INFRASTRUCTURE, FLOOD PROTECTION AND REMEDIATION

Infrastructure
Flood Protection
Remediation
Policies

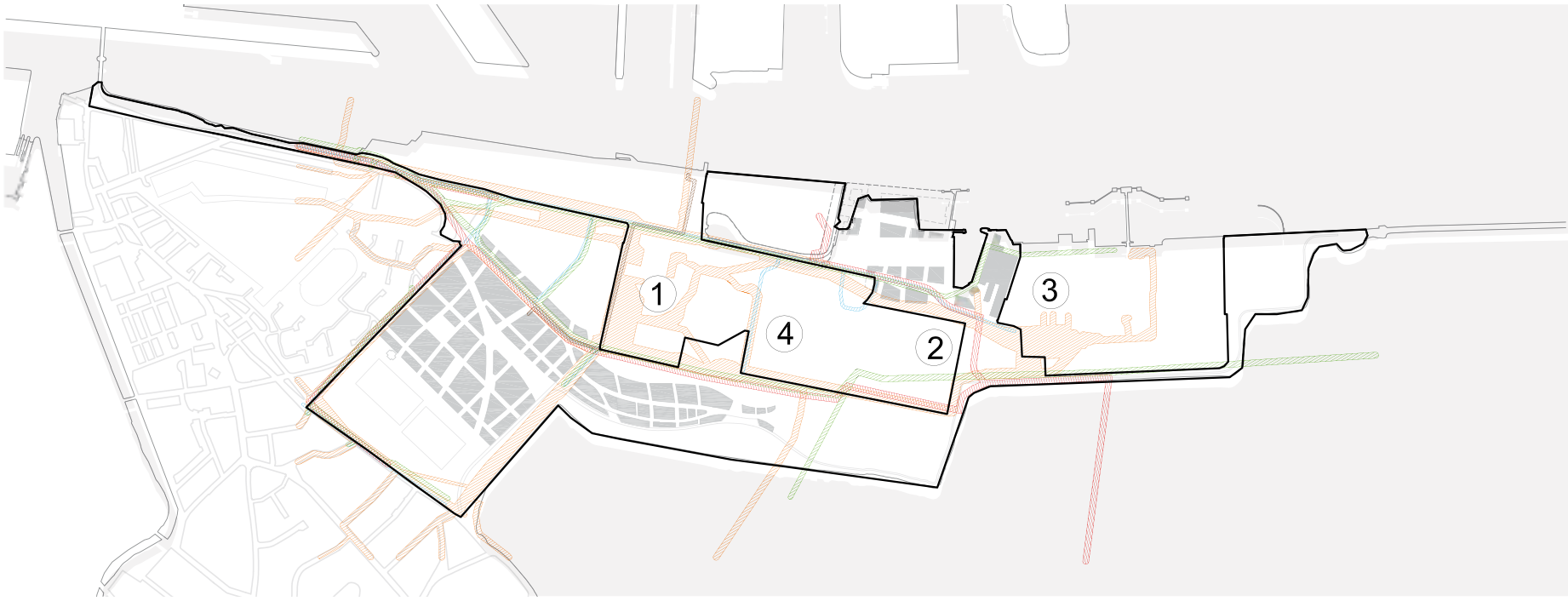

FIGURE 9.1: UTILITIES WAYLEAVES

- Electricity Cables 8m Wayleave for MV Cables
- Electricity Cables 16m Wayleave for HV Cables
- Gas Pipes 16m Wayleave
- Sewerage Pipes 12m Wayleave
- Water Pipes 12m Wayleave
- Oil Pipes 8m Wayleave

① Synergen Power Station
② Waste Water Treatment Plant
③ ESB Power Station
④ Proposed Waste to Energy Plant

Infrastructure

Existing Infrastructure

9.1 The existing utilities and water/wastewater operations on the Poolbeg peninsula, which provide electricity supplies and sewage treatment functions to Dublin and the State, will remain operational for the foreseeable future.

