Galway Harbour Company

Galway Harbour Extension

Environmental Impact Statement

Chapter 1

Introduction and Background

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TABLES

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1 BACKGROUND TO THE PROJECT

1.1 APPLICANT

The applicant is Galway Harbour Company. The Company is a Company limited by shares/guarantee and is a commercial semi state company and the company address is Galway Harbour Offices, New Docks, Galway.

Galway Harbour Company is a port authority and its legal and commercial mandate in accordance with Harbours' Legislation is:

- to take all proper measures for the management, control, operation and development of its harbour and the approach channels thereto,
- to provide such facilities, services, accommodation and lands in its harbour for ships, goods and passengers as it considers necessary,
- to promote investment in its harbour,
- to engage in any business activity, either alone or in conjunction with other persons, that it considers to be advantageous to the development of its harbour,
- to utilise and manage the resources available to it in a manner consistent with the objects aforesaid.

The existing port was designed and built almost 160 years ago. It was remodelled within that pattern some 50 years ago. The port capacity has been severely constrained for many years due to the growth in size of vessels. The Harbour Company has accordingly been considering its best development strategy. A brief was prepared and a project team assembled to address the harbour constraints.

1.2 PROJECT TEAM

The project team is as follows:

Project Team	
Topic	**Consultant**
Harbour Design, Traffic and EIS Co-ordinators	TOBIN Consulting Engineers
Planning / Human Beings & Ecology	McCarthy Keville O'Sulllivan – Planning & Environmental Consultants
Business	Raymond Burke Consulting / DKM
Geology	Dan Duggan
Water	Aquafact International Services Limited & Hydro Environmental Ltd
Air, Noise, Climate	Biospheric Engineering Limited
Landscape	PC Roche & Associates
Architecture	Roddy Mannion Architects
Visuals	Realsim
Archaeology	Laurence Dunne Archaeology
Rail	Hyder / Tobin Consulting Engineers
Risk Assessment	Amec UK Limited

1.3 GALWAY GEOGRAPHY & HISTORY

1.3.1 Galway Port and City

Galway City grew where it did because the Corrib system and the Bay in that location combine to allow best ease of access to the maximum land and sea hinterland by Water Transport which significantly predated the development of easy and efficient terrestrial transport routes.

Geographically and geologically it was and remains the best natural location for a Port in the Bay with natural depth and shelter.

The Admiralty Chart BA 1904 shows the natural shallows (breakwaters) leading from the mainland to Mutton Island and Hare Island which allowed safe and easy access even at Low Water into the natural outer port area from where at High Tide medieval flat bottomed vessels could then move up stream to beach at the original Port / settlements at Galway (Spanish Arch) and Claddagh (Claddagh quay) areas.

Galway was fortified in 1124 by the O'Connors and strengthened by the De Burgos in 1230 and the town / city has grown continuously since.

The Port developed in a set of significant steps to keep pace with the Town and hinterland and the evolution in Shipping.

The commercial port progressively moved South and East, to Long Walk, then to the Mud Dock, and in turn to the present Harbour and the Galway Harbour Enterprise Park as it required more land and greater draft. The local fishing, canal / river navigation and traditional amenity boating developed in parallel on the Claddagh side while the draft there was still adequate. It too has now largely had to move to the existing gated docks or outer lay-by.

The Marina within the existing dock and larger fishing vessels mooring in the lay-by or Dock now show that the larger local vessels are too deep for the present Claddagh facilities.

In the middle ages with port facilities on each side of the River and active merchants in the town, Galway was deemed to be a busier port than Dublin or Cork. Galway's port status waned and rose again after the New Port development in the 1800's when the present Port was first formed to meet then vessel requirements by part dredging of a Salt Marsh and part filling.

The middle 1900's saw the Port redeveloped and recover trading status while it could then cater for conventional craft. That required significant and difficult rock removal from the floor of the existing Dock, at that time.

The present port is constrained to vessels of approximately 5,000 tonne capacity.

The present study proves that the "Outer Harbour Waters" between Mutton Island and Hare Island has naturally sheltered waters, which are easily dredged to the requisite draft for current craft requirements.

1.3.2 Evolution of Port Facilities

The original medieval port of Galway was located in the River Corrib adjacent to the present-day Spanish Arch as shown [1] in Figure 1.3.1 below. Also shown are the Claddagh Quays [2], Mud Dock [3] (which exists to present day) and a natural lagoon [4] to the east.

In the 1800s, the port was moved south east into the natural lagoon east of Long Walk and South of the city.

