

Strategic Flood Risk Assessment

for

Proposed Variations

(No.'s 8 - 27)

of the

Dublin City Development Plan

2016-2022

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1.0 Context

1.1 Introduction

Dublin City Council proposes to vary the 2016 – 2022 Dublin City Development Plan by way of 20 no. variations – No's 8 to 27. The proposed variations relate to land use rezoning of 20 different brownfield locations around the city from industrial / employment use to mostly residential / mixed use and open space. A small text change is also proposed. The preparation of the proposed Variations has undergone an appropriate level of Strategic Flood Risk Assessment (SFRA) and this document sets out the findings for all 20 no. proposed Variations.

The SFRA was prepared by Dublin City Council and was informed by the DEHLG Guidelines for Planning Authorities (DEHLG & OPW, 2009) on 'The Planning System and Flood Risk Management' and Technical Appendices. These Guidelines were issued under Section 28 of the Planning and Development Act 2000 as amended, and require Planning Authorities to introduce flood risk assessment as an integral and leading element of Spatial Planning. It sets out that development plans, must establish the flood risk assessment requirements for their functional area.

As part of the Dublin City Development Plan 2016-2022, Dublin City Council undertook a Strategic Flood Risk Assessment (SFRA) which informed the Development Plan (see Volume 7). That SFRA facilitated the integration of various provisions into the County Development Plan that provide for flood risk management within the City. New development will be required to comply with the flood risk management provisions from the City Development Plan.

1.2 Proposals

It is proposed to vary the Dublin City Development Plan 2016 – 2022 (proposed Variations No.'s 8 - 27) so that the lands identified on Table 1 below which are currently zoned industrial uses (LUZ Objective Z6) are rezoned for primarily residential and mixed uses.

From: ***Land Use Zoning Objective Z6 'To provide for the creation and protection of enterprise and facilitate opportunities for employment creation'***

To: The relevant **Proposed Land Use Zoning Objective(s) listed in Table 1** below.

Land Use Zoning Objective Z1 'To protect, provide and improve residential amenities'

Land Use Zoning Objective Z3 'To provide for and improve neighbourhood facilities'

Land Use Zoning Objective Z5 'To consolidate and facilitate the development of the central area, and to identify, reinforce, strengthen and protect its civic design character and dignity'

Land Use Zoning Objective Z9 'To preserve, provide and improve recreational amenity and open space and green networks'

Land Use Zoning Objective Z10 'To consolidate and facilitate the development of inner city and inner suburban sites for mixed-uses, with residential the predominant use in suburban locations, and office /retail / residential the predominant uses in inner city areas.'

Table 1

Proposed Variations	Map Ref.	Subject Lands	Current Zoning	Proposed Zoning
No.8	A5	Clearwater Retail Park, Finglas Road, Dublin 11	Z6 (employment)	Z1 (Residential)
No.9	B2	Santry Industrial Lands, Santry Avenue and Swords Road, Dublin 9	Z6 (employment)	Z1 (Residential)
No.10	B7	Shanowen Road Lands, Whitehall/Santry, Dublin 9	Z6 (employment)	Z1 (Residential)
No.11	B9	Mornington Business Park, Malahide Road, Dublin 5	Z6 (employment)	Z1 (Residential)
No.12	B10	Sites at Malahide Road (adjacent to Mornington Grove), Malahide Road, Dublin 5	Z6 (employment)	Z10 (Mixed Uses) & Z3 (Neighbourhood)
No.13	B11	Site at Harmonstown Road, Dublin 5	Z6 (employment)	Z10 (Mixed Uses)
No.14	D1	Chapelizod Bypass/Kylemore Road, Dublin 20	Z6 (employment)	Z1 (Residential)
No.15	D3	11 Ballyfermot Road Lower, Dublin 10	Z6 (employment)	Z1 (Residential)
No.16	D6	Goldenbridge Industrial Estate, Tyrconnell Road, Dublin 8	Z6 (employment)	Z10 (Mixed Uses) & Z9 (Open Space) & Addition of Text to Section 14.8.9
No.17	E6	Esmond Avenue, Fairview Strand, Dublin 3	Z6 (employment)	Z1 (Residential)
No.18	E7	Seville Place, Dublin 1	Z6 (employment)	Z5 (City Centre) & Z9 (Open Space)
No.19	E12	Lands at Old Kilmainham/South Circular Road, Dublin 8	Z6 (employment)	Z1 (Residential) & Z9 (Open Space)
No.20	E14	109-114 Cork Street, Dublin 8	Z6 (employment)	Z10 (Mixed Uses)
No.21	E35	Davitt Road, Crumlin, Dublin 12	Z6 (employment)	Z1 (Residential)
No.22	E36	Herberton Road / Keeper Road (Glenview Industrial Estate), Drimnagh, Dublin 12	Z6 (employment)	Z1 (Residential)
No.23	E37	White Heather Industrial Estate, Dublin 8	Z6 (employment)	Z1 (Residential) & Z9 (Open Space)
No.24	E41	Parkgate Street / Wolfe Tone Quay, Dublin 8	Z6 (employment)	Z5 (City Centre)
No.25	F2	East Wall Road, Dublin 3	Z6 (employment)	Z10 (Mixed Uses)

No.26	G4	Brickfield House and Sunshine Estate, Crumlin Road, Dublin 12	Z6 (employment)	Z1 (Residential)
No.27	H1	Greenmount Industrial Estate, Harolds Cross, Dublin 6W	Z6 (employment)	Z10 (Mixed Uses) & Z1 (Residential)

In addition, it is also proposed to vary the CDP by adding the **following text to section 14.8.9** of the Dublin City Development Plan 2016 – 2022, **as a last text paragraph** relating to Land-Use Zoning Objective Z9 – Amenity/Open Space Lands/Green Network – Zone Z9, (Proposed Variation No. 16 refers).

‘Adjacent development shall be designed to complement the Z9 area and to provide passive surveillance. Any future amendment in the width of a Z9 area, which is considered to be minor in nature, will be considered in special circumstances where the proposal will benefit the character of the area and there is no net loss of Z9 land’.

1.3 The Purpose of the SFRA

The SFRA was undertaken to identify whether there may be any flooding or surface water management issues within or adjacent to the 20 landbanks proposed for rezoning by way of 20 individual variations and consequently whether Stage 2 SFRA (initial flood risk assessment) should be proceeded to.

The Stage 1 SFRA was based on existing information in the Dublin City Development Plan 2016-2022, Strategic Flood Risk Assessment (SFRA).

The issue for the SFRA is to address the rezoning of lands from employment use (a less vulnerable land use) to residential (a more vulnerable land use) on lands identified as being at a high or moderate risk of flooding. This would be generally inappropriate as set out in Table 3.2 of the Guidelines. The Planning Authority must clearly demonstrate that any such proposed rezoning’s will satisfy the Justification Test as set out in the Flooding Guidelines.

1.4 Disclaimer

It is important to note that, although prepared in compliance with the requirements of *The Planning System and Flood Risk Management Guidelines for Planning Authorities, 2009*, the SFRA is a work in progress and is based on emerging and best available data at the time of preparing the assessment. In particular, the assessment and mapping of areas of flood risk is based on the draft (rather than finalised) outputs from the Eastern Catchment Flood Risk Assessment and Management Plan (ECFRAM).

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

2.0 Flood Risk Policy

2.1 Flood Risk Management Policy

As part of the Dublin City Development Plan 2016-2022, Dublin City Council undertook a Strategic Flood Risk Assessment (SFRA) which informed the Development Plan (see Volume 7). The proposed Variations have been informed by the City Development Plan SFRA. European Directive 2007/60/EC on the assessment and management of flood risk aims to reduce and manage the risks that flooding poses on human health, the environment, cultural heritage and economic activity. The Directive applies to inland waters as well as all coastal waters across the whole territory of the EU. The Directive requires Member States to carry out preliminary assessment by 2011 in order to identify the river basins and associated coastal areas at risk of flooding. Flood risk maps are required to be drawn up for such zones by 2013. Flood risk management plans focused on prevention, protection and preparedness must be established by 2015.

Under the EU 'Floods' Directive, the national Catchment Flood Risk Assessment and Management (CFRAM) programme is being rolled out to review flood risk across the country and produce flood hazard mapping and flood risk management plans for tidal and main rivers. Dublin City is covered by the ongoing Eastern CFRAM study, which includes the Rivers Liffey, Santry, Poddle, Camac as well as the City coastal zones. Earlier pilot studies were carried out for the River Tolka, Mayne and Dodder catchments. Minor streams and rivers may require new studies.

The OPW is the lead agency for flood risk management in Ireland. The coordination and implementation of Government policy on the management of flood risk in Ireland is part of its responsibility. The European Communities (Assessment and Management of Flood Risks) Regulations 2010 (S.I. No. 122) identifies the Commissioners of Public Works as the 'competent authority' with overall responsibility for implementation of the Floods Directive 2007/60/EC. The Office of Public Works is the principal agency involved in the preparation of Flood Risk Assessment and Management studies (FRAMs).

2.2 The Planning System and Flood Risk Management Guidelines for Planning Authorities, 2009

The Planning System and Flood Risk Management Guidelines for Planning Authorities and Technical Appendices, 2009, were issued under Section 28 of the Planning and Development Act 2000 as amended, and require Planning Authorities to introduce flood risk assessment as an integral and leading element of their development planning functions. It sets out that development plans must establish the flood risk assessment requirements for their functional area. The formulation of policies and objectives for flood risk management in areas at risk of flooding must have been developed with regard to '*The Planning System and Flood Risk Management Guidelines for Planning Authorities and Technical Appendices* both dated November 2009.

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
- (c) Incorporate flood risk assessment into the process of making decisions on planning applications and planning appeals.

2.3 Flood Risk

Flooding is a natural process which cannot be prevented entirely but it can generally be managed to reduce its social and economic consequences and to safeguard the continued functioning of services and infrastructure. Climate change is likely to worsen the

situation in areas susceptible to intermittent flooding. Flood Risk is the likelihood of a particular flood happening (probability), e.g. the 1% annual exceedence probability (AEP) flood has a roughly 1 in 100 year chance of occurring. This does not mean that they only happen every 100 years, in betting terms the odds of such an event happening would be 100/1 in any year. Flood risk can be expressed in terms of the following: -

Flood risk = Probability of Flooding X Consequences of Flooding

2.4 Definition of Flood Zones and Flood Risk

Within Dublin City, five main sources of flood risk have been identified. The natural causes are: -

- Coastal & estuarine flooding of areas adjacent to the coast or tidal estuaries.
- Fluvial or riverine flooding due to the river banks overtopping and / or flood defence collapse.
- Pluvial flooding resulting from water run-off and ponding in low spots following intense rainfall.

In addition, flooding can occur from human activities including: -

- Dam break & extreme operation flooding associated with dam failure, either actual failure or high discharge release when in danger of over topping.
- Drainage flooding due to failure or inadequacies of the sewerage system.

Flood zones are geographical areas within which the likelihood of flooding is in a particular risk 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 Planning System and Flood Risk Management Guidelines for Planning Authorities and Technical Appendices, 2009'*:

Zone A: High probability of flooding – Where the estimated 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 greater than 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 would normally be allowed.

Zone B: Moderate probability of flooding – Flood risk is between 0.1% (or 1 in 1000 years) and 1 % (or 1 in 100 years) annually for river flooding, and between 0.1% (or 1 in a 1000 years) and 0.5% (or 1 in 200 years) annually for coastal flooding. Highly vulnerable development including hospitals, residential care homes, Garda buildings, car parks, 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 are met. Less vulnerable development such as retail, commercial and industrial uses 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 – Areas where the risk of flooding 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).

It is important to note that *'The Planning System and Flood Risk Management Guidelines for Planning Authorities and Technical Appendices, 2009'* ignore the presence of flood defences when defining flood zones; this is due to the fact that even areas that benefit from an existing flood defence can still be vulnerable due to the speed when overtopping

or a breach or other failure takes place. Therefore this residual risk of flooding where appropriate should be assessed as part of the application of the justification test and, if the site is zoned for development, through the site specific flood risk assessment.

2.5 Consequences of Flood Risk

The consequences of flooding depends on the hazards associated with the event, including depth of water, speed of flow, rate of onset, duration, wave action effects and water quality. The consequences are also determined by the vulnerability of people, property and the environment potentially affected by a flood. The recovery time following flooding is also important. *'The Planning System and Flood Risk Management Guidelines for Planning Authorities and Technical Appendices, 2009'* provide three vulnerability categories based on the type of development which are detailed below: -

- Highly vulnerable
- Less vulnerable
- Water compatible

Tables 2 and 3 taken from *'The Planning System and Flood Risk Management Guidelines for Planning Authorities and Technical Appendices, 2009'* illustrate the types of development that would be appropriate to each flood zone and those that would be required to meet the justification test. Inappropriate development that does not meet the criteria of the justification test should not be considered at the plan-making stage or approved within the development management process.

Table 2: Classification of vulnerability of different types of development.

Vulnerability Class	Lane uses and types of development which include*:
Highly vulnerable development (including essential infrastructure)	Garda, ambulance and fire stations and command centres required to be operational during flooding; Hospitals; Emergency access and egress points; Schools; Dwelling houses, student halls of residence and hostels; Residential institutions such as residential care homes, children's homes and social services homes; Caravans and mobile home parks; Dwelling houses designed, constructed or adapted for the elderly or, other people with impaired mobility; and Essential Infrastructure, such as primary transport and utilities distribution, including electricity generating power stations and sub-stations, water and sewage treatment, and potential significant sources of pollution (SEVESO sites, IPPC sites, etc) in the event of flooding.
Less vulnerable development	Buildings used for; retail, leisure, warehousing, commercial, industrial and non residential institutions; Land and buildings used for holiday or short-let caravans and camping, subject to specific warning and evacuation plans; Land and buildings used for agriculture and forestry;

	Water treatment (except landfill and hazardous waste); Mineral working and processing; and Local Transport Infrastructure
Water compatible development	Flood control infrastructure; Docks, marinas and wharves; Navigation facilities; Ship building, repairing and dismantling , dockside fish processing and refrigeration and compatible activities requiring a waterside location; Water-based recreation and tourism (excluding sleeping accommodation); Lifeguard and coastguard stations; Amenity open space, outdoor sports and recreation and essential facilities such as changing rooms; and Essential ancillary sleeping or residential accommodation for staff required by uses in this category (subject to a specific warning and evacuation plan).
Uses not listed here should be considered on their own merits	

Table 3: Matrix of vulnerability versus flood zone to illustrate appropriate development and that required to meet the Justification Test.

	FLOOD ZONE A	FLOOD ZONE B	FLOOD ZONE C
Highly vulnerable development	JUSTIFICATION TEST	JUSTIFICATION TEST	APPROPRIATE
Less vulnerable development	JUSTIFICATION TEST	APPROPRIATE	APPROPRIATE
Water compatible development	APPROPRIATE	APPROPRIATE	APPROPRIATE

2.6 Climate Change

Climate change is one of the biggest potential risks over the lifetime of flood defences. The flood zones do not take the impact of climate change into account directly, although an indication of the scale of likely changes is gained from a comparison of the extents of flood zone A and B, with flood zone B being an indication of the future extent of flood zone A. For this reason, it is important that the standard of protection provided by the defences is reviewed over time, and if necessary, increased to ensure the 1 in 100-year standard of protection is maintained. The CFRAM study, when completed, will include recommendations for the likely impact of two climate change scenarios

2.7 Structure of a Flood Risk Assessment (FRA)

'The Planning System and Flood Risk Management Guidelines for Planning Authorities and Technical Appendices, 2009' recommend that a staged approach is adopted when undertaking a Flood Risk Assessment (FRA), which include: -

Stage 1 - Flood Risk Identification: To identify whether there may be any flooding or surface water management issues that will require further investigation. This stage mainly comprises a comprehensive desk study of available information to establish whether a flood risk issue exists or whether one is reasonably likely to exist in the future.

Stage 2 - Initial Flood Risk Assessment: If a flood risk issue is deemed to exist arising from the stage 1 Flood Risk Identification process, the assessment proceeds to stage 2 which confirms the sources of flooding, appraises the adequacy of existing information and determines the extent of additional surveys and the degree of modelling that will be required. Stage 2 must be sufficiently detailed to allow the application of the sequential approach within the flood risk zone.

Stage 3 - Detailed Flood Risk Assessment: A detailed FRA is carried out where necessary to assess flood risk issues in sufficient detail and to provide a quantitative appraisal of potential flood risk to a proposed or existing development or land to be zoned of its potential impact on flood risk elsewhere and the effectiveness of any proposed mitigation measures.⁴

For the purposes of the Dublin City Development Plan 2016-2022, the Strategic Flood Risk Assessment covers stages 1 and 2, i.e. Flood Risk Identification and Initial Flood Risk Assessment. Due to the nature of flood risk in the city, there were no sites identified that required Detailed (stage 3) assessment through the SFRA. The CDP SFRA has also identified situations, and some specific locations, where stage 3 flood risk assessments will be required to support site specific planning decisions. DCC seeks a site specific FRA for planning applications.

2.8 Geographical Scales of a Flood Risk Assessment

Flood risk assessments are undertaken at different scales for the purposes of decision making, and may be at Regional, Development Plan or Local Area Plan level, and also at site specific level. The appropriate level for the proposed Variations to the City Development Plan is a Strategic Flood Risk Assessment.

