

# Chapter 6



## 6.1 Implementing the SDZ/Delivery Framework

### 6.1.1 Dublin City Council as Development Agency

The Minister for the Environment, Community & Local Government has designated Dublin City Council as the Development Agency for the implementation of the Planning Scheme for the SDZ. In its role as Development Agency, the City Council will actively promote the implementation of the objectives of the Planning Scheme, including community infrastructure, through collaboration and engagement with all relevant stakeholders, proactive project management and ongoing monitoring of progress, together

with consultation and feedback mechanisms.

The City Council is responsible for a huge range of services – economic development, urban regeneration, roads and transportation, water and drainage services, housing, community development to name some key areas – and, as Development Agency, it is intended to draw on the range of expertise, skills and responsibilities of the organisation in ensuring the successful delivery of the policies and objectives of the SDZ Planning Scheme.

The City Council is also the planning authority that will assess all planning applications under the Planning

Scheme and the Council will ensure that all development is carried out in compliance with the policies, objectives and standards required in the Planning Scheme.

In carrying out its role as Development Agency, the City Council will seek to co-ordinate with all relevant stakeholders, including Government Departments and agencies responsible for the provision of infrastructure to ensure co-ordinated delivery and funding.

An Implementation Plan for the Development Agency will be prepared following the adoption of the Planning Scheme to prioritise the investment and funding requirements identified in the Planning Scheme and set out the delivery programme for the Development Agency. Engagement with relevant stakeholders, including landowners and infrastructure providers, will form part of the preparation of the Implementation Plan.

### 6.1.2 Providing co-ordinated delivery, requirements for each City Block

Prior to the submission of a planning application for development within a City Block, a City Block Roll-out Agreement (CBRA) shall be entered into between developers/ owner(s) and the SDZ Agency in order to secure the co-ordinated delivery of the mix of uses and supporting infrastructure necessary to deliver the objectives of the Scheme within each City Block unless an individual planning application for the City Block addresses these matters.



The CBRA or Joint CBRA shall address, inter alia, the following:

1. (a) The spatial distribution of the required ratio of commercial to residential across the City Block, to achieve a co-ordinated, pattern of land-use across the block over time, and to ensure the unsustainable end-loading of a mono-use environment is avoided. The mixed-use ratio does not apply to small sites under 0.2ha (2,000m<sup>2</sup>) except where active uses are necessary to animate the street. Neighbourhood retail and community facilities shall fall into the Residential Category for the purposes of the ratio.
- (b) How social housing units will be provided in accordance with the City Council's Housing Strategy and Government Housing Policy.
- (c) The infrastructure requirements for the City Block including connections to the strategic network, together with a programme of installation works and responsibility for delivering infrastructure, such that each application can demonstrate the means by which the necessary infrastructure can be installed prior to the occupation of a given unit. Flood management and soil remediation measures are to be provided as necessary as part of development.
- (d) The area to be taken in charge by DCC, with attendant timelines.

(e) The treatment and use of all lands not proposed for initial development within each City Block, shall include interim landscaping or other interim measures.

(f) The design and layout of proposed new streets/lanes/parks and public spaces, having regard to the objectives in Section 5.4.3.

(g) Any identified social infrastructure needs for the area e.g. health centre, crèches etc.

2. Each planning application must be accompanied by a Compliance Statement, demonstrating, inter alia, how the (J)CBRA is being implemented. In the absence of a CBRA, the Planning Authority shall determine planning applications in accordance with the objectives of the SDZ Scheme, including the application to the site of the full range of City Block objectives.

At the discretion of the Development Agency, planning applications relating to minor, non-material amendments to existing or permitted development previously the subject of a Compliance Statement, shall not be subject to this requirement.

3. All planning applications must accord with the General Principles and the Fixed Elements of the SDZ Planning Scheme, in addition to those elements addressed in the Compliance Statement for each City Block.

4. All proposed development in relation to:

(a) development built out by the date the SDZ Scheme takes effect.

(b) any extensions and/or changes of use in relation to all future completed development in the SDZ, shall comply with the provisions of the SDZ Scheme.

(c) In cases where comprehensive site re-development is not envisaged in the short term, works in furtherance of, or extensions to, existing established uses, shall be considered on their merits, in accordance with the policies and objectives of the Dublin City Development Plan.

(d) In cases where comprehensive re-development of existing buildings is envisaged in the future, new proposals shall have regard to the overall proposals in the SDZ and the relevant City Block objectives

However, where policies, objectives, principles or standards are not specifically addressed in the SDZ Planning Scheme (e.g. apartment standards), those in the City Development Plan shall apply.

In relation to height, any new building or additional height to existing buildings shall relate to the prevailing height as set out in the relevant City Block or adjacent blocks in the Development Code. Proposals involving a material change of use shall accord with the

land-use mix ratio as set out in the Development Code (See Chapter 5 for Development Code for Individual City Blocks).

### 6.1.3 Assessing SDZ Planning Applications

Planning Applications under the SDZ Planning Scheme will be allocated a specific prefix 'DSDZ' in addition to their normal planning reference number to identify their Strategic Development Zone status.

All SDZ planning applications must be assessed in the context of the approved Planning Scheme. Where a planning application is made for a development within the SDZ, the normal provisions governing planning permissions apply except that there is no appeal to An Bord Pleanála against the decision of the planning authority.

Planning permission shall be granted where the development, if carried out in accordance with the application or subject to any conditions which the planning authority may attach to a permission, would be consistent with the Planning Scheme. Planning permission shall not be granted for any development which would not be consistent with such a planning scheme.

In order to assess planning applications under the SDZ and determine whether planning permission should be refused or granted, a Compliance Matrix will be prepared. This Compliance Matrix will include the core high-

level objectives for the SDZ, the core objectives applying at City Block level, while also focusing on the individual building design to ensure the delivery of building quality. Applicants for planning permission will be required to complete the Compliance Matrix to show how their development matches the strategic and specific design intent of the SDZ Planning Scheme.

## 6.2 Integration with Wider Docklands and the City

### 6.2.1 The SDZ, the Docklands Area and the City Development Plan

The SDZ is part of the wider Docklands Area, which itself lies within Dublin's Inner City. The reintegration of the area

into the City in both policy terms and actual physical connections is essential in completing the large-scale re-development and regeneration of the area that was commenced under the DDDA Section 25 Planning Schemes and that will be concluded by the SDZ Planning Scheme.

## Chapter 6 Implementation and Monitoring the SDZ Planning Scheme

The Docklands Masterplan 2008 set out an ambitious policy framework for the economic, social and cultural renewal of the Docklands Area. The Dublin City Development Plan sets out the strategy for the sustainable development of the City into the future, including a





set of specific policies and objectives applicable to the Docklands. However, the Development Plan will be further amended as necessary to incorporate those elements of the Docklands Masterplan that remain relevant, so that the successful legacy of regeneration in the area can be carried on through the City Development Plan. In this way, urban regeneration of the Docklands will be set within the wider context of the city in an integrated way, locking the area into the shared vision for a sustainable city.

### 6.3 Delivering Public Infrastructure

A range of strategic and local infrastructure and facilities is identified in the SDZ Planning Scheme as essential to facilitate development within the Strategic Development Zone. The delivery and sustainable funding of this infrastructure will be a key focus of Dublin City Council in its role as Development Agency.

Innovative ways of delivering infrastructure and facilities by leveraging implementation through imaginative strategic partnerships such as joint ventures with the private sector and drawing on Corporate Social Responsibility objectives of key stakeholders, will be pursued.

To ensure sustainable funding of projects, finance from a range of sources will be sought, including Government, other statutory agencies and private funding.

#### 6.3.1 Development Contributions

Development Contributions will apply to the area. The Planning & Development Act 2000 (as amended) enables a Planning Authority, when granting planning permission, to attach conditions requiring the payment of a contribution in respect of public infrastructure and facilities benefiting the development of the administrative area of the Planning Authority. This relates to public infrastructure and facilities that are provided, or that it is intended will be provided, by or on behalf of the Local Authority.

The City Council operates a General Development Contributions Scheme under Section 48 of the Planning & Development Act 2000 (as amended) which applies to development across the entire city and this Scheme will continue to apply in the Docklands and the SDZ Planning Scheme Area.

There may be a requirement for additional funding, over and above that collected under the Section 48 contribution scheme adopted by the City Council, towards specific public infrastructure projects or services. Pending the outcome of the educational facilities review provided for under objective CD6, this may include the delivery of certain necessary school facilities. Consideration shall be given to the implementation of a Supplementary Contribution Scheme under Section 49 of the Planning and Development Act, 2000, as amended. Such scheme would be applicable to the Planning Scheme area in order to

provide for specific projects identified in the Strategic Development Zone and wider Docklands Area, benefiting development proposed therein. Adoption of any such supplementary contribution scheme is a reserved function of the elected members of Dublin City Council.

Where there are specific exceptional costs arising in relation to an individual development at planning application stage, the payment of a special development contribution under Section 48(2)(c) of the Planning and Development Act, 2000, as amended, may be considered.

The DDDA applied a special development levy to development under the Section 25 Planning Schemes for the provision of the Luas Line from Connolly Station to The Point. In order to ensure contributions towards the cost of provision of the Luas C1 Line are continued, a Supplementary Development Contribution Scheme for the Luas under Section 49 of the Planning & Development Act 2000 (as amended) will be introduced and applicable to development within the relevant catchment area.

In devising any new development contribution schemes, the combined impact of the rate of contributions will be considered to ensure that they do not act as a disincentive to development.

#### 6.4 Promoting and Marketing

There is a strong view from the business community, both big companies and

small, that Docklands requires specific marketing. Maintaining and enhancing the Docklands brand and international marketability as an attractive and prime location for investment and high-value development is also one of four key focus areas referred to in the Minister's announcement, on the winding up of the DDDA.

The Docklands re-development, including the creation of new public spaces, contemporary architecture, and the social regeneration undertaken by the DDDA, has created a distinct, recognisable urban quarter.

The Docklands also contains a number of sub-areas, such as IFSC and the emerging 'Silicon Docks' as well as distinct traditional and contemporary residential communities, each with their own unique sense of place and identity.

All of this has combined over the past decade to create a distinctive and interesting place, with an array of outdoor and indoor event spaces and attractions allowing the all-important cultural sphere to intermingle with economic and corporate activity. The area is now considered to be a vibrant, creative, heritage-rich and contemporary part of the city.

The promotion of the Docklands as a vibrant living place with new housing models, an array of attractions and mixed, multi-cultural neighbourhoods has also been successful.

Continuing and evolving this branding of the Docklands as a great living urban environment providing a unique and enriching life choice and experience

for residents, workers and visitors alike is vital to the continued successful regeneration of the area.

Successful implementation of the SDZ Planning Scheme will require continued communication about the real benefits of living and working in the area, and creating strong relationships with individual businesses and sectors, communities and cultural actors to build, share and promote a tangible vision of the end product envisaged in the Planning Scheme.

The Docklands brand internationally and amongst international investors is synonymous with an attractive and prime location for investment and high-value development. This international reputation must be carefully maintained and nurtured in order for the area to retain and evolve its role as a key national and international economic engine.

Drawing on the expertise and networks of stakeholders with a mutual interest in the continued success of marketing the Docklands will bring the message to a wide and diverse audience with whom the excitement of creating a new city quarter can be shared. In this regard, working with and drawing on the views and expertise of key stakeholders such as the IDA, Enterprise Ireland, Dublin Chamber, multi-nationals/ big companies and the Docklands Business Forum will be essential.

In addition to the objectives set out in earlier parts of this document, it is intended to develop and implement a marketing strategy, in conjunction with key stakeholders, to promote

the Docklands internationally as an attractive, high-value location for economic investment.

### 6.5 Monitoring Progress

The Planning Scheme relates to the North Lotts and Grand Canal Areas of the Docklands. The City Council, as Development Agency, will be responsible for monitoring and reporting on feedback. The City Council will prepare an Annual Progress Report detailing planning permissions granted, development commenced and/ or completed, progress on objectives and progress on sustainability indicators. The Progress Report shall also provide annual updates on the monitoring programme set out in Section 9 of the Environmental Report, as well as on other requirements including the community audit (CD21), the education audit (CD6) and the design briefs required for the public realm, campshires, and public open spaces. The Report will be submitted to Dublin City Council, its relevant Area Committees and to any other formal consultative structure put in place to oversee regeneration in the wider Docklands Area.

In addition, a formal twice-annual consultative forum will be held in the Docklands, with representatives of business, community, environmental and other stakeholders in the area to engage in two-way communication and feedback on progress on the SDZ.

Ongoing communication and consultation will be facilitated and promoted through dedicated information channels.



## APPENDIX 1 - STRATEGIC FLOOD RISK ASSESSMENT

### Introduction

This Flood Risk Assessment was prepared and informed by the DEHLG Guidelines for Planning Authorities (DEHLG & OPW, 2009) on 'The Planning System and Flood Risk Management' (and Technical Appendices). The Guidelines state that planning authorities are required to introduce flood risk assessment as an integral and leading element of their development plan functions. It sets out that development plans and local area plans must establish the flood risk assessment requirements for their functional area.

A Strategic Flood Risk Assessment (SFRA) is an area-wide assessment of the existing risks of flooding and the impact on those risks arising from proposed spatial planning decisions. A staged approach was adopted in the preparation of this FRA. The Stage 1 approach has identified that the area is at risk of flooding, and the principle sources of flooding identified are pluvial and coastal flooding. The Stage 2 Flood Risk Assessment will confirm sources of flooding that affect the plan area, and will involve the preparation of a flood zone map, based on best available information. This assessment will also detail a flood management strategy for the SDZ area. Where a detailed Flood Risk Assessment is required to assess flood risk areas in sufficient detail and to provide quantitative appraisal of potential flood risk to a proposed or

existing development, a Stage 3 Flood Risk Assessment will be carried out.

The guidelines require the planning system at national, regional and local levels to:

- a. Avoid developments in areas at risk of flooding, particularly floodplains, unless there are proven wider sustainability grounds that justify appropriate development and where the flood risk can be reduced or managed to an acceptable level without increasing flood risk elsewhere.
- b. Adopt a sequential approach to flood risk management when assessing the location for new development based on avoidance, reduction and mitigation of flood risk, and incorporate flood risk assessment into the process of making decisions on planning applications and planning appeals.

### Strategic Development Zone North Lotts and Grand Canal Docks – Statutory Context

The Government designated the North Lotts and Grand Canal Dock Area as an SDZ for the following reasons:

- The potential and need for comprehensive planning and development of the site due to its economic and social importance to the State
- The efficient use of public investment in infrastructural facilities

- The giving of effect to the policies contained in the development plan made by Dublin City Council in accordance with Section 9 of the Planning & Development Act, 2000 (as amended).

Part IX of the Planning and Development Act 2000-2011 provides for the designation of a Strategic Development Zone (SDZ) to facilitate development which in the opinion of the Government is of economic or social importance to the State.

The Government designated lands at North Lotts and Grand Canal Docks in the Dublin Docklands as a site for an SDZ on the 18<sup>th</sup> December 2012 and specified Dublin City Council as the Development Agency (SI No 530 of 2012). Where land is designated as an SDZ by Government Order, a Planning Scheme must be prepared by the Development Agency before any development can be permitted in the SDZ Area.

### Description of Study Area

The North Lotts/Grand Canal Dock Planning Scheme (Fig. A) is situated on the River Liffey Estuary which flows through Dublin City and between the great South Wall and North Bull Wall before entering Dublin Bay. The Bay itself is a shallow bay with water depths not greater than 20m at low tide at its outer limit between Sorrento Point and Baily at Howth. The water depth decreases towards the harbour at Bull Island to less than 5m occurring in the inner half of the Bay.

