

**DETAILED PROJECT
DESCRIPTION
-
PLANNING & DESIGN**

ADMIRAL COVE MARINA DEVELOPMENT, PORT DICKSON, MALAYSIA

The development consists of a five-star hotel, yacht club, retail centre, a private beach, various types of residential development, and a 300-berth marina with all support facilities. I.M.C. prepared a masterplan for development which would optimise the land and water areas while minimising the cost of reclamation. In addition to preparing the masterplan, I.M.C. carried out coastal engineering studies, cost estimates and preliminary and detailed design of all the marina components, including the breakwater.

BAYAN BAY MARINA DEVELOPMENT, PENANG, MALAYSIA

I.M.C. undertook a review of the conditions at the site to determine whether a floating breakwater could be used instead of the currently proposed fixed breakwater. This includes determination of the long and short period waves at the site by mathematical modelling, as well as current measurement. It was found to be possible and has resulted in substantial cost savings to the developer. Various layouts were prepared for the 400-berth marina and on-shore facilities, and a detailed design was finally prepared. The slope stability of the revetments was checked and pontoons and jetties designed for the waterfront properties.

BOWEN MARINA, QUEENSLAND

On behalf of a consortium of local businessmen, IMC was responsible for the preparation of the submission to the Queensland Government to develop a new marina and tourist complex for Bowen. The submission required market research (in conjunction with Herron Todd White Consulting Services), concepts, environmental assessments (Sinclair Knight), cost estimates and rental returns to complete the briefing/tender requirements issued by the Government. The final concept design indicates a marina for 200 craft, dry storage for 100 boats, public boat ramp, boat building, servicing and repair, fuelling, shiplift, ferry terminal, tavern, hotel/boatel, shops, condominiums and a residential canal estate. Future development provides for further commercial and light industrial development.

CARITA LAGUNA RESOR, WEST JAVA, INDONESIA

IMC was commissioned in 1996 to provide marina consulting services for a development will consist of a resort hotel, a small 80-berth marina and yacht club and a residential development including both a high proportion of lots fronting onto man-made canals. The site covers an area of 25 ha with a 220 m ocean frontage. The breakwater to protect the marina will be constructed on top of the fringing coral reef through which a channel will be excavated. The masterplan to maximise the value that would be added to the land development by the marina. IMC provided input to the masterplan, undertook wave studies and prepared cost estimates and a feasibility study for the marina and its associated facilities.

DOCKLANDS STUDY, MELBOURNE, VICTORIA

The Docklands Authority is responsible for the re-development of the operating port area adjoining the Melbourne CBD and railway yards. IMC was appointed by the Authority to undertake a study of establishing a marina and on-shore related facilities for the main pier, Victoria Dock. Alternative locations for a marina at Docklands and in the Greater Melbourne Area were also considered. The study highlighted two marina areas, premier yacht race berthing and viewing facilities (Round-the-World, Melbourne-Osaka, Melbourne-Hobart), a floating aquarium, maritime museum, artists studios, waterfront apartments, indoor/outdoor festival markets, specialist shops, fish and food markets, yacht

clubs and cruise ship facilities. Special attention was paid to vehicle access and parking, the predominance of pedestrian and cycle ways, urban street furniture and landscaping.

DOHA, QATAR

IMC prepared the masterplan for a waterfront development including marina, beach development, small boat hire, viewing areas, boardwalks, restaurants, fish market, shops, and parking areas.

EAST COAST MARINA, BRISBANE, AUSTRALIA

Inspection of marina and preparation of a report for a prospective purchaser. The marina comprised 350 marina berths, fuel facility, and boat maintenance/repair and dry storage.

