

Maria Island National Park

Darlington Site Plan

October 1998

MARIA ISLAND NATIONAL PARK DARLINGTON SITE PLAN

This Site Plan for the Darlington Zone in Maria Island National Park was released as a draft for public comment from 15 June until 14 August 1998.

This plan is a modified version of that draft, having been varied to take account of public input.

This Site Plan was approved by the Director, Parks and Wildlife Service on ?.

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1 Introduction

1.1 Plan Area and Status

Darlington lies on the north-west tip of Maria Island National Park. The Park is situated off the south-east coast of Tasmania (see Map 1) and access is by boat or plane. There is a jetty at Darlington which provides the main access point for the Park. The Park is in the Municipality of Glamorgan-Spring Bay.

The management plan for the Maria Island National Park designates management zones within the Park, one of which is the Darlington Zone. The management plan requires that a site plan be prepared for this Zone. The extent of the Darlington Zone, and the area covered by this site plan, is shown on Map 2. The site plan must conform to the requirements of the management plan.

The Darlington Zone encompasses Darlington and its surroundings. The Zone is of considerable heritage significance. Darlington is characterised by a "complex cultural landscape which retains elements from many distinct phases of its development and history" (Godden Mackay, 1992). It receives the majority of visitors to the Park and the highest visitor impact. The main visitor facilities are located here and it is also the centre for administration and management of the island.

Although the adjacent waters of the Park are designated as the Marine Zone in the management plan, the interrelationship between what happens in the Darlington Zone and the Marine Zone is very important. For this reason, this site plan deals with some issues that encompass both zones.

The Parks and Wildlife Service of the Department of Primary Industries, Water and Environment is responsible for the implementation of this site plan.

1.2 Plan Scope and Structure

The intent of this site plan is to provide for conservation, management, and visitor use of the Darlington Zone in Maria Island National Park, consistent with the management objectives for the Zone set out in the management plan (See 4.1).

The plan briefly describes existing conditions, including the special heritage and environmental values of the area, existing facilities and current visitor use.

A description of proposed developments in the Darlington Zone is provided, giving specific details for key areas within the Zone.

Next, the range of possible effects of the developments are identified and discussed. Following this, an environment and heritage management program is described for the planning, construction and ongoing management of development in the Zone.

1.3 Plan Implementation

The prescriptions of this plan are subject to the provision of funding and other resources sufficient to meet them, and may be prioritised by the Director of National Parks and Wildlife at the Director's discretion according to resource availability.

Implementation of the plan will be staged concurrent with a monitoring program to assess any changes to the site and evaluate the effectiveness of management strategies.

1.4 Plan Review

The plan will be reviewed and, if necessary, revised ten years after its approval. Before any revised plan is approved, the review process will include a time of not less than thirty days for public comment upon the proposed revised plan.

2 Features Of The Darlington Zone

The earth science, flora, fauna and archaeological features of the Darlington Zone are described in the management plan for the Park. Information on recreational use and other pressures on the area has been recorded by Rangers. A visitor survey was undertaken to determine ideas for and attitudes to management of the Park, and particularly the Darlington Zone (Parks and Wildlife Service, 1995). Summary information about the main features of the Darlington Zone are detailed below.

2.1 Climate

Darlington experiences a temperate maritime climate. Rain is fairly evenly distributed throughout the year, but because of the effects of evapo-transpiration, effective precipitation is greatest in the winter months. The mean annual rainfall at Darlington is 677 mm, the highest mean monthly fall occurs in June and the lowest in September. The average number of rain-days per annum is 143.

The prevailing winds are from the west and the island lies in the partial rainshadow of the Central Plateau and western ranges of Tasmania.

Temperature figures are only available for Orford, adjacent to the island. The mean monthly maxima is 13.4°C in July and 22.7°C in February. Mean monthly minima for the same months are 2.8°C and 11.9°C respectively. The mean relative humidity at Orford exceeds 50% throughout the year. At low altitudes, frosts may occur between June and October but are likely year round at altitudes exceeding 300 m. During the summer months, strong northerly winds can combine with high temperatures to cause periods of extreme fire danger.

Site Planning Issues

The island climate has a number of implications for site planning for the Darlington Zone. Mild dry winters provide a relatively safe, year-round, out-door

destination which is of particular advantage to school and community groups.

During the summer months, the danger of wildfire is greatly increased and often requires precautions, such as total fire bans.

The relatively low annual rainfall of the island necessitates careful use of water by both visitors and management.

The prevailing winds can cause rough conditions for boating in the Park, and for the ferry service crossing Mercury Passage. Sea conditions in certain winds pose risks to ferry passengers embarking and disembarking at the Darlington jetty.

2.2 Geodiversity

Permian rocks unconformably overlie the Mathinna Beds of Siluro-Devonian age and occur in a band encircling the Maria Range and as a remnant in the north eastern corner of the south island. This series is richly fossiliferous in places and is well known for the prolific occurrence of the thick-shelled mussel *Eurydesma*. The cliff exposure in the Fossil Bay area in the Darlington Zone is recognised as the best example of lower Permian strata in Tasmania, if not the world. It has been recognised as one of fifteen highly significant geoheritage sites identified on Maria Island (Bradbury, 1993).

Siliceous Triassic sandstones overlie the Permian beds but outcrops are restricted to the edges of the Maria shelf and to scattered pockets in the west of the island, most notably at the southern end of the Darlington Zone in the vicinity of Howells Point known as the "Painted Cliffs".

Deep gradational black soil, on dolerite, occurs on lower slopes of the dolerite hills on the eastern part of the island, and on the flats near Darlington.

Shallow, gravelly uniform sands are found on coastal headlands and deep gravelly duplex soils in more protected locations.

Map 1

Mudstone-sandstone soils occur on the lower slopes of Mt Maria, inland from Darlington. Shallow, uniform, stony sand is found on sandstone and a shallow duplex soil of a stony, fine sandy loam over clay on mudstone. Deep duplex and uniform soils are found on the lower slopes and flats such as near Fossil Cliffs.

Calcareous sand forms beaches, dunes and sandy flats. Drainage flats and coastal lagoons contain a deep uniform clay sometimes with a surficial peat horizon.

Site Planning Issues

The presence of a variety of geological features within the Darlington Zone makes it an important location for geological education and interpretation. Both the Fossil Cliffs and the Painted Cliffs attract many of the visitors to the Zone.

During high tides or big seas, visitors have difficulty safely reaching the main area of the Painted Cliffs. Access routes to the Fossil Cliffs are unclear and some potential routes are hazardous.

Tunnel and gully erosion from past clearing and grazing is a problem in the Darlington area above the Fossil Cliffs and along drainage lines in the cleared areas around Darlington and Cape Boullanger. There are several active erosion gullies in the old vineyards area and a network of deep cracks has developed in the coastal grasslands. Bernacchi's Creek and its environs is degraded and damaged by erosion through loss of vegetation. Macropods overgrazing has exacerbated the problem in recent years.

The dunes behind Darlington Bay are subject to trampling by visitors. A combination of high tides and heavy seas caused unusually severe erosion of the frontal dune at Darlington Beach during 1994.

Some action has been taken to combat erosion but more work is required to control existing erosion problems and prevent future degradation by visitors and macropods.

2.3 Flora

The native flora of the Darlington Zone consists mainly of native grassland and grassy woodland dominated by blue gum *Eucalyptus globulus* and white gum *Eucalyptus viminalis*. It has high conservation values. The understorey is a diverse collection of native grasses and herbs and includes species listed on the *Threatened Species Protection Act 1995*.

Much of the original open forest and woodland was cleared during convict times or subsequently for agricultural and pastoral activities. Exotic trees and shrubs (plants not originally found in Australia) and some introduced "native" plants (Australian plants not originally found on Maria Island) have been planted or inadvertently introduced to the Darlington Zone as a result of settlement.

Site Planning Issues

Vegetation communities containing *Eucalyptus viminalis* and/or *Eucalyptus globulus* are important for the survival of endangered and vulnerable bird species (see 2.4).

Clearing of vegetation and subsequent settlement and grazing have led to the simplification of some native plant communities.

The Zone has a number of environmental weeds. Some plants introduced as a result of settlement, including canary broom *Genista monspessulana*, horehound *Marrubium vulgare*, saffron thistle *Carthamus lanatus*, other thistle species, gorse *Ulex europaeus*, ragwort *Senecio jacobaea*, and fennel *Foeniculum vulgare*, spread easily, competing with native vegetation. Overgrazing by macropods has exacerbated the weed problem in recent years.

The most pernicious introduced plant is canary broom, which has infested native vegetation in Bernacchi's Creek below the dam, the sides of the track to the dam, and the Skipping Ridge track to Bishop and Clerk. It has been found on the dunes at Darlington and along Bernacchi's Creek in the campground area. It appears to be able

Map 2

to establish and compete successfully in relatively undisturbed situations. It regenerates prolifically after a fire. Although there are known control and eradication methods, practical and effective options for control that are affordable have not been found.

Thistles have spread widely in the Darlington Zone. Effective thistle control will require active pasture management. Wild mignonette *Reseda luteola* is becoming a serious problem, and is very difficult to remove once established.

Effective weed control requires planning and resources. Weeds are dealt with on an ad hoc basis by spraying or grubbing out, sometimes using the voluntary labour of visiting school or community groups.

Along Bernacchi's Creek, in the vicinity of the campground, and in other gullies, the removal of vegetation has contributed to erosion, water pollution, and detracted from the attractiveness of the campground.

The heritage significance of introduced plants has been established by a Heritage Vegetation Study (Gilfedder, 1997). This study provides a basis for management of heritage vegetation. Plants without historic heritage value are unwanted intruders on the island but the possibility of complete removal of many of the species is remote. Nevertheless, control and, where possible, eradication are important management requirements. The Introduced Plants Policy (Parks and Wildlife Service, 1998a) provides the basis for weed management in the Zone.

Maria Island is a *Phytophthora cinnamomi* management area for susceptible threatened plant species. Consequently, observance of *Phytophthora* hygiene requirements is necessary for all site development actions.

2.4 Fauna

Pademelons *Thylogale billardierii*, potoroo *Potorous apicalis*, common wombat *Vombatus ursinus*, ringtail possum *Pseudocheirus peregrinus*, and echidna *Tachyglossus aculeatus* were the largest land animals present when Europeans first

arrived on the island. Smaller mammals such as the water rat *Hydromys chrysogaster* and the swamp rat *Rattus lutreolus* are also native to the island.

The forty-spotted pardalote *Pardalotus quadragintus*, endemic to Tasmania and restricted in distribution to Flinders Island and south-east Tasmania, occurs in the Darlington Zone. Its conservation status is listed as endangered and prospects for its survival justify great concern. Maria Island is the main secure colony of this species, where the population is considered stable and well protected. They occur along the western lowlands of the north island in dry sclerophyll forest and open woodland where *Eucalyptus viminalis* is present, particularly in the vicinity of the Reservoir in the Darlington Zone.