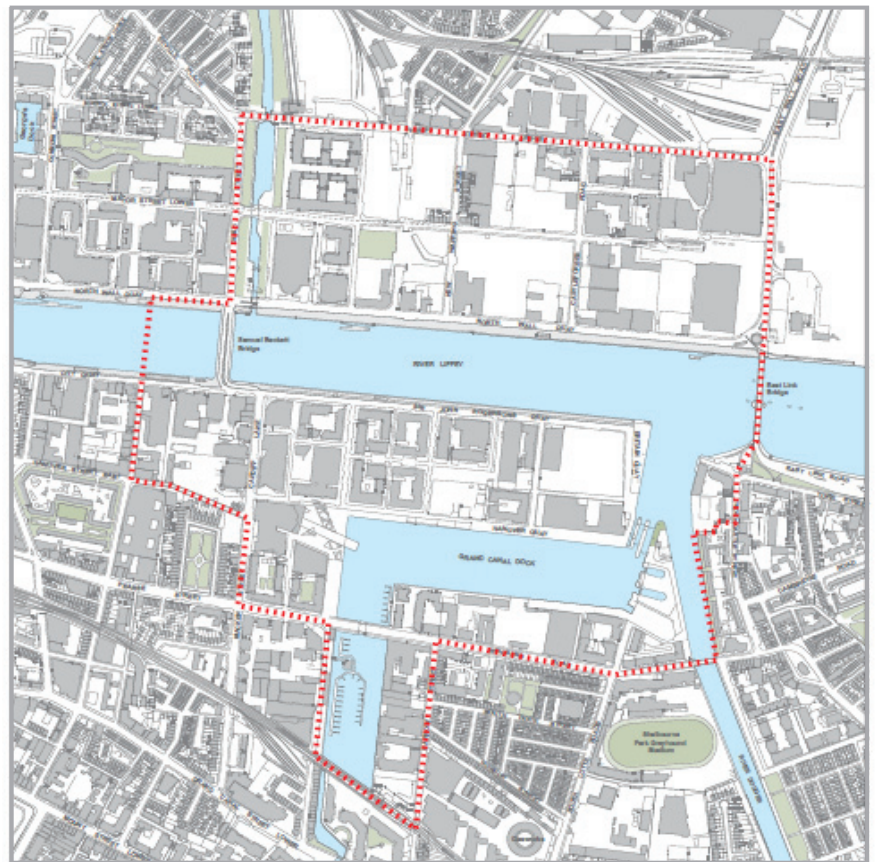


The Docklands area has seen a large amount of development over the past fifteen years. However, there are a number of strategic sites and vacant lands at the core of the regeneration areas, which need to be developed to consolidate the area and help achieve a critical mass necessary to support a vibrant mixed urban quarter. The Samuel Beckett Bridge provides a vital link between the two locations north and south of the Liffey. The plan area including the water bodies such as Royal Canal (Spencer Dock), the Liffey, Dodder and Grand Canal Basin, is circa 90ha, of which the land take is 62ha whilst the lands to be developed equates to circa 22ha.

On the basis of the development capacities set out in this scheme, the 22ha of available lands could accommodate an estimated 2,600 residential units and 305,000m<sup>2</sup> of commercial floor-space, which equates to a residential population of circa 5,800 and circa 23,000 workers.

### Identification of Flood Risk

Over the last few decades, the risk of flooding has continued to increase in Ireland. Much of this has been attributed to climate change, resulting in increased and more intense rainfall, increased sea water levels, and also due to increasing levels of urbanisation. Coastal erosion can also increase the risk of flooding in some areas. The main types of flooding are from (i) coastal flooding which arises from the sea or estuaries, (ii) fluvial flooding which



**Fig. A** Planning Scheme Boundary

arise from rivers or streams, (iii) pluvial or surface water flooding which arises directly from rainfall, (iv) groundwater flooding (v) dam breach and (vi) sewer/infrastructural failure.

Dublin City, due to its coastal location is prone to various forms of flooding. The main flood risks identified in the SDZ area are from coastal/tidal, pluvial and

infrastructural overload or failure.

As the area is prone to flooding, the Justification Test is required. The sequential approach to planning is the key tool in ensuring that development is first and foremost directed towards land which is at low risk of flooding. This is described in Fig. B.

**Sequential Approach & Justification Test**

The key principles of the risk-based sequential approach is managing flood risk in the preparation of plans as set out in Chapter 3 of the DEHLG Flood Guidelines and these principles will be followed in Docklands Planning area.

This is the key tool in the decision-making process of preparing plans to ensure that development is first and foremost directed towards land that is at low risk of flooding. This approach makes use of existing flood risk assessments (FRAs) and other data identifying flood zones for rivers, coastal and pluvial flooding and the classification of the vulnerability of flooding of different types of development.

The sequential approach in terms of flood risk is based on the following principles:

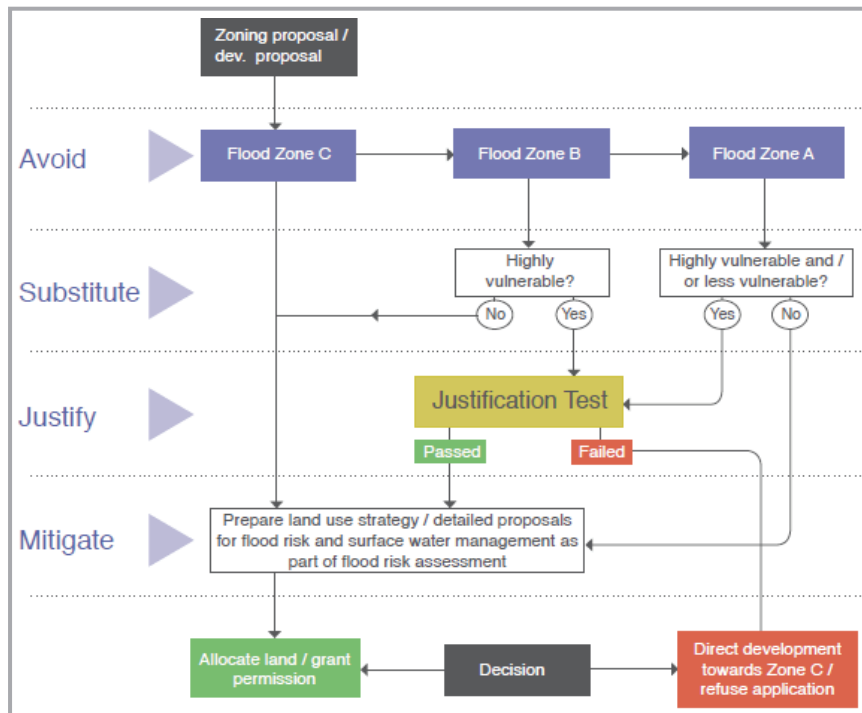
- The primary objective of the sequential approach is that development is primarily directed towards land that is at low risk of flooding (AVOID).
- The next stage is to ensure that the type of development proposed is not especially vulnerable to the adverse impacts of flooding (SUBSTITUTION).
- The Justification Test is designed to rigorously assess the appropriateness, or otherwise,

of particular developments that, for various reasons, are being considered in areas of moderate or high flood risk (JUSTIFICATION).

- The test is comprised of two processes, namely the Plan-Making Justification Test and the Development Management Justification Test.

**Justification Test for North Lotts and Grand Canal Planning Scheme**

The flood risk assessment carried out for the purposes of the Planning Scheme in the Docklands concluded that certain areas zoned for development are within lands at risk of flooding.



**Fig. B** Sequential Approach Mechanism in the Planning Process (source 'The Planning System and Flood Risk Management – Guidelines for Planning Authorities' November 2009)

In this context, the designation satisfies the Justification Test, in that:

**1. The urban settlement is targeted for growth under the National Spatial Strategy, Regional Planning Guidelines, statutory plans, as defined above or under the planning guidelines or planning directives of the Planning and Development Act, 2000 (as amended).**

The National Spatial Strategy (NSS) recognises Dublin, as the Capital City, plays a vital national role and that the performance of its economy is essential to the success and competitiveness of the national economy. The NSS places particular emphases on the physical consolidation of the metropolitan area, which incorporates the entire functional area of Dublin City Council. The Regional Planning Guidelines (RPGs) for the Greater Dublin Area (GDA) 2010 – 2022 translates the national strategy to the regional level with an emphasis on Dublin as the driver of national development and the need to physically consolidate the growth of the metropolitan area.

The RPGs recognise that the settlement hierarchy selected by the Guidelines takes account of the fact that while a number of key towns and the City which are vulnerable to two key sources of flooding, fluvial and coastal, effective management of flood risk coupled with wider environmental, sustainability and economic considerations mean that it is possible to facilitate the continued consolidation of the existing urban structure of the GDA.

In line with the sequential and justification criteria set out in the Department's Guidelines on the Planning System and Flood Risk Management, it is considered that these locations should be encouraged to continue to consolidate and to grow in order to bring about a more compact and sustainable urban development form while at the same time managing flood risk appropriately.

The Dublin City Development Plan 2011-2017 has been prepared in accordance with the requirements of the Planning and Development Act, 2000, (as amended) the Planning and Development (Strategic Environmental Assessment) Regulations 2004 and Article 5 of the Habitats Directive 92/43/EEC.

Two areas within the high/medium flood risk fall within the SDZ plan area. These areas relate to the two former Section 25 Planning Schemes, namely the North Lotts Scheme and the Grand Canal Scheme and are identified as a Key Developing Area (KDA) and Strategic Development and Regeneration Area (SDRA) under the Dublin City Development Plan 2011 – 2017.

**2. The zoning or designation of the lands for the particular use or development type is required to achieve the proper planning and sustainable development of the urban settlement and, in particular:**

**i) To facilitate regeneration and/or expansion of the centre of the urban settlement.**

The plan area is located to the east of the City Centre, just outside the inner city zoning in the current development plan, but forms part of a Key Development Area (KDA) and Strategic Development and Regeneration Area (SDRA). The KDAs represent significant areas of the inner and outer city with substantial development capacity and the potential to deliver the residential, employment and recreational needs of the city. The Docklands area, in particular, is seen as essential as supporting the economic or cultural specialism essential for the growth and diversification of the city's economy. All of these areas correspond to high levels of public transport accessibility, whether existing or planned under Transport 21.

The Planning Scheme is considered to be the most appropriate and effective mechanism to deliver the remaining parts of this area of economic and social importance to the city and State. The extent of the SDZ reflects a sequential approach to development and the need to ensure the effective consolidation of the IFSC with build-out of remaining brownfield sites and optimisation for public investment on infrastructure to date including strategic transport infrastructure and public realm projects of city-wide importance.

**ii) Comprise significant previously developed or under-utilised lands.**

The plan area comprises a significant amount of undeveloped lands. The remaining sites available for development in the North Lotts and Grand Canal Scheme equate to circa 22ha, an area roughly equivalent in scale to the entire Custom House Docks/IFSC Area (24ha).

On the basis of the development capacities set out in this scheme, the 22ha of available lands could accommodate an estimated 2,600 residential units and 305,000m<sup>2</sup> of commercial floor-space, which equates to a residential population of circa 5,800 and circa 23,000 workers.

**iii) Will be essential in achieving compact and sustainable urban growth.**

Dublin City Council considers that the best planning routes to harness the economic and social significance of these lands and to deliver the continued regeneration of the Docklands is through the fast-track planning framework of a Strategic Development Zone (SDZ).

The re-development of this area will ensure the efficient use of public investment in infrastructure to date, including strategic transport infrastructure such as the Sean O'Casey Bridge, the Samuel Beckett Bridge and the Luas Docklands extension, Chimney Park, Royal Canal Linear Park and community facilities

such as Sean O'Casey Community Centre. The SDZ will also ensure the effective implementation and phasing of the continued regeneration of the Docklands.

**iv) There are no sustainable alternative lands for the particular use or development type in areas of lower risk.**

The Government designated the North Lotts and Grand Canal Dock as an SDZ (S.I. No. 530/2012) for the following reasons:

- The potential and need for comprehensive planning and development of the site due to its economic and social importance to the State.
- The efficient use of public investment in infrastructural facilities, and
- The giving of effect to the policies contained in the development plan made by Dublin City Council in accordance with Section 9 of the Act of 2000.

In terms of the Justification Test and the rationale as to why there are no suitable alternative zoned lands, this area has been included in a series of Docklands Master Plans since 1997, and comprised two areas covered by Section 25 Planning Schemes, the North Lotts Planning Scheme and the Grand Canal Dock Planning Scheme. The vast majority of the Docklands area has been successfully

re-developed over the past two decades or relates to long-established residential communities in the vicinity of the development sites save for the Poolbeg Peninsula. However, there are a number of strategic sites and vacant lands at the core of the regeneration area at North Lotts and Grand Canal Dock, which need to be developed to consolidate the achievements to date and to help sustain a critical mass necessary to support a vibrant mixed-use urban quarter and to attract inward investment.

Dublin City lies entirely within the metropolitan area and the RPGs give direction to Dublin City as the 'gateway core' for high intensity clusters, brownfield development, urban renewal and regeneration. The SDZ is a brown-field area, and has been intensely developed for port and related industries in the 19th/early 20th centuries (up to 1970s), employing thousands of people. The NSS designates Dublin as the pre-eminent gateway in Ireland, as the key international gateway of the State. Gateways are strategically located and have a key role to play nationally and relative to their surrounding areas by virtue of their existing economic and social attributes. A core element of the RPGs is the importance of integration of land-use, employment and transport. Within the City, as the national hub of employment and transport, it is critical that the policy of encouraging high-quality new housing within the core of the gateway continues. The RPGs also takes account that while a number of key towns and the City which are



vulnerable to two key sources of flooding – fluvial and coastal – effective management of flood risk coupled with wider environmental, sustainability and economic considerations mean that it is possible to facilitate the continued consolidation of the existing urban structure of the GDA, in line with the sequential and justification criteria set out in the Department’s Guidelines on the Planning System and Flood Risk Management.

The SDZ will facilitate the future development of the Docklands area in a consolidated manner. The North Lotts and Grand Canal Dock area of the Dublin Docklands comprises some 66 hectares of the overall 520-hectare Dublin Docklands area and is where the greatest focus and pressure for re-development is likely to occur in the short to medium term. The SDZ is adjacent to the City Centre at the heart of the City Region, in the most radially connected part of the State.

The proposed SDZ will support an eastward extension of Dublin City Centre and the areas involved are well-served by high-quality public transport, including Luas, DART and mainline rail commuter services, while the more long-term proposals for a DART Underground Station at Spencer Dock would potentially result in the lands becoming the most accessible and connected part of the city. The Samuel Beckett Bridge provides a vital link between the two locations north and south of the River Liffey. The area encompasses several major attractions, including the

Convention Centre Dublin at Spencer Dock, The O2 at the Point Village and the Bord Gáis Energy Theatre at Grand Canal Dock in addition to major international employers, such as Google and Facebook, which are forging Digital-Tech clusters. These developing clusters can only be located in this location, rather than in suburban locations. The SDZ area has the potential to become a major magnet for employment and cultural and leisure uses of national importance.

#### Dublin City Development Plan Core Strategy

The Development Plan’s Core Strategy (Fig. C) designates the Docklands,

including the Docklands SDZ, as a Key Developing Area (KDA) and a Strategic Development Regeneration Area (SDRA).

The Regional Planning Guidelines Settlement Strategy for the metropolitan area includes a strong policy emphasis on the need to gain maximum benefit from existing assets, such as public transport and social infrastructure, through the continuation of consolidation and increasing densities within the existing footprint of the city. It should be noted that there is only circa 503ha of available zoned residential land which is capable of meeting the RPGs’ housing unit allocation of 42,4000 for the period 2006 – 2016.

