ROBIN CHAPPLE MLC
Member for the
Mining and Pastoral Region

Chairman
Environmental Protection Authority
Locked Bag 33
Cloisters Square WA 6850

The Hon. Robin Chapple MLC
Member for the Mining and Pastoral Region
41 Havelock Street
West Perth WA 6005
PO Box 94
West Perth WA 6872

Attn: Ben Miles
Electronic Copy sent to submissions@epa.wa.gov.au

WEST PILBARA IRON ORE PROJECT (WPIOP) - ANKETELL POINT PORT DEVELOPMENT PROPOSAL

In response to the West Pilbara Iron Ore Project - Anketell Point Port Development Proposal - Public Environmental Review/Draft Public Environment Report of December 2010 and supporting documents I have prepared comprehensive comments and recommendations (see attached submission) opposing the use of Dixon Island for the project.

Dixon Island should not be used for industrial development, and this relates to a number of points:

- The protection of tropical arid zone mangroves, habitats and dependent habitats along the southern face of Dixon Island.
- Dixon Island has a number of freshwater soaks which may be impacted by the proposal.
- There is no strategic or economic need to use the Island other than for an as yet unnamed future development.
- The area has been previously impacted by an unusual seismic or tsunami event.
- The area is of conservation, heritage and cultural value.

The proposed use of Dixon Island as part of the causeway, jetty and laydown areas for the Anketell Point Port project would have a detrimental impact on the environmental, cultural and heritage values of the area which are significant to the state and likely to have important meaning for the Indigenous community.

I believe I have demonstrated, on both Environmental and Cultural Heritage grounds that the West Pilbara Iron Ore Project (WPIOP) Anketell Point Port Development Proposal should only go ahead on the basis of an alternative design that does not utilise any part of Dixon Island.

Yours sincerely

The Hon Robin Chapple MLC
Member for the Mining and Pastoral Region

28th February, 2011

SUBMISSION BY THE HON. ROBIN CHAPPLE MLC IN RESPONSE TO THE WEST PILBARA IRON ORE PROJECT (WPIOP) - ANKETELL POINT PORT DEVELOPMENT PROPOSAL

28 FEBRUARY 2011

This submission considers the environmental, cultural and heritage values under threat from the Anketell Point Port development proposal.

Environmental concerns

On 26th February 2011, an inspection was made of Dixon Island, located just off the mainland, west of Cape Lambert and east of the Dampier Archipelago. This submission derives from that inspection and known reports.

Whilst it is correct to say that WPIOP stage two is a greenfield development that involves the establishment of a port and lay down area at Anketell point and Dixon Island, it was first designed and promoted as a port in 1972 and 1974. The initial proposal was loosely referred to as “The Concept” (1972) by the Department of Development and Decentralisation, then two years later in “The Pilbara Study” (1974) by the Department of Industrial Development.

The part of the proposal that is of most concern is the use of the northern eastern end of Dixon Island. (Figure 1)

Figure 1: Dixon Island viewed from the south

The use of Dixon Island is an interesting development. Whilst it was an integral part of the 1974 Pilbara Study is was not included as part of the original proposal considered by API Management Pty Ltd.

In 1972, Bougner Point (currently called Madigan Point) part of the Bougner Entrance area now referred to as Anketell was defined as the C.W.A.M. Industrial Reserve. The WPIOP Anketell Point Port Development Environmental Scoping Document states that this area was previously un-named, “identified for the purposes of this and ongoing work as Anketell Point”. A quick search of the Battye Library and documents held by the

Department of State Development would have elicited its existing name and provided an historical context.

It is of interest to note that in the early 1900s Alexander Forrest tried to have a new port established at Port Robinson (on the mainland adjacent to Dixon Island). This was rejected by the residents of Cossack who had already established a port. Even when Cossack was eventually abandoned, the new site was never taken up. Port Robinson is still held on maritime charts at the western end of Dixon Island at Latitude 20.6333333°, Longitude 117.0333333°.