The swift parrot *Lathamus discolor* is listed as vulnerable. An estimated 5% of the remaining population breeds on Maria Island (Brown, 1989). The parrot nests in hollows of old growth trees. Nesting has been observed on Skipping Ridge and the lower western slopes of Mt Maria. The swift parrot predominantly feeds on nectar from blue gum *Eucalyptus globulus* flowers. Blue gum is widespread on the island in grassy and shrubby dry sclerophyll forests.

Beach breeding birds, including the hooded plover *Charadrius rubricollis*, which is rare nationally and requires monitoring in Tasmania, use the sandy beach and dunes at Darlington Bay.

The tiger snake *Notechis ater*, copperhead *Austrelaps superbus*, and white-lipped whipsnake *Drysdalia coronoides* have been recorded in the Darlington area. The blue-tongue lizard *Tiliqua nigrolutea* occurs and a number of species of skinks. Species of frogs have been recorded.

Forester kangaroos *Macropus giganteus* and Cape Barren geese *Cereopsis novaehollandiae* were introduced to the Darlington area between 1969 and 1971 in an effort to ensure conservation of the species.

Other introduced species include the Bennetts wallaby *Macropus rufogriseus*, brushtail possum *Trichosurus vulpecula*, Tasmanian bettong *Bettongia gaimardi*, eastern barred bandicoot *Perameles gunnii*,

southern brown bandicoot *Isoodon obesulus*, Tasmanian native hen *Gallinula mortierii*, and emu *Dromaius novaehollandiae*. Of these, the bettong, and the Tasmanian native hen in particular have thrived.

Feral cats are known in the area, although little is known about their population size and local effect on native fauna.

Site Planning Issues

Management of the Darlington Zone needs to ensure protection of endangered, vulnerable or rare bird species.

The main impacts of cats are their direct predation on native fauna, competition with other predators and the spreading of the disease *Toxoplasmosis*.

The long term impact on fauna through disturbance of habitat which has occurred in the area is unknown.

Browsing and grazing by the forester kangaroo and the Bennetts wallaby has had serious impacts in the Darlington Zone. The result has been regeneration failure of many trees, shrubs and herbs in grassland, grassy open forest and heathland communities and erosion problems along the foreshore, drains and watercourses. More recently, culling has reduced impacts from macropods, but may necessitate active pasture management, such as slashing, to reduce fire risk and maintain cultural landscapes. The presence of large macropods also provides an added interest for visitors to see.

2.5 Marine Flora and Fauna

The marine flora and fauna features of the Marine Zone which borders the Darlington Zone are described in the management plan.

Site Planning Issues

Shore based activities and developments in the Darlington Zone could have a significantly impact on the Marine Zone if not carefully managed.

Many visitors to Darlington are particularly attracted to the beaches and rock platforms of the area. Some of the

lower rock platforms along the fossil cliffs, although difficult to access, could suffer impacts on significant littoral flora and fauna.

Uncontrolled or poorly managed effluents and emissions from shore based developments could pollute the Marine Zone.

Indiscriminate taking of marine flora and fauna for private or research purposes could impact negatively upon the value of the protected marine environment.

2.6 Aboriginal Heritage

Maria Island is within the territory of the Oyster Bay tribal group (Brown, 1991). The *Tyreddeme*, the band of the Oyster Bay tribe occupying Maria Island at the time of colonisation, expanded their coastal territory by travelling on canoes, constructed from rushes, between mainland Tasmania and Maria Island (Brown, 1991).

Although it appears Aboriginal people did not occupy Maria Island on a permanent basis, they lived there for extended periods and carried out a variety of social activities (Brown, 1991). The *Tyreddeme* built huts, buried their dead and gathered a variety of food sources from the island.

The use of shellfish in the diet of the *Tyreddeme* is emphasised by the Aboriginal shell middens around the coast of Maria Island. These middens were noted by early explorers (Brown, 1991) and have survived to the present day, in spite of the widespread destruction of many for use in early European building.

Site Planning Issues

Aboriginal archaeological sites are non-renewable cultural resources which are important to the heritage of all Australians. They are protected by the provisions of the *Aboriginal Relics Act 1975*.

The archaeological values of Aboriginal sites have not yet been explored in any detail. Sites in the Darlington Zone need to be located and protected, particularly from the impacts of development and visitor use.

Sites are vulnerable to erosion and require protection from impact by vehicles, walkers and developments.

2.7 Historic Heritage

In 1825, Governor Arthur directed that a penal settlement be established on the northern part of Maria Island to relieve the settlement at Macquarie Harbour. It was located at Darlington because of the combination of a good anchorage, accessible shore, fresh water and sheltered site.

The only remaining buildings of the First Convict Period are the Penitentiary and the Commissariat Store. On the hillside to the west of Darlington, the Commandant, Major T. D. Lord, constructed his own residence, the footings of which are still visible near Mrs Hunt's cottage. After the abandonment of the settlement in 1832, the buildings were left to pastoral lessees and whaling activities, and by 1841 some buildings had gone, and most were in poor repair.

The Convict Station at Darlington was reopened in 1842. The original buildings were generally re-used, but a major building program was initiated, and most of the structures on the island date from this period of activity. The northern end of the island was developed for farming. The Barn and the windmill with its attendant Miller's Cottage were built on the hillside overlooking the farm land.

South of Darlington, the Oast House had been built some time before 1845. The road from Darlington and the stone abutments of the bridge across the creek are still visible.

Maria Island was entirely abandoned as a probation station by 1850 and thereafter the island was leased to a succession of pastoralists.

In 1884, Diego Bernacchi arrived and was responsible for a variety of commercial developments ranging from silk making to cement production. Between 1885 and 1888 the Darlington area was changed from the remains of a prison compound to an open settlement very similar to the present day. The settlement was surrounded by cultivated areas, with enclosed gardens planted around some of the houses.

In keeping with Bernacchi's vision of Maria Island as an island paradise, the Grand Hotel was built on the hillside behind Bernacchi's house. The Coffee Palace was built in the valley below in 1888 to provide accommodation and refreshment.

Bernacchi developed the Cement Works, serviced by a tramway to the jetty. The northern end of the island was used for agricultural purposes, with two small vineyards planted on the north facing slopes. South of Darlington, the Oast House was used during this period for the pressing of grapes. The developments never flourished and, in 1896, operations effectively ceased on the island.

Maria Island was opened to selectors, and several families took up land. A number of farm dwellings were built, chiefly on the western side of the island.

In 1920, the National Portland Cement Company was formed, with Bernacchi's involvement, to develop cement works at Darlington. Darlington received an electrical supply for the first time and water was reticulated. By 1927, the Company was in difficulties and cement production ceased by 1930.

After closure of the cement works, a few families stayed on, undertaking pastoral activities. There were occasional visits by tourists to enjoy the peaceful atmosphere. Commercial fishing out of Darlington also occurred from the 1940s through to the 1960s. Some limestone quarrying occurred.

In 1971, Maria Island was declared a Sanctuary under the Animals and Birds Protection Board. In the following year it was proclaimed a State Reserve and National Park under the management of the then National Parks and Wildlife Service.

The popularity of the Park for recreation and education rose. Darlington became the Park management centre and visitors camped in the Bernacchi's Creek valley or used various historic buildings.

In 1992, a comprehensive Conservation Plan for the Darlington precinct on Maria Island was prepared by consultants Godden

Mackay (1992). This report sets out, in accordance with the Burra Charter of Australia ICOMOS (Marquis-Kyle & Walker, 1992) and its associated guidelines, recommendations for the retention and conservation of the Darlington heritage precinct. Conservation plans for individual buildings have been prepared for Bernacchi's Terraces (Godden Mackay, 1991), and, in one document, for Smith O'Brien's Cottage, the Mess Hall, and the Coffee Palace (Godden Mackay, 1995). A conservation plan has also been prepared for the Brickfields area (Godden Mackay, 1997).

Site Planning Issues

The layering of history at Darlington presents a complicated but fascinating opportunity for interpretation and education. However, the significance and integrity of the historic precinct needs to be respected and maintained. As of 1998, some important buildings, such as the Penitentiary, are without conservation plans.

Funding is limited and the costs of maintaining the historic fabric considerable. Progress on conservation work, and the scale of works are both heavily dependent on available funding. The island location increases costs.

2.8 Heritage Vegetation and Cultural Landscapes

During the periods of European activity, plants were introduced to the Darlington area for landscaping, windbreaks, orchards and house gardens. These now form an important part of the landscape of Darlington, giving a sense of time and scale as well as a feeling of protection and seclusion. Pasture areas retain something of a settled pastoral atmosphere.

The mature introduced trees, gardens and pastures are part of the history of Darlington and form part of a cultural landscape of historic heritage value.

Amongst the species remaining today are Monterey cypress *Cupressus macrocarpa*, radiata pine *Pinus radiata*, Lombardy

poplar *Populus nigra Italica*, silver poplar *Populus alba*, willows *Salix* sp and a range of ornamental and fruiting trees and shrubs including figs *Ficus carica*, walnut *Juglans nigra*, agave *Agave* sp, escallonia *Escallonia* sp, lilac *Syringa vulgaris* and agapanthus *Agapanthus africanus*.

In Darlington, cypress and poplar form avenues through the settlement, radiata pines form a one sided avenue to the south, and *Pinus radiata* has established on the dunes at Darlington Beach. Beyond Darlington, groves of young cypress trees *Cupressus macrocarpa*, and individual saplings, have established in the dunes and inland from Hopground Beach. Nearby, willows cover the former hopgrounds and extend along Counsel Creek.

Much of the pasture land at Darlington dates from the First and Second Convict Periods. Most surviving introduced trees in Darlington were planted between about 1884 and 1930, during the periods of Bernacchi and the National Portland Cement Company. At the time when the cypress avenue was planted (c.1922) the Lombardy poplars were already vigorous, well-established trees.

Hewett (1984) recommended a program of preventive management for the historic trees but few of these recommendations were implemented. Gilfedder (1997) provides a more comprehensive overview of the significance and general management requirements of the heritage vegetation.

Using Australian Heritage Commission criteria, the heritage vegetation of Darlington has been assessed to be of National Estate and State cultural significance historically, socially, and aesthetically (Gilfedder, 1997).

There are important views over the penal settlement from the commandant's residence (near Mrs Hunt's cottage) and from the Grand Hotel and Bernacchi's residence (Gilfedder, 1997).

Site Planning Issues

Many heritage trees have died or have a large number of dead or dying branches. It is estimated that approximately 25% of

the trees of the Bernacchi period have disappeared since 1983.

Degradation of pastures by erosion, weed invasion and scrub development is widespread.

To retain and enhance the cultural landscapes and historic atmosphere of Darlington, tree surgery, replacement and care of introduced plants will be necessary, as will maintenance of pasture in the immediate vicinity of the historic precincts (see also 2.4 for other pasture management issues). Some introduced plants of heritage significance are self-seeding and need to be managed to prevent them spreading inappropriately.

Planning and assessment of proposals for introducing new elements in these cultural landscapes needs to be rigorous if their values are to be protected.

