

Non Technical Summary

Environmental Impact Statement

for
Draft Poolbeg Planning Scheme

NON-TECHNICAL SUMMARY.**Contents**

- 1.0 INTRODUCTION
- 2.0 CONTEXT
- 3.0 THE DRAFT PLANNING SCHEME AREA
- 4.0 THE DRAFT PLANNING SCHEME
- 5.0 HUMAN BEINGS
- 6.0 FLORA & FAUNA
- 7.0 GEOTECHNICAL, SOILS & GROUND CONDITIONS.
- 8.0 WATER.
- 9.0 AIR QUALITY.
- 10.0 WIND.
- 11.0 ODOURS.
- 12.0 CLIMATE & ENERGY.
- 13.0 NOISE & VIBRATION.
- 14.0 LANDSCAPE / VISUAL IMPACT.
- 15.0 SUNLIGHT.
- 16.0 MATERIAL ASSETS – TRAFFIC & TRANSPORTATION AND PARKING.
- 17.0 MATERIAL ASSETS – RETAIL IMPACT.
- 18.0 MATERIAL ASSETS - ARCHAEOLOGICAL HERITAGE.
- 19.0 MATERIAL ASSETS - ARCHITECTURAL AND & CULTURAL HERITAGE.
- 20.0 MATERIAL ASSETS – UTILITIES.
- 21.0 WASTE.
- 22.0 INTERACTION OF THE FOREGOING.
- 23.0 CONSTRUCTION PHASES.

1.0 Introduction.

The Non-Technical Summary sets out the main likely impacts and proposed mitigations of the Environmental Impact Statement (EIS). The format of this Non-Technical Summary broadly reflects that of the EIS proper, with each topic identified and discussed in the EIS condensed to outline the main findings as required by the relevant regulations and Environmental Impact Assessment (EIA) Guidance.

This Environmental Impact Statement (EIS) has been prepared on behalf of the Dublin Docklands Development Authority (DDDA) on the likely effects of the Draft Planning Scheme for Poolbeg Peninsula.

This EIS has been prepared by Cunnane Stratton Reynolds Ltd. in association with a team of consultants.

All practicable efforts were made at the design stage of this project to mitigate against the identified likely effects of the Draft Planning Scheme on the receiving environment.

When considering this EIS it should be noted that it is for a Draft Planning Scheme under Section 25 of the Dublin Docklands Development Authority Act 1997 (As Amended). A planning scheme is the equivalent of an outline planning application. More detailed environmental assessments may be required within the Section 25 Certification process of the same act (as amended) for development to proceed. This EIS is to be read in conjunction with the Dublin Docklands Area Master Plan 2008 and the policies and objectives contained therein and also the relevant policies and objectives of the Draft Planning Scheme.

2.0 Context.

Under Section 25 of the *Dublin Docklands Development Authority Act 1997 (as amended)*, the Dublin Docklands Development Authority (DDDA) may prepare a Draft Planning Scheme for particular areas within the Docklands Area for submission to the Minister for the Environment, Heritage and Local Government for Statutory approval.

Where the DDDA is of the opinion that the development proposed in such a Draft Planning Scheme is likely to have significant effects on the environment, Section 26 of the above Act requires the DDDA to prepare a statement of the likely effects on the environment of that development. Given the development potential facilitated by the Draft Planning Scheme for the Poolbeg Peninsula, the sensitivity of adjoining areas such as Dublin Bay and the River

Liffey, and the potential impact on neighbouring communities, the DDDA have considered it necessary to carry out a *process* involving an Environmental Impact Assessment (EIA) on the Draft Planning Scheme for the Poolbeg Peninsula. It is intended that ultimately both the Environmental Impact Statement (EIS) *document*, which is the culmination of this Assessment (EIA) *process* and the emerging Draft Planning Scheme will be submitted to the Minister of the Environment for approval.

3.0 The Draft Planning Scheme Area.

The Planning Scheme Area comprises lands principally located on the Poolbeg Peninsula to the east of Sean Moore Road and west of the South Bull Wall. Specifically, the Draft Planning Scheme Area begins at Thorncastle Street extending eastwards along York Road and for a short distance south of Pigeon House Road. The subject area also includes lands east of Sean Moore Road and to the north of Beach Road to the intersection with Marine Drive. The Draft Planning Scheme Area also covers a relatively small area of frontage land on the northern side of South Bank Road. All lands on the peninsula to the north of the South Dublin Bay high water mark on the peninsula's southern shoreline extending to the high water mark at Dublin Harbour on the peninsula's northern shoreline (east of the South Bull Wall) are included in the Draft Planning Scheme Area unless otherwise specified and indicated in Figure 1 overleaf.

Sean Moore Park, the former ESB Pitch and Putt Course, Irishtown Nature Park, the Synergen Power Plant's cooling pond, the Waste Water Treatment Plant's overflow tanks, Pigeon House Dock and the Pigeon House Power Station are included within the Draft Planning Scheme Area. The Draft Planning Scheme Area does not however include existing utilities with the peninsula such as the ESB Power Station, Dublin Port's Load on/Load off (LoLo) facility and the Waste Water Treatment Plant.

Figure 1 – The Draft Planning Scheme Area.



The primary use and focal point of Poolbeg Peninsula are the public infrastructural utilities. Other uses within the peninsula include residential, public open spaces and walkways, recreational facilities, light and heavy industry. There are a number of protected structures within the peninsula including, but not exclusively, Pigeon House Hotel and Pigeon House Power Station. There are also a number of recorded national monuments including, but not exclusively, the Great South Wall.

The nature of the receiving environment including that of the Draft planning Scheme Area and the peninsula is described in each of the main ‘impact chapters’ (Chapters 5 – 22 inclusive).

4.0 The Draft Planning Scheme.

The Draft Planning Scheme comprises mixed use development of 750,000sqm. of commercial, residential, community, retail, cultural and community development. The Draft Planning Scheme provides for a basic split between 60-70% residential of varying density

with a range of residential forms and tenures to 30-40% commercial. A district level shopping centre with a large convenience component including up to 20,000sqm. net convenience, including an anchor store, is to be provided along with a local centre of up to 1,000sqm. net retail. A cultural centre at Pigeon House Dock is proposed. The Draft Planning Scheme seeks to provide for a residential population of approximately 10,100 people and a working population of approximately 16,000 people. The Draft Planning Scheme also includes environmental, landscape and public realm improvements and will provide accessible and attractive public open space.

The Draft Planning Scheme also comprises the creation of a new pedestrian boulevard linking Sean Moore Road with Beach Road; creation of an events space at Pigeon House Dock; the refurbishment and re-use of Pigeon House; enhancement of the existing southern shore; and provision of a biodiversity centre. A combination of different types of open space will be provided throughout the development including community or public private space, semi private space or open space, local level play areas, and a provision for city wide recreation in the form of a coastal linear park. These elements specifically include:

- *Dublin Bay Valley* – a wedge shaped public space which includes an urban plaza in the District Centre and an urban ‘cascade park’ which will incorporate a range of landscapes including amenity grassland, layers of planting and reed beds or ponds which will collect and filter rain and surface water run off.
- *The Beach Park* – a city wide recreational resource comprising open spaces, enhanced and accessible beach, a connecting promenade, a ‘cove park’, amenity grassland and small ‘sand dune’ topographical formations.
- *Southshore Green* – a linear ecological ‘buffer park’ located between the major public infrastructure and services located in the centre of the peninsula and the proposed development to the west and along the southern shore.
- *The Beach Walk* – A continuous and accessible public route along the southern shore of the peninsula connecting Irishtown Nature Park with Shellybanks and the Poolbeg Lighthouse.
- *Pigeon House Dock Park* – An urban green space created on top of the capped Waste Water Treatment Plan’s overflow tanks. *Pigeon Dock Park* will be connected to Pigeon House Dock, marina and surrounding development.

The enhancement of Irishtown Nature Park will involve:

- The control of invasive alien species particularly Japanese Knotweed and sycamore, both of which are present and spreading within the park;
- Control of the spread of scrub into existing grassland areas;
- Ongoing removal of litter;
- Provision of explanatory signage.

Any proposed enhancements of the nature park as specified above will be undertaken in consultation with local interest groups and Dublin City Council.

As part of the biodiversity strategy referred to in the Draft Planning Scheme the provision of a biodiversity centre in an appropriate location within the Draft Planning Scheme Area will be encouraged in consultation with Dublin City Council.

As a result of the Draft Planning Scheme proceeding a Conservation Plan for Protected Birds and Other Species will be produced in consultation with local interest groups, landowners and Dublin City Council.

The planning policies of the Draft Planning Scheme seek to promote excellence in urban, architectural and landscape design. The Draft Planning Scheme promotes a finer grain of development. High architectural and place making qualities will be sought for schemes which are to achieve the upper half of the plot ratio range in each development area. Exceptionally high architectural and place making qualities will be sought for special buildings and buildings in the 14 to 15 storey height band. Special buildings identified and those 14/15 storey buildings proposed will have to achieve specified levels of compliance within a Design Review Process. Section 25 applicants must achieve high sustainability performance standards through the achievement of a Gold Commendation in the Sustainability Toolkit (see Appendix 5 of the Draft Planning Scheme document) and must implement play spaces in accordance with the Authority's Play Space Guidelines.

Residential

Residential proposed will cater for a wide mix of dwelling types, sizes and tenures to ensure that a sustainable residential environment will be created. A minimum of 25 percent of units are to be of 3 bedrooms or above and 20 percent of all residential development must be social and affordable housing. The Draft Planning Scheme therefore encourages the provision of family oriented dwellings.

Employment

Significant employment will be created by the development of the Draft Planning Scheme proceeding. Some 16,000 commercial jobs will be provided and it is expected that there will also be a significant range of employment opportunities across a number of activities including office, retail, leisure and civic uses.

Community Facilities/Gain

Land will be required to be provided by developers for a new primary school and if sufficient demand and insufficient existing capacity exists a secondary school also. Other community facilities include primary health care facility, doctor and dentist surgeries, a library and post office. Childcare facilities are to be provided in accordance with Childcare Facilities Guidelines for Planning Authorities (2001). Community gain facilities will include a community childcare facility, a community centre, youth facilities, heritage centre and cultural/arts facility.

Transport

In terms of transport, a movement strategy has been devised which, when all the proposed development is delivered, will seek to achieve the following mode split:

Public Transport	45-55 % of journeys
Walking	25-35 %
Cycling	5-10 %
Internal Trips	5-10 %
Car	10-15 %

Public Transport

Enhanced bus services will be delivered at the outset of development. In the early phase a Docklands Rapid Transport (DRT) system will be developed as well as a high quality bus service connecting the peninsula with the City Centre and major transport nodes. The DRT will take advantage of the proposed public bridge across the River Dodder. In late phases Luas (or an equivalent high capacity public transport service) will extend to Poolbeg. The potential new Luas line will be subject to detailed feasibility studies to determine preferred alignment.

Car Parking

There will be a total of approximately 4,905 car parking spaces provided applying the relevant maximum car parking standards. It may be that the provision of car parking spaces may be reduced as this is a maximum.

