Monkstown Marina Phase II Development
Monkstown, Co. Cork

Foreshore & Design Report

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Cronin Millar Consulting Engineers

Civil

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Marina Development – Strand Road, Monkstown, Co. Cork
Design Report

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1.0 Introduction

The proposed marina development at Strand Road, Monkstown, Co. Cork is an all tide access marina suitable for the full range of power and sail craft in Ireland today. The marina incorporates the full range of facilities and services required for a modern marina. The marina has been designed and will be operated in accordance with the requirements of the Blue Flag for Marinas criteria. (Details of this scheme are contained in the appendix). The marina design and specifications have been prepared in accordance with BS 6349 “British Standard Code of Practice for Maritime Structures”, as well as Irish, UK, European & US marine leisure facility guidelines.

A foreshore lease/licence for an 82 berth marina located in the north east end of this proposed development was previously issued (Ref: MS/51/8/1340). Planning permission for the development was granted by Cork County Council (Ref: 08/9317) following a third party appeal to An Bord Pleanala (PL 04.236980).

The location of this proposed marina in Monkstown is very suitable for the development of a coastal marina.

2.0 Berth Type/Size Demand Analysis

A detailed analysis of the type and size of boats using and visiting Cork harbour and the South West coast generally was carried out. The results of this analysis were used to determine the range of berths sizes required for a marina of this type in Cork Harbour.

2.1 Existing Marinas & Moorings

There are four existing marinas in Cork Harbour, with a total of 582 no. berths approximately. The Royal Cork yacht club marina has 220 no. berths and is currently full. Salve marina in Crosshaven has 50 no. berths and is currently full. The Crosshaven boatyard marina has 100 no. berths and is currently full. The marina at East Ferry has 80 no. berths and is currently full. All of the above marinas report strong demand for additional berths. The existing 82 berth Monkstown Marina was open in the summer of 2011 is currently at 90% capacity.

There are more than 1,000 no. swing moorings in Cork Harbour. These moorings are located throughout Cork Harbour. It is accepted that swing moorings are a poor alternative to berthing in a marina. Swing moorings must be vacated during the winter/spring months due to weather conditions and they occupy a disproportionate area of foreshore compared to marina berths.

2.2 Berth Demand

Ireland currently has one of the lowest boat ownership rates in the EU, with per capita boat ownership of 1:171. By comparison Sweden has 1:7, Netherlands 1:30, France 1:66 and the UK 1:100. (World Marine Markets 2005)

Ireland also has one of the lowest berth rates, with 24 coastal marinas nationwide providing approximately 2,000 berths. (Marine Institute 2005)

The current density of boats in Cork Harbour is significantly lowering than other harbours in the UK, Europe and the USA. There is huge potential for the sustainable exploitation of the marine leisure resource in Cork Harbour, subject to proper planning, implementation and management.

2.3 Berth Size/Type

The general trend is for boat sizes to increase over time. The average boat length in Cork harbour is 10m (approx). Approximately 67% of boats in Ireland are greater than 6m in length. (Irish Sea Marine – The potential for marine leisure 2007)

The ratio of sail boats to power boats in Ireland is currently 60:40, although there is a gradual increase in the percentage of power boats to sail boats nationally. This has an impact on the design of marinas.

3.0 Marina Berth Design Information

3.1 Number of Berths

The results of the analysis in section 2.0 above were used to determine the range of boat types/sizes that would be attracted to the proposed marina in Monkstown. A breakdown of the proposed berths is detailed in table 1 below.

Number of Berths:	285 no.
Berth Sizes:	
Class V (15m to 18m)	32 no.
Class IV (12m to 15m)	64 no.
Class III (10m to 12m)	78 no.
Class II (8m to 10m)	48 no.
Class I (up to 8m)	63 no.
Total Berthage Length	3,456m
Fuel Berth (all vessels)	1 no.
Pump Out Berth (all vessels)	1 no.
Valet Berth (all vessels)	1 no.
Reception Berth (Visitors)	1 no.
Disabled/Emergency Berth	1 no.

Table 1 – Proposed Berths

3.2 Marina Staff

The number of staff proposed to manage the marina and its facilities is as follows:

Marina Manager	1 no.
Dockmaster/Operative	1 no. (2 no. in peak periods)
Administrator	1 no,

4.0 Marina Layout & Protection

The marina will be protected by an outer array of proprietary floating concrete breakwater units. These breakwater units will be 4m wide with 1.8m deep concrete skirts. These units will also provide access around the perimeter of the marina to the fuel, reception, valet and pump out berths.

The marina berths have been oriented in a north east – south west alignment to match the predominant tidal and river flow direction. This alignment will aid vessel manoeuvring and minimise tidal drag on the berthed vessels and marina structures. The internal marina layout has been designed to facilitate easy and safe manoeuvring within the marina and allow for safe access to and from the berths. The Class I berths, which are located along the inner face of the primary walkway have been aligned to maximise the use of the foreshore area.

The entrance channel to the marina is 30m wide. The inner navigation channel and the fairways vary in width to suit the expected design vessels.