9.2 Associated with the existing utilities and water/wastewater operations on the peninsula are electricity cables and gas, sewage, water and oil pipes running along and across the peninsula, to which the operators require access. The Planning Scheme respects the wayleaves above the location of these pipes to enable the operators to lay, repair and maintain cables and pipes.

9.3 Applicants will be required not to build above, on or below ground in the wayleave corridors which have been identified for the major utility, telecoms, water and wastewater services which run from the utility and water/wastewater installations across the peninsula. The affected areas are shown on figure 9.1.

Future Infrastructure

9.4 There is limited space in existing roadways for new utilities, telecoms, water and wastewater service corridors. Applicants will therefore be required to reserve corridors for utilities, telecommunications, water and wastewater services to Development Zones. These corridors are restricted to the core trunk infrastructure. The service corridors are shown on figures 9.2 and 9.3. Applicants will also be required to reserve land for above ground infrastructure for utilities, telecommunications, water and wastewater which is essential to deliver services to Zones. The proposed locations for these installations are shown on figures 9.2 and 9.3.

Development Phasing in relation to Provision of Water and Wastewater Infrastructure

9.5 There is currently insufficient capacity within the regional and local water and wastewater infrastructure and distribution/collection networks to meet Planning Scheme development requirements. Master Plan (2008) policy IF6 states that the rollout and phasing of development under the Poolbeg Planning Scheme is to be subject to the provision of adequate wastewater and potable water supply infrastructure.

9.6 Development must therefore be phased in parallel with the delivery of new water and wastewater infrastructure. This is addressed in section 10.0.

