respectively. Assuming only 25% of the area is excavated below the water table (to a depth of 10 metres), and the balance only excavates the top 2metres, the surface area affected would be 23.44 hectares per year.

The final pit design will need to be developed to take into account the sand production requirements (including any quality constraints) but also just as importantly the final landform required to fulfill the management objectives . This is discussed in detail in Section 4.0.

4.0 ENVIRONMENTAL ISSUES AND MANAGEMENT

4.1 INTRODUCTION

Hobart has an identified need for construction sand which is currently being sourced mainly from South Arm, with associated problems relating to land use restrictions and socio-economic impacts with the transport of long distances through residential areas.

Seven Mile Beach is the largest resource in proximity to Hobart and has the added advantage of being close to a major transport route. If the sand resources in the Seven Mile Beach can be extracted in conjunction with the recreation uses of the area it will be in the community interest to allow sand extraction to proceed.

Any sand extraction proposal will need to be planned and implemented in such a way as to minimise the impact on the cultural, biological or physical resources of the area. From an environmental perspective the potential

issues would include, amongst other things, disturbance to remnant natural dune systems, effects on groundwater resources and conservation values, visual effects, and effects of traffic and noise. The major issue is seen as a possible land use conflict with recreation, which is the purpose for which the area has been declared protected.

Opportunities exist to capitalise on the development to enhance both the habitat and recreation potential of the area and it will be necessary to integrate the sand extraction with the overall management of the Protected Area.

4.2 FUTURE SAND SUPPLIES FOR HOBART DISTRICT

The Department of Mines have investigated the sand resources in the Hobart area. This includes the likely future requirements. (Sloane and Weldon, Sand Resources in the Hobart Area, Department of Mines Report 1990/21)

An analysis of sand production figures from 1963 to 1990 indicates that there has been a steady annual increase of approximately 2.5% per annum. It is estimated that the required annual production will increase from 210,000 tonnes in 1990 to 269,000 tonnes in 2000 and 345,000 tonnes in 2010.

The majority (80%) of Hobart's sand resource needs are supplied from the South Arm suppliers who extract sand from the dunes in the Sandford - South Arm area. These sand supplies are all carted over public roads to Hobart and are expected to decline in the next few years.

The report by Sloane and Weldon dealt mainly with production and stated that reserves were unknown. It was pointed out there is a need for regional sand resource assessment for the purpose of planning to meet the needs of industry and that Seven Mile Beach is the largest body of unexploited sand close to Hobart.

There has been no resource assessment of offshore sand deposits in Tasmania. Several areas of potential reserves include Frederick Henry Bay, Randalls Bay and D'Entrecasteaux Channel (the latter two were proposed to C.S.R. in 1989). The R.N.B. Company (Barry Palmer) attempted to gain an E.L. over offshore sand in Ralphs Bay but it was rejected on environmental grounds.

The Seven Mile Beach sand resources are therefore the only significant remaining sand resources in close proximity to Hobart. They are also located close to a major arterial road which is being upgraded to freeway standard, with associated socio economic benefits from the removal of truck traffic from residential roads.

4.3 ISSUES

4.3.1 Land Use Conflicts (Recreation)

One of the major concerns raised by Government authorities is the possibility of land use conflicts in the Seven Mile Beach area.

The area has been reserved for recreational use, however, to date this potential has not been realised and there is little recreational use in the exploration area, with a lack of funds and resources to fully realise the potential.

One of the opportunities resulting from the sand extraction will be the preparation of the area for future recreational uses. This might occur through such things as :

- removal of sand mounds to create more usable level sites for the future;

- removal of existing pine plantation waste and associated weed species;

- increased nature study through the creation of small wetlands (lagoons) for water/migratory birds (given loss of wetlands that has occurred regionally, including pollution of Orierton Lagoon);

- these wetlands might also cater for some limited recreational use (eg canoeing, outdoor education, model yachts);

- rehabilitation of some areas back to White Gum, Silver Wattle and Honeysuckle which would help add to some recreational and educational experiences of the area;

- maintenance and future extension of trail systems; and

- rehabilitation of the Pitt Water foreshore edge to the land with native bushland.

The habitat created by the lagoons could serve as the basis for a diversity of recreational experiences including separate walking and horseriding trail networks. There may also be the opportunity to establish separate mountain bike trails in the area.

Walking trails could be laid out in such a fashion as to maximise the user's experience of the area. Tracks should be of varying lengths, taking the visitor to a number of different locations including bird hides, the foreshore dunes and important viewing points such as the tip of the spit.

A similar horseriding trail network could also be developed which enabled circuit rides of varying lengths which further interconnected with existing trails on the spit.