Roads

A road is currently sought through the proposed Special Protection Area as the preferred option at this stage. If this interim designation remains or is formally adopted by the National Parks and Wildlife Service of the Department of Environment, Heritage and Local Government alternative access arrangements through Shellybanks Road to serve the eastern part of the peninsula will be provided. The current facilitation of this road will require the conversion of a relatively narrow strip of land on the landward side of the Nature Park to grassland as a further compensatory area for the Brent Geese.

Utilities and Infrastructure

It is likely that a trunk main augmentation to this general area from Dublin City Council's reservoir at Stillorgan will be required. It is also likely that a new supply of drinking water will be required for both this and other proposed developments in the city. Locally, upgrading and extension of the existing trunk water main will be required during the first phase of development.

Proposed development will drain to the Ringsend Waste Water Treatment Plant via a new network of foul sewers and a new sewerage pumping station to be delivered in Phase 1. All

new development will include appropriate provision for surface water infrastructure to serve new development.

A new electricity substation and association network of medium voltage distribution lines plus a new Bord Gais above ground pressure reduction station and associated local distribution mains will be delivered before Phase 2 proceeds.

A high speed electronic transfer network is required to facilitate new enterprises and meet the needs of new residents. A telephone exchange building and associated feed cables will be delivered in Phase 1.

As much of the peninsula contains contaminated soil and groundwater from previous land filling and industrial uses, developers will be required to carry out a full contaminated land risk assessment before development takes place and ensure that any contaminated soil or water is appropriately dealt with.

The Draft Planning Scheme takes into account Seveso II sites, under the European Communities (Control of Major Accident Hazards Involving Dangerous Substances) Regulations 2006 and areas of development have been identified following the assistance and advice of the Health and Safety Authority.

Existing ground levels are relatively high offering some protection against future flooding. Anticipated rises in sea level due to climate changes will raise flood risk and it is considered that future ground floor levels be 4.5m ODM (above the Irish Ordnance Survey Datum at Malin Head). Ground levels will be raised at various points within the Draft Planning Scheme and this has been considered in the assessment of heights, visual and landscape impact, shadowing, flooding and other environmental impacts.

All development proposals and landscape works will be vigorously assessed to ensure that they do not increase flood risk in any area outside the peninsula. Individual flood risk assessment will be required for all development proposals to identify where site-specific flood protection works are necessary. A strategic flood risk assessment is contained as an Appendix to Chapter 8 of this EIS.

Phasing

The implementation of development through the Planning Scheme is designed to ensure that delivery is equitable between major landowners and existing developers and that critical infrastructure is brought forward in tandem with development.

The phasing strategy is based upon an approach which will deliver successful and sustainable places within each phase of the development. Two broad phases have been identified in the Draft Planning Scheme, within which strategic infrastructure, including community facilities, public transport, utilities and telecommunications, will be delivered to enable and support the development.

5.0 Human Beings.

The chapter on human beings assesses the potential impact of the Draft Planning Scheme in the context of population, employment, community and health and safety.

Population

The existing Planning Scheme Area has little indigenous population. The Draft Planning Scheme will provide a significant residential and employment population. The increase in population will be mirrored in a range of new services and facilities as well as ensuring the sustainability of existing facilities and amenities for the current local population within the peninsula and in adjacent neighbourhoods. The proposed increase in population of approximately 10,100 will also ensure that new facilities can sustainably be provided for the existing population of the peninsula as well as the residents of Ringsend, Sandymount and Irishtown in particular.

The proposed population will also assist the DDDA in meeting its population targets as expressed in its adopted and emerging Master Plans.

Employment

There will be substantial employment accruing from the Draft Planning Scheme proceeding. Approximately 16,000 commercial jobs are proposed with a range of jobs likely for skilled and unskilled, young and old, full time and part time, during and post construction.

During the construction phase it is anticipated that some 455 jobs would be provided for each of first 10 years comprising the first phase.

Direct and indirect construction related services, off site manufacture and the supply of materials will also help Dublin's regional economy. Suppliers of concrete, blocks, plaster board etc. will likely be Dublin sourced and this will likely benefit the local area as there are suppliers of these materials in the locality. The DDDA will seek to have its Local Employment Charter implemented.

Community.

The Draft Planning Scheme will provide a range of community facilities to meet existing and proposed needs. The proposed work and residential population will also enhance the sustainability of existing community facilities.

A facilities 2008 Audit Review conducted for the Draft Planning Scheme noted that the potential of a Draft Planning Scheme represented the greatest opportunity for providing the scale and range of civic infrastructure required to meet the needs of the existing populations of surrounding communities and any new population arising from the Draft Planning Scheme.

The provision of a range of residential types and tenures, along with the dispersal and integration of social and affordable accommodation with market based residential units will assist in providing a balanced and thriving community.

Human Health & Safety.- Seveso

There are two existing Seveso II sites on the peninsula and further potential sites likely such as the Waste to Energy Plant. The National Oil Reserves Agency (NORA) also has a potential site on the peninsula. Consultation with the Health & Safety Authority (HSA) has been carried out and the scheme has been appropriately set back from the Seveso II sites/zones based on the advice received.

Human Health & Safety –Contaminated Land, Odour, Air etc....

The peninsula is made up of reclaimed land where contamination is currently present. The Draft Planning Scheme Area also provides large areas for formal and informal recreational pursuits.

The proposed development includes the provision of a range of integrated areas of open and public space facilitating healthier lifestyles.

Whilst the presence of contaminated land is an issue it is not anticipated that the development of the Draft Planning Scheme will pose a threat to health and safety. A number of mitigation measures are proposed in this regard. These include:

Construction Phase

The impact upon human health may be minimised and mitigated through careful on site management of the construction site, plant and machinery and the hours of construction operation. These potential causes of nuisance can be controlled by way of a Construction Management Plan.

Monitoring of public health during both the construction and implementation phases may be achieved through undertaking a Health Impact Assessment (HIA) which may be required at the Section 25 Certificate Stage.

In terms of contamination, a number of mitigation measures particularly during the construction period are proposed including:

- Further site specific investigations and contaminated land risk assessments to be conducted by developers and operators for construction and future users in accordance with the appropriate standards for site investigation;
- Contamination that is encountered within the Draft Scheme Area should be assessed by developers against remedial targets derived from a site specific risk assessment;
- Where the previous history of a site suggests that contamination may have occurred developers will be responsible for undertaking a detailed site survey and analysis;
- The DDDA will prohibit development until it is satisfied that the affected ground and any associated risks have been satisfactorily remediated.
- Remediation measures involving the excavation, removal or disposal of contaminated soil, where required, will be completed in accordance with the requirements of the *Waste Management Act 1996* and all subsequent regulations and standards that are current at the time the work is carried out.
- Design of all commercial and residential buildings will comply with current and relevant Building Regulations and any subsequent regulations, amendments and standards that are current at the time the work is carried out.

- Landfill gas emissions, where observed on site, will require suitable engineering design for gas mitigation and control at design stage by developers.
- All roadways will be effectively sealed with surface water discharges draining to sealed surface water drains and any run-off collecting in subterranean basement car parking areas will also be collected in a sealed foul drainage system.

Operational Phase

Many of these mitigation measures relate to the construction phase. In the context of the post construction phase, it is stated far from impacting negatively upon health, a number of facilities and amenities to be provided in the Draft Planning Scheme would encourage the pursuit of healthy activities and lifestyles.

Finally, when considering health and safety on the peninsula it is worth bearing in mind that were development not to proceed as envisaged in the Draft Planning Scheme there is a strong likelihood that any remediation of current contamination or potential hazards would not occur.

Operational Phase.

As the operation of the Draft Planning Scheme will not give rise to any direct or indirect negative impacts upon the health of the resident population or the population in surrounding communities, no post construction monitoring or mitigation measures are considered necessary.

6.0 Flora & Fauna.

The flora and fauna chapter describes the existing ecological environment within the Poolbeg Peninsula itself as well as the surrounding area of Dublin Bay. The likely impacts of the Draft Planning Scheme are reviewed in the context of the *Dublin Docklands Master Plan 2008*. Possible impacts on designated areas for nature conservation, on habitats within the Draft Planning Scheme Area, on protected species of fauna and on the aquatic environment and fisheries are considered. Mitigation measures are compliant with those already incorporated in the *Dublin Docklands Master Plan 2008* and its accompanying Environmental Report. Other mitigation measures are proposed within the Draft Planning Scheme Area to enhance the biodiversity value of the peninsula.

In terms of contamination a number of mitigation measures are proposed including:

- Further site specific investigations and contaminated land risk assessments for construction and future users in accordance with the appropriate standards for site investigation;
- Contamination that is encountered within the draft Planning Scheme Area should be assessed against remedial targets derived from a site specific risk assessment;
- Where the previous history of a site suggests that contamination may have occurred, developers will be responsible for undertaking a detailed site survey and analysis;
- The DDDA will prohibit development until it is satisfied that the affected ground and any associated risks have been satisfactorily remediated.
- Remediation measures involving the excavation, removal or disposal of contaminated soil, where required, will be completed in accordance with the requirements of the *Waste Management Act 1996* and all subsequent regulations and standards that are current at the time the work is carried out.
- Design of all commercial and residential buildings will comply with current and relevant Building Regulations and any subsequent regulations, amendments and standards that are current at the time the work is carried out.
- Landfill gas emissions where observed on site will require suitable engineering design for gas mitigation and control at design stage.
- All roadways will be effectively sealed with surface water discharges draining to sealed surface water drains and any run-off collecting in subterranean basement car parking areas will also be collected in a sealed foul drainage system.

Neither Poolbeg Peninsula nor the Draft Planning Scheme area itself is currently covered by any nature conservation designations. However, the southern edge of the peninsula is adjacent to Dublin Bay. This is covered by multiple Irish and European designations, namely candidate Special Area of Conservation (cSAC), Special Protection Area (SPA) and proposed Natural Heritage Area (pNHA). There is a proposal to extend the SPA into the Draft Planning Scheme Area to cover an area of grassland (approximately 2.3ha in size) north of Irishtown Nature Park and south of Ringsend Wastewater Treatment Plant (WWTP). Two mooring dolphins, which are immediately offshore on the northern side of the peninsula, are used by breeding terns in the summer months. These are covered by a pNHA designation and it is proposed to include the eastern dolphin within the extended SPA. Key habitats within the South Dublin Bay cSAC, and adjacent to the Draft Planning Scheme Area, are several small sandy beaches which have recent dune formations above mean high water mark.

Sites within the Draft Planning Scheme Area are considered in terms of their value for flora, fauna and nature conservation. The majority of these sites are highly artificial in character and of very low ecological value. Three areas are worth special mention. Sean Moore Park, while comprised mainly of amenity grassland, is an important site used by overwintering flocks of Brent geese and waders. Irishtown Nature Park, has been developed on a former landfill site and mainly comprises grassland and scrub. The area of grassland north of Irishtown Nature Park and south of Ringsend Wastewater Treatment Plant (WWTP) is managed specifically for overwintering Brent geese. Other protected species of fauna likely to occur within the peninsula include bats which may potentially roost within existing buildings. Bat surveys are required before any buildings are demolished. Up to 28 species of fish have been recorded in the Poolbeg water intake adjacent to the Draft Planning Scheme Area and the estuary of the River Liffey to the north of the peninsula is an important salmonid migratory route.