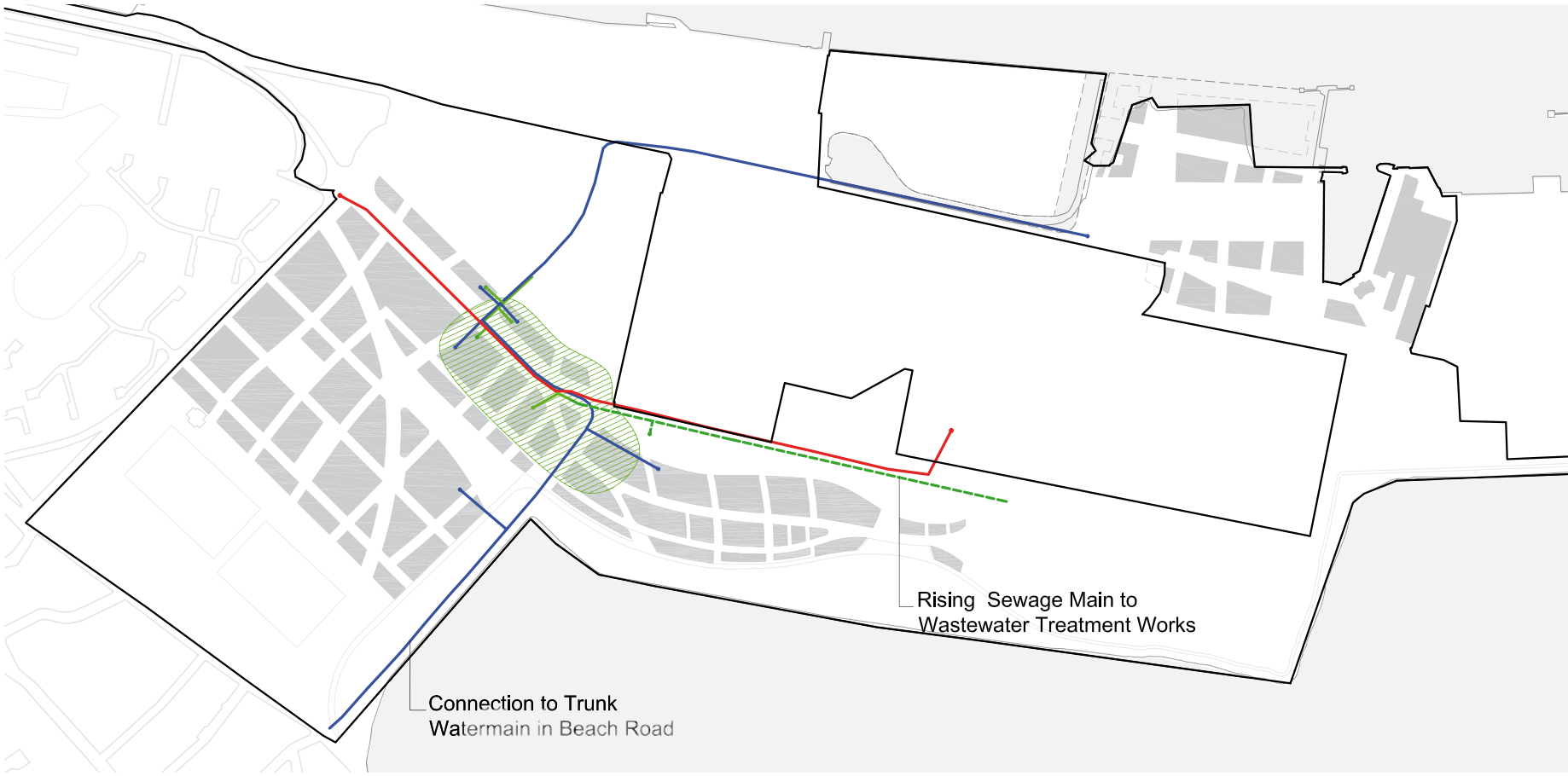

FIGURE 9.2: INDICATIVE DISTRICT HEATING, WATER AND WASTE INFRASTRUCTURE

Twin 800mm District Heating
Rising Main to Wastewater Treatment Works
Sewermain
Watermain
Sewage Pumping Station to be located within this area

9.7 Dublin City Council is the Water Services Authority for the area, and is responsible for permitting connections to the public water and wastewater networks. Applicants will be required to apply directly to the Water Services Authority in respect of connections. Applicants, in addition to complying with the Greater Dublin Regional Code of Practice for Drainage Networks and Dublin City Water Supply By-laws 2003, will be required to comply with the requirements of the Water Services Authority.

9.8 The requirements of the Waterwork Framework Directive, the Water Services Act, the Waste Water Discharge Regulations and other statutory provision are applicable in relation to the provision of new water and wastewater infrastructure.

9.9 Strategic infrastructure necessary to serve the peninsula may be delivered by the Water Services Authority and/or may be conditioned as part of Section 25 Certification.

Water

9.10 The existing water supply network on the peninsula is not adequate to serve the needs of the anticipated development. New infrastructure will be required to provide fresh water connections to Zones where development is proposed.

9.11 At a local level, the existing trunk main coming into the area, via Ringsend Park, is not adequate to serve the anticipated development. While it may have capacity to serve a very limited amount of early phase development, upgrading or duplication of this main will take some time and would need to start immediately. It may be possible to lay a new trunk main along the South Shore from Beach Road but the feasibility of doing this requires investigation and approval by the Water Services Authority. It is likely that the works would be carried out by Dublin City Council but funded, at least partially, by development levies.

9.12 At a strategic level, Dublin City Council would have difficulty in supplying the required volume of treated water to meet the future demands on the Poolbeg peninsula. To facilitate the development of the peninsula and other developments, it is likely that a trunk main augmentation to this general area will be required. Dublin City Council are also concerned about their ability to provide treated drinking water for the level of development now envisaged throughout the city. A new supply of drinking water will be required and it is considered unlikely that this will be in place before 2015.

9.13 The general Planning Scheme philosophy of conserving resources in the first instance has been followed with regard to water. Extensive water conservation measures will be implemented on the peninsula and these will be delivered through the Planning Scheme Sustainability Toolkit. Such measures will reduce the potable water demand of the development by in excess of 40 percent. While this is a significant reduction in the demand beyond current building practice, the works outlined above will still be required.