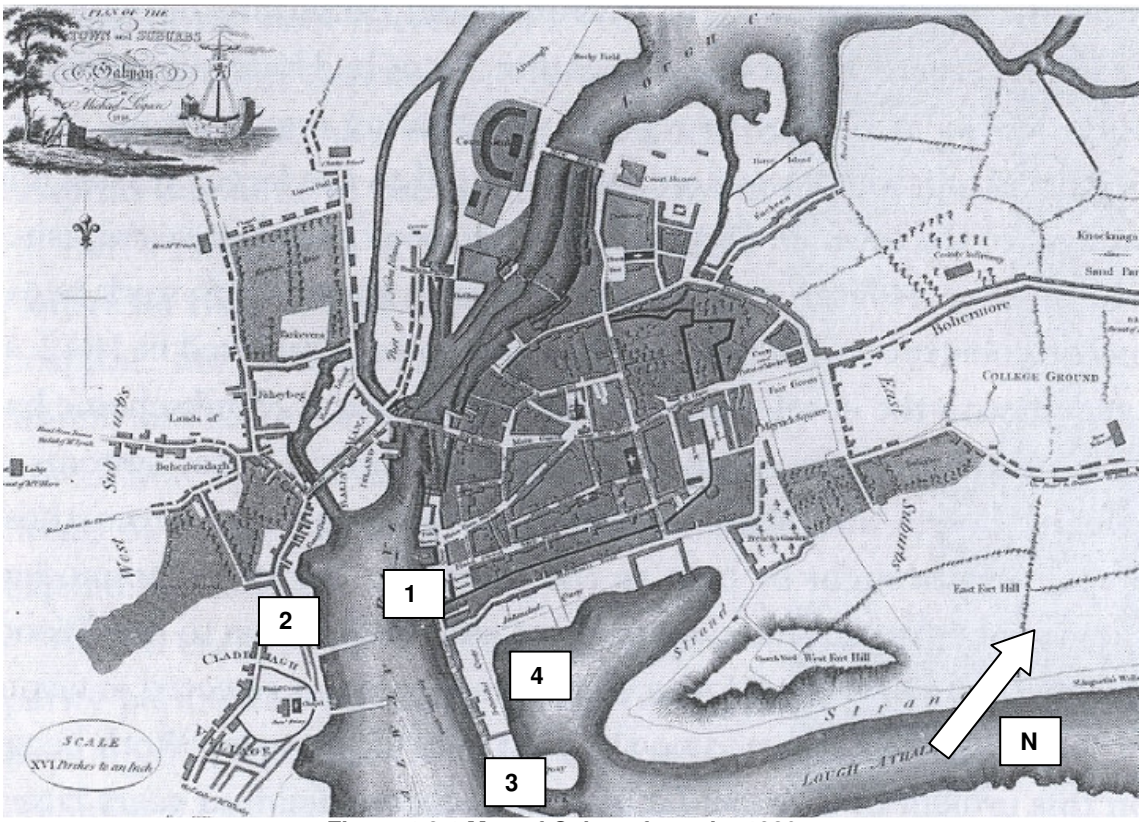

Figure 1.3.1 Map of Galway from the 1820s

Under the Harbours Act of 1835, a new commercial harbour largely to the current configuration began to be developed in the natural lagoon mentioned earlier which is shown [1] on the extract of a 1945 OS map of Galway Harbour in Figure 1.3.2. Also to be noted is the railway line and rail bridge over Lough Atalia [2] (1850's) and the Port Sanitary Intercepting Hospital [3] at Renmore Point to the east. Further development was undertaken in 1964 involving deepening of the enclosed dock area, relocation of the dock gates and provision of extra quay area.

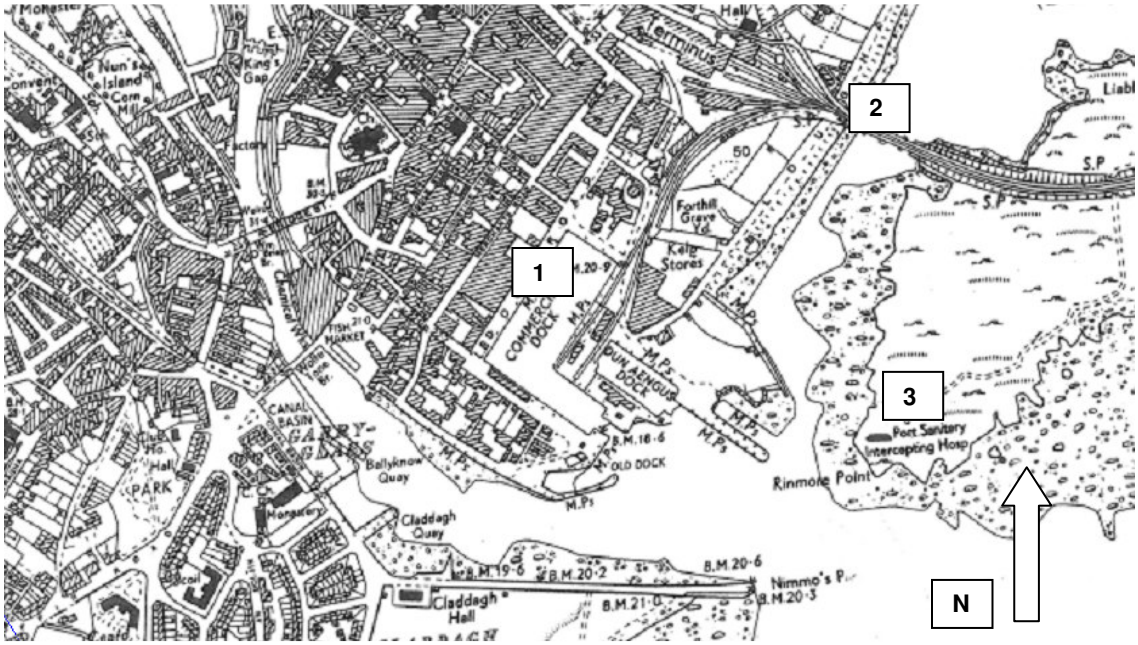

Figure 1.3.2 - OS Map showing Galway harbour in 1945

In 1995, planning permission was granted to develop the Galway Harbour Enterprise Park (GHEP) [3] on the lands formerly occupied by the Port Sanitary Intercepting Hospital located to the east of the existing commercial harbour.

Figure 1.3.3 below is an aerial photo taken in 2011 which shows the then GHEP and within it the existing oil and bitumen storage terminals which currently are significant components of Galway Harbour Company's business.

Figure 1.3.3 - Galway Harbour and the GHEP lands as per aerial photo 2011

The historical shift of harbour business has been to the south east from locations [1] to [2] to [3]. The present Galway Harbour extension proposal is to go further to the south east to location [4].

1.4 PRESENT PORT CIRCUMSTANCES AND CONSTRAINTS AND TERMS OF REFERENCE

1.4.1 Galway Harbour Enterprise Park

Between 1996 and 2003, Galway Harbour Company developed 25 hectares of land to the east of the existing Galway docks, as part of the Galway Harbour Enterprise Park development (an EIS was carried out in 1995 for this development). Much of the port business has or is due to move onto those lands as urban development tightens on the Existing Docks, as shown on the above images

The land comprising of the Galway Harbour Enterprise Park is bounded on the north by the railway embankment and to the south, east and west by shoreline. See Drawing No. 2139 – 2116.