The primary walkway, which will connect with the secondary walkways, will be 3.0m wide. The primary walkway will be comprised of proprietary floating pontoon units. There will be 5 no. secondary walkways. These walkways will be 2.5m wide proprietary floating pontoon units.

Floating finger pontoons are positioned perpendicular to the secondary walkways (on either side) to accommodate the double berthage of vessels. The widths of the double berths vary according to the class of vessel and allow for the safe manoeuvring of vessels into and out of berths. The length of the finger pontoons are 100% accommodated overall vessel length (LOA). The finger pontoons are between 1.0m to 2.0m wide, depending on the berth length.

5.0 Marina Access

Access to the marina from the sea will be via the marina entrance channel along the east side of the breakwater array.

Access to the marina from the landside will be controlled via a high quality glass security gate which will be located at the access platform. A card type security access system will be installed to control access to the marina. Pedestrian movement around the marina will be via the primary and secondary walkways.

The gangway, which will be constructed from high quality aluminium, will be hinged at the landside connection and have a roller system at its base. The pin/roller system will allow the gangway to move freely in the vertical axis, thus accommodating the rise and fall of the tidal cycle. The maximum slope of the gangway will be 1:6, which will occur at Mean Low Water Springs (MLWS). The gangway will have a clear width of 1.8m. The gangway will be useable by disabled users for most of the tidal cycle.

6.0 Pontoon & Anchorage System

6.1 Pontoon System

The proposed pontoon system will be a high quality proprietary system. The pontoons will be comprised of aluminium frames, supported on concrete floats. The proposed decking material is a timber composite plank, which will have the visual appearance of hardwood and the stability and durability of plastic.

6.2 Anchoring System

The marina will be anchored using a chain and anchor system for all pontoon and breakwater units. A 10 tonne anchor blocks and 60 mm diameter chain will be used. The system has no visual impact to the marina as it is all underwater.

The final anchoring system specified will be governed by the results of site investigations and detailed design. The inner pontoon units may be restrained in position using tubular steel piles based on the outcome of the site investigation.

7.0 Marina Water Depths & Dredging

The tidal range in Cork Harbour is 3.7m (MHWS to MLWS).

The seabed area within the marina will be dredged to various levels, depending on the maximum vessel draft expected., details the proposed dredge levels.

The dredged area will extend slightly beyond the footprint of the floating structures to ensure sufficient depth within the basin and to allow access along the outer edges of the marina.

The dredging operation will be carried out using a long reach backhoe excavator housed on a floating barge or by a suction dredger (The final method of dredging will be determined by the results of the marine site investigations.). Suitable dredged material will be re-used as fill material within the foreshore to be reclaimed for the landside facilities. Unsuitable material will be disposed of by dumping at sea. A Dumping at Sea Application will be lodged with the Environmental Protection Agency in due course.

8.0 Marina Facilities & Services

8.1 Service Bollards

High quality stainless steel service bollards will be located throughout the marina. There will be a minimum of one bollard per four berths, with the larger berths having one bollard per two berths. The service pedestals will provide 240v electricity and lighting for the marina. Additional lighting will be provided along the primary walkway and the gangway.

8.2 Foul Water & Bilge Water Systems

A foul water pump out unit and a bilge water pump out unit will be located on the pump out berth, as indicated on the marina layout drawing. The foul water pump out unit will allow vessels with holding tanks to discharge their foul water. The unit will pump the waste water via a flexible pipeline to the Monkstown public foul system. The bilge water unit will pump the water to an oil separator before discharging into the public foul system. Hand cleaning facilities and disposable gloves will be provided at the pump out berth.

8.3 Water Supply
Potable water will be available from the taps on the service bollards which will be strategically positioned on the secondary walkways. The water system will be connected to the Monkstown public water supply system.

8.4 Waste Reception Facilities
Waste reception banks will be located on the Services Berth and on the access platform. The reception banks will be comprised of 3 no. separate bins for the following waste streams: Recyclables, refuse & hazardous.

8.5 Dock Carts
Dock carts will be located on the floating access platform at the bottom of the gangway. The proposed carts will measure 1400mm long x 850mm wide x 650mm high.

8.6 Safety Equipment
Fire extinguishers (6kg dry powder units) will be provided at a minimum ratio of one unit per fifteen berths.

Lifebuoys will be provided at a minimum ratio of one per 30 berths.

Escape ladders will be provided at a minimum ratio of one per 30 berths.

A first aid kit will be provided at the services berth and in the marina office.

A fuel spill emergency/clean up kit will be provided adjacent to the services berth.

8.7 Lighting
Pontoon lighting will be provided integrally in the service bollards. Additional footlighting will be provided along the primary walkway and access gangway.

8.8 Security Systems
Access to the marina will be controlled via a card type security system. The card will control access to the marina and allow use of electricity from the service bollards. A CCTV system will be installed on the marina. The system will be relayed to the marina manager's office. The marina and landside development will have 24 hour security.