FIGURE 9.3: INDICATIVE GAS, ELECTRICITY AND TELECOMMUNICATIONS INFRASTRUCTURE

Gas
ESB
Telecom

ESB substation to be located within this area
Bord Gais Above Ground Installation
to be located within this area
(Installations above are required to be 100m apart from each other.)

Sewerage

9.14 The Waste Water Treatment Plant is due to expand to its ultimate capacity; this is scheduled to be completed by 2012. This will not be sufficient for the future needs of the region that it currently serves. Land constraints on the peninsula mean that it cannot be expanded further and a second major treatment plant will be required in another location. The lead-in time for this is likely to be at least 10 years.

9.15 The existing plant is critical to sewerage treatment in the Dublin region. Its operations are vital to maintaining the water quality in Dublin Bay, and the city's blue flag beaches. It is assumed that the plant will remain in place, and in operation, for the foreseeable future.

9.16 New development on the peninsula has been planned to drain to the Ringsend Waste Water Treatment plant via a new network of foul sewers and a new sewage pumping station. A potential route for this is shown on figure 9.2 but this requires more detailed assessment. This is dependant on the treatment works being expanded and some upstream flows being diverted or removed from the system. This work would fall within the remit of DCC as Sanitary Authority.

9.17 The sewage pumping station will have a minimum footprint of approximately 10 metres by 10 metres and is likely to be located in the area of search identified on figure 9.2. The facility will need to be provided on an independent plot of land, reserved only for this purpose. Foul and storm water drainage are required to be drained via separate networks.

Drainage

9.18 Sustainable drainage techniques are essential to ensuring that the long-term risk of flooding is managed. To deal with surface water, new development requires source control management and adequate sustainable drainage arrangements. All applications for Certification must demonstrate appropriate provision for surface water infrastructure to serve new development.

9.19 Source control management involves incorporating rainwater harvesting and improving the permeability of the public realm. This can help to reduce the demand for supplied water. The SuDS (sustainable urban drainage systems) approach to drainage incorporates a wide variety of techniques. As a result, there is no one standard drainage solution for a site. In most cases a combination of techniques will be required. Many of these techniques also have benefits for biodiversity by creating habitats. The use of public open spaces and roads (in particular, the Dublin Bay Valley Park) to form part of an area-wide SuDS system will be sought. Requirements for sustainable drainage are contained in the Sustainability Toolkit (appendix 5).

9.20 The Planning Scheme Sustainability Toolkit Due requires that developers must have due regard for the provisions of the Greater Dublin Strategic Drainage Study and CIRIA Sustainable Urban Drainage Guidelines and provide evidence in the form of a Sustainable Drainage Strategy (and Site Drainage Plan), incorporated into a Stormwater Attenuation Plan (see below), demonstrating how best practice has been followed.

9.21 All new development in the Dublin City Council area must comply with the stormwater attenuation requirements of the new development policy drawn up under the Greater Dublin Strategic Drainage Study. Criteria 1 (water quality protection) will impose storage requirements for developments on the peninsula and a Stormwater Attenuation Plan should be provided for all new development on the peninsula. Stormwater discharges will be either to the River Liffey or to the sea.

9.22 Storage may also be required to deal with tide locking. This is the process whereby low lying areas may not be able to drain to the sea or a tidally affected watercourse during high tide conditions. Any rain that falls during the relevant period has to be stored to prevent flooding. Detailed assessment of storage required for tide locking will be carried out by developers and should form part of the Stormwater Attenuation Plan. Dublin City Council has indicated that storage should be provided when the tide level is higher than the invert level (bottom internal level) of any outlet pipe. Design should be carried out for a 30-year rainfall event and a one-year tide event, equivalent to approximately 2.5 metres ODM. For design purposes it can be assumed that the tide is 300mm lower one hour either side of high tide and 900mm lower after two hours.