In 1974 Dixon Island and the adjacent mainland were promoted for a Jumbo Steel plant. This plan called for the development of Roebourne as the seat of Local Government with housing development occurring there in parallel with that of Karratha. It was also envisaged that a new power station on Dixon Island would need to be constructed.

On 26th April 1996, the Environmental Protection Authority released Bulletin 814 in response to a proposal by Australian United Steel Industry Pty Ltd to construct a Direct Reduced Iron (DRI) Plant at Madigan Point (now Anketell). This proposal (arising from an earlier proposal) sought not to use Dixon Island and yet went to the same basin as identified in the WPIOP Figure 2 - Appendix 1

The initial concept for a deep water berth by API avoided the use of Dixon Island and was based on marine structures extending from the rocky headland that forms the northern most tip of Anketell Point. A causeway 100 m long and a jetty of 4500m were required to reach a suitable site for the location of a ship loader and berth pocket around 5.5 kms from the shore.

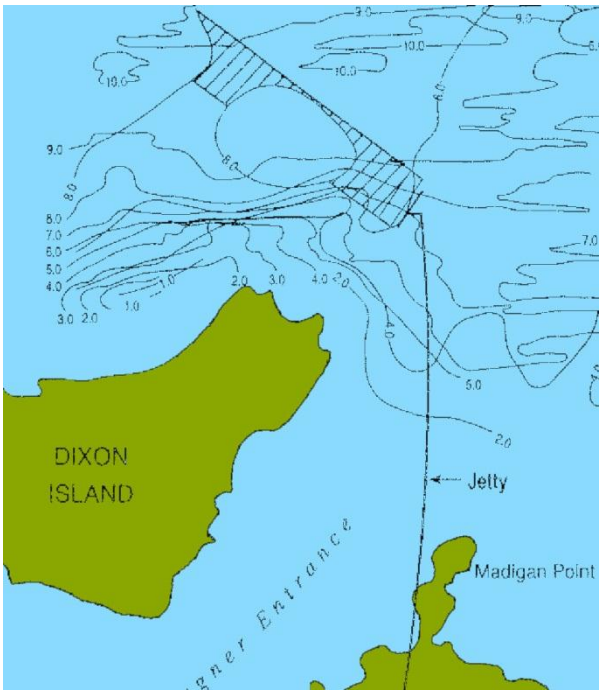

Figure 2: Australian United Steel Industry jetty design

API's geotechnical investigations subsequently identified deeper water and softer substrate to the north of the eastern end of Dixon Island (as had earlier been identified by Australian United Steel Industry Pty Ltd). Use of this deeper water near Dixon Island would be a significant capital expenditure reduction as it reduces the length of the jetty to approximately 1.5 km in total length. This constitutes a significant reduction in the extent of marine structures and optimises project design.

Whilst this is a significant reduction in cost and construction, the new jetty system does not require the use of Dixon Island and the Dixon Island part of this design could therefore be seen as an opportunistic land grab which could lead to an unsustainable use and development of the Island in the future, leading to degradation of its values.

The EPA's (2001) Guidance Statement No. 1 addresses the protection of tropical arid zone mangroves, habitats and dependent habitats along the Pilbara coast from Cape Keraudren at the southern end of the Eighty Mile Beach to Exmouth Gulf. Dixon Island is

identified as containing regionally significant mangroves. The EPA's operational objective for Guideline 3 areas is that no development should take place that would significantly reduce the mangrove habitat or ecological function of the mangroves in these areas.

Mangroves are present along the mainland shoreline both east and west of Madigan Point (Anketell Point) and along the southern coast of Dixon Island. Mangrove stands around Madigan Point range from sparse/patchy clumps through to dense stands of mangrove species, primarily *Avicennia marina*. The southern coast of Dixon Island by contrast supports areas of dense regionally diverse mangrove stands. The mangrove species *Avicennia marina, Rhizophora stylosa, Ceriops tagal* and recently emerging *Aegialitis annulata* are in existence.