3 Existing Use And Facilities

3.1 Visitor Numbers and Characteristics

Statistics relating to visitor use of Darlington for the ten years 1987-88 to 1996-97 are set out below in Table 1. Most visitors to the Park arrive at Darlington, where the only reliable visitor statistics are collected. Note that figures for the earlier years in both Table 1 and Table 2 include a large number of unrecorded days, making direct comparisons with more recent years difficult.

The number of "visitor days" and "visitor nights" are compounded figures (see Table 2). The figure for "visitor nights" is derived by counting the number of people

Table 1 Visitor Numbers at Darlington

Year	Days not recorded	Day Visitors to Darlington (a)	Overnight Visitors to Darlington (b)	Plane Visitors to Darlington (c)	Total Visitors to Darlington (a + b + c)
1988-89	89	7251	4172	264	11,687
1989-90	50	6196	3382	237	9,815
1990-91	45	6711	3172	309	10,192
1991-92	49	8108	3769	366	12,243
1992-93	23	8857	4048	432	13,337
1993-94	12	8934	3947	513	13,394
1994-95	5	8383	3176	228	11,789
1995-96	0	8183	3154	276	11,613
1996-97	0	9511	3682	300	13,493
1997-98	0	9513	3788	332	13,633

- (a) Number of ferry visitors arriving and returning on the same day.
- (b) Number of ferry visitors arriving and staying at least one night.
- (c) Number of visitors arriving by plane, determined by multiplying the number of planes arriving by an average of three passengers. The large majority of these passengers would be day visitors.

Table 2 Visitor Nights and Visitor Days (Darlington)

Year	Days not recorded	Visitor Nights Darlington (a)	Visitor Days Darlington (b)
1988-89	89	11113	18628
1989-90	50	9636	16069
1990-91	45	7871	14891
1991-92	49	10155	18629
1992-93	23	8692	17981
1993-94	12	8111	17558
1994-95	5	7782	16393
1995-96	0	6732	15191
1996-97	0	7900	17711
1997-98	0	7687	17532

- (a) Number of visitors staying at Darlington each night. Visitors staying more than one night are counted each night that they stay.
 (b) Number of day visitors, plane visitors, and visitor nights [see (a) above].

staying at Darlington each night. Because some visitors stay more than one night, this total includes visitors who are counted more than once. The figure for "visitor days" is derived by adding the number of day visitors to the number of "visitor nights", which again means that the figure includes visitors that have been counted more than once. The figures are useful for management to indicate visitor pressures on facilities, services such as the load on sewerage systems, and on the environment.

Table 2 suggests there has been a decline in the number of nights that visitors spend at Darlington (bearing in mind the large number of unrecorded days in earlier years). There appears to have been a fall in the absolute number of overnight visitors (see Table 1) and the number of visitor nights has declined over the ten year period. At the same time, the number of day visitors (see Table 1) now make up two thirds of all visitors to Darlington. Consequently, the number of visitor days has not declined to the same extent.

Maria Island has always been particularly popular with school and community groups. However, there has been a decline in visits by school groups, commencing in the mid 1980s, and mainly attributed to changes in policies and funding in the State education

sector. Nevertheless, in 1997/98 some 40% of visitors staying overnight were children.

Generally Darlington receives four times the number of visitors during December, January, and February that it does in June, July, and August. In the summer, indoor accommodation at Darlington is often fully occupied. However, in recent years the campground has rarely been used to capacity.

Although 200 visitors per day have been recorded, the busiest day in 1997/98 totalled 151 visitors. Visiting school groups of 100 or more students contribute to relatively high overnight visitor levels during Spring and Autumn and there is always a small number of overnight visitors taking advantage of the relatively mild winter climate.

There are three broad categories of visitors to Darlington. Day visitors consist predominantly of small groups of families, friends and independent tourists, but include some coach tour passengers. During summer and holidays, overnight visitors are predominantly groups of families, friends and backpackers, but, during other periods, mainly school and community groups. A small number of commercial camping tours also occasionally visit, as do private boating parties.

Length of stay at Darlington depends on the type of visitor. Day visitors generally spend only a few hours on the island. At most, this is time for a brief inspection of Darlington and for short walks in the immediate environs. On the other hand, the majority of overnight visitors stay about 2 nights and can explore further afield.

Site Planning Issues

The requirements of shorter term visitors need to be recognised. Day visitors require information and interpretation that allows them to make the most of their short stay.

The peak number of day visitors is limited by the capacity of ferry services and air transport to bring visitors to Darlington.

Access costs may be a disincentive to some visitors. The remote location means that providing services and facilities is more expensive than many mainland locations. These additional costs may also deter visitors.

Increased numbers of visitors will provide additional entry fee revenue and could provide the "critical mass" for some services to become viable. Increased visitor numbers also could cause an impact on the environment, and on the experience of visitors.

Large school groups can be noisy and disturb other visitors, particularly in camping areas. There is no separately designated group camping area and large groups sometimes fully book out the Penitentiary, the only indoor accommodation.

3.2 Recreation And Tourism

According to the Department of Tourism, Sport and Recreation (1990), the growth market in tourism and recreation is composed of visitors who are not satisfied with derivations or imitations of other places and experiences. The Commonwealth Department of Tourism (1994) state that visitors seek experiences that are authentic and incorporate learning, rather than contrived entertainment. In this regard, the

Darlington Zone is a place that is inherently and uniquely attractive to visitors.

At Darlington, the visitor finds authentic historic settlements and cultural landscapes, emphasising a sense of the layers of history and the continuity of the human story of the Island.

The experience is one of peace and quiet in close contact with wildlife, beaches and a scenic environment. Historic Darlington and the surrounding area provide an ideal safe environment for children, and a pleasant environment and many recreational opportunities suitable for families and less active people. Most visitors to Darlington also visit the Fossil Cliffs, the Painted Cliffs, and the beach at Darlington. Some also visit the Reservoir and the Oast House.

A pervasive and valuable tourism and recreational character of the Darlington Zone, emphasised by its isolated island setting, is the sense of separation and contrast with the pace and development of the modern world. Visitors arrive in comfort on the ferry, yet for a brief period stepping safely not only back in time, but also away from the everyday artefacts of contemporary society. Behind them the jetty and the ferry remain as the metaphorical "umbilical cord" to the mainland of Tasmania. This special value, difficult to find elsewhere on the east coast of Tasmania, is recognised and appreciated by visitors.

A year long survey of visitor attitudes and preferences about Maria Island National Park indicated that survey respondents appreciated the unspoilt natural environment, peace and quiet, scenery, wildlife, and historic features of the Park, and the isolated island location (Parks and Wildlife Service, 1995).

The most popular activities undertaken by respondents were sightseeing, nature appreciation, bushwalking, history appreciation and getting away from it all.

Site Planning Issues

Development proposals are made from time to time which could have a detrimental impact on the tourism and recreational character of Darlington, some in very obvious and immediate ways, others in more subtle, incremental ways. Because of its inherent values and consequent attraction to key visitor market segments, Darlington does not need invented attractions. However, tourism and recreation facilities and services which respect and complement the inherent values of the place are needed to provide opportunities for visitors to experience it. The challenge for site planning is to provide these in a co-ordinated way, without destroying the values which attract visitors in the first place. Ad hoc, incremental development decisions could also threaten Darlington Zone values.

Inappropriate or inadequate facilities for both day and overnight visitors could detract from the recreational settings for visitors. The scale of development and location of visitor facilities should be appropriate to the capacity of the area to withstand environmental and social impacts, without diminishing its values. Facilities need to be adequate to cater for current and desired future levels of use. The type and extent of development needs to be carefully targeted to prevent destruction of the assets which attract visitors in the first place.

3.3 Visitor Services & Facilities

To get to Darlington, visitors must either fly or use the commercially operated ferry. Access by private boat is also possible. The Parks and Wildlife Service is responsible for all visitor services and facilities within the Park. No transport is available within the Park. There are no shops. Once on the island, visitors need to be self-sufficient for the duration of their stay. Park staff hold emergency first aid supplies but otherwise are unable to provide for ill-prepared visitors except from their personal stores.

Piped water from the dam on Bernacchi's Creek is available from a number of taps around Darlington. Limited tank water is also available. Some cold water washing

facilities are located in the Penitentiary but there are no showers or hot water.

The Reservoir is estimated to provide 5 and 7.5 million litres for use in Darlington after allowing for a loss of an equivalent amount by evaporation and seepage (Todd, 1992). Water is piped to two storage tanks on the hill behind the settlement. These tanks have a combined capacity of 60000 litres. The water is chlorinated as it enters the storage tanks.

There are three public toilet blocks in the Darlington area near the jetty, in the historic precinct and adjacent to the barbecue/picnic shelter near Darlington Beach.

Behind the dunes at Darlington beach, a shelter with gas barbecues and fireplaces is provided, and used by day and overnight visitors. Nearby is a toilet block. The Mess Hall is open for visitor use.

A public telephone is located beside the road near Bernacchi's Terraces.

Rubbish is regularly removed from some locations in the Zone. Firewood is provided to the campground and the picnic shelter.

Site Planning Issues

A few visitors come ill-prepared for their visit or regret not having allowed more time. Better marketing and pre-visit information could help visitors prepare for their visit and make more informed choices.

Access to Darlington is more limited than most other national parks in Tasmania. The sea barrier places additional costs on visitors and on providing for them.

Innovative ways to provide visitor facilities and services that are economically feasible and do not compromise Park values need to be identified.

Some historic structures have been subject to an unacceptable level of wear and tear through vandalism, pressure of visitor use, water and wildlife damage. Maintaining and repairing these structures is costly and time consuming.

Services such as water and sewerage have been recently upgraded to maintain environmental standards.

If accommodation standards remain as they are currently, "the existing sewage system appears adequate for a three fold increase in overnight visitors. Increased use of the day visitor toilet block should not cause any problems, although there is some odour from the septic tank which could prove unpleasant at the day visitor shelter and barbecue if increased use of the toilets aggravated the problem" (Todd, 1992, p34).

"Provision of showers for overnight visitors in the penitentiary and campers would roughly double the flow to the sewage lagoons" (Todd, 1992, p36). Todd suggests that if this was coupled with an increase in overnight visitor numbers and development of Bernacchi's Terraces for accommodation, demand on the existing waste water treatment system would be stretched. On this basis, he recommends against provision of showers.

On the other hand, there is strong visitor support for the provision of showers (Parks and Wildlife Service, 1995). Consequently, if showers are provided for all overnight visitors, careful planning and design measures will need to be implemented. Coin operated, timed, and controlled flow showers will limit demand on treatment capacity. In some instances however, upgraded or new sewage capacity will have to be developed to maintain high environmental standards.

Apart from demand on waste water treatment capacity, "hot showers would roughly double the daily water consumption of overnight visitors" (Todd, 1992, p26).

