WHITE BAY BERTH 6

PROPOSED MARINE SUPPLY FACILITY

ADDENDUM TO PREFERRED PROJECT REPORT

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Revision History

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A	Sydney Harbour Foreshore Authority Letter to BMFA - Dated 10 October 2007

1 Introduction

1.1 OVERVIEW

This report refers to the Major Project Application MP06_0037: Marine Refuelling and Supply Facility, White Bay Berth 6, White Bay, Balmain.

Following the submissions of Environmental Assessment (EA) in September 2006 and the Preferred Project Report (PPR) in July 2007, the Sydney Harbour Foreshore Authority has issued a letter to Bailey's Marine Fuels Australia Pty Ltd (BMFA) (the proponent) on 10 October 2007 (included as Appendix A) requesting further particulars on noise management, operational activities and the need and justification of the proposed facility.

This report has been prepared to address the particular issues raised in the above-mentioned letter and serves as an Addendum to the PPR.

1.2 STRUCTURE OF THIS REPORT

As requested by the Sydney Harbour Foreshore Authority, this Addendum serves to address the following:

Noise studies

Clarification on why a variety of previous noise studies were relied upon in the Bridges Acoustics noise assessment prepared for the EA and PPR for this project. This issue is addressed in Section 2.

Actual noise impacts

Further analysis into the noise impacts linking operational activities, hours and noise criterion. Detail of mitigation measures to be employed to mitigate the impacts of the activities with the greatest potential to contribute to noise criteria exceedences. This issue is addressed in Section 3.

Use, need and benefits

Further clarification of the demand for refuelling facilities within the Sydney Harbour, including details of all existing facilities on the Sydney Harbour and the Parramatta River, anticipated growth and demand for refuelling operations, changes in the Port operations in the Harbour and whether the proposed facility will replace similar operations in the area. Detail was requested on the type of management and operational measures that will be employed to environmentally distinguish the operations from others in the surrounding area and how this may impact on the quality of the terrestrial and marine environment. All the issues raised by the Authority are addressed in Section 4.

2 Noise Studies

2.1 SYDNEY HARBOUR FORESHORE AUTHORITY QUESTION

The Sydney Harbour Foreshore Authority have requested clarification on why the previously prepared studies by Renzo Tonin and Associates (2003) and ERM (2006) have been relied upon in the EA and PPR to provide background and ambient noise levels at residential receivers near the site for this proposal's noise assessment. Furthermore, they have requested explanation on the value of utilising these studies, where there could be differences in data collection or questions as to the validity of the data.

2.2 BMFA RESPONSE

In carrying out the noise assessment to assess the impacts of this project on the local community, two previously prepared studies were utilised by Bridges Acoustics to provide ambient and background noise data. These studies were deemed relevant and acceptable for this use by Bridges Acoustics based on the following:

- the previous noise studies and collection methodologies (instruments and procedures for analysis) were carried out by competent consultants in accordance with current Department of Environment and Climate Change (DECC) guidelines (according to the Industrial Noise Policy). Therefore the methodologies employed by both studies would produce comparable results and valid data
- although the two noise studies were conducted for specific purposes, the data used in the reports was considered to be appropriate for the BMFA proposal as the data was representative of the area
- given that this relevant (both studies were carried out on the White Bay area) and reliable data was available, it was not considered cost effective or necessary to obtain additional data specifically for this project.

It is also noted that the background and ambient noise measurements in the ERM (2006) study were taken after previous container handling operations had ceased on the site. It is expected that the only significant difference in environmental noise levels between now and the time of the study would be increased traffic noise from Victoria Road and Anzac Bridge. This increase in traffic noise would most likely result in slightly increased noise criteria being derived from any new measurement results being undertaken. Adoption of this previous data has therefore resulted in noise criteria that may actually be slightly conservative.

3 Actual Noise Impacts

3.1 SYDNEY HARBOUR FORESHORE AUTHORITY QUESTION

The Sydney Harbour Foreshore Authority have noted that the noise study prepared for the project provides the worst case scenarios for expected noise limits at sensitive residential receivers. The letter states that the operation of the facility may reach 4dBA above daytime criteria and has the potential to be 3dBA above night time criteria at the neighbouring Grafton Street residential building. The study predicted that operational noise would meet day, evening and night criteria at all other residential receivers. It is acknowledged in the letter that the daytime and night-time noise criteria exceedances at the Grafton Street residential building have been predicted without the adoption of any noise mitigation measures on the site.

The Sydney Harbour Foreshore Authority has requested a table illustrating all activities, proposed hours and predicted noise outputs so that the activities that have the highest potential for causing the noise criterion exceedances be specified and the measures that will be employed to mitigate the impact arising from these be detailed. In particular, the Sydney Harbour Foreshore Authority have requested that a framework be proposed for restricting / mitigating these specific activities to ensure that the intrusive noise limits at the Grafton Street residential building are able to be met.

3.2 BMFA RESPONSE

For clarity, it is noted that the *Industrial Noise Policy* (INP) (EPA, 2000) categorises the day, evening and night time periods as follows:

- daytime = from 7 am to 6 pm Monday to Saturday; or 8 am to 6 pm on Sundays and public holidays,
- evening time = 6 pm to 10 pm and
- night time = the remaining periods.

The Sydney Harbour Foreshore Authority letter stated that the operation of the facility had the potential to reach 4dBA over the day time criterion and 3dBA over the night time criterion. The daytime criteria the letter refers to is the received intrusive ($L_{Aeq, 15min}$) criteria. It is acknowledged that the noise assessment employed this criterion and noted the potential daytime criteria exceedance of 3dBA at one residential building neighbouring the facility (Grafton Street residential building). The criterion that the night time exceedance reference in the letter relates to is the amenity ($L_{Aeq, 15min}$) night time criteria. This criteria was discussed with the DECC and it was recommended that, given the nature of the night time operations, the criterion that should be applied to the assessment of this project were the intrusive ($L_{Aeq, 15 min}$) and amenity ($L_{Aeq, night}$) night

time criteria and not the amenity ($L_{Aeq, 15min}$) night time criteria. It is noted that the noise assessment prepared by Bridges Acoustics for the PPR found that it is expected that there will be no exceedance the intrusive ($L_{Aeq, 15 min}$) or amenity ($L_{Aeq, night}$) night time criteria at any of the surrounding residences.