Facilities for horseriding and walking might include parking, interpretive signage, rubbish bins, seating, etc. Parking would be of a configuration

which allows for the parking and manoeuvring of horse floats. Track construction, materials and location should account for the fragile nature of the soils.

An area could be set aside as part of the development for the establishment of a regional/state equestrian centre which could be privately operated.

4.3.2 Disturbance to Dune Systems

The southern 'third' of the exploration area is part of a dune system which is highly dynamic and potentially vulnerable to disturbance. Although not pristine, the foreshore dunes present a natural profile and enough remnant vegetation to be of importance visually and biologically. Further, these dunes may have some cultural value by way of Aboriginal occupation.

Disturbance could result in erosion which could continue by natural processes such as windblow with the consequent disturbance to an unknown area of the adjacent vegetation.

These dunes, therefore should be protected in their entirety, and a buffer of some distance (say 100 metres) should be maintained.

In relation to the sand extraction areas minimal disturbance in general, limitations on the size of exposed areas at any one time, the maintenance of visual buffers which act as windbreaks and progressive/immediate rehabilitation of disturbed areas will ensure erosion control and long term stability.

Because of the fragile nature of the dunes and soils, no motorised recreation should be allowed in the area. Other recreational uses will also need to be monitored for their impact on the area.

4.3.3 Ground Water

Sand extraction below the water table will be required to recover at least some of the sand resource and also to develop any wetland habitats. The EL area is remote from the main Seven Mile Beach area and any water uses are expected to be limited.

Studies are required to determine the likely effects of sand extraction on the water table and the possible consequences of any lagoon developments. The change in vegetation from pine trees to native vegetation is expected to alter the water balance with more recharge and could well be more significant. There will be the opportunity to provide for "water harvesting" and the collection and diversion of any surface runoff to any wetlands by land form design to assist in maintaining or improving the water balance.

4.3.4 Visibility and Aesthetics

The EL area is at its closest point, approximately 1 km from the township of Lewisham. However, it is isolated from public view and the provision of vegetation buffers and screens will improve this situation. The foreshore dunes to the south of the development act as an important visual buffer. A

buffer of vegetation should also be maintained on all other sides of the proposed development of up to 100 metres .

Where these areas are weed infested (including and especially pines) they should be progressively be rehabilitated to a naturalistic vegetation composition. This would serve to improve the visual character of the overall area.

4.3.5 Conservation Values

Flora

The existing native vegetation has been removed over the area and pine harvesting has recently been completed. As a result the existing vegetation is degraded with little conservation value.

Given the relatively limited degree of disturbance that is anticipated by sand extraction, and considering the present level of degradation of the site, it is anticipated that with well planned rehabilitation that the botanical values of the site could actually be enhanced. Weed control (including pines) should be implemented.

The native species existing in the site is not documented at present and is required for planning appropriate rehabilitation. A number of species of conservation significance have been recorded in similar conditions nearby. These include *Ehrhata juncea*, *Eutaxia microphylla*, *Millotia tenuifolia* along with the nationally vulnerable orchid *Caladenia caudata*. Special consideration would need to be given if these or any other significant species were present.

Fauna

The key opportunity presented by this development is the potential to create a significant area of wetland habitat. This is especially important given the environmental problems faced at nearby Orielton Lagoon which is listed as of international significance under the Convention on Wetlands of International Importance.

Through the establishment of a series of lagoons of varying configurations and depths and including island refuges, a number of water based habitats could be created. These areas could possibly provide habitat for a range of shore birds, waders, migratory and other birds found in coastal and wetland environments.

The lagoons would need to be designed in such a way that they appeared naturalistic in form with landscape plantings/revegetation using local native vegetation where appropriate.

The habitat value of the area could be enhanced by the establishment of islands which provide safe zones for birds out of reach of feral and domestic cats which likely inhabit the area. Nesting boxes might also be provided.

4.3.6 Airport

The Federal Airports Corporation manage the Hobart Airport and are an interested party to any proposals in the area which would possibly impact on air safety. Developing areas for bird habitat are issues of concern and the Corporation should be consulted in planning these areas. Because of its distance (> 6km) these issues may not be significant

4.3.7 Traffic and Noise

Traffic

Truck traffic is always a public issue, and a matter of concern. Assuming 100,000 tonnes per annum production over 300 working days, traffic movements would be 13 truck loads/day leaving the site.

The access onto the Tasman Highway consists of a sealed 7m surface in a 21m road reserve which serves the access to the beach and recreational areas. There are no houses located close to the road and speed limits, covered loads and restricted working hours should minimise public annoyance. An improved access would be required to the Tasman Highway and some bridge upgrading. Access to the sealed road may need to be restricted and public access via another route provided to the eastern end of the beach area.