Maria Island has no permanent watercourses. Those that are most reliable are located at the northern end of the island. From the perspective of water supply, provision of showers will require an eventual limitation on overnight visitor numbers. Some additional storage tank capacity is possible, but the replenishment capacity of the Reservoir remains a limiting factor, given the rainfall patterns on Maria Island. Consequently, based on the theoretically possible accommodation

options provided for in the Maria Island management plan, and the water supply capacity and sewerage treatment options if showers are provided, the maximum number of overnight visitors on any one night that Darlington can support is estimated to be about 420. This compares with current capacity for overnight visitors of about 214. Allowing also for a maximum 200 day visitors and a maximum of 30 permanent and temporary staff, this would mean a maximum peak daily demand of some 55660 litres of water, with a slightly less total flow of liquid effluent from toilets and grey water to be handled by the sewage system. Appendix 1 provides background information on estimation of water consumption.

3.4 Visitor Accommodation

The Darlington campground occupies the flat ground on either side of the lower part of Bernacchi's Creek within the historic precinct. In the past, a notional camping accommodation capacity of up to 230 people has been stated for the campground although records do not show how this figure was derived. In the past eight years, a maximum of 150 campers at one time has been recorded and that on only one occasion, a rogaining championship. More usually, camper numbers are well under 80. Camper numbers only exceeded 80 on 36 occasions in the past 7 years or on 1.3% of nights during that time.

Firewood is provided by Park staff for use in small steel fireplaces.

Visitors are also accommodated in the Penitentiary which accommodates up to 64 people. It is divided into 10 rooms each containing bunks, tables, benches and a wood heater. No lighting or special cooking facilities are provided.

Luggage trolleys are provided for overnight visitor use. The trolleys are pushed or pulled by the visitors to carry luggage from the jetty to the camping area or the Penitentiary.

Site Planning Issues

The lower reaches of Bernacchi's Creek have been severely degraded in recent years

due to pressures of the adjacent campground. In earlier years, the creek enhanced the aesthetic appeal of the campground but the death of many trees, erosion of banks and water pollution now detract from this appeal.

The campground at Darlington is exposed and almost devoid of trees for shade. All of the campground is more than 100 metres walk from the nearest toilet with most sites between 150 and 250 metres away.

Contemporary standards require campsites to be no more than 100 to 110 metres from a toilet. No showers are provided. Except for a few fireplaces, there are no cooking and food preparation and clean-up facilities. Food cleanup and washing effluent often ends up in the creek. An alternative area suitable for camping is located near the existing but underutilised picnic shelter and toilets near Darlington beach.

Sometimes, accommodation in the Penitentiary for educational groups or people working on volunteer programs can mean that indoor accommodation for the general public is very limited. Until recently, booking by the room rather than by the bed has meant that the capacity of the Penitentiary was at times used ineffectively. A recent reconfiguration of the rooms has reduced this problem.

There is also some concern that continued use of the building for accommodation may be inconsistent with its adequate conservation. However, its frequent use keeps it dry through the use of the wood heaters and at least ensures regular maintenance.

Because the Penitentiary is used for accommodation, other visitors avoid entering the building, and potential interpretation opportunities cannot easily be realised.

There is no lighting in the Penitentiary and the use of candles, gas and kerosene lamps by inexperienced visitors could pose a fire risk. Bench space, storage space and the general fit-out of the Penitentiary is very basic and may not be adequately catering for visitor needs.

In Darlington, the number of indoor beds is limited and, at times during summer, of

insufficient capacity to meet demand. This is particularly the case because the variety and flexibility of accommodation is limited and very basic. Additional accommodation could be considered provided the fundamental requirement to maintain the tourism and recreational character of the Park is met.

In contrast, the campground is never used to capacity and in general is underutilised

There are limits to the number of overnight visitors who could be acceptably accommodated while providing adequate capacity of services (see 3.3) and minimising degradation of the special natural and cultural values which make the Park so attractive to visitors.

Nevertheless, the accommodation mix could be varied by providing more indoor beds in a wider range of accommodation standards. An increase in total overnight visitors can be provided for before, even in busy periods, the limits on numbers discussed in Section 3.3 would foreseeably constrain visitor demand. For example, on the busiest night in 1996/97, 140 people stayed overnight, yet even with the constraints mentioned above, 420 people could be accommodated overnight (See Section 3.3).

3.5 Roads and Walking Tracks

Within the Darlington Zone there is a system of vehicular tracks and fire trails (Map 2). Private motor vehicles are not permitted but management vehicles are used on these tracks. All vehicular tracks are available to walkers and cyclists. Marked walking tracks to Bishop and Clerk and Mt Maria originate in the Darlington Zone.

The open nature of the landscape in much of the Darlington Zone allows walkers to roam at will in these areas without surfaced tracks being provided.

Site Planning Issues

The road surface from the jetty at Darlington to the historic settlement is rough and unsuitable for people with disabilities. There are only a limited number of short to medium length circuit walks in the Darlington area that are identified for visitors.

At some locations along the foreshore, tracks have the potential to undermine soil stability and create erosion, especially if usage increases.

3.6 Picnicking

Picnicking is popular with some day visitors. Facilities include a substantial picnic shelter with free gas barbecues. Rubbish bins are provided at a number of locations.

Site Planning Issues

If the number of day use visitors increases, there may be a greater demand for picnic facilities, including shelter from summer sun and in wet and cold conditions. Alternative sites may be required, although the open landscape provides ample opportunities for informal picnics in good weather.

If camping is moved adjacent to the existing picnic shelter, some overlap of demand between campers and day visitors could occur. This should be a limited problem since generally camper demands on the facility will be concentrated in morning and evening periods when day visitors are not on the island, or during wet weather when day visitors are fewer.

3.7 Jetty & Boat Launching

The Parks and Wildlife Service maintains a boat launching and slipping facility adjacent to the Darlington jetty for management purposes.

The Department of Transport maintains the Darlington Jetty.

Site Planning Issues

The slipways are in a poor state of repair. The quality of the boat ramp construction is crude in finish. Relocation of the slipway may be necessary.

The surface of the Darlington jetty, although regularly maintained, is rough and poses a potential hazard to the infirm. In rough seas loading and unloading passengers and equipment can be dangerous.

3.8 Signs And Interpretation

Visitor survey respondents (Parks and Wildlife Service, 1995) preferred self-guiding leaflets and signs to central displays. Several pamphlets, maps and brochures have been prepared for interpretive use in the Park. The Commissariat Store houses a small visitor display which provides both Park orientation and interpretation of the historic building. High quality interpretation has recently been placed in the Coffee Palace as stages 1 and 2 of a major interpretation facility in the building.

Park staff conduct a guided tour of Darlington during busy periods. The summer ranger program, which runs each year for most of the summer school holidays, provides a range of day and evening activities for visitors.

Site Planning Issues

Orientation and interpretation needs to be clear and accessible for visitors, especially those who are unfamiliar with the area. High quality information and direction to facilities such as toilets, water and walks is needed.

Interpretation and information could be specifically targeted at the differing user groups.

Overnight visitors can discover and appreciate a great deal more about the whole island than day visitors. Day visitors require simple and concise orientation and interpretation of the Darlington area to make the most of their short stay. However, at present some

environmental and heritage values of the area are not presented to visitors. Information needs to be consistent, complete and well presented.

The visitor survey (Parks and Wildlife Service, 1995) identified concerns about the sufficiency, accuracy and usefulness of interpretation, direction signs and track markings. Insufficient information on walking times and poor or insufficient interpretation was the most common complaint of visitors to the Park (Parks and Wildlife Service, 1995). Rangers have implemented upgrading of signs to overcome these concerns.

3.9 Management Facilities

Park Rangers and their families live within the Darlington Zone, and accommodation is also provided for temporary employees, contractors and visiting staff. Permanent staff are housed in three family homes, with an additional single persons quarters located in one of the Bernacchi's terraces. Accommodation for temporary or visiting staff, contractors and labour program workers is provided at the workshop, in caravans (to eventually be removed), in an annexe near the School Master's House, and in Prero's, an old fishing shack in the dunes above Darlington Beach.

The Park office is located in the School Master's House. The Commissariat Store is also staffed during ferry arrival and departure times as a reception and orientation point for visitors. It does not have power or telephone. A workshop is located at the southern edge of Darlington. Four wheel drive vehicles and a truck used for management purposes are based there, along with earth-moving machinery and fire-fighting equipment.

There is a rubbish tip near the road to the reservoir at Darlington.

Fuel is stored in a shed below the Ranger houses and gas cylinders are stored behind the houses below Adkins house.

Diesel generators charge a battery array which is used for electricity. Diesel fuel is used to run machinery, gas is used for some

purposes, wood for cooking and heating using open fires and slow combustion stoves, and petrol or diesel for vehicles.

Site Planning Issues

Alternative energy requirements, and constraints on transport, handling, storage, and maintenance of energy sources are imposed by the island location.

Staff housing is at times at capacity when employment or volunteer programs are operating.

Rough surfaces on roads and tracks used by walkers cause difficulties for visitors with disabilities or who are infirm.

4 Description of Proposed Developments

4.1 Darlington Zone Objectives

Consistent with the management plan for Maria Island National Park, the objectives for the Darlington Zone are to:

- protect and conserve environmental and heritage features and values;
- protect and conserve the recreational and tourism atmosphere and character;
- provide recreational and tourism opportunities consistent with the above objectives; and
- consistent with the foregoing, provide the principal visitor and management services and facilities for the Park.

The management plan designates all of the Darlington Zone a heritage precinct.

4.2 Facilities & Services Areas

Within the Darlington Zone three facilities and services areas have been designated by the management plan as contained areas where development of certain visitor or management facilities and services, including new structures, may be considered (See Map 2).

4.3 Key Developments

The key developments for the Darlington Zone is set out on Map 3. The following sections, in some cases accompanied by detailed plans explain the key components of the concept in more detail.

4.4 Site Arrival Area

The site arrival area is that area shown on Map 2 as facilities and services area B and as B on Map 3.

The site arrival area will provide management and public landing facilities, including information, toilets and public

shelter. Marine interpretation may be provided here, and facilities to support marine research. Diving equipment hire and a diving equipment wash down area may be developed.

Jetty and Barge Ramp

Within the resources of the Department of Transport, the jetty will be maintained at the best practicable standard to provide easy and safe disembarking and embarking of passengers. The decking of the jetty will be progressively upgraded to allow reasonably safe and comfortable use by people with disabilities. However, because of the inherent variable conditions of access to and from the jetty (both on the mainland and at Darlington) because of sea conditions and tides, access to the Park for people with disabilities cannot be guaranteed.

The management vessel landing ramp will be retained and maintained.

Visitor Shelter

An improved enclosed area may be developed in the existing toilet shelter building for visitor shelter. Windows may be installed for further weather protection. A clear visitor view of the jetty area to observe the approach of ferry services will be retained. Seating adequate for a minimum of 20 people will be provided.

Subject to negotiations and agreement between the Department of Transport and the Director, some roofed passenger shelter space may be constructed as an integral part of the jetty.

Toilets

The existing toilets will be retained with some minor upgrading. The sewage disposal system will be reviewed and upgraded if necessary to meet contemporary treatment standards.

Information

Brief visitor directional information will be provided adjacent to the landward end of the jetty. Further information may be provided in visitor sheltering spaces.

Map 3

Marine interpretation may be provided on the jetty or in visitor sheltering spaces.