ELIZABETH STREET PIER RE-DEVELOPMENT, HOBART

The Marine Board of Hobart commissioned IMC to investigate the feasibility of constructing a marina in Sullivans Cove adjacent to Elizabeth Street Pier. Work undertaken by IMC included a market evaluation, preliminary planning, design and financial analysis of the proposed marina. The brief was expanded to include Commercial Fishing Boat marina facilities also in Sullivans Cove adjacent to the entrance to Victoria Dock. In addition, a wave study was added to the brief since available ocean swell data was considered inadequate for determining whether a floating breakwater could be used. IMC also provided berth layouts and cost estimates for the construction of floating marinas in Constitution and Victoria Docks so that a comparison could be made with the construction of the marina in Sullivans Cove.

EXILE BAY, SYDNEY

IMC assisted Pacific Marina Developments in being awarded a design and construction contract for a high quality marina for a residential development on Sydney Harbour. The design includes the use of floating breakwater technology.

GOLD COAST YACHT AND COUNTRY CLUB, HONG KONG

IMC undertook engineering feasibility study and preliminary design for boat maintenance/repair facility, multi-level boat dry storage facility, workshop and marina operation centre. Upon acceptance of the feasibility study, our client, a subsidiary of Sino Land, commissioned IMC to undertake the detailed design.

GREEN ISLAND MASTERPLAN, TAIWAN, R.O.C

In July 1992, IMC was commissioned by the Taiwanese Government to undertake a major study to identify, plan and carry out preliminary design for one of the first major recreation marina and resorts in Taiwan on Green Island, some 33 kilometres off the Taiwan mainland. The study into alternative sites for the marina has reviewed global trends (and predictions) in tourism and recreational boating, particularly in Pacific Rim and SE Asian countries. This study has also developed a new approach to sites analysis for marina/tourism projects, utilising mathematical models in addition to the traditional planning/engineering approach. Research has included analysis of typhoon statistics and hence wave parameters at the various sites and predictions on local (recreational) boat usage. The completed reporting process provided in addition an environmental assessment, economics report and recommended resort management plan. All reporting was completed in bilingual (Mandarin/English) format. A physical model of the total development was completed.

HORIZON SHORES MARINA, WOONGOOLBA, QUEENSLAND, AUSTRALIA

Inspection of marina and preparation of a report for a prospective purchaser. The marina comprises over 300 berths using two marina systems, fuel facility and boat maintenance/repair facility.

KELISA RESORT, MALAYSIA

IMC was commissioned in 1996 to undertake a Site Assessment for a 150-berth marina adjacent to a river to the north of Port Dickson. The overall site occupied 214 acres of flat land bordering on a river and the development is proposed to consist of holiday villas, serviced apartments, hotel, marina, marina centre and club. Soft marine sediments and a shallow river estuary were some of the issues addressed in the Site Assessment. The project is ongoing.

JERUDONG PARK MARINA, BRUNEI

In 1995 IMC proposed preliminary layouts for a small marina and mega-yacht berthing facility. A wave penetration study was undertaken by Lawson and Treloar and a ship handling study for the mega-yachts.

KAPUK INDAH, JAKARTA, INDONESIA

IMC prepared a preliminary masterplan for a 258 berth marina, yacht club, residential development and marine retail and marina support facilities as part of a major land development in the west of the CBD in Jakarta. IMC also prepared a management plan for the marina.

KURAMAN ISLAND, EAST MALAYSIA

IMC prepared a Master plan and report for a large resort comprising 2 hotels, 27 hole golf course, 400 mixed residential units, marine villages, town centre, small boat harbour, etc.

KRAKATOA TROPICAL BEACH RESORT MARINA, WEST JAVA, INDONESIA

In 1994, IMC was commissioned by PT Safiera Amalia to undertake the preliminary design of a 200-berth marina to form part of an integrated resort development on the West Coast of Java, North of Ujung Kulon National Park. The marina was to include mega berths, boat maintenance facility, dry storage and fuel. The work undertaken by IMC included determination of the wave climate at the site, preliminary design of entrance breakwaters, wave penetration studies, preliminary design of floating marina and on-shore facilities and performance specifications for the floating marina, shiplift and forklift.