Strategic Flood Risk Assessment (SFRA): The SFRA provides a broad basis (area wide or county wide) assessment of all types of known flood risk to inform strategic land use planning decisions. The SFRA allows the Planning Authority to undertake the sequential approach (described below) and identify how flood risk can be reduced as part of the plan process. Where development is planned in flood risk areas, a detailed flood risk assessment may have to be carried out within the SFRA so that the potential for development of the lands and their environmental impact can be assessed. The SFRA will provide more detailed information on the spatial distribution of flood risk to enable adoption of the sequential approach and to identify where it will be necessary to apply the justification test.

2.9 Sequential Approach to Flood Risk Management & Justification Test

The sequential approach is the key tool in ensuring that development, particularly new development, first and foremost is directed towards land that is at low risk.

Figure 2 taken from *'The Planning System and Flood Risk Management Guidelines for Planning Authorities and Technical Appendices, 2009'* sets out the broad philosophy underpinning the sequential approach.

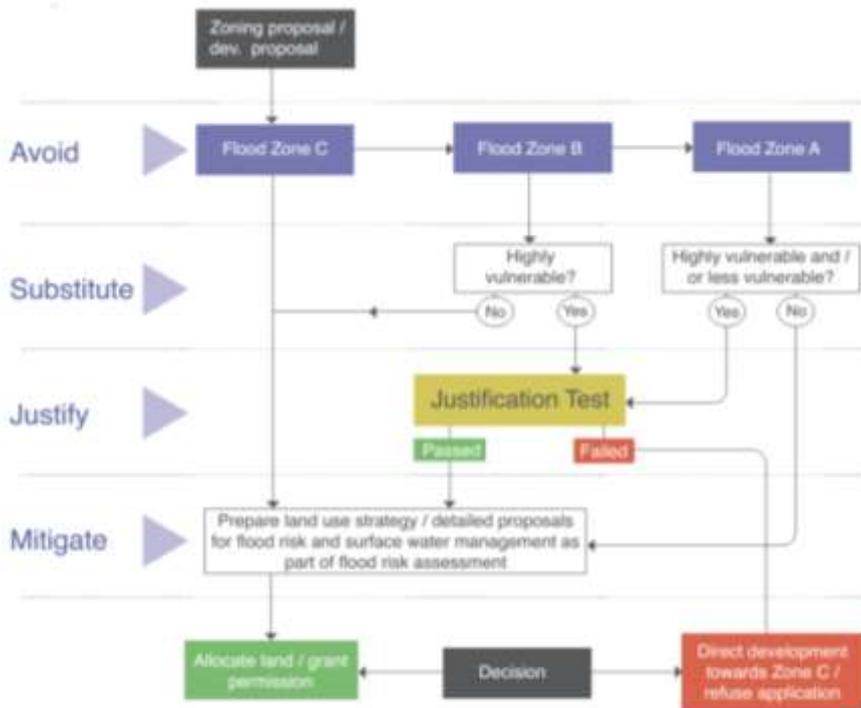


Fig 2: Sequential Approach (from The Planning System and Flood Risk Management Guidelines for Planning Authorities, 2009)

The sequential approach to flood risk makes use of flood risk assessment and of prior identification of flood zones for river and coastal flooding and classification of the vulnerability of flooding of different types of development. This approach highlights the importance of taking into account the risks of other sources of flooding, in all areas and at all stages of the planning process.

The sequential approach is based on the following principles: **Avoid – Substitute – Justify – Mitigate – Proceed.**

Where possible, development in areas identified as being at high flood risk for that type of development should be avoided. This may necessitate de-zoning lands within the development plan. If de-zoning is not possible, then rezoning from a higher vulnerability land use, such as residential, to a less vulnerable use, such as open space may be required. Where rezoning is not possible, development restrictions are provided for through the application of the justification test.

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 risk of flooding.

The tests comprise of two processes namely the plan making justification test and the development management justification test.

As part of the preparation of the SFRA of the Dublin City Development Plan 2016-2022, the various rivers in the City were sub-divided into various flood cells (30 in total) and a Justification Test was carried out for each identified Flood Cell.

3.0 Stage 1 – Flood Risk Identification

3.1 Introduction

A Stage 1 Strategic Flood Risk Assessment (SFRA) was undertaken in order to identify whether there may be any flooding or surface water management issues within or adjacent to the landbanks the subject of the proposed Variations, and consequently whether a Stage 2 (initial flood risk assessment) assessment should be proceeded to. Stage 1 was based on information supplied from the SFRA for the City Development Plan and from consultation with the Council's Flood Project and WFD Division.

3.2 The Proposed Variations – 20 Landbanks

The 20 Z6 (employment) land banks proposed for rezoning constitute serviced but underutilized brownfield lands which are located within the built up area of the city on strategic transport corridors.

In total these lands comprise of circa 55 hectares. Based on the density assumption of 100 units per hectare and also assuming that 50% of the mixed use component would be in residential use this 55 ha has the potential to provide for over 4,000 additional units (this figure is indicative).

3.3 National and Regional Population Growth and Brownfield Targets

National and Regional Planning Policy places an emphasis on urban consolidation and compact growth. These documents seek the following:

The National Planning Framework (NPF) (Project Ireland 2040) seeks that Dublin city needs to accommodate a greater proportion of the growth it generates within its footprint and therefore it sets a target of at least 50% of all new homes for Dublin City and suburbs to be delivered within its existing built-up footprints. To achieve these targets the NPF identifies as key the reusing of large and small 'brownfield' land / infill sites, and underutilized lands at locations well served by existing and planning public transport. The NPF particularly highlights the need to focus on underutilised lands within the canals and the M50 ring. In a Dublin context it seeks the relocating of less intensive uses outside the M50 ring from the existing built up area.

The Regional Spatial and Economic Strategy for the Eastern and Midlands Region seeks the consolidation and re-intensification of infill, brownfield and underutilised lands within Dublin City and its suburbs. 50% of all new homes within Dublin City and its suburbs are to be located in the existing built up area. The RSES identifies a population target increase for Dublin City (DCC's administrative area) of circa 100,000 people by 2031. To facilitate this growth the RSES also includes a Metropolitan Area Strategic Plan (MASP) for the Dublin metropolitan area. MASP directs future growth to identified Strategic Development Areas located on existing and planned strategic transport corridors and anticipates future growth will also be accommodated on 'brownfield' / infill development lands in the city.

3.4 The Future Needs of the City

In order to align these new national, regional and local planning policy objectives and to incorporate new population growth targets for the City into the City Development Plan, the Planning Authority is currently progressing a separate proposed Variation to the City Development Plan (No. 7) in accordance with Section 11 (1) (b) of the Planning and Development Act, 2000, as amended.

The current housing allocation for the Dublin City Council area is 29,500 (over 7 years). To reflect the population growth targets of the NPF and the RSES, the City's housing allocation is proposed to be amended to a range of 21,939 - 26,439 (over the six year period from 2016 – 2022). The Core Strategy

of the City Development Plan 2016 – 2022 demonstrates there is sufficient suitably zoned and serviced land to provide for 55,000 units. This quantum of available lands for housing reflects the fact that the city is largely built out and all the lands are zoned. It also reflects the reality that the remaining lands to be developed for housing will not come on stream at once; particularly when addressing complex brownfield lands. Development issues associated with brownfield lands along with the recent national recession have resulted in low levels of construction activity through the first few years of the current Development Plan. While recent trends point to a rising and significant increase in housing construction over the past 2 years, it is imperative for the city that a suitable and viable range of development options exist.

Ensuring the vitality of Dublin City is dependent on providing affordable places to live and places to work within a reasonable distance of each other, to allow people a good quality of life and to ensure a sustainable pattern and low carbon form of development.

It is essential that the Council ensures that a sustainable mix of uses are retained across the City, and that areas of the City do not become mono-use in their entirety. The City area contains many types of employment, some locally focussed and service based, some national and international from small start-ups to global firms. A balance is required to ensure that a strong mix of types of employment and essential local services are retained within the City. The mixed-use approach promoted in Z10 and Z5 objectives in the City Development Plan seeks to ensure that this balance is maintained in a sustainable manner.

The benefits for the city of reusing / intensifying development on inner city and suburban DCC brownfield lands are many and include: the potential to achieve more homes and jobs in the city through high quality and high density mixed use development; continued support of existing services and infrastructure and facilitating people to live, work and recreate within the same area. Such an approach also facilitates the transition to a low carbon future.

3.5 Proposed Variations

To assess the appropriateness of each rezoning proposal from a flood risk perspective, the relevant flood zone is identified and the appropriateness of the type of development proposed in that flood zone having regard to the Flooding Guidelines is assessed. Where it is identified that a proposed rezoning is not appropriate in a flood zone the variation proposal is then required to proceed to the justification test. Information on Flood Zones is taken from the City Development Plan SFRA.

Table 4 below provides a guide to the relevant flood zone(s) for each Variation Proposal and Table 5 identifies the vulnerability of each landbank versus its flood zone to illustrate appropriate development and that required to meet the Justification Test. As a precautionary measure those landbanks which are in Flood Zone C but which adjoin Flood zones A and B are assessed as also being in Flood Zones A and B.

Table 4: Proposed Rezoning and Flood Zone(s)

Proposed Variations	Map Ref.	Subject Lands	Flood Zone A	Flood Zone B	Flood Zone C
No.8	A5	Clearwater Retail Park, Finglas Road, Dublin 11			Z1 (Residential)
No.9	B2	Santry Industrial Lands, Santry Avenue and Swords Road, Dublin 9			Z1 (Residential)

No.10	B7	Shanowen Road Lands, Whitehall/Santry, Dublin 9			Z1 (Residential)
No.11	B9	Mornington Business Park, Malahide Road, Dublin 5			Z1 (Residential)
No.12	B10	Sites at Malahide Road (adjacent to Mornington Grove), Malahide Road, Dublin 5			Z10 (Mixed Uses) & Z3 (Neighbourhood)
No.13	B11	Site at Harmonstown Road, Dublin 5			Z10 (Mixed Uses)
No.14	D1	Chapelizod Bypass/Kylemore Road, Dublin 20			Z1 (Residential)
No.15	D3	11 Ballyfermot Road Lower, Dublin 10			Z1 (Residential)
No.16	D6	Goldenbridge Industrial Estate, Tyrconnell Road, Dublin 8	Z10 (Mixed Uses) & Z9 (Open Space)	Z10 (Mixed Uses) & Z9 (Open Space)	Z10 (Mixed Uses) & Z9 (Open Space)
No.17	E6	Esmond Avenue, Fairview Strand, Dublin 3			Z1 (Residential)
No.18	E7	Seville Place, Dublin 1	Z5 (City Centre) & Z9 (Open Space)		Z5 (City Centre) & Z9 (Open Space)
No.19	E12	Lands at Old Kilmainham/South Circular Road, Dublin 8	Z1 (Residential) & Z9 (Open Space)	Z1 (Residential) & Z9 (Open Space)	Z1 (Residential)
No.20	E14	109-114 Cork Street, Dublin 8	Z10 (Mixed Uses)	Z10 (Mixed Uses)	Z10 (Mixed Uses)
No.21	E35	Davitt Road, Crumlin, Dublin 12			Z1 (Residential)
No.22	E36	Herberton Road / Keeper Road (Glenview Industrial Estate), Drimnagh, Dublin 12	Z1 (Residential)	Z1 (Residential)	Z1 (Residential)
No.23	E37	White Heather Industrial Estate, Dublin 8			Z1 (Residential) & Z9 (Open Space)
No.24	E41	Parkgate Street / Wolfe Tone Quay, Dublin 8	Z5 (City Centre)	Z5 (City Centre)	Z5 (City Centre)
No.25	F2	East Wall Road, Dublin 3	Z10 (Mixed Uses)	Z10 (Mixed Uses)	Z10 (Mixed Uses)
No.26	G4	Brickfield House and Sunshine Estate,			Z1 (Residential)

		Crumlin Road, Dublin 12			
No.27	H1	Greenmount Industrial Estate, Harolds Cross, Dublin 6W	Z10 (Mixed Uses) & Z1 (Residential)	Z10 (Mixed Uses) & Z1 (Residential)	Z10 (Mixed Uses) & Z1 (Residential)

Table 5: Matrix of vulnerability versus flood zone to illustrate appropriate development and that required to meet the Justification Test.

	FLOOD ZONE A	FLOOD ZONE B	FLOOD ZONE C
Highly vulnerable development	JUSTIFICATION TEST	JUSTIFICATION TEST	APPROPRIATE
			No. 8 - Clearwater Retail Park, Finglas Road, Dublin 11
			No. 9 - Santry Industrial Lands,
			No. 10 - Shanowen Road Lands, Whitehall/Santry
			No. 11 - Mornington Business Park
			No. 12 - Sites at Malahide Road (adjacent to Mornington Grove)
			No. 13 - Site at Harmonstown Road
			No. 14 - Chapelizod Bypass/Kylemore Road
			No. 15 - 11 Ballyfermot Road Lower
	No. 16 - Goldenbridge Industrial Estate	No. 16 - Goldenbridge Industrial Estate	No. 16 - Goldenbridge Industrial Estate
			No. 17 - Esmond Avenue, Fairview Strand
	No. 18 - Seville Place, Dublin 1		No. 18 - Seville Place, Dublin 1
	No.19 - Lands at Old Kilmainham	No.19 - Lands at Old Kilmainham	No.19 - Lands at Old Kilmainham
	No. 20 - 109-114 Cork Street	No. 20 - 109-114 Cork Street	No. 20 - 109-114 Cork Street
			No. 21 - Davitt Road,
	No. 22 - Herberton Road / Keeper Road	No. 22 - Herberton Road / Keeper Road	No. 22 - Herberton Road / Keeper Road
			No. 23 - White Heather Industrial Estate

	No. 24 - Parkgate Street / Wolfe Tone Quay	No. 24 - Parkgate Street / Wolfe Tone Quay	No. 24 - Parkgate Street / Wolfe Tone Quay
	No. 25 - East Wall Road	No. 25 - East Wall Road	No. 25 - East Wall Road
			No. 26 - Brickfield House and Sunshine Estate
	No. 27 - Greenmount Industrial Estate	No. 27 - Greenmount Industrial Estate	No. 27 - Greenmount Industrial Estate
Less vulnerable development	JUSTIFICATION TEST	APPROPRIATE	APPROPRIATE
			No. 12 - Sites at Malahide Road (adjacent to Mornington Grove)
			No.13 - Site at Harmonstown Road
	No. 16 - Goldenbridge Industrial Estate	No. 16 - Goldenbridge Industrial Estate	No. 16 - Goldenbridge Industrial Estate
	No. 18 - Seville Place, Dublin 1		No. 18 - Seville Place, Dublin 1
	No. 20 - 109-114 Cork Street	No. 20 - 109-114 Cork Street	No. 20 - 109-114 Cork Street
	No. 24 - Parkgate Street / Wolfe Tone Quay	No. 24 - Parkgate Street / Wolfe Tone Quay	No. 24 - Parkgate Street / Wolfe Tone Quay
	No. 25 - East Wall Road	No. 25 - East Wall Road	No. 25 - East Wall Road
	No. 27 - Greenmount Industrial Estate	No. 27 - Greenmount Industrial Estate	No. 27 - Greenmount Industrial Estate
Water compatible development	APPROPRIATE	APPROPRIATE	APPROPRIATE
	No. 16 - Goldenbridge Industrial Estate	No. 16 - Goldenbridge Industrial Estate	No. 16 - Goldenbridge Industrial Estate
	No. 18 - Seville Place, Dublin 1		No. 18 - Seville Place, Dublin 1
	No.19 - Lands at Old Kilmainham	No.19 - Lands at Old Kilmainham	
			No. 23 - White Heather Industrial Estate

3.6 Flood Risk Identification

Tables 4 and 5 above identify whether or not there is fluvial flood risk for each of the 20 proposed Variations (rezoings). Fluvial flood risk has not been identified for the 12 landbanks set out in Table 6 below. Fluvial flood risk has not been identified for the same 12 Land Banks (see Appendix A) (aside from lands adjacent Proposed Variation No. 13 along railway line).

Table 6 Fluvial flood Risk not identified for these landbanks.

Proposed Variations	Map Ref.	Subject Lands
No.8	A5	Clearwater Retail Park, Finglas Road, Dublin 11
No.9	B2	Santry Industrial Lands, Santry Avenue and Swords Road, Dublin 9
No.10	B7	Shanowen Road Lands, Whitehall/Santry, Dublin 9
No.11	B9	Mornington Business Park, Malahide Road, Dublin 5
No.12	B10	Sites at Malahide Road (adjacent to Mornington Grove), Malahide Road, Dublin 5
No.13	B11	Site at Harmonstown Road, Dublin 5
No.14	D1	Chapelizod Bypass/Kylemore Road, Dublin 20
No.15	D3	11 Ballyfermot Road Lower, Dublin 10
No.17	E6	Esmond Avenue, Fairview Strand, Dublin 3
No.21	E35	Davitt Road, Crumlin, Dublin 12
No.23	E37	White Heather Industrial Estate, Dublin 8
No.26	G4	Brickfield House and Sunshine Estate, Crumlin Road, Dublin 12

This Stage I assessment identifies that there is potentially levels of fluvial flood risk arising in the case of the remaining 8 no. landbanks. These Variation proposals must therefore meet the Justification Test as set out in the flooding Guidelines. 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 risk of flooding.

3.7 Conclusion of Stage 1 SFRA

It is not considered necessary at this stage to proceed to a Stage 2 Flood Risk Assessment for the (12) landbanks identified in Table 6 above.

A total of 8 main areas of fluvial flood risk have been identified through Stage 1 and these landbanks are shown on Table 7 below. These will now be assessed individually, considering the type of development proposed under the relevant proposed Variation. It is therefore considered necessary that the landbanks identified in Table 7 below proceed to a Stage 2 Flood Risk Assessment.