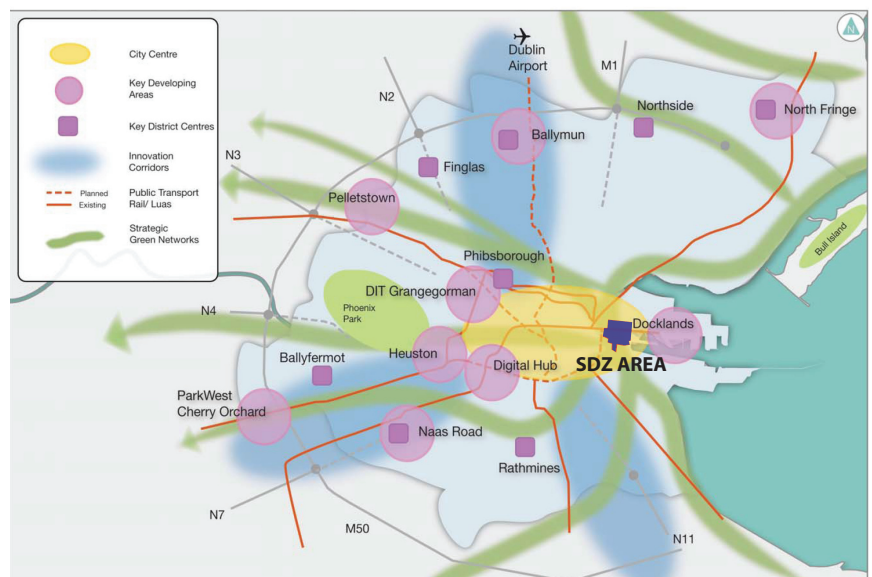


Fig. C Dublin City Development Plan Core Strategy

The Docklands area is one of 9 Key Developing Areas (in addition to the Inner City), which represent significant areas of the overall city with substantial development capacity and the potential to deliver the residential, employment and recreational needs of the city, such as Pelletstown, North Fringe, and the Naas Road lands. Several will support the economic or cultural specialisms essential for the growth and diversification of the city's economy, namely the Docklands, Digital Hub/Liberties, Grangegorman and Heuston. The table below is from the Dublin City Development Plan Table 3.3 and shows the estimated capacity of Key Developing Areas (KDAs).

The Docklands area is also designated a Strategic Development & Regeneration Area (SDRA), which are important brownfield sites with the potential to deliver a significant quantum of mixed uses and create synergies to regenerate their respective areas. As stated above, the SDZ has been designated by Government as a growth hub of economic importance to the State, and these uses can only go in certain KDAs such as the Docklands, Digital Hub/Liberties, Grangegorman and Heuston, and not in the other KDAs such as Pelletstown, North Fringe, Naas Road Lands and Grangegorman, which are intended for other purposes such as to deliver the residential,

The Development Plan sets out a series of Guiding Principles in Chapter 16 for the North Lotts and Grand Canal Dock SDRAs. These principles promote the creation of a new urban neighbourhood with a socially cohesive community and high-quality physical environment.

The core strategy of the Development Plan is to achieve the vision in a manner that is consistent with the guidance, strategies and policies at national and regional levels. In particular, the National Spatial Strategy 2002- 2020 (NSS), The Regional Planning Guidelines for the Greater Dublin Areas 2010 – 2022 (RPGs), and the Government's Smarter Travel policy – A Sustainable Transport Future 2009 – 2020, all guide and direct the fundamentals of the City Council Settlement and Housing Strategies which, in turn, are integrated into the overall development plan vision and core strategy for 2011 – 2017.

Section 4.4.1.2 of the Dublin City Development Plan sets out the approach to the Docklands area and the Port area. It recognises that significant achievements have been made to date not only in the scale of new commercial and apartment development, but also in other symbols of regeneration and new place-making such as the Point Depot (The O2), the public square and Theatre at Grand Canal Dock and the campshires. A number of policies in the Dublin City Development Plan (Policy SC1, RE2, and RE14), refer to consolidating the inner city and linking the critical mass of existing emerging

KDAs	Housing Units (Estimated)	Zoned Commercial/Employment Lands (Estimated)
1. Inner City	6,340	475 Ha
2. North Fringe	4,000	170 Ha
3. Ballymun	3,950	60 Ha
4. Pelletstown	1,800	41 Ha
5. Park West/Cherry Orchard	2,000	121 Ha
6. Naas Road Lands	2,100	63 Ha
7. Docklands	1,950	207 Ha
8. Digital Hub / Liberties	1,200	59 Ha
9. Heuston	1,200	49 Ha
10. Grangegorman/Phibsborough	800	34 Ha
Rest of City	6,340	350 Ha
Total	31,680	1,629 Ha

**Table 3.3** Estimated capacities of Key Developing Areas (DCDP 2011- 2017)

*Note: The estimated capacities in the Core Strategy relates to the 6-year Development Plan period, whereas the estimated capacity in the SDZ relates to eventual build-out. The 207ha relates to the SDRA as depicted in Development Plan Zoning Map E.*

employment, recreational and educational needs of the city. These suburban lands are not suitable for the type of HQ and FDI economic activities which the SDZ is set up to attract. Furthermore, the City Centre, with its historic Georgian fabric, cannot accommodate the large floor-plates needed to compete with the capital city region.

clusters such as in the Docklands area, also promoting the role of Dublin as the national and economic engine and drive of economic recovery and growth, including the Docklands as its core economic generator. Policies also recognise that cities are crucibles of innovation and that the City Centre and inner city and the Docklands area are the crucial metropolitan and national resources for innovation.

It is concluded that there are no suitable alternative lands for the particular employment specialisms and clusters for which the SDZ has been designated by the Government, and given that the remaining zoned lands in the city are designated for other purposes.

A flood risk assessment to an appropriate level of detail has been carried out as part of the Strategic Environmental Assessment (SEA) which demonstrates that flood risk to the development can be adequately managed and the use or development of the lands will not cause unacceptable adverse impacts elsewhere.

Flood risk was considered as an issue in the screening process for the Strategic Environmental Assessment that was undertaken for the Dublin City Development Plan 2011 - 2017. The SDZ plan was screened in line with implementation of SEA Directive (2001/42/EC), Assessment of Certain Plans and Programmes on the Environment – Guidelines for Planning Authorities to determine whether or not a full Environmental Report would nevertheless be appropriate.

It was determined that a full Environmental Report was required.

A flood risk assessment has been carried out to an appropriate level of detail. It is recognised that Dublin City is vulnerable to flooding. The majority of the lands in the SDZ would be prone to occasional flooding and would be at risk mainly from coastal and pluvial flooding. However, Dublin City Council is undertaking a number of projects to improve the defences of Dublin City.

#### **Sources of Flooding Introduction**

The main flood risks identified in the SDZ area are from coastal/tidal, pluvial and infrastructural overload or failure.

The OPW, as part of the National Flood Risk Management Policy, has developed a number of information resources for the public. These resources provide information through a number of websites: ([www.floodmaps.ie](http://www.floodmaps.ie), [www.opw.ie](http://www.opw.ie), [www.flooding.ie](http://www.flooding.ie)).

The Preliminary Flood Risk Assessment for the Republic of Ireland was published in late 2011. This was a requirement of the EU Floods Directive (2007/60/EC). The objective was to develop a method to indicatively assess potential future flood risk to enable the identification of Areas of Potentially Significant Flood Risk (APSRs) using available data. These APSRs will form the focus of the more detailed Catchment-Based Flood Risk Assessment and Management (CFRAM) Studies.

#### **Catchment Flood Risk Assessment and Management Studies**

CFRAMS is a Catchment Flood Risk Assessment and Management Study and its purpose is to manage flood risk to the area being studied. CFRAM studies are to be carried out for the whole of Ireland, for larger rivers and streams and all coastal areas.

The OPW commissioned RPS to undertake the Eastern Catchment Flood Risk Assessment and Management Study (Eastern CFRAM Study) in June 2011. The study covers four units of Management including HA09 (Liffey-Dublin Bay). The principle river in HA09 is the River Liffey which rises in the Wicklow Mountains and flows initially towards Newbridge, then turns north east towards Lucan and finally flows eastward through Dublin City, directly to Dublin Bay. The Dodder CFRAM Study is one of four pilot studies in Ireland and is the first comprehensive study undertaken with a view to producing a single flood risk management strategy for the whole of the Dodder catchment.

Within HA09, there are 16 discrete Areas for Further Assessment (AFA) in addition to Dublin City under the Eastern CFRAM study. Dublin City AFA is defined by four High Priority Watercourses (HPW), the Liffey, Camac, Poddle and Santry Rivers (as well as the Dodder and Tolka from previous studies). The principal source of flood risk within HA09 is fluvial flooding at 12 of the 16 AFAs. Tidal flood risk influences one AFA

(Sutton and Howth North) with 3 other AFAs within HA09 (Sutton & Baldoyle, Clontarf and Sandymount) considered to have some element of combined fluvial/coastal flood risk.

Dublin City with its specified High Priority Watercourse (HPW) is also subject to combined fluvial/tidal flood risk. Many of the watercourses within the Greater Dublin Area were previously studied as part of the Greater Strategic Drainage Study (GSDSDS).

#### Sources of Flooding – Docklands SDZ

- **Flooding from Fluvial & Sea Level Rises / Coastal Flooding**

The area within the SDZ boundary is tidal dominant with little fluvial influence. Based on the Dublin Coastal Flooding Protection Study (April 2005), it has been determined that the dominant flooding mechanism is coastal to the Rory O'More Bridge on the Liffey (2.5km upstream of the proposed Docklands SDZ) and London Bridge on the Dodder.

Following recent extreme tide and flood events, and also predictions of a rise in sea levels due to climate change, Dublin City Council carried out a review of the capacity of the existing coastal flood defences to provide protection against tidal flooding or urban areas resulting from extreme weather conditions in the short to long term. The review was carried out as part of the Dublin Coastal Flooding Protection

Project and was published in 2005. The Dublin Coastal Flood Protection Report identified a number of locations where the current level of flood defences was below that required for the future predicted sea levels. As described below in the section Indicative Flood Zone Maps, some works have since been completed with further works in the final design stages in this area since the completion of the Dublin Coastal Flooding Protection Project.

In the case of coastal flood risk, the Final Report of the Eastern CFRAMS Liffey Study, currently underway, will determine the 1000th year extent and by doing such will identify the location of Zone B and Zone C. Previous studies identified the 200-year extent, identifying Zone A. These preliminary flood zone maps were expected to be complete in January 2014 after which there will be engagement between the local authorities and the OPW, followed by a three-month period of public display and consultation. The CFRAMS Report will ultimately be used to identify specific measures required in the area. In the interim, the early warning systems outlined above in conjunction with capital works such as the South Campshire Flood Protection Project (currently at advanced design stage), the existing Spencer Dock Gate and the existing flood defences along the Dodder, provide alleviation to flood risk in the area. As it is proposed to completely protect the proposed SDZ area from coastal flooding and there is no risk of fluvial flooding to the 0.5% AEP (Annual Exceedance Probability)

level plus 50 years of forecast global warming, there will be no depth, hazard or velocity maps for this area once protected.

- **Surface Water Flooding**

Surface water flooding occurs when the local drainage system cannot cope with the rainfall. The rainwater does not drain away through the normal drainage systems or soak into the ground but lies on or flows over the ground instead. Surface water flooding is unpredictable as it depends on a number of factors including ground levels, rainfall and the local drainage network. There are a number of schemes ongoing aimed at improving the infrastructure within the SDZ boundary. These include the:

- » Recently constructed Spencer Dock Pumping Station and associated rising main and new services tunnel across the Liffey.
- » Contract to bring flows from the East Road Pumping Station to Spencer Dock Pumping Station (this has been tendered).
- » Contract for large combined sewers along Sheriff Street and Castleforbes Street (which is currently at detailed design stage).
- » Preliminary design for Phase 2 of the Grand Canal area (complete).
- » Greater Dublin Regional Project (GDRDP), City Centre Sewerage Scheme (Preliminary Stage).



- **Groundwater Flooding**

Ground water flooding is usually a result of water rising up from the underlying rocks or from water flowing from abnormal springs. This tends to occur after much longer periods of sustained rainfall or very high tides. Higher rainfall means that water will infiltrate into the ground, causing the water table to rise. Groundwater flooding tends to occur in low-lying areas, where with additional groundwater flowing towards these areas, the water table can rise to the surface causing groundwater flooding. Most of the ground within the SDZ is on reclaimed land, making most of it relatively impermeable. However, some sections which have good soil permeability are closely linked to tide level plus normal groundwater level on top of that. There are many layers of permeable material which can be joined up by the drainage network. Basement construction should provide impermeable solutions with possible pumping for seepage. A lot of the land is contaminated and a detailed Soil Investigation is required before any development and there is also a requirement for a detailed disposal plan. Refer to Desktop Study and Qualitative Risk Assessment of Potentially Contaminated Undeveloped Sites within North Lotts and Grand Canal Dock, 14-11-2012, Flannery Nagel Environmental Ltd. which outlines remediation measures to be followed.

- **Poulaphuca Dam**

It should be noted for the Flood Risk Assessment that there is a minor risk of infrastructural failure associated with a possible dam burst at Poulaphuca, which dams the River Liffey. This dam is one of four major sources of Dublin's Water Supply.

- **Flooding from the Canal Water Bodies**

The Royal Canal and Grand Canal outfall into the River Liffey within the SDZ study area. In terms of flood risk from the various canals within the plan area, they already overflow into other rivers and areas further inland before they get into the Docklands area of the city and are likely to have low flows in this zone. There were flooding issues at the Royal Canal within the SDZ boundary due to the tide. Flood gates were fitted at Spencer Dock to alleviate this problem.

- **Pluvial Flood Risk**

Pluvial Flooding results when heavy, often sudden rainfall, causes flooding before it can infiltrate the ground, or enter a natural or man-made drainage system or watercourse or a conveyance system because the system is already full to capacity. Pluvial flooding is associated with Surface Water Flooding which is a combination of true pluvial flooding, sewer flooding (due to heavy rainfall) groundwater flooding and flooding from urban watercourses.

An Extract Pluvial Type 1 Flood Depth Map for the 100-year 180-minute storm is given in the Flood Map section (see Figure D).

In the case of Pluvial Flood Risk, the 100-year 3-hour map from the city-wide SAFER (Strategies and Actions for Flood Emergency Risk Management) project has identified the very small localised areas at risk. These will be catered for by managing individual developments at planning stage which will prevent any cross-boundary flood water movements.

Dublin City Council is in the process of implementing the Flood Resilient City Project and, within this, a Flood Risk Management Strategy. This strategy will provide further guidance in spatial planning and appropriate flood measures, if required. In accordance with the requirement of the EU Floods Directive (2007/60/EC) the Office of Public Works (OPW) is currently responsible for co-ordinating the development of Flood Risk Management Plans (FRMPs) across Ireland.

#### **Indicative Flood Zone Map**

In the absence of detailed CFRAM studies for the River Liffey, Dublin City Council is using the best information available. The indicative Flood Zone Map (for coastal/fluviial) is based on information from the Dublin Coastal Flooding Protection Project (DCFPP) 2005.

This provides information on the 1-in-200-year flood event for Coastal Flooding or the equivalent of Zone A in the OPW classification.

Subsequent to the completion of the Dublin Coast Flooding Protection Project (DCFPP) 2005, flood protection works have been carried out in this area:

- The Spencer Dock flood gates were installed in the canal and this now protects the Zone A area north of the Liffey, (see Fig. E & Fig. F). This was designed to a level of 3.65m OD Malin. This includes 200mm for climate change and 250mm freeboard.
- Works have also been carried out with further works ongoing along the Dodder River south of the Liffey. These again are shown on Fig. E & Fig. F and include vehicle ramps and wall and balcony strengthening.
- A wall will be constructed along the campshire south of the Liffey. This is currently at detail design stage, see Fig. E & Fig. G. This wall will be 3.7m OD Malin in height. This includes an allowance of 200mm for climate change and 300mm freeboard.
- Following tidal flooding of 1st February 2002, footpath levels were raised by 100mm at the low points on the south campshires.

It is not possible to clearly identify the 1-in-1000-year flood event, so Zones B and C cannot be accurately delineated until flood map outputs from the Eastern Region Catchment Flood Risk Assessment Management Study. However, any development adjacent to Zone A must be considered to be in Zone B up to the 4.0m contour level, unless disproved by further analysis.