PD INTERNATIONAL MARINA DEVELOPMENT, PORT DICKSON, MALAYSIA

I.M.C. was commissioned to determine the optimum configuration of the marina basin to accommodate 400 boats. In addition, the design storm wave and operating wave heights at the site were calculated, longshore movement of sediment was estimated, as well as the rate of siltation in the marina. Various configurations of entrance breakwater were examined, cost estimates prepared and wave penetration studies were undertaken for each option. Preliminary designs were carried out for the breakwater and revetments. Reviews were undertaken of the detailed design and documentation of the breakwater and floating marina.

LABUAN MARINA CENTRE, EAST MALAYSIA

This five star hotel, shopping centre, marina club, conference centre and marina is located on five hectares of reclamation and marina waterway on Labuan Island, near the coast of Brunei and Kota Kinabalu, East Malaysia. IMC has been involved in a review of layout concepts and preparing alternatives, the management of overall landscaping and its detailed design and the design of a free form large swimming pool, marina design and management. Specialist input has been into the hotel swimming lagoon and other unique landscape and associated structural features. Construction on Phase One, the marina, clubhouse and associated infrastructure, commenced in the latter half of 1993.

LAKESIDE VILLA RESORT, BANGPAKONG, THAILAND

IMC was responsible for the planning and design for waterfront elements of a large integrated resort comprising an 18-hole golf course, marina and large residential components. The design incorporated urban design elements related to an already constructed yacht club building. The elements included boardwalks, avenues, landscape, retail, parking and areas associated with marina on-shore facilities. The work also included a study into marketing the project and the management and operation of the marina.

LANGKAWI INTERNATIONAL RESORT, MALAYSIA

IMC has prepared a concept for the development of a large dredging/reclamation site in the exotic North-West of Malaysia. The design provides for a 500 berth marina with on-shore boat servicing facilities, charter boat terminal, customs clearance services, fishing port and village, hotel, apartments/condominiums, waterfront housing, Malay 'floating' village, active and passive recreational parks, a large swimming lagoon and beach and air-sea rescue operations centre. All services for the project are to be provided on-site. Because of the extensive waterways proposed, most travel around the resort will be by boat. Car/bus transport will be kept to a minimum.

MARINE EXPORT CENTRE FEASIBILITY STUDY, QUEENSLAND

IMC as project manager is responsible for the preparation of a multi-staged report into the marine export industry in Queensland. The objective has been to determine industry needs to boost export sales and services through a comprehensive industry Strategic Plan. The stages have involved a SWOT analysis, interviews, workshops, local and global research and reporting to the Queensland Government (client). Also under consideration is the concept of a physical location for a Marine Export Centre, including R&D centre, indoor/outdoor display space, library, administration, conference centre and catering facilities, etc., located on a river/sea frontage.

OCEAN FRONT RESORT, LEBAK SOUTH, WEST JAVA, INDONESIA

In 1996 IMC was commissioned to undertake a Site Assessment for one or more marinas to form part of the development of a 2500-hectare site with an 18 kilometre coastline. Nine sites were identified, the attributes of each were compared and the best sites identified. The main issues that had to be addressed were the effect of long period ocean swell, the large water depth, the limited area of flat land and the difficulty of obtaining access to some of the sites. The lowest cost options were to develop sites where a channel could be cut through the reef and the marina located behind in low-lying land. IMC will have an ongoing involvement in this project.

PAPUTUNGAN MARINA RESORT, MANADO, INDONESIA

IMC was commissioned in 1996 to undertake a Site Assessment for a 150-berth marina as part of a large land development project north of Manado in North Sulawesi. The overall development includes two golf courses, resort hotels and residential development. The land area occupies a peninsula much of which is fringed with mangroves. The best site for the marina was selected bearing in mind topography, sea conditions, the overall staging of the project and the location of the existing services. It was decided to locate the marina in one of the larger bays largely filled with mangroves. IMC will have an ongoing involvement in this project.