Dive Equipment Hire and Wash Down Area

A dive equipment hire service and dive equipment wash down area may be incorporated into the existing toilet/shelter building. This may require some extension of the existing building. Storage for marine research equipment may also be provided in an extension to the existing building.

If power is required to the toilet, shelter and dive equipment area, it will be provided by solar panels installed flat on a north facing section of the roof.

4.5 Commissariat Store

The Commissariat Store will be used for the initial orientation of visitors to the Park. Souvenirs and memorabilia focussed on Tasmanian made merchandise directly related to the features and values of the Park will be available in the building.

Subject to heritage assessment, power to the Commissariat Store may be provided from solar panels.

If required, a telephone may be connected in the Commissariat Store from the existing radio phone service by underground connection to be laid within the existing road formation.

4.6 Campground Relocation and Development

The campground will be relocated and developed in that area shown on Map 2 as facilities and services area C and on Map 3 as C.

It is proposed to develop the relocated campground as shown on Map 4. This will satisfy contemporary standards in the provision of campgrounds of the type and scale provided at Darlington as required under the *Liquor and Accommodation Act 1990*. In particular, no camp site will be more than 100 metres from toilets, a common

design standard, and in accordance with Accommodation Standards (No 1) required by the Licensing Commission. The relocation will help ameliorate the environmental deterioration of Bernacchi's Creek.

The relocation will make use of the existing under-utilised but high standard cooking and shelter facilities and toilets. This obviates the need to construct additional toilets and facilities in the existing campground area, a costly requirement which would be necessary if the campground remains where it is. On some limited occasions, use of the visitor shelter by both campers and day visitors may overstretch the facility. Day visitors may on those few occasions feel discouraged from using the shelter. However, with the development of the Mess Hall as an alternative visitor shelter and use area, this potential difficulty should be able to be managed satisfactorily. Eventually, the external walls and internal spaces of the visitor shelter may be reconfigured to provide more efficient useable spaces for an increased numbers of users.

With an extension to the existing toilets in the proposed new location, there will be sufficient space for the provision of showers. These showers, when they are installed, will be flow controlled, timed, and coin operated.

The campground facility will provide camp sites suitable for individuals through to small groups of 4 to 6 people, depending on the type of tent accommodation used and the type of group. The campground is designed to accommodate between 40 (2 people/site) and 120 (6 people/site) campers.

An overflow area will provide for the rare instances when the main campground is full or for the few occasions when large groups of campers of up to 100 people may best be located separate from other campers.

The camping area and planting have been laid out to retain the sweeping open visual effect of the large pasture area between the Darlington settlement and the dunes, albeit

Map 4

with some reduction of size to accommodate the camping arrangements.

It is proposed to revegetate the gully adjacent to the campground area and prevent camping within 15 metres of the gully (see 4.11). The campground area will also be revegetated to provide shading, wind shelter and privacy for individual sites, as well as to substantially screen the visual impact of the camping area from the adjacent heritage areas.

The overflow camping area will remain an open grassed area with possibly a few scattered shade trees.

Relocation of the camping area will be staged to allow revegetation to establish sufficiently before campers are moved to the site.

A dune revegetation program is proposed in conjunction with the campground development. This will not only improve the environmental quality of the dunes, which are currently degraded, but provide additional wind shelter to the camping area.

The grove of *Pinus radiata* vegetation along the foreshore will be maintained in the medium term to stabilise the dunes, provide wind shelter for campers and picnickers and retain the visual amenity of the area. As dune revegetation becomes established and of sufficient size to provide additional wind protection, over mature *Pinus radiata* will be selectively removed and replaced incrementally at the edges by native species. Seedling pines which have developed along the dunes away from the main grove will be removed immediately as will trees threatening damage to existing facilities buildings.

Individual campsite fireplaces will not be provided. These sites will be fuel stove only and no fires will be allowed in them.

Large communal fire pits may be provided adjacent to either end of the picnic shelter for evening gatherings if a need for them is established. Two open fireplaces are already provided in the existing shelter.

Direction and orientation signs will be located at the entrance to the camping

areas and in selected locations along pedestrian paths. Dune crossings will be provided as shown on Map 4 and a new creek crossing giving direct access from the campground area to the south.

4.7 Marine and Heritage Centre

A proposal to develop a marine and heritage centre is being considered. The centre would be developed in that area shown on Map 2 as facilities and services area A and on Map 3 as A. To succeed, this proposal will be reliant on special purpose funding to meet the capital costs of construction and will be subject to a business plan assessment of its ongoing viability before the proposal can go ahead (see 5.1). If capital funding cannot not be obtained and/or ongoing viability is not at least at break even, then the proposal will lapse. If so, the area identified for the development will be considered for other developments which are consistent with the management plan for Maria Island National Park (Parks and Wildlife Service, 1998b) and this site plan.

The aim of developing the centre is to provide:

- a field centre for
 - marine environment research
 - terrestrial environment research
 - cultural heritage research;
- interpretation focussing particularly on the marine environment;
- a venue for education programs from primary school through to tertiary level;
- a venue for informal learning programs associated with ecotourism;
- a venue for other programs in a natural setting;
- accommodation for researchers, students, tourists and the general public.

The centre would be focussed on research, formal education programs and informal learning programs as part of tourism experiences. The centre would be supported by accommodation facilities and would be managed as a self contained complex.

Map 5

The proposed development is shown in more detail on Maps 5 and 6. Researchers and groups such as school and university study visits, specialised study tours by, for example bird watchers, zoo specialists and the like would use the centre. Other compatible programs and uses such as, for example, art and photography groups and yoga retreats would be provided for, as would pre-booked use by ecotourism tours and the general public. Some users would make use of both the centre and accommodation, others would use either just the centre or just the accommodation.

The marine and heritage centre would include a large meeting/seminar space which can also serve as a dining room. A kitchen suitable for food preparation for large groups is proposed. A number of smaller meeting rooms, laboratory spaces, office and storerooms would be included in the centre.

Two bunkhouses, which can be developed in stages, are proposed. Each would sleep approximately 40 people, and include a communal lounge, cooking and dining area. Depending on the final design, toilets and showers may be incorporated in each bunkhouse or a separate ablutions block may be necessary.

On the upper slopes of the development area, and partially screened from the bunkhouses and centre, ten self-contained, co-joined cabins are proposed. These cabins would be similar in scale and facilities to those provided at Lake St Clair, although the architectural design would be developed specifically to suit the location.

One of the self contained cabins would be dedicated for accommodation of a caretaker. Additional Park management accommodation may be provided for within the overall marine and heritage centre development area. Both the bunkhouses and the self contained cabins would be available to users of the marine and heritage centre, to the general public, and to commercial tour groups on a booking system.

Upstream of the development, a small dam is proposed, subject to site investigation. This dam would provide for firefighting and could be used for other non-drinking

purposes on the site. An equipment store/workshop may be located in the vicinity of the dam.

4.8 Accommodation in Heritage Buildings

Both Bernacchi's Terraces and the rear of the Coffee Palace have been identified by conservation plans as being suitable for restoration as visitor accommodation.

Coffee Palace

The front rooms of the Coffee Palace are devoted to interpretation and will remain so. At the rear, the Coffee Palace provides the opportunity to develop 6 rooms each accommodating up to 2 people. The rooms would have lighting provided. Heating may be provided if a safe, cost effective system can be installed. A small motel style fridge and tea and coffee making facility may be included.

It may be possible to develop a shared shower/toilet facility in the manner of a boarding house or country pub, and a small shared sitting area in the former kitchen area of the building. Otherwise, guests would need to make use of shower/toilet facilities located elsewhere.

It may not be feasible to expect an economic return on capital funds invested to make accommodation use of the building possible. Consequently, public funding of the repair, restoration and upgrading of the buildings would be necessary unless private or corporate funding or sponsorship or favourable taxing arrangements are available. However restoration of the building is achieved, ongoing management of the rear of the Coffee Palace for accommodation will require that the operation be financially self sustaining.

Fire safety and other contemporary standards and requirements will have to be met and require further detailed investigation before a definite decision on the use of the rear rooms for accommodation can be made.

Map 6

Bernacchi's Terraces

Both blocks of terraces require substantial and expensive repair and upgrading, within heritage guidelines, before they would be suitable for accommodation use. The erection of skillion additions at the rear of the buildings, as approved by the conservation plan, would be necessary to provide for new facilities such as kitchens, toilets and showers.

The conservation plan suggests that it is not feasible to expect an economic return on capital funds invested to repair and upgrade the terraces. Consequently, public funding of the repair, restoration and upgrading of the buildings would be necessary unless private or corporate funding or sponsorship or favourable taxing arrangements are available. However restoration of the building is achieved, ongoing management of Bernacchi's Terraces for accommodation will require that the operation be financially self sustaining.

Fire safety and other contemporary standards and requirements will have to be met and require further detailed investigation before a definite decision on the use of the terraces for accommodation can be made.

Penitentiary

The Penitentiary will be reconfigured to provide more efficient and flexible accommodation options, but still based on approximately the same style of accommodation as is currently provided. In the future when additional accommodation options become available, a section of the building may be restored and opened to the general visitor for interpretation of the building and its history of use.

Low energy, discreet, directed lighting will be provided inside the accommodation and visitor services spaces of the building. This will allow visitors without their own lighting provisions to use the accommodation satisfactorily. It will also limit the sometimes careless use of candles and lanterns and reduce fire risk. On the other hand, visitors need not use the lights if they prefer their own light sources.

No showers will be provided in the Penitentiary itself. If showers are to be provided for guests staying in the Penitentiary, these will be developed elsewhere, but nearby. This will require detailed investigation both for historic heritage protection and water and sewerage services provision.

4.9 Site Access and Circulation

The management of visitor access is important to protect the special qualities of Darlington and the recreational experiences of visitors. Access points and routes for visitors need to be clearly identified.

Commissariat Store

A footpath will be developed connecting the Commissariat Store with the road to Darlington to limit the risk of visitors slipping on wet grass. The path will also help avoid creation of eroded or muddy areas caused by foot traffic.

Darlington Settlement Generally

Because the Darlington settlement is set in open lawn areas and pastures, paths will generally not be developed in the settlement. However in certain areas where foot traffic is concentrated, posing either an erosion or visitor safety risk, paths or hardened areas may be developed

Penitentiary Compound and Toilets

At present, upgraded surface hardening is proposed near entrances to provide safe access to the existing toilets. Low wattage, directed, motion sensor lighting on timers is proposed for the male and female toilets and above the Penitentiary entry steps.

New Campground

Construct new pedestrian paths in the locations shown on Map 4. Construct new vehicular access routes to the campground and to Preros, and rehabilitate the existing gravel road surface.

Darlington Beach

Two dune crossings to Darlington Beach will be reconstructed and maintained in the locations shown on Map 4. Priority will be given to the crossing near the toilet. Access to the remainder of the dunes will be discouraged by fencing until revegetation of the dunes is well established. Thereafter, fencing will be removed.

