

**REPORT ON THE ASSESSMENT OF DEVELOPMENT APPLICATION DA-144-6-2004-i
PURSUANT TO SECTION 80 OF THE ENVIRONMENTAL PLANNING AND
ASSESSMENT ACT, 1979**

**PROPOSAL BY AUSTRAL MONSOON INDUSTRIES FOR THE UPGRADE AND
EXPANSION OF THE CAREEL BAY MARINE, AVALON – PITTWATER LOCAL
GOVERNMENT AREA**

The Department's assessment of the proposed development in the context of the heads of consideration under section 79C of the *Environmental Planning and Assessment Act 1979* is detailed below. Based on this assessment, the Department considers that the merits of the proposed development do not warrant approval. The Department recommends that the Minister **refuse development consent** for the following reasons:

1. the development application is inconsistent with the provisions of *State Environmental Planning Policy No. 55 – Remediation of Land*, because in undertaking the development, the Applicant may prevent or restrict future necessary remediation of contaminated sediments in Careel Bay;
2. the proposed development is inconsistent with *State Environmental Planning Policy No. 71 – Coastal Protection* with respect to protection of marine vegetation, public foreshore access, visual impacts and impacts of the proposed development on water quality;
3. the proposed development is inconsistent with the focus of *Pittwater 21 Development Control Plan* with respect to protection of seagrasses;
4. the proposed development is inconsistent with the Government's Coastal Policy with respect to the principles of Ecologically Sustainable Development, particularly the protection and conservation of the natural environment, protection and enhancement of the aesthetic qualities of the coastline and provision of public access to foreshore areas;
5. there is significant uncertainty over the potential impacts from the proposed development of sediment and contaminant disturbance, turbidity and water quality on the aquatic ecology of Careel Bay, particularly seagrasses;
6. there is significant risk that the proposed development will increase the spread and hinder the effective management and removal of the noxious aquatic weed *Caulerpa taxifolia*;
7. the Applicant has not demonstrated an adequate mitigation and management strategy with respect to elevated construction noise impacts on surrounding residential receptors;
8. the Applicant has not demonstrated that night time noise impacts generated by third parties utilising the proposed development could be managed within acceptable local acoustic amenity limits;
9. the Applicant has not demonstrated that parking requirements for the proposed development can be adequately provided and managed on the site;
10. the proposed development is of a scale and intensity that is inconsistent with the locality and surrounding land uses;
11. the proposed development would inappropriately restrict public access to waterways zoned for recreational use; and
12. the proposed development is not in the public interest.

Consideration under Section 79C of the *Environmental Planning and Assessment Act 1979*

Section 79C of the *Environmental and Planning Assessment Act 1979* requires that the consent authority, when determining a development application, takes into consideration the following matters.

a) *The provisions of:*

(i) *any environmental planning instrument;*

In relation to the proposed development, the following environmental planning instruments apply.

- *Pittwater Local Environmental Plan 1993;*

- *State Environmental Planning Policy No. 55 – Remediation of Land*; and
- *State Environmental Planning Policy No. 71 – Coastal Protection*.

Pittwater Local Environmental Plan 1993

The proposed development site is zoned 6(a1) – Waterways Recreation under the *Pittwater Local Environmental Plan 1993*. In that zone, nominate permissible uses requiring development consent generally include:

- moorings;
- public wharves, jetties, pontoons and boat launching ramps;
- transport services and facilities associated with the waterway; and
- utility installations.

The proposed development does not include or comprise any of these uses, noting the distinctions between a mooring and the proposed fixed berths, and public jetties and boat launching ramps compared with the private commercial nature of the proposal. The proposal therefore falls within the ambit of innominate prohibited uses in the zone.

However and despite the zoning provisions for the site, clause 50 of the LEP provides that with respect to certain parcels of land, development consent may be granted for any purpose ordinarily incidental or subsidiary to waterfront business or boat service facilities. Relevantly, the Applicant's current lease (LE333949) with the Department of Lands, which includes Lot 254 DP 752046 and part of Lot 1 DP 1033779, covers land parcels to which clause 50 applies.

The proposed development would ordinarily constitute prohibited development under the zoning provisions of the site alone. However, clause 50 of the *Pittwater LEP 1993* refers to the areas covered by the Applicant's current lease, including areas which form part of Stage 1 of the proposed development. Clause 50 (2) states:

“Despite any other provision in this plan, the council may grant consent to the development of land to which this clause applies for any purpose ordinarily incidental or subsidiary to waterfront business or boat service facilities.”

Subsequently, the proposed use of Lot 254 DP 752046 and part of Lot 1 DP 1033779 for the purposes of a marina is permissible with consent pursuant to clause 50 of the *Pittwater LEP 1993*. The remainder of Lot 1 DP 1033779, which is predominantly waterway and which would also form part of Stage 1 of the proposed development, benefits from existing use rights under Division 10, section 106 to 109 of the *Environmental and Planning Assessment Act 1979*.

Stage 2 of the proposed development would ordinarily constitute prohibited development under the 6(a1) – Waterways Recreation zoning. However, section 76A(8) of the *Environmental Planning and Assessment Act 1979* (which has since been repealed with the introduction of Part 3A, but subject to savings provisions relevant to this development application) provides that a State significant development of which only part is permissible with development consent is taken to be entirely State significant and permissible. As such, section 76A(8) operates to make the entire proposed development permissible and State significant development, despite the underlying zoning provisions of the LEP.

Some submissions made in relation to the subject development application have questioned the need for the Minister to make a specific direction under section 89 that an application be made with respect to the otherwise prohibited components of the development (Stage 2). The Department agrees that this is an alternative head of power to bring this application to the Minister for consideration. However, the equally-applicable section 76A(8) approach has been applied in

this case.

An important point to note is that the proposed development is made State significant development by virtue of a declaration under section 76A(7) with respect to marina development in the Sydney area, inter alia. The test for application of both section 76A(7) and section 89 is the Minister's opinion that the development is of State or regional environmental planning significance. Therefore, the same considerations have been applied, regardless of whether the subject proposal was brought to the Minister through section 89 or the combined effects of sections 76A(7) and 76A(8).

State Environmental Planning Policy No. 55 – Remediation of Land

The objective of *State Environmental Planning Policy No.55 – Remediation of Land* (SEPP 55) is to provide for a State-wide planning approach to the remediation of contaminated land. In particular, this policy aims to promote the remediation of contaminated land for the purpose of reducing the risk of harm to human health or any other aspect of the environment.