PENANG SWIMMING CLUB MARINA, MALAYSIA

Penang Swimming Club has facilities which occupy a 450 m frontage on the North Coast of Penang Island. The Club has decided to incorporate a marina in a further development of its facilities. In order to obtain the necessary land for the on-shore marina facilities the project will include a 2.4 ha reclamation. The development will consist of a 170 boat marina including mega berths, a 400 boat dry store, boat maintenance yard, shiplift fuel berth and marina club. The marina will be protected by a rock armoured breakwater. IMC's involvement in the project includes preparation of the masterplan, preliminary design of breakwaters, revetments, marina facilities and cost estimate, detailed design of the boat dry store and documentation for calling tenders for the floating marina.

PENINSULA DE PUNTA FUEGO, PHILIPPINES

The overall project consists of the development of a peninsula to the North of Nasugbu, Luzon. The development will include residential land, a resort hotel, retail, marina and marina club. IMC was commissioned to undertake a site evaluation for the marina and advise on the type and size of facilities that should be included in the marina. The project is ongoing.

PHUKET MARINA CLUB AND LAKESIDE DEVELOPMENT, THAILAND

In 1994, IMC was commissioned to prepare the masterplan, construction cost estimate and feasibility study for the first integrated marina development in Thailand. The site is located on Phuket Island adjacent to the International Airport. The site consists of three lakes formed during the mining of tin. The development consists of a staged development of each of the lakes. IMC prepared a masterplan, construction cost estimate and feasibility study for the development around the first lake. The water and land areas are 7 ha and 11 ha respectively. The development will consist of a hotel, yacht club, retail facilities, charter berth facilities, boat maintenance and dry storage, fuel berths, ferry terminal with single lot and condominium residential development. The second stage lake will be connected to the first lake with a lock.

PHUKET YACHT SERVICES, THAILAND

IMC prepared a Masterplan, preliminary design and cost estimate of a floating marina for 100 boats and slipway to replace an existing small facility. The marina is to include a floating breakwater.

PORT ALMA, QUEENSLAND, AUSTRALIA

In 1996, IMC was commissioned to design and prepare drawings for the purpose of obtaining a Section 86 Approval for a heavy-duty pontoon incorporating a small crane and approach gangways.

PORT GEOGRAPHE WATERFRONT DEVELOPMENT, WESTERN AUSTRALIA

The development site covers 190 ha. and the current concept plan includes residential canals, town centre and marina for 400 berths. IMC reviewed the masterplan and developed options to increase the yield of waterfront blocks and improve the plan for the town centre and marina. The improvements have been adopted by the client. Input was provided to the layout of the marina and marina facilities. This project is ongoing.

REBAK MARINA RESORT, LANGKAWI, MALAYSIA

IMC was responsible for Master planning, costs and design of Malaysia's first fully integrated resort, to include: 250 marina berths, private club facilities, hotel, golf course, recreational pursuits, bush trails, condominiums, etc. Currently under construction with Stage One to be completed by November 1993. IMC is also responsible, through its associated companies, for overall project management, specialist engineering design and construction management.

The development consists of a lagoon excavated in the centre of the Island to contain the marina and an entrance channel to the sea, with a protecting breakwater. A second stage included the design of boardwalks around part of the perimeter of the marina basin. Full use was made of precast concrete so as to minimise on-site construction time and thus the risk of delays due to wet weather.

SAN YUAN MARINA, TAITUNG, TAIWAN, R.O.C

IMC undertook a review of the marina layout prepared by a Taiwanese engineering firm. The marina will contain 150 berths and boat maintenance facility, and the breakwater will be designed to withstand typhoon waves in excess of 10m in height.

SCARBOROUGH HARBOUR, BRISBANE

For a private client, IMC has developed a concept for providing boat storage, workshops and boat launch facilities, as a private facility, within the partially developed Scarborough Harbour boat basin. The concept provides, in addition, for a boat sales and display area, fuelling (on and off-shore), restaurants - two - and floating pontoons serviced from a waterfront boardwalk.