Noise

Noise has been raised as a concern as a result of complaints from Lewisham residents when timber harvesting was in progress. This is believed to have arisen with noise from skidders.

The sand extraction activities have no major noise generation sources and the provision of silenced equipment in good condition will ensure noise levels are kept below levels likely to cause a nuisance. The nearest residential areas are located at Lewisham and Dodges Ferry and these areas are greater than 1 kilometre from any sand extraction at the extreme end of the area and outside the buffer zone of 300m recommended by the Department of Environment and Land Management.

Sand extraction at the eastern extremity will only be limited in time scale.

4.4 DEVELOPMENT APPROVALS

4.4.1 Approvals Required

Sand extraction will require planning approval from the City Of Clarence, the granting of a mining lease from the Minister of Mines and a Licence to Operate Scheduled Premises from the Department of Environment and Land Management. These applications will also require a Development Proposal and Environmental Management Plan (DP&EMP). The DP&EMP itself is not an approval, it is the vehicle to provide information to the relevant Local and State Government bodies and for informed public comment.

These approvals will require the preparation of extensive documentation and a rigorous examination of the proposal and issues, with provision for Government and public input and consultation.

The required approvals and procedures are as follows;

- **Planning Approval**

The decision of the Special Commissioner at the Planning Appeal hearing was to maintain Extractive Industry as a prohibited use until such time as there was an approved Management Plan for the Protected Area. Any changes were required to be as a formal alteration pursuant to the Act.

The amendment to the planning scheme to operate an extractive industry within this Zone will require the initial approval of the Clarence Council before then requiring the approval of the Town and Country Planning Commissioner. There are no appeal rights if either one does not support the amendment. If it is supported then the amendment would be advertised for a period of 3 months to allow for objections. These objections would then be heard by a Special Commissioner before a decision is made. The proposed new Planning Act will change some of these procedures when approved by Parliament.

It is expected that the Council will require;

- Completion of an approved Management Plan for the Protected Area
- Preparation of a detailed DP&EMP with public exhibition and community consultation; and
- Amendment to the scheme as provided under the Local Government Act 1962.

- **The Issuing of Mining Tenements**

Mineral Resources Tasmania, under the provisions of the Mines Act 1929, has the role of considering and issuing mining tenements. In relation to this project, mining lease applications will be required over the operating area. The Lease will have both general and site specific conditions relating to the project.

- **Licence to Operate Scheduled Premise**

The Department of Environment and Land Management has specified statutory and regulatory responsibilities under the Environmental Protection Act 1973. A licence to operate will be required and a DP & EMP will need to be prepared, followed by public exhibition, consultation and receipt and consideration of public objections. The licence will have conditions relating the operation of the project and environmental protection.

4.4.2 Development Proposal and Environmental Management Plan (DP&EMP)

A DP&EMP will be required for the amendment of the planning scheme and prior to the granting of a mining lease and a licence to operate. The Clarence City Council will require the public exhibition and period of public consultation for the planning scheme amendment. Such public consultation will be an important element in allaying any concerns about the project and assist in obtaining approvals.

It would also be expected that an approved Management Plan for the Protected Area will be required and that the development proposal would be integrated with this scheme. This should show how the sand extraction proposal integrates with the Protected Area in the creation of a significant regional/state recreational resource and shows the potential use and management of the site in the future.

If these longer term community benefits are recognised and accepted then there will be a greater acceptance of sand extraction as being an aid to achieve improved management and recreational/tourism opportunities rather than as a separate activity in its own right. The past concept plans and Island State Development proposal do not give a realistic planning/management direction for the area.

It is envisaged that the DP&EMP would address the following ;

- Commencement of sand extraction at the western end first, with progressive rehabilitation into agreed recreational use and landscaping plan;

- Areas which are to have sand extracted and the depths to which these could be removed. This will need to take into account the landscape/recreation plan, any wetland development and any requirements to protect/enhance the groundwater resource;

- Rehabilitation of the disturbed areas to fulfill the final land use;

- Avoiding disturbance of existing primary, secondary and tertiary dunes to Seven Mile Beach;

- Provision of a buffer area of (probably 100m) from Pitt Water with removal of exotic vegetation and replanting with native species;

- Provision of a buffer area to the existing track/trail closest to the dunes currently used for walking, runners and horse riding trails;

- Progressive development of the access road to suit intended future recreational requirements;

- Buffer zones and any noise management requirements;

- Controls over time of operations (limiting operation during weekends, public holidays) etc;

4.4.3 Community Consultation

Community consultation is recommended prior to the exploration licence advertisement and also during the preparation of the recreation and environmental management plan.