Clause 7 of SEPP 55 states that a consent authority must not consent to the carrying out of any development on land unless:

*it has considered whether the land is contaminated, and
if the land is contaminated, it is satisfied that the land is suitable in its contaminated state (or will be suitable, after remediation) for the purpose for which the development is proposed to be carried out, and
if the land requires remediation to be made suitable for the purpose for which the development is proposed to be carried out, it is satisfied that the land will be remediated before the land is used for that purpose.*

Sediment analysis was undertaken by the Applicant, the results of which indicate that areas adjacent to the existing spillway are contaminated with copper, lead, mercury, zinc and tributyl tin (TBT). The results of the sediment analysis are described in greater detail below (assessment of water quality impacts). It is apparent that the sediments in Careel Bay, and within the boundary of the proposed development, are contaminated. This fact is also accepted by the Applicant and the Department of Environment and Conservation (DEC). The DEC has indicated that it would be satisfied with sediment contamination being investigated and addressed through subsequent, future processes outside the current development proposal.

The DEC has also identified that dry land areas of the proposed development may be contaminated as a result of existing unleaded petrol tank and pipelines. In this regard, the DEC considers that further investigation into petroleum hydrocarbons should be required, and ameliorative action taken where necessary.

While the Applicant and the DEC consider that the contamination issues could be addressed through future processes, the Department is particularly concerned over the lack of certainty with this approach. The Department considers that remediation of the contaminated sediments and any hydrocarbon-impacted soil is necessary, and in principle, considers that an acceptable remediation outcome could be achieved through excavation and removal of the contaminated materials (or potentially capping if impacted materials did not contain high concentrations of mobile contaminants). However, no remediation proposal has been included as part of the subject development application, and the Department questions whether approval of the proposed development in the absence of a clear and certain remediation proposal would be appropriate.

There is also likely to be a conflict between the development, if it proceeds, and

the attainment of remediation outcomes. This relates in the first instance to the potential for a concentration of boat movements near the development to resuspend contaminated sediments, with spread into the water column and consequent impacts on aquatic ecology and water quality. The spread of contaminated sediments is not considered to pose a significant risk to humans at this time, however, the spread of sediments beyond current bounds would ultimately make the eventual remediation process a more costly and time-consuming activity. Secondly, by undertaking the development ahead of any remediation, the development itself may act to restrict or preclude effective remediation of contaminated materials. Excavation of contaminated sediments may eventually prove to be impractical simply because excavation equipment cannot be operated close to structural elements of the marine, or equally, cannot be operated without causing damage or inconvenience to the development and its users. In this light the Department considers it would be imprudent, and inconsistent with SEPP 55 to approve the proposed development in the absence of or ahead of a clear and certain remediation approach.

State Environmental Planning Policy No. 71 – Coastal Protection

The proposed development is located within the coastal zone, as defined under the *Coastal Protection Act 1979*. *State Environmental Planning Policy No 71 – Coastal Development* applies to all land within the coastal zone, therefore, the provisions and objectives of SEPP 71 apply to this proposal.

The SEPP provides matters for consideration that must be taken into account by a consent authority when it determines a development application, including:

- the aims of the Policy,
- existing and opportunities to provided new public access,
- suitability of the development,
- any detrimental impact the development may have on the amenity of the coastal foreshore and means to protect and improve scenic qualities of the NSW coast;
- measures to conserve terrestrial and aquatic flora and fauna and the impact of the development on wildlife corridors;
- the impact of costal processes and hazards on the development and any likely impacts of the development on coastal processes and hazards;
- measures to reduce any conflict between land and water based coastal activities;
- measures to protect and conserve items and places of indigenous and non-indigenous heritage; and
- the impact of the development on water quality

The Department is not satisfied that the proposed development is consistent with the aims of the Policy and its matters for consideration particularly in relation to the protection of marine vegetation, public foreshore access, visual impacts and impacts of the proposed development on water quality. These matters are discussed in more detail below.

(ii) any draft environmental planning instrument that is or has been placed on public exhibition and details of which have been notified to the consent authority;

The *Pittwater 21 Draft Local Environmental Plan* was on exhibition from 3rd January 2004 to 3rd March 2004. The proposed development site is zoned Waterway Recreation Waterways under the *Pittwater 21 Draft Local Environmental Plan*. The proposed development would also be prohibited development under this zoning, if it were not for the operation of the State significant development and savings provisions of the *Environmental Planning and Assessment Act 1979*.

(iii) any development control plan;

In relation to the proposed development, *Pittwater 21 Development Control Plan* applies. The DCP details requirements for developments within Pittwater local government area including general controls relating to density, hazards, the natural environment, water management, access and parking, section 94 contributions and management of site works, as well as design criteria. In addition, the DCP includes specific development controls for 15 different localities, including waterways.

Requirements relating to the natural environment list controls for seagrass conservation and the protection of estuarine habitat. Controls listed under section B4.14 Seagrass Conservation are as follows:

- *Development shall not significantly affect seagrass beds.*
- *Development shall replace seagrass in areas where it has been lost.*
- *No filling, dredging or other disturbance shall be undertaken within 50m of seagrass beds.*
- *Jetties, wharves and pontoons shall be designed and constructed to maximise light filtration to seafloor.*

Controls listed under section B4.17 Estuarine Habitat include:

- *Development shall not be permitted which could result in the destruction of mangroves or sea grass beds.*
- *Development proposed adjacent to seagrass beds shall incorporate a buffer zone of at least 50 metres between the development and the seagrass beds.*
- *Development within the Pittwater Waterway shall have regard to any adjoining important estuarine habitats at all time, particularly during the construction phase.*
- *Any impact upon estuarine habitats within the Pittwater Waterway, particularly mangroves, salt marsh and sea grass beds, must be minimised.*
- *Adequate restoration works shall be undertaken where damage to estuarine habitats occurs.*

Section D15.15 of the DCP requires vessels to be berthed at right angles to the mean high water mark to reduce visual impacts. Vessels may be berthed parallel to the mean high water mark where navigation is restricted. The Applicant is proposing to berth vessels at a 45° angle to the shoreline. The visual impacts of the proposed development are discussed in more detail below.

The Department is not satisfied that the Applicant has demonstrated that there would be no significant impact on seagrass beds. This is discussed in more detail below. Additionally, construction works including pole driving would not only occur within 50 metres of seagrass beds, the proposed development would be located within the 50 metre buffer zone. Therefore, the controls as listed under section B4.14 and B4.17 of the DCP have not been met.

While the DCP is not binding on the Minister, it does provide a focus for the Minister's consideration when taking into account the relative merits of the proposed development. The DCP, along with submissions from Council and the local community, clearly recognise the ecological importance of seagrasses, their relatively fragile nature (particularly with respect to turbidity, overshadowing, wave motion and water quality generally) and the recognised difficulties with propagation or regeneration of seagrasses once lost or degraded. The considers that the DCP takes a particularly conservative and precautionary approach that may, subject to merit assessment, require some flexibility in the application of the 50-metre standard. The Applicant's current proposal, to bring construction works and the final development to within only a few metres of seagrass beds, has not at this time been demonstrated as acceptable or consistent with the intent of the

DCP (ie a “focus” on impacts to seagrasses and protection from edge effects). Further, the Department considers that there is reasonable potential, through the location and alignment of the proposed development, that the expanded marina will have the indirect flow-on effect of encouraging private boat users to travel across the seabeds as they travel *around* the development.