Table 7: Justification Test Required.

Justification Test Required
No. 16 - Goldenbridge Industrial Estate
No. 18 - Seville Place, Dublin 1
No.19 - Lands at Old Kilmainham
No. 20 - 109-114 Cork Street
No. 22 - Herberton Road / Keeper Road
No. 24 - Parkgate Street / Wolfe Tone Quay
No. 25 - East Wall Road
No. 27 - Greenmount Industrial Estate

4.0 Stage 2 – Initial Flood Risk Assessment

4.1 Introduction

The landbanks set out in Table 7 above have been identified as required to meet the Justification Test as set out in the Flooding Guidelines. The Development Plan (Variation) Justification Test is to be carried out as part of the SFRA using mapped flood zones.

As part of the preparation of the SFRA of the Dublin City Development Plan 2016-2022, the various rivers in the City were sub-divided into flood cells (30 in total) and a Justification Test was carried out for each identified Flood Cell – Numbered Site 1 to Site 30 – see Appendix 3 of the SFRA, ‘Application of the Justification Test for the Development Plan’.

All the landbanks identified in Table 7 have been previously assessed, as part of a larger Flood Cell, in the referred Justification Test for the Development Plan, see Table 8 below.

Table 8: Justification Test Tables, SFRA, Appendix 3 City Development Plan

Proposed Variation	Flood Cell - Areas of the City Reviewed (CDP SFRA Appendix 3)
No. 16 - Goldenbridge Industrial Estate	Site 18, Middle Camac, CDP SFRA, Appendix 3
No. 18 - Seville Place, Dublin 1	Site 3, Liffey: O’Connell Bridge to Tom Clarke Bridge,
No.19 - Lands at Old Kilmainham	Site 17, Lower Camac: South Circular Road to Liffey Estuary
No. 20 - 109-114 Cork Street	Site 13, Poddle: Inside Canal
No. 22 - Herberton Road / Keeper Road	Site 14, Poddle: Culverts outside Canal
No. 24 - Parkgate Street / Wolfe Tone Quay	Site 5, Liffey: Sean Heuston Br. – Sarah Bridge, South Circular Road
No. 25 - East Wall Road	Site 3, Liffey: O’Connell Bridge to Tom Clark Bridge and Site 20 Tolka: Dublin Port to Drumcondra Bridge.
No. 27 - Greenmount Industrial Estate	Site 15, Poddle: Grand Canal to Sundrive Road

The 8 landbanks identified as required to meet the justification test are now reviewed in the context of their appropriate Flood Cell (SFRA CDP Appendix 3).

Site 18, Middle Camac, DCC SFRA, Appendix 3

(Proposed Variation No. 16 - Goldenbridge Industrial Estate)

VARIATION PROPOSAL

From: Zoning Objective Z6 – To provide for the creation and protection of enterprise and facilitate opportunities for employment creation.

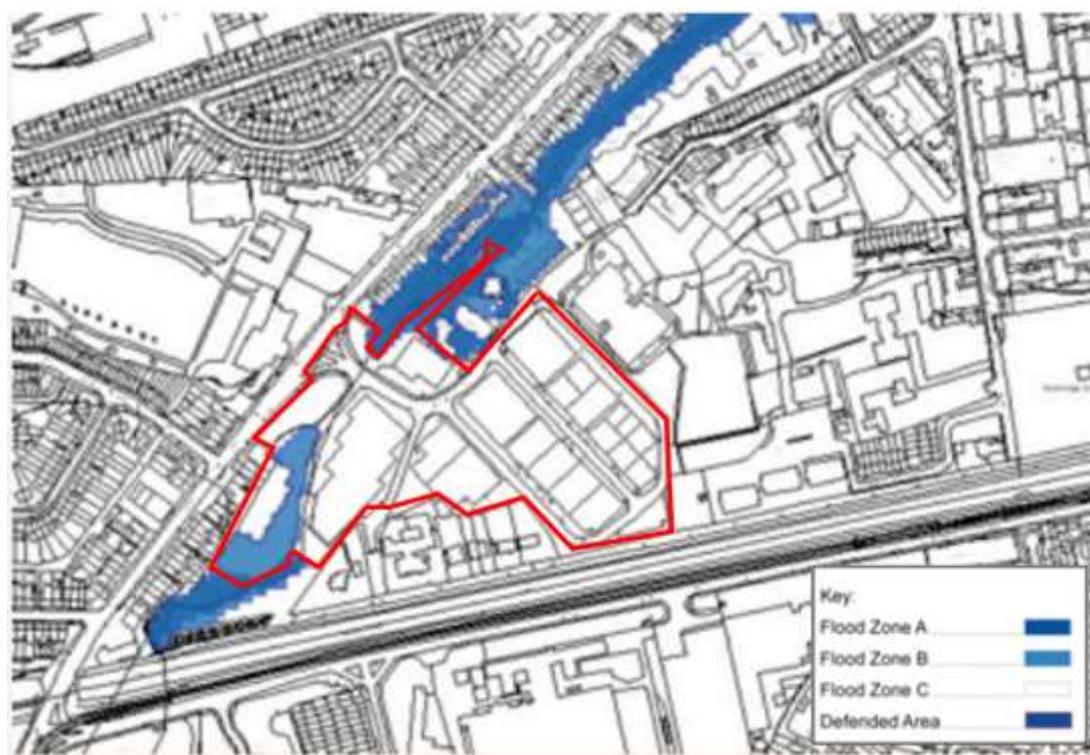
To: Zoning Objective Z10 – To consolidate and facilitate the development of inner city and inner suburban sites for mixed-uses, with residential the predominant use in suburban locations, and office/retail/residential the predominant uses in inner city areas.

To: Zoning Objective Z9 – To preserve, provide and improve recreational amenity and open space and green networks.

It is also proposed to **add the following text to section 14.8.9** of the Dublin City Development Plan 2016 – 2022, **as a last text paragraph** relating to Land-Use Zoning Objective Z9 – Amenity/Open Space Lands/Green Network – Zone Z9.

“Adjacent development shall be designed to complement the Z9 area and to provide passive surveillance. Any future variation in the width of a Z9 area, which is considered to be minor in nature, will be considered in special circumstances where the proposal will benefit the character of the area and there is no net loss of Z9 land”.

Flooding Map from Appendix 3: Justification Test Tables, 2016 – 2022 Dublin City Development Plan, SFRA.



* red line for illustrative purposes only and is not an exact reflection of the site boundaries



Dublin City Council Development Plan 2016-2022
 Goldenbridge Industrial Estate, Tyrconnell Road, D8

Map Ref D6
 Site Boundary 
 Scale 1:2,500

Proposed Zoning
 Z10  Area 3.905 Hectares
 Z9  Area 0.391 Hectares

Proposed Variation No. 16 - Goldenbridge Industrial Estate

DCC SFRA Appendix 3 - Site: 18 Middle Camac: Davitt Road to South Circular Road

<p>Site Description and Proposed Variation</p>	<p>This section of the middle Camac flows through Goldenbridge Industrial Estate. It flows from north east to south west towards the front of the lands (western side). It flows through open channels and within the industrial estate it is culverted under an estate road.</p> <p>The lands currently comprise inner city employment brownfield lands (located inside the canals to the north of the Grand Canal).</p> <p>It is proposed to rezone lands along the alignment of the Camac as Z9 (Open Space) for the purposes of allowing the Camac Culvert to be opened for its length through the lands and for the purposes of enabling river protection, rehabilitation, biodiversity and amenity.</p> <p>It is proposed that the rest of the lands be zoned Z10 (mixed use). Open space areas associated with residential development / public realm are required to supplement the proposed Z9 (Open Space Zoning) so as to provide an increased biodiversity strip along the river. This would be delivered through the development management process.</p>
<p>Benefitting from Defences (Flood Relief scheme works) and residual Risk</p>	<p>The lands do not benefit from formal flood defences</p>
<p>Sensitivity to Climate Change</p>	<p>Slight-moderate – Along the Middle Camac: Davitt Road to South Circular Road - there is significant difference between the extents of Flood Zone A and B in a number of locations which indicates an increase in flood risk as river flows increase.</p>
<p>Historical Flooding</p>	<p>The flood maps attached are consistent with previous flooding of this section of the Camac through Goldenbridge Industrial Estate.</p>
<p>Storm (surface) Water</p>	<p>As this portion of the Camac Catchment (Davitt Road to South Circular Road) is susceptible to pluvial flooding from intense rainfall events, (there is flooding downstream), best practice with regards to storm (surface) water management should be implemented across the development area, to limit storm (surface) water runoff to current values. River should be slowed down with curves. Green Infrastructure required to limit runoff and to improve water quality. This would include planting of trees, the provision of green roofs and the provision of public open space in line with Development Plan policy.</p>

	<p>Underground developments such as car parks should be designed to mitigate against flood risk.</p> <p>According to Appendix 6 of the SFRA of the CDP there is a mostly low risk of pluvial flood hazard on these lands.</p> <p>All Developments shall have regard to the Pluvial Flood Maps in their Site Specific Flood Risk Assessment, see Flood ResilienCity Project, Volume 2 City Wide Pluvial Flood Risk Assessment at http://www.dublincity.ie/main-menu-services-water-waste-and-environment-drains-sewers-and-waste-water/flood-prevention-plans</p>
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Commentary on Flood Risk:

The flood extents indicate flow paths generally coming directly out of the river channel. The flood maps are from the 2016 – 2022 Dublin City Development Plan SFRA and were produced based on the OPW CFRAM Study and checked against historic flooding in the area. Public consultation was carried out on these in 2014 to iron out any local inaccuracies. Many areas remain at significant flood risk pending further studies. Further Camac Study on-going since November 2019. Contact Council’s Flood Project and WFD Division.

Development Options:

These are currently industrial lands and they are mostly located in Flood Zone C. It is proposed to change the zoning of the lands to Z10 (Mixed use) and Z9 (Open Space). Any mixed use development can be accommodated within the extents of Flood Zone C. Less vulnerable development (commercial) can be located in Flood Zone B if not used as open space area. Development should not need to extend into Flood Zone A or B unless defended.

Justification Test for Development Plans (and Variations)
<p>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 provisions of the Planning and Development Act, 2000, as amended.</p> <p>See Section 3.0 above</p>
<p>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:</p> <p>(i) Is essential to facilitate regeneration and/or expansion of the centre of the urban settlement</p> <p>Answer: Yes: The lands are located in the inner City, within the Canals. The areas located in Flood Zones A and B are currently industrial lands. These underutilised brownfield lands are located within the inner city and their redevelopment for mixed use development which can include residential development is essential to meet national and regional brownfield development objectives as set out in National and Regional Planning policy including the Regional MASP. It is proposed to rezone lands on and adjacent the Camac as Z9 (Open Space). The redevelopment of the lands for mixed use development</p>

(including residential development) is considered essential to facilitate the regeneration and expansion of the urban settlement.

(ii) Comprises significant previously developed and/or under-utilised lands

Answer: The areas located in Flood Zones A and B comprise under-utilised brownfield lands.

(iii) Is within or adjoining the core of an established or designated urban settlement

Answer: Yes: The lands form part of an established built up part of the Inner City

(iv) Will be essential in achieving compact and sustainable urban growth

Answer: Yes: The lands form part of an established built up part of the Inner City and are essential in achieving compact and sustainable urban growth including through the support such development can provide to existing services – transport, service infrastructure and community infrastructure.

(v) There are no suitable alternative lands for the particular use or development type, in areas at lower risk of flooding within or adjoining the core of the urban settlement

Answer: There are no suitable alternative lands for the particular uses or development type in areas at lower risk of flooding, within or adjoining the urban settlement. Areas identified as being in Flood Zones A and B are considered essential to achieving a consolidated urban centre and to comply with the NPF and the RSES.

3. Strategic Flood Risk Assessment for Flood Zones A and B (for defended Flood Zones A and B see section 4.8 of the City Development Plan SFRA)

Lands which are within Flood A and B which are currently not built upon should remain to a large degree as open space / public realm. Developments within Flood Zone A should be limited to extensions onto existing buildings, or some changes of use. There should be no increase in flood risk where changes of use or basement accommodation are proposed. Commercial development within previously developed parts of Flood Zone B may be justified, provided property resilient construction is carried out, and no increase in flood risk elsewhere can be developed.

**Site 3, Liffey: O’Connell Bridge to Tom Clarke Bridge, DCDP 2016
– 2022, SFRA, Appendix 3**

(Proposed Variation No. 18 – Seville Place, Dublin 1)

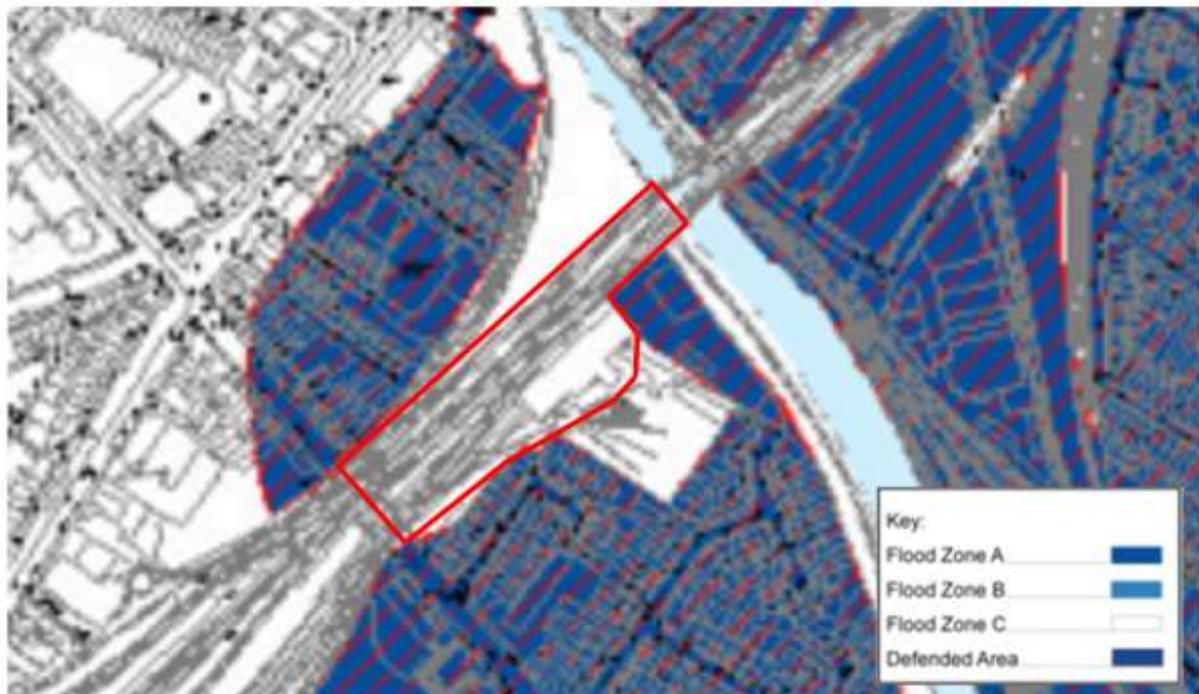
VARIATION PROPOSAL

From: Zoning Objective Z6 – To provide for the creation and protection of enterprise and facilitate opportunities for employment creation.

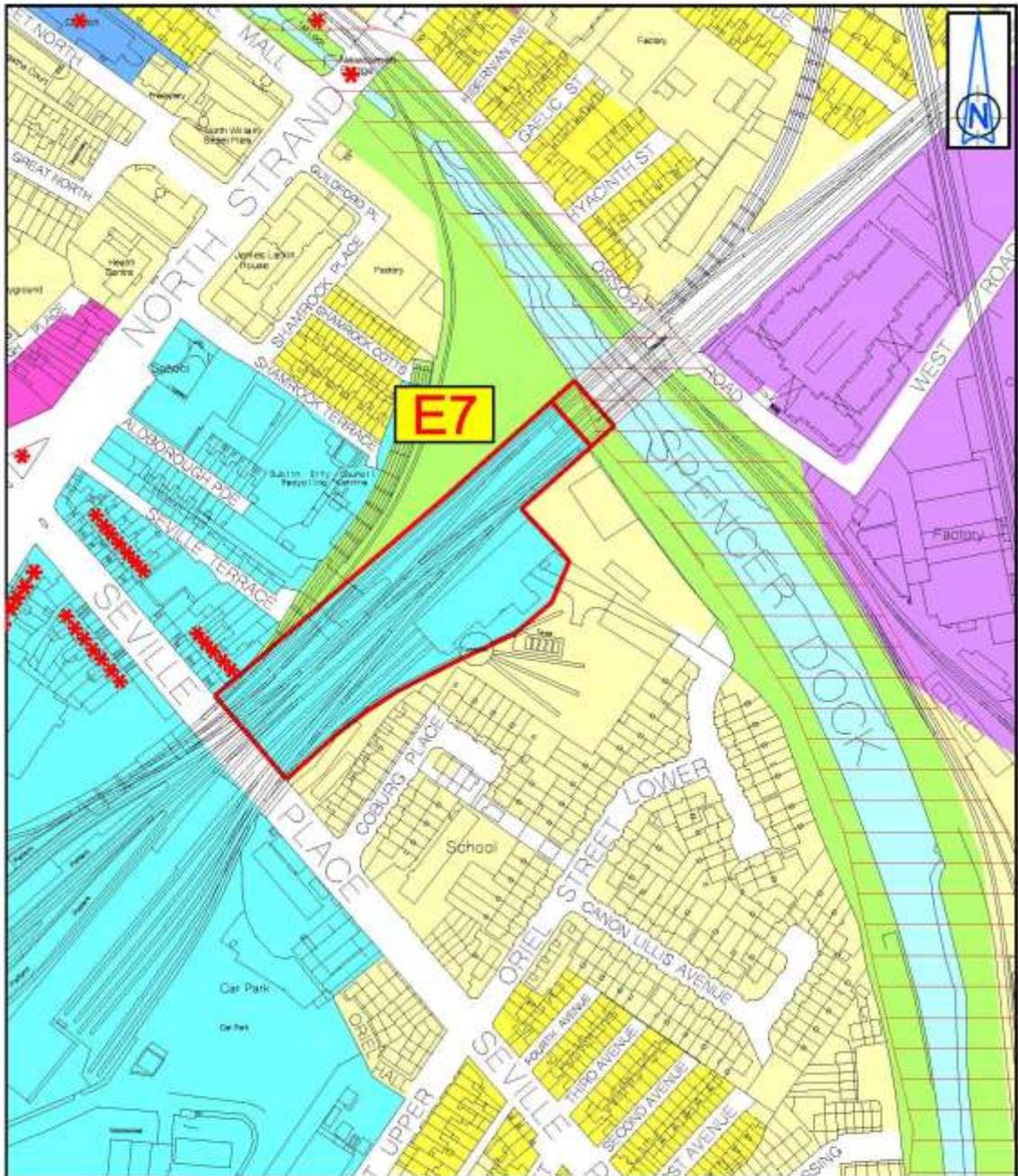
To: Zoning Objective Z5 – To consolidate and facilitate the development of the central area, and to identify, reinforce, strengthen and protect its civic design character and dignity.