SELANGOR WATERFRONT CITY, MALAYSIA

IMC completed the masterplan of a 1500-acre site near the Port of Klang on the West Coast of Peninsula Malaysia. The development is to include two golf courses (one championship), three hotels, a town centre with marina and a combination residential development in navigable canals and dry blocks. The canals will require locks due to the five metre extreme tidal range. The masterplan took into account the need to balance cut and fill and the erodable perimeter of the development, much of which had mangrove cover. The work included a preliminary cost estimate of all the civil engineering works.

SOUTHPORT YACHT CLUB MARINA, QUEENSLAND

In 1995, IMC was commissioned to prepare alternative layouts for a new floating marina to replace the existing fixed berths. Layouts took into account the wave action at the site and flood currents in the Nerang River. The alternatives were costed to enable the Yacht Club to decide which option to adopt.

SUBIC BAY WATERFRONT VILLAGE, PHILIPPINES

Subic Bay Metropolitan Authority called tenders in 1994 for the construction, ownership and operation of a marina development in one of the bays forming the Subic Bay Naval Base, constructed by the United States Navy and handed over to the Philippine Government. IMC, working with other Australian and Philippines Companies, won the tender to develop the site. The masterplan for the development was prepared by IMC and consisted of a four star hotel, yacht club with its marina, a public marina, retail facilities, boat repair and dry storage facilities, condominiums, villas, restaurants, air sea rescue and training facilities. The work included the masterplan and preliminary design of the dry storage and boat repair facility. The project will be constructed over the next three years and its cost will be US\$80 million.

SUNSHINE CITY MARINA DEVELOPMENT, HAIKOU, HAINAN, PR CHINA

IMC was engaged to assist the project planners in the design of a marina as part of a development of 250 ha. of land including three hotels, golf course, residential development, shopping centre, theme park and inland waterways. The marina will include a yacht club, fuel and maintenance facilities and dry boat storage.

VIETNAM FLOATING HOTELS

For the Vietnamese Government, IMC has undertaken a major study into the most efficient way of providing flexible, quality accommodation to assist the potential for tourism growth in Vietnam. A unique 'floating' hotel concept has been developed. This provides economic construction techniques and an interesting visitor experience within

an adaptable concept. The vision provides a range of accommodation sizes in a truly 'local' architectural style with maximum use of the surrounding waters for access and recreation. The hotel itself includes restaurants, bar/coffee lounge facilities and generous communal deck space for relaxation. The total theme provides accommodation in a true local lifestyle, of appeal to locals and international visitors alike. This innovation has been extended to provide a business hotel concept for Hanoi City. The design provides for 192 accommodation units located as clusters (of 8 units, 2 storey: 4 up, 4 down) and connected by covered walkways and to the central facilities building on the lake foreshore. The central facilities house the reception, business centre, shops, restaurants and convention centre, and the back-of-house facilities.

WOODWARK BAY RESORT COMMUNITY, NORTH QUEENSLAND

Master Plan, costings and report for all waterfront elements at this proposed mega-resort in the Whitsundays for an eventual population of 10,000 persons was undertaken by IMC. Elements of the design include: a 500 berth marina; seawater lagoon (8 ha) with bathing areas for children and adults, scuba training pool and a recreational boating area for small craft; on-shore marina facilities; shops, tavern, ferry terminal, harbour administration; trailer parking, dry boat stores; children's play area; parking for 650 vehicles; small boat launch, etc. Alternatives for the adjoining bays were also provided.

WHITSUNDAY SAILING CLUB MARINA, AIRLIE BEACH, NORTH QUEENSLAND

Working in conjunction with Sinclair Knight Merz, IMC undertook the preliminary design and cost estimate for a 600 berth marina and marina support facilities at Muddie Bay. The project is to include 28 ha. of land reclaimed using the dredged material.