The following sections provide clarification on what constitutes the daytime operations and night time operations, the activities which have demonstrated the greatest potential for exceeding relevant noise criterion during these periods and the mitigation measures proposed by BMFA to minimise the impacts associated with these particular activities.

3.2.1 Daytime Operations

The daytime operations allow for all activities associated with the project to be carried out. The sound power levels associated with each of these activities and the calculated average duration for each within a typical 15 minute period is shown in Table 3.1 below. The table demonstrates that the activities with the highest potential for causing the daytime intrusive noise criterion exceedances are as follows, in descending order:

- truck movements to and from site
- vessel arrival and departures
- crane usage
- water blasting.

Table 3.1 - Operational activity breakdown including hours of operation, equipment involved, associated sound power level, average activity durations and anticipated receiving noise level at Grafton Street.

Activity class	Operational hours	Operations involved in Activity	List of Machinery/ Tools/ Plant involved	Sound Power Level dBA re lpW	Average Duration[1]			Resultant Noise Output received at Grafton Street Residence
					Day	Evening	Night	
Refuelling - commercial	7 days a week - 24 hrs a day	• Refuelling	• Fuel Bowser • Submersible pumps at tank farm • Dual stage Solenoid valve at pump	• 75 total	5 min	4 min	3 min	23-22 dBA
Commercial boat arrivals & departures / Commercial boat mooring	7 days a week - 24 hrs a day	• Boats docking - turn engine off • Engines restarted - boat departs	• Boat engine	• 100	10 min	5 min	5 min	46-43 dBA
Refuelling - recreational	7 days a week - 5am - 10pm	• Refuelling	• Fuel Bowser • Submersible pumps at tank farm • Dual stage Solenoid valve at pump	• 75 total	5min	4 min	3 min	23-22 dBA
Recreational boat arrivals & departures	7 days a week - 5am - 10pm	• Boats docking - turn engine off • Engines restarted - boat departs	• Boat engine	• 100	10min	5 min	5 min	46-43 dBA
Truck movements to & from site	7 days a week - 24 hrs a day	• Trucks arriving and leaving site	• Trucks (avg 37,000L capacity)	• 104	3 min	1 min	1 min	52-45 dBA

[1] The average assumed duration of each noise source in a typical 15 minute period during the day, evening and night periods for the purposes of this assessment.

Activity class	Operational hours	Operations involved in Activity	List of Machinery/ Tools/ Plant involved	Sound Power Level dBA re lpW	Average Duration[1]			Resultant Noise Output received at Grafton Street Residence
					Day	Evening	Night	
Refuelling of fuel tank farm	7 days a week -24 hrs a day	• Transfer of fuel to tank farm	• No pumps required as gravity drop mechanism utilised	-	-	-	-	-
Grey water and sullage facilities	24 hr 7 days a week for commercial vessels 7 days a week - 5am - 10pm for recreational vessels	• Attach hose to remove grey water and sullage from vessels	• Sanivax pump-out system (single action diaphragm pump) discharging effluent to the closest sewer main through sealed lines • Vacuum pump	• 75 total	3 min	2 min	1 min	15-10 dBA
Office facilities	Mon - Sat 7am - 10pm Sun 8am - 10pm	• Office accommodation for marine businesses (employing approximately 30 people in total)	• Air conditioning plant	• 85	10 min	10 min	10 min	37 dBA
Commercial supply deliveries	Mon - Sat 7am - 8pm Sun 8am - 6pm	• Transfer of materials from truck to storage sheds.	• Forklift • Pallet jacks • Cranes may need to be used in some instances	• 85 forklift • 104 crane	4 min	1 min	1 min[2]	33-27 dBA
Provision of bulk storage **The proposed marine supply facility would provide for the storage of marine equipment for various uses, including pollution control**	Mon - Sat 7am - 8pm Sun 8am - 6pm	• Transfer of materials	• Forklift • Pallet jacks • Cranes may need to used in some instances • Travel lift for boat moving	• 85 forklift • 104 crane • 95 travel lift	4 min	1 min	nil	39-0 dBA

[2] The night time period includes the operation of pallet lifts only (not forklifts or cranes in the night time period)

Activity class	Operational hours	Operations involved in Activity	List of Machinery/ Tools/ Plant involved	Sound Power Level dBA re lpW	Average Duration[1]			Resultant Noise Output received at Grafton Street Residence
					Day	Evening	Night	
Provision of supplies -retail **The installation of cool rooms within the office/bulk storage building would provide charter or commercial vessels with access to chilled goods storage**	Mon - Sat 7am - 8pm Sun 8am - 6pm	• Transfer of materials from truck to chilled goods storage	• Plant would comprise of compressor units for internal chiller room • Forklift • Pallet jacks	• 85 chiller • 85 forklift	10 min 4 min	10 min 1 min	10 min nil	37 dBA 33-0 dBA
Hardstand/Laydown area	Mon - Fri 7am - 6pm Sat & Sun 8am - 6pm	• Transporting equipment via the RoRo ramp for development within Sydney Harbour • Boat launching or retrieval of boats from water via travel lift / transfer and lifting of boats into slips on hardstand	• Boat engine shutdown & start-up • Possibility of navigation signals depending on vessel size • Travel lift • Forklift	• 100 boats • 95 travel lift • 85 forklift	5 min	nil	nil	39-0 dBA

Activity class	Operational hours	Operations involved in Activity	List of Machinery/ Tools/ Plant involved	Sound Power Level dBA re lpW	Average Duration[1]			Resultant Noise Output received at Grafton Street Residence
					Day	Evening	Night	
Boat pre-commissioning and launching **The proposed facility would be equipped to cater for the handling of marine vessels for service, launching and preparation for export and pre-commissioning. (pre delivery, warranty and service work activities)**	Mon - Sat 7am – 6pm Sun 8am - 6pm	• Haul out and set down of boats (on hardstand) • High pressure water blasting of boat hulls in a fully contained area (on hardstand) • General fit-out, minor repairs, service work (hand held manual and electric equipment • Dry-docking of marine vessels (on hardstand) • Non-permanent storage of marine vessels for export (within sheds or on hardstand)	• Travel lift & forklift • High pressure water cleaner • Electric power polishing equipment and hand polishing equipment	• 95 travel lift • 85 forklift • 100 cleaner (water blasting) • 90 polisher	5 min 4 min 5 min 5 min	nil	nil	44-0dBA
Landscaping	Mon - Sat 7am - 6pm Sun 8am - 6pm	• Maintenance, watering & weeding	• Hoses attached to pumps connected to rainwater tank • Whipper snipper & other standard gardening equipment	-	-	-	-	-