To: Zoning Objective Z9 – To preserve, provide and improve recreational amenity and open space and green networks.

Map from Appendix 3: Justification Test Tables, 2016 – 2022 Dublin City Development Plan, SFRA.



* red line for illustrative purposes only and is not an exact reflection of the site boundaries



Dublin City Council Development Plan 2016-2022
Seville Place, D2

Map Ref E7
Site Boundary 
Scale 1:2,500

Proposed Zoning
Z5  Area 1.180Hectares
Z9  Area 0.044Hectares

Site 3, Liffey: O'Connell Bridge to Tom Clarke Bridge, DCDP 2016 – 2022, SFRA, Appendix 3

(Proposed Variation No. 18 – Seville Place, Dublin 1)

<p>Site Description and Proposed Variation</p>	<p>This land bank lies adjacent the Royal Canal and comprises Irish Rail Lands / rail line. It functions as a depot for the storage and maintenance of rail carriages and sidings and from which rail traffic passes through northbound from Connolly Station.</p> <p>The lands are currently zoned Z6 (employment) and it is proposed to rezone the lands Z5 (City centre mixed use) and Z9 (Open Space) adjacent to the canal.</p> <p>The lands are surrounded by Flood Defended lands.</p>
<p>Benefitting from Defences (Flood Relief scheme works) and residual Risk</p>	<p>Lands located in Flood Zone C but surrounded by defended lands.</p>
<p>Sensitivity to Climate Change</p>	<p>For the wider Flood Cell, climate change impacts of +0.5–1.0m on sea levels would have a significant impact on the area.</p> <p>No applicable residual risk.</p>
<p>Historical Flooding</p>	<p>The flood maps attached are consistent with previous flooding of this section of the Liffey Estuary. Parts of these lands flooded in 2002. Now protected with new sea lock gate on Royal Canal.</p>
<p>Storm (surface) Water</p>	<p>These lands drain into combined sewer. According to Appendix 6 of the CDP 2016 – 2022 SFRA, there is a low to moderate pluvial flood hazard at this location.</p> <p>For the Flood Cell, all storm (surface) water in this area needs to be carefully managed and provision made for significant rainfall events during high tides.</p> <p>A one year high tide event should be assumed during a 100-year rainfall event. Should development be permitted, best practice with regard to storm (surface) water management should be implemented across the development area, to limit storm (surface) water runoff to current values.</p> <p>All Developments shall have regard to the Pluvial Flood Maps in their Site Specific Flood Risk Assessment, see Flood Resilience City Project, Volume 2 City Wide Pluvial Flood Risk</p>

	Assessment at http://www.dublincity.ie/main-menu-services-water-waste-and-environment-drains-sewers-and-waste-water/flood-prevention-plans
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Commentary on Flood Risk:

In this Flood Cell, the flood extents indicate flow paths generally coming directly out of the tidal region, some are through quay walls and underground chambers near quay walls. The flood maps were produced based on the OPW CFRAMS Study and checked against historic flooding in the area.

Development Options:

Given the lands location in the city centre, a Z5 City Centre Zoning would be an appropriate land use zoning at this location. The wider Flood Cell is characterised by high density commercial and residential development. Development will be permitted in Flood Zone C.

<p>Justification Test for Development Plans (and Variations)</p>
<p>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 provisions of the Planning and Development Act, 2000, as amended.</p> <p>See Section 3.0 above</p>
<p>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:</p> <p>(i) Is essential to facilitate regeneration and/or expansion of the centre of the urban settlement Answer: Yes: The lands form part of / comprise a natural extension of the city centre (Spencer Dock area). The wider Flood Cell, which includes the Docklands, is a highly connected part of the city and the area is of significant economic importance to the city and region.</p> <p>(ii) Comprises significant previously developed and/or under-utilised lands Answer: The lands are underutilized.</p> <p>(iii) Is within or adjoining the core of an established or designated urban settlement Answer: Yes: This area is located adjacent to the core of the City, and located in a strategic position in close proximity to major transport infrastructure.</p> <p>(iv) Will be essential in achieving compact and sustainable urban growth Answer: Yes: This site forms part of a wider key redevelopment area in the city. This area is key in achieving compact and sustainable urban growth.</p> <p>(v) There are no suitable alternative lands for the particular use or development type, in areas at lower risk of flooding within or adjoining the core of the urban settlement. Answer: There are no suitable alternative lands for the particular uses or development type in areas at lower risk of flooding, within or adjoining the urban settlement. This area is</p>

**essential for the future
expansion of Dublin City.**

3. Strategic Flood Risk Assessment for Flood Zones A and B (for defended Flood Zones A and B see section 4.8 of the SFRA of the City Development Plan)

The lands are located in Flood Zone C. Climate change risks will need to be considered, but it may not be possible to fully mitigate against these in an already developed situation.

Justification Test Table Site 17, Lower Camac: South Circular Road to Liffey Estuary DCC SFRA, Appendix 3

(Proposed Variation No. 19 – Old Kilmainham Road / South Circular Road, Dublin 8)

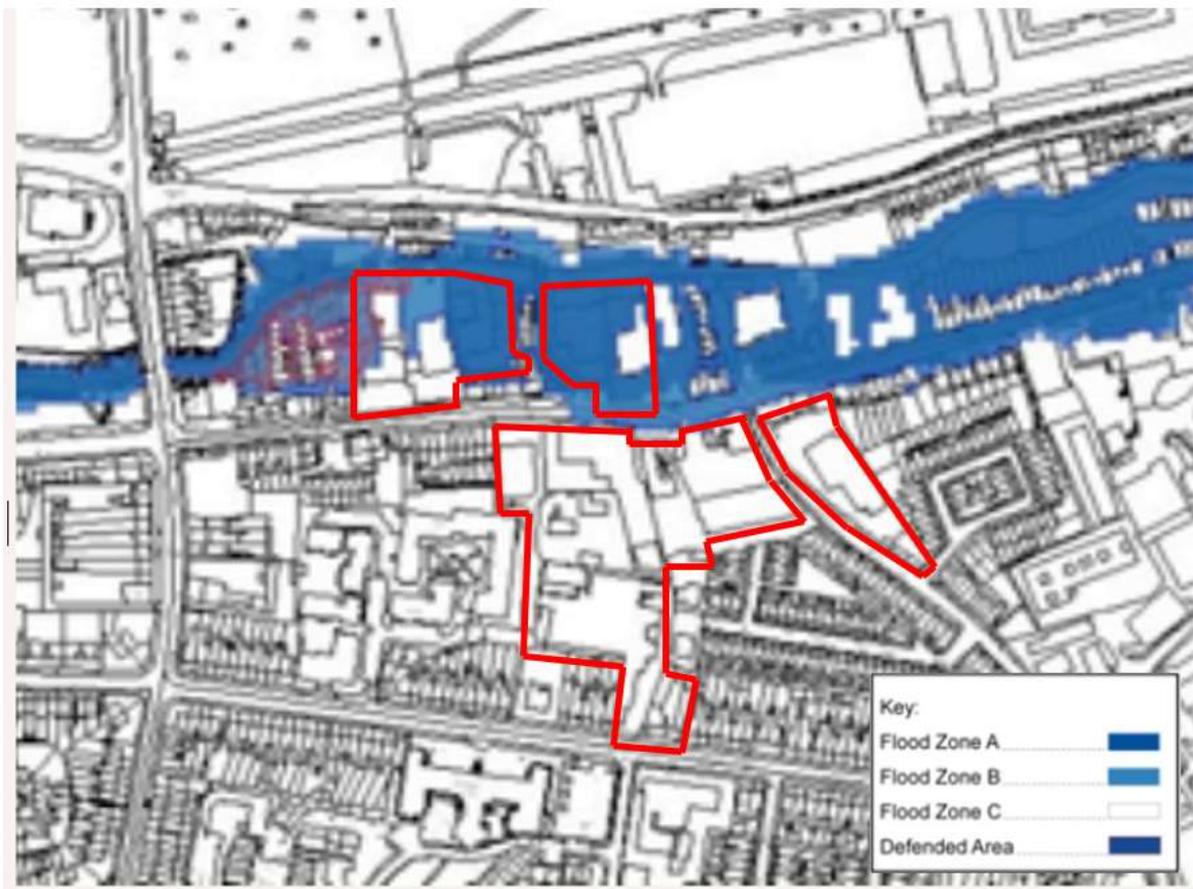
VARIATION PROPOSAL

From: Zoning Objective Z6 – To provide for the creation and protection of enterprise and facilitate opportunities for employment creation.

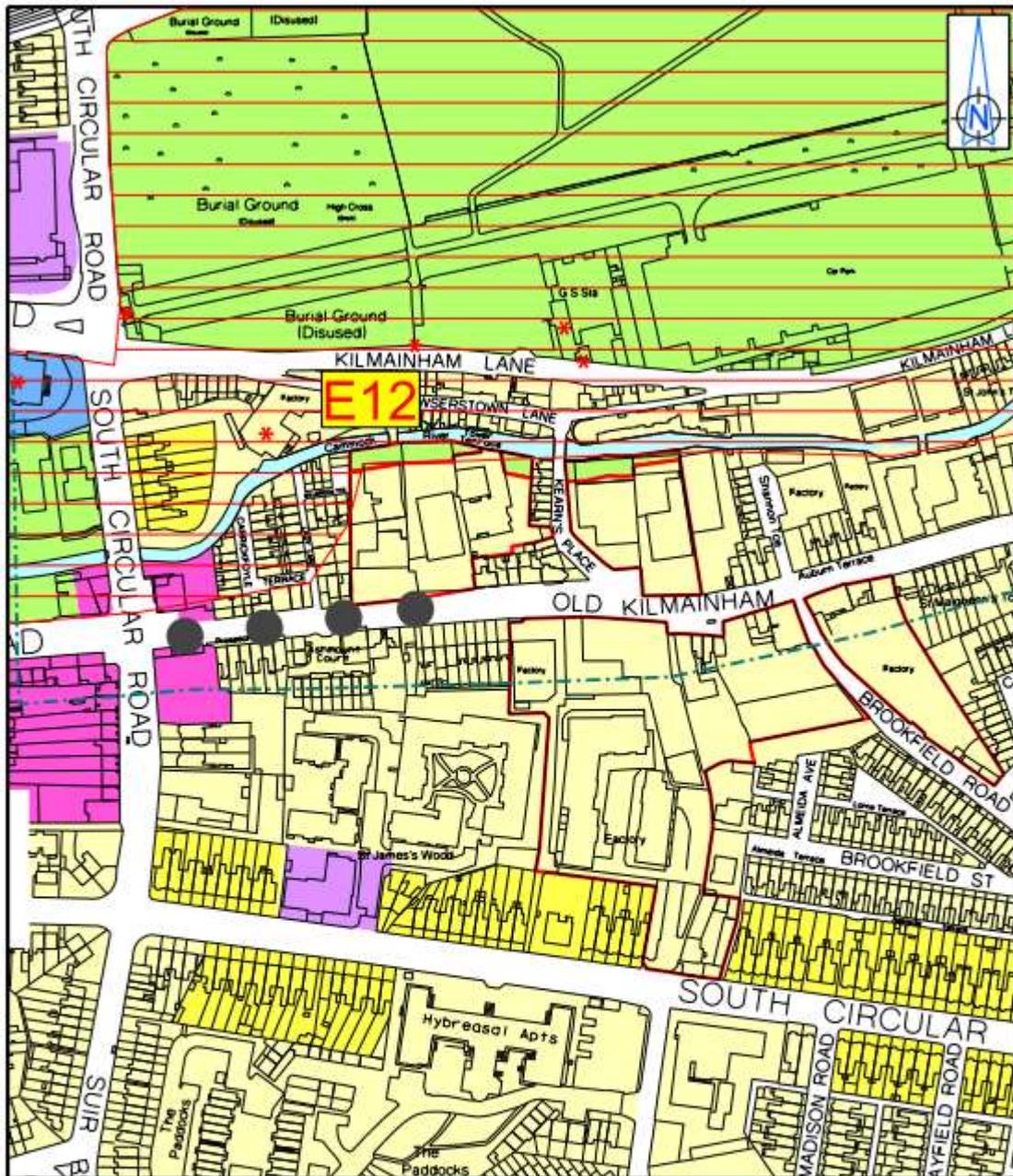
To: Zoning Objective Z1 – To protect, provide and improve residential amenities.

To: Zoning Objective Z9 – To preserve, provide and improve recreational amenity and open space and green networks.

Map from Appendix 3: Justification Test Tables (No. 17), 2016 – 2022 Dublin City Development Plan, SFRA.



* red line for illustrative purposes only and is not an exact reflection of the site boundaries



Dublin City Council Development Plan 2016-2022
Lands at Old Kilmainham/South Circular Road, D8

Map Ref E12
Site Boundary
Scale 1:2,500

Proposed Zoning
Z1 Area 2.750Hectares
Z9 Area 0.115Hectares

Proposed Variation No. 19 – Old Kilmainham Road / South Circular Road, Dublin 8

DCC SFRA Appendix 3 - Site 17, Lower Camac: South Circular Road to Liffey Estuary

<p>Site Description and Proposed Variation</p>	<p>The River Camac flows to the north of the lands proposed to be rezoned in Kilmainham. The lands between Old Kilmainham Road and the River are primarily located in Flood Zone A and B and there has been severe river flooding here - these lands are in a 100 year flood plain. These flood zones extend to the front (north) of lands proposed to be rezoned on the southern side of Old Kilmainham Road.</p> <p>The subject lands are currently zoned Z6 (industrial / employment) in the City Development Plan. There are employment uses and residential uses to the north and south of Old Kilmainham Road on the subject lands.</p> <p>It is proposed to rezone lands along the southern bank of the Camac as Z9 (Open Space) for the purposes of enabling potential river widening, river protection, rehabilitation, biodiversity and amenity.</p> <p>It is proposed that the rest of the lands be zoned Z1 (residential). Open space areas associated with residential development / public realm are required to supplement the proposed Z9 Zoning (Open Space Zoning) so as to provide an increased biodiversity strip along the river. This would be delivered through the development management process.</p>
<p>Benefitting from Defences (Flood Relief scheme works) and Residual Risk</p>	<p>Defences to the west of the northern landbanks.</p> <p>The CFRAM Study for the Camac did not reveal any overall flood alleviation scheme for the catchment, except for flood awareness and flood warning systems; a further study is being carried out and will inform development of two northern sites.</p>
<p>Sensitivity to Climate Change</p>	<p>Slight-moderate –</p> <p>In the wider Flood Cell, there is little difference between the extents of Flood Zone A and B in most locations. Sea level rise is likely to have more of an impact on water levels at the downstream end of the River Camac. For large scale development within areas shown to be vulnerable to climate change a more detailed hydraulic study may be required to fully understand the risks.</p> <p>The standard of protection given by existing defences will also be reduced as climate change impacts are felt.</p>

Historical Flooding	The flood maps attached are consistent with previous flooding of this section of the Camac.
Storm (surface) Water	<p>This portion of the Camac Catchment (South Circular Road to Liffey Estuary) is susceptible to pluvial flooding from intense rainfall events, particularly the section along Old Kilmainham Road. In line with any rezoning of the lands best practice with regards to storm (surface) water management should be implemented across the development area, to limit storm (surface) water runoff to current values.</p> <p>The landbanks to the south of Old Kilmainham Road require new surface water access to river, open where possible.</p> <p>Green Infrastructure required to limit runoff and to improve water quality. This would include planting of trees, the provision of green roofs and the provision of public open space contiguous to the river in line with Development Plan policy.</p> <p>Underground developments such as car parks should be designed to mitigate against flood risk.</p> <p>All Developments shall have regard to the Pluvial Flood Maps in their Site Specific Flood Risk Assessment, see Flood Resilience City Project, Volume 2 City Wide Pluvial Flood Risk Assessment at http://www.dublincity.ie/main-menu-services-water-waste-and-environment-drains-sewers-and-waste-water/flood-prevention-plans</p>

Commentary on Flood Risk:

The flood extents indicate flow paths generally coming directly out of the river channel. Pluvial flooding may increase flooding risk if it occurs during high river flows.