The Department is satisfied that the design of the proposed marina generally meets other requirements of the DCP.

(iii) any planning agreement that has been entered into under section 93F, or any draft planning agreement that a developer has offered to enter into under Section 93F;

The subject development application was lodged prior to the commencement of section 93F of the Act, and as such was not accompanied by a planning agreement or draft planning agreement developed by the Applicant. The Applicant has subsequently not amended its application to include any such agreement or draft agreement.

(iv) the regulations (to the extent that they prescribe matters for the purposes of this paragraph);

Clause 92 of the *Environmental Planning and Assessment Regulation 2000* requires the following matters to be taken into consideration by a consent authority in determining an application:

- *The Government Coastal Policy (where relevant);*
On 18 November 2005, the mapped Coastal Zone within the Sydney Metropolitan Region coastal local government areas was extended, and now encompasses the proposed development site. There are no transitional or savings provisions that preclude the application of relevant coastal provisions to the development application, despite the fact it was lodged but not determined prior to the extension of mapping.

The proposed development is in a location to which this Policy applies and hence, its provisions must be taken into consideration as part of the assessment of the development application. The Policy has the objective of managing the coast in an ecologically sustainable way through protecting and conserving the coast for future generations and is based on the principles of Ecologically Sustainable Development (ESD).

The Applicant has assessed the proposal against the principles of ESD and concludes that the proposal is consistent with these objectives. However, the Department is not satisfied that the proposal (with its proposed mitigation measures) meets the objectives of ESD and the provisions of the Coastal Policy, and in particular the protection and conservation of the natural environment, to protect and enhance the aesthetic qualities of the coastline and the provision of public access to foreshore areas.

The Department considers that there is a level of uncertainty surrounding the potential impacts of the proposed development, especially in regards to impacts on seagrasses, the potential spread of the noxious weed *C. taxifolia* and the effect of propeller wash on turbidity levels and the resuspension of sediment contaminants. Therefore it has not been possible for the Department to determine whether impacts would be within acceptable limits and whether measures proposed would mitigate against any impacts. Additionally, due to the intensification of vessels in the area, public use of the foreshores and waterway for recreational purposes would be restricted.

- *In the case of a DA for the demolition of a building, the provisions of Australian Standard AS 2601-1991: The demolition of structures, as in force 1 July 1993;*

The proposed development involves the demolition and replacement of existing structures. While the subject application has not demonstrated in detail how the provisions of the Australian Standard would be met, the Department is satisfied that this matter could be appropriately conditioned to require compliance with the Standard.

b) *the likely impacts of that development, including environmental impacts on both the natural and built environments, and social and economic impacts in the locality;*

Sediment Quality

Sediment analysis undertaken by the Applicant indicates that areas adjacent to the existing spillway (4 sites) exhibit the highest levels of contamination with copper, lead, mercury, zinc and TBT levels exceeding ANZECC/ARMCANZ (2000) interim sediment quality guideline (ISQG) levels. In addition, heavy metal and TBT concentrations were elevated at these sites compared to the other sites sampled in Careel Bay. Monitoring of sediment quality was restricted to one sampling occasion, with samples collected from 19 sites in the Bay.

Sediments act as both a sink and source of dissolved contaminants and as such can influence surface water quality and provide a source of bioavailable contaminants to benthic organisms. ANZECC/ARMCANZ (2000) provide ISQG-Low and ISQG-High trigger values for a selected number of contaminants. Where the ISQG-Low trigger value is exceeded, ANZECC/ARMCANZ (2000) recommend either management action (including remediation) be undertaken or additional studies be conducted to determine whether the concentrations detected are posing a risk to the ecosystem. These studies can involve comparison with background concentrations, analysis of acid volatile sulphides and pore water and ecotoxicological assessments (i.e., toxicity testing).

The level of contamination of the four sites sampled within 50 metres of the spillway is summarised below:

- Copper concentrations were above the ISQG-High trigger value of 270 mg/kg for all four sites sampled;
- Concentrations of lead, mercury and zinc were above the ISQG-High trigger value at the two sites closest to the slipway and above the ISQG-Low trigger value at the remaining two sites; and
- TBT concentrations exceeded the ISQG-Low trigger value at each of the four sites sampled.

The Applicant states that minor disturbance of the sediments would occur during piling activities and due to the motion of the barge(s) during the construction of Stage 1. The Applicant proposes to install a turbidity curtain around the works during construction of Stage 1 to contain any migration of fine sediments away from the site. The Applicant considers that piling operations would be conducted without the use of a turbidity curtain during the construction of Stage 2 due to the lower levels of contaminants in this area. The Applicant states that no dredging will be required during construction of Stage 1 or Stage 2 of the project.

The Department considers that any disturbance to sediments during the construction phase of the proposed development would be temporary and localised. However, should the Minister approve the proposed development, the Department recommends that a turbidity curtain also be installed during the construction of Stage 2 of the proposed development.

The Department concurs with the Applicant that the present practices of the boat repair and maintenance facilities have contributed to the high levels of contamination in the vicinity of the slipway. However, the Applicant has not provided any measures to remediate this area. In addition it is proposed that the most contaminated areas would be covered by the hardstand. The positioning of the hardstand would restrict the potential for any future remediation of this area. As discussed above, the Department considers this to be an unacceptable outcome, inconsistent with the objectives of SEPP 55.

Impacts on Aquatic Ecology

Scope of Aquatic Ecology Data

The Applicant undertook an aquatic ecology assessment which included:

- surveys of the aquatic habitats of Careel Bay including the preparation of seagrass distribution maps which were based on aerial photography and diver surveys undertaken in May of 2000 and 2002;
- a literature review to identify aquatic flora and fauna studies previously undertaken at Careel Bay; and
- review of threatened species listed under the *Fisheries Management Act 1994*, the *Threatened Species Conservation Act 1995* and the *Environment Protection and Biodiversity Conservation Act 1999* in consideration of the aquatic habitats identified at Careel Bay.

In terms of the information presented in the Environmental Impact Statement, the seagrass map is not identical to the previous maps prepared by NSW Department of Primary Industries. This is an issue of particular concern raised in public submissions, particularly in the context of a perception that the Applicant's data may have underestimated the extent of seagrass beds and consequently the extent to which the proposed development may encroach into seagrass areas. The Department considers that the discrepancies between the Applicant's and the Department of Primary Industries' mapping is likely to be a result of finer scale ground-truthing undertaken by the Applicant, in addition to temporal variability in the extent of seagrass coverage. Overall the description of the extent of seagrass beds presented by the Applicant in the Environmental Impact Statement appears robust. In this light, it is appropriate and acceptable to rely on the Applicant's data, given its contemporary and confirmed nature.