8.9 Navigation Lighting
Navigation lighting will be provided along the outer breakwater in accordance with the requirements of the Marine Survey Office (MSO) and the Port of Cork.

8.10 Emergency Berth
The disabled berth will be used as an emergency berth when required. Appropriate signage will be erected to notify the marina users.

8.11 Sail Box
A sail box, which can be used by sailors to deposit damaged sails, dodgers, covers etc., will be provided on the access platform. The sail repairers/makers can access this box for collections and returns under the control of the marina manager.

8.12 WiFi System
A WiFi system will be installed to provide coverage for all berths within the marina. Permanent berth holders will have access accounts, while visitors will be able to connect for the duration of their visit. The system will be password protected.

The proposed locations for all of the above equipment and systems are detailed on the Marina Services Layout drawing (C285/PII/2).

9.0 Landside Facilities

9.1 Marina Office
The marina office will be located on the second floor of the proposed marina building. (See Hyde Partnership drawings).

9.2 Car Parking
The proposed marina will have 285 no. berths. Based on a ratio of 0.5 car parking spaces per berth, this gives a requirement for 142 no. spaces. (This ratio is an acceptable ratio to Cork County Council Planning Officers). The car park spaces will be integrated with the landside development. (See Hyde Partnership drawings).

A drop off area for deliveries, users etc. will be located adjacent to the access platform. (See Hyde Partnership drawings).

9.3 Welfare & Amenity Facilities
The welfare and amenity facilities will be located within the proposed marina building. (See Hyde Partnership drawings and project brief).

9.4 Marina Store Room & Workshop
The store room and workshop for the marina will be located in the basement structure of the proposed marina building. (See Hyde Partnership drawings and project brief).

9.5 Yacht Chandlers & General Equipment
A chandlery and general provisions store will be located in the proposed marina building. (See Hyde Partnership drawings and project brief).

10.0 Rowing Club Facilities

A dedicated building will be provided for the Monkstown Rowing Club. The building has been designed to accommodate the storage of up to 8 no. rowing skiffs and associated equipment. (See Hyde Partnership drawings).

The proposed slipway will have a brushed concrete finish to the deck. A modular articulated floating pontoon system will be installed along the inner edge of the slipway to provide safe all tide access to the rowing club boats.

The slipway will be 7m wide with a slope of 1:8. The slipway will extend below MLWS.

Appendix

Blue Flag Programme Criteria

Blue Flag Programme Criteria

It is proposed to implement the necessary systems and provide the required facilities to ensure that the marina is developed and managed in accordance with the Blue Flag Programme. This would be a major attraction for many users and visitors to the marina. It would also enhance the credentials of the marina and the surrounding area.

The Blue Flag Programme is concerned with the following four primary areas:

(1) Environmental Education & Information
(2) Environmental Management
(3) Safety & Service Facilities
(4) Water Quality

The criteria for each of these primary areas are detailed below:

Environmental Education & Information

i. Information relating to the coastal zone eco system and nearby natural sensitive land and marine areas must be available to marina users.

ii. Code of environmental conduct is displayed in the marina.

iii. Information about the Blue Flag Marina Programme and the Blue Flag marina criteria is displayed in the marina

iv. The marina is responsible for at least three environmental education activities on offer to the users and staff of the marina.

v. The individual Blue Flag for boat owners is offered through the marina.

Environmental Management

i. Production of an environmental policy and plan at the marina. The plan should include references to water, waste and energy consumption, health & safety issues and the use of environmentally sound products when available

ii. Adequate and properly identified and segregated containers for the storage of hazardous wastes. The wastes should be handled by a licensed contractor and disposed of at a licensed facility.

iii. Adequate and well managed litter bins and/or garbage containers. The wastes should be handled by a licensed contractor and disposed of at a licensed facility.

iv. The marina has facilities for receiving recyclable waste materials, such as bottles, cans, paper, plastic, organic material etc.

v. Bilge water pumping facilities are present in the marina.

vi. Toilet pumping facilities are present ion the marina.

vii. All buildings and equipment must be properly maintained and in compliance with national legislation. The marina must be well integrated into the surrounding natural and built environment.

viii. Adequate, clean and well sign-posted sanitary facilities, including washing facilities and drinking water. Controlled sewage disposal to a licensed sewage treatment.

ix. If the marina has boat repairing and washing areas, no pollution must enter the sewage system, marina land and water or the natural surroundings.

x. Promotion of sustainable transportation.

xi. No parking/driving in the marina, unless in specific designated areas.

Safety & Service Facilities

i. Adequate, clean and well sign-posted lifesaving, first-aid equipment and fire-fighting equipment. Equipment must be approved by national authorities.

ii. Emergency plan in case of pollution, fire or other accidents must be produced.

iii. Safety precautions and information must be posted at the marina.

iv. Electricity and water is available at the berths, installations must be approved according to national legislation.

v. Facilities for disabled people.

vi. Map indicating the location of the different facilities is posted at the marina.

Water Quality

Visually clean water (no oil, litter, sewage or other evidence of pollution).