The potential impacts associated with the proposed Planning Scheme may include direct impacts on habitats within the Draft Planning Scheme Area as well as both direct and indirect impacts on the designated areas of Dublin Bay. Such potential impacts may include disturbance and removal of habitats, disturbance to fauna due to increased levels of light and noise (both during construction and operation), the release of contaminated sediments and run-off into Dublin Bay as well as direct impacts on Dublin Bay from any alterations to the existing coastline. The most significant impacts on the designated areas would arise from any alterations to the existing rock armour which forms the southern boundary of the peninsula. However, the mitigation measures, which are stated as policies and objectives in the *Dublin Docklands Master Plan 2008*, will ensure that any development within the Draft Planning Scheme is implemented in a manner that protects the integrity of the designated areas and prevents contamination of waters arising from disturbance of existing contaminated lands. Other measures have been incorporated to ensure that there will be no deterioration in water quality in Dublin Bay as a result of the draft Planning Scheme. These include cooperation with the relevant authorities to ensure that water supply, foul sewer and storm water drainage systems are upgraded to meet the demands of additional physical development and support for the upgrading of the waste water treatment plant at Ringsend.

Other mitigation measures proposed for the Planning Scheme Area are designed to enhance the biodiversity value of the peninsula. Specific plans will be incorporated at the detailed design stage of any developments to be undertaken as part of the proposed planning scheme. These include the creation and management of ecological areas, introduction of appropriate

habitats and native species within new buildings and the design of Sustainable Urban Drainage Systems which have ecological as well as drainage benefits.

Provided the proposed mitigation measures are implemented fully there will be no long term negative impacts on habitats and species within the Planning Scheme Area. Indeed, there may be a slight overall positive impact on the biodiversity of the peninsula. Strict adherence to the proposals set out in the Draft Planning Scheme, coupled with the policies and objectives outlined in the *Draft Dublin Docklands Master Plan 2008* will ensure that the impact on the Natura 2000 sites in Dublin Bay will be neutral. This particularly relates to the strict protection of the existing high tide mark along the southern boundary of the peninsula, to avoid any change the existing geomorphological and sedimentological situation that exists in the bay. There will be a significant negative impact on the internationally important wintering population of Brent geese in the area as a result of the implementation of the proposed Planning Scheme, due to the current preferred option to propose a road within the area of grassland north of Irishtown Nature Park. This will have negative indirect impacts on the SPA, for which the Brent goose is a qualifying interest. If this interim designation remains or is formally adopted by the National Parks and Wildlife Service of the Department of Environment, Heritage and Local Government alternative access arrangements through Shellybanks Road to serve the eastern part of the peninsula will be provided.

The residual risk of a pollution event, which could have a significant negative impact on Dublin Bay, will be minimised by mitigation measures during construction works and by containment of any contaminated soils during removal.

7.0 Geotechnical, Soils & Ground Conditions.

A desk-based study of ground, soil and geological conditions present on the site was undertaken as part of this EIS including geotechnical reports prepared for the Fabrizia, former Irish Glass Bottle (IGB) and Waste to Energy Project sites.

The Poolbeg Peninsula was reclaimed from the sea. Much of the fill used to reclaim the land comprises municipal, construction and demolition waste. In other areas, it is reported that hydraulic fill material was used to reclaim areas. The Irishtown Tip Head commenced operations in 1948 in Ringsend. Operations moved sequentially eastwards and eventually ceased in 1978 when the tip head was capped. The landfill included Sean Moore Park and parts of the IGB and Fabrizia sites. Recent site investigations report elevated concentrations of contaminants in the fill reflecting the filling activities and industrial history of the area as

expected. In addition to the contaminants present, landfill gas surveys indicate that landfill gas is still being produced, albeit at low levels.

With regard to natural conditions, the underlying bedrock is Calp limestone and lies 30-50m below ground level. The soil overlying the limestone bedrock consists of a relatively thin layer of brown slightly silty or clayey gravel, with cobbles and/or boulders. This is overlain by over 20m of material consisting of stiff dark grey or black slightly sandy clay with layers and laminations of silt and silty sand overlain by silt with sand laminations. Above this is a layer over 10m deep of sands and gravels with occasional cobbles and boulders. This layer is occasionally silty in nature. Overlying the drift geology, the next layer consists of marine or seabed deposits up to 2.5m thick. There is also evidence of riverine deposits from the Liffey and Dodder. This layer generally includes soft or loose to medium dense sandy silt and slightly clayey/ silty fine sand including shell fragments and some fine gravel. Some silty clays are also encountered at this level but these are less common.

The proposed planning scheme could potentially impact on the existing soils and geology during the construction phase in terms of spillage of construction liquids. However, the CIRIA methods described below under water quality will equally apply to soil protection during construction.

The potential also exists for mobilisation of contaminants from contaminated to clean soil and water bodies during construction. However detailed site investigations and contaminated land risk assessments will be required prior to any development taking place and method statements to prevent further contamination of soils and groundwater will be required at the S25 Application stage.

During the operational phase sealed piped drainage systems will be installed to serve the development and therefore no impact on soils is expected in the long term.

In the long term, the impact on soils and geology will be neutral to positive given the potential for soil remediation associated with the Draft Planning Scheme.

8.0 Water.

Surfacewater Quality

A desk-based study of water quality monitoring undertaken in the Liffey and Dublin Bay has been completed in order to characterise the receiving environment in terms of water.

Generally, the water quality of the River Liffey to Bull Wall, Dublin Bay is classed as “unpolluted” as it did not breach any assessment criteria according to EPA reports. In the EPA published report ‘*Water Quality in Ireland, 2006 – Key Indicators of the Aquatic Environment*’ the biological status of water quality in the Liffey Estuary was reported as intermediate meaning slightly eutrophic, while both points monitored in Dublin Bay were reported as ‘unpolluted or not eutrophic’. There are a number of discharges to the Liffey Estuary from Poolbeg arising from licensed activities and also treated effluent from Ringsend WWTP. There is also an existing surface water outfall into the Bay on the south shore, at the northeastern end of the Fabrizia site. The quality has not been monitored in this area.

With regard to the Water Framework Directive, the River Liffey is part of the Eastern Region Basin District. The draft Liffey River Basin Management Plan is expected to be published shortly with final plans required in March 2009. This plan will deal with the issues affecting water quality, and the setting of environmental objectives and measures to ensure good water quality.

Groundwater Quality

The water table is high across the scheme area and groundwater is assumed to flow generally west to east across the peninsula and is tidally influenced. Due to the previous history of landfilling and reclamation works and historic land use, there are numerous sources of groundwater contamination present across the Planning Scheme Area. Elevated concentrations of a range of pollutants have been found during recent site investigations.

The proposed scheme could potentially impact on water quality during both the construction and long term operation. However mitigation measures will be implemented during both phases to ensure that water quality will not be affected or further affected as in the case of groundwater. All construction works will be completed in line with the methods outlined in the Construction Industry Research and Information Association (CIRIA) publication entitled, *Control of Water Pollution from Construction Sites, Guidance for Consultants and Contractors*, CIRIA – C532 (2001). Contaminated run-off generated during construction will be treated as necessary and only discharged once within approved limits. Contaminated groundwater will be managed in accordance with the findings of contaminated land risk assessments required prior to development.

In the long term, new sealed piped drainage systems will be installed. The runoff in terms of flowrate will mimic the existing regime. Adequate wastewater treatment will be required to

be in place or planned, prior to construction. Rainwater harvesting and other measures will be taken to reduce water requirements which will in turn reduce runoff.

In the long term, and assuming adequate infrastructure is provided to support the scheme, the impact on water quality will be neutral to positive given the potential for soil and groundwater remediation associated with the draft Planning Scheme.

Flood Risk

The Poolbeg Peninsula is in an exposed location with the sea on three sides and no part of the area more than 500m from the sea. The southern area is exposed to significant wave action and parts of the Peninsula have experienced flooding from the sea. Anticipated rises in sea level due to climate change will exacerbate any flood risk.

On the other hand, the ground levels across much of the Peninsula are reasonably high, only relatively minor flooding has occurred on the Peninsula itself in the past and the most of the proposed development areas are not currently perceived to be at significant flood risk. Mitigation works have been identified for all those areas that experienced flooding during the 2002 tidal event. Development in this area is considered to be justified on the basis of overall sustainability and the fact that any potential flood risk to the area can be mitigated, though detailed flood risk assessment is required.

While basement construction may have some impact on groundwater flow, the impact is expected to be minor and is not expected to contribute to an increase in flood risk either in the draft planning scheme area or elsewhere. However, since the groundwater information which this conclusion is based upon is limited, it is recommended that site specific geotechnical investigation works and ground water monitoring must be carried out where construction deep below ground level is proposed. The main aims of such investigations being to ascertain the possible impact on groundwater flows and devise appropriate mitigation measures.

Future ground floor levels will be a minimum of 4.5m ODM. This level includes for a minimum freeboard of 500mm. This should provide adequate protection against flooding on the Peninsula although site specific flood risk assessments will be carried out. The final report of the Dublin Coastal Flooding Protection Project recommends various flood defences on the Peninsula. These vary in height from 4.2m ODM to 4.6m ODM. However these levels were based on sea level rise for a design horizon of 2031 and were prepared to a 2003 baseline.

These levels will be re-examined and possibly raised to take account of the longer design life now being considered and the latest guidance on Climate Change.

Attenuation storage will be required to deal with water pollution and to allow for tide locking. Exact volumes can only be assessed at detailed design stage but these requirements are not expected to be unduly onerous.

Detailed flood risk assessment work will be undertaken at the Section 25 certification stage.

9.0 Air Quality.

Extensive monitoring for a range of air quality pollutants was carried out between 2003 and 2007 as part of the baseline study for the Waste to Energy EIS. Monitoring carried out at a fixed station on the IGB site revealed that the 24 hour average Air Quality Standards for PM₁₀ was exceeded. The dataset also indicated that the annual average for NO_x for vegetation was marginally exceeded at monitoring stations located at Sean Moore Park and the Irishtown Nature Reserve, although these are not protected sites and therefore the limit is not applicable to these areas. Subsequent modelling presented at the oral hearing for the Waste to Energy plant waste license application showed that there would be no impact on the surrounding listed sites. Monitoring at Bull Island which is a listed site and includes the dune system indicated that levels were below the Air Quality Standards for annual average for NO_x for vegetation. All other parameters measured were within their applicable Air Quality Standards. The exceedance of the PM₁₀ short term value will be reviewed and further monitoring will be carried out by the Environmental Protection Agency (EPA) in due course.