Electricity

9.23 There are two power stations on the peninsula, both of which are required in the long-term for electricity generation. All existing high voltage powerlines are considered critical to ESB national operations and cannot be removed. Diversion of the power lines would be prohibitively expensive.

9.24 A new 110 to 220Kv substation and a new network of medium voltage distribution lines will be required on the peninsula before Phase 2 of the development can proceed. The new substation will have a minimum footprint of approximately 40 metres by 40 metres (or 40 metres by 15 metres if it is two-storeys high). This will need to be separated from the existing substations and Bord Gais installations. It is expected to be located in the area of search identified on figure 9.3 and will need to have a clear view to the sky. The ESB substation and the Bord Gais Above Ground Installation are required to be at least 100 metres apart from each other.

Gas

9.25 A new Bord Gais above ground pressure reduction station and local distribution mains will be required on the peninsula before Phase 2 of the development can proceed. It is expected that the new pressure reduction station will be located within the area of search identified on figure 9.3. The minimum footprint of the facility will be about 4 metres by 2.5 metres and it will require 5 metres clear width around it. The ESB substation and the Bord Gais Above Ground Installation are required to be at least 100 metres apart from each other.

Telecoms

9.26 A high-speed electronic data transfer network is required to meet the needs of new enterprises and the expectations of future residents and needs to be delivered in Phase 1 of development. In order to guarantee a secure communications service, a telephone exchange building is required. This building should be located in Zone 1 and will need to be located at least 100 metres away from ESB substations. The exchange would be the size of a small domestic house.

9.27 A fibre optic network is recommended to service the peninsula. This would enable television and broadband companies to access all residential units and office blocks.

9.28 A transmitter antenna may be located on the telephone exchange building for the telecommunications providers to provide wireless connectivity. Other means for wireless communications such as Wi-fi, Wimax and 4G may be an alternative to the line of sight wireless communications.

District Heating

9.29 A district heating system is currently being promoted in Dublin, with the two power plants currently on the peninsula identified as potential heat suppliers alongside other proposed infrastructure. This system has the potential to provide a sustainable energy supply to buildings within the Planning Scheme area and further afield.

9.30 All developments proposed within the Planning Scheme area will be required by the Planning Scheme Sustainability Toolkit to connect to a district heating network where the opportunity is provided. If connection to a district heating network is not deemed feasible at the time of application then adequate justification must be given and the development must be designed to facilitate future connection should it become viable at a later date.

9.31 District heating will ultimately allow the occupants and inhabitants of the Poolbeg peninsula to benefit from a more cost effective and environmentally friendly heat source than conventionally available. While there may be a requirement for initial and supplementary natural gas use, the load balancing effect of a larger network, economy of scale and ultimate connection of the major waste heat sources mentioned above will provide broad cost and environmental dividends.

Flood Protection

9.32 Whilst the northern edge of the peninsula is protected from waves by the north and south bull walls, the southern edge is exposed to significant wave action. Strategic flood protection works will be carried out by others, including Dublin City Council, where this is considered to be necessary. Site specific flood protection works will be carried out by individual developers, where the need for them is identified by Flood Risk Assessments.

9.33 A number of measures proposed under the Planning Scheme could affect flood defences on the peninsula. This applies particularly to Zones 3 and 4. Therefore, all development proposals and landscape works will be required to submit a Flood Risk Assessment with Applications for Certification to demonstrate that the schemes do not increase flood risk in any area, and reduce the risk where possible. The Flood Risk Assessments must also identify what site-specific flood protection works are necessary.

9.34 The Greater Dublin Strategic Drainage Study recommends that future ground floor levels be designed based on a future tide height of at least 4.0m ODM, or as may be required by Dublin City Council or the Office of Public Works. An additional freeboard is required to be provided above this level. The OPW recommends a minimum freeboard of 0.5 metres in coastal areas. The Greater Dublin Coastal Flooding Protection Project recommends various levels to be used in the design of flood defences for the Peninsula. These vary in height from 4.2m ODM to 4.6m ODM.