As a result of the potential for these four activities to contribute to daytime intrusive noise ($L_{Aeq,\ 15\ min}$) criterion exceedances, BMFA proposes the employment of the following mitigation measures during the day time period:

Truck movements to and from site

To minimise the noise impacts associated with this activity BMFA propose the following management measures:

- induction of truck drivers onto the site. The induction will detail the requirement for truck drivers to enter and exit the site at low speed, not utilising loud brakes, no unnecessary horn usage and particularly the need for engines to be switched off as soon as possible once the truck has reached its delivery point on site (no unnecessary idling will be allowed).
- BMFA will install a fast opening gate at the entrance to the site that will limit the need for trucks to idle for long periods in the area adjacent to the Grafton Street residential building whilst waiting for access to be granted to the site.
- BMFA will ensure that the final design of the site employs a truck manoeuvring route which limits the requirement for trucks to reverse, and in turn employing their reversing beeping mechanism, and spending longer than necessary on site.
- BMFA would provide on site supervision to ensure the mitigation measures are accorded with.
- all tenants will be inducted and made aware of BMFA's mitigation measures. The mitigation measures will be included in subleases to ensure tenants meet the required noise limits and conditions.

Vessel arrivals and departures

BMFA would employ the following measures to mitigate the noise impacts associated with vessels arriving and departing from the site:

- induction on facility use: induction would include the requirement for vessels to switch off their engines as soon as they are in position against the site (no idling accepted)
- staff and patrons would be encouraged to minimise raised voices on the site at any time
- BMFA would provide on site supervision to ensure the mitigation measures are accorded with.

Crane Usage

BMFA would employ the following measures to mitigate the noise impacts associated with the transfer of materials via crane equipment:

- BMFA would manage activities to ensure that crane usage on site would only be an occasional activity

- BMFA would restrict the usage of cranes on site so that they would not be in operation during the same period as the water blasting equipment. This condition will be included in subleases to ensure tenants meet the required noise limits and conditions.

Water Blasting

BMFA would employ the following measures to mitigate the noise impacts associated with the pre-commissioning activity of water blasting vessels:

- BMFA would restrict the usage of water blasting equipment on site so that they would not be in operation during the same period as the crane. This condition will be included in subleases to ensure tenants meet the required noise limits and conditions.
- At detailed design stage BMFA would investigate the feasibility of locating the bunded area, where the water blasting will occur, on the southern side of the sheds in order to place a barrier between the Grafton Street residential building and the activity.

3.2.2 Night time Operations

The night time operations are limited in comparison to the daytime and evening periods. This is reflected in Table 3.1 where some activities show 'nil' minutes of operation in the 'average duration' per 15 minute period in the 'night' time period. To summarise, the night time operations which have been assessed as part of the worst case scenario included:

- commercial & recreational vessel refuelling
- commercial & recreational vessel arrivals and departures (including mooring)
- commercial & recreational vessel grey water and sullage pump out
- truck and vehicle movements to and from site
- refuelling of tank farm on site
- office facility usage (including air conditioning units)
- compressor units for the chiller room retail facilities.

The assessment undertaken to determine the predicted received on site noise levels, shown in Table 3.1, found that the activities having the greatest contribution to the noise level were, in descending order:

- truck movements to and from site
- vessels arriving and departing.

The following sections detail the specific mitigation measures to be employed for the night time period in order to mitigate the noise impacts on the Grafton Street residential building. It should be noted that these measures are to be implemented in addition to the measures which are detailed for truck movements and vessel arrivals and departures for the day time period in section 3.2.1.

Truck movements to and from site

To minimise the noise impacts associated with this activity BMFA propose the following management measures during the night time period:

- fuel deliveries and other truck movements on the site would be scheduled to avoid the night time period whenever possible
- BMFA would provide on site supervision to ensure the mitigation measures are accorded with.

Vessel arrivals and departures

BMFA would employ the following measures to mitigate the noise impacts associated with vessels arriving and departing from the site during the night time period:

- limiting recreational vessels from refuelling or using the grey water and sullage pump out facilities between the hours of 10 pm and 5am
- boats would be encouraged to visit the site to refuel during the day where possible, rather than during the night
- BMFA would provide on site supervision to ensure the mitigation measures are accorded with.

3.2.3 Framework for meeting Intrusive Noise Criteria

The noise assessment prepared for this proposal determined that for the worst case scenario, with no mitigation measures employed, the intrusive $L_{Aeq,\ 15\ min}$ noise criteria for evening and night time periods would be met at all neighbouring residences, including the Grafton Street residential building. The intrusive noise criteria applicable to the Grafton Street residential building was determined to be 48 $L_{Aeq,\ 15\ min}$ for the evening time and 49 $L_{Aeq,\ 15\ min}$ for the night time period. The predicted worst case received noise levels were found to be 48 $L_{Aeq,\ 15\ min}$ for both the evening and night time periods which results in the intrusive criteria for these periods being able to be met. The previous assessment prepared for the PPR also determined that during the night time period the accepted amenity level $L_{Aeq,\ night}$, is predicted to be met for all residences.

The noise assessment determined that, without noise mitigation measures being employed, the daytime intrusive ($L_{Aeq,\ 15\ min}$) criteria would be met at all residences except the Grafton Street residential building. The daytime intrusive noise criterion for the Grafton Street residential building was calculated to be 50 $L_{Aeq,\ 15\ min}$. The predicted worst case day time received noise levels at the Grafton Street residential building are 54 $L_{Aeq,\ 15\ min}$, which would result in a 4dBA exceedance over the intrusive noise criteria.

Detailed calculations carried out by Bridges Acoustics have determined that the arrival and departure of trucks are the only source of noise likely to exceed the intrusive criteria, as removal of truck noise results in compliance with the day time intrusive noise criteria when all other noise sources are combined. In line with this, Bridges Acoustics have noted that noise mitigation measures would therefore only be effective if applied to reduce truck noise. An investigation into noise mitigation measures has been carried out by Bridges Acoustics. The results are summarised below.

In principle noise mitigation can be applied in three ways:

- to reduce source levels;
- to interrupt noise propagation from source to receiver; and
- to control noise intrusion at the receiver.

Reduce source levels

In the case of road trucks entering and moving around the site, BMFA has no control over source noise levels as most trucks would be owned and operated by others. It is not considered practical or possible for BMFA to own all trucks that serve the site, or for BMFA to require all trucks owned by others to be specially modified to reduce source noise levels.