1.4.2 Port Constraints

The ships that can currently use Galway docks are very significantly constrained by the depth of the dredged channel leading to the inner dock, the width of the dock gates which is 19.81 m (65 feet) as well as the relatively small size of the inner dock which has an approximate area of 2.8ha / 6.92ac such that cargo is limited to approximately 5,000T loads (liquid) and 3,500T (bulk cargo).

Fig 1.4.1 shows the Jumbo Spirit, squeezing through the dock gates, carrying specialist equipment for a power plant. This was a slow, exact process that could only be done at high tide. There was less than 150mm to spare each side.

Figure 1.4.1 - Jumbo Spirit Entering Galway Harbour

Fig 1.4.2 below shows another ship, The Fairload out of Rotterdam, entering the harbour with only millimetres to spare. Again this was a slow process requiring expert navigation. The difficulty in bringing a large ship into the harbour is further compounded by the mouth of the Corrib which is located adjacent to the harbour gates. The velocity of the river water causes ‘a lateral set’ on ships. Consequently, docking and sailing at Galway requires expert pilotage and navigation when entering and leaving Galway Harbour.

Figure 1.4.2 - Fairload entering Galway Harbour

1.4.3 Shallow Gated Dock

At present the dock gates can only be open for two hours before high tide twice daily and then be closed to hold in the required depth of water. This means that there is only a four hour window every 24 hours when ships can enter and leave the docks. This situation is severely limiting the potential of the harbour.

As vessel sizes are increasing, Galway Harbour is becoming more out dated and out-sized. Galway Harbour has a dredged channel leading to the gates, which must be navigated by large vessels. This often proves difficult due to a combination of high winds, waves and heavy outflow from the nearby Corrib. Also the fact that there are only 2-hour windows of opportunity during which the gates can be open means that getting large vessels into Galway Harbour is quite a difficult and complex navigational process, particularly when weather is not favourable.

The dredged channel has only a depth of 3.4 m below Chart Datum (approximate lowest tide level). It is 79 m wide and 1.1 km long. The sides are sloped at 1:4 to prevent silt and sand avalanching into the channel. This channel is periodically dredged *i.e.* approximately every 10 years to keep it clear. Even with this dredged channel, vessels are limited by their draught and often must be short-loaded in order to have sufficient clearance to use the harbour. Short-loading is when a ship is only partially loaded so it can achieve a certain draught. This is inherently uneconomic as shipping costs are the same and up to 85% of the amount of fuel is consumed as would be used for a fully loaded vessel. The receiver of the cargo will also have to pay 'dead freight' to the ship owner as a result of short loading. There are also environmental implications of this short-loading process in an age when efficiency of goods transportation is becoming increasingly important.

1.4.4 Summary of Restrictions on Current Dock:

- Dock gates width is 19.81m
- Harbour and approach channel only dredged to –3.4m CD
- Dock gates must close to maintain water level
- Dock gates only open for ships to come in and out for two hours before each high tide (4 hours / day)
- Area of harbour quite small – 2.8ha / 9.62Ac

- Continuous quay walls not long enough for medium sized ships or greater
- Restricted room in GHEP
- Ships short loaded in order to satisfy draft requirements resulting in uneconomical transportation
- Inadequate scale for Galway to develop as a European centre of maritime leisure activities (Tourism)
- Cannot properly cater for cruise liner trade (Tourism)
- Ships limited to approximately 5,000 tonne and less
- Virtually nil container vessel capacity.

In spite of all these difficulties the Galway Harbour Company continues to operate at a profit. The company is performing well when the facilities available are considered. However the development of Galway's transportation network and the Galway Harbour Companies business expansion is being very significantly hampered by the restrictions outlined above. The proposed development would remove these restrictions and allow the Galway Harbour business to expand to its full and appropriate potential, to serve its regional hinterland.

1.5 BRIEF

Figures released by the Central Statistics Office in April 2007 showed that Galway was the fastest growing city in Ireland and had experienced a growth of 10% since the previous census, which occurred in 1996. The 2011 Census showed Galway maintained a growth of 1.6% per annum since 2006 when much of the country showed nil or negative growth. Galway, as one of the fastest growing cities in Europe was designated as a gateway city to the Ireland West Region, within the National Spatial Strategy.

'Galway: A Waterfront City for Ireland West' is a vision document published in 2006 by the Minister for Community, Rural and Gaeltacht Affairs and a group containing representation from Galway City Council, Ireland West Tourism, The Galway Harbour Company, The Marine Institute and Galway Chamber of Commerce. This vision group was assembled to evaluate the potential of Galway docklands and to make recommendations as to the future developments for the area. The vision document recommended that in order to serve the region properly, it is imperative that Galway has a modern deepwater dock with the requisite land and infrastructure that will substantially increase trade and tourism revenue. The vision document recommends the relocation of the existing port and the re-development of the existing 32-acre inner dockland which can be developed as a modern urban waterfront and amenity area. Also recommended is the relocation of the existing port to land reclaimed south of the existing Galway Harbour Enterprise Park.

This proposed deepwater dock will be able to accommodate larger ships and since it will be located in deeper water, dependence on high tide will not be a factor. The reclamation of new harbour lands will provide space for marshalling imports and exports, expansion of existing storage facilities, allowance for passenger and marina facilities and harbour management and container/rail handling facilities. The New Port will remove the heavy goods and oil handling from Galway City Centre, allowing for enhanced marina and amenity use.

Capacity for 20,000 to 40,000 Tonne vessels or cargo is urgently required if the Port is to survive to serve its hinterland.

1.6 PROPOSAL

The **Site Layout Drg. No. 2139-2117** details the overall proposed planning application layout. The overall planning application development boundaries are outlined in Red.