The flood maps are from the City Development Plan SFRA were produced based on the OPW CFRAM Study and checked against historic flooding in the area. Public consultation was also carried out on these in 2014 to iron out any local inaccuracies. A new flood study is underway since November 2019 which may inform developments including some expansion of defended areas.

Development Options:

The main flood cells in this area are located in residential and small commercial and industrial developments. No new development should be allowed in these areas unless they are defended except for extensions and small infill provided the number of people at flood risk is not increased.

Any significant development could reasonably be accommodated within the extents of Flood Zone C and should not need to extend into Flood Zone A or B unless defended. Some development may require to await future flood defence works on the Camac River.

Justification Test for Development Plans (and Variations)

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 provisions of the Planning and Development Act, 2000, as amended.

See Section 3.0 above

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) Is essential to facilitate regeneration and/or expansion of the centre of the urban settlement

Answer: Yes: The landbank is located in an established built up part of the inner City which is undergoing significant regeneration (St. James Hospital). In line with National Planning Policy, the redevelopment of brownfield lands within the Canals is to be supported and facilitated.

(ii) Comprises significant previously developed and/or under-utilised lands

Answer: Most of the lands within Flood Zone A and B are already built up or comprise of brownfield sites. The lands are underutilised with a high level of vacancy.

(iii) Is within or adjoining the core of an established or designated urban settlement

Answer: Yes: The lands form part of an established built up part of the Inner City close to Strategic Transport Infrastructure.

(iv) Will be essential in achieving compact and sustainable urban growth

Answer: Yes: The redevelopment of these lands as part of the wider regeneration and redevelopment of lands in this part of the city is essential in achieving compact and sustainable urban growth.

(v) There are no suitable alternative lands for the particular use or development type, in areas at

lower risk of flooding within or adjoining the core of the urban settlement

Answer: There are no suitable alternative lands for the particular uses or development type in areas at lower risk of flooding, within or adjoining the urban settlement. Areas identified as being in Flood Zones A and B are considered essential to achieving a consolidated urban centre and to comply with the NPF and the RSES.

3. Strategic Flood Risk Assessment for Flood Zones A and B (for defended Flood Zones A and B see section 4.8 of the SFRA for the CDP)

This text should be read in conjunction with the comments on the relevant reaches of the Liffey

Any significant development could reasonably be accommodated within the extents of Flood Zone C and should not need to extend into Flood Zone A or B unless defended. Some development may require to await future flood defence works on the Camac River.

Justification Test Table Site 13, Poddle: Inside Canal, SFRA, Appendix 3

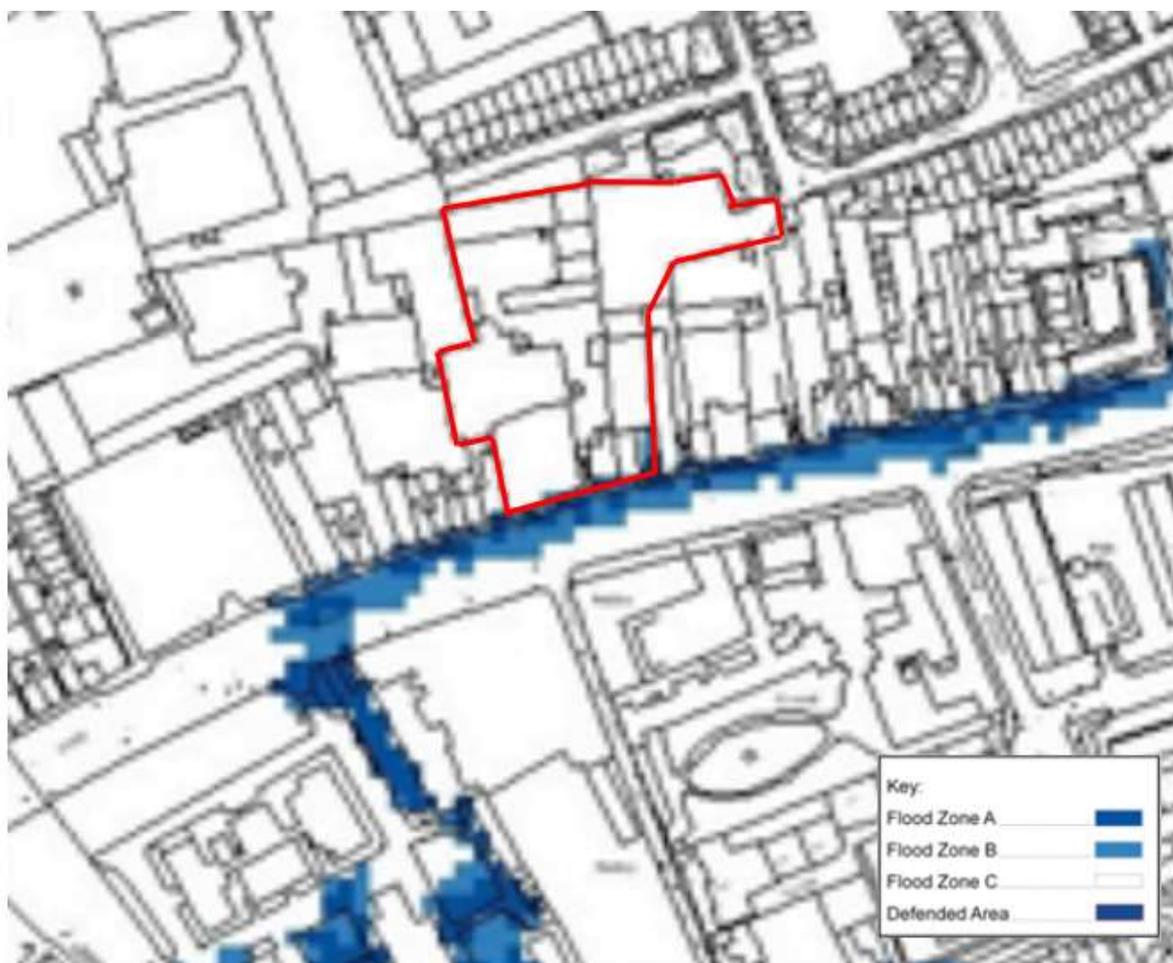
Proposed Variation No. 20 – 109 – 114 Cork Street, Dublin 8.

VARIATION PROPOSAL

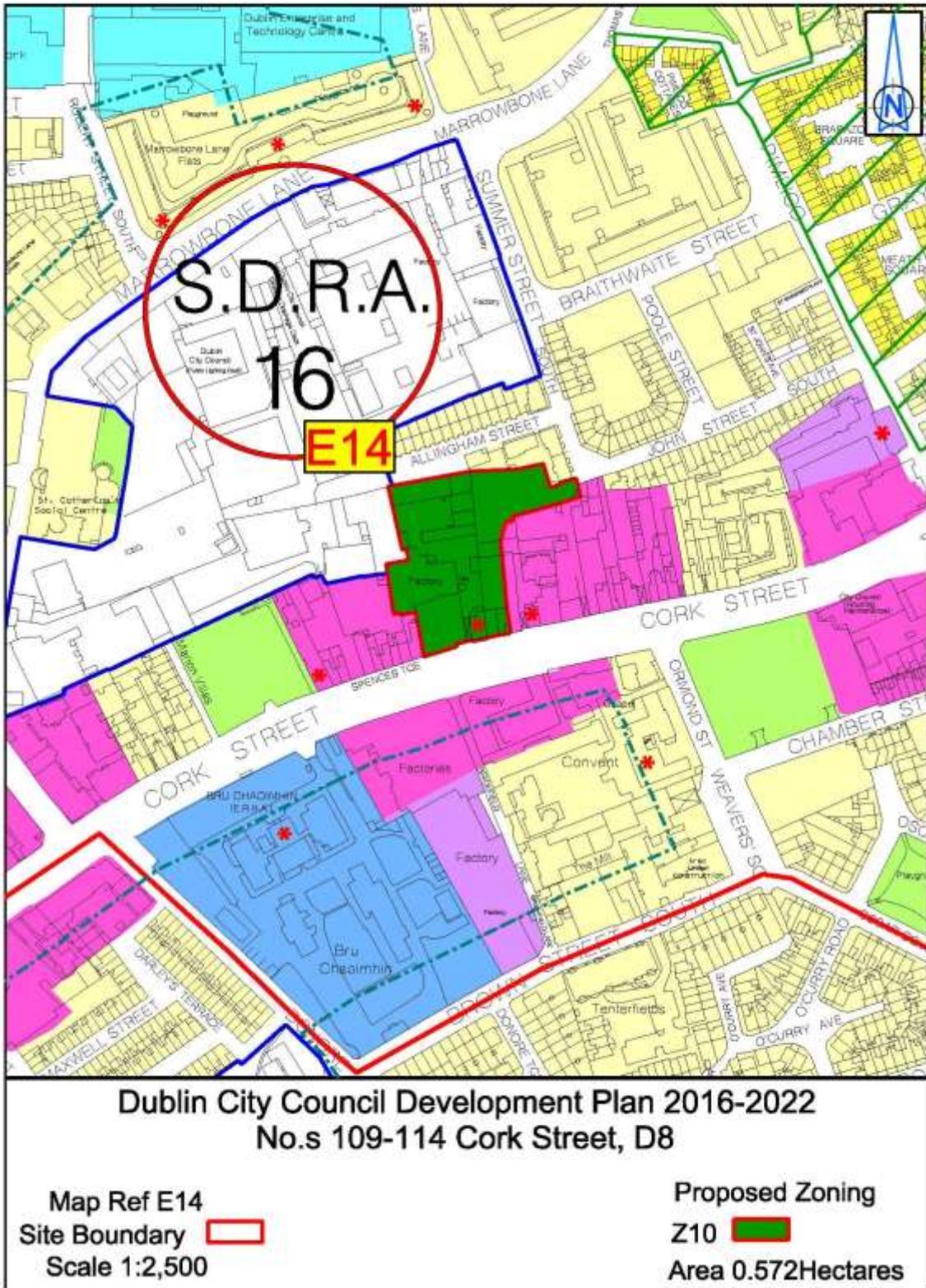
From: Zoning Objectiv Z6 – To provide for the creation and protection of enterprise and facilitate opportunities for employment creation.

To: Zoning Objective Z10 – To consolidate and facilitate the development of inner city and inner suburban sites for mixed-uses, with residential the predominant use in suburban locations, and office/retail/residential the predominant uses in inner city areas.

Flooding Map from Appendix 3: Justification Test Tables, 2016 – 2022 Dublin City Development Plan, SFRA.



* red line for illustrative purposes only and is not an exact reflection of the site boundaries



Proposed Variation No. 20 - 109 – 114 Cork Street, Dublin 8.

DCC SFRA Appendix 3 - Site 13, Poddle: Inside Canal

<p>Site Description and Variation Proposal</p>	<p>The lands are located on the northern side of Cork Street. The lands drain to the Poddle River culvert which is located on Cork Street. It is mainly fluvial with some tidal influence at its lower end.</p> <p>This is a well established inner city commercial development site. It is proposed to change the land use zoning from industrial / employment to mixed use in order that the land use zoning objective is more compatible with the location of the site in the inner city.</p>
<p>Benefitting from Defences (Flood Relief scheme works) and residual Risk</p>	<p>In the wider Flood Cell, an overflow into the Grand Canal Sewer storm (surface) water section) reduces flow in the Poddle into the City Centre inside the Grand Canal.</p>
<p>Sensitivity to Climate Change and Residual Risk</p>	<p>In the wider Flood Cell, an increase of 20% for estimated climate change on top of the estimated 100 year river flow will cause extra flooding in this area. A 30% increase in river flow on top of the estimated 100-year river will cause significant extra flooding.</p> <p>Any proposed developments in the protected areas require residual risk for blockage of Grand Canal overflow or other cause to be mitigated against, which may be an assessment of flowpaths and setting of appropriate finished floor levels. A structural inspection of this overflow will be carried out each year.</p>
<p>Historical Flooding</p>	<p>The flood maps attached are consistent with previous flooding of this section of the River Poddle.</p>
<p>Storm (surface) Water</p>	<p>All storm (surface) water in this area needs to be carefully managed and provision made for significant rainfall events during high river flows. Should development be permitted, best practice with regard to storm (surface) water management should be implemented across the development area, to limit storm (surface) water runoff to current values. Separation of storm (surface) water and foul sewage flows should be carried out where possible. Green Infrastructure required to improve water quality.</p>

	<p>According to Appendix 6 of the SFRA of the CDP 2016 there is a low risk of Pluvial Flood Hazard on the subject lands.</p> <p>All Developments shall have regard to the Pluvial Flood Maps in their Site Specific Flood Risk Assessment, see Flood ResilienCity Project, Volume 2 City Wide Pluvial Flood Risk Assessment at http://www.dublincity.ie/main-menu-services-water-waste-and-environment-drains-sewers-and-waste-water/flood-prevention-plans</p>
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Commentary on Flood Risk:

The flood extents indicate flow paths generally coming directly out of the river culvert through manholes and gully grids. These can be compounded with local pluvial flooding if heavy rainfall coincides with high river culvert flows. The flood maps were produced based on the OPW CFRAM Study and they have been checked against historic flooding in the area. Poddle Flood Alleviation Scheme which started in March 2019, will inform flood risk for development at these lands.

Development Options:

The main flooding area adjacent the subject lands is on the roadway. Any development could reasonably be accommodated within the extents of Flood Zone C (the lands) and should not need to extend into Flood Zone A or B (the road) unless defended. Some development may require to await future flood defence works on the Poddle River.

<p>Justification Test for Development Plans (and Variations)</p> <p>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 provisions of the Planning and Development Act, 2000, as amended.</p> <p>See Section 3.0 above</p>
<p>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:</p> <p>(i) Is essential to facilitate regeneration and/or expansion of the centre of the urban settlement Answer: Yes: The landbank is located in an established built up part of the inner City which is undergoing significant regeneration. In line with National Planning Policy, the redevelopment of brownfield lands within the Canals is to be supported and facilitated.</p> <p>(ii) Comprises significant previously developed and/or under-utilised lands Answer: Comprises commercial under-utilised inner city urban lands. Lands have significant heritage value with a protected structure fronting Cork Street. Registered Vacant Site on lands.</p>

(iii) Is within or adjoining the core of an established or designated urban settlement
Answer: Yes: The lands are located in the inner city within the canals on a strategic bus corridor.

(iv) Will be essential in achieving compact and sustainable urban growth

Answer: Yes: The redevelopment of these lands as part of the wider regeneration and redevelopment of lands in this part of the city is essential in achieving compact and sustainable urban growth.

(v) There are no suitable alternative lands for the particular use or development type, in areas at lower risk of flooding within or adjoining the core of the urban settlement

Answer: There are no suitable alternative lands for the particular uses or development type in areas at lower risk of flooding, within or adjoining the urban settlement.

3. Strategic Flood Risk Assessment for Flood Zones A and B (for defended Flood Zones A and B see section 4.8 of CDP SFRA)

Modelling shows that risks are primarily linked to the development of overland flow paths which progress along roads. FRAs for developments should specifically address this risk, both to ensure flow paths do not become obstructed and to ensure an appropriate standard of flood resilient construction, which could include (where possible) raising finished floor levels. Particular attention to the design of any proposed basements should be carried out with full recognition of Dublin City Council Policies and Objectives and the detail in the SFRA, in this regard.

**Justification Test Table Site 14, Poddle: Culverts outside Canal
DCC SFRA, Appendix 3**

**(Proposed Variation No. 22 – Herberton Road / Keeper Road (Glenview Industrial
Estate))**

VARIATION PROPOSAL

From: Zoning Objective Z6 – To provide for the creation and protection of enterprise and facilitate opportunities for employment creation.

To: Zoning Objective Z1 – To protect, provide and improve residential amenities.

Map from SFRA, 2016 – 2022 Dublin City Development Plan. Illustrative purposes only.





Proposed Variation No. 22 – Herberton Road / Keeper Road (Glenview Industrial Estate)

DCC SFRA Appendix 3 - Site 14, Poddle: Culverts outside Canal DCC SFRA, Appendix 3

<p>Site Description and Proposed Variation</p>	<p>The subject lands are associated with the Poddle River Flood Zone. It has fluvial with pluvial rainfall influences. The subject lands comprise brownfield industrial lands in a wider residential area. It is proposed to rezone the lands from Z6 (employment) to Z1 (Residential).</p> <p>The majority of the lands are located in Flood Zone C. Flood Zones A and B are associated with Herberton Road and the northern portion of the lands and at residential property around the subject lands.</p>
<p>Benefitting from Defences (Flood Relief scheme works) and residual Risk</p>	<p>The lands do not benefit from formal flood defences</p>
<p>Sensitivity to Climate Change</p>	<p>An increase of 20% flow on top of the estimated 100-year culvert flow will cause more flooding in the wider area. A 30% increase in river flow on top of the estimated 100-year culvert flows will cause significant flooding.</p> <p>There are no defences, but residual risks arising from blockage of the culverts is possible and should be assessed to determine how flow paths and water depths may be changed.</p>
<p>Historical Flooding</p>	<p>The flood maps attached are consistent with previous flooding of this section of the River Poddle.</p>
<p>Storm (surface) Water</p>	<p>All storm (surface) water in this area needs to be carefully managed and provision made for significant rainfall events during high river flows. In line with any rezoning, best practice with regard to storm (surface) water management should be implemented across the development area, to limit storm (surface) water runoff to current values. Separation of storm (surface) water and foul sewage flows should be carried out where possible.</p> <p>To limit storm water run-off and to improve water quality green infrastructure is required. Open Space in association with residential development should be provided in accordance with Development Plan policy. This could include a green strip / set back along Herberton Road which is subject to Flood Zones A and B.</p>

	<p>According to Appendix 6 of the SFRA of the CDP 2016 there is a low risk of Pluvial Flood Hazard on the subject lands.</p> <p>All Developments shall have regard to the Pluvial Flood Maps in their Site Specific Flood Risk Assessment, see Flood Resilience City Project, Volume 2 City Wide Pluvial Flood Risk Assessment at http://www.dublincity.ie/main-menu-services-water-waste-and-environment-drains-sewers-and-waste-water/flood-prevention-plans</p>
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Commentary on Flood Risk:

The flood extents indicate flow paths generally coming directly out of the river culvert through manholes and gully grids as well as some overland flows from the river itself upstream of its crossing on Sundrive road. These can be compounded with local pluvial flooding if heavy rainfall coincides with high river culvert flows. The flood maps were produced based on the OPW CFRAM Study and they have been checked against historic flooding in the area. Poddle FAS will further inform flood risk on these lands.