Marine and Heritage Centre Area

Access to the proposed new marine and heritage centre complex, or any other development in the area, will be along the proposed alignment shown on Map 5. The proposed vehicular track alignment will be in the approximate location shown, but subject to possible minor adjustment in the final site design of any proposed development.

Subject to archaeological advice, the crossing of the existing convict road alignment will be achieved by filling over the alignment without disturbing it.

Oast House/Hopground Beach Circuit

A walking track connecting the Oast House and the Mt Maria track just inland of where it leaves Hopground Beach will be developed, creating a circuit walk suitable for day visitors wishing to visit both the Painted Cliffs and the Oast House.

The route of the proposed track will follow the approximate route already identified by the Senior Ranger.

Reservoir Circuit

The steep section of the circuit track on the immediate southern side of the footbridge over the reservoir weir will be relocated to avoid the steep grade.

Fossil Cliffs Access

A safe access track to the area of the Fossil Cliffs quarry will be constructed at the location shown on Map 3.

Painted Cliffs Access

A new access to the painted cliffs will be developed in the general location shown on

Map 3. This access will help avoid damage to delicate honeycomb weathering features, and provide safer access for visitors, particularly at high tide.

4.10 Heritage Vegetation and Cultural Landscape Management

The heritage vegetation of the Darlington Zone is an important component of a site of high cultural significance, with aesthetic, historic, and social value.

The surviving plants of the nineteenth and early twentieth century will be conserved and where necessary replanted with the same or similar species.

All new plantings will utilise the species and cultivars that were commonly available in Tasmania in the period from the 1830s to the 1930s.

Tree replacement will be implemented based on a cyclical program of tree removals and replantings to maintain the dominant coniferous landscape quality and character of the Darlington Zone (Robert-Tissot, 1997).

The specimens of modern species and cultivars which do not contribute to the late nineteenth-early twentieth century coniferous landscape quality and character of the Zone will gradually be phased out and replaced (eg the 1980s plantings around Adkins house).

Archaeological sites associated with planting, especially non-extant buildings, will be assessed by an archaeologist before works are undertaken on trees which are likely to result in major below-ground disturbance.

Reconstruction of non-extant gardens or individual plantings known to have died or been removed may occur, but the priority will be to conserve existing plantings of heritage significance.

The spatial layout of the Darlington Zone will be protected from inappropriate planting and random development and not radically altered from its present form.

Key views and viewfields over the relocated campground shown on Map 4 will be retained by providing visual corridors for long views. New planting will be located and designed to direct views and partially screen views of any new additions or developments. Where direct seeding is used, some tree and shrub regrowth may need to be removed if it is likely to intrude on important views.

The dying avenue of poplars will be removed but replanted.

The existing radiata pines along the sand dunes near the picnic shelter will be retained in the short term as a windbreak but not allowed to spread any further. Selected trees will be removed immediately for safety purposes (Robert-Tissot, 1997). Outlying seedling pines further north in the dunes will also be removed.

Professional arborists will be used to assess all heritage trees for health and safety.

4.11 Site Rehabilitation and Revegetation

Revegetation is proposed in a number of locations throughout the Darlington Zone. Proposals for key areas are listed below, including a general species list. Revegetation is being undertaken for a variety of reasons. These include rehabilitation of eroded areas and prevention of further erosion, screening of developments or activities, and provision of wind protection or shade.

Revegetation will include a mixture of direct seeding methods and selective planting of species grown on for the purpose.

Except for heritage restoration and maintenance works, only plant species indigenous to Maria Island will be used in revegetation works.

Generally, revegetation works will use local provenance of species. Where the severely changed local conditions resulting from a long history of degradation mean local provenances are not available, the

nearest Maria Island provenance will be used. The species listed below are indicative of those that will be used in revegetation works.

Bernacchi's Creek

Revegetate along Bernacchi's Creek where it passes through the old campground area as shown on Map 3

Acacia melanoxylon
Asterotrichion discolor
Eucalyptus viminalis
Olearia lirata
Acacia verticillata
Pomaderris apetala
Blechnum nudum
Blechnum wattsii

Darlington Beach Dunes

Revegetate the Darlington Beach dunes as shown on Map 3

Acacia sophorae
Spinifex sericeus
Festuca littoralis
Kennedia prostrata
Indigofera australis
Callitris rhomboidea
Myoporum insulare
Lepidosperma gladiatum
Eucalyptus viminalis
Carpobrotus rossii
Poa poiformis
Lomandra longifolia
Allocasuarina verticillata

The native species, in particular *Acacia sophorae*, will be used to smother marram grass (an introduced species) where practicable to do so.

New Campground Areas

Planting will be undertaken within the new campground area to provide filtered screening between campsites and between the campground and nearby areas, and to provide wind screening and shade.

Acacia sophorae
Acacia melanoxylon
Eucalyptus pulchella
Olearia lirata
Pomaderris apetala

Callitris rhomboidea
Leptospermum scoparium
Allocasuarina verticillata
Lomandra longifolia

Gully Bordering New Campground Area

Taller trees planted along this gully will be selectively located or removed to ensure that framed views of key vistas are retained to and from the vicinity of Mrs Hunts cottage.

Acacia melanoxylon
Eucalyptus viminalis
Eucalyptus globulus
Eucalyptus obliqua
Olearia lirata
Acacia verticillata
Bursaria spinosa
Coprosma quadrifida
Myoporum insulare
Leptospermum scoparium
Asterotrichion discolor
Pomaderris apetala
Blechnum nudum
Blechnum watsii

Workshop Area Gully

Revegetate the gully behind the workshop to provide screening of buildings and the compound area.

Acacia melanoxylon
Eucalyptus viminalis
Eucalyptus globulus
Olearia lirata
Bursaria spinosa
Coprosma quadrifida
Asterotrichion discolor
Pomaderris apetala
Blechnum nudum
Blechnum watsii

Workshop Area Bank

Revegetate the batter and the slopes above it to provide screening of the workshop and the compound area.

Allocasuarina verticillata
Callitris rhomboidea
Bursaria spinosa
Coprosma quadrifida
Lomandra longifolia
Poa labillardieri
Poa poiformis

Marine and Heritage Centre Area

Revegetate and provide screening in the marine and heritage centre area.

Acacia melanoxylon
Eucalyptus viminalis
Eucalyptus globulus
Olearia lirata
Bursaria spinosa
Coprosma quadrifida
Asterotrichion discolor
Pomaderris apetala
Blechnum nudum
Blechnum watsii
Allocasuarina verticillata
Callitris rhomboidea
Lomandra longifolia
Poa labillardieri
Poa poiformis

Erosion Gully (Fossil Cliffs)

The erosion gully above the fossil cliffs lies along a geological feature which it is theorised may contribute an inherent instability to the area. Therefore, geological assessment will be undertaken prior to stabilisation and revegetation works.

Allocasuarina verticillata
Lomandra longifolia
Eucalyptus globulus

Selected Coastal Cliff Tops

Revegetation will be undertaken along the cliff tops identified on Map 3.

Allocasuarina verticillata
Lomandra longifolia
Myoporum insulare
Kennedia prostrata
Carpobrotus rossii
Poa poiformis
Callitris rhomboidea
Banksia marginata

4.12 Interpretation

Interpretation will be used to enhance visitor understanding and appreciation of the environmental and heritage values of the Darlington Zone and the adjacent Marine Zone, foster appropriate visitor behaviour and explain management

strategies. Interpretation will be guided by the overall interpretation strategy for the Park, prepared separately, and already part implemented. Aboriginal interpretation will continue to be developed in consultation with the Aboriginal community.

All signs will conform with the appropriate specifications of the *Departmental Signs Manual* (Department of Parks, Wildlife and Heritage 1991).

Signs will be used in those situations where they are the most practical and effective means of communicating messages to visitors.

Information to assist visitors orientate themselves on arrival will be located in the Commissariat Store. Information on appropriate use of facilities and minimal impact behaviour will also be located here.

The Coffee Palace will be the main location of high quality information and interpretation on the environmental and heritage values of Darlington and the Park in general.

Specialist information and interpretation on key research and study projects and on the marine environment will be located in the marine and heritage centre.

Marine interpretation may also be located in the site arrival area.

4.13 Services

Facilities and services area A shown on Map 2 will provide, among other things, for the connection to, or development, or relocation of infrastructure services such as sewerage, water supply, power, and communications for the adjacent main Darlington settlement.

Because some visitor facilities are remote from this area, such as the jetty arrival area and the existing picnic shelter area, separate systems for these areas are already in place. In the case of the jetty area, this is likely to remain the case. In the picnic shelter area, which is to become the new campground area, connection to services in facilities and services area A

will be considered if necessary to meet the demands placed upon water and sewerage systems by the campground development.

Power Supply

Except for the marine and heritage centre, electricity provision will be based on a combined diesel generator/battery storage system for the foreseeable future. Solar panels may be added to the generating system in the future.

The marine and heritage centre may link into, and extend and upgrade the existing power system if this is practicable and provided the costs are met from the marine and heritage centre development budget. Otherwise, the centre will develop its own discreet power supply system.

Water Supply

A new storage tank may be provided additional to the existing two tanks. This will supplement the storage capacity. Potable water supply for the marine and heritage centre will be drawn from this increased storage capacity. A small dam upstream from the centre will provide supplementary water supplies for firefighting and other non-potable requirements.

Sewerage

Sewerage treatment systems will be maintained, extended, or upgraded to ensure compliance with contemporary treatment standards.

Stormwater

Where practicable, roof stormwater will be collected in rainwater tanks. Where roofs are gutterless or where it is not feasible to install water tanks, gravel or other drip line or downpipe provisions will be made to prevent stormwater erosion and allow for controlled dispersal of runoff to natural drainage patterns.

Roadside drains and culverts will be drained to swales designed to slow and disperse concentrated stormwater flow.

Solid Waste

The existing recycling program at Darlington will be continued and where possible improved upon. Developments not managed by Parks staff will be required to provide a similar standard of service.

Litter bins designed to prevent wind blown litter and access by wildlife will be provided at a limited number of selected locations. However, visitors will be encouraged to take their garbage with them when leaving the Park.

The existing tip will be retained and managed to minimise environmental impact.

Fuel Storage

Fuel storage for Park management purposes will be centrally located in the workshop compound. Fuel storage for the marine and heritage centre will be located within the development area for the centre.

Communications

The existing management radio telephone system will continue to be used until technological changes require implementation of an alternative system.

If costs and changes in phone technology allow, a public telephone will be retained in the Darlington settlement but relocated. Depending on technical issues, the new location will either be on the verandah of the School Masters House (the Ranger office) or in the side alcove of the former Post Office.

The marine and heritage centre, if it goes ahead, will have an internally located office telephone and an externally located public telephone included in the development.

Lighting

Internal lighting may be installed in any building if necessary to allow safe and effective use of the building for the purposes for which it is approved.