The impact of the Draft Planning Scheme on the ambient air quality will mainly be in terms of the traffic emissions associated with the Draft Planning Scheme. The traffic flows for 2020 were applied to 2012 for Zones 1 and 2 of the Draft Planning Scheme may be developed by that time in order to assess a worst case scenario and this was modelled by AWN Consulting using CAL3QHCR. The impact on the air quality at height and hence on the health of future occupiers of tall buildings has been modelled by AWN Consulting using CALPUFF. The model set up takes account of shoreline fumigation, existing and proposed point sources and worst case operating conditions with regard to the proposed Waste to Energy plant. The cumulative impact of all sources including traffic on the existing and future receptors was assessed and it is predicted that there will be no exceedances of the Air Quality Standards.

The background corrections carried out in this assessment are the same as those presented to the EPA at the waste license oral hearing for the Waste to Energy Plant. The corrections were the subject of some comment and discussion at the oral hearings. Following the EPA Inspector's report however the Waste to Energy Plan has now been granted both planning permission by An Bord Pleanala and a waste license by the EPA

The DDDA will liaise with the EPA and Dublin City Council Air Quality Units in investigating the exceedances of the 24 hour limit for PM₁₀ in the future. As stated above, further monitoring will be carried out by the EPA and pending results, the EPA may direct Dublin City Council to prepare an Air Quality Management Plan (AQMP) which would address measures to improve air quality for the area .

10.0 Wind.

A wind microclimate desk-based study has been carried out with regard to Zones 1 and 2 of the proposed draft Planning Scheme. These areas are closest to existing receptors and are the densest areas of development proposed. This involved identifying existing meteorological conditions and a review of the building layout, heights and massing by a wind expert in order to identify expected worst case impacts on pedestrian uses based on the Lawson Comfort Criteria which are used to represent equal increments of annoyance or reaction to wind. The following conclusions were determined with regard to Zones 1 and 2 of the Draft Planning Scheme:

1. The meteorological data for the site indicate prevailing winds from the south westerly quadrant throughout the year, and secondary winds from the south easterly direction particularly during the spring and summer months.
2. For the existing site, the wind microclimate is expected to be safe and suitable for leisure walking or better during the windiest season. The wind microclimate is expected to be suitable for standing/entrance use or better during the summer season.
3. In the presence of the proposed buildings, the wind conditions within the site are expected to be suitable for a range of activities including business walking to sitting during the windiest season. The wind microclimate is expected to be suitable for leisure walking or better during the summer season.

4. Business walking wind speeds are associated with occasional strong winds during the windiest season which exceed Beaufort Force 6. The acclimatisation of local residents may justify business walking as an acceptable result on thoroughfares near building corners. However, the corner zones would benefit from mitigation intended to achieve a leisure walking classification for these areas. Such landscaping would include landscaping.
5. All the remaining thoroughfares within the site are expected to be suitable for the intended pedestrian use, and no further mitigation measures are required.
6. In general most locations on site are classified with a wind microclimate that is suitable for its intended pedestrian usage. However, any entrances located in areas where the expected conditions are windier than standing/entrance require mitigation. Suitable mitigation in the form of effective use of planting or landscaping within public outdoor seating spaces, particularly within the Urban Square and Cascade, are recommended in the context of Section 25 Applications.
7. The desk-based wind microclimate assessment provided for the proposed draft Planning Scheme of Zones 1 and 2 is intended to provide general guidance on the likely wind microclimate throughout the draft Planning Scheme area. Wind tunnel testing is recommended upon the detail design of individual developments within Zones 1 and 2, for relatively tall buildings (i.e. 15 storeys or taller) to ensure that the comfort and safety criterion is complied with.

An assessment was not undertaken for the southshore as the buildings proposed are low rise. Based on the above assessment, individual tall buildings in Pigeon House Dock will require further assessment in terms of wind tunnel testing.

11.0 Odours.

A number of industries and utilities are located on the Poolbeg Peninsula including Ringsend Waste Water Treatment Plant (WWTP). Odour from the WWTP is prevalent at times on the peninsula. However, it is understood that Dublin City Council is currently undertaking a programme of works which will be effective beyond 500m of the plant in reducing odour

emission Accordingly, monitoring and/or modelling of odour sources was not carried out as part of this EIS as it is considered premature to do so until works are completed.

In addition, there are localized areas of natural odour arising from Dublin Bay and this is noticeable along the south shore where rotting vegetation occurs. It is also understood from local sources that the drain from the Fabrizia site is possibly contaminated with sewage. This in turn could be increasing algae growth which when rotting contributes to the odour problem. The sources to the discharge will be investigated and remediation carried out as required when the area is developed. However, it is worth noting further that Chapter 4 of the EPA's Water Quality Report 2004 – 2006 published in 2008, mentions one potential negative impact on water quality in the Liffey Estuary arising from the reoccurrence of opportunistic macroalgae along the south Dublin seashore and the Tolka estuary during the autumn months. The EPA report notes that the abundance and distribution will be assessed as part of the Water Framework Directive monitoring programme.

During the construction phase, general odour controls will be required to be implemented during the works where materials with potential to produce odours during excavation are likely to be encountered. The excavation of these areas will be programmed such that the potential odorous material is exposed to the atmosphere for minimal time. This material will be stockpiled under tarpaulins. Odour suppression units may be used on site, depending on the nature and volumes of odour generating material encountered.

The WWTP is outside the Draft Planning Scheme Area. As stated above, it is understood that the odour issue will be alleviated although this may only positively affect areas 500m beyond the boundary of the WWTP. The development of Zones 1 and 2 i.e. the former IGB and Fabrizia sites and development along South Bank Road fall beyond the 500m limit and these areas will benefit from the alleviation works. Notwithstanding this, developers will be a required to undertake monitoring after the works have been completed, and prior to development in these areas, to ensure that there will be no unacceptable impacts on future occupiers.

The proposed Pigeon House Dock area and parts of the Southern Shore may still be affected by odour as these areas fall within 500m of the WWTP. These are later phases in development on Poolbeg and before they occur it is possible that flows may be redirected from Ringsend WWTP to a new plant which may positively impact on odour nuisance.

Notwithstanding the above, the DDDA will liaise with Dublin City Council in relation to prevention of odour nuisance and it will be a requirement of all Section 25 applicants to ensure that odour levels are acceptable prior to permitting development of these areas.

12.0 Climate & Energy.

The impacts on climate can be defined in terms of micro and macro climate.

Microclimatic effects are localised such as the effects new buildings can have on wind patterns and overshadowing. This is dealt with in the relevant summaries dealing with these issues.

At a macro level the phenomenon of Green House Gases (GHG) emissions contributing to global warming and climate change, which in turn has potentially many effects such as flooding and habitat change, has been considered in this EIS.

During the construction phase, measures will be taken to minimise GHG emissions associated with the materials used by using local resources, architectural salvage and recycling of demolished buildings where possible and by using materials from sustainable resources.

During the operational phase, GHG emissions resulting from the development of the peninsula will come from a range of activities. For the most part these emissions will be associated with the utilisation of energy and water and the production of waste on the peninsula by its new inhabitants and the workforce employed there. It is estimated that approximately 11,784 tonnes of Carbon Dioxide (CO₂) per annum would be produced to satisfy the residential heating requirement on the peninsula with approximately 15,129 tonnes of CO₂ per annum produced to satisfy the electricity requirement (modelled on a building satisfying the 2007 Building Regulations). Approximately 9,850 tonnes per annum of CO₂ would be produced to satisfy the heating requirement of the commercial/retail building stock with 19,330 tonnes per annum being produced to satisfy the electricity requirement of the building stock (in this case using the relevant 2005 Building Regulations as the baseline).

A range of targets will be set for developers which will ensure that the Poolbeg Peninsula is a low carbon development. Improved levels of performance above those currently set by the Building Regulations will be put in place to ensure this. These will cover a broad range of Building Design Areas including:

- Building Envelope and Insulation
- Airtightness
- Lighting
- Space and Water Heating
- Ventilation
- Sustainable Energy Utilisation
- Fixed Electrical Appliances

These targets should achieve a dramatic reduction in the CO₂ impact from the baseline calculated above regarding a Building Regulations Standard Baseline. For heating-related CO₂ emissions it is estimated that a reduction in production of CO₂ of approximately 6,361CO₂ tonnes per annum can be achieved in the residential sector, with a reduction of approximately 8,168 achieved in electricity-related CO₂ production per annum. In the commercial sector it is anticipated that approximately 4,911tonnes per annum could be saved with regard to heat-related CO₂ and a further approximately 9,763tonnes per annum saved with regard to electricity generated CO₂.

These savings result in a total saving against the baseline of approximately 56,092 tonnes per annum of 29,205tonnes or a 51% reduction in overall CO₂ emissions per annum.

Proposals within the Section 25 certification process will also be considered against the requirements of the Sustainability Toolkit contained in Appendix 5 of the Draft Planning Scheme.

13.0 Noise & Vibration.

A comprehensive ambient noise monitoring survey covering 48 locations in the peninsula and surrounding areas was carried out in accordance with recognised methodologies. The primary aim of the survey was to determine noise levels associated with all existing industries on the peninsula although in particular, the aim was to establish noise impact associated with the WWTP, Poolbeg ESB and Synergen installations which could affect future occupiers once the Scheme is fully complete. A further aim of the survey was to establish/verify noise levels at existing sensitive receptors. Traffic noise measurements were also carried out both within and outside the Draft Scheme Area.

The ambient noise environment on the peninsula is typically urban and is influenced by industrial, port and traffic related noise during the daytime and to a lesser extent at night time. At night time noise from the utility plants dominates however in general this noise dissipates quite quickly beyond the immediate boundaries and large portions of the peninsula are relatively quiet at night time; - particularly within the south, southwestern and eastern portions. The ambient noise environment at surrounding sensitive receptors is characterised by traffic on the local road network and in some cases, port related noise.

There are two distinct phases to the proposed Planning Scheme which can have differing impacts in terms of noise levels on the surrounding areas; - namely the construction and operational phase. During the construction phase, works close to Sean Moore Road, Coast Guard Cottages or the East Link Road will potentially result in an elevation of noise levels at the nearest sensitive receptors. However, mitigation measures will be implemented to ensure that construction noise is minimized and that levels will be limited to acceptable criteria. Construction noise will be controlled to acceptable levels by way of Construction Management Plans that will be required from Section 25 applicants. In the long term and when the scheme is complete, traffic noise associated with the proposed development will not perceptibly increase and the predicted impact is therefore negligible.

In the long term, future occupiers of the Scheme will be living in a typical urban noise environment. External levels will vary but it is envisaged that these will generally be acceptable to residents and occupiers of the scheme given the urban location and based on existing noise monitoring results.

However developers will be required to comply with internal criteria which will be set in accordance with BS BS8233:1999 – *Sound Insulation and Noise Reduction for Buildings – Code of Practice* in order to ensure that suitable living and working conditions with regard to internal ambient noise levels are provided.

All potential noise sensitive development which will proceed as part of the Draft Planning Scheme will have regard to prevailing noise sources within the Peninsula. In this regard developers will be required to provide adequate sound insulation within the building structures of potential future noise sensitive development to ensure that the recommended internal noise criteria set out in the Noise Chapter of this EIS are met. The final location and

design of potential future noise sensitive developments will also have due regard to existing noise sources within the proposed development area.