The description of the fish fauna presented and considered in the Environmental Impact Statement is, however, overly general and also contains significant inaccuracies. While a regional, rather than a site-specific description of fish assemblages is often appropriate, the information presented by the Applicant is piecemeal and largely irrelevant. The heavy reliance on a very dated (1981) report from Botany Bay to make inferences regarding the structure of fish assemblages in Careel Bay (Pittwater) is not rigorously justified. A preferable approach to ensure a robust scientific outcome is to use multiple information sources for the specific region and present a composite species list for each habitat type. For instance, the fish species likely to be found in *Posidonia* beds in the region, the fish species associated with shallow shoals etc.

Translocation of fish fauna data both temporally and geographically without support from local surveys or comparisons against regional composite fauna lists calls into question the voracity of data upon which the Applicant has relied and as a consequence, the conclusions derived from consideration of that data. In the absence of robust fish fauna data for the habitats potentially impacted by the proposed development, the Department is unable to conclusively determine whether the Applicant's assertion of no significant impact on fish fauna is accurate and well-founded. In the presence of this doubt, the Department considers there to be a significant level of uncertainty over the potential

implications of the development with respect to fish fauna and has been unable to determine whether impacts in this regard would be within acceptable limits.

The discussion of habitat utilisation presented in the Environmental Impact Statement focuses generally on estuaries as a habitat rather than specific habitat types that may characterise estuaries (eg. *Posidonia* beds). In any case, several species are incorrectly assigned to the specific categories: freshwater mullet, travally (sic), school whiting, robust whiting and nannygai. In this context, the ability to accurately and reasonably predict and assess potential impacts is reduced. The Department considers that the Applicant has not provided sufficient information to support assessment of impacts on aquatic habitats and dependent species, and therefore it is not possible to conclusively determine whether impacts associated with the proposed development would be within acceptable limits.

Information on macrobenthic assemblages is not presented by the Applicant in a form that appropriately describes the assemblages or permits a reasonable assessment of potential impacts. Simply, reference is made to Hattersley *et al* (1973), a technical report produced over 30 years ago that is not publicly available. Inadequacies in the description of both the fish and macrobenthic assemblages make it difficult to predict with any level of certainty the impacts of the proposed development. As with aquatic habitats and fish species, the Applicant has not provided contemporary and reliable information on which to base a reasonable level of environmental impact assessment. Applying a precautionary approach therefore, the Department considers that a conservative stance must be applied and the inconclusive results of a consideration of impacts on macrobenthic assemblages must result in an assumption of significant adverse impacts until it is demonstrated otherwise. The absence of contemporary data relevant to the locality suggests that the Applicant may need to undertake significant additional survey work in order to support its claims that the proposal will not adversely impact on macrobenthic organisms. Given the weight of other negative impacts from the proposed development, the Department has not requested this additional work from the Applicant at this time, noting that impacts on macrobenthic organisms (and equally, habitats and fish species) is only one of a suite of issues that needs to be resolved before the Department could support approval of the proposal.

Potential Impacts on Aquatic Ecology

From an aquatic ecology perspective the proposed development has the potential to:

- reduce the impacts on *Posidonia* beds with the relocation of swing moorings from this habitat type;
- increase the spread of the noxious weed *Caulerpa taxifolia*;
- disturb the seabed which in turn could have an impact on the aquatic ecology through increased turbidity levels and re-suspension of contaminants; and
- significantly increasing “shading” effects directly under and adjacent to the floating pontoon structures.

While the Department concurs with the Applicant that the relocation of existing moorings from *Posidonia* beds is potentially a significant environmental positive associated with the proposed development, it is noted that recolonisation rates of *Posidonia* following disturbance are very slow. For example, Meehan and West (2000) identified that *Posidonia* beds in Jervis Bay are likely to take a minimum of 60 years to recover to their pre-disturbance state. Thus, any improvement in habitat quality as a result of mooring relocation is unlikely to be detected for a significant period of time (at least in the order of decades). The immediate

benefits of the proposal for seagrass health and colonisation therefore tend to be overstated in the Environmental Impact Statement.

This observation is significant as the Applicant has relied on the positive effects of the proposal on seagrasses both as justification for the development, and also to a certain degree as an offset for any negative environmental and amenity implications of the proposal. When considering the balance of the merits of the proposal, the Applicant has placed significant weight on the relocation of swing moorings outside seagrass beds for positive reinforcement of the need and justification of the proposal. While the Department concurs that there will be a benefit with respect to relocation of swing moorings, it considers that the Applicant has placed undue weight on these benefits, given the likely timeframes for realisation of a benefit to the extent suggested by the Applicant.

Caulerpa taxifolia is an invasive green macroalga (Creese *et al.*, 2004). Infestation of Careel Bay with the noxious weed was first identified in December 2000. Surveys undertaken by the Applicant in 2002 and Creese *et al.* in 2004 indicate that *C. taxifolia* has spread further east and west from the location of the original infestation, with the area of infestation estimated to be 49 hectares (Creese *et al.*, 2004). Mechanism and activities described by Creese *et al.* (2004) which may generate fragments from established patches of *C. taxifolia* and which could assist in the transportation and establishment of *C. taxifolia* include:

- commercial fishing nets;
- recreational fishing gear;
- diving equipment;
- boat propellers or hulls, water skis, trailers;
- anchors and anchor chains;
- release from aquaria;
- aquaculture;
- ocean currents, tides and wave action; and
- other natural processes such as storms and the disturbance of the seabed by animals eating the alga

Maps prepared by the Applicant and Creese *et al.* (2004) indicate that the area of infestation at Careel Bay is within areas of high boating activity, being within 50 metres of the location of the new navigational channel, the existing public wharf and the proposed dinghy storage facility (as proposed in Council's George Street Master Plan and Strategy). Studies undertaken by Creese *et al.* (2004) demonstrate that the abundance and biomass of fragments of *C. taxifolia* is generally greater in areas of high anthropogenic activity compared to areas of low anthropogenic activity.

The proposed development will result in a consolidation and concentration of boating activities in close proximity to current *C. taxifolia* outbreaks. Currently boating is spread across Careel Bay and distanced from outbreak areas. Bringing these activities closer to the outbreak areas will increase the risk of spread of the *C. taxifolia* with possible resultant infestation into other areas of the Bay. The Applicant has suggested that the proposed development would not increase the potential rate of spread of this invasive species, but has not provided robust arguments to support his claim, or proposed mitigation and monitoring to ensure that augmented spreading characteristics are not realised. Given the virulent and invasive nature of this species, the Department considers that once enhanced spread of the species is realised, it would be extremely difficult if not impossible to mitigate or ameliorate the impact. As such, any potential for enhanced spread needs to be addressed up front to ensure that retrospective action is not required potentially at significant expense and without strong chances of success. Such an approach has not been proposed by the Applicant,

and the Department maintains that intensification of boating activities is likely to introduce significant additional potential for *C. taxifolia* spread. The proposed development therefore poses significant risk of negative ecological impacts through spread of an invasive species. In the absence of a robust, up-front proposal to remove this risk, the Department cannot support the proposed development with the significant potential for adverse effects.