External lighting will only be provided for safety and in limited locations. Lighting will be movement sensor activated and time controlled, low wattage and directed

downwards or onto specific objects to minimise off-site visibility and to reduce on site ambient lighting levels to those necessary for safe movement. External lighting will be located and limited to the following locations:

- movement sensor operated lights at the entrances to the toilets in the Darlington compound;
- movement sensor operated lights at the entrances to the existing toilets near Darlington beach;
- movement sensor operated lights at the entrances to the bunkhouses and self-contained cabins adjacent to the marine and heritage centre complex, able to be turned off by the occupants but not switched on for continuous use; and
- movement sensor operated lights at entrances to the main centre in the marine and heritage centre complex and operator controlled lighting in the courtyard/amphitheatre area for night time uses of that space.

Further lighting, in accordance with the above provisions, may be provided for safety in high movement areas if monitoring indicates the need.

5 Effects of Development

5.1 Economic Effects

The likely economic benefits and effects of the proposed developments will occur incrementally depending on the time scale for the full implementation of the site plan and the order in which developments occur.

Marine and Heritage Centre

While it is expected that meeting the capital cost of developing the centre will rely on a specially sourced funding grant, ongoing operating costs of the centre must be fully recoverable. A business plan will be prepared to determine these requirements before any final decision is made to proceed with the development. If the centre can be shown to be viable, and goes ahead, there will be direct economic benefits both during the construction period and thereafter in the operation of the centre.

Accommodation in Heritage Buildings

Effects have not been calculated for proposed accommodation in heritage buildings at this point in time. Such development is predicted to be a longer term eventuality

5.2 Tourism Effects

There is currently a very limited tourism product to cater for special interest markets, particularly authentic "eco-tourism" products of international and national quality.

The benefits identified that will apply in the Spring Bay region include:

- lifting the image and profile of the region as a destination in the State;
- significantly boosting the regional economy;
- employing local people;
- attracting a wider range of visitors to the area; and
- increasing visitor interest in Maria Island and the Spring Bay area generally.

These potential benefits may help overcome some of the area's deficiencies in tourism. For example, in 1996 only 1.7% of interstate visitors visited Maria Island, 21% visited Orford and 31% stayed somewhere in the east coast region at least one night.

5.3 Changes in the Character of the Site

The relocation of the campground will shift the impacts of camping from one area to another. This will change the character of both the old camping area and the new area.

The old inland campground site will become quieter and lose the visual intrusion of a camping area. The creek through the area will be revegetated.

The new campground site will have an increase in noise levels, although it is

already used by day visitors and sometimes campers playing ball games. Visual intrusion will increase, but be substantially ameliorated by revegetation and amenity planting. With the revegetation measures proposed the overall impact on site character of Darlington will be beneficial.

The marine and heritage centre, or similar alternative developments, will be located in an area almost never visited and not readily visible from those areas which are normally visited. Nevertheless the location of a development of this scale will introduce some localised changes in the character of the site, by introducing new built elements, changes in visitor movement patterns, and increases in visitor numbers. These changes are not expected to have any appreciable detrimental effect on the character of Darlington as a whole. The marine and heritage centre buildings will permanently impact on the environment in that they will occupy an area not previously built upon. These impacts are necessary to achieve the objective of constructing the facilities.

Public access to the heritage buildings proposed for conversion to accommodation is currently not permitted because of their condition. Accommodation in heritage buildings will create some sense of privatising of the building spaces. This will be countervailed by the major upgrading of the building fabric, both protecting it and presenting an improved building aesthetic. Access to the buildings will be available for those who book accommodation in them.

5.4 Site Disturbance and Environmental Impacts

Construction of the marine and heritage centre and its access road would cause some localised site disturbance. The disturbance is predominantly of former pastures areas and environmental impacts on these will be minimal. A pipeline drawing fresh sea water for marine research tanks would connect the centre with the sea. The pipe would be located along the creekline and would result in some localised disturbance which would be rehabilitated and revegetated.

Preliminary assessments of Aboriginal and historic heritage values indicate that site disturbance for the centre will not impact on heritage values. Nevertheless, more detailed Aboriginal and historic heritage assessments will be undertaken prior to and during construction works.

Strict limits on the extent of site works will be imposed and controls on erosion and runoff during construction will be put in place.

Rehabilitation and revegetation at the conclusion of construction works will improve the site from its current slightly degraded state.

In the main Darlington area, site disturbance may occur to provide services to buildings or to construct built extensions to buildings where this is permitted by a conservation plan. All proposed site disturbance will be preceded by archaeological assessment.

Relocation of the campground will result in some minor site disturbance for the construction of service vehicle access and footpaths, possible levelling and construction of tent pads, and provision of new, upgraded or extended water and sewerage services to existing buildings.

Rehabilitation of dunes and the adjacent creek gully will occur as well as amenity planting in the campground area. This will initially require ground cultivation and fencing which will involve some site disturbance.

All proposed site disturbance in the new campground area will be preceded by assessment of Aboriginal and historic heritage.

By maintaining, extending or upgrading sewerage treatment systems to comply with contemporary treatment standards, impacts will be contained within acceptable levels.

The impacts of stormwater runoff will be minimised by the measures outlined in 4.13.

Improved solid waste management is already reducing impacts and ongoing

management will continue to improve upon the existing program where possible.

5.5 Visual Intrusion

The main impacts of visual intrusion will occur in the localised area of the marine and heritage centre development. The site of the centre has been selected so that existing established vegetation screening will make development there virtually invisible from other parts of the Darlington Zone. Some filtered glimpses of the development through the trees may occur. Maps 4 and 5 illustrate the screening effect. In addition, external colour selection for buildings in the marine and heritage centre will be restricted to muted colours which harmonise with the surrounding landscape.

To a lesser extent, visual intrusion will also occur in the relocation of the campground. However, this will in the first instance merely shift the visual intrusion from one locality to another. As the proposed revegetation program takes effect, the visual intrusion of the campground will be less conspicuous than is currently the case.

In the site arrival area, the existing jetty and visitor toilets are both visually prominent. Because of the localised characteristics of the site, no attempt will be made to screen these developments. Additions or modification to facilities in this area, such as a dive wash down area, will be consistent with the existing visual character in colour and form. However, exposed and eroding banks will be rehabilitated and derelict equipment not required for heritage purposes will be repaired or removed.

5.6 Rehabilitation

The heritage vegetation management proposed in Section 4.9 and site rehabilitation and revegetation works proposed in Section 4.10 will have a significant beneficial impact on the current state of the Darlington Zone.

5.7 Heritage Impacts

The Darlington Zone is a significant heritage site with procedures to protect heritage values set out in the management plan for Maria Island National Park. Developments proposed in this site plan will be consistent with the prescriptions of the management plan. No impacts on heritage values that are not consistent with the management plan and requirements and procedures set out in it are anticipated. These requirements include the need for on-site assessment and monitoring of Aboriginal and historic heritage at both the planning and construction stages. See Section 6 for further details on heritage management.

5.8 Recreational Impacts

Generally, the range of recreational and tourism pursuits in the Zone resulting from the developments outlined in this site plan will be similar to those already popular. There will be an improvement in quality and some additional facilities similar to and compatible with the existing facilities.

Within the foreseeable future, and based on recent years, visitor numbers are expected to increase relatively slowly. In the longer term, and at full capacity, up to three times the current level of day and overnight visitors can be expected.

Given the size of the Darlington Zone and the extent of the Park beyond it, increases in day visitor numbers should be accommodated quite readily without an appreciable recreational impact. Some short duration and localised crowding may occur at popular visitor destinations on days of peak attendance.

Although the proposed overnight visitor facilities would eventually increase the overnight visitor capacity by up to 70%, this is off a small base and will be finite for any one night. Recreational impacts from overnight visitors should not be significant since the main growth in overnight visitor numbers is expected to be in greater numbers spread into periods beyond the current peak period. This will occur because of the improvement in the range and quality of accommodation available to attract visitors in cooler or wetter periods.

6 Environment and Heritage Management Program

Physical disturbance to the Zone needs to be minimised to protect environmental and heritage values while providing for suitable visitor facilities. When planning any future development or action for the area, the impacts on environmental and heritage values need to be assessed prior to any action being taken. Any adverse impacts need to be avoided or mitigated.

6.1 Application and Assessment

All development and activities will accord with the management plan and this site plan.

Any development or activity not directly dealt with by this site plan (but in accordance with the prescriptions of it) will require a comprehensive environmental and heritage effects assessment in accordance with guidelines established by the Director. An environment and heritage management plan will also be required, detailing the ongoing and sustainable management of the environment and heritage effects of the development in accordance with this plan and the management plan. These documents will be made available for public comment for a minimum period of thirty days before the development is finalised and approved.

Where an environmental and heritage effects assessment is not required additional to this site plan, any development, activity, landscape modification, research, management or maintenance work involving any ground breaking, structural disturbance, or environmental manipulation of any kind will be assessed in accordance with procedures approved by the Director.

Major developments such as the marine and heritage centre and all commercial development proposals for facilities or services will submit a detailed business and financial plan showing at least a three year projection of operations which demonstrates economic viability.

Design concepts and details for each development or activity permitted by this plan will be prepared and approved before any work commences.

Costing for implementing works will be prepared in conjunction with preparation of design details for those works.

Variations to the approved design concepts and details will require confirmation and approval by the Director or the Director's nominee.

Development proposals will include a plan, with a north point, at a scale of not less than 1 : 500 (unless otherwise approved) showing the details of the existing site including, depending on the nature of the development:

- site topography at a maximum of 1 metre contour intervals;
- site features such as rock outcrops, locations of heritage sites, and existing buildings, structures, works, roads, drains and culverts;
- catchment hydrology characteristics and drainage lines, wet areas and bogs; and
- location and species of existing vegetation.

Development proposals will include a plan, with a north point, at a scale of not less than 1 : 200 (unless otherwise approved) showing the details of the development proposal including, depending on the nature of the development:

- location, size and orientation of proposed buildings;
- location of vehicular tracks and pedestrian paths;
- areas to be cleared, slashed, blasted or otherwise disturbed;
- locations of stockpiling areas including topsoil and spoil dumps;
- machinery fuelling and servicing areas;
- scope and staging of proposed earthworks;
- slope stabilisation and revegetation measures;
- detailed design for safe stormwater and drainage management both during construction and at completion of the works;
- water supply arrangements;

- sewerage disposal arrangements;
- landscape planting and vegetation screening information;
- fire management provisions;
- proposals for staging the use or development.

Development proposals will include a plan including a north point at a scale of not less than 1 : 100 showing the details of the building or structure proposals including:

- methods of construction;
- type of materials, colours and finishes to be used (particularly for external walls and roofs);
- the internal layout of buildings;
- major elevations of buildings and structures;
- relationships of the elevations to natural ground level showing any proposed cut or fill;
- external storage and service areas; and
- external vehicular and pedestrian circulation connections.

Drawings will be accompanied by relevant works specifications, with both to a standard comparable to those commonly prepared by professionally recognised architects, landscape architects and engineers.

A construction program which includes a timetable setting out intended commencement and completion dates of all major components of the works will be required.

6.2 Planning and Design

Conservation and management of Aboriginal heritage will be undertaken in accordance with the requirements of the management plan for the Park.