Open space areas provided within the built areas of the scheme will generally be shielded from industrial noise by the proposed buildings. However developers will be required to ensure that open spaces within development areas are effectively shielded and not subject to nuisance industrial noise.

Existing industrial activities will be expected to have due regard to the Planning Scheme if introducing new noise sources into the area which could potentially result in levels elevated over existing day and night time ambient noise levels.

14.0 Landscape / Visual Impact.

This assessment is in accordance with the EPA's *Guidelines on the Information to be Contained in an Environmental Impact Statement*, 2002, and the (UK) Landscape Institute's *Guidelines for Landscape and Visual Impact Assessment*, Second Edition 2002, (the GLVIA) from which the methodology is derived. The GLVIA prescribes that landscape and visual impacts be assessed by separate, although linked procedures. Landscape assessment considers the effects deriving from alterations to the elements and characteristics of the landscape, which may give rise to changes in its character, how it is experienced and hence the ascribed value of the landscape. Visual assessment is concerned with changes that arise in the composition of available views, the response of people to these changes and the overall effects on the area's visual amenity.

The vision adopted by the DDDA for the Draft Planning Scheme for Poolbeg is as follows:

“To create an urban waterside quarter that facilitates sustainable and consolidated growth of Dublin City and articulates a new relationship between the City and the Bay. The quarter will provide for commercial, residential, cultural and amenity uses, whilst balancing the essential industrial and infrastructural requirements of the area. The recreational and amenity potential will be enhanced through a landscape and environmental framework, which optimises the natural resources and ecology of the peninsula”.

Implicit in this vision, and in any redevelopment of the extensive brownfield lands on the peninsula, are significant landscape and visual impacts. The land use, landscape patterns and associated visual character of the peninsula itself would be altered, and these changes would be exposed to numerous sensitive visual receptors. These include the residents of the bayside neighbourhoods, the users of the coastal amenities, commuters using the coastal roads and railways, and visitors to Dublin travelling by sea and air.

The assessment has been informed by survey of the site and receiving environment by professional landscape architects, observation of and participation in the Draft Planning Scheme design process, and illustrations of the potential visual effects prepared by ARC Architectural Consultants.

Potential Landscape Impact

The assessment found that Poolbeg Peninsula is defined by its predominant use - industry and utilities. The associated characteristics of the landscape - the topography, urban grain (pattern of roads, blocks and open space) and architecture - are of low value in an area identified for mixed use urban development. The large industrial sites that make up the majority of the Draft Planning Scheme area can therefore be considered of low sensitivity to landscape change. By contrast the open space that makes up the remainder of the area has high recreation and conservation value, and is highly sensitive to changes in its structure, nature and landscape setting. The built heritage assets of the peninsula - the Great South Wall and the cluster of buildings around Pigeon House Dock - are similarly sensitive to landscape change, both beneficial and adverse.

In summary using the GLVIA, the landscape of the Draft Planning Scheme area can be considered of medium sensitivity. Such landscapes are described in the GLVIA (*Guidelines for Landscape and Visual Impact Assessment*) as follows: 'Exhibits positive character but has evidence of alteration to/degradation/erosion of elements and characteristics resulting in an area of mixed character, therefore potentially sensitive to change in general.'

Using the guidance provided in the GLVIA, it is considered that the magnitude of landscape change proposed in the Draft Planning Scheme is high.

Application of the GLVIA guidelines on grading of impact (measurement of magnitude of change against landscape sensitivity), results in a predicted landscape impact of high significance. The impact would be beneficial, for the following reasons:

- The fundamental nature of the landscape change proposed – the redevelopment of substantial areas of previously industrial brownfield land as a high density, mixed use urban quarter - is in keeping with policy from national to local level which promotes increased development density and mixed use (in combination with an improved multi-modal transport system) in proximity to the city centre. The desirability of such development on the Poolbeg Peninsula, and the landscape and visual change inherent in such development, is specifically recognised and promoted by the Dublin City Development Plan 2005-2011, the Docklands Area Master Plan 2008 and the Dublin City Council policy document Managing Intensification and Change, A Strategy for Dublin Building Height.
- The proposed urban grain (specifically the alignment of the streets, promenades and open space such as the Dublin Bay Valley and Beach Park) as well as the proposed siting, orientation and typology of the architecture, would generate a high degree of spatial and visual contact between the new city quarter and Dublin Bay and the Liffey. This would achieve the objective of improving the relationship of the city, the bay and the river, in keeping with city and local (Docklands) development policy.
- The nature of the proposed development in terms of land use mix, urban grain, density/intensity and architecture, in combination with the appreciable response to the surrounding context (the bay, river, the built heritage and adjacent neighbourhoods and land use) would contribute to city identity. Three distinct new urban/landscape character areas would be created, each with a unique relationship to the surrounding waters.
- The height and architectural character of the proposed development would create visual connections between the new urban quarter on Poolbeg, the city centre to the west and the bay-side neighbourhoods to north and south. The legibility of the city would thus be improved.
- The Draft Planning Scheme takes account of the surrounding urban structure and includes measures to ensure spatial integration with the existing neighbourhoods to the west and south (by means of a landscape framework and urban grain that align and connect with the surrounding areas). Connectivity and accessibility between the existing neighbourhoods and the surrounding areas (particularly the Poolbeg amenities) and the proposed new urban quarter would thus be improved.
- The valuable open space assets of the Poolbeg Peninsula would be retained as part of the landscape framework. These areas (Sean Moore Park, Irishtown Nature Park and the adjacent wild bird feeding area, the southern foreshore) would be enhanced by design and improved connectivity internally and with the surrounding environment. A number of

new open spaces of substantial scale, as well as local parks, would be introduced as structural elements of the new urban quarter, serving recreation and visual amenity functions.

- The valuable built heritage assets of the peninsula, presently removed from the public realm and therefore underused and undervalued, would be rejuvenated and reused as features of the urban landscape. It is not possible, with the level of detail provided in the Draft Planning Scheme, to assess the extent in detail of the impact of the proposed development on the landscape setting of the historic buildings. The principle of development in their vicinity, or even attached to the structures, is not inappropriate however. The proposed development has potential to improve the setting of the Pigeon House buildings, improve their condition, bring them into the public realm (with physical and visual accessibility) and thereby enhance their appreciation by the public. The Draft Planning Scheme prescribes that Architectural Heritage Impact Assessments must be carried out where development will take place within, or in close proximity to, any protected structure. This would ensure that adverse impacts on the built heritage are avoided.
- While allowing for the continued operation and expansion of the existing utilities on the peninsula, the Draft Planning Scheme effectively buffers these sites from the surroundings by use of topography, open space and buildings (height and orientation). The Draft Planning Scheme thus negates the potential sterilising effect of the utilities and makes optimal use of a landscape resource of city-wide value.

Potential Visual Impact

Poolbeg features in views from a wide area including highly sensitive coastal neighbourhoods, amenity open space and important transport routes into the city. Based on the analysis of the receiving environment and in consideration of the sensitivities identified in the relevant planning policy documents, 25 representative viewpoints were selected for detailed assessment of the potential visual impact:

Local Neighbourhoods & Open Space

- Beach Road
- Beach Avenue
- Bremen Grove & Sean Moore Road
- Ringsend Park
- Sandymount Strand
- Sandymount Green
- Londonbridge Road
- Ringsend Road/Bridge Street
- Great South Wall

Bayside Neighbourhoods & Open Space

- Howth Head
- Clontarf Road/Promenade
- North Bull Island
- Russell Avenue, East Wall
- Deer Park, Mount Anville Road
- Blackrock

City Centre Attractions & Open Space

- Grand Canal Square
- North Wall Quay
- Sean O'Casey Bridge
- O'Connell Street Bridge
- Trinity College
- Guinness Storehouse

City Transport Gateways

- Dublin Bay
- North Strand Road
- East Link Bridge
- Dun Laoghaire Harbour

By measuring the sensitivity of the viewpoint, against the magnitude of change which would arise in the view as a result of the development, it was found that an impact of high significance would be experienced at 11 of these locations, an impact of medium significance at five locations, and low or no impact at nine locations.

For only one of the 25 locations assessed is it predicted that an adverse visual impact might result from the development. This is Sandymount Green, where some of the new development would protrude above the roofline of a Victorian terrace, potentially causing the legibility of the valued historic element to be lost. Mitigation has been recommended to minimise and neutralise this impact. For 15 of the 25 viewpoints it is predicted that the impact would be beneficial, i.e. the composition and quality of the views would be improved. To arrive at this judgement it has been assumed that the quality of architecture in the Draft Planning Scheme Area would be high, and therefore that that the individual buildings and building clusters would be considered by a majority of visual receptors as attractive additions to the urban landscape (the previous industrial use of the lands was taken into account in this assessment). It is assumed that views of a high quality, mixed use urban quarter with an integrated landscape framework – as promoted by planning policy from national to local level - are preferable to views of an industrial landscape.

It is recommended that the materials of these buildings visible from viewpoint 6 be selected in consideration of their potential impact on this view. Materials that match/reflect the sky colour (i.e. glazed) would create the most neutral backdrop and thus the legibility of the Victorian roofline would be retained.

15.0 Sunlight.

Using a digital model, shadows were cast at several times of the day at the summer and winter solstices, and at the equinox. The model used for shadow analysis represents a median condition with half the proposed buildings represented at their maximum height and the other half represented at one storey less than their maximum as it is not possible due to constraints in the Draft Planning Scheme for all of the buildings to be built to their maximum permissible heights.

Shadows were cast both with and without the proposed development (i.e. the digital model shows shadows cast by the existing buildings only and, on a separate page, shows the shadows cast by the existing buildings together with the proposed development).

The assessment of impacts on sunlight access had regard to the *Guidelines on the Information to be Contained in Environmental Impact Statements* prepared by the Environmental Protection Agency (2002), and to the *European Communities (Environmental Impact Assessment) (Amendment) Regulations, 1999*.

Construction Phase.

The potential impacts of the Draft Planning Scheme on sunlight access are likely to be similar or lesser than the potential impacts experienced during the operation phase.

Operation Phase.

Given that the Draft Planning Scheme is located to the north of residences at Sandymount, it is likely that the Draft Scheme will have no impact on residences at Beach Road or to the south of the Beach Road or on residences at Church Avenue, Londonbridge Road, Bath Avenue or Bath Street. In other words, the proposed Planning Scheme will not overshadow the vast majority of residences in proximity to the Poolbeg lands.

Given that the Planning Scheme proposes relatively tall buildings and high densities, there is the potential for 'slight' to 'significant' impacts on lands associated with Dublin Port to the north of the Planning Scheme area. Shadows cast by the proposed Planning Scheme will have potentially 'imperceptible' to 'moderate' impacts on the road at Sean Moore Road during the mornings and early afternoons for most of the year.