The Department is not satisfied that the Applicant has adequately assessed the potential effect of propeller wash from vessels on the seabed. As noted above, disturbance of the seabed is likely to result in an increase in turbidity levels and has the potential to result in the re-suspension of contaminants, particularly in the vicinity of the existing slipway. This issue has been raised as being a matter of significant concern in many of the public submissions received with respect to the subject development application. The Department notes that direct and indirect impacts on aquatic ecology resulting from an increase in turbidity levels include:

- reduction of light penetration through the water column adversely affecting the photosynthetic capability of aquatic plants;
- mechanical and abrasive impairment of gills which can lead to stress or the death of fish;
- smothering of benthic organisms; and
- habitat alteration.

The bathymetry of Careel Bay is relatively shallow, and while the Applicant's argument is accepted that design of the proposed development meets relevant depth standards for marina development, the Department highlights that these standards are based on operational requirements and habitat-independent turbidity considerations. The proposed development is proposed to be undertaken within a closed bay system, with significant seagrass and mangrove populations. Design standards for marinas, in contrast, cannot and should not be expected to account for every circumstance – if so, one could expect stringent design standards relevant to sensitive ecological situations to be applied to marina developments in less sensitive contexts with the result of over-designing marinas in circumstances where more stringent design criteria are not necessary. Equally, it would not be possible for general marina design standards to account for all sediment types (which may or may not become easily suspended in water) or the flushing characteristics of all types of waterways in which a marina may be located. The Department considers that reliance simply on marina design standards to support the proposed development as being acceptable belies the site-specific considerations that must be taken into account when assessing each marina proposal in its respective environmental context. In the case of the proposed development, the Department does not consider that the Applicant has sufficiently demonstrated that that concentration of boating activities into one corner of Careel Bay would not adversely affect turbidity levels and consequently lead to flow-on ecological impacts, particularly on seagrasses and dependent species.

The Department has inspected the site at low tide and viewed historical photographs that suggest under some circumstances the depth of water in the Bay will cause propeller currents to directly impinge on sediments, increasing local turbidity effects. At the scale and intensity of proposed development, coincident low water levels and the most frequent movement of vessels into and out of the marina are considered to pose a significant risk of turbidity in area. While the Applicant has not provided information to demonstrate how this issue may be managed, the Department considers it would be impractical (and perhaps impossible) to restrict boating movements under independent ownership to prevent access during tidal situations conducive to elevated turbidity impacts. Restrictions on hours of operation, while a potential means to regulate this issue, would be reliant on continually changing operational hours reflective of changing

tidal situations. Further, there is no ability through development consent to influence activities outside the scope of the proposed development, which may include corralling of vessels outside of the marina ahead of any operational hours that may be stipulated in the development consent.

Turbidity is also a key issue with respect to the fact that sediments in the Bay are contaminated as a result of historical activities. The re-suspension of contaminants from disturbed sediments can directly affect aquatic organisms or can affect higher trophic levels through bioaccumulation. As discussed above, areas adjacent to the spillway are contaminated with copper, lead, mercury, zinc and TBT.

The Careel Bay Trailer Boat Club prepared a submission to Pittwater Council for the inclusion of a boat ramp in the George Street Master Plan and Strategy. It is proposed that the boat ramp would be located to the east of the existing marina site, adjacent to seagrass beds. Subsequently, should the construction of the Stage 1 and Stage 2 development and the public boat ramp proceed, all vessels launched from the boat ramp would be required to travel over the seagrass beds. Vessels launched from the proposed boat ramp therefore have the potential to impact on seagrasses causing physical damage to the seagrass or result in an increase in turbidity levels. Based on the Department's consideration of the effects of the proposed development on seagrass beds, it is suggested that similar negative impacts would also eventuate should the public boat ramp proceed as currently proposed.

The proposed development will result in increased shading effects on macrobenthic and fish assemblages. This is an issue not thoroughly explored in the Environmental Impact Statement. Such impacts have been described in the Sydney region by Glasby (1999 a and b).

Impacts on Terrestrial Ecology

A search of the Atlas of NSW Wildlife was undertaken by the Applicant which indicated that the only threatened species or populations likely to occur in the vicinity of the proposed development is a breeding pair of Bush Stone-Curlew (*Burhinus grallarius*), which reside at Careel Bay. An Eight Part Test was undertaken in accordance with section 5A of the *Planning and Assessment Act 1979*. The results of the Eight Part Test indicate that the proposed development would not impact on the life cycle or habitat of the Bush Stone-Curlew. Additionally, the proposal is not a key threatening process as defined in Schedule 3 of the *Threatened Species Conservation Act 1995*.

The Applicant also conducted a search of the *Environment Protection and Biodiversity Conservation Act 1999* Protected Matters database for matters of national environmental significance within a 2km by 2 km buffer area of the proposed development. The 25 listed terrestrial flora and fauna species (including 5 migratory bird species) are generally associated with habitats not found at the study area.

An area of saltmarsh is located approximately 500 metres from the Careel Bay Marina. Coastal saltmarsh in the NSW North Coast, Sydney basin and South East Corner bioregions is listed as an endangered ecological community. While the Applicant did not undertake an Eight Part Test to assess whether the proposed development is likely to have a significant impact, the Department is satisfied that the proposed development is not likely to impact on this area of saltmarsh or other threatened species or populations.

Other Water Quality Impacts

Construction impacts

Impacts on water quality identified for the construction phase of the proposal relate to:

- erosion and sedimentation;
- exposure of acid sulfate soils; and
- disturbance of sediments resulting increased turbidity levels and the re-suspension of contaminants in the water column.

As discussed previously, analysis of sediment samples from Careel Bay indicate that areas of the Bay are highly contaminated. Disturbance of sediments would occur as a result of piling activities and the movement of the barge. Disturbance of sediments is likely to lead to an increase in turbidity and could lead to the re-suspension of contaminants such as heavy metals, TBT and nutrients. The Department considers that any disturbance to sediments during construction would be temporary and localised.

The Department is satisfied the Applicant has generally addressed the potential water impacts from the construction of the proposed development through the following proposed measures:

- installation of erosion and sediment control measures during the Stage 1 construction works in accordance with Landcom (2004) *Managing Urban Stormwater: Soils and Construction*;
- installation of a turbidity curtain to contain the movement of sediments away from the site during the construction of Stage 1; and
- implementation of a water quality monitoring program, in consultation with DEC.

Operational impacts

The Department concurs with the Applicant that the provision of a concrete hardstand, sewage pumpout facilities, oily bilge pumpout facilities, water quality controls on stormwater from the carpark area and a floating boom to contain accidental spills would reduce the water quality impacts associated with the operation of the proposed development.

