UNIVERSITY COLLEGE CORK & MERCY UNIVERSITY HOSPITAL

Preliminary North Mall Campus Masterplan - Volume 2 Appendices

21055-STW-03-XX-RP-A-00001

APPENDICES - VOLUME 2

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Appendix B: Flood Risk Assessment
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Appendix D: Heritage Significance Report
Appendix E: Transport Assessment
Appendix F: Heritage Photographic Record

APPENDIX A: REDDY ARCHITECTURE & URBANISM MASTERPLAN

A

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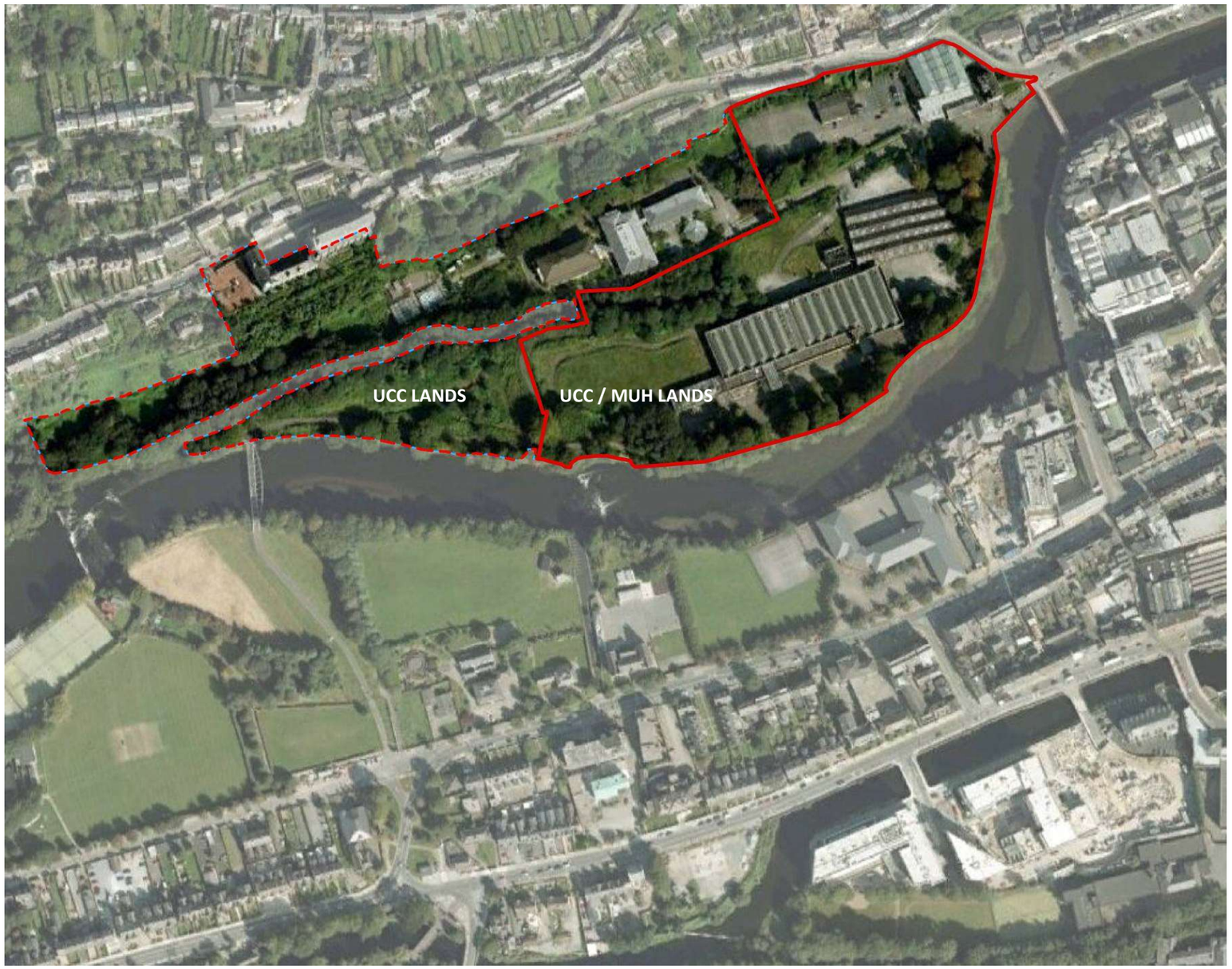

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NORTH MALL MASTERPLAN

04.11.2020

REDDY ARCHITECTURE AND URBANISM

MASTERPLAN SUMMARY

Introduction

Reddy Architecture +Urbanism in collaboration with Urban Initiatives and ARUP Consulting Engineers were commissioned by University College Cork (UCC) and Mercy University Hospital(MUH) to masterplan their jointly owned lands at the former IDL 'Old Distillery' site at the North Mall, Cork City.