The development areas are noted on the layout drawing as areas No.'s 1-3. The development proposed at each area is as follows:

- Area 1 – Galway Harbour Extension (GHE) 82.89 ha
- Area 2 – Galway Harbour Enterprise Park (GHEP) Road & Services Upgrade 1.21 ha
- Area 3 – Lough Atalia Road & Services Upgrade 1.29 ha

Hence, the Total Planning Development Area 85.39 ha

The Galway Harbour Extension area of development consists of 82.89 ha broken down as follows:

- Land development area 28.07 ha
- Breakwaters and Revetment area 3.04 ha
- Dredged Area 46.48 ha
- Working Area (Dredge / Marine Construction) 5.30 ha

Land to be reclaimed from Sea 23.89 ha
Existing G.H.E.P. land to be redeveloped 4.18 ha
Total land development / redevelopment 28.07 ha

The development will provide the following:

- 660m of quay berth to –14.9m O.D. depth
- Port development serviced by a channel to -10.9m O.D.
- A 400m turning circle to -10.9m O.D.
- 28.07 ha of land development.
- 660m of sheltered quays.
- Western Marina with 216 No. berths.
- Fishing Pier
- Nautical Centre Slipway
- Freight rail link to enable freight and cargo to be efficiently transported to and from the harbour to allow positive road traffic and environmental benefits.

As noted above the land area to be developed is 28.07 ha. This will provide the following land use area breakdowns in yards, quays, open space etc:

- Commercial Port back up Yard Areas 6.45 ha
- Commercial Quay Areas 1.72 ha
- Harbour Company Warehouse Yards 1.53 ha
- Future Oil and Bitumen Yard Areas 1.86 ha
- ESB, Security Yard & Fire Water Storage Area 1.08 ha
- Marina Boat Yard, Quay and Village Area 1.83 ha
- Fishing Pier and Yard Area 0.55 ha
- Roads and Access Area 3.97 ha
- Rail Line and Embankment Area 2.20 ha
- Nautical Yard & Slipway Area 0.82 ha
- Passenger Terminal Yard Area 0.34 ha
- Landscaped Area 5.44 ha
- Wave Wall Area 0.28 ha

The development will provide for dry bulk cargos such as the following:

- Coal Yard
- Waste Export
- Steel Import Yard
- Scrap Metal Yard
- Ship Chandlers
- Roll on/Roll off Yard
- Container Yard
- Project Cargos – Ocean Energy Development & Servicing
- Biomass Storage & Handling

It will also allow for

- Parklands and landscaping areas
- Renmore Promenade
- Marina Promenade

1.7 THE PROPOSAL AND THE SITE

1.7.1 The Layout of the proposal

Figure 1.7.1 shows the layout of the development with all of the proposed facilities quays, yards, marina *etc*.

Figure 1.7.1 - Aerial view of plan of proposed development

Figure 1.7.2 on the following page shows the existing and proposed development in the wider context of Inner Galway Bay.

Figure 1.7.2 - Proposed development in context of existing harbour

The immediate site of the proposed development is located adjacent to the existing Galway Harbour Enterprise Park [GHEP] in the townland of Renmore, Galway. The proposed development is shown on the photograph in Figure 1.7.2 which shows the development in the context of the existing Harbour, Galway City, the Inner Bay and Environs.

The new harbour extension is shown sheltered between the adjacent islands with Mutton Island to the west and Hare Island to the east.

Figure 1.7.3 shows the site and adjacent features.

Figure 1.7.3 - Proposed development site showing existing landmark features.

1	Existing Gated Harbour
2	Long Walk
3	GHEP Road Bridge
4	Claddagh Quays
5	South Park
6	Mouth of River Corrib
7	Existing Harbour Channel
8	Mutton Island

Lough Atalia*	**9**
Railway Bridge	**10**
Lough Atalia Channel	**11**
Ballyloughan Beach	**12**
Renmore Lough*	**13**
Renmore Beach	**14**
GHEP New Oil Tanks	**15**
Hare Island	**16**

* Lough Atalia and Renmore Lough are defined as “lagoon” by NPWS and as such, fall under the category of a “priority habitat” under the EU Habitats Directive.

1.7.2 The Layout of the proposal

Galway Harbour is located on the northern shore of Galway Bay and immediately adjacent to and in the southern part of the inner city. The existing harbour includes the enclosed gated docks and surrounding inner harbour lands which are effectively city centre lands and the lands at Galway Harbour Enterprise Park (GHEP). The existing gated docks are shown just north of the mouth of the River Corrib in the aerial photograph in Figure 1.7.3. The GHEP is in the centre of the photograph with the new oil tanks clearly visible just right of centre in this site. It is proposed to develop an all tide, larger vessel harbour by reclamation of lands in a seaward direction out from the existing GHEP lands and facilities, *i.e.* out into the sea in the southern part of this Figure 1.7.3. The new quays will be formed at the outer end where deeper water exists naturally.

Galway Bay is bounded by County Galway to the north and by County Clare to the south. At its widest, it measures *ca* 60 km and extends westwards over *ca* 70 km. In the inner part of the bay in the vicinity of the proposed harbour extension, water depths do not exceed 10m. The River Corrib flows in to the sea through Galway City and plays a prominent role in regulating salinities. The Corrib is historically known for Atlantic salmon which use it to access spawning beds upstream of Lough Corrib. The maximum tidal range is *ca* 6m. When the tide is low, extensive areas of intertidal habitat are exposed. These include mud and sand flats and exposed rocks. The mud and sand flats provide good feeding habitats for wetland birds such as gulls, waders, ducks and geese and small islands *e.g.* Rabbitt and Hare act as roosting sites for these same species. Habitats below low water include extensive areas of muddy sands and some rocky areas. As noted above, Lough Atalia and Renmore Lough are classified as lagoons. Terrestrial habitats include salt marsh, stony banks and managed grasslands.

The site is designated cSAC, SPA and pNHA and those designations are shown on the following Figures 1.7.4 – 1.7.8 interspersed with the layout shown on those designations at a larger scale.