The Department is satisfied that water quality impacts could be adequately managed through the proposed management and mitigation measures outlined by the Applicant.

Noise Impacts

Construction Impacts

In total, construction of Stage 1 is expected to occur over a 47 week period, with construction of Stage 2 to occur over a 16 week period. Construction noise sources include pile driving and the use of machinery during the construction of Stage 1 and Stage 2. Noise modelling undertaken by the Applicant indicates that, based on a worst case scenario, noise from construction activities will exceed the applicable construction noise goal at each of the four reference sites (refer to Table 1). The four reference sites include:

- residences to the south on George Street (closest sensitive residential receiver is approximately 40m from the work site);
- Higgins Boat Shed approximately 240m to the west;
- residences to the south, approximately 180m to the south at the top of the hill; and
- residences to the north-east, approximately 400m from the work site.

Table 1: Predicted Construction Noise Levels

	Location 1: Residences to the south	Location 2: Higgins Boat Shed	Location 3: Residences at top of hill to the south	Location 4: Residences to the north- east
Noise Assessment Goal - More than 26 Weeks ($L_{A10, 15min}$)	47	41	41	41
Stage 1				
Pile Driving	74-76	54-56	52-54	52-54
Mixer/Truck & Crane	70-72	50-52	48-50	46-48
Excavator	68-70	48-50	44-46	42-44
Stage 2				
Pile Driving -South Marina	66-68	56-58	52-54	54-56
Pile Driving - North Marina	60-62	62-64	50-52	54-56

EPA (1994) recommends that the $L_{A10, 15 min}$ level should not exceed the background level by 5dB(A) when the development is under construction. As shown in Table 1, modelling undertaken by the Applicant indicates that this noise goal would be exceeded by up to 19dB(A) in some instances. While the Department recognises that the noise levels provided in Table 1 represent the worst case scenario, given the length of the construction period and the fact that the surrounding area is primarily residential, the Department considers construction noise impacts to be significant, and unacceptable in the form presented by the Applicant in the Environmental Impact Statement. It is possible, in the Department's opinion, to modify construction works and staging to mitigate these noise impacts to a degree. However, the Department considers it unlikely that construction noise impacts could be mitigated to such a degree that compliance with construction noise goals was attained. Further, in doing so, the length of the construction noise impacts would be extended and consequently extend the duration of elevated amenity impacts in the locality. In short, the Applicant has not presented any reasonable mitigation and management strategy for construction noise, and it is therefore not possible to conclusively determine whether the proposed development could be undertaken within reasonable amenity limits.

The EIS has considered vibration impacts from pile driving and compacting activities. Piling activities would be conducted over a two week period during the construction of Stage 1 and over a four week period during the construction of Stage 2. The nearest residential receiver is approximately 40 metres from the work site. Investigations indicate that the vibration levels generated are unlikely to exceed the safety limit of 5mm/s for structural damage to residential buildings, when measured at 20 metres from construction activities (based on German Standard DIN4150 Part 3, 1986). The Applicant has stated that piling activities would be restricted to 8.00am to 12.00pm and 2.00pm to 5.00pm Monday to Friday, with a respite period of 1 hour should piling continue for more than three hours. The Department is satisfied that vibration impacts from pile driving have been adequately considered and the proposed mitigation measures would ensure vibration impacts can be managed, although noise effects would remain elevated, as noted above.

Operational impacts

Operational noise sources include boat repair and maintenance activities, boat manoeuvring, site plant and equipment and transient carpark noise. Modelling undertaken by the Applicant indicates that operational noise from yacht and cruiser manoeuvring and boat repair and maintenance activities would meet recommended project specific noise goals at all reference locations. The Applicant states that the proposed development would result in a 5-10 dB(A) reduction in noise emissions compared to current boat repair and maintenance

practices. Reduction of noise levels would be achieved through building number 2, which would provide some screening to nearby residences and the use of transparent or PVC curtains around boats which are being repaired or maintained.

However, the Applicant predicts that operational night time transient noise goals could be exceeded at the closest residences to the south on George Street. While the Department considers it would be practical to limit hours of operation to restrict noise impacts from activities directly within the control of the Applicant, a similar approach applied to private parties utilising the development is not considered appropriate or enforceable. The potential for noise from boat users that may be accessing the development or their boats at night was raised as a significant issue in submissions received in response to the exhibition of the development application. The Department tends to agree with these concerns, highlighting that the concentration of the development (from an existing disperse mooring arrangement) and the inclusion of commercial activities on the site would indirectly encourage activities at the site conducive to noise generation beyond the reasonable control of the Applicant. This situation may generate on-going land use conflicts between residential land uses and night time users of the development, for which the Department considers it would be difficult to impose conditions of consent to manage. Resolution of this issue may, however, be resolvable through development on a smaller scale and a comprehensive suite of mitigation measures on the part of the Applicant, including restrictions to site access and boats at night.

Traffic and Parking

Construction impacts

The Applicant has estimated that the typical number of truck movements during the 46 week construction period would be 4 movements per hour over the six working days (i.e two loads in and two loads out). Truck movements would increase to 8 movements per hour for 9 weeks and up to 10 to 12 movements per hour for 2 weeks of the construction period.

The Department is not satisfied that the Applicant has adequately assessed traffic and parking impacts associated with the construction phase of the proposed development. No traffic counts have been undertaken for George Street and the Applicant has not taken into consideration additional vehicle movements associated with construction workers. Additionally, the Applicant has not considered parking requirements for construction workers, plant and equipment or delivery vehicles during the construction period. It is therefore, difficult to ascertain with any certainty the impacts of the construction phase of the proposal on traffic and parking.

Operational impacts

A parking survey was undertaken by Applicant on three occasions each day (8.00am, 1.00pm and 5.30pm) over a 16 month period. Peak periods for parking were identified to be:

- 24 December to 2 January;
- Australia Day long weekend
- Easter long weekend; and
- October long weekend.

On average demand for parking spaces was highest on weekends, with existing parking at the marina (11 spaces) reaching near capacity most weekends.

In accordance with Australian Standard AS3962-2001 *Guidelines for Design of Marinas* and Pittwater 21 DCP onsite parking requirements were calculated using the demand rates of one space per two employees and 0.33 spaces per berth.

Calculations for parking requirements were based on weekend staff numbers and it was assumed that the parking demand for the proposed 37 marina berths would be 20% greater than that of existing 37 commercial swing moorings.

The Applicant has allowed for onsite parking for up to 39 cars including:

- *Area 1* - 18 permanent spaces in a dedicated carpark, with one wheelchair accessible space;
- *Area 2* - 7 overflow car spaces on the hardstand in front of Building 2 for weekend use;
- *Area 3* - 14 overflow spaces on the hardstand, in a stacked arrangement with valet service, for use on peak weekends and public holidays.