The masterplan and the Draft Final Report deals with the significant themes that will influence the future development of the site.

The study takes cognisance of the Site Development Guidelines produced by the Planning and Development Directorate of Cork City Council at the time when the site was jointly acquired, Cork City Development Plan guidelines and the key briefing objectives developed to guide the proposals for the redevelopment of Distillery Fields into an integrated University and Hospital campus; including:

- The remediation of the former industrial site;
- The enhancement of the natural environment;
- The capitalisation on the history of Distillery Fields and its architectural heritage to set a new standard for contemporary architectural and landscape design in Cork
- The integration of the site into the Cork's movement network, providing safe and convenient pedestrian and cycle routes to and from destinations in the west of the city centre.

Site Context:

The site consists of two sites in separate ownership. The western portion of the site was purchased by UCC in 1998 and the balance of the site (eastern portion) was purchased by UCC and MUH jointly in 2004 for the purposes of development of academic and healthcare facilities in a campus masterplan. A 10 metre strip was ceded to Cork City Council for the creation of a riverside public walkway which has now been constructed and is in use.

UCC have currently a number of facilities on the site occupying the purpose built Butler Building +Enterprise Centre and the converted Cooperage. These buildings accommodate the School of Applied Psychology, The School of Biological, Earth and Environmental Sciences and associated research centres. There is provision for on grade parking throughout the site. There are also a number of disused former IDL buildings such as the Vat Stores and Bottling Plant which remain for either re-use or for demolition.

Site Constraints:

Due to the large escarpment to the North and the River Lee to the South the site is only accessible via a gateway to the North Mall. The site is has a number of zoning constraints in that a large proportion of the site is zoned Landscape Preservation Zone and Area of High Landscape Value. The site is further constrained by the flood defences proposed by the Lower Lee (Cork City) Flood Relief Scheme (LLFRS).

Mc Cutcheon Mulcahy, Planning Consultants, have issued a submission on behalf of UCC/MUH to the Office of Public Works on 16th March 2017 requesting that the flood defence works be redesigned/modified as follows:

- Defences to be routed as close as possible to river bank to protect development potential of site.
- To provide wall barrier rather than embankment to minimize footprint of flood defence works
- Ensure landscaping and replaced planting is provided to protect visual amenity of site.
- Ensure gateways and access to the riverside from the North Mall site are protected.
- Remove negative impacts on the entrance into the North Mall site.
- Ensure that the proposed pedestrian link into the North Mall site can be facilitated on the both the northern and southern banks of the river.

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Masterplan Proposals

The Masterplan proposals are for the redevelopment of the entire site into an academic and healthcare campus for UCC and MUH. At this stage the Masterplan is a capacity study that demonstrates the quantum of development that the site is capable of supporting within the parameters of existing planning and physical constraints of the site.

In general, no specific use is applied to the buildings proposed, as future uses are unknown, except in the case of the Tyndall Institute which is currently at pre-planning stages. MUH have also published their Campus Study in January 2020 which identifies the IDL site as being the location for future clinical and research facilities. We believe that academic and healthcare uses can be complimentary and symbiotic and that suitable uses can be found for the buildings by mutual consent as the campus grows in the coming years.

Buildings A to E are new 3 to 7 storey buildings along the riverside walk, similar in massing to the Mercy Hospital and the Tyndall Institute on the opposite bank. It is proposed that these buildings would be accessed at first floor level by a series of linking bridges that would link to the main pedestrian bridge over the Lee, providing direct access to these buildings from Grenville Place/Prospect Row via the flood defences boardwalk to be developed by the OPW.
This proposal is designed to mitigate against flooding risk by having facilities that require no direct access or doors and windows (such as lecture theatres, laboratories, plantrooms, storage, etc) at ground floor level.

There is proposed a 6 storey car park structure capable of accommodating 900 cars. The building is built along the escarpment and the roof level is no higher than the adjacent Sundays Well Road. This structure is proposed to be built in phases in line with development of the site.

There is also proposed a smaller new build building along the side of the existing VAT stores and replaces a modern extension that may be part of an overall refurbishment of the Vat stores.