Interrupt noise propagation from source to receiver

With closest residents on elevated ground overlooking the site, any effective noise barriers in the form of fences or walls would need to be constructed on elevated ground immediately adjacent to residences and would therefore interrupt some resident's water views of Sydney Harbour and the CBD. Whilst such barriers may be a reasonable option from an acoustic point of view, they were not considered reasonable as they may obstruct the views enjoyed by nearby residents.

Control noise intrusion at the receiver

The only remaining option is to apply noise control to residential buildings, typically in the form of heavier window glazing. As predicted noise levels only reach 4 dBA above relevant daytime intrusive criteria and improvements to window glazing are only effective if the windows remain closed (which would affect resident's access to ventilation), it was not considered reasonable to pursue this option.

Summary

It is noted that the proposal will meet evening intrusive ($L_{Aeq,\ 15\ min}$) and night time intrusive ($L_{Aeq,\ 15\ min}$) and amenity ($L_{Aeq,\ night}$) criteria.

The above paragraphs indicate that trucks are the only source that are expected to cause operational noise impacts, however truck noise is also the most difficult to control. The proposed Marine Refuelling and Supply Facility represents a relatively low key use of the site compared to previous uses (container handling terminal) and many likely alternative uses of this site.

Given the dominance of truck noise over other sources and the difficult nature of truck noise, exceedances of the intrusive ($L_{Aeq,\ 15\ min}$) noise criteria during some 15 minute periods are expected to remain. It is noted that some 15 minute periods will not include any truck movements and noise levels from the site are expected to comply with the criteria during these periods. Given the intermittent and variable nature of truck movements it is impossible to predict exactly how many 15 minute periods in a typical day are likely to be affected by truck noise, and in any case this factor will change from one day to the next.

It is noted that two meetings have been held with the DECC (23 March 2007 and 29 June 07 – with DECC noise specialists present) to discuss the noise outputs from the site and viable mitigation measures which could be employed on the site. A representative of the Sydney Harbour Foreshore Authority was present at both of these meetings.

The discussions noted that the noise assessment had investigated the relevant noise mitigation principles. It was agreed that the employment of management procedures on site, as detailed above in sections 3.2.1 and 3.2.2 (for 'truck movements to and from site'), were the only viable options to potentially manage the truck related noise impacts. BMFA stated that all of the mitigation measures would be integrated within an Operational Noise Management Plan.

It was noted at these meetings that the primary concern was compliance with the evening and night time intrusive ($L_{Aeq,\ 15\ min}$) and amenity ($L_{Aeq,\ night}$) criteria and that small exceedances, such as 4dBA over the day time intrusive ($L_{Aeq,\ 15\ min}$) criteria, would be accepted by the DECC.

4 Use, Need and Benefits

4.1 SYDNEY HARBOUR FORESHORE AUTHORITY QUESTION

Further clarification of the demand for refuelling facilities within the Sydney Harbour has been requested. BMFA is to provide details of all existing facilities on the Sydney Harbour and the Parramatta River, anticipated growth and demand for refuelling operations, changes in the Port operations in the Harbour and provide comment on whether the proposed facility will replace similar operations in the area.

Detail was also requested on the type of management and operational measures that will be employed to environmentally distinguish the operations from others in the surrounding area and how this may impact on the quality of the terrestrial and marine environment.

4.2 BMFA RESPONSE

4.2.1 Existing facilities on Sydney Harbour and Parramatta River

Section 3.1.3 in the EA provided a summary of the existing recreational and commercial refuelling facilities within a 6 km radius of the proposed facility at White Bay Berth 6. The information provided in the EA has been revisited and updated in the following Tables 4.1 and 4.2 for existing recreational and commercial facilities, respectively. The locations of these facilities are shown in Figure 4.1.

Table 4.1 - Recreational facilities

Facility	Infrastructure	Amount of fuel stored	Hours of Operation	Public Facility	Self Service
D'Albora Marinas Cabarita Point	2 diesel dispensers 2 premium unleaded dispensers 1 sullage/sewage pump	N/A	24 hours 7 days a week	Yes	Yes
Clontarf Marina	1 diesel dispenser 1 unleaded dispenser	N/A	8am - 6pm (Daylight Savings) 7 days a week	Yes	No
Royal Motor Yacht Club of NSW Point Piper	2 diesel dispensers 2 premium unleaded dispensers 1 unleaded dispenser	N/A	8.30am - 5.30pm midweek 7.30am - dusk weekends	Yes	No

Facility	Infrastructure	Amount of fuel stored	Hours of Operation	Public Facility	Self Service
D'Albora Marinas Rushcutters Bay	1 diesel dispenser 1 premium unleaded dispenser 1 sullage/sewage pump	40,000 L	8.30am - 4.00pm 7 days a week	Yes	Yes
D'Albora Marinas The Spit, Mosman	1 diesel dispenser 1 premium unleaded dispenser 1 sullage/sewage pump	40,000 L	8.30am-4.30pm 7 days a week	Yes	Yes
Rose Bay Marina	1 diesel 1 premium unleaded	N/A	8.00am – 4.30pm 7 days a week	Yes	No

Table 4.2 - Commercial[3] facilities

Facility	Infrastructure	Hours of Operation	Type of boats
Gore Bay Shell Terminal, Greenwich	Vessels are able to refuel directly from Shell's Gore Bay Terminal at Greenwich	Daytime hours only 5 days a week [4]	Sydney Ferries (large commercial Manly class vessels only)
Rozelle Bay Superyacht Marina, NSW Maritime	1 diesel dispenser 2 unleaded dispensers	24 hours	NSW Maritime vessels, water taxis and yachts. (Not suitable for large vessels)
Amorena (Mobile Operator)	Large barge (1,000,000 L)	24 hours	Small barges and Sydney Ferries
Ability Barge Services,Rozelle (Mobile Operator)	Diesel (10,000 L)	7.00am - 3.00pm Mon - Sat	N/A
Sydney Fuel and Barge (Mobile Operator)	Small barge (20,000 L)	N/A	Charter boats and fishing boats

[3] It is noted that 'commercial' vessels and facilities in the context of this report do not include cargo, bulk or large cruise vessels.

[4] The hours of operation for the facility are 24 hours a day, 7 days a week. However, the hours of operation for Sydney Ferries are limited to (daytime hours) 5 days a week.