With regard to impacts on residential lands, there is a potential for the proposed Planning Scheme to have 'slight' to 'moderate' impacts on a limited number of dwellings fronting directly on to Sean Moore Road to the west and northwest of the Planning Scheme Area during the mornings in the spring and autumn months. There is also potential for 'slight' to 'moderate' impacts on residences fronting directly on to Sean Moore Road to the west and northwest of the Planning Scheme Area during the mornings and early afternoons in mid winter. Met Éireann, the Irish Meteorological Service, has found that, during December, Dublin receives an average of 1.7 hours of sunlight out of a potential 7.4 hours sunlight each day (i.e., only 22% of potential sunlight hours). This can be compared with the average of 6.4 hours of sunlight out of a potential 16.7 hours each day received by Dublin during June (i.e., 38% of potential sunlight hours). It is, therefore, suggested that impacts caused by overshadowing are generally less noticeable during the winter months than in the summer months. Because of the low angle of the sun in mid winter, the shadow environment in all urban and suburban areas is generally dense throughout the winter.

The additional effect of new development at the Poolbeg lands is reduced by the existing stand of mature trees located on the western / northwestern side of Sean Moore Road, which overshadow the abovementioned residences and associated gardens throughout the year. In the absence of these trees, the proposed Planning Scheme on the residences fronting directly on to Sean Moore Road during the winter months would be more of the order of 'moderate' to 'significant'. There is no proposal in the Poolbeg Planning Scheme for the removal of any of these trees. It should further be noted that shadows cast by the proposed Planning Scheme over the road at Sean Moore Road and on these dwellings fronting on to Sean Moore Road are, in many cases, similar in extent and character to those that were cast by the Irish Glass Bottle factory prior to its demolition.

16.0 Material Assets – Traffic & Transportation and Parking.

The information used to assess traffic and transportation impacts has been compiled from many sources, including site visits, desk top and a review of transport and planning policy

documents as described below. The assessment has considered all modes of transport, including pedestrians, cyclists, road traffic and all forms of public transport. The Census results for 2006 and the current Dublin Transport Office multi-modal transportation model were used to inform the mode share estimates for the Draft Planning Scheme. These data sources were also used to assess the existing traffic situation. In addition, traffic counts were commissioned at key junctions in the surrounding area.

Current Policy Proposals.

The impact of current policy in relation to the future development of transport in the vicinity of the Draft Planning Scheme Area was taken into account within the assessment. The following policy documents were reviewed to assess current proposals for new transport infrastructure that would impact on the Draft Planning Scheme Area:

- *Transport 21*;
- *Dublin City Development Plan 2005-2011*;
- *Dublin Docklands Master Plan 2008*; and
- The Dublin Transportation Office: *Platform for Change*.

Transport 21 is the Government's capital investment framework through which the transport system in Ireland will be developed over the period from 2006 to 2015. There are a number of public transport infrastructure projects proposed within *Transport 21* and the *Dublin City Development Plan 2005 - 2011* that will affect the Poolbeg area including:

- the extension of the LUAS network to the Docklands as far as the Point Village and the construction of a new line from Lucan to the City Centre;
- the construction of the Suburban Rail Interconnector providing a tunnelled link between Heuston Station and the Docklands, via St. Stephen's Green and linking with the Northern rail line;
- the development of Metro North and Metro West;
- the development of the bus network to create a meshed network of services and reorient it to take account of the rail developments described above;
- the creation of a network of interchange points across the network to allow users transfer easily;

- the introduction of a smartcard integrated ticket which can be used on all public transport services;
- the implementation of demand management measures on a phased basis; and
- the introduction of an integrated public transport information system.

Water bodies located within the Docklands Area can pose a barrier to transport and movement. As such, the development of new bridge crossings will have a significant impact on connectivity and transport. It is the objective of the Dublin City Development Plan and the Dublin Docklands Masterplan 2008 to support the provision of the following bridges within the Docklands Area:

General Traffic, Public Transport, Pedestrian and Cycle Bridge.

- Samuel Beckett Bridge (currently under construction);

Public Transport, Pedestrian and Cycle Bridges.

- Royal Canal Bridge from Mayor Street to Spencer Dock (currently under construction as part of the Luas Line C1 extension);
- Dodder Bridge from Britain Quay to York Road (at design stage);

Pedestrian Only Bridge.

- Liffey Bridge from Forbes Street to North Wall Quay;
- Liffey Bridge from Benson Street to Castleforbes Road; and
- Dodder Bridge from Thorncastle Street to the Grand Canal Lock Gates.

Relevant Characteristics of the Draft Planning Scheme (Transport Proposals).

One of the first principles of sustainable transport is to reduce the need to travel long distances and to ensure that a large proportion of trips can be made on foot or bicycle. The development within Poolbeg will comprise a mix of land uses and local facilities where people will be able to live, work and shop within the area and its immediate surrounds. In addition, social infrastructure will be provided as part of the development including health, education and community facilities. Car based transport will be kept to a minimum and the car parking standards have been designed in order to limit the availability of car parking.

Pedestrian and Cyclist Infrastructure

The Draft Planning Scheme will substantially enhance and improve the existing pedestrian and cycle environment. Permeability of the area will improve the environment for pedestrians and cyclists. A network of routes will be implemented to improve connections to Ringsend, Sandymount, other parts of the Dublin Docklands, the City centre and wider area. Streets, public space and the public realm will be designed in a way that is accessible, convenient, attractive and safe for pedestrians and cyclists to use. The improvements in accessibility of Poolbeg for pedestrians and cyclists will encourage and allow for a significant number of trips to be made by these modes.

Public transport.

The transportation needs of the first phase of the Draft Planning Scheme will be supported by the extension of bus services to the area and the introduction of Docklands Rapid Transit (DRT). The DRT will be a bus based, high capacity public transport system. The provision of DRT services to Poolbeg is a key component of the Transport Strategy within the Planning Scheme. The delivery of the DRT is incorporated into the phasing of development and, as such, will ensure that public transport is delivered in line with development.

The provision of a second high capacity public transport link is essential to satisfy the public transport requirements for Phase 2 of the Poolbeg Planning Scheme. This could be delivered by way of an extension to Luas or an equivalent public transport service. In order for a Luas extension to be provided to Poolbeg, various route options will have to be examined in order to assess their feasibility and viability. The Luas will require a separate EIS if and when the scheme is progressed

Road Network.

Within the Draft Planning Scheme Area a new network of local connecting distributor roads and connecting streets will be developed. The scheme includes the provision of a local hierarchical road network catering for local access requirements and the internal circulation of traffic.

Sean Moore Road linking from East Link Road to Beach Road forms part of the major Regional R131 road artery through the peninsula and will also play a key role in accessing the Poolbeg Peninsula into the future. This road will therefore need to function at a number of different levels including retaining existing capacity for regional traffic, providing local access and facilitating envisaged high volumes of pedestrians and cyclists crossing it.

Likely Impacts of the Draft Planning Scheme.

Construction Phase

The impact of traffic during the construction phase can be minimised and mitigated through careful on-site management of the construction site, plant and machinery and the hours of construction operation. These potential causes of nuisance can be controlled by way of a Construction Management Plan. The Draft Planning Scheme requires that a site specific Transport Impact Assessment be prepared in support of Applications for Certification. The TIA will include an assessment of the volume and type of construction traffic vehicles generated, their routing through the surrounding network, construction method and the quantum and type of materials that will be used.

Within reason, the number of external vehicular trips generated by the construction of the development should be minimised. For external construction vehicle movements, the Authority will encourage the use of the Dublin Port Tunnel as a route for construction vehicles as much as possible where appropriate. The tunnel is designed to cater for HGV movements and there is a good level of access between the Draft Planning Scheme Area and the tunnel. This measure will reduce the impact of construction HGV movement on the local road network and the existing populations in the surrounding area. Furthermore, it is assumed that the Dublin City Council HGV Management Strategy will apply to HGV movements on the wider road network.

Operational Phase

It is estimated that the total development could generate up to approximately 19,000 person trips within, to and from the Peninsula in the morning peak period (07:00-10:00).

Mode Share.

Base trip rates by transport mode have also been calculated for the morning peak based on the transport improvements within Dublin and the Draft Planning Scheme Area.

The improvements in accessibility of Poolbeg for pedestrians and cyclists will allow for a significant number of trips. Approximately a third of all trips to and from Poolbeg will be by walking and cycling. This is consistent with the existing level of walking and cycling activity within the Docklands area. In general, walking and cycle movement in the Poolbeg area will be improved as part of the Draft Planning Scheme.

Public transport service improvements are expected to significantly increase the proportion of residents and employees travelling to and from Poolbeg by bus, DRT and light rail. The full implementation of the transport strategy will provide for around 45% of all trips during the AM peak period to be delivered by public transport.

There will be a positive impact on accessibility by sustainable modes both to the Draft Planning Scheme Area and the surrounding areas arising from the Draft Planning Scheme.

Car and road traffic impact.

A small proportion of trips to and from Poolbeg will be facilitated by private car. To support this, the car parking standards have been designed in order to limit the availability of car parking, particularly for commercial development.

The development of a local road hierarchy, implementation of traffic management measures and road improvements will provide for additional traffic capacity and local traffic circulation. For example, Sean Moore Road will be upgraded to reduce the impact of the increased traffic flows resulting from the development.

It is predicted that the full development of the Draft Poolbeg Planning Scheme will generate approximately 470 car movements outbound and 620 movements inbound during the peak hour. Traffic conditions on a number of roads will be affected by the proposed development. A comparison was undertaken of the predicted traffic flows for 2020 both with and without the development. The assessment indicates that the development will result in an increase in traffic levels on a number of roads in the vicinity of the Draft Planning Scheme Area.

It is forecast that the maximum 2020 AM peak two-way flow on any link is approximately 3,000 passenger car units (PCUs), which will occur on Sean Moore Road. This represents a net increase of 31% on this particular road as compared to the do minimum scenario. Under the Draft Planning Scheme road infrastructure improvements will be undertaken on Sean Moore Road, including the widening of the road and junction improvements. Infrastructure improvements on this link will increase its capacity to accommodate the change in traffic flows. Therefore, the upgrade of Sean Moore Road will mitigate the impact of additional traffic by providing spare capacity to allow access to and from the development.

Mitigation Measures.

There are a number of inherent measures in the Draft Planning Scheme which will mitigate against the potential negative impact of the development on traffic and transportation. These inherent measures include:

- pedestrian and cycle infrastructure improvements;
- public transport improvements;
- car parking restrictions;
- localised road junction improvements; and
- additional demand management tools (e.g. requirements for mobility management plans).

As a result of the inherent mitigation measures within the Draft Planning Scheme, the impact of the development on traffic and transportation will be reduced to minimal levels. The phasing and delivery of the Draft Planning Scheme is directly linked to the delivery of these transportation improvements. The accessibility of the area will be greatly enhanced as a result of the proposals contained in the Draft Planning Scheme, particularly with respect to accessibility by sustainable modes.

The Draft Planning Scheme requires the preparation of a site specific Transport Impact Assessment as part of the application process. Subsequent to detailed design, specific mitigation measures will be identified, if required, to reduce the impact of the construction and/or operational phase of the development on transportation.