Mangroves in proximity to the area proposed for development would be directly affected by clearing of vegetation and by the development of a causeway to Dixon Island. There would be short-term harmful effects via dust generation and long-term destruction as a result of the altered coastal processes. This would be due to a reduction of flow (northerly drift) through the Bougner Entrance and the subsequent release of suspended sediment into the mangrove zones.

Such sediment deposition is well understood and leads to an altered state. The deposition of sediment on the pneumatophores "aerial roots" that provide the osmotic pathways that spread oxygen throughout the stands of *Avicennia marina* would quickly lead to the collapse of the ecosystem. This in turn could cause the collapse of *Rhizophora stylosa* and *Ceriops tagal*, due to tidal exposure. Once the sedimentary depositions have stabilized there would be an expected mangal recruitment but predominately of *Avicennia marina*, with other species struggling to re- establish themselves. This would lead to an altered mangal ecosystem on the southern coast of Dixon Island.

An unusual coastal bund is found on the southern side of Dixon Island in the immediate area of landfall of the proposed jetty. This bund may have had the effect of creating one of the freshwater soaks (Figure 3) found on the island. This is an important source of water for the numerous Euro (*Macropus robustus*) seen on the island. A further freshwater soak to the west is shown in (Figure 4).

Figure 3: Freshwater soak at the location of the proposed causeway landfall

Figure 4: Freshwater soak further to the west of the proposed development

The bund seems to have been created by some significant tidal surge created by either a seismic or tsunami event. The bund is on the southern side of the north-eastern tip of Dixon Island (Figure 5).

Figure 5: View showing the location of the seismic bund and the adjacent freshwater soak

The bund is comprised of a wide variety of rocks, corals and large shell deposits which may provide useful carbon dating material. This will help identify its age and the nature of the seismic event that caused it (Figure 6).

Another view of the bund on the southern channel side (facing west) is shown in Figure 7.

It is recommended that a full geological survey of the bund be undertaken as a matter of urgency. The implications of the proposed development for this unique feature must be fully understood prior to any decision being made in respect of the proposal to use Dixon Island as a lay down area.

Figure 6: Variety of geology, coral, limestone and large shell deposition in the bund

Figure 7: The bund facing the southern channel side, viewed facing west

Dixon Island is teeming with wildlife. In 1975, the Conservation Through Reserves Committee (CTRC) recommended it be included as a reserve within the Pilbara System 8 ('Red Book' reports of 1976 – 1984). Reserve recommendations in the Pilbara (for example PIL4) included many proposals for offshore islands, including the Dampier Archipelago, Dixon Island and many others between Onslow and Cape Keraudren.

In 1993, the 'Red Book Status Report' reviewed the implementation of these recommendations (Environmental Protection Authority 1993). Most recommendations pertaining to islands had been implemented, including most of those relating to the

declaration of reserves, though the then proposed B-class island reserves between Dixon Island and Cape Keraudren have not progressed. No other subregional or bioregional planning for biodiversity conservation has been attempted in this area.

The CALM document of October 2001 “Pilbara 4 (PIL4 – Roebourne synopsis)” identified that the building of causeways, bunds and bridges posed a significant threat to flora, avifauna and fauna.

Although feral species are identified as being present on Dixon Island, sedimentation of the Bougner Entrance and a development of causeway will provide further access to feral fauna onto the island. This issue has not been countenanced in any of the reports been prepared for the WPIOP.

Cultural and Heritage assessment

On 26th February 2011, I made an inspection of Dixon Island (Figure 8).

Access was by helicopter, landing on the north eastern end of the island. The helicopter was also utilised to make an aerial assessment of the archaeological site potential of other parts of the island. Dixon Island is approximately 6.1km x 1.4km maximum width, in area extent 4.78km².

This report provides a brief description of the Aboriginal archaeological sites located in the north east part of the island. It also discusses the possibility of other sites observed from the helicopter and some geomorphological issues that may relate to past activities on the island.