Development Options:

The main flood cells adjacent the subject lands are on the roadway. Any development could reasonably be accommodated within the extents of Flood Zone C and open space areas could be provided to coincide with Flood Zone A or B as part of the Development Management process. In the wider Flood Cell, some development may require to await future flood defence works on the Poddle River.

Justification Test for Development Plans (and Variations)
<p>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 provisions of the Planning and Development Act, 2000, as amended.</p> <p>See Section 3.0 above</p>
<p>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:</p> <p>(i) Is essential to facilitate regeneration and/or expansion of the centre of the urban settlement Answer: Yes: This suburban landbank comprises industrial brownfields in an established residential suburb of Dublin City (just outside the Grand Canal). The existing development on the lands comprise low scale well established development. In line with National Planning Policy as set out in the NPF, because of their location within the M50 and given the areas serviced nature (transport / services / community infrastructure), the lands should be used more intensively.</p> <p>(ii) Comprises significant previously developed and/or under-utilised lands Answer: The lands proposed to be rezoned have been significantly previously developed. There are low scale uses on the lands and therefore the lands could be more intensively developed.</p>

(iii) Is within or adjoining the core of an established or designated urban settlement

Answer: Yes: The lands are located just outside the Grand Canal.

(iv) Will be essential in achieving compact and sustainable urban growth

Answer: Yes (see response to (i) above)

(v) There are no suitable alternative lands for the particular use or development type, in areas at lower risk of flooding within or adjoining the core of the urban settlement

Answer: There are no suitable alternative lands for the particular uses or development type in areas at lower risk of flooding, within or adjoining the urban settlement.

3. Strategic Flood Risk Assessment for Flood Zones A and B (for defended Flood Zones A and B see section 4.8)

Any development could reasonably be accommodated within the extents of Flood Zone C and open space areas could be provided to coincide with Flood Zone A or B as part of the Development Management process.

Modelling shows that risks are primarily linked to the development of overland flow paths which progress along roads. FRAs for developments should specifically address this risk, both to ensure flow paths do not become obstructed and to ensure an appropriate standard of flood resilient construction, which could include (where possible and if required) raising finished floor levels.

Particular attention to the design of any proposed basements should be carried out with full recognition of Dublin City Council Policies and Objectives, and the detail in the SFRA, in this regard.

Justification Test Table Site 5, Liffey: Sean Heuston Br. – Sarah Bridge, South Circular Road, DCC SFRA, Appendix 3

(Proposed Variation No. 24 – Parkgate Street / Wolfe Tone Quay, Dublin 8)

VARIATION PROPOSAL

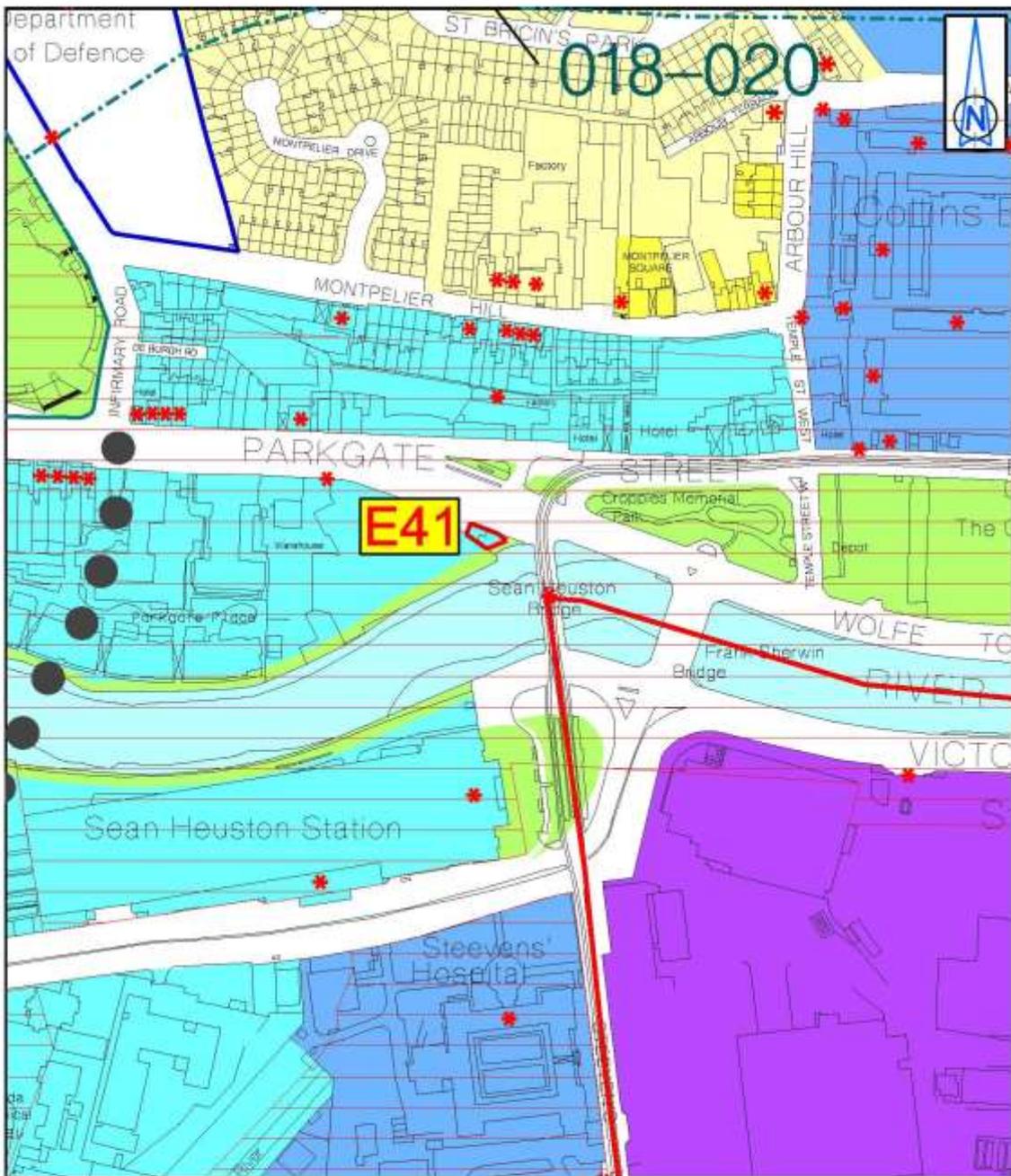
PROPOSAL

From: Zoning Objective Z6 – To provide for the creation and protection of enterprise and facilitate opportunities for employment creation.

To: Zoning Objective Z5 – To consolidate and facilitate the development of the central area, and to identify, reinforce, strengthen and protect its civic design character and dignity.

Map from SFRA, 2016 – 2022 Dublin City Development Plan, Illustrative purposes only.





Dublin City Council Development Plan 2016-2022
Parkgate Street / Wolfe Tone Quay, D8

Map Ref E41
Site Boundary
Scale 1:2,500

Proposed Zoning
Z5
Area 0.012Hectares

Proposed Variation No. 24 – Parkgate Street / Wolfe Tone Quay, Dublin 8

DCC SFRA Appendix 3 - Site 5, Liffey: Sean Heuston Br. – Sarah Bridge, South Circular Road

<p>Site Description and Proposed Variation</p>	<p>The disused lands are located on Parkgate Street on the north side of the River Liffey.</p> <p>900mm surface water sewer under these lands. Plans to put Z00 stream into this 900mm pipeline to Liffey.</p> <p>It is proposed to rezone this small land parcel from Z6 (industrial / employment) to Z5 (mixed use City Centre).</p> <p>The Lands are in Flood Zone C near defended areas.</p>
<p>Benefitting from Defences (Flood Relief scheme works) and residual Risk</p>	<p>Flood defences adjacent the subject lands.</p>
<p>Sensitivity to Climate Change</p>	<p>Moderate to high – the river in this location has combined fluvial and tidal influences which could result in greater increases in water level than elsewhere.</p> <p>Residual Risk not applicable as existing defences are the channel walls to ground level.</p>
<p>Historical Flooding</p>	<p>The flood maps attached are consistent with previous flooding of this section of the Liffey Estuary.</p>
<p>Storm (surface) Water</p>	<p>All storm (surface) water in this area needs to be carefully managed and provision made for significant rainfall events during high tides. A one year high tide event should be assumed during a 100-year rainfall event. Best practice with regard to storm (surface) water management should be implemented across the development area, to limit storm (surface) water runoff to current values</p> <p>According to Appendix 6 of the SFRA of the CDP 2016 there is a moderate risk of Pluvial Flood Hazard on the subject lands.</p> <p>All Developments shall have regard to the Pluvial Flood Maps in their Site Specific Flood Risk Assessment, see Flood ResilienCity Project, Volume 2 City Wide Pluvial Flood Risk Assessment at http://www.dublincity.ie/main-menu-services-water-waste and environment-</p>

	drains-sewers-and-waste-water/flood-prevention-plans
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Commentary on Flood Risk: The flood extents indicate flow paths generally coming directly out of the tidal region, some are through quay walls and underground chambers and pipelines near quay walls. The flood maps were produced based on the OPW CFRAM Study and checked against historic flooding in the area.

Development Options:

It is proposed to rezone the lands to a City Centre Use in line with the location of the site in the city centre. The lands are located outside of flood Zones A and B. Development could reasonably be accommodated within the extents of Flood Zone C.

Justification Test for Development Plans (and Variations)
<p>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 provisions of the Planning and Development Act, 2000, as amended.</p> <p>See Section 3.0 above</p>
<p>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:</p> <p>(i) Is essential to facilitate regeneration and/or expansion of the centre of the urban settlement Answer: Yes: This area forms part of the central area of the City. The lands are located in an area of significant historic, amenity and tourism importance close to Strategic Rail Infrastructure at Heuston (rail and Luas). The area around Heuston is identified as Strategic Development and Regeneration Area (SDRA 7 Heuston & Environs) under the Development Plan Core Strategy, which are important brownfield sites with the potential to deliver a significant quantum of mixed-uses and create synergies to regenerate their respective areas.</p> <p>(ii) Comprises significant previously developed and/or under-utilised lands Answer: There is an unused ESB substation on the land and urban green space.</p> <p>(iii) Is within or adjoining the core of an established or designated urban settlement Answer: Yes: This area forms part of the Central Core of the City.</p> <p>(iv) Will be essential in achieving compact and sustainable urban growth Answer: Yes: The wider area is essential to achieving compact and sustainable urban growth.</p> <p>(v) There are no suitable alternative lands for the particular use or development type, in areas at lower risk of flooding within or adjoining the core of the urban settlement Answer: The lands are located in Flood Zone C. There are no suitable alternative lands for the particular uses or development type in areas at lower risk of flooding, within or adjoining the urban settlement. Areas identified as being in Flood Zones A and B are considered essential to achieving a consolidated urban centre.</p>

3. Strategic Flood Risk Assessment for Flood Zones A and B (for defended Flood Zones A and B see section 4.8)

The current zoning on the lands is historic and somewhat of an anomaly. Given the location of the lands in the inner city it is considered appropriate that they be rezoned to Z5 Z5 which is to consolidate and facilitate the development of the central areas and to identify, reinforce and strengthen and protect its civic design character and dignity.

The Wider Study Area:

Given the combined tidal and fluvial influences in this section of the River Liffey, a joint probability assessment should be carried out to determine finished floor levels. The assessment should take into account the combined impacts of a peak tide and a peak flow occurring at the same time. Given that an event such as this would have a greater rarity than either event occurring individually a pragmatic approach should be taken to applying the findings. For example, whilst it would be appropriate to consider joint probability levels in the redevelopment of brown field sites, for individual or infill developments such allowances may prohibit connection with the existing streetscape.

The River Camac is currently subject to assessment under the Eastern CFRAM Study, which is reviewing the need for, and potential options to manage flood risk. Development at the downstream end of the Camac (around Heuston Station and St. James's Gate) should take into account the findings of the CFRAM Study. In this regard, until the Flood Risk Management Plan has been published, and any recommendations implemented, large scale development in this area should be proceeded with caution. FRA's should be carried out for all basements and underground structures with respect to any human access.

Justification Test Table Site 3, Liffey: O’Connell Bridge to Tom Clark Bridge DCC SFRA, Appendix 3

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Site 20 Tolka: Dublin Port to Drumcondra Bridge

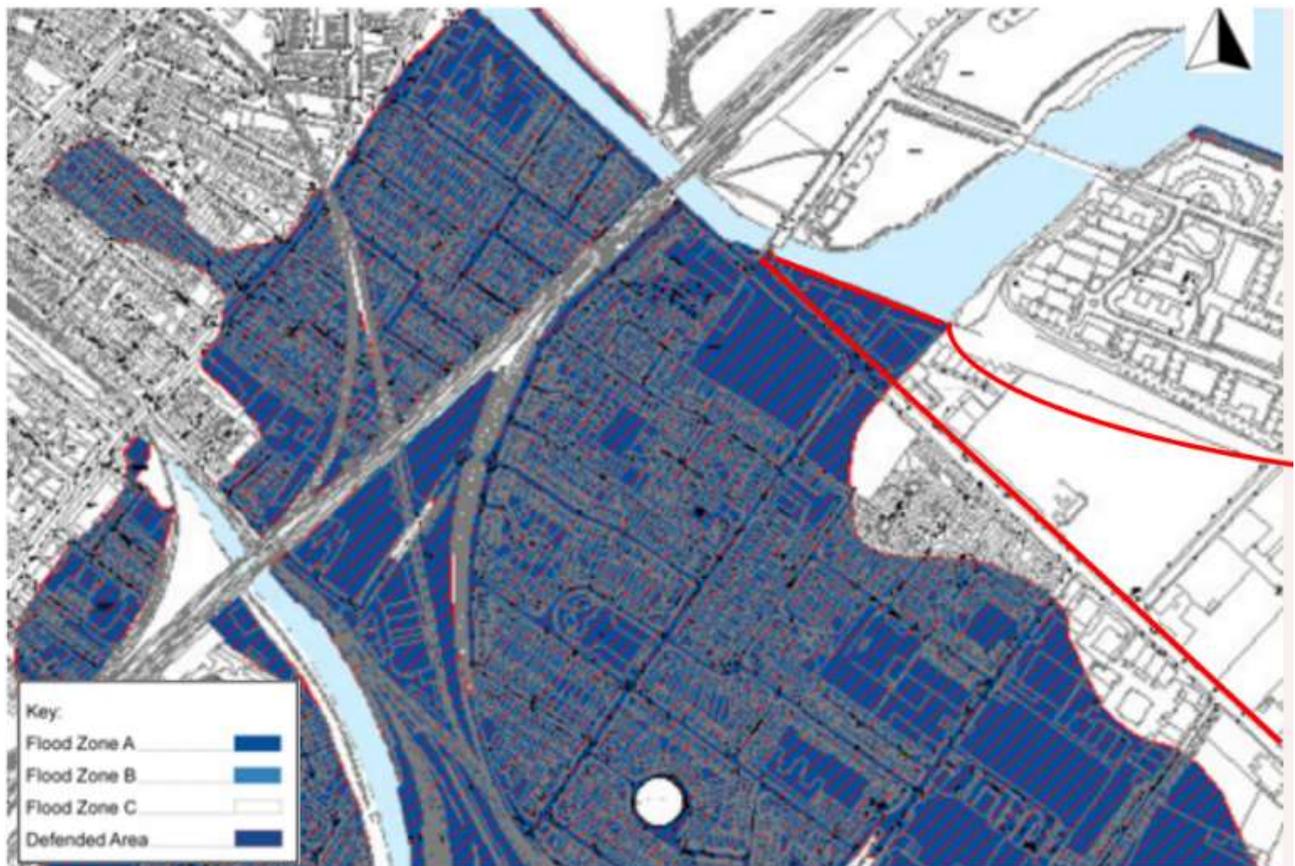
Proposed Variation No. 25 - East Wall Road