17.0 Material Assets – Retail Impact.

The quantitative and qualitative assessment of the potential retail impact of the development of a District Centre confirms that the proposal will not have any significant adverse effect on the vitality and viability of any surrounding retail centre. The proposal and its role and function have in fact been illustrated to make an important contribution to securing the objectives of the *Regional Planning Guidelines, Retail Planning Guidelines for the Greater Dublin Area*, and the *Draft Poolbeg Retail Strategy* and the *2008 Dublin Docklands Master Plan*.

As there are no negative impacts expected to arise as a result of the operation of the retail component of the Draft Planning Scheme, mitigation measures are not deemed to be required.

18.0 Material Assets - Archaeological Heritage.

At the request of the Dublin Docklands Development Authority, CRDS Ltd. have undertaken an Archaeological assessment of the proposed Draft Planning Scheme.

The assessment involved a desk-based study of relevant sources, complemented by a field assessment carried out on various dates in 2008 to examine archaeological sites and cultural heritage and to determine the impact of the Draft Planning Scheme.

Developments associated with the Draft Planning Scheme may impact on three recorded archaeological monuments namely the Pigeon House Fort (DU019-027) and the Great South Wall (DU018-066 and DU019-029). In addition, there is the potential that the Draft Planning Scheme may impact on previously unrecorded sub-surface archaeological remains.

Any development in or in the vicinity of the recorded monuments will require the approval of the National Monuments Service of the Department of Environment, Heritage & Local Government. In addition, there is the potential for the existence of unrecorded sub-surface archaeological remains. Following finalisation of detailed site design as part of the Section 25 process, site specific mitigation strategies in the form of archaeological management plans will be formulated in conjunction with the Dublin City Archaeologist, National Museum of Ireland and the National Monuments Section and/or Underwater Unit of the Department of the Environment, Heritage and Local Government. Mitigation will take due regard to the heritage policies and objectives included in Chapter 10 of the *Dublin City Development Plan 2005 – 2011* and in the *Docklands Master Plan 2008*.

19.0 Material Assets - Architectural and & Cultural Heritage.

At the request of the Dublin Docklands Development Authority, CRDS Ltd. have undertaken an Architectural Heritage assessment of the proposed Draft Planning Scheme.

The assessment involved a desk study utilising a number of sources including the Irish Architectural Archive, the *Dublin City Development Plan 2005 – 2011*, documentary and cartographic sources supplemented by a site inspection of the location of the Planning Scheme Area.

The Draft Planning Scheme proposes the refurbishment and re-use of the former Pigeon House Power Station and former Pigeon House Hotel. The remains of Pigeon House fort will be integrated into a mixed-use cluster with residential, commercial and retail.

Following finalisation of detailed site design, site specific mitigation strategies will be formulated as part of the Section 25 process in conjunction with the Dublin City Conservation Officer and the Department of the Environment, Heritage and Local Government. Mitigation will take due regard to the heritage policies and objectives included in Chapter 10 of the *Dublin City Development Plan 2005 – 2011* and in the *Docklands Master Plan 2008*.

20.0 Material Assets – Utilities.

This chapter describes the existing utilities on the Poolbeg Peninsula and the potential impact of the Planning Scheme on those utilities. This includes water, wastewater, electricity, gas and telecommunication services. The chapter discusses the existing situation on the peninsula, describes the relevant characteristics of the Draft Scheme and how these will impact on existing utilities and recommends mitigation measures where necessary.

The Poolbeg Peninsula contains a number of critically important utilities including two electricity generating stations and the country's largest Wastewater Treatment Plant. All of these utilities will remain operational at this location for the foreseeable future and development proposals which might adversely impact on the safe and proper continuation of these operations would not be acceptable. ESB, Bord Gais and Dublin City Council all have

major utility services crossing the Poolbeg Peninsula and all require wayleaves around these services. This will sterilise some areas of land and restrict where development can take place.

The Draft Planning Scheme is likely to lead to substantial construction work on the peninsula which will increase the risk of vital utility supplies being disrupted or damaged. However, normal best practice construction methods will ensure that any disruption to existing utilities or the potential for damage to same is minimised. Disruption can be minimised by carrying out works in parallel to existing infrastructure while that infrastructure remains in service or by carrying out works at off peak times. Damage can be avoided by measures such as reviewing utility service drawings, detailed liaison with utility providers and carrying out underground surveys or other investigative works before construction commences.

The likely effect of the Draft Scheme on individual utilities is identified below.

Water Supply.

There is an existing water distribution network on the peninsula. This does not have the capacity to serve additional development. Trunk water mains serving this area also have limits on their capacity and there is concern about the City Council's capacity to provide adequate drinking water to serve the future needs of the Dublin Region. The trunk main into the peninsula will be upgraded and/or duplicated so that a new local distribution network will be provided. The other issues are outside of the Draft Planning Scheme Area but it is expected that measures including extension to existing water treatment plants, provision of new trunk mains and the provision of an additional water treatment infrastructure will occur over the next few years to enable development envisaged in the Draft Planning Scheme to proceed. Phasing of development on the peninsula will take into account the availability of regional infrastructure to serve it.

Sewerage.

Existing drainage infrastructure is limited. It is just about adequate to serve the needs of existing users on the peninsula but may need to be upgraded to protect the environment. The existing Wastewater Treatment Plant does not have adequate capacity to serve the future needs of the region. The local sewage collection system will need to be upgraded and new sewers provided. It is likely that a new sewage pumping station will also be required. The city's capacity to treat wastewater is a regional rather than a local issue. Dublin Docklands Development Authority is currently engaged in discussions with Dublin City Council to

ensure that wastewater from the proposed development can be treated at the Ringsend Wastewater Treatment Plant. Phasing of development on the peninsula will take into account the availability of infrastructure to serve it.

Electricity.

There is substantial generating capacity in the area. The local distribution infrastructure is adequate to serve the needs of existing users but will need to be upgraded to serve additional future development. A new 110kV/ 20kV electrical substation will be provided as will a new local distribution network.

Gas.

There is substantial supply capacity in the area. The local distribution infrastructure is adequate to serve the needs of existing users but will need to be upgraded to serve additional future development. Local pressure step down stations and new distribution infrastructure will be required.

Telecommunications.

The local telecommunications infrastructure would not be considered suitable to serve major new development particularly if office blocks, or other high end telecommunications users are involved. Substantial new telecommunications infrastructure, including a new telephone exchange is proposed under the Draft Planning Scheme. This will have a positive impact on the peninsula and the surrounding area.

21.0 Waste.

Waste will be generated as a result of both the construction and operation phases of the proposed draft Planning Scheme.

During the construction phase, developers will be required to develop soil deposition strategies to ensure that soil requiring removal will be minimised and will be managed efficiently. In situ treatment will be the preferred option for contaminated soil. Furthermore, developers will be required to recycle and salvage waste construction materials as much as possible in order to reduce construction waste.

In the long term, approximately 19,575 tonnes of municipal waste per annum is likely to arise based on a population of approximately 10,100 persons. This is a significant quantity. Existing figures for waste recovery suggest that approximately 33.6% is likely to be recovered while the remainder would be disposed of. However, mitigation measures will be employed to reduce waste generation and improve recovery rates such as those set out below:

- Developers will be required to design buildings and facilities which will aid waste segregation into streams for recycling. For example, space and equipment should be provided for occupant/user separation.
- Provision of adequate delivery areas for raw materials and goods and adequate storage/circulation and transfer areas will be provided by developers for commercial areas to prevent waste generation.
- Provision of safe and environmentally friendly central separation and transfer areas will be provided by developers and adequate compacting and baling facilities.
- Waste areas will be covered and controlled.

22.0 Interaction of the Foregoing.

Noise and Vibration & Material Assets –Transportation, Traffic and Parking.

The Draft Planning Scheme requires that a site specific Transport Impact Assessment be prepared in support of Applications for Certification. The TIA will include an assessment of the volume of construction traffic, construction method and materials that will be used along with the origin and type of transport vehicle. If necessary, the TIA will identify mitigation measures to ensure there is no unacceptable impact on noise and vibration arising as a result of traffic.

The interrelationship between transportation, traffic and parking and its effects on the ambient noise environment is fully described in Chapter 13 – Noise & Vibration. To summarise, there will be a negligible impact on ambient noise levels arising from traffic and parking associated with the proposed scheme.

Air Quality & Material Assets –Transportation, Traffic and Parking.

The Draft Planning Scheme requires that a site specific Transport Impact Assessment be prepared in support of Applications for Certification. The TIA will include an assessment of the volume of construction traffic, construction method and materials that will be used along

with the origin and type of transport vehicle. If necessary, the TIA will identify mitigation measures to ensure there is no unacceptable impact on air quality arising as a result of traffic

The effects of traffic generated as a result of the proposed scheme has been assessed and its (traffic from scheme alone) impact on air quality is not significant especially with the mitigation measures proposed in chapter 9.

The interrelationship between the traffic, transportation and parking and its effects on the ambient air environment is therefore fully described in the EIS.

Flora and Fauna & Material Assets –Transportation, Traffic and Parking.

The Draft Planning Scheme requires that a site specific Transport Impact Assessment be prepared in support of Applications for Certification. The TIA will include an assessment of the volume of construction traffic, construction method and materials that will be used along with the origin and type of transport vehicle. If necessary, the TIA will identify mitigation measures to ensure there is no unacceptable impact on flora and fauna arising as a result of traffic.

The effects of traffic generated as a result of the Draft Planning Scheme has been assessed and its impact on air quality is not significant. Thus, indirect impacts of traffic connected with the draft planning scheme on fauna through air quality will not be significant. It is not predicted that there are or will be exceedances of the NO_x annual average limit for vegetation throughout the full area of the SPA or cSAC. Protected bird species which use the Planning Scheme Area or the adjacent designated areas will become habituated to increased traffic in the area (as is the case in other parts of Dublin Bay) and will not be disturbed by it.

Material Assets –Transportation, Traffic and Parking & Material Assets – Retail.

The Draft Planning Scheme requires that a site specific Transport Impact Assessment be prepared in support of Applications for Certification. The TIA will include an assessment of the volume of construction traffic, construction method and materials that will be used along with the origin and type of transport vehicle. If necessary, the TIA will identify mitigation measures to ensure there is no unacceptable impact on retail arising as a result of traffic.

The level of accessibility, which is dependent on the transportation infrastructure, impacts on the viability of retail developments. The location and availability of retail facilities in close proximity to residential and employment areas can reduce car dependency and average

distance travelled, resulting in a positive impact on traffic. Retail will be supported by car parking facilities and an assessment of car parking requirements has been undertaken as outlined in Chapter 16. Retail facilities generate vehicular trips which impact on traffic levels. The retail trip generation has been taken into account within this assessment, as described in Chapter 16.

Geotechnical, Soils and Ground Conditions & Water Quality.

Poolbeg's underlying bedrock lies approximately 30m below ground level. Soil conditions above the bedrock are likely to be very variable reflecting its man made nature and the contaminated materials contained within. Piling and other works to such ground conditions has the potential to release contaminated materials and leachates into existing water sources within and in proximity to the Draft Planning Scheme Area. Various mitigation measures will be put in place during the construction and operation of the Draft Planning Scheme to deal with any contaminated soil, land fill gases and leachate arising as a result of same. These have been identified above in the relevant chapters and the potential interaction of both impacts and mitigation measures already identified.