In 2002 Pittwater Council prepared a Master Plan and Strategy for George Street, Careel Bay. The aims of the Master Plan are to improve vehicular and pedestrian access to this area of Pittwater, to enhance access to the foreshore while reducing foreshore erosion, to protect the mangrove/saltmarsh interface and to provide dinghy storage facilities. The draft Master Plan and Strategy was placed on public exhibition in early 2003 and has yet to be finalised.

A comparison of the available parking spaces prior to and following the proposed development and implementation of the George Street Master Plan and Strategy is provided in Table 2. Overall there would be a net loss of 2 car spaces. It should be noted that the implementation of the Master Plan and Strategy is contingent on revenue raised through the sale of land owned by Pittwater Council and does not fall within the scope of the subject development application or the power of the Applicant to implement.

Table 2 - Available Parking Spaces in the Vicinity of and at the Site of the Proposed Development

Location	Marina Site	East of Marina	West of Marina	Public Wharf	Total Available Spaces
Spaces Currently available	11	52	17	7	87
After development (incl GSMP)	39	27	12	7	85
Increase in parking spaces	28	-25	-5	0	-2

Parking at Area 2 will only be available on weekends from 8:00 am Saturday to 5:30 pm on Sunday, while Area 3 will only be available on public holidays and nominated school holidays. In effect this reduces parking availability on the site to 18 spaces under normal circumstances, with parking provisions increased to 25 spaces on the weekend, and the full proposed parking complement of 39 spaces in select circumstances (public holidays and peak weekends).

Parking demand for staff is estimated to be 15 spaces from Monday to Friday and four to five spaces on weekends. Therefore, three spaces would be available for customer parking Monday to Friday, 20 spaces would be available on weekends and 34 spaces would be available on public holidays and selected school holidays. Subsequently, the Applicant will be dependent on off-street parking to meet parking demands.

As discussed above, the Applicant has estimated that there would be a 20% increase in parking demand associated with larger vessels being berthed at marina. This represents an increase in parking demand of 2 cars. The Applicant has not considered any increase in customer parking demand as a result of the

provision of additional facilities such as a marina shop and chandlery, as well as the enhanced capacity of the boat maintenance operations. The Department considers that by the very nature of the proposed development, traffic generation beyond the immediate berthing requirements could be reasonably expected. The Applicant's consideration of traffic generation is therefore expected to be an underestimate of the real situation.

In peak periods, the Applicant proposes to operate an overflow carpark to accommodate additional vehicles that may require access to the site. While this approach may be numerically convincing, the Department questions the practicality of implementing such an approach in reality. From the information provided in the Environmental Impact Statement, it appears to the Department that the concentration of potential parking spaces on the site is such that movement of vehicles into, out of and within the site would be seriously constrained from a practical management point of view. The result of these constraints would be a tendency to a simpler option of off-site parking along the public road reserve, which would effect an elevated traffic and parking impact beyond that predicted by the Applicant in the Environmental Impact Statement. As a result, the Department considers that the Applicant's traffic and parking proposal for the development is unacceptable and would not achieve reasonable environmental and amenity outcomes in reality.

Should the implementation of the George Street Master Plan and Strategy proceed, there would be a considerable reduction in the number of off-street car parking spaces available in the vicinity of the proposed development. Additionally, with the provision of a public boat ramp, parking demands for off-street parking will increase. Therefore, the Department is not satisfied that parking demands can be met.

Visual Impacts

The development would occur in two stages. Stage 1 consists of the redevelopment of the existing boat maintenance facility operated by AMI including the demolition of existing structures, the construction of boating repair and maintenance facilities including a shiplift, hardstand area and work berths and the construction of a single storey building in the north-western area of the site (including a general shop, offices, toilets and showers) and a two storey building adjacent to George Street (including a workshop for boat maintenance). Stage 2 involves the development of a 37 berth floating marina and the removal of 37 existing commercial swing moorings controlled by AMI.

The proposed Stage 2 development would extend approximately 120 metres to the north of the existing marina and approximately 70 metres to the north-east. The distanced between the most easterly and westerly sections of the proposal is approximately 170 metres. Pontoon structures would be between approximately 60 and 180 metres from the foreshore. Therefore, there would be considerable change to the visual character of both the built environment and the waterway as a result of the proposed development.

The Department concurs with the Applicant that the most significant change to the site would be the removal of boats from swing moorings to fixed berths, with the moored boats having a greater visual presence than any of the structures associated with the Stage 2 development. The Applicant considers visual impacts of the proposed development would be moderate.

The visual assessment was undertaken by the Applicant predominantly focused on the visual impacts of the proposed development once operational. Visual impacts associated with the construction phase of the project were not considered. While the Department recognises that providing treatment for visual

impacts during the construction phase can be difficult, the Department considers that treatments such as enclosing the construction compound be reasonably applied to the development.

Lighting Impacts

A number of public submissions received raised concerns about the impacts of night time lighting on nearby residents. Stage 1 development would be operated 7 days a week. Hours of operation would be as follows:

- administration, marina shop and chandlery – 7 days a week, 8.00am to 6.00pm
- boat repairs – 7 days a week, 7.00am to 6.00pm Monday to Saturday, 8.00am to 6.00pm Sunday and public holidays
- office tenancies – 9.00am to 5.00pm Monday to Friday.

However, the floating marina (Stage 2 development) would be operated 24 hours a day, 7 days a week. Areas which would need to be illuminated from dusk to dawn for pedestrians safety and for security of the proposed development include:

- the floating pontoons;
- pathways from the pontoons to the pedestrian entry gate or carpark;
- the carpark. Security lighting would be controlled by movement detectors, while the garden bed would be permanently illuminated between dusk and dawn;
- the timber wharf on the north side of building 1 (single storey building);
- the verandah in front of the marina shop (located in building 1);
- the hardstand and overflow carpark (controlled after 9:00pm by a movement detector); and
- the verandah of building 2 (controlled after 9:00pm by a movement detector).

Additionally it is proposed that the verandah of building 2 and the five palm trees in front of the George Street frontage would include decorative lighting from dusk until approximately 9pm.

The Applicant states that there would be no significant lighting impacts on surrounding residences as a result of the proposed lighting concept for Stage 1 of the development. However, lighting from Stage 2 of the proposed development would be visible to residents along George Street, west of the proposed building 1. In addition, lighting would also be visible to residents in Shore Brace Road and Cabarita Road.

The Applicant states that there would be no significant lighting impacts on surrounding residences from Stage 2 of the proposed development. It was calculated that the illuminance at a window pane of the closest residence would be approximately 0.1 lux, one tenth of the quantitative limits for obtrusive light during “curfew hours” (i.e., after 11.00pm) as recommended by AS 4282-1997 *Control of the obtrusive effects of outdoor lighting*. Installation of dimmers is the Applicant’s preferred method to reduce any potential impacts. The Department considers this approach to be reasonable and within acceptable amenity limits.