In the absence of Catchment Flood risk Assessment and Management study (CFRAM) for the River Liffey, information on flood risk was obtained from a number of sources outlined below:

- Development plans, policies and recent planning applications were studied.
- Responses from statutory bodies during the consultation process were examined, with particular reference to concerns relating to flood risk.
- The nature and location of the area in the vicinity of the proposed development was described in terms of the existing hydrological environment.
- The existing site geology and hydrogeology was examined in terms of how it relates to the flooding history and the potential for drainage methods of the proposed scheme.
- All existing historical information

on previous events, studies and surveys, was examined as made available from the Office of Public Works (OPW) flood hazard mapping website.

- The Greater Dublin Strategic Drainage Study (GDSDS) flood maps which show the one-in-a-hundred year flood events.

#### Flood Zones

Flood Zones are geographical areas within which the likelihood of flooding is in a particular range and they are a key tool in flood risk management within the planning process as well as in flood warning and emergency planning. There are three types or levels of flood zones defined in the DECLG and OPW Guidelines on Flood Risk Management:

- Zone A – High probability of flooding – where the average probability of flooding from rivers and sea is highest (greater than 1% annually or more frequent than 1-in-100-years for river flooding or 0.5% annually or more frequently than 1-in-200-years respectively for coastal flooding). Most forms of development are deemed to be inappropriate here, only water compatible development including essential infrastructure which cannot be located elsewhere, would normally be allowed.
- Zone B – Moderate probability of flooding – (Risk between 0.1% annually or 1-in-1000 and 1 %

annually or 1-in-100-years for river flooding, and between 0.1% or 1-in-a-1000-years and 0.5% annually or 1-in-200-years for coastal flooding) highly vulnerable development including hospitals, residential care homes, Garda, fire and ambulance stations, dwelling houses and primary strategic transport and utilities infrastructure would generally be considered inappropriate unless the requirements of the justification test is met. Less vulnerable development such as retail, commercial and industrial uses, short-term let for caravans, camping, and secondary strategic transport and utilities infrastructure might be considered appropriate in this zone. Less vulnerable development should only be considered in this zone if adequate lands or sites are not available in Zone C and subject to a flood risk assessment to the appropriate level of detail to demonstrate that flood risk to and from the development can or will be adequately managed.

- Zone C – Low probability of flooding – (Risk is less than 0.1% annually or 1-in-1000-years for both rivers and coastal flooding) Development is appropriate from a flood risk perspective (subject to flood hazard from sources other than rivers and coast meeting normal proper planning considerations).

#### **Residual Risks (After Flood Defences are in Place)**

- *Fluvial*: Possibly the 0.1% AEP from the Liffey CFRAMS will produce some risk in combination with a high tide, but this is extremely doubtful.
- *Coastal*: The 0.1% AEP tide level will be catered for initially in the global warming addition to flood defence levels. 3-day warning of any such significant tidal event will be possible to give everyone plenty of notice. Tides are monitored 365/24/7 by DCC. Closing of tide gates in at-risk areas is an integral part of DCC's Emergency Plan.
- *Pluvial*: Significant city-wide rainfall events can be forecast 24-48 hours in advance, giving plenty of time to activate local flood plans. Monitoring of levels in local sewers in flood-prone areas is another DCC initiative which can be incorporated into local flood plans.
- Thunderstorm events are the most difficult to forecast due to the short notice of such events. The localised risk from these can be addressed by having specific planning conditions for the small zones identified on the 100 yr – 3hr pluvial flooding map.

#### **Flood Risk Management Strategy**

Dublin City Council and its partners such as the OPW have implemented several

measures and projects to address the main flood risks in the Docklands area to allow for continuing development in the area. These include:

- The Triton and Tidewatch early-warning systems, based on sensors in Dublin Bay providing continuous information on sea-level changes and then sending alarm messages to relevant personnel in the Council. The former provides a 1-day advance warning of high tides and the latter provides a 3-day advance warning of same. These early-warning systems then provide the necessary information to inform the subsequent emergency response strategy.
- Dodder Flood Protection Scheme Advance works, consisting of raising the flood defence walls along the tidal stretches of the Dodder (See Fig. E).
- Flood Gate at Spencer Dock (See Fig. E).
- South Campshire Flood Protection Project: this is at design stage and involves the construction of a flood wall along the south quays extending as far downstream as Sir John Rogerson's Quay.
- The Dodder CFRAMS which carried out a major study on the Dodder River. This resulted in recommendations for further flood protection measures along the river.

- The Eastern Region Catchment Flood Risk Assessment and Management Study (Eastern CFRAM) which includes the Liffey and is ongoing
- Newly constructed Pumping Station at Spencer Dock (SDPS, due to be commissioned this year) with associated rising mains and a new services tunnel under the River Liffey. This new infrastructure reduces the risk of flooding from the foul wastewater network in the area.
- New trunk sewers to serve the SDPS.
- New drainage infrastructure in south Docklands - as part of Phase 1 of the DDDA developments in the area, an entire foul and surface water network was laid. Separation of flows reduces potential flooding and contamination of any floodwaters.
- City Centre Sewerage Scheme: this catchment study is currently being progressed and will result in recommendations for new and upgraded infrastructure in the City Centre and Docklands area. Again separation of storm-water and foul flows will reduce the potential flooding and contamination of floodwaters.
- A Flood Emergency Plan is in place in Dublin City Council (a sub-plan of Dublin City Council Major Emergency Plan). This plan involves rescue agencies such as the Civil Defence and the Fire Brigade, both of which organisations have extensive experience and resources available in terms of trained personnel and high-bodied vehicles suitable for navigating through flood waters.
- There will be a net beneficial impact in terms of reduced surface water (SW) run-off from the current situation where the SDZ area is practically 100% hard standing with high run-off. The implementation of SUDS and SW storage together with new SW pipelines to remove SW from the existing combined drainage network, will reduce pluvial flood risk both within the SDZ area and to adjacent areas.
- It is not the intent of DCC that flood prevention measures are delegated to individual developments. Rather, it is clearly outlined in the SDZ Scheme (for example, in the section on Infrastructure) that major capital projects, such as the Campshires Flood Protection Project and new SW pipelines in public roads, also require implementation in the area. As is normal in these cases, such projects are progressed in conjunction with other State stakeholders such as the OPW (on the CFRAMS Study and Campshire project) or the DECLG (on drainage infrastructure).
- It is normal practice that the State provides the necessary infrastructure within the public realm and the private sector mirrors that by complying with planning requirements that complement that infrastructure within their individual developments.

#### Settlement Strategy and Flood Risk

It is the strategy of Dublin City Council, in accordance with the Guidelines, to reduce the potential risk to people, property and the environment caused by flooding, through a hierarchy of avoidance, followed by substitution of lower vulnerability uses and, only if avoidance and substitution are not possible, reduction and management of the risks through a variety of techniques. Dublin City Council will continue its policy to steer new developments on greenfield sites to areas with the lowest probability of flooding. Areas with moderate or high risk will require site-specific Flood Risk Assessments in any new planning applications, and a subsequent Justification Test.

From an initial examination of the flood risks in the Docklands SDZ, it is noted that coastal and pluvial flooding are the main risks in the plan area. This area is zoned for development in the Dublin City Development Plan 2011 -2017, and there are a number of key sites within the SDZ boundary due for re-development, some of which are within the Flood Risk Areas.



### Flood Resilient Design

Generally, the approach to deal with flood protection would involve raising the ground floor levels above the level of extreme high tides. However, in some parts of the plan area, which are already developed, ground floor levels for flood protection could lead to floor levels being much higher than adjacent streets, thus creating a hostile streetscape for pedestrians. This would cause problems for infill development sites if floor levels were required to be significantly higher than those of neighbouring properties. In this regard, for the key sites in the plan area it has been recognised that ground floor levels below predicted high tide levels could be allowed, in limited circumstances, on a site by site basis. However, if this is the case, then these would be required to be flood-resistant construction using water-resistant materials and electrical fittings placed at higher levels. For high risk areas, it would also be necessary to impose planning restrictions in these areas. Residential uses would not be permitted at ground flood levels in high-risk zones.

Planning policies also play a major part in minimising flood risk, Dublin City Council was the first Irish local authority to require storm-water management from developers in 1998 and then subsequently implemented a Sustainable Drainage Systems (SUDS) Policy in 2005. In essence, these planning policies require developers to reduce the storm-water run-off from

newly paved areas to what it was before the development took place. This will ensure that development can take place in a sustainable manner without increasing the risk of flooding.

Almost all of the Docklands area is categorised as brownfield, (i.e. previously reclaimed and developed in the past). In terms of minimising flood risk at the regional level, this presents a significant case for targeting economic investment to the area as the drainage infrastructure is in place and can be readily enhanced to address particular challenges rather than such investment going to greenfield sites on the outskirts of the city which would result in extensive new hard-paved surfaces with additional storm-water run-off generated.

In relation to basements and ground level access protection, the following Flood Resilience and Adaptation Measures are recommended:

- Doorway and access threshold levels are an important factor in determining the susceptibility of domestic and commercial properties and below-ground infrastructure to pluvial and other types of flooding. This can be especially important in flat areas where although the depth of ponding may be relatively shallow, it can be extensive and potentially affect many properties if doorway and access thresholds are close to street level or even below street level. For low doorway accesses to

domestic properties raising of the threshold step may be practical in some instances but not always – in such circumstances, temporary door-guards should be considered but these will require advance warning for installation.

- Doorway accesses to public, commercial and ritual properties are often at ground level to facilitate access. Shallow ramping may be sufficient to keep pluvial floodwater out of the building.
- Vehicular accesses may also ramp down to underground car parks or basement loading areas, for example. Again raised ramping across the entrance may be sufficient to mitigate the risk.
- Drainage augmentation across entrances may assist but in itself may not be sufficient to deal with surface flows arising from high-intensity rainfall.
- Particular care should be taken where there are street level accesses to below-ground infrastructure such as underground or low-level transportation systems – in such circumstances, rapid inundation could pose a threat to life as well as potentially causing major disruption and damage.
- Access protection should be considered as a potential 'early win', particularly for one-off situations where shallow

ramping is feasible and relatively inexpensive to install. If the number of properties with low thresholds is extensive, then provision of financial incentives to support property resistance measures can be considered, however, no centrally funded scheme is yet available for this yet.

### Conclusions and Recommendations

Having regard to the important status of the Docklands SDZ, which is a major transportation hub, the existence of an already built-up area, close to the City Centre, the existing planning permissions already granted in the area, and also the key sites for re-development, the designation of development of lands contiguous to existing zoned lands and the lack of availability of alternative lower flood probability areas, the flood management measures already in place, it is considered that the development of the lands in flood risk areas satisfies the Justification Test as set out in the Planning System & Flood Risk Management Guidelines for Planning Authorities, November 2009.

All planning applications for proposed development within the SDZ area should include a site-specific Flood Risk Assessment (FRA).

Until the CFRAM Studies are completed and the flood protection and management options are finalised, the flood map should only be taken as indicative. All planning applications will

be required to submit a site-specific flood risk assessment addressing risks from all sources of flooding, using the best available data. All new development will be required to comply with the Greater Dublin Strategic Drainage Study (GDSDS) for surface-water management, with possible provision for the CFRAMS High End Future Scenario. This will ensure that there is no increase in flood risk to properties downstream as a result of future development. In addition, in order to mitigate against the effects of flooding to new development, floor levels should be set to recommended levels. It is anticipated that specific recommendations for floor levels may issue from the CFRAMS Study. In the meantime, a precautionary approach should be taken of the 100-year fluvial flood level plus a minimum of 10% increase in rainfall intensity plus 300mm freeboard. A floor level of 4.0m Malin Head is required for all residential accommodation.

An assessment of the effects of existing development within the plan area on flood risk to properties downstream will be undertaken, and where possible, recommendations made in relation to possible retrofitting of additional flood storage areas within the study area in order to bring existing development in line with current best practice flood management methods. This may result in the creation of areas of multi-functional recreational space within the SDZ lands using principles of sustainable drainage design.

### Flood Risk Management Objectives (See Planning Scheme)

#### Chapter 4.5

- **SI6:** To require all proposed developments to carry out a Site-Specific Flood Risk Assessment (SSFRA) that shall demonstrate compliance with:
  - » The Planning System and Flood Risk Management, Guidelines for Planning Authorities (Department of the Environment, Heritage and Local Government, Nov 2009, as may be revised/updated).
  - » The prevailing Dublin City Development Plan.
  - » Appendix 1 of this Planning Scheme.

The SSFRA shall not be required to carry out a justification test, given that this exercise has already been carried out in developing the Planning Scheme, which is a blueprint for a mixed-use development of the Strategic Development Zone area.

The SSFRA shall pay particular emphasis to residual flood risks, site-specific mitigation measures, flood-resilient design and construction, and any necessary management measures (Appendix B4 of the above mentioned national guidelines refers).

Attention shall be given in the SSFRA and in building design to creating a successful interface with the public realm through good design that addresses flood concerns but also maintains appealing functional streetscapes.

- **SI8:** That all new developments shall be required to comply with the standards set out in the Greater Dublin Strategic Drainage Study (GSDSDS).
- **SI9:** To achieve best practice and innovations in SUDS design as part of the Planning Scheme, including the successful co-ordination of surface water management with ecology and amenity functions of open space and landscaped areas. All planning applications shall be accompanied by a surface water drainage plan which will include proposals for the management of surface water within sites, protecting the water quality of the existing water bodies and groundwater sources, and retrofitting best practice SUDS techniques on existing sites, where possible.

#### Chapter 4.11

- **GI5:** To increase the provision of green landscaping including tree planting on streets within the SDZ area and to improve amenity, increase opportunities for wildlife and contribute to improvements in air and water quality and water attenuation.

- **GI9:** To pilot and test new green infrastructure installations in the public realm to boost biodiversity and improve surface water management, including the use of permeable materials for surfaces, planted roofs, and provision of storm water tree trenches.

- **GI10:** To support the development of soft landscaping in public open spaces, where feasible in accordance with the principles of Sustainable Urban Drainage Systems(SUDS).

#### Chapter 5.4.8

- A minimum level of 4.0 OD will be required for residential development and resilient design should be incorporated to manage flooding below this level.

#### Chapter 6.1.2 (c)

- The infrastructure requirements for the City Block including connections to the strategic network, together with a programme of installation works and responsibility for delivering infrastructure, such that each application can demonstrate the means by which the necessary infrastructure can be installed prior to the occupation of a given unit. Flood management and soil remediation measures are to be provided, as necessary, as part of development.

#### See also Appendix 2 (Planning Scheme) - SUDS Measures for New Developments

#### Disclaimer

It is important to note that compliance with the requirements of *The Planning System and Flood Risk Management - Guidelines for Planning Authorities*, 2009, and of the Floods Directive 2007 60/EC is a work in progress and is currently based on emerging and incomplete data as well as estimates of the locations and likelihood of flooding. In particular, the assessment and mapping of areas of flood risk awaits the publication of Catchment-Based Flood Risk Assessment and Management Plans [CFRAMP]. As a result, this guide for Flood Risk Assessment is based on best available information and may require revision as new information becomes available.

Accordingly, all information in relation to flood risk is provided for general policy guidance only. It may be substantially altered in light of future data and analysis. As a result, all landowners and developers are advised that Dublin City Council can accept no responsibility for losses or damages arising due to assessments of the vulnerability to flooding of lands, uses and developments. It remains the principal responsibility of owners, users and developers to take all reasonable measures to assess the vulnerability to flooding of lands in which they have an interest prior to making planning or development decisions.

The indicative flood map does not show indicative flood hazard associated with any of the following:

- Extreme fluvial dominated combinations within the pluvial flows to the river
- Extreme pluvial events
- Blocked drains
- High ground water level conditions
- Other unforeseen events e.g. bridge/culvert collapse etc.

Dublin City Council makes no representations, warranties or undertakings about any of the information provided in this Planning Scheme including, without limitation, on its accuracy, completeness, quality or fitness for any particular purpose. To the fullest extent permitted by applicable law neither Dublin City Council nor any of their members, officers, associates, consultants, employees, affiliates, servants, agents or other representatives shall be liable for loss or damage arising out of, or in connection with, the use of, or the inability to use, the information provided in this plan including, but not limited to, indirect or consequential loss or damages, loss of data, income, profit, or opportunity, loss of, or damage to, property and claims of third parties, even if Dublin City Council has been advised of the possibility of such loss or damages, or such loss or damages were reasonably foreseeable. Dublin

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#### **UNCERTAINTY**

Although great care and modern widely-accepted methods have been used in the preparation of this plan, there is inevitably a range of inherent uncertainties and assumptions made during the estimation of design flows and the construction of flood models.