VARIATION PROPOSAL

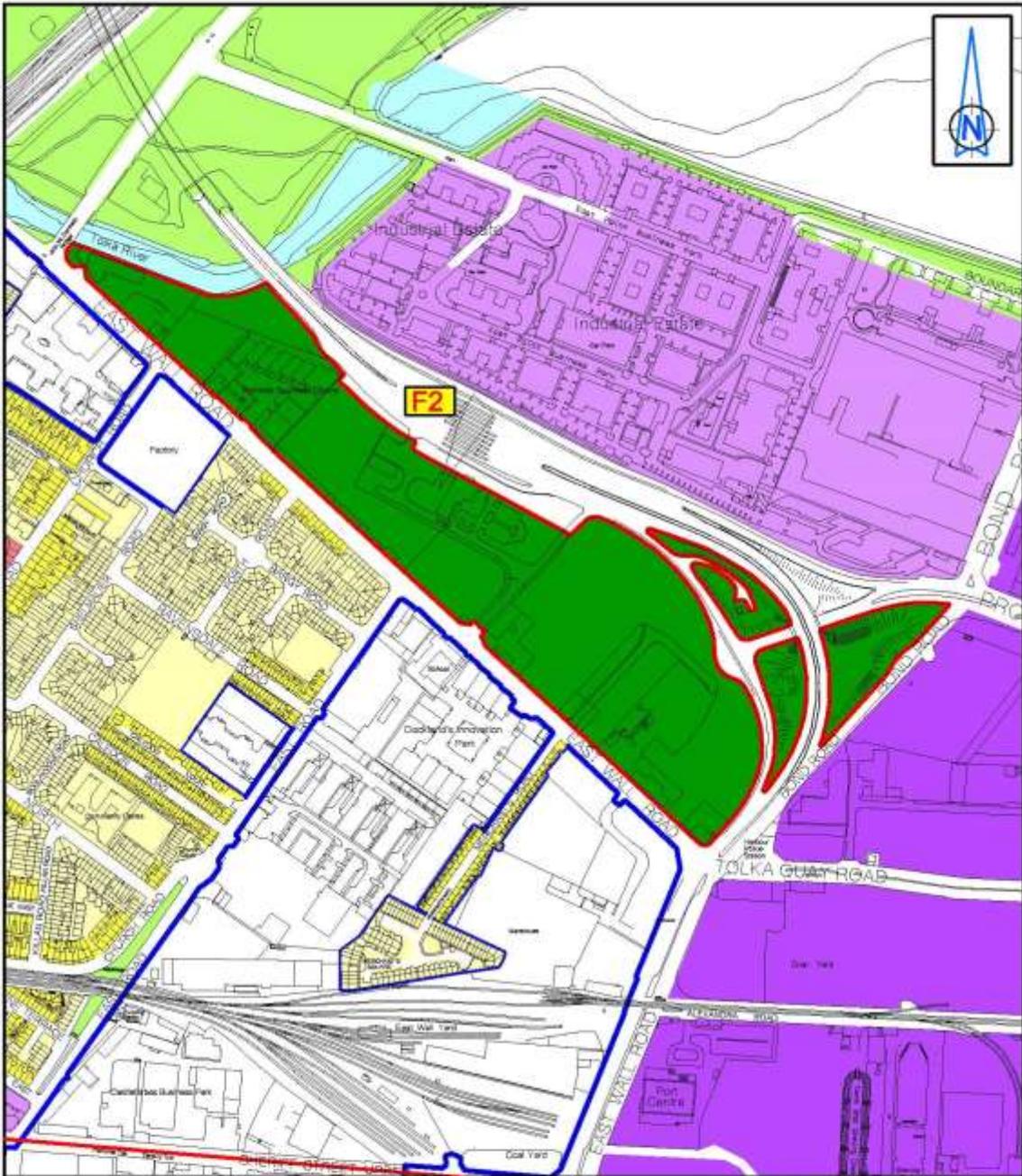
From: Zoning Objective Z6 – To provide for the creation and protection of enterprise and facilitate opportunities for employment creation.

To: Zoning Objective Z10 – To consolidate and facilitate the development of inner city and inner suburban sites for mixed-uses, with residential the predominant use in suburban locations, and office/retail/residential the predominant uses in inner city areas.

Map from Appendix 3: Justification Test Tables, 2016 – 2022 Dublin City Development Plan, SFRA. (3) see also Map for Test Table 20 (Tolka)



* red line for illustrative purposes only and is not an exact reflection of the site boundaries



**Dublin City Council Development Plan 2016-2022
 Sites at Portside Business Centre, East Wall Road, D3**

Map Ref F2
Site Boundary
Scale 1:5,000

Proposed Zoning
Z10
Area 10.947Hectares

Proposed Variation No. 25 – East Wall Road, Dublin 3

DCC SFRA Appendix 3 - Site 3, Liffey: O’Connell Bridge to Tom Clark Bridge DCC SFRA, Appendix 3

See also DCC SFRA Appendix 3 - Site 20, Tolka Dublin Port to Drumcondra Bridge DCC SFRA, Appendix 3

<p>Site Description and Proposed Variation</p>	<p>This land bank lies adjacent the Tolka River (western side). Development on these lands comprise commercial, retail, lands associated with Dublin Port and Dublin Port Tunnel.</p> <p>The lands are currently zoned Z6 (employment) and it is proposed to rezone the lands Z10 (mixed use including residential).</p> <p>The western side of the landbank is adjacent the Tolka and is defended.</p>
<p>Benefitting from Defences (Flood Relief scheme works) and residual Risk</p>	<p>Yes - the western portion of the lands</p>
<p>Sensitivity to Climate Change</p>	<p><u>The Wider Flood Cell</u> Climate change impacts of +0.5–1.0m on sea levels would have a significant impact on the area.</p>
<p>Historical Flooding</p>	<p>The flood maps attached are consistent with previous flooding of this section of the Tolka Estuary</p>
<p>Storm (surface) Water</p>	<p>According to Appendix 6 of the SFRA of the CDP 2016 there is a low to moderate risk of Pluvial Flood Hazard on the subject lands.</p> <p>All storm (surface) water in this area needs to be carefully managed and provision made for significant rainfall events during high tides.</p> <p>A one year high tide event should be assumed during a 100-year rainfall event. Should development be permitted, best practice with regard to storm (surface) water management should be implemented across the development area, to limit storm (surface) water runoff to current values.</p> <p>Green Infrastructure to reduce outflows to river and improve water quality. Green strip to be provided along the Tolka River as part of the Development Management process.</p>

	All Developments shall have regard to the Pluvial Flood Maps in their Site Specific Flood Risk Assessment, see Flood Resilience City Project, Volume 2 City Wide Pluvial Flood Risk Assessment at http://www.dublincity.ie/main-menu-services-water-waste-and-environment-drains-sewers-and-waste-water/flood-prevention-plans
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Commentary on Flood Risk:

The flood extents indicate flow paths generally coming directly out of the tidal region, some are through quay walls and underground chambers near quay walls.

The flood maps were produced based on the OPW CFRAMS Study and checked against historic flooding in the area.

Development Options:

High density Commercial and Residential development (some infill and some redevelopment) would be a natural extension of existing development. Development will be required within both Flood Zones A and B so the Justification Test has been applied. Development will be permitted in Flood Zone C.

Justification Test for Development Plans (and Variations)
<p>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 provisions of the Planning and Development Act, 2000, as amended.</p> <p>See Section 3.0 above</p>
<p>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:</p> <p>(i) Is essential to facilitate regeneration and/or expansion of the centre of the urban settlement Answer: Yes: These lands are located in the inner City and are strategically located close to Dublin Port, Dublin Port Tunnel and the East Link Bridge. The area is also well served by Dublin Bus. The subject lands are located in close proximity to strategic development areas associated with the Docklands.</p> <p>(ii) Comprises significant previously developed and/or under-utilised lands Answer: The lands have been developed for retail, commercial, light industrial and activities related to Dublin Port and the Port Tunnel. The lands are essentially under-utilised in parts and not intensively used overall. Opportunities exist to intensify development on the lands in a mixed use format (which is already evident).</p> <p>(iii) Is within or adjoining the core of an established or designated urban settlement Answer: Yes: The lands are located in the inner city and are strategically located close to Dublin Port, Dublin Port Tunnel and the East Link Bridge. The area is also well served by Dublin Bus. The subject lands are located in close proximity to strategic development areas associated with the Docklands.</p>

(iv) Will be essential in achieving compact and sustainable urban growth

Answer: Yes: The proposed rezoning of these lands would better reflect the existing use of the lands / the wider area and would encourage better use of the lands in terms of achieving compact and sustainable urban growth.

(v) There are no suitable alternative lands for the particular use or development type, in areas at lower risk of flooding within or adjoining the core of the urban settlement.

Answer: There are no suitable alternative lands for the particular uses or development type in areas at lower risk of flooding, within or adjoining the urban settlement. This area is essential for the future expansion of Dublin City

3. Strategic Flood Risk Assessment for Flood Zones A and B (for defended Flood Zones A and B see section 4.8)

The Wider Flood Cell

Where possible, small scale redevelopment and refurbishment should be focused behind flood defences where flood risks are more limited. Such development should be accompanied by a site specific assessment flood risk assessment which should consider the likelihood and impact of defence failure, which may be through overtopping (either due to an extreme event in the current situation or through sea level risk linked to climate change). Where appropriate, consideration should be given to the impacts of demountable sections of flood defence not being erected. Whilst it is unlikely that the findings of such an assessment will indicate development should not go ahead, an emergency plan may be required, fully considering the issue and receipt of flood warnings and emergency evacuation routes and procedures as well as how the operation will ensure it can retain functionality / recover following an extreme flood event.

Management of risks may be through design of access levels, flood resilient construction techniques and avoiding locating vulnerable development at ground flood level. Climate change risks will need to be considered, but it may not be possible to fully mitigate against these in an already developed situation.

The assessment and design should include appropriate consideration of sea level rise and climate change impacts.

Compensatory storage is not required as risks along the Quays are linked to tidal flooding. FRA's should be carried out for all basements and underground structures with respect to any human access. Groundwater flooding should also be assessed.

Justification Test Table Site 15, Poddle: Grand Canal to Sundrive Road, SFRA, Appendix 3

Proposed Variation No. 27 - Greenmount Industrial Estate, Dublin 6W.

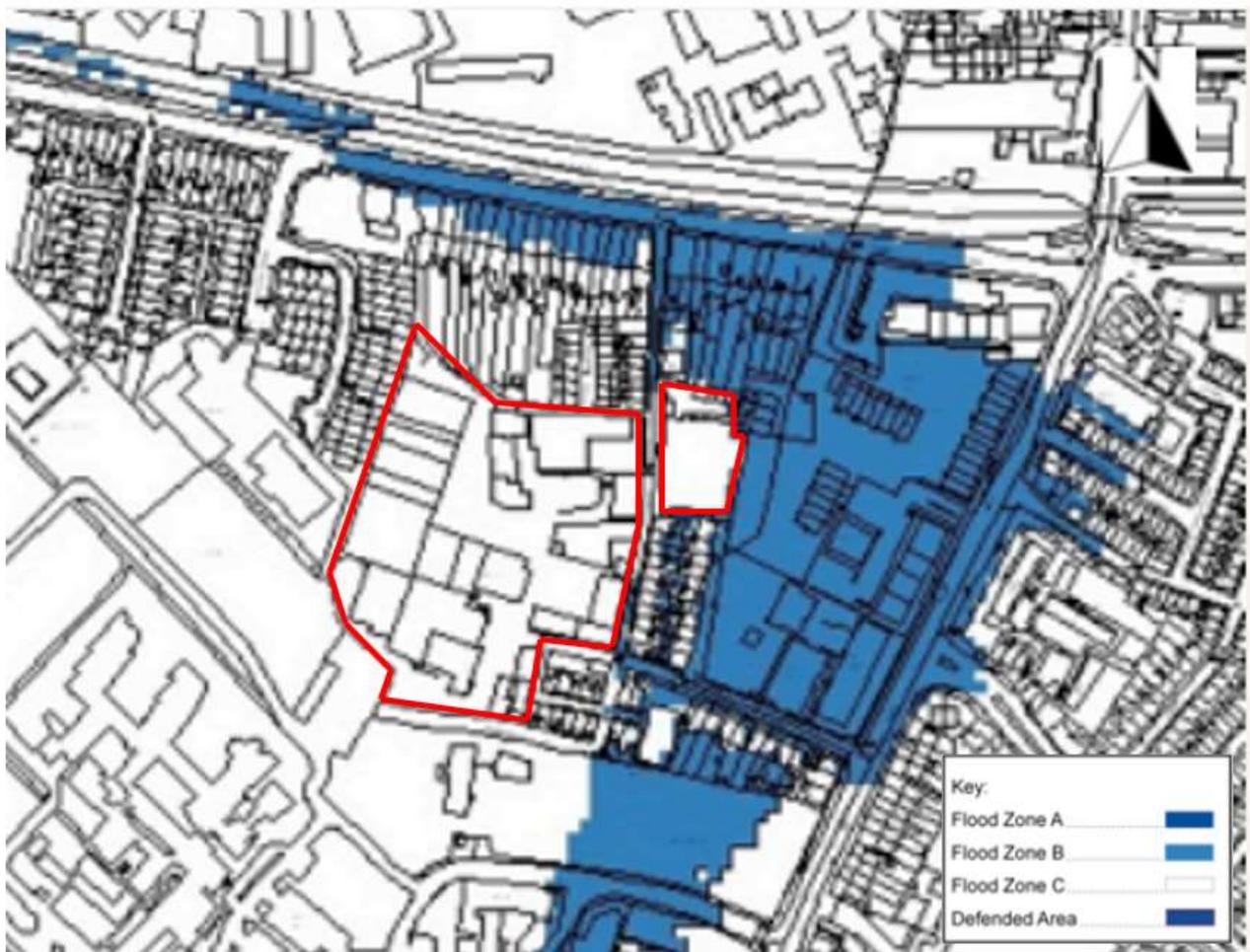
PROPOSAL

From: Zoning Objective Z6 – To provide for the creation and protection of enterprise and facilitate opportunities for employment creation.

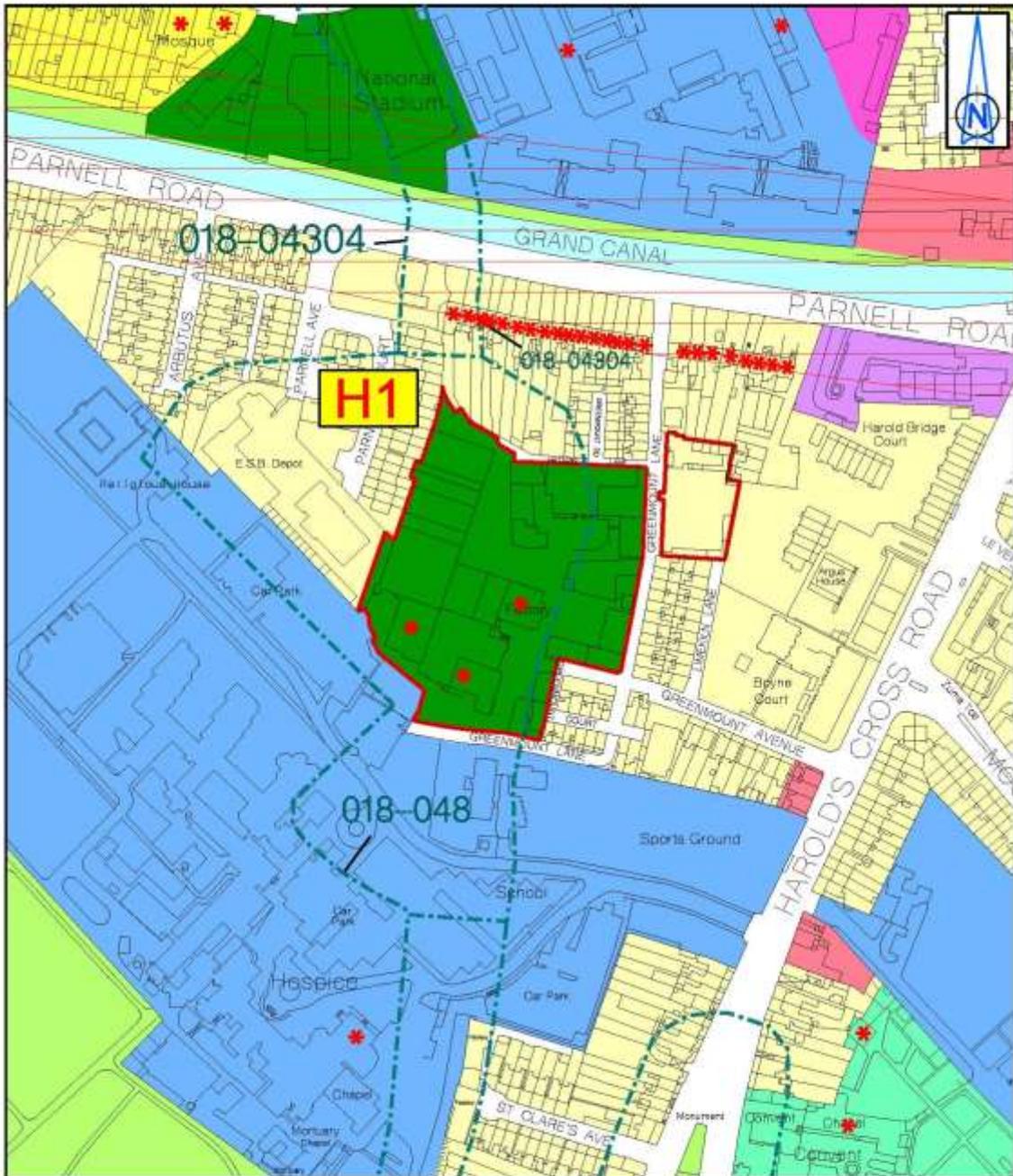
To: Zoning Objective Z10 – To consolidate and facilitate the development of inner city and inner suburban sites for mixed-uses, with residential the predominant use in suburban locations, and office/retail/residential the predominant uses in inner city areas.

To: Zoning Objective Z1 – To protect, provide and improve residential amenities.