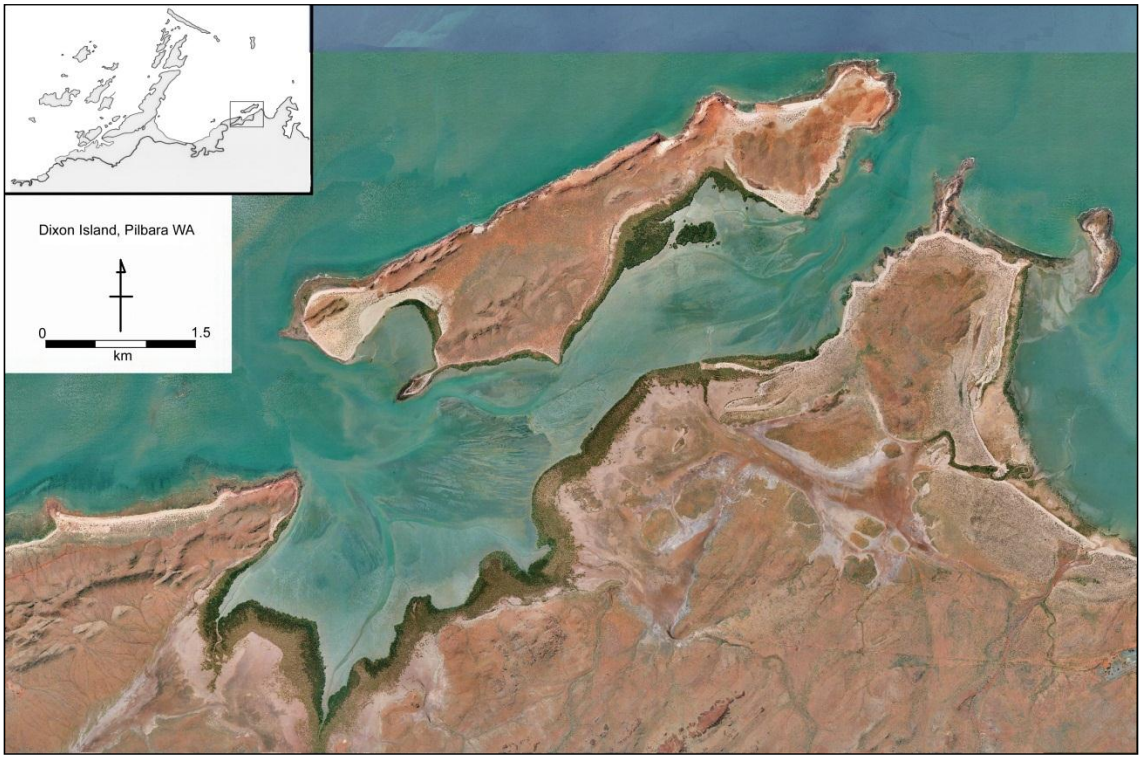

Figure 8: Location map of Dixon Island, Nickol Bay, WA.

Inspection of the north eastern end of the island was made on foot, with two Aboriginal archaeological sites being identified. Both sites contain petroglyphs on the small fractured basalt outcrops which cap two low ridges (Figure 9). Site 2 also contains a low density scatter of basalt flakes and fractured cores (quarry) along with unmodified pebbles that may be manuports (material translocated by humans).

Figure 9: Location of the two Aboriginal archaeological sites on the north eastern extreme of Dixon Island

Site 1 (DIXIs11) is associated with a low stony ridge trending north-east/south-west approximately 100m x 50m, located toward the north east end of Dixon Island some 80m from the high water line (Figure 10-11). A minimum of 13 panels containing petroglyphs are present on the basalt surfaces across the crown of this ridge, generally associated with the larger rock exposures. The motifs comprise bird tracks (6), a trail of 3 human foot prints, three arc sets, two single arcs and an abstract ovoid shape which may represent stylised birds (Figure 12).

Figure 10: Site 1 DIXIs11 looking south-east over site in foreground

Figure 11: Site 1 DIXIs11 looking west over rock exposures with petroglyphs

Figure 12: Site 1 DIXIs11 petroglyphs a) peck marks and line, b) ?stylised bird motif, c) arc set and line, d) bird track and arc motif, e) bird track cluster, f) human track trail

Site 2 (DIXIs11) is associated with a stony ridge trending north-east/south-west approximately 160m x 90m, located toward the north east extreme of Dixon Island just above the stony beach above the high tide limit (Figure 13-14). The eastern extent of the site is marked by a low cliff edge, dropping several metres to the beach below.