Remediation

9.35 It is anticipated that many development sites will have contaminated soil and groundwater arising from previous landfilling and heavy 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 encountered is appropriately dealt with. Strategies may include removal, capping or remediation. Developers are required to have regard to the mitigation measures identified in the Geotechnical, Soils and Ground Conditions section of the Environmental Impact Statement which supports the Planning Scheme. Appendix 4 contains details of the evidence required from developers, in the form of a Report on Site Contamination, which will involve investigation of contamination and identification of remediation measures, where necessary, before a Section 25 Certificate is granted.

Policies

The Authority will:

INF 1 Facilitate the provision of infrastructure and services in tandem with the development of the peninsula as specified in the Planning Scheme.

INF 2 Support the proposal to provide a district heating system on the Poolbeg peninsula and in the wider city area, in co-operation with ESB and Dublin City Council. Encourage major heat producers, including the existing power stations to contribute to this system.

INF 3 Actively promote, with Dublin City Council, as the Water Services Authority, and other relevant authorities at regional and/or local level, that the potable and fire water supply, together with the foul sewer and storm water drainage systems, are upgraded to meet the demands arising from the additional development in advance of, or in parallel with, the carrying out of the development, whilst protecting the environment and having regard to the Greater Dublin regional water and drainage infrastructural constraints.

INF 4 Support Dublin City Council and the Office of Public Works in enhancing flood-protection measures in the area.

INF 5 Require that developers do not develop above, on, or below major utility, telecoms, water and wastewater wayleave corridors, as indicated on figure 9.1.

INF 6 Require that developers reserve the line of new district heating, water, sewage, electricity, gas and telecommunications service corridors and sites for associated essential above ground installations, as indicated on figures 9.2 and 9.3.

INF 7 Require a system of water management that facilitates the conservation of potable water, as detailed in the Sustainability Toolkit, including complying with Dublin City Council's Bye-Laws for the Management of Water Services and the Conservation of Drinking Water 2003.

INF 8 Require Applications for Certification to demonstrate provision for surface water infrastructure to serve new development. Require all new development to integrate sustainable drainage techniques, including source control management and Sustainable urban Drainage Systems (SuDS), as detailed in the Sustainability Toolkit, to minimise flood risk and enhance the quality of storm water runoff. Foul and storm water drainage must be separated.

INF 9 Encourage the retrofitting of SuDS where possible to remove storm water from the existing sewerage system and enhance water quality in the River Liffey and Dublin Bay.

INF 10 Require standards for energy conservation, use and generation in new development to be implemented as detailed in the Sustainability Toolkit, including ensuring that Variation 22 to the Dublin City Development Plan is complied with.

INF 11 Require developers to facilitate connection to any existing or proposed district heating system, as detailed in the Sustainability Toolkit.

INF 12 Require developers, where practical, to set minimum floor levels above predicted high tide levels, taking into account the likely effects of climate change as recommended by Dublin City Council. Where this is not practical due to the requirement to provide active use at street level, then innovative designs, flood resistant materials and appropriate land uses will be required at ground level. Scheme design must take into account recovery from potential flooding and safe escape routes.

INF 13 Require that all new proposals for development or works to open spaces are subject to a full Flood Risk Assessment, to ensure that there is no increase in flood risk or interference with existing flood defences, and, that opportunities for improvements to the current level of flood protection are identified. All flood defences must meet Dublin City Council and national standards and be implemented before first occupation of new development.

INF 14 Require that, in their design and operation, canals, waterways, locks and other such infrastructure, do not compromise flood protection for Dublin or the Poolbeg peninsula.

INF 15 Require full investigation and assessment of soils and water for contamination for Section 25 Applications in the form of a Report on Site Contamination, which takes into account the Geotechnical, Soils and Ground Conditions section of the Environmental Impact Statement. Require that any contaminated soil or water encountered must be appropriately remediated, capped or disposed of to ensure that there is no unacceptable risk to either people or the environment. (See appendix 4).