Conservation and management of historic heritage in the Zone will adhere to the Burra Charter of Australia ICOMOS (Marquis-Kyle & Walker, 1992) and its associated guidelines.

More particularly, the Darlington Zone will be conserved and managed in accordance with the Conservation Plan for Darlington (Godden Mackay, 1992).

A conservation policy statement or conservation plan, including specific assessment of significance, will be prepared before any decisions about major works, use, removal or interpretation of individual elements within the heritage precinct. Such statements or plans will be prepared in accordance with the principles outlined in the Burra Charter, using the methodology outlined in Kerr (1996).

Except in facilities and services areas A, B and C, new stand-alone buildings will not be permitted.

In the facilities and services area A, built forms and silhouette will relate to the topography of the site and the vegetative characteristics and colours of the adjacent landscape. Design, detailing and materials will emphasise and complement the adjacent landscape and reflect a rural or bushland character. Buildings will be stepped down slopes to follow the landform. Roofs will be Colorbond, limited in colour to Mist Green, Rivergum, Ironbark or Slate Grey.

In facilities and services areas B and C, new buildings will be coordinated in style, scale, form and colour with the heritage setting in which they occur. Roofs will be Colorbond in colours which closely match roof colours in adjacent heritage buildings.

In all remaining areas of the Darlington Zone, the design, detailing and materials of any building works will be in accordance with the conservation plan for the Zone (Godden Mackay, 1992) or with individual conservation plans for specific buildings.

Most new buildings for the marine and heritage centre will be located on previously cleared pasture land to avoid habitat and other environmental impacts.

Buildings, roads, dams and services provisions for the marine and heritage centre which require some clearing or other site disturbance will be sited to limit impact by avoiding healthy trees and shrubs identified for retention in the detailed design of the development.

6.3 Construction

Areas of disturbance arising from any site works permitted by this plan will be minimised. Where necessary, the limits of the site which may be disturbed will be pegged or fenced. If trees or shrubs or other site features to be retained occur within this area, they will be protected for the duration of the works.

In the course of construction, work will cease if any sub-surface indicators of Aboriginal sites (such as shell in the presence of charcoal, or stone that is not endemic to the area or appears to have an unusual shape) or historic heritage are located. The Cultural Heritage Branch of the Parks and Wildlife Service will be informed and work in the area will not continue without their approval.

Erosion control and silt traps will be used during construction to prevent site disturbance effects on the water quality of watercourses, lagoons and coastal waters in or adjacent to the Zone.

Geoconservation values will be assessed before undertaking any major ground disturbance and before any extraction of materials for building purposes.

All provision of services will take account of the potential impact on heritage vegetation.

All walking tracks will be constructed to at least the standards set in the *Walking Track Management Manual* (Department of Lands, Parks and Wildlife 1987).

All practicable steps will be taken to prevent the introduction or spread of *Phytophthora cinnamomi* in the area.

Guidelines provided by the *Phytophthora cinnamomi* Hygiene Manual (Parks and Wildlife Service, 1993) for controlling the disease will be used for any development, maintenance, rehabilitation or other work involving vehicles, machinery, tools, road material, fill or soil.

6.4 Heritage Construction and Restoration

The crossing of the convict road formation will be constructed to the approval of heritage experts in accordance with the historic heritage management requirements of the management plan and this site plan.

Dangerous structures will be made safe.

Damaging uses, activities and developments which intrude upon or detract from the heritage values of the Zone will be removed.

Regular maintenance and remedial work on buildings, particularly maintaining roofs, guttering, flashings, and ground treatment for rainwater run-off will be undertaken.

Adaptations will be readily reversible and new services will not be apparent from outside buildings, or impact upon them.

Accurate, detailed working documentation, appropriate to the scale and significance of the works, will be prepared prior to any conservation works.

Accurate, detailed documentation, appropriate to the scale and significance of the works, will be prepared to record any conservation works "as built".

Priority in conservation works will be given first to maintenance, then preservation, then restoration (with possible adaptation).

Missing fabric elements may be reconstructed in accordance with a conservation policy statement or plan, but hypothetical reconstruction of built fabric will not be permitted.

Laboratory conservation and curation will be sought for any items removed for protection, security or scientific purposes.

The introduced landscape elements and spaces will be treated as integral parts of the cultural heritage of the island, requiring maintenance and, where necessary, replanting (see 4.10).

To avoid disturbance of historic ground features, sub-surface remains, and archaeological deposits such as building footings, hopground drainage channels and

tracks, an archaeological assessment will be required before any development or ground-breaking work is approved.

The Aboriginal community will be consulted on any undertaking or development which may impinge on Aboriginal sites.

6.5 Rehabilitation

All proposed new site development works will include funding for rehabilitation in the project budget.

Except for heritage restoration and maintenance works, only local provenance of plant species indigenous to Maria Island will be used in revegetation works.

6.6 Fire Management

Within the Darlington Zone, the highest priority of fire management will be the protection of life and property, particularly property of heritage value.

A system to provide visitors with notice of total fire ban days and fire restrictions will be developed and implemented.

Visitor and management facilities will be designed, constructed and managed to minimise the possibility of fire escapes.

Provide adequate external and internal fire protection to all structures.

Fire management will be undertaken in accordance with the management plan for the Maria Island National Park (Parks and Wildlife Service, 1998b) and the current fire management plan.

Outdoor fires will be restricted to designated fireplaces and barbecues provided or approved by the managing authority.

6.7 Operational Requirements

Staff will be trained to implement the objectives and prescriptions of the site plan.

Development, protection and conservation work will be coordinated by a five year works program for the Zone.

The works program will be reviewed annually. Add a further year's program at each annual review.

When suitable planned and programmed works, and adequate supervision, are available, volunteers will be encouraged to assist with construction works, site servicing and maintenance, and supervision.

6.8 Monitoring

To ensure that the environmental and heritage values of the Zone are protected, monitoring is proposed.

Generally

Notwithstanding provisions in this site plan, if monitoring indicates the need, limits may be set on development or use of the Darlington Zone.

Unless funding permits otherwise, monitoring will be limited to inspection, observation and/or photographic techniques.

The efficacy of management practices in the Zone will be monitored, and where necessary, those practices will be modified.

The methods and frequency of monitoring will be reviewed regularly.

The site plan will be reviewed and revised if monitoring results indicate the need.

Environmental Monitoring

The objectives of environmental monitoring are to:

- Provide information on the environmental and recreational condition of the Zone which will govern how the area is managed; and
- Ensure that impacts are kept within limits which accord with this site plan and the management plan for the Park.

Baseline water sampling and testing will be undertaken in Bernacchi's Creek and the gully near the existing picnic shelter prior to commencement of developments set out in this site plan.

Key photo monitoring points will be established and baseline photos taken prior to commencement of developments set out in this site plan.

The following indicators of environmental and recreational conditions will be monitored:

- shifts in the recreational and tourism character of the Zone;
- walking and vehicle track surfaces including muddiness and erosion;
- evidence of trampling and side tracks;
- beach erosion;
- damage to coastal vegetation;
- marine water quality;
- changes in terrestrial and marine species populations;
- weeds;
- litter;
- the occurrence of *Phytophthora cinnamomi* ;
- water quality;
- fire history including ignition source;
- any enlargement of the camping area;
- crowding at picnic areas;
- visitor satisfaction;
- unruly visitor behaviour and conflicts between types of recreation.

Heritage Monitoring

The objectives of heritage monitoring are to:

- Provide information on the heritage condition of the Zone which will govern how the area is managed; and
- Ensure that impacts are kept within acceptable limits which accord with this site plan.

The following indicators of heritage conditions will be monitored:

- damage to the historic heritage of Darlington Zone;
- damage to the Aboriginal heritage of the Darlington Zone; and
- shifts in the recreational and tourism character of the Zone.

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Appendices

Appendix 1 **Water Consumption Projections**

(These projections use as a basis approximate consumption figures drawn from the **Maria Island Engineering Study: Energy, Water, Sewage, and Solid Waste Services for the Darlington Area** by Dr John Todd, 1992, page 23. Peak demand is calculated by assuming every possible accommodation bed is used on a particular night.)

Staff and Temporary or Casual Workers - Peak Demand

Ranger Houses

(Assuming three families in occupancy)

3 houses (12 persons) @ 600 litres 1800L/day

Single Staff Quarters (Bernacchi's Terraces)

1 unit (2 persons) @ 300 litres 300L/day

Workshop (No laundry)

8 persons @ 130 litres 1040L/day

Annexe (No laundry)

2 persons @ 130 litres 260L/day

Prero's and Annexe (No laundry)

6 persons @ 130 litres 780L/day

Sub Total	30 staff	4180L/day
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Overnight Visitors (Indoor Accommodation) - Peak Demand

Penitentiary (No kitchen, basic laundry and assuming showers)

64 persons @ 130 litres 8320L/day

Restored Bernacchi's (Kitchen and showers, no laundry)

20 persons @ 130 litres 2600L/day

Restored Coffee Palace (Central kitchen, no laundry and assuming showers)

12 persons @ 130 litres 1560L/day

Area A - 10 Self Contained Units (Kitchen, laundry and showers)

60 persons @ 150 litres 9000L/day

Area A - Bunkhouse (Central kitchen, no laundry and assuming showers)

80 persons @ 130 litres 10400L/day

Sub Total 236 persons 31880/day

Overnight Visitor (Campground) - Peak Demand

Campground (No kitchen, no laundry and assuming showers)

120 persons @ 130 litres 15600L/day

Sub Total 180 persons 15600L/day

Day Visitors - Peak Demand

Day Visitors (Toilets and limited washing)

200 persons @ 20 litres 4000L/day

Sub Total 200 persons 4000L/day

Total Peak Daily Demand 55660L/day

Appendix 2 Implementation Priorities

The priorities for implementation are set out below in approximate order.

- Collect seed and propagate tube stock for revegetation works
- Obtain tree surgeon report on risk management issues
- Provide lighting for night safety (Penitentiary, nearby toilets, picnic shelter, nearby toilets)
- Remove dangerous limbs, trees
- Propagate or otherwise obtain and grow on heritage species for replanting
- Establish photo monitoring points
- Undertake baseline water sampling
- Remove seedling pines in dunes
- Remove overmature trees ready for replanting
- Commence revegetating dunes
- Commence revegetating gully near picnic shelter
- Commence campground planting
- Construct shower cubicles
- Construct new fuel storage facility in workshop compound
- Prepare business plan/ financial analysis on viability of marine and heritage centre
- Seek funding for marine and heritage centre if determined viable by business plan
- Replant (sequentially) heritage species in accordance with the Heritage Vegetation Study
- Construct new path layouts (Commissariat Store, new campground area, Penitentiary toilets entrances)
- Reconstruct dune crossings
- Reconfigure picnic shelter
- Install signs
- Open new campground
- Close old campground
- Undertake maintenance and preventative tree surgery on plants to be retained
- Commence revegetating workshop gully and bank
- Commence revegetating Bernacchi's Creek
- Construct walking track link between Oast House and Hopground Beach
- Upgrade access to Fossil Cliffs
- Relocate the public telephone