A minimum of 11 panels containing petroglyphs are present on the basalt surfaces across the crown of this ridge, generally associated with the larger rock exposures. These include scratched, incised and pecked techniques to produce the image. The motifs comprise bird tracks (6), a linear geometric design, a scratched grid geometric design, scratched line sets (4), two curvilinear geometric design, and five occurrences of 'random' pecked areas (Figure 15). In addition is a figurative motif, a human figure with linear torso/head, curved arms, bent lower limbs and a possible pubic apron.

In addition to the petroglyphs is a low density occurrence of flakes and flaked pieces, most showing evidence of post-production weathering (fracturing, exfoliation). The material is in-situ derived fine grain basalt, of which the ridge is capped. A large number of basalt cobbles are also present throughout the site. Similar cobbles are present on the beach and within a matrix of calcium carbonate (ancient coral reef). It is uncertain the purpose of the cobbles as they show no wear marks or other evidence of utilisation, yet they must have been carried to the location (manuport).

Figure 13: Site 2 DIXIs11 looking westward site, with cliff marking eastern extent of site

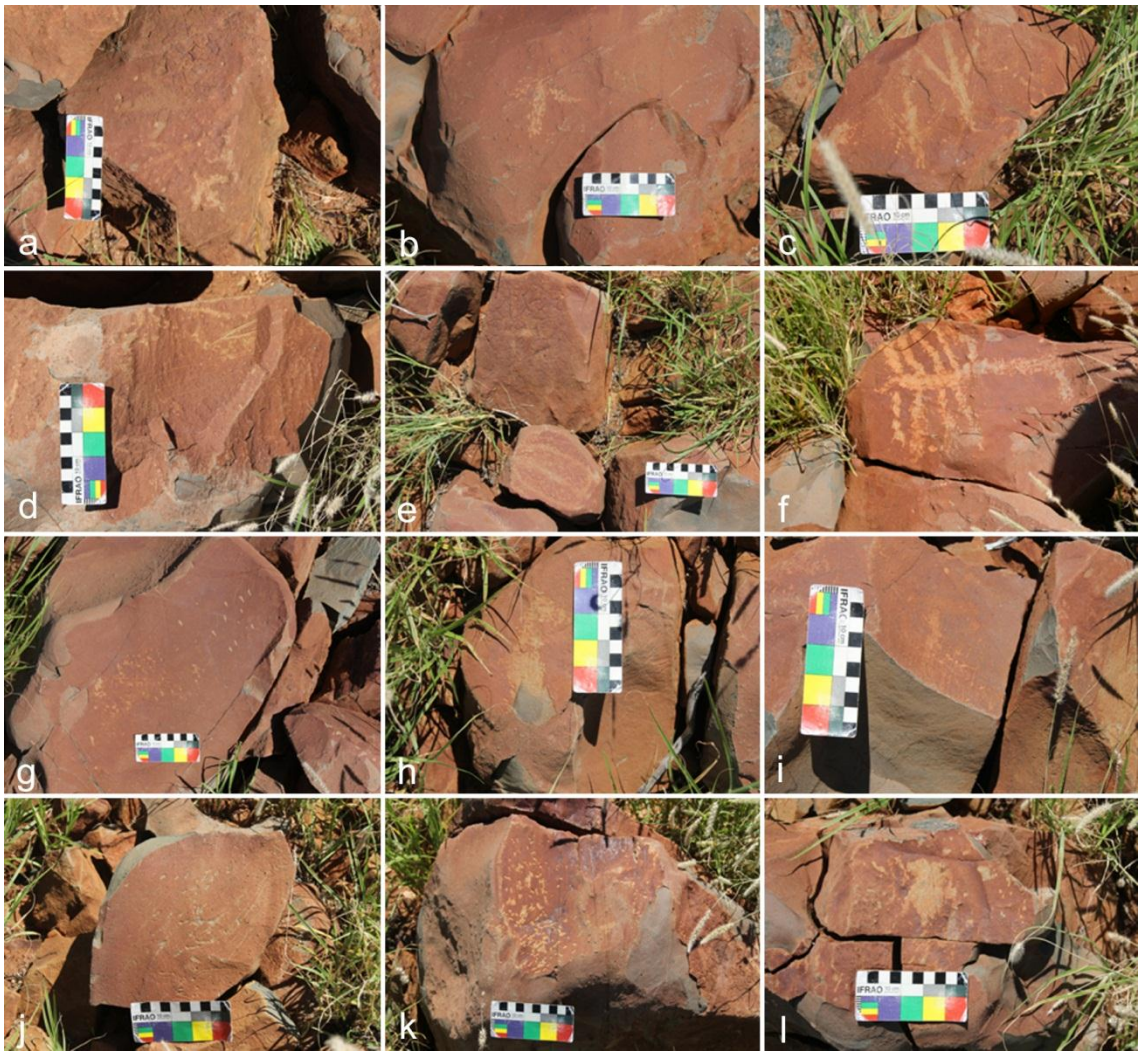

Figure 14: Site 2 DIXIs11 petroglyphs; three bird tracks, b) bird track, c) pair bird tracks, pecked area and scratched lines, d) scratched grid and simple linear design, e) curvilinear design, f) linear design, g-l) pecked areas and scratched lines

Site 3 (DXIs11) is a single pecked outline, angular oval is present on the upper surface of a large fractured basalt block (2.5x2x0.8m) situated on the beach immediately east of **Site 2 DIXIs11** (Figure 15). It is possible that, due to the fresh character of this engraving, it is of relatively recent production. This would suggest that either rock art production was occurring into the historic period or it is a piece of graffiti.

Figure 15: Site 3 DIXIs11 petroglyphs

Site 4 (DXIs11): During the helicopter flight over the island, petroglyphs were observed on an outcrop of basalt associated with a large rise, located 1.3km south-west of the other sites. The petroglyphs are associated with a ridge trending north/south of approximately 100m x 30m. It is uncertain how many petroglyphs are present at this location, however one geometric design (irregular oval) was observed. Tidal mud flats are to the west of this site, with mangrove fringed low sand dune to the south. At the time of this visit, there was present a relatively large, shallow body of water (c. 200mx50m) located no more than 50m to the south-east of the site.

In addition to the observed petroglyph, there are extensive exposures of block formation basalt on two hillocks immediately north of **Site 4 DIXIs11** (Figure 16-17). From the helicopter no petroglyphs were identified, however the surface geology structure of these locations suggest the high probability of rock art being present.