## **GLOSSARY OF TERMS – FLOOD RISK ASSESSMENT**

**Appropriate Assessment:** An assessment based on best scientific knowledge, by a person with ecological expertise, of the potential impacts of the plan on the conservation objectives of any Natura 2000 sites (including Natura 2000 sites not situated in an area encompassed by the plan or scheme) and the development, where necessary, of mitigation or avoidance measures to preclude negative effects.

**Catchment:** The area that is drained by a river or artificial drainage system.

**Catchment Flood Risk Assessment and Management Studies (CFRAMS):** A catchment-based study involving an assessment of the risk of flooding in a catchment and the development of a strategy for managing that risk in order to reduce adverse effects on people, property and the environment. CFRAMS precede the preparation of Flood Risk Management Plans (see entry for FRMP).

**Climate change:** Long-term variations in global temperature and weather patterns, which occur both naturally and as a result of human activity, primarily through greenhouse gas emissions.

**Coastal erosion:** The gradual wearing away of the coastline through a combination of wave attack and, in the case of coastal cliffs, slope processes (e.g. high groundwater levels). This may include cliff instability, where coastal processes result in the periodic reactivation of landslide systems or promote rock falls.

**Coastal flooding:** Flooding from the sea which is caused by higher than normal sea levels and/or high waves resulting in the sea overflowing onto the land.

**Detailed flood risk assessment:** A methodology to assess flood risk issues in sufficient detail and to provide a quantitative appraisal of flood hazard and potential risk to an existing or proposed development, of its potential impact on flood elsewhere and of the effectiveness of any proposed measures.

**Dublin Coastal Flood Protection Project:** The Dublin Coastal Flood Protection Project started in May 2003, and resulted in a detailed analysis of flood risk to Dublin and of measures that can be undertaken to alleviate and reduce the risk. One of the measures that came forward is the use of an Early Warning System for coastal flooding.

**Environmental Impact Assessment (EIA):** Pursuant to EU Directive 85/337/EEC (as amended in 1997), EIA is a legislative procedure used for identifying the environmental effects of development projects to be applied to the assessment of the environmental effects of certain public and private projects which are likely to have significant effects on the environment.

**Eastern River Basin District:** incorporates all or part of twelve counties, Westmeath, Meath, Cavan, Kildare, Offaly, Fingal, South Dublin,

Dun Laoghaire-Rathdown, Wicklow, a small portion of Wexford and Louth and Dublin City.

**Flash Flood:** A flash flood is a rapid flooding of an area of land as a result of intense or extreme rainfall events or failure of infrastructure designed to store or carry water or protect against flooding and is distinguished from general flooding by the sudden onset.

**Flooding (or inundation):** Flooding is the overflowing of water onto land that is normally dry. It may be caused by overtopping or breach of banks or defences, inadequate or slow drainage of rainfall, underlying groundwater levels or blocked drains and sewers. It presents a risk only when people, human assets and ecosystems are present in the areas that flood.

**Flood Relief Schemes (FRS):** A scheme designed to reduce the risk of flooding at a specific location.

**Flood Defence:** A man-made structure (e.g. embankment, bund, sluice gate, reservoir or barrier) designed to prevent flooding of areas adjacent to the defence.

**Flood Risk Assessment (FRA):** FRA can be undertaken at any scale from the national down to the individual site and comprises 3 stages: Flood risk identification, initial flood risk assessment and detailed flood risk assessment.



**Flood Risk Identification:** A desk-based study to identify whether there may be any flooding or surface water management issues related to a plan area or proposed development site that may warrant further investigation.

**Flood Risk Management (FRM):** FRM combines the function of mitigating and monitoring flood risks and may include pre-flood, flood event or post-flood activities.

**Flood Risk Management Plans (FRMP):** Plans which are developed in accordance with national flood policy and the EU Floods Directive and which provide the strategic direction for flood risk management decisions in a catchment. These will describe a range of traditional river or coastal defences to non-structural responses such as flood warning and resilience measures at property level.

**Flood Hazard:** The features of flooding which have harmful impacts on people, property or the environment (such as the depth of water, speed of flow, rate of onset, duration, water quality, etc.).

**Flood Plain:** A flood plain is any low-lying area of land next to a river or stream, which is susceptible to partial or complete inundation by water during a flood event.

**Flood Risk:** An expression of the combination of the flood probability, or likelihood and the magnitude of the potential consequences of the flood event.

**Flood Storage:** The temporary storage of excess run-off, or river flow in ponds, basins, reservoirs or on the flood plain.

**Flood Zones:** A geographic area for which the probability of flooding from rivers, estuaries or the sea is within a particular range.

**Flooding Directive:** The EU Directive 2007/ 60/ EC of October 2007 on the assessment and management of flood risks which is aimed at integrating the way flood risk is managed throughout the European Union.

**Fluvial flooding:** Flooding from a river or other watercourse.

**Groundwater flooding:** Flooding caused by groundwater escaping from the ground when the water table rises to or above ground level.

**Indicative Floodplain Map (IFM):** A map that delineates the areas estimated to be at risk of flooding during an event of specified flood probability. Being indicative, such maps only give an indication of the areas at risk but, due to the scale and complexity of the exercise, cannot be relied upon to give precise information in relation to individual sites.

**Initial flood risk assessment:** A qualitative or semi-quantitative study to confirm sources of flooding that may affect a plan area or proposed development site, to appraise the adequacy of existing information,

to provide a qualitative appraisal of the risk of flooding to development, including the scope of possible mitigation measures, and the potential impact of development on flooding elsewhere, and to determine the need for further detailed assessment.

**Freeboard:** Factor of safety applied for water surfaces. Defines the distance between normal water level and the top of a structure, such as a dam, that impounds or restrains water.

**Green Infrastructure:** This term is used in two ways. It can describe a network of connected, high-quality, multi-functional open spaces, corridors, and the links in between that provide environmental services and multiple benefits for people and wildlife. It is also used to describe a broad range of design measures, techniques and materials that have a sustainable character and have a beneficial environmental impact such as solar panels, wind turbines etc.

**Green Roof:** A roof with living vegetation growing in a substrate or growing medium, also referred to as eco-roofs, vegetated roofs, or living roofs.

**Habitat:** A place in which a particular plant or animal lives. Often used in the wider sense referring to major assemblages of plants and animals found together.

**Justification Test:** An assessment of whether a development proposal within an area at risk of flooding meets specific criteria for proper planning and sustainable development and demonstrates that it will not be subject to unacceptable risk nor increase flood risk elsewhere. The justification test should be applied only where development is within flood risk areas that would be defined as inappropriate under the screening test of the sequential risk-based approach adopted by this guidance.

**Likelihood (probability) of flooding:** A general concept relating to the chance of an event occurring. Likelihood is generally expressed as a probability or a frequency of a flood of a given magnitude or severity occurring or being exceeded in any given year. It is based on the average frequency estimated, measured or extrapolated from records over a large number of years and is usually expressed as the chance of a particular flood level being exceeded in any one year. For example, a 1-in-100 or 1% flood is that which would, on average, be expected to occur once in 100 years, though it could happen at any time.

**Ordnance Datum (or OD) Malin:** is a vertical datum used by an ordnance survey as the basis for deriving altitudes on maps. A spot height may be expressed as AOD for “above ordnance datum”. Usually mean sea level (MSL) is used for the datum.

In the Republic of Ireland, OD for the Ordnance Survey of Ireland is Malin Ordnance Datum: the MSL at Portmoor Pier, Malin Head, County Donegal, between 1960 and 1969. Prior to 1970, Poolbeg Ordnance Datum was used: the low water of spring tide at Poolbeg lighthouse, Dublin, on 8 April 1837. Poolbeg OD was about 2.7 metres lower than Malin OD.

**Mitigation:** The term is used to describe an action that helps to lessen the impacts of a process or development on the receiving environment. It is used most often in association with measures that would seek to reduce negative impacts of a process or development.

**Natura 2000:** The EU-wide network of protected areas, recognised as ‘sites of Community importance’ under the EC Habitats Directive (Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora). They comprise “Special Areas of Conservation” (SACs) under the Habitats Directive and “Special Protection Areas” (SPAs) under the Birds Directive (Council Directive 79/409/EC on the conservation of wild birds).

**Pathways:** These provide the connection between a particular source (e.g. high river or tide level) and the receptor that may be harmed (e.g. property). In flood risk management, pathways are often ‘blocked’ by barriers, such as flood defence

structures, or otherwise modified to reduce the incidence of flooding.

**Pluvial flooding:** Usually associated with convective summer thunderstorms or high intensity rainfall cells within longer duration events, pluvial flooding is a result of rainfall-generated overland flows which arise before run-off enters any watercourse or sewer. The intensity of rainfall can be such that the run-off totally overwhelms surface water and underground drainage systems.

**Precautionary approach:** The approach to be used in the assessment of flood risk which requires that lack of full scientific certainty, shall not be used to assume flood hazard or risk does not exist, or as a reason for postponing cost-effective measures to avoid or manage flood risk.

**River Basin Management Plan (RBMP):** Required by the EU Water Framework Directive (2000/ 60/ EC), these plans will establish a strategic plan for the long-term management of the River Basin District, set out objectives for water bodies, and in broad terms identify what measures are planned to meet these objectives, and act as the main reporting mechanism to the European Commission.

**Regional Flood Risk Appraisal:** A desk-based study to provide a broad overview of the source and significance of flooding across a region and identify potential conflicts with existing and proposed areas of development,

thus highlighting areas where further studies will be required at county or city scale as part of development plan preparation.

**Regional Planning Guidelines (RPG):** These provide the regional context and priorities for applying national planning strategy to each NUTS III region and encourage greater co-ordination of planning policies at the city/county level. RPGs are an important part of the flood policy hierarchy as they can assist in co-ordinating flood risk management policies at the regional level.

**Resilience:** Sometimes known as “wet-proofing”, resilience relates to how a building is constructed in such a way that, although flood water may enter the building, its impact is minimised, structural integrity is maintained, and repair, drying and cleaning and subsequent reoccupation are facilitated.

**Resistance:** Sometimes known as “dry-proofing”, this relates to how a building is constructed to prevent flood water entering the building or damaging its fabric.

**Receptors:** Things that may be harmed by flooding (e.g. people, houses, buildings or the environment).

**Residual risk:** The risk which remains after all risk avoidance, substitution and mitigation measures have been implemented, on the basis that such measures can only reduce risk, not eliminate it.

**River Basin Management Plan:** As required by the EU Water Framework Directive (2000/60/EC), these plans will establish a strategic plan for the long-term management of the River Basin district.

**Sequential Approach:** The sequential approach is a risk-based method to guide development away from areas that have been identified through a flood risk assessment as being at risk from flooding. Sequential approaches are already established and working effectively in the plan-making and development management processes.

**Site-specific Flood Risk Assessment:** An examination of the risks from all sources of flooding of the risks to and potentially arising from development on a specific site, including an examination of the effectiveness and impacts of any control or mitigation measures to be incorporated in that development.

**Source:** Refers to a source of hazard (e.g. the sea, heavy rainfall).

**Strategic Environment Assessment:** This is a statutory process of assessment to examine the likely significant environmental effects of a plan or programme, prior to their adoption. It identifies consequences of actions prior to implementation and requires appropriate mitigation measures to remove identified impacts as part of the plan or programme.

The SEA process came into force in July 2001 from an EU Directive (EU Directive 2001/42/EC).

**Strategic Flood Risk Assessment:** The assessment of flood risk on a wide geographical area against which to assess development proposed in an area (Region, County, Town).

**Surface Water Management:** This activity focuses on the assessment and management of flood risk within the urban environment from sources primarily resulting from intense rainfall. Surface water management should understand the performance of the urban drainage network, where exceedance flow routes would form and what impact this would have. Solutions to surface water flood risk can involve green infrastructure provision to capture and direct these excessive flows to lower vulnerable areas or open space. New development can provide solutions to reducing run-off not only from the proposed development but also from existing areas. This should be considered in the SFRA in critical areas where development is planned upstream of flooding hotspots.

**Sustainable Development:** Sustainable development is a very important term in planning and development policies and is used to describe the character of development that minimises negative impacts on the environment and its natural resources.

The definition of Sustainable Development comes from the Brundtland Commission (1983) which states it as development “that meets the needs of the present without compromising the ability of future generations to meet their own needs”. The Brundtland Commission was convened as a world commission on the environment amid growing concern for the deterioration of the natural environment, the depletion of natural resources and consequences for social and economic development.

**Sustainable Urban Drainage Systems:** A form of drainage that aims to control run-off as close to its source as possible using a sequence of management practices and control structures designed to drain surface water in a more sustainable fashion than some conventional techniques.

**Vulnerability:** The resilience of a particular group of people or types of property or habitats, ecosystems or species to flood risk, and their ability to respond to a hazardous condition and the damage or degree of impact they are likely to suffer in the event of a flood. For example, elderly people may be more likely to suffer injury, and be less able to evacuate, in the event of a rapid flood than younger people.

**Water Framework Directive (WFD):** A European Community Directive (2000/ 60/ EC) designed to integrate the way we manage water bodies across Europe.

It requires all inland and coastal waters to reach “good status” or “good ecological potential” in the case of heavily modified water bodies by 2015 through a catchment-based system of River Basin Management Plans (RBMP), incorporating a programme of measures to improve the status of all natural water bodies.

**Source:** *Most of the definitions above are sourced from the DoEHLG Guidelines for Planning Authorities on ‘The Planning System and Flood Risk Management, 2009’.*

**FLOOD MAPS**

Notes in Relation to Flood Maps (See Figures E, F, & G below)

1. These maps present tidal flood hazard for a 200-year return period event (shown as flood extent) for the category shown in the legend and as described in the notes below. The justification of these maps and the information presented on them arises through the flood risk assessment work undertaken as part of the Dublin Coastal Flooding Protection Project, completed by Royal Haskoning for Dublin City Council and Fingal County Council in April 2005.
2. Before use is made of these maps, the following notes should be read carefully to avoid incorrect interpretation of the information presented. The maps must be used in conjunction with and in acceptance of the information, exclusions and disclaimers set out in these notes.
3. Tidal Flood Hazard is taken to mean areas at risk from combinations of:
  - a. Extreme tide levels with wave action as appropriate along the open coastline
  - b. Extreme tide levels with a component of fluvial discharge as appropriate within tidal reaches on the river.
4. Definition of flood hazard areas and protected areas in the context of the information presented on these maps.
  - 1/200 Flood Hazard Area/Extent – Indicative flood hazard extent for a 200-year event, taking into consideration the effect of the existing defences and the possibility of plausible failure scenarios of those defences at any given location.
  - Protected Area (Based on 200-year event) – The indicative area within the 1/200 Flood Hazard Area that is protected or defended against flooding for a 200-year event as a result of the existence of the current defences, i.e. the existing defences remain intact, then the area shown green hatched with light grey background will be protected against flooding for the 200-year event. The area is a protected flood hazard area.

Note: The residual blue area within the 1/200 Flood Hazard Area (not overlain with green hatch and light grey background) shows the indicative flood area extent taking into account the effect of the existing defences, i.e. the Standard of Protection (SoP) of some or all of the defences is less than 200 years. The blue area is not defended to a 200-year event.

For more details of the definitions and a description of how the areas have been assessed for the production of these maps, see the definitions presented at the beginning of these maps and also the Flood Hazard Manual produced to accompany these maps.