Figure 4.1 - Existing refuelling facilities in Sydney Harbour and the Parramatta River

4.2.2 Anticipated growth and demand for refuelling operations

BMFA have reviewed the anticipated growth and demand for refuelling facilities and the role of the facility in light of other operations in the area and have provided a response outlined in sections 4.2.2 and 4.2.3 respectively.

There are more customers requiring the services of a refuelling facility focused on medium-sized commercial and recreational vessels in Sydney Harbour than ever before. Figure 4.2 demonstrates the considerable increase in total registrations in NSW in recent years.

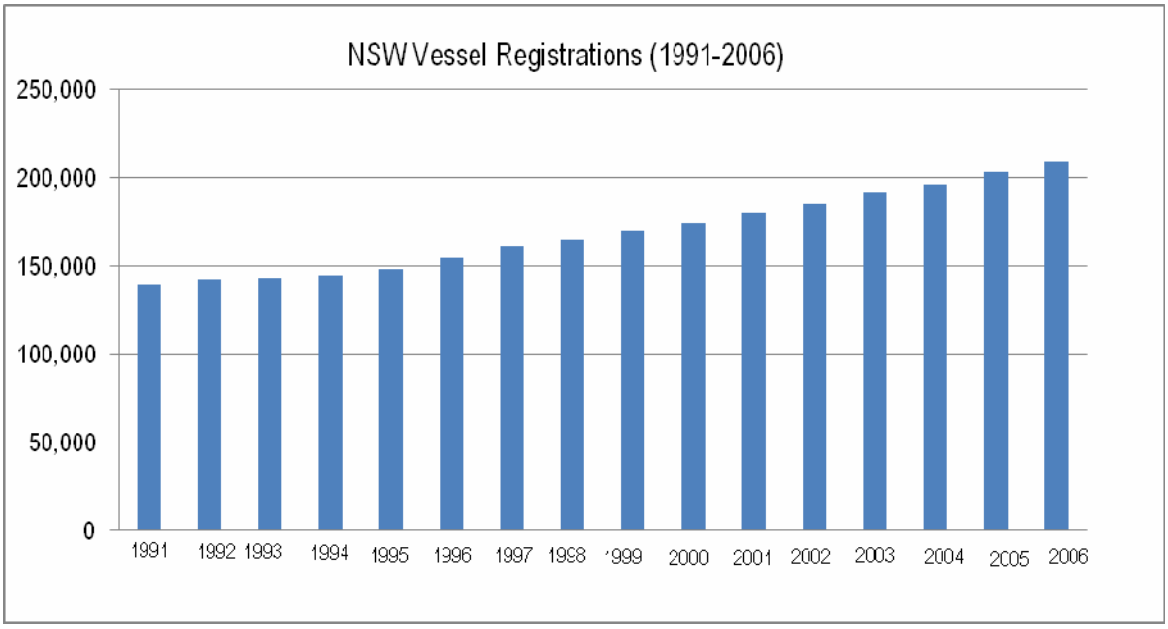

Figure 4.2 - NSW Vessel Registrations

Source: Boating Industry Association of NSW, www.bia.org.au

From 1996-97 to 2005-06, the number of commercial vessel registrations (i.e. tourist and charter boats, fishing vessels, working boats, ferries, water taxis etc) rose by approximately 4000[5]. In the 2005-2006 period alone, commercial vessel registrations increased by 12% *(NSW Waterways Annual Report, 05/06)*. However, despite this increasing demand for marine fuel outlets, investment has been limited.

It has long been recognised that Sydney Harbour has a shortage of fuel outlets. Fuelling options are constrained to either fuel barges or marinas, both of which are expensive. This shortage is expected to worsen, with existing facilities facing difficulties in modernising and meeting the increasingly stringent DECC and MARPOL (International Convention for the Prevention of Pollution from Ships 1973) requirements.

The proposed BMFA facility will meet demand and help ensure refuelling prices remain competitive, giving commercial Harbour users a better deal.

Potential gap in the refuelling market

BMFA have identified a gap in the refuelling market. In terms of refuelling, small recreational vessels, large pleasure vessels, ships and tugs are relatively well catered for. Fuel outlets for mid size commercial vessels, however, have been neglected. Table 4.3 provides a breakdown of the vessel segments that the BMFA facility proposes to accommodate at White Bay 6.

[5] It is noted that cargo, bulk and cruise vessels are not included in these figures and they would not use the Baileys facility for refuelling.

Table 4.3 - Breakdown of vessel segments (small, medium and large vessels)

Segment	Types of vessels	Existing Facilities	Notes
Small vessels	• personal recreational vessels • small commercial vessels (outboard motor water taxis, etc)	• Cabarita • The Spit • Rushcutters Bay • Clontarf Marina • Broken Bay (RMYC)	• small vessels well catered for • unleaded petrol easily available
Medium vessels	• personal recreational vessels • fishing boats • ferries • tourist vessels • some medium commercial vessels	• Rozelle Bay Superyacht Marina • barges	• under-serviced market segment • barges will be subject to amendments to the MARPOL requirements
Large vessels	• large ferries (Manly class ferry)	• Shell Gore Bay • barges	• potential growth in this segment • barges will be subject to amendments to the MARPOL requirements

There are currently not enough refuelling facilities in Sydney Harbour to service mid size commercial vessels. The BMFA facility seeks to fill that gap.

Potential customers who would benefit from a commercial refuelling facility on Sydney Harbour include:

- NSW Water Police
- NSW Waterways vessels
- Water taxis
- Tourist vessels, such as Captain Cook Cruises and Matilda Cruises
- Sydney Ferries

The recent inquiry into Sydney Ferries, headed by Bret Walker QC, recommended Sydney's ferry service should be operated in a partnership between the NSW Government and the private sector, and the entire fleet replaced *(Final Report, Special Commission of Inquiry into Sydney Ferries Corporation, 31 Oct 2007).* As the private sector may potentially be involved, there is potential for price competitiveness to play an important role in the facilities chosen to service the fleet. Consequently, Sydney Ferries may become a major user of the facility.

With passengers on the Harbour increasing by approximately six per cent per year, there has been substantial growth in tourist and large leisure vessels using the Harbour, further stimulating demand for such a facility.

4.2.3 The role of the proposed facility in light of other operations in the area

BMFA have stated that whilst the Harbour's current refuelling facilities work, they are not best practice as they can potentially be inefficient, unsafe and time consuming for customers. In addition, BMFA have stated that the existing facilities have limited environmental safeguards in place. For example, none of the current facilities are fitted with stock leakage monitors. The BMFA facility seeks to address the inadequacies of the existing facilities.