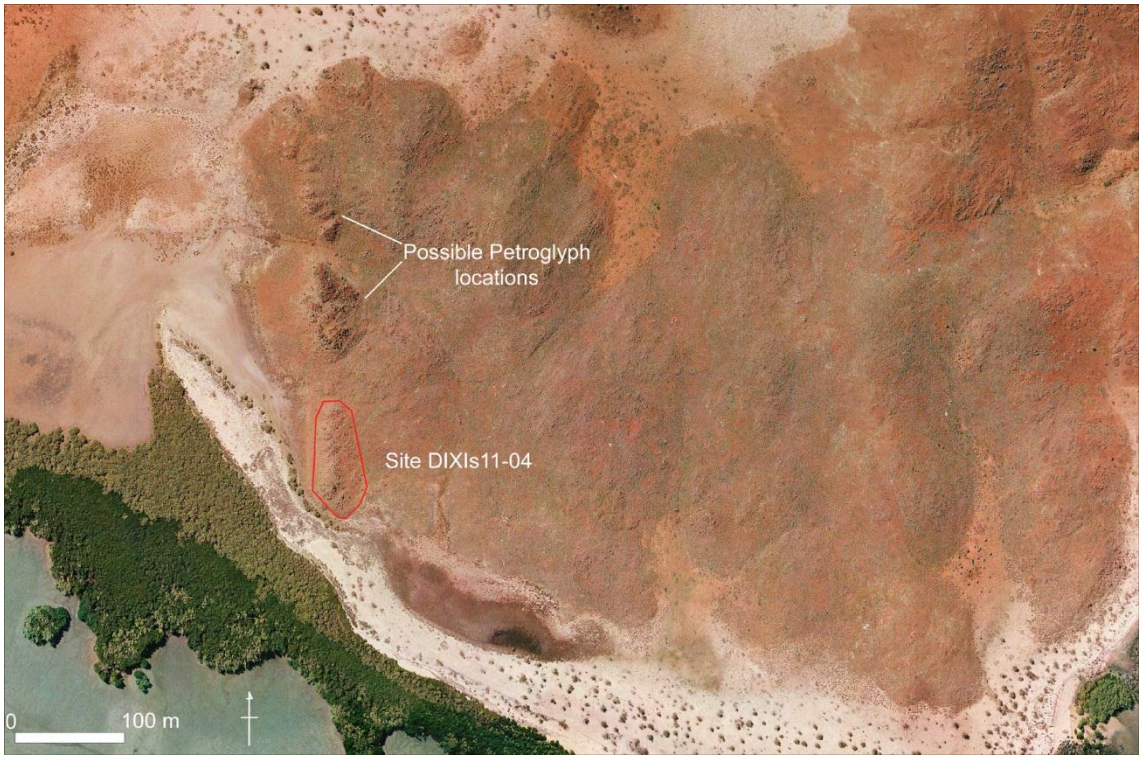

Figure 16: Site 4 DIXIs11 petroglyph location with other probable sites indicated

Figure 17: Site 4 DIXIs11 petroglyph location with other probable sites behind, looking north

Site 5 DIXIs11: The only other site identified from the aerial reconnaissance is that of an extensive midden on a south promontory of land toward the western end of the island, some 2.4km south-west of **Site 4 DIXIs11**. What appears to be a low to medium density scatter of *Anadara* species is present over an area of some 180m NNE/SSW by 80m, with mangrove fringing low sandy beach dunes to the seaward sides of the site (Figure 18-20). Inland of the extensive scatter, over an area of 100m x 100m, occur discrete concentrations of *Anadara* which may represent 'dinner camps', or could be the scattered remnants of a bower bird's nest.

Figure 18: Site 5 DIXIs11 situated on a promontory of land on the southern side of the island

Figure 19: Site 5 DIXIs11 looking north-east along coast

Figure 20: Site 5 DIXIs11 looking westward over the site to end of Dixon Island

In conclusion, it is evident that Dixon Island contains a similar array of motif subjects and techniques as can be found on the mainland, in particular those sites in the Cape Lambert area. Only a single figurative motif was identified during this reconnaissance, a human figure. All other petroglyphs are tacks or geomorphs. This suggests that **Site 2 DIXIs11** is an important location. It certainly will have spiritual significance to contemporary Aboriginal people of the area.

The helicopter visit was not intended as an intensive archaeological survey, rather a reconnaissance of the potential for sites on the island. It is highly likely that many more sites exist on the island, in particular petroglyph sites in the eastern portion of the island where it is dominated by basalt outcrops. In this same area are to be found the red sands usually associated with Pleistocene deposits rather than the white calcareous sands of the Holocene. In one location these are adjacent to a small soak. It is possible that buried archaeological evidence remains within the red sand deposit.

Just a single shell midden site was identified. However it is likely that others are present. Due to the recent rains over an extended period, the vegetation growth obscured much of the ground surface, making artefacts less visible from a helicopter. Certainly the entire island merits on-ground detailed archaeological investigation. This is in addition to any enquiry into current Aboriginal knowledge of the location and broader ethno-historical data.