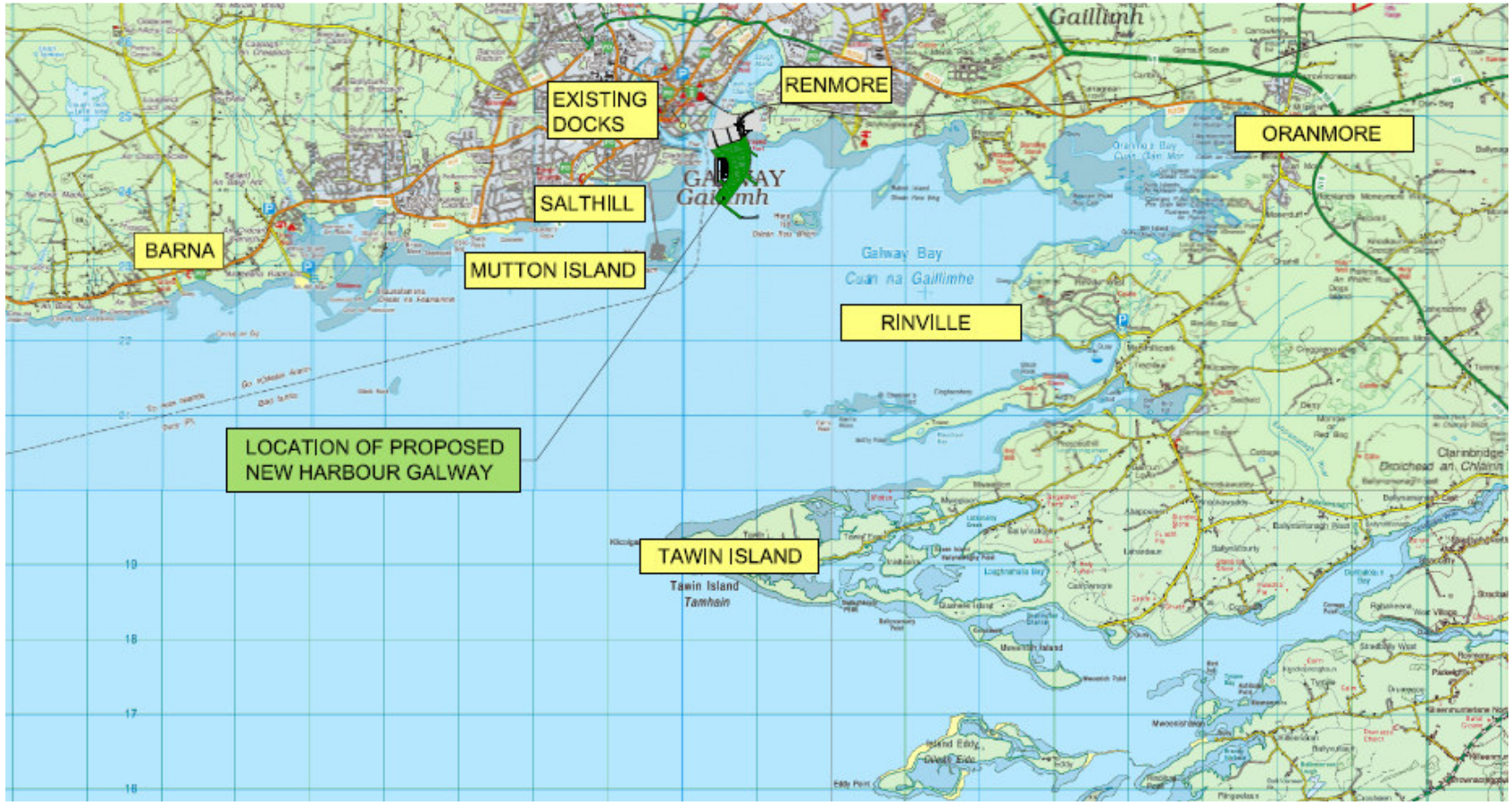

Figure 1.7.4 - Showing location of proposed development in Inner Galway Bay

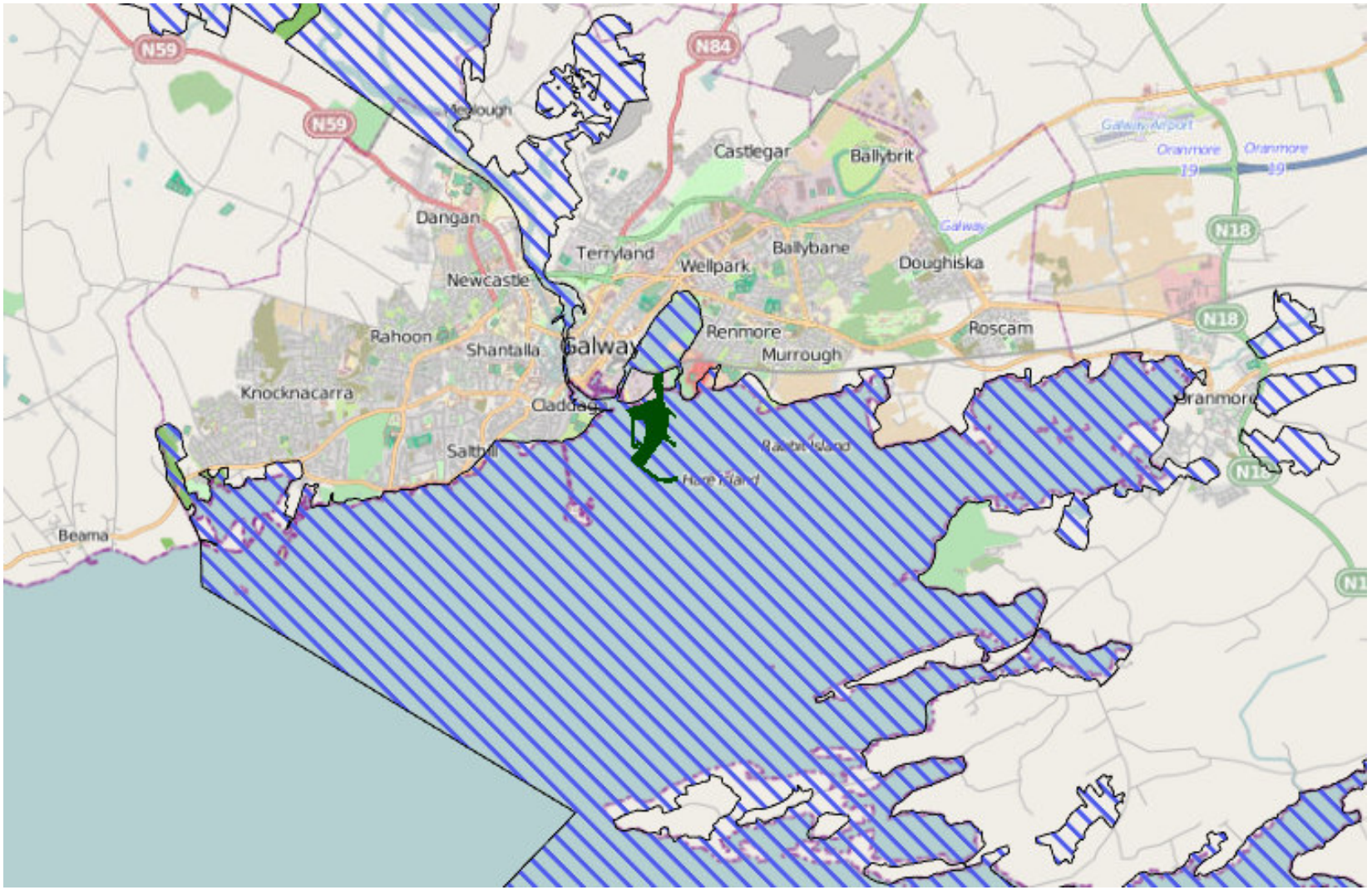

Figure 1.7.5 - Galway Bay Complex and Lough Corrib cSAC

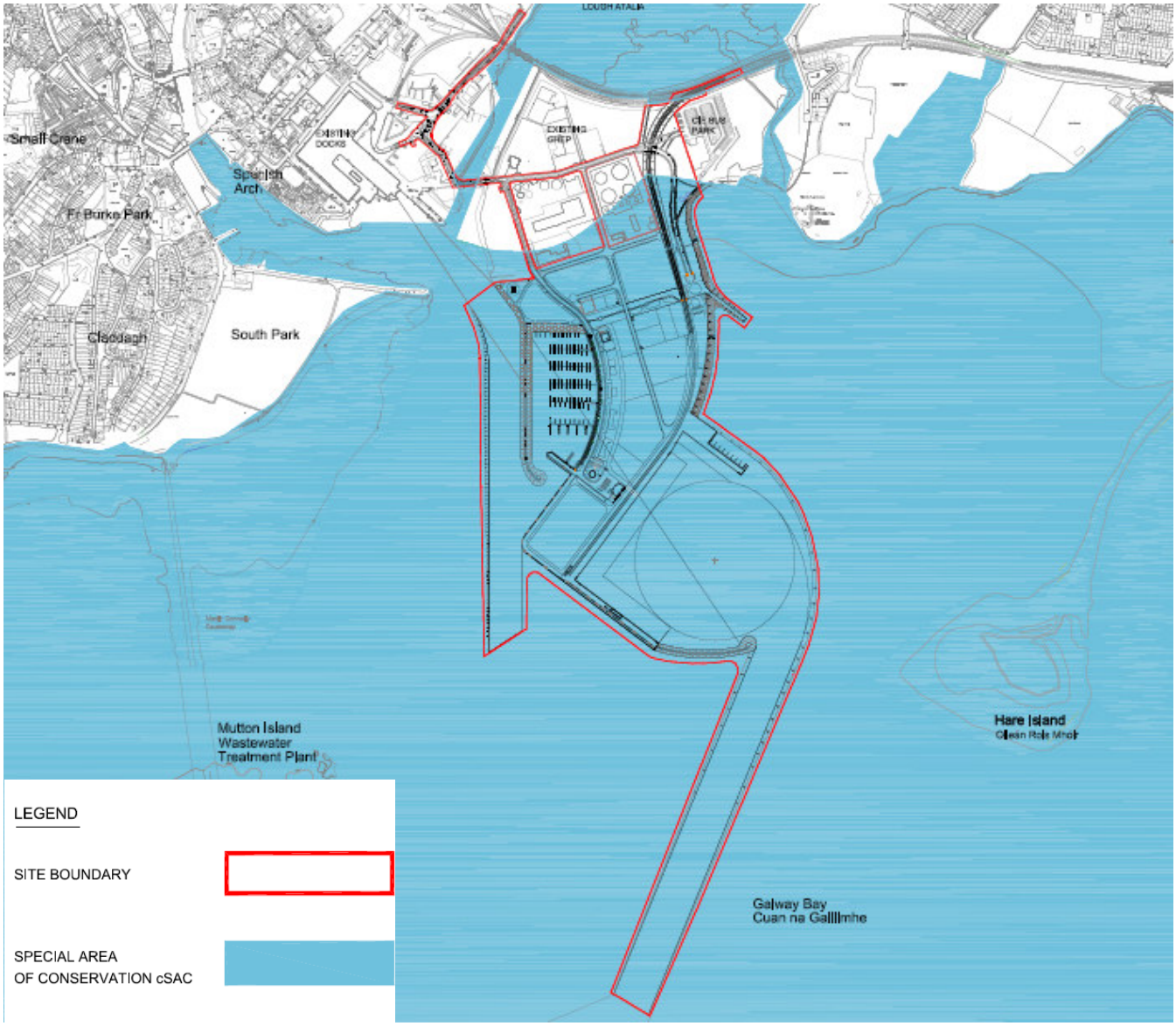

Figure 1.7.6 - Galway Bay Complex cSAC

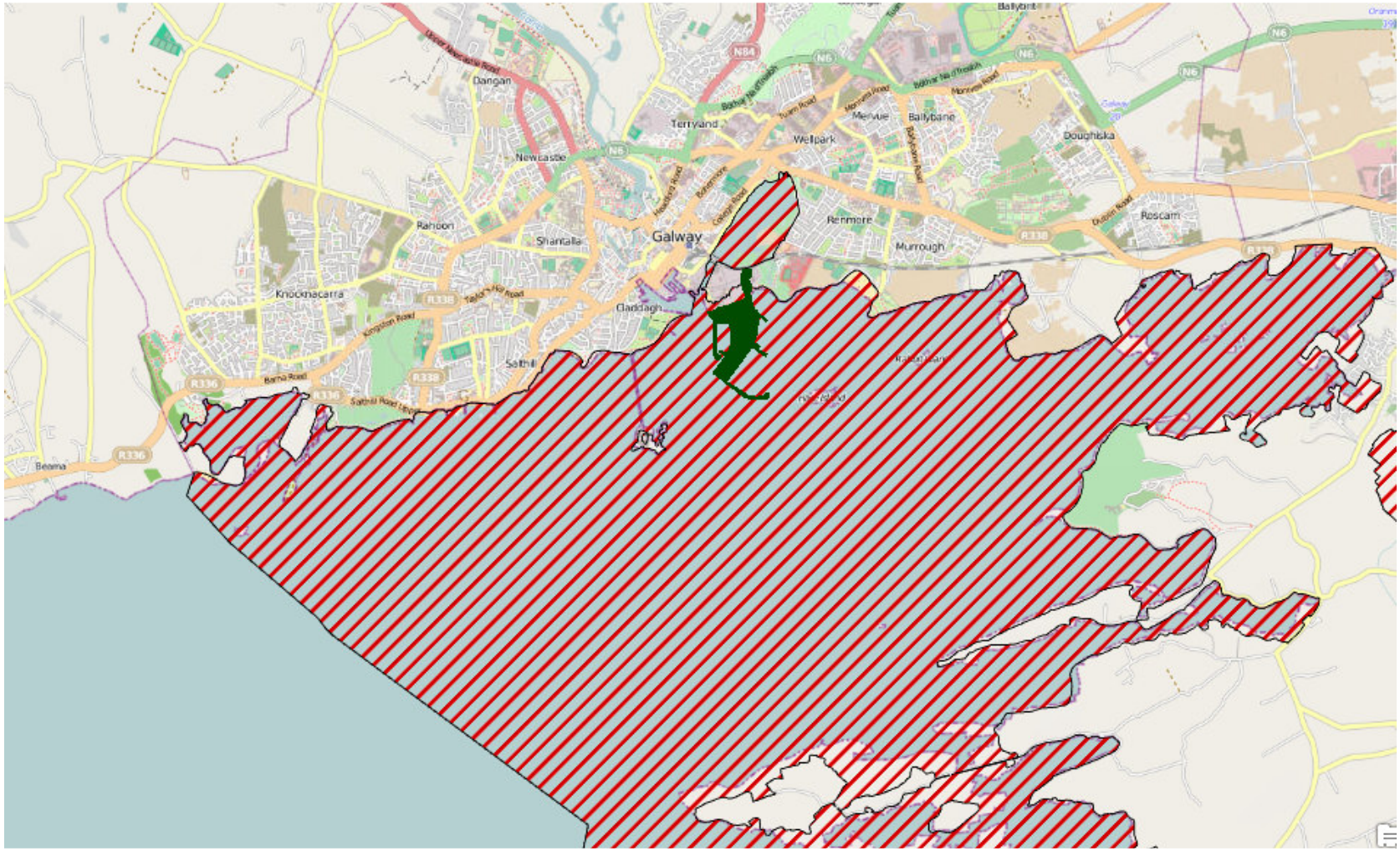

Figure 1.7.7 - Inner Galway Bay SPA

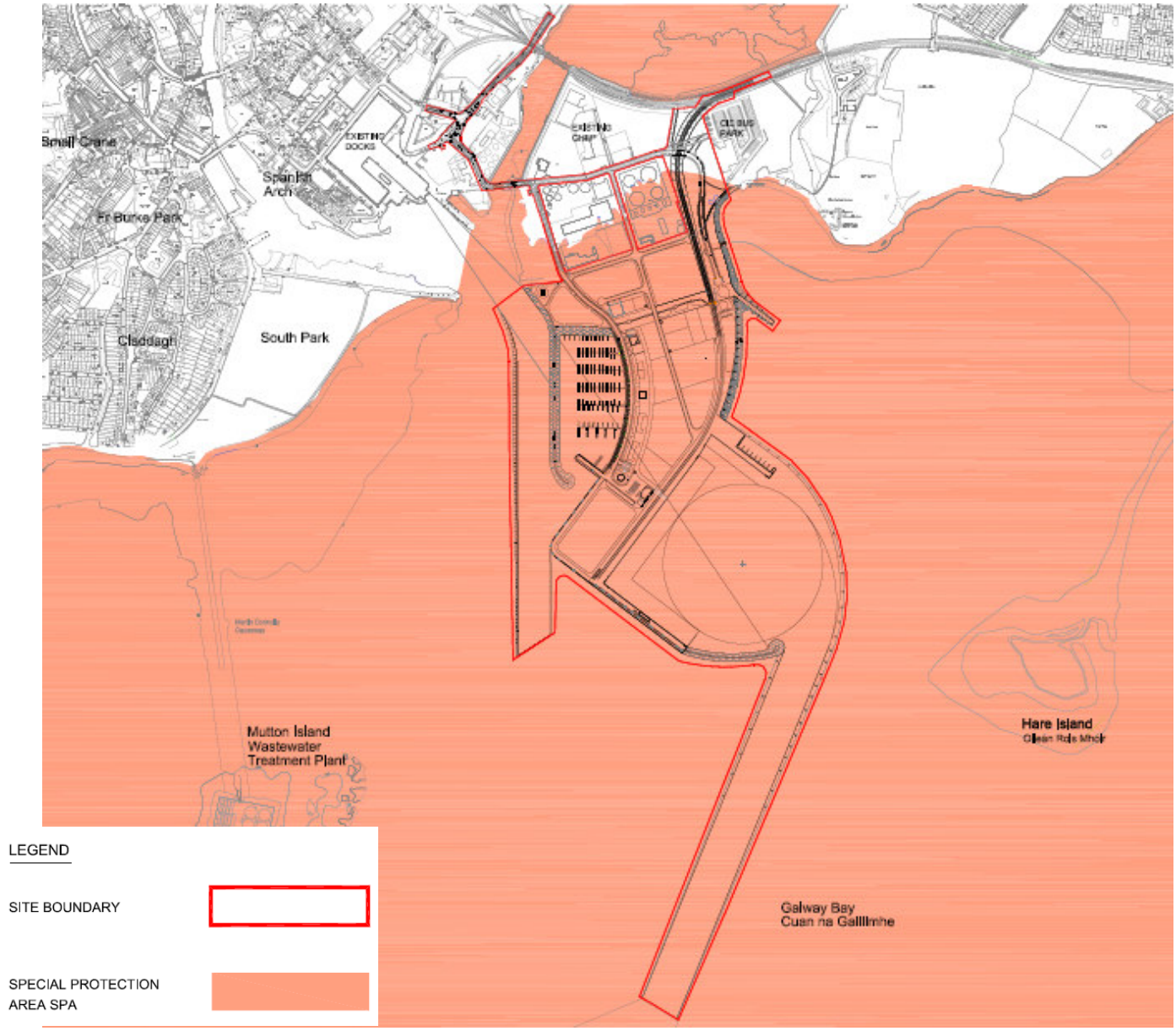

Figure 1.7.8 - Inner Galway Bay SPA

1.8 FORMAT OF EIS

It is proposed that the EIS will follow the format of the **EPA Guidelines on the information to be contained in Environmental Impact Statements (March 2002).**

The **EPA Advice Notes on Current Practices (in the preparation of Environmental Impact Statements) (September 2003)** further details the topics usually addressed in EIS for particular project types and Project Type 10 gives guidance on the topics required for Port developments. The EIS will cover those topics.

In preparing this EIS the "Grouped Format Structure" as per the above guidelines has been followed.

1.9 EIS METHODOLOGY

The methodology is as per the EPA guidelines on EIS, as outlined above.

The Chapters / Topics included are as follows:

1) Introduction
2) 2.1 Planning Context
   - National, Regional and planning objectives