BMFA will provide an industry and environmental best practice facility. The project has the potential to deliver a modern, environmentally compliant facility and deliver user friendly services in a convenient location.

The 2003 amendments to the MARPOL legislation amended fuel facility regulations to phase out single hull fuel tankers, recognising the environmental risks these tankers pose. There may be circumstances in the near future for refuelling facilities of the 'barge' type (including Shell's 1,000,000 litre barge, the Amorena, which is a single hull tanker) to be retired or modified as a result of the vessel structure not meeting the requirements of the MARPOL Directives. There is potential for the BMFA facility to service some of the vessels which are currently refuelled by the Amorena. The facility will provide a modern, environmentally sound alternative to the Harbour's outdated fuel facilities, offering a dual contained tankage and piping compliant with AS1940-2006.

The BMFA facility will be centrally located in a deep water position for the provision of sullage/ grey water facilities. Vessels will be able to enter and exit efficiently, minimising congestion within the area.

The BMFA on-harbour facility would be advantageous to trucks and barges delivering fuel in and around Sydney Harbour which poses a hazard to user and public safety. The facility, for example, could potentially service East Darling Harbour, thereby reducing the amount of trucks required to enter the city during construction.

The facility will operate on a "common user" policy, which means the facility will be available to all marine users (commercial and recreational), thereby stimulating competition among suppliers.

The facility is guaranteed to improve turnaround and efficiencies for fuel users in Sydney Harbour. Uniquely the facility will have garbage, storage and sewage pump out capacities, saving customers both time and fuel and ensuring a cleaner Harbour.

4.2.4 Management and Operational Measures

Following the submission of the EA and the required 30-day exhibition phase, written submissions were received from NSW Government stakeholders, a community group, a non-government association, local business and the local community regarding the proposed project.

Upon receiving these submissions, KBR has prepared a PPR which included responses to issues raised in the submissions and modifications to environmental management measures initially proposed in the EA.

The Sydney Harbour Foreshore Authority requested that specific management and operational measures that will be undertaken be outlined, particularly those to distinguish the proposed operation from others in the surrounding area.

This section also addresses how the management and operational measures may impact on the quality of the terrestrial and marine environment.

Sustainability Showcase

In order to allow for the sustainable and equitable development of societies we must look beyond economic progress and aim to reduce and prevent adverse social and economic actions. Increasingly, society is demanding that sustainability is implemented within the operations of businesses to preserve the state of the environment for future generations. Sustainability requires thinking outside the box and consideration of the whole life cycle of business products and processes.

BMFA have produced a Health, Safety and Environmental Policy which states:

Our mission is to be the industry leader in the delivery of marine services, fuels, lubricants and associated infrastructure to the Australian marine industry through the adoption of industry best practice dedicated to minimising impacts to the environment and preventing harm to our employees, our clients, our communities and all others who could be affected by our activities.

BMFA are committed to "*seeking to continually improve our environmental performance by setting and reviewing environmental objectives and targets"*.

As stated above, BMFA recognise their obligation to the environment and are committed to lead the way towards providing a sustainable marine refuelling facility within Sydney Harbour which will include best available technology and sustainability initiatives. The development of the project at White Bay 6 will demonstrate BMFA's enthusiasm and capacity to contribute to environmental best practice and sustainable development. This enthusiasm will be evident through the incorporation of the core sustainability tenets within the design, construction and operation of the project which include:

- Achieving and maintaining ISO14001 accreditation for the project
- Implementation of a carbon offset scheme
- Water efficiency and conservation
- Energy efficiency and conservation
- Waste reduction and management
- Biodiversity improvements
- Social and community involvement

Sustainable Design

Sustainable or 'green building' design and construction aims to consider the environmental impacts of buildings with the intention of reducing the overall impact of the building on the environment. This can be achieved through the efficient use of resources including water and energy, encouraging biodiversity and selecting appropriate building materials.

The concepts of sustainable design will be implemented within the design of the project, in particular the design of the two proposed buildings to be used for office and storage. BMFA will contact the Green Building Council of Australia for guidance on sustainable building design and to determine opportunities within the building design to achieve sustainability (i.e through a Green Star environmental rating system for buildings). The Sydney Ports Corporation "Green Port Guidelines" would also be incorporated within the design process. An architect with a strong background in sustainable building design has also been commissioned to design the building in accordance with relevant sustainability standards as specified by the Green Building Council of Australia and Sydney Ports Corporation.

Construction of the Project

The PPR contains a revised Statement of Commitments which forms the basis for environmental management on the site during construction. All commitments and mitigation measures would be implemented by BMFA during the construction of the project. In addition to these, opportunities to incorporate further sustainability initiatives during the construction process (such as water and energy efficiency and plant and machinery selection) would also be identified within a Construction Environmental Management Plan.

BMFA are committed to utilising recycled materials in the construction of the new facilities. By reusing materials in the construction of the buildings BMFA will be reducing waste going to landfill and reducing energy and raw material consumption which would go into the production of new products. Examples of recycled materials and equipment that will be used on the site include the water based pontoons (recycled from the Australian National Maritime Museum) and the Ro-Ro ramp (re-used from the Northside Storage Tunnel).

Operation of the Project

BMFA are committed to ensuring that environmental impacts associated with the operation of the project are minimised. In addition to the operational environmental management measures specified in the Statement of Commitments, BMFA will implement their ISO14001 Environmental Management System (EMS) within the project which will require all operations (including sub leases) to comply with the EMS. It is understood that BMFA are the first marine refuelling facility to achieve this type of environmental management system accreditation. The current accredited system would be modified to ensure its relevance to the particular environmental issues at White Bay 6. The implementation of the accredited EMS within the project would ensure:

- a better understanding of the environmental impacts of the business activities
- an awareness of environmental issues among employees
- the efficient use of resources on the site
- a reduction in the quantity of waste produced
- annual auditing of the processes and procedures operating on the site
- environmental performance is continually improved.