A 200-year extreme tide level at Dublin Port has been assessed as 3.14 m ODM (5.64 mLAT).
5. The work undertaken and hence the information presented on these maps is relative to the year 2005. As such, none of the categories presented make any allowance for climate change.
6. These type 1 maps show the indicative extent of flooding for the categories presented in note 4 and also the legend.
7. The maps do not show indicative flood hazard associated with any of the following:
  - Extreme fluvially dominated combinations within the tidal reaches of the river
  - Extreme pluvial events
  - Blocked drains
  - High ground water level conditions
  - Other unforeseen event, e.g. bridge collapse etc.
8. It should be noted that a residual risk remains for the other areas (light grey) located outside those defined as being at risk from tidal flooding on this map, as a result of flooding through the mechanism identified in note 7 above.



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9. For more detailed description of the information presented on these flood hazard maps, see the Flood Hazard Map Manual.
  10. All level information presented on these maps relates to Ordnance Datum Malin Head, (ODMH) for conversion from mODMH to mLAT (lowest astronomical tide) relative to Dublin Bay as 2.51m.
  11. These maps are to be used and read in conjunction with the Dublin Coastal Flood Protection Project (DCFPP) final report and the Flood Hazard Map Manual produced to accompany them. The manual presents details of the work undertaken to produce the maps, together with the constraints and assumptions as appropriate for given locations.
  12. Whilst the utmost care and quality control has been undertaken in the interpretation of level data and modelling results for the production of these maps, the information presented is indicative only and is subject to the normal uncertainties associated with ground level and modelling accuracy. Accordingly, the maps should not be used in isolation for decision-making purposes and should be read and interpreted by suitably experienced persons using all associated and additional data available for the area to aid the decision-making process.
  13. Dublin City Council makes no representations, warranties or undertakings about any of the information in these maps, including without limitations, their accuracy, their completeness or their quality or fitness for any particular purpose.
  14. Dublin City Council reserves the right to change the content and/or presentation of any of the information contained in these maps at its sole discretion, including these notes and disclaimers. Use of any of the maps for whatever purpose, the user has signified his or her agreement to be bound by these notes and disclaimers.
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Fig. D South Campshire Flood Cell

Source: South Campshire Flood Protection Project, George's Quay, City Quay & Sir John Rogerson's Quay, Dublin 2, EIS, Vol 2 of 4, 201

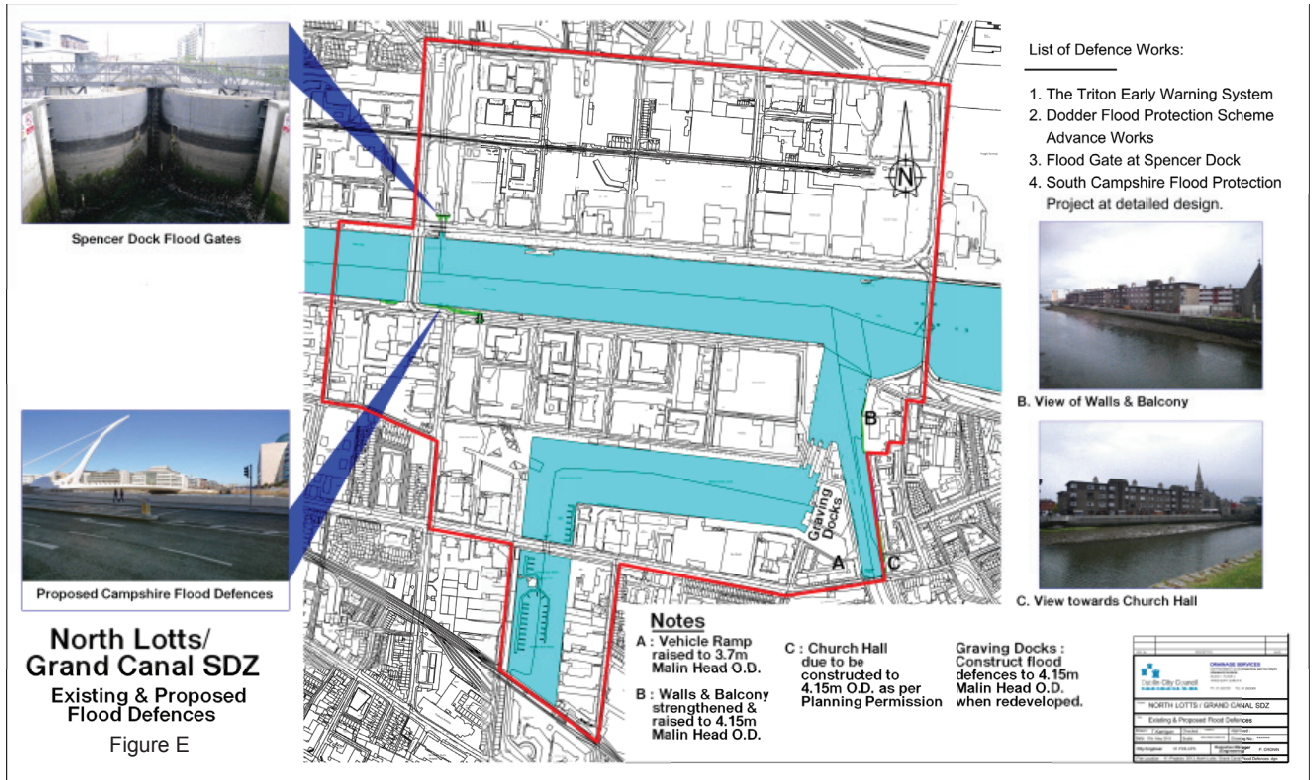


Fig. E North Lotts - Grand Canal Dock - Existing and Proposed Flood Defences



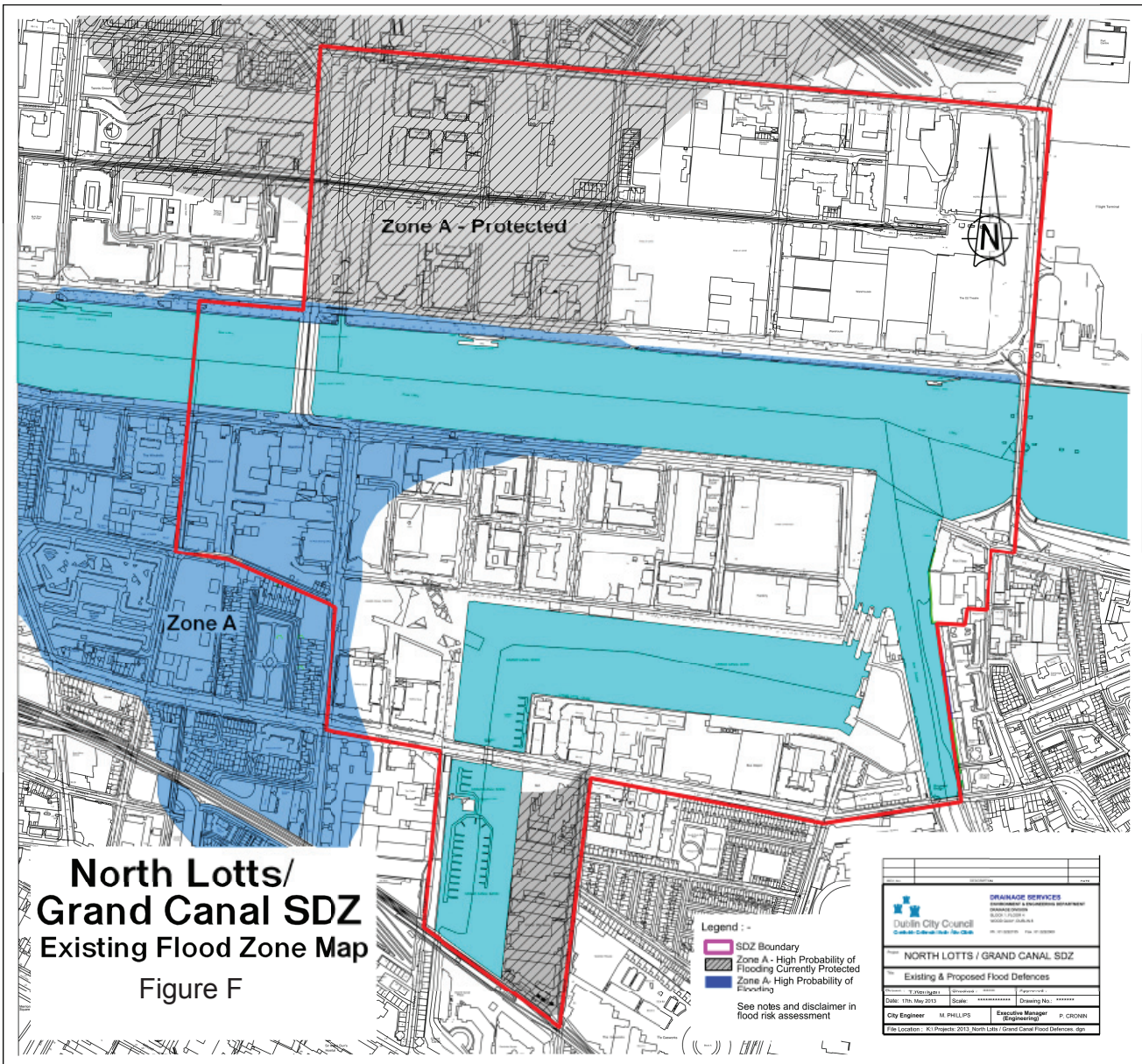
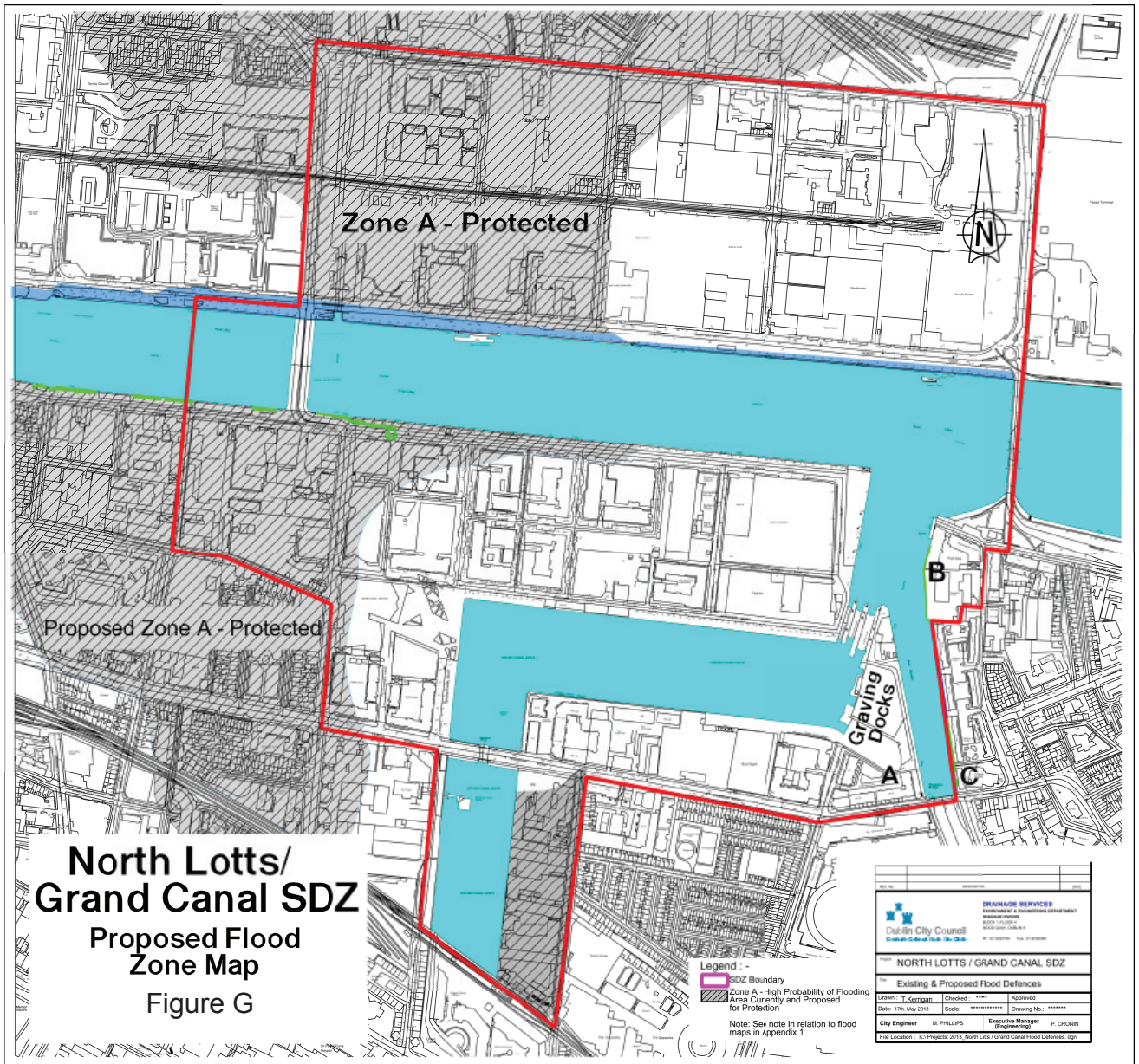


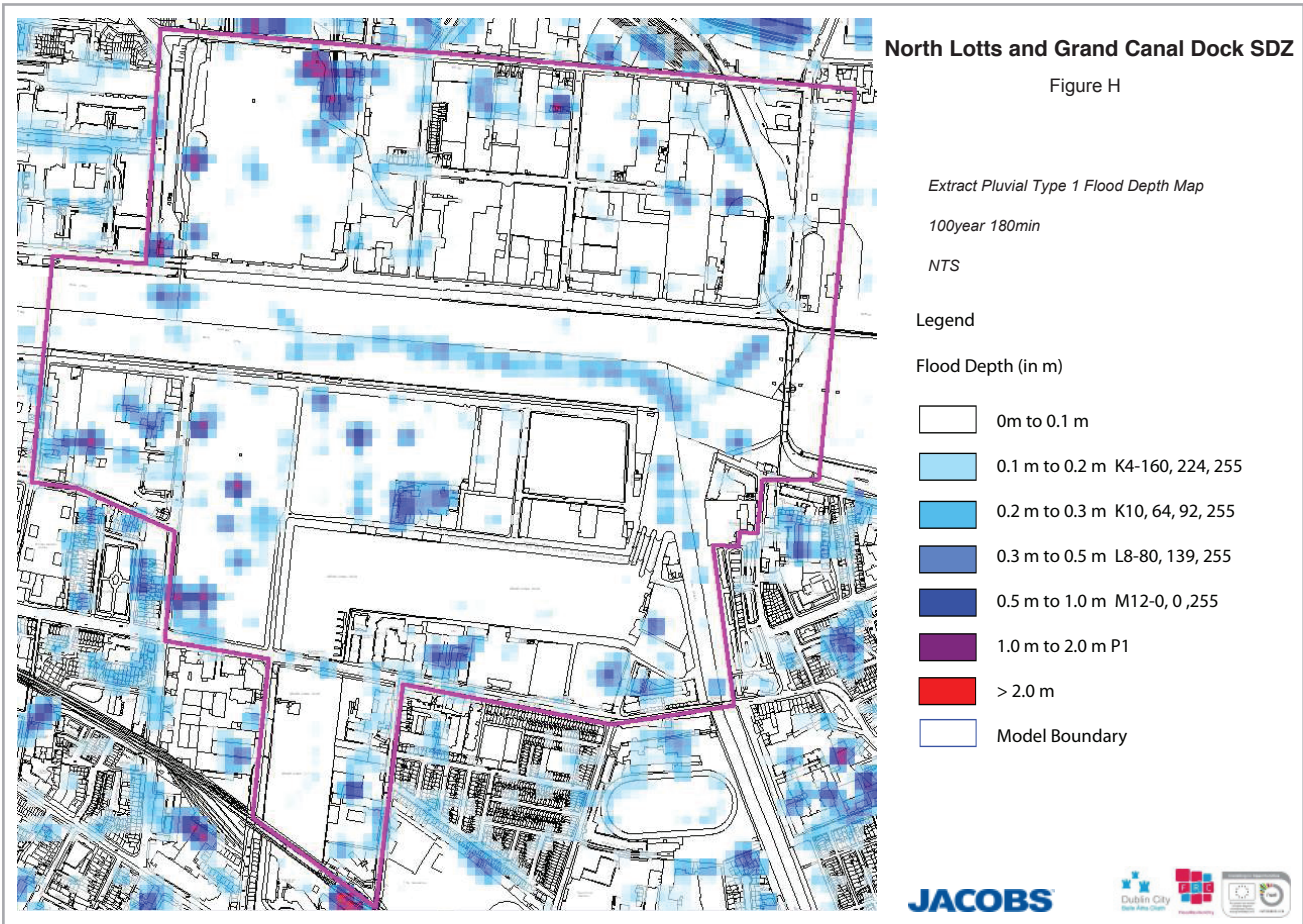
Fig. F North Lotts - Grand Canal Dock - Existing Flood Zone Map





**Fig. G** North Lotts and Grand Canal Dock SDZ - Proposed Flood Zone Map





**Fig. H** North Lotts and Grand Canal Dock SDZ - Extract Pluvial Type 1 Flood Depth Map

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**Bibliography**

- Greater Dublin Strategic Drainage Study, Regional Drainage Policies, Technical Document (March 2005)
- DEHLG Guidelines for Planning Authorities (DoEHLG & OPW), The Planning System and Flood Risk Management (2009)
- Dublin Coastal Flooding Protection (April 2005)
- River Dodder Catchment Flood Risk Assessment and Management Study (Dodder CFRAMS) 2012
- Assessment of Potentially Contaminated Undeveloped Sites within North Lotts & Grand Canal Dock, Flannery Nagel Environmental Ltd., November 2012
- Flood Emergency Plan – A sub-plan of Dublin City Council Major Emergency Plan, January 2013
- Eastern Catchment Flood Risk Assessment Management Study (Eastern CFRAMS) (Ongoing)



# Appendix 2

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## APPENDIX 2 SUDS MEASURES FOR NEW DEVELOPMENT

### SUDS in Development Sites

**Green Roofs:** As well as providing environmental benefits, the installation of green roofs allows for more efficient use of space. Properly placed roof terraces and gardens visible from offices or residential units within a building enhance the aesthetic experience of the building and open up additional space for amenity, recreational and commercial use. The internal courtyard and 5th floor terrace of the Gibson Hotel at The Point Village provide wonderful examples of the design of multi-functional space.