   - Interest of balanced regional development

   2.2 Business Case
   - Need to resolve constraints
   - Economy of Region
   - Tourism Leisure
   - Service of Offshore Assets

   2.3 Consultations & Scoping
   - Lists extensive interactions undertaken
3) Alternatives Considered
   - Assessment of Locations, Scale, Design, Construction and Operation
4) Description of Development
   4.1 Facilities Proposed
   4.2 Design aspects
   4.3 Construction sequence
5) Socio Economics
   - Preservation of marine connectivity
   - Extension of marine access
   - Regeneration of City
6) Soils
   - Ease of dredging
   - Soils re-use
   - Soils consolidation
   - Limited future dredging requirement
7) Flora and Fauna
   - cSAC, SPA and pNHA
   - Site Areas, habitats, species
8) Water
   - Hydrodynamics, River and sea current and impact on soils and sea bed
   - Salinity: Salinity changes at the extension site
     Salinity changes in Lough Atalia and Renmore Lough
   - Outfall dispersion simulations on outfalls from Mutton Island and future Galway East Treatment Plants
   - In combination effect of the Mutton Island causeway on the hydrodynamics and salinities
   - Wave climate changes and impacts on new and existing developments

Flood risk to City present and future and to development proposed

9) Air Quality
   Dust and odour impacts of existing development construction works and proposed development.
10) Noise & Vibration
   Noise and vibration impacts of existing development, construction works and proposed development.
11) Climate
   Impacts on local climate, micro-climate and global-climate issues.
12) Landscape & Visual
   Existing environment and impacts thereon
13) Material Assets
   13.1 Architectural / Cultural Environment, impacts thereon presented
   13.2 Archaeology of area examined
   13.3 Rail access, merits, potential for connection and impacts arising
   13.4 Road Traffic & Infrastructure
      Existing traffic, roadworks and traffic management proposed and impacts arising
   13.5 Mobility Management Framework to be adopted by development
   13.6 Risk Assessment of existing and proposed oil infrastructure
   13.7 Safety, Health & Welfare of design, construction and future operation
14) Interactions of the various topics
15) Mitigations, Monitoring & Reporting proposals.

1.10 PROCEDURAL CONTEXT

The project assessment will be a direct planning application to An Bord Pleanála under the Strategic Infrastructure Act (Strategic Infrastructural Development – SID), as An Bord Pleanála determined on 2nd October 2013 that the proposed Galway Harbour Extension is of "strategic economic importance to the state and west region".

1.11 SET OF DOCUMENTS

The planning application will comprise the following documents:

Volume 1A – Planning Application Form & Documents
Volume 1B – Planning Report
Volume 1C – Natura Impact Statement (NIS)
Volume 1D – Planning Drawings

This EIS will comprise the following:

- Volume 2A: Non-Technical Summary.
- Volume 2B: Main EIS Report (2 Parts).
- Volume 2C: Appendices (3 Parts).
- Volume 2D: Environmental Drawings (Same as Volume 1D)

1.12 CONCLUSIONS

The economic need for the proposed development has been explored in greater detail in a separate report commissioned by the Galway Harbour Company entitled; "The Business Case for the Relocation of Galway Harbour", see Chapter 2.2.

1. The existing port is severely constrained.

2. There is a need for a commercial / container scale port for the region.

3. Under the legislative framework, Galway is an appropriate location for the New Port close to the site of the existing harbour.

4. There are environmental benefits from transport of goods by ship to Galway and this has been demonstrated.

5. Galway is an appropriate New Port location in line with the long term strategic role of Galway as a gateway City.