BMFA is committed to offsetting the carbon dioxide emissions associated with the operation of the site and fuel sales. A carbon offset scheme will be developed for customers to offset their fuel purchases. Each new customer would be informed of the offset scheme during the induction process and would be provided with details on how the offset scheme would operate. Customers would then be able to nominate the amount or percentage of fuel to be offset against all of their fuel purchases through the program. The scheme would operate in partnership with Greenfleet, who bring with them over 10 years experience in offsetting Australian carbon emissions as a non-profit organisation, and would involve the planting of a diverse mixture of native trees in areas of environmental concern within Australia. The trees would be propagated in conjunction with local nurseries wherever possible to provide maximum ecological benefits in the particular area. The greater the number of customers who commit to the scheme the greater the number of native species that would be planted and in turn the greater the quantity of greenhouse gases that would be able to be absorbed from the atmosphere. BMFA are aiming to offset approximately 75% of marine vessel emissions (with respect to BMFA customers) after five years of operation.

In addition, the project will also aim to be the first sustainable refuelling operation within Sydney Harbour by offering clients a choice of sustainable fuel sources including biodiesel, to be sourced subject to availability.

The project would also provide the facilities (e.g Roll-on Roll-off ramp) to support maintenance and redevelopment projects in the harbour, potentially including East Darling Harbour, with water transport of goods. This would potentially act to reduce the amount of trucks entering the CBD for deliveries to certain waterfront sites.

Sustainability Initiatives

The following table provides an overview of sustainability initiatives that are to be investigated and adopted within the project.

Table 4.4

Sustainability Focus Areas	Theme	Sustainability Targets
Water	Water efficiency	• Installation of water efficient appliances and plumbing fixtures in accordance with the Water Efficiency Labelling Scheme (WELS) including: showerheads, taps, dishwashers, urinals, toilets and equipment for water blasting
		• Water usage to be monitored and targets set to reduce water consumption
		• Provision of rainwater tanks on site for rainwater harvesting. Rainwater will be used within the site (e.g. for toilet flushing, landscaping and water blasting)
		• Provision of a greywater treatment system to reuse greywater from activities such as water blasting to be used within the site (e.g. for toilets and landscaping)
	Water quality	• All water quality and hydrology mitigation measures as specified in the Final Statement of Commitments will be implemented during the operation of the project
		• The most appropriate and best practice spill containment products and sediment control measures will be used on the site
		• An allowance for adequate bottom clearance for vessels will be provided in order to minimise the disturbance of bottom sediments by propeller wash from vessels coming to the site and refuelling
		• During operations, water quality will be monitored by visual inspection for potential discharge of sediments within stormwater
		• An appropriate stormwater maintenance program will be drafted prior to the operation of the project

Sustainability Focus Areas	Theme	Sustainability Targets
Energy	Energy efficiency	• The building design will incorporate energy efficiency design to reduce the amount of energy required to power the buildings
		• Installation of energy efficient appliances in accordance with the Energy Rating label including: dishwashers, microwaves, fridges
		• Installation of energy efficient lighting within the site (external and internal)
		• Installation of a solar hot water system and photovoltaic cells (solar panels) for electricity generation. Excess electricity produced would be fed directly into the electricity grid
	Green Power	• Green Power would be purchased for electricity consumed within the site
	Alternative Fuel	• Biodiesel (methyl ester), a type of fuel produced from a variety of renewable feedstocks such as vegetable oils and/or animal fats would be provided (subject to availability)
	Carbon offset Scheme	• A carbon offset scheme will be provided through a formal scheme, in agreement with Greenfleet (a non-profit organisation), contributing to native tree planting programs across Australia
Waste	Waste policies	• A detailed Waste Management Plan will be prepared for the operation of the project, incorporating the management of office wastes, mixed wastes, effluent/sullage, maintenance wastes and general wastes. Appropriate removal contractors would be employed
	Operational Waste	• Recycling facilities will be provided within the site for the recycling of paper, glass, plastic, tin cans and green waste
		• Facilities to manage grey water and sullage waste from vessels would be provided. Users of the facility would be able to access a card-operated Sanivax pump, which will remove effluent and sullage from vessels through a single action diaphragm pump, discharging effluent to the closest sewer main through sealed lines and as such protecting waterways from pollution

Sustainability Focus Areas	Theme	Sustainability Targets
	Material selection	• Sustainable and/or recyclable materials to be used during the operation of the project will be purchased where possible (e.g stationery, paper)
		• Recycled materials will be used during construction, ensuring that the amount of waste going to landfill is minimised

		• Recycled materials will be used including :
		  • Water based pontoons would be recycled from those previously used at the Australian National Maritime Museum
		  • RoRo ramp would be reused from the Northside Storage Tunnel project

Biodiversity	Marine ecology	• The proposed pontoons will also provide an additional 100 m² of underside habitat for encrusting biota (sponges, bryozoan, tunicates and molluscs). The algae and encrusting biota in turn will provide valuable fish habitat, particularly for juvenile fish
	Terrestrial ecology	• Existing planted vegetation on the site, which includes exotic grasses and several planted trees (including native and introduced species) with little conservation value will be rehabilitated and native species indigenous to the area would be planted to increase the biodiversity of the site
Social and Community Involvement	Noise impacts	• A detailed Noise Management Plan will be prepared for the operation of the project, incorporating the noise mitigation measures outlined in Section 3 of this report. The Noise Management Plan will take into consideration the closest residential receivers
		• Ongoing consultation with the local community will be conducted regarding the operational activities on the site
	Visual impacts	• The design of the proposed facility will be such that light spill or reflective light on local residents will be minimised

Impacts on Terrestrial and Marine Environments

As stated in both the EA and the PPR, there would be no significant impacts on the aquatic ecology surrounding the site. The aquatic ecology study showed that the new water based pontoons would provide surfaces that generally support a larger diversity and a more even cover of algae than the existing silt and tide-affected rocky revetment walls, as well as providing an additional habitat for algae and encrusting biota.

The EA stated that potential terrestrial fauna habitat within the study area is very limited, due to a long history of industrial/maritime activities. Native and introduced species have been planted within the site recently, as evidenced by the young age of all trees present. Consequently, there is absence of hollow-bearing trees that could provide nesting or roosting sites for arboreal fauna, such as bats, possums or birds. Clearing and removal of some of the planted vegetation during construction of the proposed project would have a negligible effect on local flora and fauna diversity, given the lack of habitat resource available at present. Rehabilitation that would follow completion of project construction has the potential to improve the local terrestrial condition by planting appropriate native species and provision of natural mulch and debris, in any areas where soils are significantly disturbed.

By applying the sustainable design principles outlined in Table 4.4, the proposed development would bring a positive impact to both the marine and terrestrial environment.

5 Conclusion

This PPR Addendum has demonstrated the validity and applicability of the methodology employed in the noise assessment prepared for this project, with respect to the reliance on previous studies to determine the background and ambient noise levels.