Appendix 1

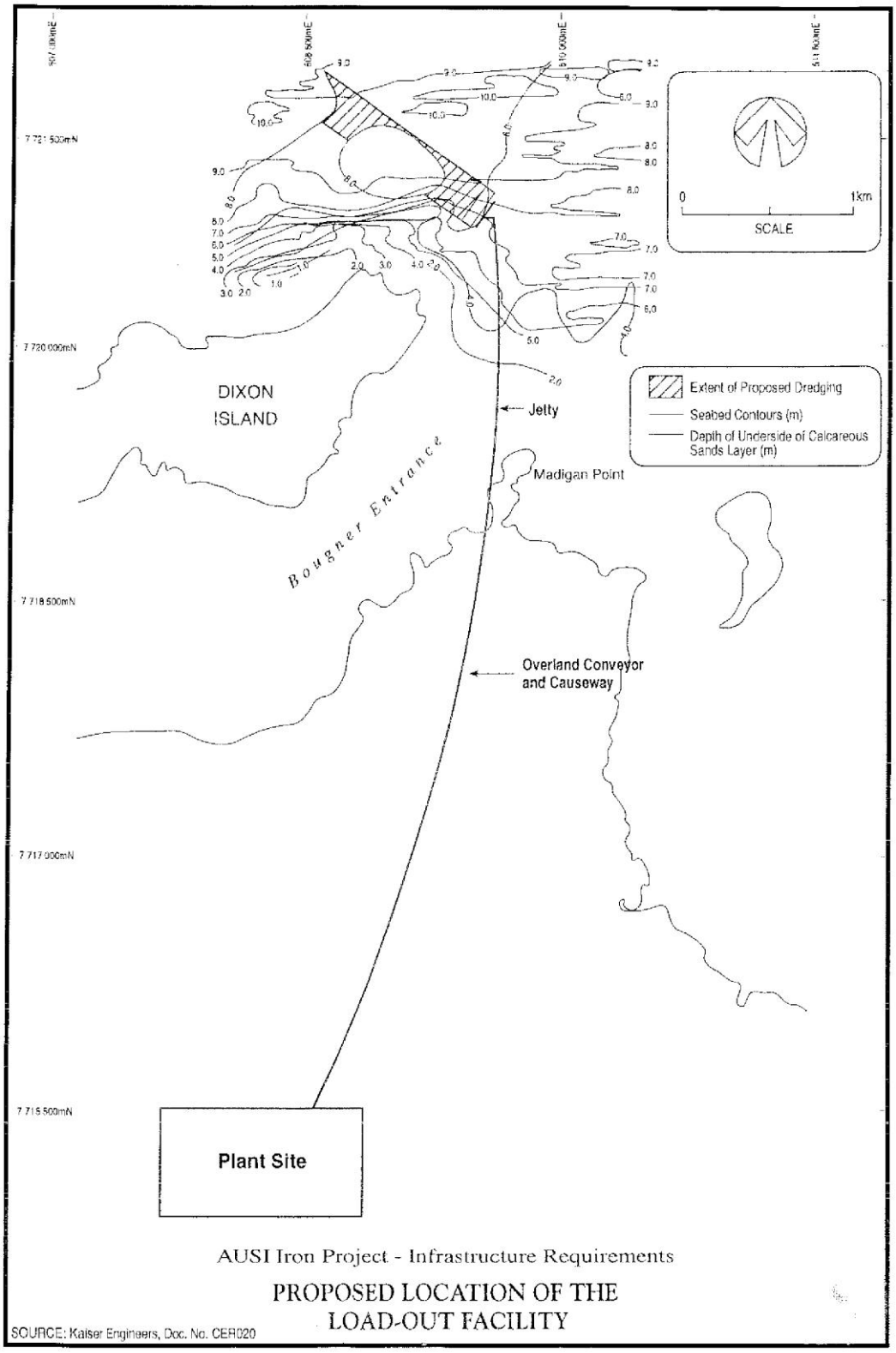

Figure 3. Location map, proposed load-out facility. (Source: Figure 1.3 of the CER)

References

The West Pilbara Iron Ore Project (WPIOP) Anketell Point Port Development Proposal, reports and appendices December 10 2010 PER APP Doc No 35390, produced by J Boyer

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