It is expected to involve:

- initial briefing with user groups, potential user groups, Seven Mile Beach Progress Association, Govt agencies, Federal Airports Corporation, Clarence Council, Tas Conservation Trust, SCAP etc;

- provision of a facilitator with the user groups to identify their future needs, design requirements etc;

- liaison with groups/agencies during formulation of plans;

- round of consultation meetings with those involve above to discuss and receive response to concept plans;

- public exhibition of plans with amendment to scheme and DP &EMP.

4.5 REHABILITATION

The broad aim of the rehabilitation should be to achieve improved management and recreational/tourism opportunities, with a return to native vegetation, pasture and wetland or lagoons. In this manner the presently degraded areas will be left in an attractive and varied landform with increased natural and recreational values.

General guidelines are set out below.

4.5.1 Minimising Disturbance

In order to reduce the area exposed at any one time, the development perimeter should be highlighted by a visible construction boundary. All extraction activities should be limited to the area within the boundary.

Limiting the area of surface disturbance will also limited the potential for erosion due to exposure.

Progressive rehabilitation should be implemented once an area has been "worked out". Guide-lines from the Department of Environment and Land Management recommend that at any one time, 1 ha be rehabilitated, 1 ha be currently under operation and that 1 ha be developed.

4.5.2 Rehabilitation Methods

Two methods of rehabilitation are recommended. Firstly, progressive land rehabilitation and secondly, native wetland creation. However, it must be stressed that these proposals must be included as a component of the final land use strategy.

Progressive Rehabilitation

Progressive rehabilitation involves the removal of the vegetation and topsoil to windrows at the perimeter of the works. On the completion of sand extraction the topsoils and vegetation are returned. These materials are replaced progressively over a period of twelve months and revegetated with plant species in following Autumn.

Wetland Creation

The water table will be intersected during sand extraction. This scenario provides an environment suitable for the creation of a fresh water wetlands and lagoons.

The excavation of any one wetland should vary in depth to encourage a cross-section of wetland communities, therefore attracting a variety of bird life. In addition, sanctuaries and fauna reserves can be created.

Revegetation

Wetlands

Revegetation of wetland communities will be initiated by the placement of *Juncus* and *Isolepis* species, from plant division, within the wet zone. Natural colonisation will follow.

Pasture

Terrestrial rehabilitation will involve the conversion of a proportion of the disturbed area to pasture for horse agistment or other recreational use.

Native Forest

Rehabilitation will also involve the conversion of select areas to native forest, similar to that originally present. The vegetation established will commence a succession back to the original vegetation type or a type similar to the surrounding undisturbed communities.

The recommended species initially used should be from the local area, are known to colonise disturbed site and they are economical to use.

The species list is loosely based on the following :

Acacia dealbata
Acacia genistifolia
Acacia mearnsii
Acacia sophorae
Banksia marginata
Eucalyptus amygdalina
Eucalyptus viminalis
Leptospermum sp.
Poa sp.

Screening

The developed area should be screened from view by not only progressive rehabilitation works but also by strategic planting to hide sections of the pit in public view. The screens can also act as a wind break and protect exposed sand from wind erosion.

Species not native to the area such as *Acacia retenoides*, should be considered in combination with the listed local native species, for windbreak and screening protection.

Seedlings

Due to seasonal variation, directing seeding can fail. Seedlings from the listed native forest species should be planted in combination with direct sowing of native plant species seed.

Seed

Pasture establishment will be based on the recommendation of the Department of Primary Industry and Fisheries specification for that area.

Native seed should be obtain from the local area based on the native forest species list. The native species should be sown at 4 kg/ha in combination with a cover crop of ryecorn at 15 kg/ha.

Fertilizer

Due to the presence of pine trees and the nature of soil disturbance, there will be a net nutrient deficiency of the three major nutrients, nitrogen, phosphorus and potassium.

Soil analysis is recommended to determine the type an quantity of fertilizer required for the conversion to pasture and to native forest.

Seed and Fertilizer Application

Pasture species should be established by direct drilling of both the exotic seed and the fertilizer. Native forest species seed and fertilizer should be applied by hydromulching. (Water + seed + fertilizer + wood fibre + paper mulch + glue) The mulch will provide some surface erosion protection.

Weed Control

Rehabilitation will include the control of weed species including environmental weeds such as pine trees.

The removal of pines should be progressive and based on a replacement system. The pines are progressively removed and replaced by native species. Once off total removal of the pines is not recommended as it may result in significant erosion problems.