Existing on-site buildings to be retained:

- The 2/3 storey Distillery House and Vat Stores. Distillery House is a protected structure (PS813) and the warehouse building is on the NIAH list (National Inventory of Architectural Heritage). The 19th century warehouse is currently disused and empty and would be available for re-use and refurbishment while taking into account its current dilapidated condition and heritage value.

- There is on site a 19th century Cooperage, a single storey NIAH listed building that has been retained and refurbished and is currently in use by UCC.

- The Butler Building, a modern building that is a purpose design academic building occupied by UCC.

Vehicular and Pedestrian Access: A key component for the success of the proposed masterplan will be pedestrian and vehicular movement and access. We are proposing the location of 996 car spaces on the site all of which will access the site from the North Mall gateway. The parking and traffic aspects of the design is subject to negotiation with Cork City Council and will require traffic and mobility studies and the implementation of a traffic management plan for parking by academic staff, students, hospital staff, patients and visitors. A key piece of infrastructure will be the provision of a pedestrian bridge linking the North Mall site to Grenville Place, The Mercy Hospital and the Tyndall National Institute

Masterplan Development Description:

The masterplan proposes the development of 6 new buildings including plus a car park structure and an extension to the Vat Stores resulting in the delivery of 90,900 sqm of new development on the IDL site. When combined with existing buildings, such as Distillery House and Warehouse, the Cooperage and the Butler and Enterprise Building the total quantum of accommodation being proposed is 103,609 sqm.

Along with the proposed delivery of University teaching, research and healthcare buildings will be a major public realm project including a landscape space around the millrace, and a proposed pedestrian bridge linking the site directly to Grenville Place.

Mercy University Hospital Campus Study:

In January 2020 the Mercy University Hospital published a Campus Study which included the IDL site as part of its ambitious plans to expand its clinical services and facilities in a phased manner over the next 15 years.

The IDL Site is identified as a potential location for clinical buildings with elective day case, out-patients clinics, ambulatory care units and the development of an integrated healthcare centre for academic teaching, research and training. While building A is being designated as being Tyndall 2 for UCC, Building B & C of this masterplan can be identified for the provision of clinical services for MUH in line with the Campus Study intent. While the phasing plan shows these buildings being delivered in separate phases they may be provided as a single amalgamated development in a single phase if required by MUH.

Multi Storey Parking Structure:

As part of this Masterplan is the provision of a multi -storey parking structure for 900 cars that is proposed to be delivered in phases as the Masterplan development is being built out. This parking structure is a critical piece of transport infrastructure for the Mercy University Hospital, which as a major acute hospital requires access for patients and staff on a 24/7, 365 days a year basis. The multi-storey carpark will be subject to a separate planning approval within the context of a Hospital Mobility Management Plan which will seek to rationalise the current disparate parking provision into a centralised location to cater for the unique requirements of the Hospital campus. This plan will involve a mixture of replacement parking and new parking facilities to service the new clinical buildings proposed and may be required to be delivered in a single phase at the appropriate time.

Pedestrian Bridge Proposal:

A new bridge is proposed to provide a pedestrian linkage that will connect the south bank of the river to the North Mall campus and will be part of the delivery of the redevelopment of Grenville Place plaza as envisaged in the OPW flood defences works. The final design and location of the pedestrian bridge will be subject to a separate design study in consultation with the OPW and Cork City Council however the objective of this Masterplan is to establish the principle of a new pedestrian bridge linking the IDL site directly to Grenville Place. The location and design intent is shown as such in this Masterplan due to its potential incorporation into a new boardwalk which provides an opportunity for a universally accessible sloped access to the springing point of the bridge so that it can over-sail the public walkway on the opposite bank and thereby provide direct access to the first floor of the buildings above the flood defences.
More importantly it provides more direct access to the centre of the site with a “Y” shape design that provides access to both Building A (Tyndall National Institute) and Building B (MUH) equally.

The proposed bridge is regarded as a critical piece of infrastructure for MUH in terms of connectivity to the proposed clinical services to be provided on the IDL site and the integration of these services and staff flow with the main Hospital. The final design of this bridge will need to take into consideration its interaction with the Hospital main entrance and the public realm proposals for Grenville Place design to ensure clear, direct and safe pedestrian access between the main Hospital and its expanded campus on the IDL site.