Chapter 3 explained the project's operations and detailed the activities which have shown the greatest potential to contribute to noise criteria exceedances. A variety of mitigation measures have been proposed to mitigate these noise impacts and commitment shown from BMFA to ensure these measures are employed. A review of noise limit criteria demonstrated that at all residences in the surrounding area the evening time intrusive ($L_{Aeq,\ 15\ min}$) and night time intrusive ($L_{Aeq,\ 15\ min}$) and amenity ($L_{Aeq,\ night}$) limits are expected to be met. Furthermore, it was shown that at all residences, except the Grafton Street residential building, the day time intrusive ($L_{Aeq,\ 15\ min}$) criterion is expected to be achieved. Trucks have been found to be the source of this exceedance and the most difficult activity to control.

Chapter 4 provided further clarification on the demand for refuelling facilities within the Harbour and details of existing facilities. The BMFA facility is anticipated to meet the increased demand for refuelling and will aim to deliver a modern, environmentally compliant facility and deliver user friendly services in a convenient location.

As stated in section 4.2.4, BMFA recognise their obligation to the environment and are committed to lead the way towards providing a sustainable marine refuelling facility within Sydney Harbour which will include best available technology and sustainability initiatives. The development of the project at White Bay 6 will demonstrate BMFA's enthusiasm and capacity to contribute to environmental best practice and sustainable development. This enthusiasm will be evident through the incorporation of the core sustainability tenets within the design, construction and operation of the project which include:

- Achieving and maintaining ISO14001 accreditation for the project
- Implementation of a carbon offset scheme
- Water efficiency and conservation
- Energy efficiency and conservation
- Waste reduction and management
- Biodiversity improvements
- Social and community involvement.

In conclusion, this Addendum to the PPR provides a response to the particulars raised by the Sydney Harbour Foreshore Authority including noise management, operational activities and the need and justification of the proposed facility.

6 References

Boating Industry Association of NSW website: http://www.bia.org.au

EPA (2000) *NSW Industrial Noise Policy.*

ERM (2005) *Independent Cement & Lime, Environmental Assessment Report,* Sydney.

KBR (2006) *White Bay Berth 6 Proposed Marine Supply Facility Environmental Assessment*, Volumes 1 & 2, Sydney.

KBR (2007) *White Bay Berth 6 Proposed Marine Supply Facility Preferred Project Report*, Sydney.

International Maritime Organization (1973) *International Convention for the Prevention of Pollution from Ships (MARPOL 73/78).*

NSW Waterways (2006) *NSW Waterways Annual Report, 05/06.*

Renzo Tonin and Associates (2003) *Glebe Island / White Bay Port Area, Noise Monitoring Study (Revision 2)*, Sydney.

Walker, B (2007) *Report of the Special Commission of Inquiry into Sydney Ferries Corporation.*

Appendix A

Sydney Harbour Forsehore Authority Letter to BMFA - Dated 10 October 2007

10 October 2007

Guy Bailey
Bailey's Marine Fuels Pty Ltd
PO Box 979
Fremantle WA 6160

Dear Sir,

MAJOR PROJECT APPLICATION MP06_0037: MARINE REFUELLING AND SUPPLY FACILTY, WHITE BAY BERTH 6, WHITE BAY, BALMAIN.

I refer to our recent discussions following the meeting with the Minister for Planning held on 11 September 2007, regarding your proposed marine refuelling and supply facility at White Bay Berth 6, White Bay, Balmain.

As part of the assessment process of the application the Authority is continuing to review the Environmental Assessment (EA) and the Preferred Project Report (PPR) and has also considered issues raised at the 11 September meeting. As a result, the Authority requests that Bailey's Marine Fuels Pty Ltd provide further particulars on noise management, operational activities, and the need and justification of the proposed facility. Specifically, the following matters need to be outlined and addressed:

1. Noise studies

The EA and PPR cite a number of noise studies some of which have been undertaken for the project and some that have been relied upon to provide background and ambient noise levels at residential receivers near the site. Such studies include those prepared by Renzo Tonin and Associates and ERM.

Clarification on why such a variety of studies were relied upon, particularly those not prepared specifically for the project needs to be explained.

The value of relying on numerous studies where, for example, there could be differences in data collection or questions as to the validity of such data warrants further justification and explanation.

2. Actual noise impacts

The noise studies prepared for the project provide worst case scenarios for expected noise limits at sensitive residential receivers. It predicted that noise levels would reach 4dBA above the day criterion and 3dBA above the night noise criterion at the most affected Grafton St residential building. It is noted that these figures are predicted without the adoption of noise management measures.

The Authority believes that detailed measures need to be explained to mitigate operational activities on the surrounding area including specifying activities that would create the highest potential for exceeding INP noise criterion.

Sydney Harbour Foreshore Authority
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In this regard, all operational activities should be measured against their resultant noise outputs so as to provide a framework upon which to restrict and limit certain high noise generating activities to the extent that predicted noise limits will be below intrusive noise limit criterion. A table illustrating all activities, proposed hours and anticipated noise criterion should be prepared to assist in understanding these potential impacts.

It is crucial that operational activities, hours and noise criterion be linked to show the proposed development will not have a detrimental impact on the amenity of the surrounding area.

3. Use, need and benefits

It is noted that the EA provides some detail on the need for the project. However, after the Authority's initial assessment of the proposal and the suitability of the site, it is considered that further clarification of the demand for refuelling services within Sydney Harbour should be provided.

This should include details of all existing facilities on Sydney Harbour and the Parramatta River, details of the anticipated the growth and demand for refuelling operations, acknowledging changes in Port operations on the Harbour, and whether the facility will replace similar operations in the area, and if so how many and of what type. Reference should be given to how the project is different to other facilities and operations in Sydney Harbour, in a commercial, operational and environmental sense.

Importantly, you should emphasise how and what type of management and operational measures you will undertake to environmentally distinguish your operations from others in the surrounding area, and how this may impact on the quality of the terrestrial and marine environment.

It would be appreciated if you could give attention to the above matters at your earliest convenience. Upon receipt of this information, the Authority will determine its adequacy, and this information will be treated as an addendum to your PPR.

Should you have any questions in relation to these requirements please contact Mr Cameron Sargent on (02) 9240 8707, or by email at Cameron.Sargent@shfa.nsw.gov.au

Yours sincerely,

Shayne Watson
A/Planning Assessment Manager