Air Quality Impacts

The main impact on air quality during construction is likely to be associated with dust generation. Dust generation is proposed to be managed through on-site strategies such as water sprays, temporary vegetation of stockpiles and temporary fencing incorporating shade cloth. The Department considers this approach to be appropriate.

Impacts on air quality during operation of the proposed development relate to particulates from abrasive blasting and spray painting and odours associated with

the sewage pumpout facility and chemical toilet waste slops hopper. The Applicant considers that the mitigation measures proposed would ensure that the operation of the proposed development would not result in any long term or adverse impacts on local air quality. The Department is satisfied that operational air quality impacts could be adequately managed through the proposed management and mitigation measures outlined by the Applicant.

Hazards and Risk Impacts

Potential hazards and risk identified by the Applicant for the construction of the operation phase of the proposed development relate to:

- fuel storage;
- fire;
- personal accidents;
- collisions between craft;
- spillage of oil, sewage and grey water;
- waste; and
- dangerous goods

The Department is satisfied that potential hazards and risk could be adequately managed through the proposed management and mitigation measures outlined by the Applicant.

Heritage

A cultural heritage assessment was undertaken to support the development application. There are no known items or relics of indigenous or non-indigenous historical significance affected by the proposal. The Department is satisfied that the proposed development would not impact upon cultural heritage.

c) *the suitability of the site for the development;*

The site of the proposed development is owned by the Department of Lands. Austral Monsoon Industries currently lease the area proposed for Stage 1 of the development (Portion 254 DP 752046 and Lot 1 DP 1033779). AMI controls 96 commercial swing moorings under a licence to the NSW Maritime Authority. The main activities undertaken at the site are associated with the repair and maintenance of vessels. The existing Careel Bay Marina has been operating on site since 1963.

In addition to the 96 commercial moorings controlled by AMI, there are a number of private swing moorings within the southern and northern sections of Careel Bay. There are in excess of 300 private moorings in the area, with provisions of up to 432 moorings under the Pittwater 21 Development Control Plan.

Given the historically use of the site, the Department considers the site to be suitable for Stage 1 of the proposed development *at a scale and intensity similar to the existing situation*. The Department is not satisfied that the scale of the proposed development has been sufficiently justified.

The main justification for the proposed development, as described by the Applicant, relates to the current facilities inadequacy in meeting the environmental and occupational health and safety requirements of the *Protection of the Environment Operations Act 1997*, the *Occupational Health and Safety Act 2000* and the *Occupational Health and Safety Regulation 2001*. The Applicant states that, subsequently, the site in its existing condition would need to cease to operate which would result in a loss of boat maintenance and service facilities in the northern area of Pittwater. Additionally, the Applicant states that Stage 1 can not proceed without the Stage 2 development due to the high cost of Stage 1 and the limited tenure over the site.

The Department concurs with the Applicant that the marina in its existing form is contributing to sediment contamination and water pollution, and that the provision of a hardstand is consistent with best practice for boat repair facilities. However, the provision of a hardstand to minimise impacts on sediment and water quality and indirect and direct effects on aquatic organisms does not justify the development of Stage 2 or the size of the proposed hardstand. Minimisation of environmental impacts could be obtained and best practice for waste management achieved through the provision of a smaller hardstand.

It is proposed that the hardstand would be 45 metres long and 20 to 25 metres wide. The hardstand would be suspended over water and between 25 and 50% of the hardstand would be used for overflow parking on weekends and nominated public/school holidays. Without the use of the hardstand for overflow parking, the Applicant would not be able to meet the on-site parking provisions recommended by Australian Standard AS3962-2001 *Guidelines for Design of Marinas* and Pittwater 21 DCP. However, the need to meet these requirements does not warrant the construction of such a large hardstand and the Department considers Stage 1 to be an overdevelopment of the site.

The Applicant has not justified the proposed development in terms of current demand for berths and boat maintenance and repair facilities in the Pittwater region. There are currently 10 marinas in the Pittwater region of which three have the capacity to berth more than 80 vessels and to service five or more vessels. The remaining 7 marinas have the capacity to berth between 17 and 70 vessels. There is limited discussion provided in the EIS on the need for additional berthing and boat repair facilities in the region.

d) any submissions made in accordance with this Act or the regulations;

The Department received 232 submissions and 1 petition in response to the public exhibition of the development application.

Of these submissions, 227 were received from members of the public in which 109 objected to the proposal, 113 supported the proposal and 5 raised issues of concern. The balance of submissions were received from Government authorities including the Department of Environment and Conservation (DEC) and Department of Primary Industries (DPI), which did not state a position, and Pittwater Council which objected to the proposal. The Department also received 1 petition during the public exhibition period, objecting to the proposal.

The key issues raised in public submissions related to:

- The scale of the project (i.e. it is considered over development);
- Impacts on seagrass beds and in particular physical damage to seagrasses due to the close proximity of vessels to the seagrass beds and the impact of propeller wash and turbidity plumes arising from the movement of vessels,
- Impacts on mangroves, benthic fauna, migratory birds, threatened species and wading birds;
- Spread of the noxious weed *Caulerpa taxifolia*;
- Water quality impacts including the re-suspension of contaminants such as metals and tributyl tin and spills and leaks from re-fuelling facilities and boats berthed at the Marina;
- Traffic and parking impacts;
- Visual impacts;
- Noise impacts;
- Air quality impacts (including odour) associated with the operation of the marina and boat maintenance;
- Lighting; and
- The alienation of public access to Careel Bay.

Key issues raised in the DPI submission related to the proximity of the development to seagrass beds, contamination from antifouling scrapings or paint and fuel spillage, spread of the noxious weed *Caulerpa taxifolia* and the effect of propeller wash on the seabed resulting in re-suspension of contaminants and an increase in turbidity. The DEC raised issues regarding soil contamination from existing fuel storages, the creation of "land", in the form of a hardstand, where there is currently water and the inadequate justification of the development in regards to berthing facilities and a hardstand with such a large capacity and parking.

Council strongly objects to the proposal with issues raised including:

- Parking and traffic;
- Noise impacts;
- Impact on the marine and estuarine environment;
- Residential amenity;
- Failure to respect the existing water zonings;
- Impact of a marine workshop on the environment;
- The Federal Government's international obligation regarding migratory birds as a matter of environmental significance.

e) *the public interest.*

While the Department concurs that the proposed development will promote and is related to the use and enjoyment of the waterway, the proposed marina would restrict the public use and access to the waterway. Additionally, the Applicant has not clearly demonstrated that the proposed development would have minimal or acceptable impact on the natural environment and amenity of the surrounding area. The Department is not satisfied that the Applicant has fully considered:

- impacts on the aquatic ecology of Careel Bay and in particular impacts on seagrass;
- parking and traffic impacts; and
- public access to an area zoned for recreational use.

All these issues were raised in public submissions received by the Department and the Department does not consider the proposed development to be in the interest of the general public.

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