Flooding Map from Appendix 3: Justification Test Tables, 2016 – 2022 Dublin City Development Plan, SFRA.



* red line for illustrative purposes only and is not an exact reflection of the site boundaries



Dublin City Council Development Plan 2016-2022
 Greenmount Industrial Estate, Harolds Cross, D12

Map Ref H1
 Site Boundary 
 Scale 1:2,500

Proposed Zoning
 Z1  Area 0.189Hectares
 Z10  Area 1.476Hectares

Proposed Variation No. 27 - Greenmount Industrial Estate, Dublin 6W.

DCC SFRA Appendix 3 - Site 15. Poddle: Grand Canal to Sundrive Road, DCC SFRA, Appendix 3

<p>Site Description and Proposed Variation</p>	<p>These lands are used for industrial / employment purposes (Z6). The wider area is on the Poddle River. It is fluvial.</p> <p>It is proposed to rezone the lands to Z10 (Mixed Use) on the western side of Greenmount Lane and to Z1 (Residential) on the eastern side of Greenmount Lane.</p> <p>The lands are mostly in Flood Zone C but the access road to the lands is in Flood Zone A and B and the northern and eastern edge of the lands proposed to be rezoned for residential purposes on the eastern side of Greenmount Lane abut Flood Zones A and B.</p>
<p>Benefitting from Defences (Flood Relief scheme works) and residual Risk</p>	<p>No existing defences are present</p>
<p>Sensitivity to Climate Change</p>	<p>An increase of 20% flow on top of the estimated 100-year river flow will cause more flooding in this area. A 30% increase in river flow on top of the estimated 100-year culvert flow will cause significant flooding.</p> <p>Residual Risk not applicable.</p>
<p>Historical Flooding</p>	<p>The flood maps attached are consistent with previous flooding of this section of the River Poddle.</p>
<p>Storm (surface) Water</p>	<p>According to Appendix 6 of the SFRA of the CDP 2016 there is a mostly low risk of Pluvial Flood Hazard on the subject lands.</p> <p>All storm (surface) water in this area needs to be carefully managed and provision made for significant rainfall events during high river flows. Best practice with regard to storm (surface) water management should be implemented across the development area, to limit storm (surface) water runoff to current values.</p> <p>Green Infrastructure to reduce outflows to river and improve water quality.</p> <p>All Developments shall have regard to the Pluvial Flood Maps in their Site Specific Flood Risk Assessment, see Flood ResilienCity Project, Volume 2 City Wide Pluvial Flood Risk</p>

	Assessment at http://www.dublincity.ie/main-menu-services-water-waste-and-environment-drains-sewers-and-waste-water/flood-prevention-plans
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Commentary on Flood Risk:

The flood extents indicate flow paths generally coming directly out of the river at Gandon Close, Mount Argus Road and re-entering the river downstream either directly or through the drainage network. These can be compounded with local pluvial flooding if heavy rainfall coincides with high river flows.

The flood maps were produced based on the OPW CFRAM Study and they have been checked against historic flooding in the area. Poddle FAS will inform development when completed (e.g. existing flooding on access road to lands). Construction to begin next year.

Development Options:

Development could reasonably be accommodated within the extents of Flood Zone C and should not need to extend into Flood Zone A or B unless defended. Some development may require to await future flood defence works on the Poddle River.

Justification Test for Development Plans (and Variations)
<p>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 provisions of the Planning and Development Act, 2000, as amended.</p> <p>See Section 3.0 above</p>
<p>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:</p> <p>(i) Is essential to facilitate regeneration and/or expansion of the centre of the urban settlement Answer: Yes: This area is an established residential suburb of Dublin City. This suburban landbank comprises industrial brownfield lands in an established residential suburb of Dublin City (just outside the Grand Canal). The existing development on the lands comprise low scale well established development. In line with National Planning Policy as set out in the NPF, because of their location within the M50 and given the serviced nature of the wider area (transport / services / community infrastructure), the lands should be used more intensively.</p> <p>(ii) Comprises significant previously developed and/or under-utilised lands Answer: The lands proposed to be rezoned have been significantly (and historically) developed. There are low scale uses on the lands and therefore the lands could be more intensively developed.</p> <p>(iii) Is within or adjoining the core of an established or designated urban settlement Answer: Yes: The lands form part of an established suburb of the City.</p> <p>(iv) Will be essential in achieving compact and sustainable urban growth Answer: Yes (see response to (i) above)</p> <p>(v) There are no suitable alternative lands for the particular use or development type, in areas at lower risk of flooding within or adjoining the core of the urban settlement</p>

Answer: There are no suitable alternative lands for the particular uses or development type in areas at lower risk of flooding, within or adjoining the urban settlement.

3. Strategic Flood Risk Assessment for Flood Zones A and B (for defended Flood Zones A and B see section 4.8 of the SFRA for the City Development Plan)

- Flood risks in this area are through a combination of direct channel capacity exceedance and the resulting overland flows, both from a natural lack of capacity and through potential blockage of culverts.
- Modelling also shows that risks are primarily linked to the development of overland flow paths which progress along roads and pond in both undeveloped and developed sites. FRAs for developments should specifically address this risk, both to ensure flow paths do not become obstructed and to ensure an appropriate standard of flood resilient construction, which could include (where possible) raising finished floor levels. Given the importance of retaining overland flow paths and current storage areas within the existing developed lands, new highly or less vulnerable development within Flood Zones A or B cannot be justified and should be avoided. Water compatible development, such as parks and playing fields are permitted, provided there is no loss in storage capacity or obstruction of flow routes where development in Flood Zone C is proposed, overland flow routes arising from culvert blockage should also be assessed and any resulting flow paths (which may not be highlighted in the Flood Zone Maps) should also be protected.

5.0 Conclusion of Stage 2 SFRA

It is not considered necessary at this stage to proceed to a Stage 3 Flood Risk Assessment for the landbanks identified in Table 7 above. Development on any of the 20 landbanks will be assessed on their merits and will have to comply with the Strategic Flood Risk Assessment for the Dublin City Development Plan 2016-2022.

The findings of this SFRA do not have implications for the Council's Strategic Environmental Assessment (SEA) screening decision which forms part of the Proposed Variations 8 to 27 and therefore no significant changes are required to the SEA. The Appropriate Assessment (AA) screening is also affected.

All developments shall have regard to the following: -

- Requirement to implement the flood management policies and objectives as set out in the Dublin City Development Plan 2016-2022 (see Chapter 9) and any guidance provided in the Strategic Flood Risk Assessment (Volume 7), and to implement the 'Guidelines on the Planning System and Flood Risk Management' (DoEHLG/OPW, 2009).
- Any grant of planning permission will include a condition seeking the provision of a Site Specific Flood Risk Assessment (and where appropriate before development is granted planning permission).
- Notwithstanding the identification of an area being at low risk of flooding, where Dublin City Council is of the opinion that flood risk may arise or new information has come to light that may alter the flood designation of the land, an appropriate flood risk assessment may be required to be submitted as part of a planning application. All planning applications shall be accompanied by a Storm-Water Management Plan.
- All development proposals shall have regard to surface water management policies contained in the Greater Dublin Strategic Drainage Study, and Chapter 9 of the Dublin City Development Plan 2016-2022, and any information contained in the Strategic Flood Risk Assessment (Vol. 7, Chapter 4).
- All development shall ensure the protection of water quality of existing water bodies and ground water sources, and retrofitting best practice SUDS techniques on existing sites where possible.

APPENDIX A

Proposed Variation No. 8 - Clearwater Retail Park, Finglas Road

Proposal:

From: Zoning Objective Z6 – To provide for the creation and protection of enterprise and facilitate opportunities for employment creation.

To: Zoning Objective Z1 – To protect, provide and improve residential amenities.

Water & Drainage:

1.35m by 1.5m culvert for Finglas stream to front of lands which flows to River Tolka.

Flood Zone: Lands located in Flood Zone C

Pluvial Flood Hazard & Pluvial Flood Depth (1% AEP Event): Low (to Moderate) (0.0m to 0.2m (to 0.3m)

Mitigation Measures:

- Potential to open Finglas Stream culvert as it is only 2.23m deep
- Green infrastructure, including green roofs required to reduce outflows and improve water quality.



Proposed Variation No. 9 - Santry Industrial Land

PROPOSAL

From: Zoning Objective Z6 – To provide for the creation and protection of enterprise and facilitate opportunities for employment creation.

To: Zoning Objective Z1 – To protect, provide and improve residential amenities.

Water & Drainage:

The lands are located in the catchment of the Santry River.

Flood Zone: Lands located in Flood Zone C

Pluvial Flood Hazard & Pluvial Flood Depth (1% AEP Event): Low (0.0m to 0.2m)

Mitigation Measures:

- Comprehensive surface water management measures required including green roofs and green infrastructure, to reduce outflows and improve water quality.



Proposed Variation No. 10 - Shanowen Road Lands

PROPOSAL

From: Zoning Objective Z6 – To provide for the creation and protection of enterprise and facilitate opportunities for employment creation.

To: Zoning Objective Z1 – To protect, provide and improve residential amenities.

Water & Drainage:

The lands are located in the catchment of the Santry River.

Flood Zone: Lands located in Flood Zone C

Pluvial Flood Hazard & Pluvial Flood Depth (1% AEP Event): Low (0.0m to 0.2m)

Mitigation Measures:

- Comprehensive surface water management measures required including green roofs and green infrastructure, to reduce outflows and improve water quality.



Proposed Variation No. 11 - Mornington Business Park

PROPOSAL

From: Zoning Objective Z6 – To provide for the creation and protection of enterprise and facilitate opportunities for employment creation.

To: Zoning Objective Z1 – To protect, provide and improve residential amenities.

Water & Drainage:

Discharges to overloaded Naniken River. There is a drainage link between the Naniken and the Santry River.

Flood Zone: Lands located in Flood Zone C

Pluvial Flood Hazard & Pluvial Flood Depth (1% AEP Event): Low (0.0m to 0.2m)

Mitigation Measures:

- Comprehensive surface water management measures required including green roofs and green infrastructure, to reduce outflows, to improve water quality and to clean outlet flows.



Proposed Variation No. 12 - Malahide Road (adjacent to Mornington Grove)

PROPOSAL

From: Zoning Objective Z6 – To provide for the creation and protection of enterprise and facilitate opportunities for employment creation.

To: Zoning Objective Z10 – To consolidate and facilitate the development of inner city and inner suburban sites for mixed-uses, with residential the predominant use in suburban locations, and office/retail/residential the predominant uses in inner city areas.

To: Zoning Objective Z3 – To provide for and improve neighbourhood facilities.

Water & Drainage:

Lands discharge to overloaded Naniken River. There is a drainage link between the Naniken and the Santry River.

Flood Zone: Lands located in Flood Zone C

Pluvial Flood Hazard & Pluvial Flood Depth (1% AEP Event): Low (0.0m to 0.2m)

Mitigation Measures:

- Comprehensive surface water management measures required including green roofs and green infrastructure, to reduce outflows, to improve water quality and to clean outlet flows.



Proposed Variation No. 13 - Harmonstown Road

PROPOSAL

From: Zoning Objective Z6 – To provide for the creation and protection of enterprise and facilitate opportunities for employment creation.

To: Zoning Objective Z10 – To consolidate and facilitate the development of inner city and inner suburban sites for mixed-uses, with residential the predominant use in suburban locations, and office/retail/residential the predominant uses in inner city areas.

Water & Drainage:

Drainage to Santry River.

Flood Zone: Lands located in Flood Zone C

Pluvial Flood Hazard & Pluvial Flood Depth (1% AEP Event): Low on lands (0.0m to 0.2m) and extreme on railway line.

Mitigation Measures:

- Green roofs and green infrastructure required to improve water quality and flood flows.
- Potential for Biodiversity / green strip beside railway line.



Proposed Variation No. 14 - Chapelizod Bypass / Kylemore Road

PROPOSAL

From: Zoning Objective Z6 – To provide for the creation and protection of enterprise and facilitate opportunities for employment creation.

To: Zoning Objective Z1 – To protect, provide and improve residential amenities.

Water & Drainage:

8m deep across site. Lands located in Liffey Catchment with flooding problems at Chapelizod.

Flood Zone: Lands located in Flood Zone C

Pluvial Flood Hazard & Pluvial Flood Depth (1% AEP Event): Low (0.0m to 0.2m) on site and moderate around boundary of site (0.2m to 0.3m).

Mitigation Measures:

- Reduce outflows,
- Only clean, uncontaminated surface waters to discharge to the network
- Link to existing green areas
- Tree planting recommended



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Proposed Variation No. 15 - 11 Ballyfermot Road Lower

PROPOSAL

From: Zoning Objective Z6 – To provide for the creation and protection of enterprise and facilitate opportunities for employment creation.

To: Zoning Objective Z1 – To protect, provide and improve residential amenities.

Water & Drainage:

Lands located in Liffey Catchment.

Flood Zone: Lands located in Flood Zone C

Pluvial Flood Hazard & Pluvial Flood Depth (1% AEP Event): Low (0.0m to 0.2m)

Mitigation Measures:

- Comprehensive surface water management measures required including green roofs and green infrastructure, to reduce outflows and improve water quality.



Proposed Variation No. 17 - Esmond Avenue

PROPOSAL

From: Zoning Objective Z6 – To provide for the creation and protection of enterprise and facilitate opportunities for employment creation.

To: Zoning Objective Z1 – To protect, provide and improve residential amenities.

Water & Drainage:

Lands drain to River Tolka.

Flood Zone: Lands located in Flood Zone C

Pluvial Flood Hazard & Pluvial Flood Depth (1% AEP Event): Low (0.0m to 0.2m)

Mitigation Measures:

- Comprehensive surface water management measures required including green roofs and green infrastructure, to reduce outflows and improve water quality.



Proposed Variation No. 21 - Davitt Road

PROPOSAL

From: Zoning Objective Z6 – To provide for the creation and protection of enterprise and facilitate opportunities for employment creation.

To: Zoning Objective Z1 – To protect, provide and improve residential amenities.

Water & Drainage:

Drains to Canal.

Flood Zone: Lands located in Flood Zone C

Pluvial Flood Hazard & Pluvial Flood Depth (1% AEP Event): Low (0.0m to 0.2m)

Mitigation Measures:

- Comprehensive surface water management measures required including green roofs and green infrastructure, to reduce outflows to Canal and improve water quality.
- Potential for green strip along Davitt Road and Green area to link with existing.



Proposed Variation No. 23 - White Heather Industrial Estate

PROPOSAL

From: Zoning Objective Z6 – To provide for the creation and protection of enterprise and facilitate opportunities for employment creation.

To: Zoning Objective Z1 – To protect, provide and improve residential amenities.

To: Zoning Objective Z9 – To preserve, provide and improve recreational amenity and open space and green networks.

Water & Drainage:

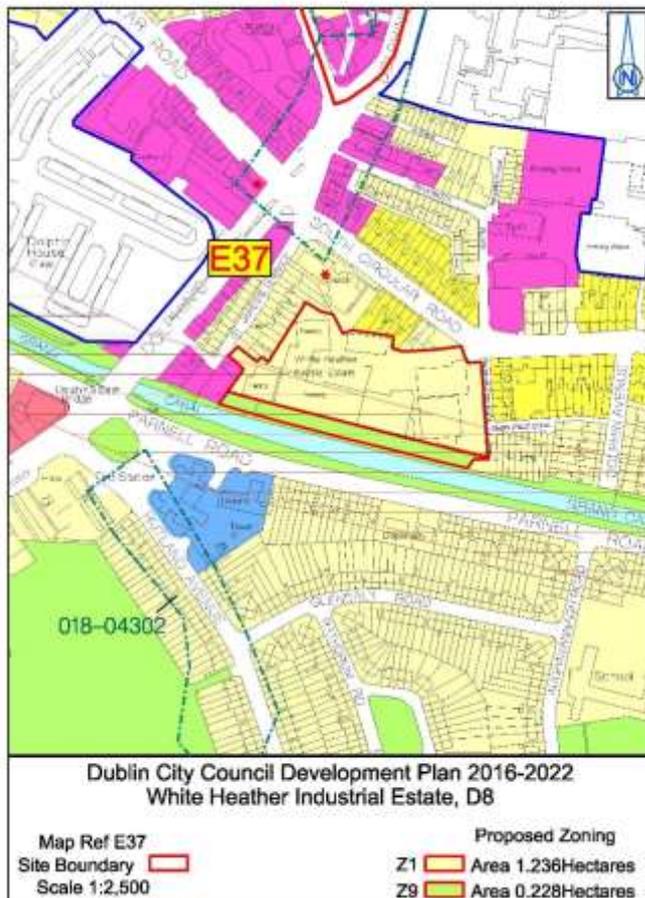
Drains to Canal.

Flood Zone: Lands located in Flood Zone C

Pluvial Flood Hazard & Pluvial Flood Depth (1% AEP Event): Low (0.0m to 0.2m)

Mitigation Measures:

Green infrastructure, including green space, to reduce outflows which currently go to combined sewer.



Proposed Variation No. 26 - Brickfield House & Sunshine Estate

PROPOSAL

From: Zoning Objective Z6 – To provide for the creation and protection of enterprise and facilitate opportunities for employment creation.

To: Zoning Objective Z1 – To protect, provide and improve residential amenities.

Water & Drainage:

Drains to Canal Sewer

Flood Zone: Lands located in Flood Zone C

Pluvial Flood Hazard & Pluvial Flood Depth (1% AEP Event): Low (0.0m to 0.2m) with spot of moderate (0.2m to 0.3m).

Mitigation Measures:

- Green roofs and green infrastructure required to reduce outflows and improve water quality.
- Linked green space required