Noise and Vibration & Flora and Fauna.

Noise arising from piling and other construction activities has the potential to negatively impact upon the existing wildlife within the Draft Planning Scheme Area. Measures such as noise monitoring during construction will be carried out to ensure no adverse impact on such wildlife occurs. Such works can also be undertaken in appropriate times of the year where relevant fauna are not present.

Architectural Heritage, Archaeology & Construction Vibration.

Piling and other construction activities have the potential to negatively impact on listed structures and protected archaeological features in terms of vibrational impact. Measures such as monitoring during construction will be carried out to ensure that recommended vibrational limits expressed as peak particle velocities are not exceeded.

Soil conditions are likely to be very variable on the peninsula with soft material in the upper layers and high ground water tables. Rock is not likely to be encountered within 30m of the surface. Detailed site investigation will be required at design stage but it is likely that significant piling will be required for any new structures. Piling operations can lead to significant vibrations. De-watering could be a significant issue on many sites particularly if deep excavations are required. This can lead to a draw down of the ground water in the

surrounding area, potentially causing settlement under buildings. The use of heavy construction plant, and particularly rollers or vibrating rollers, may also cause ground vibrations. De-watering may also negatively affect waterlogged archaeological material such as ship timbers or fish traps.

All of the above can have significant impacts on structures particularly older buildings which may not be in good structural condition. The potential effect of the works on buildings will need to be rigorously assessed, and mitigation measures proposed, before any construction can proceed in the vicinity of protected structures or upstanding archaeological features.

Groundwater, Surface Water & Flora and Fauna.

The ecological functioning of the Bay and designated areas is in great part dependent on maintaining existing water quality. The measures to ensure water quality is not affected are listed in Chapters 7 and 8.

There is an existing surface water discharge to the Bay from the north-eastern corner of the Fabrizio site. The quality and quantity of this will be maintained in order to ensure no adverse impact on adjoining habitat in the Bay.

Air Quality & Flora and Fauna.

The NOx annual average limit for vegetation has been exceeded at some of the monitoring stations (non listed sites) where monitoring was carried out for the Waste to Energy Project EIS. However, further detail in this regard was presented at the Waste to Energy oral hearing held in April 2008 and it is not predicted that there are or will be exceedances throughout the full area of the SPA or cSAC. The Draft Planning Scheme is not predicted to further impact in this regard.

An assessment of the impact of the draft planning scheme on air quality with reference to the Air Quality standards (AQSs) has been carried out. The ambient air quality is not predicted to exceed AQSs for the protection of human health within the Planning Scheme Area (Chapter 9). None of the protected fauna species occurring in the Planning Scheme Area or adjacent designated areas is more sensitive to air quality than human beings hence no significant impacts of the Draft Scheme on fauna is predicted.

Flora and Fauna & Material Assets (Buildings).

A number of existing buildings within the Draft Planning Scheme Area may provide suitable habitat for bat roosts. Dedicated bat surveys will be required to be undertaken by developers prior to the renovation or demolition of any of these buildings. Mitigation measures can be introduced to avoid or remedy the loss of any bat roosts which are found.

23.0 Construction Phases.*Development Phase.*

There are three phases to development as outlined in Chapter 2 (The Planning Scheme).

The period of construction will be determined by the availability of services including transport, water and sewerage, which in turn determine phasing.

Construction Methods.

The development on the Poolbeg Peninsula will commence with site clearing and excavation and may involve the removal, treatment or capping of contaminated materials. Removal of groundwater for excavations for underground car-parking is likely to be required. There will also be a requirement to lay extensive networks of new pipes and utility services and possibly for the diversion or replacement of existing services. Soil compaction or stabilisation may be required and while some strip or raft foundations are likely it is almost certain that extensive piling will be required. New roads will be constructed and ultimately new Luas tracks may be constructed.

It is only possible at this stage to estimate the scale, height, use, location and phasing of the draft planning scheme and use this to inform the basis of the construction programme which will be determined as part of the Section 25 process. A Construction Management Plan will also be required of developers as part of the section 25 application process. Construction materials are likely to include traditional block, timber frame construction, reinforced concrete and structural steel. Working with or near existing structures will impose particular constraints.

While there will certainly be engineering challenges involved in the construction works on the peninsula, it is not envisaged that anything will be required that has not already been done elsewhere. None of the construction methods we can now foresee would be particularly unusual and the construction industry will be well placed to provide this development in a safe, efficient and timely manner.

Developers will be required to demonstrate that appropriate engineering and construction methods are in place to prevent harm to protected natural habitats and where necessary will require the commissioning of the appropriate ecological reports outlining suitable construction methodologies.

Transportation of Building Materials.

The Draft Planning Scheme requires that a site specific Transport Impact Assessment be prepared in support of Applications for Certification. The TIA will include an assessment of the volume of construction traffic, construction method and materials that will be used along with the origin and type of transport vehicle.

Construction vehicle movements will be monitored and controlled. Measures will be taken, such as the identification of suitable construction traffic routes. It is recommended that the Port tunnel to the M50 route be used where appropriate to avoid as many residential areas as possible within the city.

Transportation of Excavation Materials.

When soil is excavated and removed off site it becomes a waste (although treatment in situ will be the preferred option). The EU Council Decision of 19 December 2002 establishing criteria and procedures for the acceptance of waste at landfills, which formed an annex to the Landfill Directive (1999/31/EC), took effect in Ireland on 12 July 2005. This Council Decision sets limit values on waste for each landfill type based on total pollutant contents and leachate concentrations.

The transport of contaminated soils of a hazardous nature for onward disposal/recovery requires compliance with the 'C1' Waste Management (Movement of Hazardous Waste) Regulations 1998 for movement between counties, or the Waste Management (Shipment of Waste Regulations), 2007 for movement between countries in the EU. Where soil has non-hazardous concentrations of contaminants, its movement off-site is subject to the *Waste Management (Collection Permit) Regulations 2007 and 2008 amendments* which require the haulier to hold a waste collection permit issued by a Local Authority. The waste collection permit specifies which facilities a haulier is permitted to transport waste to and lists the registration numbers of the vehicles to be used. Hauliers are liable to prosecution if they transfer waste to a site not listed on their waste collection permit.

During site investigations, waste soil for removal will be categorised accordingly. If material is to be shipped out, then a deepwater berth is available at Poolbeg and therefore the route will be within the peninsula. However it may be categorised for landfill or treatment in Ireland and therefore trucks will have to be covered with tarpaulin and a wheelwash will be required on site. It is recommended that the Port tunnel to the M50 route be used to avoid as many residential areas as possible within the city.

Energy and Water Demands.

The construction phase of the Draft Planning Scheme will require energy and water provision and sewage disposal. Electricity is required for site offices/ welfare facilities and for plant operations. Water will be required for staff on the sites and possibly for concrete production, washing facilities etc. The presence of operatives on site will create a demand for sewage services but temporary facilities can be used if required. It has already been highlighted that there are infrastructure constraints on the peninsula.

These constraints will not be resolved prior to construction commencing though construction is expected to take up to 20 years and most of these issues will be addressed as the construction proceeds. In any case, the demand associated with the initial construction phase is considerably less than the ultimate demand. The utility infrastructure already on the peninsula to service existing industry should be adequate to serve the early construction phase of the anticipated development works.

Health & Safety.

The aims and provisions of the Safety, Health and Welfare at Work Act 2005 and the Regulations made under the Act must be complied with to ensure the health and safety of construction workers.

The new Safety, Health and Welfare at Work (Construction) Regulations (S.I. No. 504 of 2006) that came into effect on the 6th November of 2006 must be complied with. These regulations require the appointment of the statutory role of Project Supervisor Design Process (PSDP) to prepare preliminary safety reports and a Project Supervisor Construction Stage (PSCS) to prepare detailed safety reports during construction.

At a minimum, a site specific safety and health plan will be required for site development and construction works.

Contaminated Soil and Gases.

The Safety, Health and Welfare at Work (Chemical Agents) Regulations, 2001 will be complied with to prevent exposure of workers to chemicals arising from the presence of contaminated soils, waters and also gases.

Asbestos.

The Safety Health and Welfare at Work (Exposure to Asbestos) Regulations 2006 transpose for the first time Directive 2003/18/EC and gives further effect to the Council Directive 83/477/EEC on the protection of workers from the risks related to exposure to asbestos at work and Council Directive 87/217/EEC on the prevention and reduction of environmental pollution by asbestos.

All work with asbestos materials requires a documented risk assessment. Based on the written risk assessment, where the planned asbestos-related work activity will expose or could expose workers to a concentration of asbestos fibres in air in excess of the exposure limit value (i.e. 0.1 fibres / cm³), an employer must submit a written notification to the Health and Safety Authority, 14 days before commencing any work. The site specific plan of work (also known as a method statement) for the proposed work must be submitted along with the notification.

Building Materials.

Materials used in development associated with the Draft Planning Scheme shall conform with the relevant health and safety specifications and the relevant Codes of Practice. A large amount of the building materials including sand, concrete and timber are readily available in the local and national economy.

Personnel Resources and Employment.

The development of the Draft Planning Scheme Area represents a capital investment of approximately €3.4bn and is a significant positive contribution to the City, regional and national economy. Phase 1 has a €1.3bn projected for it and the number of people employed in construction related activity would be approximately 455 persons per year.

Direct and indirect construction related services, off site manufacture and the supply of materials will also help Dublin's regional economy as most of the basic materials (concrete, blocks, plasterboard etc.) will be Dublin sourced. The economic impact of this will benefit the

Dublin region and probably the local area as there are suppliers of these materials in the locality.

The local economy (corner shops, restaurants, public houses etc.) will benefit indirectly from the construction of the Draft Planning Scheme from the estimated presence of 455 construction workers during Phase 1. In addition, local employment opportunities will be greatly enhanced by structured liaison between the DDDA, developers and local communities. The DDDA itself will use, and will seek to ensure that all developers implement the local Labour Initiative/Charter which has been successfully operated in the past. This Initiative/Charter seeks to ensure that 20% of construction related activities are sourced locally.

Construction Traffic Noise.

The Draft Planning Scheme requires that a site specific Transport Impact Assessment be prepared in support of Applications for Certification. The TIA will include an assessment of the volume of construction traffic, construction method and materials that will be used along with the origin and type of transport vehicle. Avoidance of transport routes for construction traffic through residential areas will be recommended and dealt with in the TIA. However as construction vehicle movements are likely to be during the day it is not envisaged that significant impact will occur from passing trucks on the ambient day time noise environment.

Dublin Docklands Development Authority

52-55 Sir John Rogerson's Quay
Docklands
Dublin 2

Ph: +353 18183300

Fax: + 353 18183 399

Website: www.dublindocklands.ie

Email: info@dublindocklands.ie

Prepared by Cunnane Stratton Reynolds & Others on
behalf of Dublin Docklands Development Authority

Price: €5