A green roof, roof terrace and restaurant/bar are currently being retrofitted on the roof of the Grand Canal Hotel in the Docklands, with all surface water run-off being directed through the planted areas. This means that the development achieves full compliance with the interception storage requirement of the GSDS, despite having 100% site coverage.

**Rainwater Harvesting:** Rainwater harvesting for use in toilets and for irrigation of planted areas should also be considered. A well-designed green roof and rainwater harvesting two-stage treatment train could provide a close to optimal solution for the management of surface water in developments with a high percentage of site coverage as it creates the conditions for the possibility of achieving zero run-off during summer storms depending on saturation levels and use of harvested water.

**Permeable Surfacing:** Where courtyards and walkways in landscaped areas are proposed, it is suggested that permeable surfacing is considered. A variety of new durable permeable surfacing solutions is now available on the market. Where tidal ingress may be an issue in quayside development, a suggested solution would be to retain surface water drainage from the permeable surfacing in a tanked or piped retention facility for possible re-use.

**Soakaways and Rain Gardens:** The incorporation of soakaways and rain gardens in landscaped areas can provide additional storage for the drainage of surrounding impermeable paved and roofed areas.

**Rilles:** These open drainage channels can be used as an alternative to traditional piped systems, are easier to maintain and can be used to improve public awareness of natural water cycles.

### SUDS in the Public Realm

**Permeable Surfaces in Pedestrian Areas:** Permeable surfacing should be incorporated into suitable sections of public streetscapes. This type of surfacing is suitable for lightly trafficked areas and where future maintenance of underground services will not be affected. Details of permeable surfacing proposals should have the approval of both the Roads & Traffic Department and the Drainage Department of Dublin City Council as proper co-ordination of future maintenance requirements is essential.

**Bio-retention Areas:** Rainfall from impermeable areas, or overflow from permeable surfaces, could be directed to bio-retention areas or suitably designed tree-pits at kerb edges.

**Rilles:** See above. Rilles could be used to direct surface water overland flow to the nearest existing surface water outfall or to sunken squares or detention areas in green spaces.

**Sunken Squares:** Sunken squares can be used as amphitheatres or recreational areas and designed to have additional storm-water management functionality by storing overflows from the primary drainage stage during extreme storm events. A slow drain-down mechanism should be incorporated so that flows can be directed back into the drainage network following a high tide or extreme rainfall event. The Construction Industry Research and Information Association document "Retrofitting to manage surface water" provides guidance on the use of sunken squares as water management mechanisms.



# Appendix 3

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### APPENDIX 3 PLANNING SCHEME COMPLIANCE MATRIX

The Planning and Development Act, 2000 (as amended) requires that development within a Strategic Development Zone (SDZ) be in accordance with the relevant Planning Scheme and that any proposed development which is deemed to comply with the Planning Scheme must be granted planning permission.

Planning permission shall be granted where the development, if carried out in accordance with the application or subject to any conditions which the planning authority may attach to a permission, would be consistent with the Planning Scheme. Planning permission shall not be granted for any development which would not be consistent with such a Planning Scheme.

It is a requirement of the Planning Scheme that prior to the submission of a planning application for development within a City Block, a City Block Roll-out Agreement (CBRA) shall be entered into between the developers/owner(s) and the SDZ Agency in order to secure the co-ordinated delivery of the mix of uses and supporting infrastructure necessary to deliver the objectives of the Scheme within each City Block, unless an individual planning application for the City Block addresses these matters. The SDZ Agency may enter a Joint City Block Roll-out Agreement with the developers/owner(s) of the adjacent

under-developed City Blocks, in order to achieve the objectives of the hub within which the City Blocks are located and the overall Scheme.

In order to ensure co-ordinated and equitable delivery at the level of City Blocks, it is also a requirement of the Planning Scheme and CBRA that each planning application within a City Block must include a "Compliance Statement" indicating, inter alia, how the CBRA is being implemented and how the proposed development complies with and matches the strategic and specific design intent and objectives of the SDZ Planning Scheme. At the discretion of the Development Agency, planning applications relating to minor, non-material amendments to existing or permitted development previously the subject of a Compliance Statement, shall not be subject to this requirement.

To assist in the preparation of the Compliance Statement and the CBRA, this Compliance Matrix has been prepared and sets out the minimum standards required in order to assess compliance with the Planning Scheme.

#### (A) CITY BLOCK ROLL-OUT AGREEMENT (CBRA)

The CBRA or Joint CBRA shall address, inter alia, the following:

1 (a) The spatial distribution of the required ratio of commercial to residential across the City Block, to achieve a co-ordinated pattern of land-use across the

block over time, and to ensure the unsustainable end-loading of a mono-use environment is avoided. The mixed-use ratio does not apply to small sites under 0.2ha (2,000m<sup>2</sup>) except where active uses are necessary to animate the street. Retail and community facilities shall fall into the Residential Category for the purposes of the ratio.

- (b) How social housing units will be provided in accordance with the City Council's Housing Strategy and Government Housing Policy.
- (c) The infrastructure requirements for the City Block including connections to the strategic network, together with a programme of installation works and responsibility for delivering infrastructure, such that each application can demonstrate the means by which the necessary infrastructure can be installed prior to the occupation of a given unit. Flood management and soil remediation measures are to be provided as necessary as part of development.
- (d) The area to be taken in charge by DCC, with attendant timelines.
- (e) The treatment and use of all lands not proposed for initial development within each City Block, shall include interim landscaping or other interim measures.

<p>(f) The design and layout of proposed new streets/lanes/parks and public spaces, having regard to the objectives in Section 5.4.3</p> <p>(g) Any identified social infrastructure needs for the area e.g. health centre, crèches etc.</p>	<ul style="list-style-type: none"> <li>• High-Level Theme Number (iii) - Quality of Living</li> <li>• High-Level Theme Number (iv) - Identity</li> <li>• High-Level Theme Number (v) - Infrastructure</li> <li>• High-Level Theme Number (vi) - Movement &amp; Connectivity</li> </ul>	<p>The Statement should indicate how the core objectives for each block are being met and how the capacity of the remaining plots in the block to satisfy the said core block objectives will not be undermined.</p>
<p><b>2</b> Each planning application must be accompanied by a Compliance Statement, demonstrating, inter alia, how the (J)CBRA is being implemented. In the absence of a CBRA, the Planning Authority shall determine planning applications in accordance with the objectives of the SDZ Scheme, including the application to the site of the full range of City Block objectives.</p>	<p><b>2(a) Nature and Extent of Proposed Development</b></p> <p>Certain elements which are considered critical to the delivery of a successful, sustainable Docklands Quarter are fixed. Any development proposals which conflict with the fixed elements will be deemed not to be in compliance with the Planning Scheme. The Compliance Statement should indicate how the development proposal has been designed to take account of the Planning Scheme Fixed elements set out below, having regard to Chapter 5 of the Scheme.</p>	<p><b>2(b) Compliance with Development Code City Block Specific Objectives</b></p> <p>The Compliance Statement should also indicate how an additional range of infrastructures will be provided both at City Block level and at individual building plot scale, and how sustainable objectives for quality in building construction and materials will be satisfied.</p>
<p><b>(B) COMPLIANCE STATEMENT</b></p> <p>The Compliance Statement shall address, inter alia, the following:</p>	<p><u>Development Code Fixed Elements</u></p> <ul style="list-style-type: none"> <li>• Overall development quantum</li> <li>• Use ratio</li> <li>• Public realm</li> <li>• City Block building line</li> <li>• Height</li> <li>• Heritage and protected structures</li> </ul>	<p><b>3 Sustainable Energy</b></p> <p>The ambitions for the SDZ as articulated by the Sustainable Energy Community (SEC)/Codema as an Energy Positive or at least a carbon-neutral district are of considerable merit and it is appropriate to help achieve this status by applying energy standards in excess of the BER Rating. Accordingly, it is a requirement that all proposals for development on sites above 0.2 Hectare (0.5 acres) apply the minimum standards of international building performance frameworks such as BREEAM, LEED or other European-based standards which are considered as equivalents (DGNB and Living Building Challenge). Applicants to choose a system and provide resources for the design and implementation process through final certification.</p>
<p><b>1. Compliance with Vision and High-Level Themes for Scheme</b></p> <p>The Compliance Statement should indicate how the development proposal has been designed to take account of the Planning Scheme Vision and is consistent with the six High-Level Themes in Chapter 3 of the Scheme and set out hereunder for clarity.</p> <ul style="list-style-type: none"> <li>• High-Level Theme Number (i) – Sustainability</li> <li>• High-Level Theme Number (ii) - Economic Renewal and Employment</li> </ul>		

An Energy Statement should accompany any application over 0.2 Hectare (0.5acres), illustrating how the proposal incorporates the above design considerations and how it addresses energy efficiency with regard to the demolition, construction and long-term management of the development.

#### **4 Infrastructure**

The Provision of infrastructure, including funding responsibilities, shall be addressed at both site and strategic network level, in accordance with the criteria set out in the Infrastructure Schedule (Appendix 4).

The submission of a Construction Management Plan, which shall include information on construction traffic routes, hours of operation, control of noise, and environmental effects.

#### **5 Social Audits and the Provision of Social Infrastructure**

Large-scale residential and/or mixed-use schemes, typically 200 units or 20,000m<sup>2</sup> depending on local circumstances, must be accompanied by a Community Infrastructure Statement comprised of an audit of existing facilities in the area. This audit must show how the proposal will contribute to the range of supporting community infrastructure and how it will deliver a key social infrastructure element.

#### **6 Providing Co-ordinated Delivery**

All planning applications must accord with the General Principles and the Fixed Elements of the SDZ Planning Scheme in addition to those elements addressed in the Compliance Statement for each City Block.

All proposed development in relation to (a) development built out by the date the SDZ Scheme takes effect and (b) any extensions and/or changes of use in relation to all future completed development in the SDZ, shall comply with the provisions of the SDZ Scheme.

However, where policies, objectives, principles or standards are not specifically addressed in the SDZ Planning Scheme (e.g. apartment standards), those in the City Development Plan shall apply.

In relation to height, any new building or additional height to existing buildings shall relate to the prevailing height as set out in the relevant City Block or adjacent blocks in the Development Code.

Proposals involving a material change of use shall accord with the land-use mix ratio as set out in the Development Code (See Chapter 5 for Development Code for Individual City Blocks).

# Appendix 4

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<b>STRATEGIC, LOCAL AND CITY BLOCK INFRASTRUCTURE – IMPLEMENTATION AND FUNDING RESPONSIBILITIES</b>			
<p><b>SDZ Summary:</b> Overall capacity of 22ha area; circa 2,600 residential units and 305,000m<sup>2</sup> commercial floorspace. Equates to a residential population of circa 5,800 and circa 23,000 employment.</p> <p><b>5 Hubs in SDZ:</b> Spencer Dock Hub Point Village Hub Grand Canal Dock Hub Britain Quay Hub Boland's Mill Hub</p>			
<b>INFRASTRUCTURE PROVISION</b>	<b>LEAD AGENCY/AGENCIES</b>	<b>PRIMARY FUNDING SOURCES/AGENCIES</b>	<b>OTHER STAKEHOLDERS INVOLVED</b>
National / Regional Infrastructure (e.g. WWTP, DART Underground)	Irish Water / NTA / CIE	Irish Water / NTA	Govt. / NAMA / DCC / Development Agency
Flood Management	OPW / DCC / Developer at City Block Level	OPW / DCC / Developer at City Block Level	NAMA
New Dodder and Liffey Bridges	NTA / DCC/ Development Agency	NTA (Dodder Bridge)	NAMA / Dublin Port
Service / Utilities Providers: including Electricity, Gas, WiFi, Telecommunications, District Heating, Water and Drainage	DCC / Development Agency / Irish Water	Service Providers	NAMA / Dublin Port
<p>Within City Block:</p> <ul style="list-style-type: none"> <li>- Streets</li> <li>- Drainage</li> <li>- Public Lighting</li> <li>- Local Parks</li> <li>- Soil Remediation</li> </ul>	DCC / Development Agency / Developer / Irish Water	Developer	NAMA
Upgrade of Existing Public Streets, Local Traffic Management, Flood Management (50% shared with OPW)	DCC / Development Agency	S.48 (as per DECLG Guidelines, No. 24)	NAMA
<p>Specific Local Infrastructure to achieve SDZ Objectives not included in existing S.48:</p> <ul style="list-style-type: none"> <li>- Community Facilities</li> <li>- Public Realm upgrade of Mayor Street, Sherriff Street, New Wapping Street and Castleforbes Road</li> </ul>	DCC / Development Agency	S.48 (as per DECLG Guidelines, No. 24), or S.49 (see para. 6.3.1)	NAMA / Developers

# Appendix 5

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All proposals for mid-rise and high buildings must have regard to the assessment criteria for high buildings as set out below.

When submitting plans for high buildings, the developer will be required to submit a visual impact analysis study including a 3-D model of the scheme, photomontages of the impact of the building(s).

When developing landmark high buildings, the Planning Authority will encourage architectural design competitions and the exploration of different architectural concepts for sites on which higher buildings are proposed. Dublin City Council will have a role in monitoring and agreeing the best architectural solutions for these significant proposals through the planning process, in the interests of achieving best practice in urban design and quality.

The Irish Aviation Authority must be notified in all cases where a proposed development exceeds 45m in height.

All proposals for high buildings must have regard to the following criteria:

#### Urban Form and Spatial Criteria

- Exhibit exceptional architectural character and quality, creating a building which is of slender proportions, elegant, contemporary, stylish and in terms of form and profile, makes a positive contribution to the city skyline, city structure and topography.

- Create a positive relationship with the immediate surroundings, both existing and proposed buildings and prominent features in the vicinity, as well as streets and existing open spaces.
- Successfully incorporate the building into the existing urban grain; proposals to be accompanied by a design statement.
- Create positive urban design solutions.
- Have regard to important views, landmarks, prospects, roofscapes and vistas.
- Protect the built and natural heritage of the city.
- Ensure that the site is of an appropriate size and context to allow for a well-designed setting of lower buildings and/or landscaped open space.
- Include an outstanding ground floor and entrance design.
- Ensure that the entrance is proportionate to the scale of the entire building and relates directly to the site's principal street frontages and allows easy access for all users.
- Use materials of the highest quality in the design of the building façade.
- Consider signage, branding and lighting at the outset as part of

the overall design approach and submit details at the application stage, including an assessment of potential impacts of light pollution on the immediate and wider context.

- Consider the impact on the scale and quality of existing streetscapes, spaces and buildings.
- Consider the impact on protected structures, conservation areas, and the architectural character and setting of existing buildings, streets, and spaces of artistic, civic and historic importance, in particular, the buildings' relationship with the historic city centre, the River Liffey and quays, Trinity College, Dublin Castle, the historic squares and precincts, the Phoenix Park, the Royal Hospital, Kilmainham and the canals.

#### Environmental / Sustainable Criteria

Illustrate exemplary standards of environmental sustainable design and building solutions with regard to the following:

- Building Energy Conservation
- Opportunities for renewable energy generation
- CCHP Systems (combined cooling, heating and power and other appropriate technology)
- Waste Management and Recycling Strategy

- Dublin City Council's Climate Change Strategy

Give special consideration to a micro-climatic assessment including shadow impacts and downdraft effect. Proposals must be accompanied by the following:

- Shadow Impact Assessment
- Wind Impact Analysis
- Assessment of Building Ventilation
- Demonstrate flexibility of layout and construction to accommodate possible future changes in the building use.

#### **Social Criteria**

- Minimise overshadowing and overlooking of surrounding properties and adverse impacts on established or emerging residential communities.
- The development contributes to the social/community development of the City Block.
- Be part of a mixed-use City Block which contributes to the vibrancy of the area throughout the day.
- Contribution to the animation of the street at ground floor level.

#### **Economic Criteria**

- Represent a strategic intervention in terms of significant regeneration and/or a significant economic contributor.

#### **Transport and Movement Criteria**

- Maximise access and permeability to public transport connections.
- Form part of an integrated movement strategy to reduce the reliance on the use of private cars and to promote increased use of low-energy sustainable forms of transport, such as public transport, cycling and walking. A Travel Plan may be required in this regard.
- Demonstrate links with public open spaces with high quality pedestrian and cyclist routes.

#### **Cultural Criteria**

- Include provision for cultural facilities at a suitably accessible location in all City Blocks catering for high buildings.
- Provide for high-quality public art as an element of all proposals to create visual interest and a sense of place in the public realm.



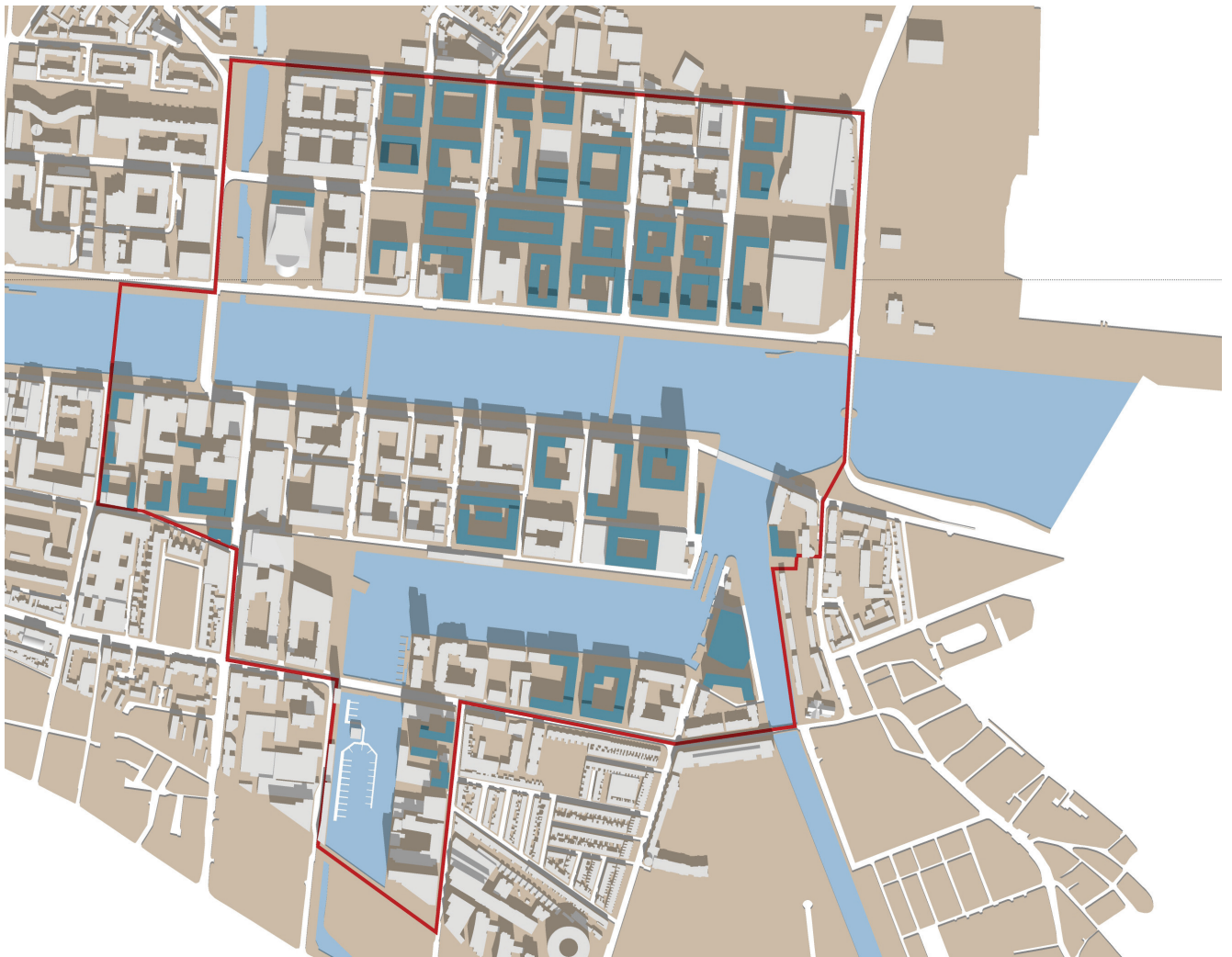


# Appendix 6





Shadows: March - September 21st - 0900



Shadows: March - September 21st - 1200



Shadows: March - September 21st - 1500

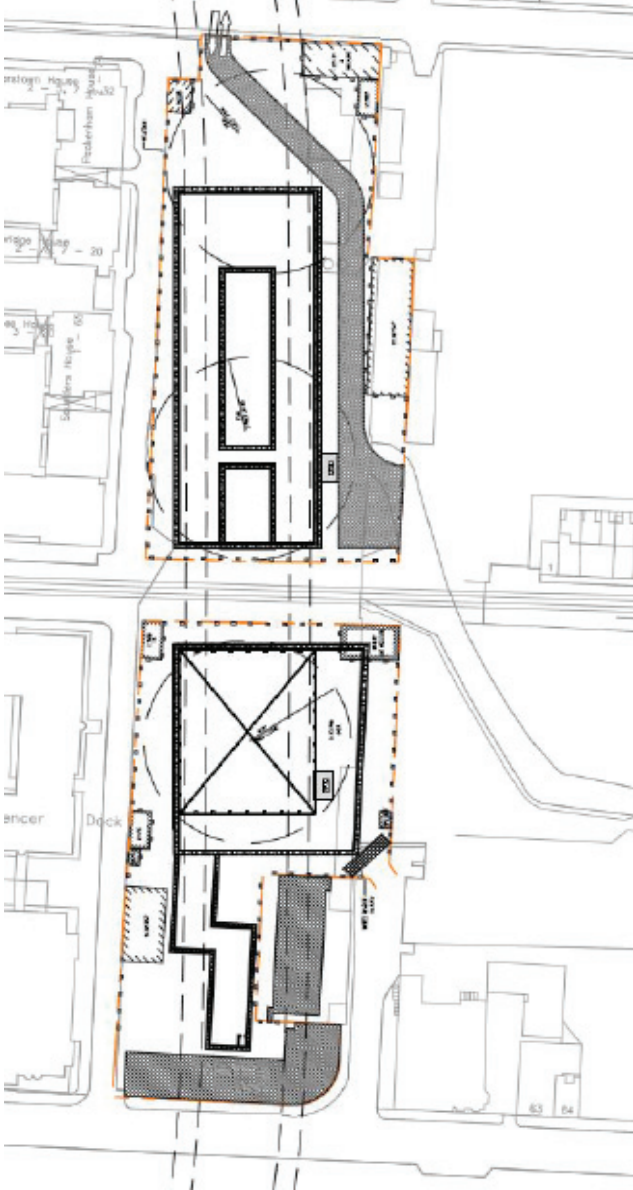
# Appendix 7

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Source: Iarnród Éireann DART Underground Project Office

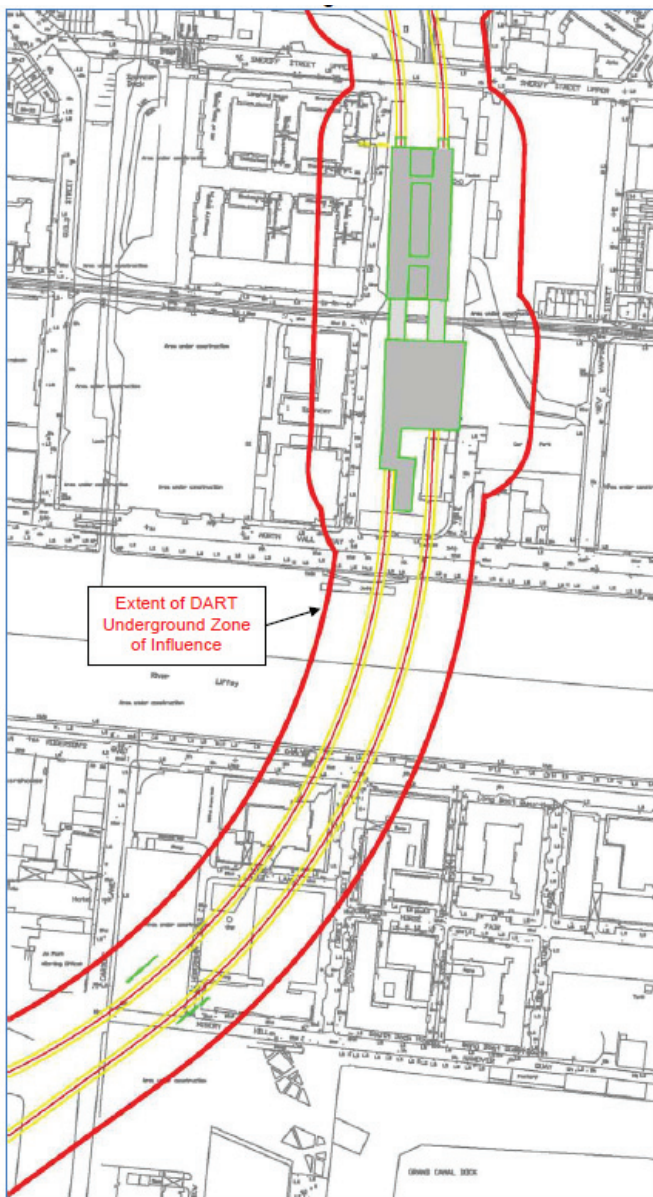


**Fig. 1** Extent of Reservation Strip required for DART Underground Station Construction - Relates to City Blocks 2 & 7.

### DART Underground Reservation Strip.

Note: DART Underground requires a reservation strip to protect certain lands and allow for the construction of the DART Underground Station at Spencer Dock. The lands necessary for construction of the station are shown in Fig. 1. These lands should be reserved and no land-uses that could result in adverse impacts should be permitted in advance of the DART Underground Line.

Source: Iarnród Éireann DART Underground Project Office

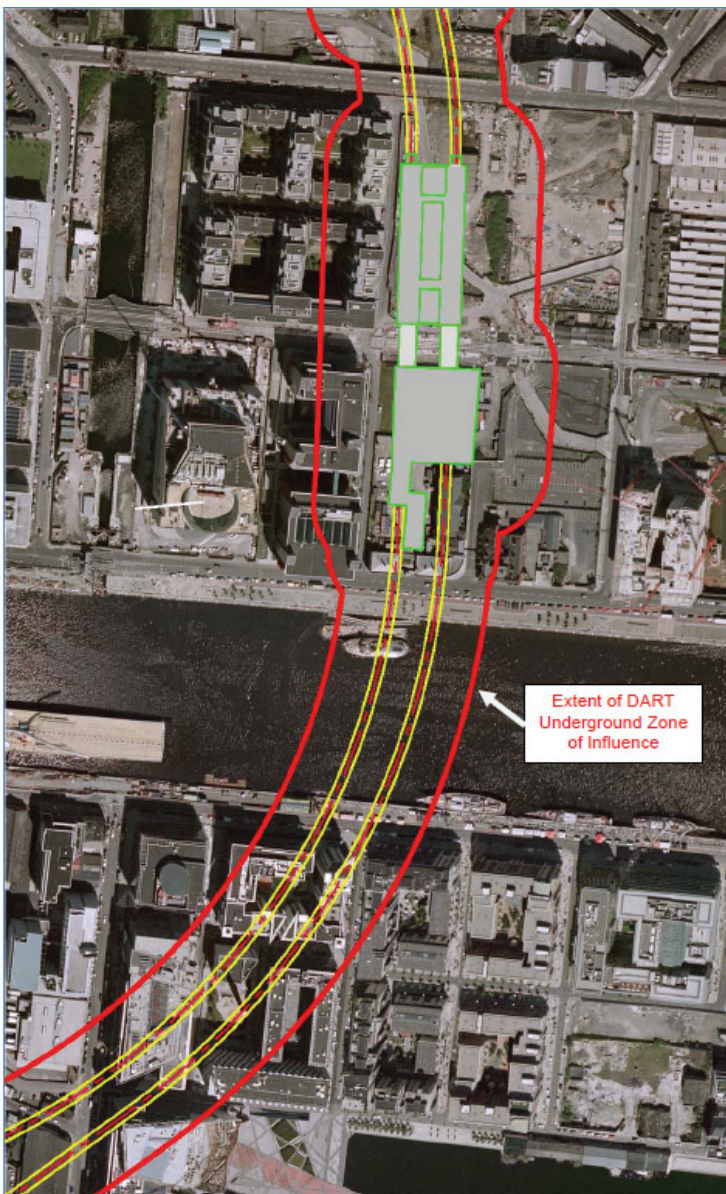


**Fig. J** Zone of Influence of DART Underground

### Zone of Influence

The Zone of Influence of DART Underground is all land enclosed within the predicted 1mm greenfield settlement contour. The predicted 1mm greenfield settlement contour extends laterally, approximately 50m from the underground structures (e.g. stations) and 30m from the edge of tunnels. The extent of the Zone of Influence of DART Underground is shown on Fig. J and K. The Zone of Influence extends into City Blocks 1, 2, 6, 7, 12, 13 and 16 as defined in the Planning Scheme.

Source: Iarnród Éireann DART Underground Project Office



**Fig. K** Zone of Influence of DART Underground (Aerial Photography View)

### Zone of Influence

The Zone of Influence of DART Underground is all land enclosed within the predicted 1mm greenfield settlement contour. The predicted 1mm greenfield settlement contour extends laterally, approximately 50m from the underground structures (e.g. stations) and 30m from the edge of tunnels. The extent of the Zone of Influence of DART Underground is shown on Fig. J and K. The Zone of Influence extends into City Blocks 1, 2, 6, 7, 12, 13 and 16 as defined in the Planning Scheme.