Masterplan Phasing:

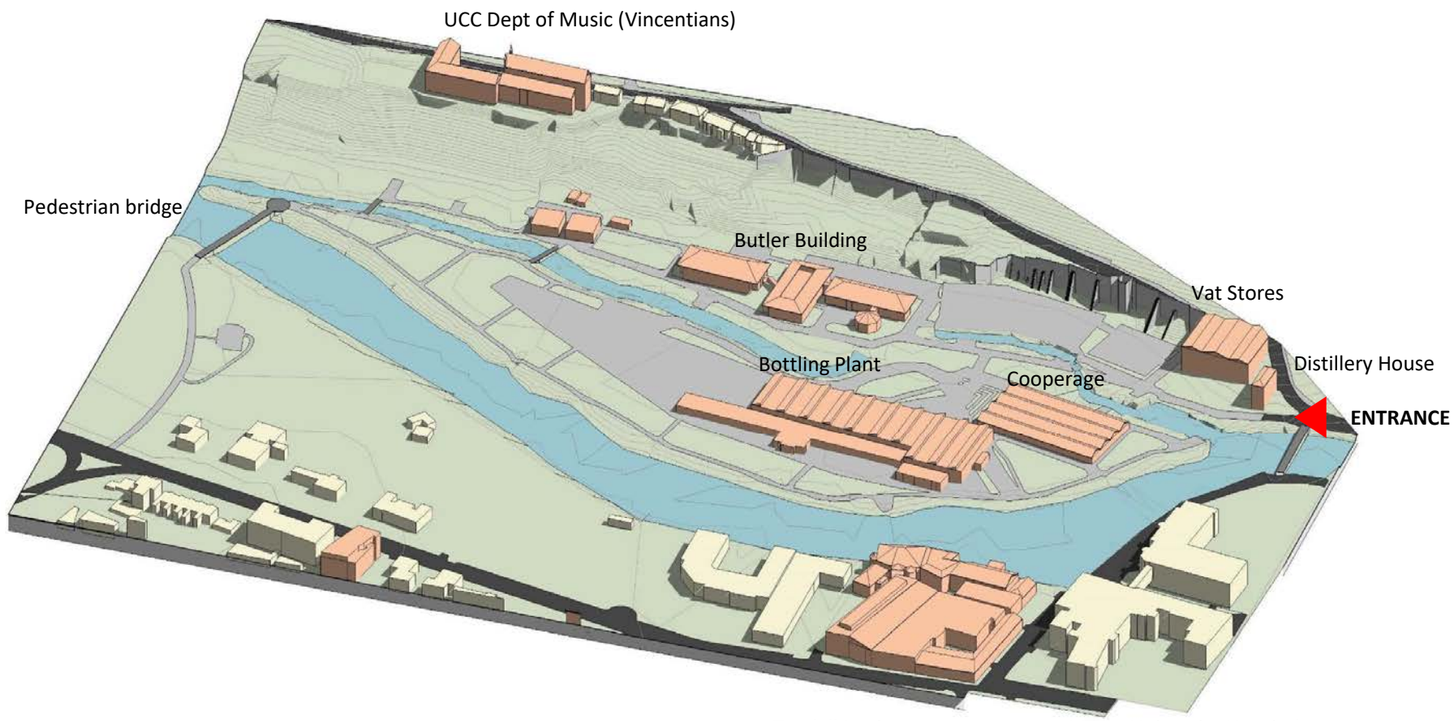
The Masterplan proposals are for the redevelopment of the entire site in a number of phases that will be governed by the available of HEA and HSE funding for buildings and the requirements of UCC and MUH. The phasing is predicated on a western expansion of the site from the North Mall entrance to the site at the eastern end to the pedestrian bridge on the western end. The development of flood defence infrastructure will be incorporated into the masterplan with the possibility that the proposed new buildings may incorporate flood defences themselves. The provision of parking may also be phased; dependent on the quantum and uses of the new buildings as they are constructed.
Equally the provision of a proposed new pedestrian bridge is dependent on the quantum of development that is provided in order to justify the cost of this structure in terms of the generation of footfall and added value to the site.

Phase 1: consists of the demolition of the defunct IDL bottling plant and the construction of Building A , which has an approximate accommodation of 16,000 m2. This building is currently being developed by UCC for the Tyndall National Institute and is currently in pre-planning stages. This building will be a stand alone building adjacent the existing Cooperage and there is an opportunity to create a new urban plaza in front of this building. The design of the building may include flood defence structures at the ground floor level. The remaining area of the demolished bottling plant can either be landscaped or used for temporary carparking, or both.
This phase also shows the provision of an extension to the Butler Building.

Phase 2: consists of the provision of an adjacent major building, Building B, which has an approximate accommodation of 17,500 m2 , as and also the redevelopment of the existing 19th century Vat Stores including an 1,800m2 extension resulting in the delivery of 6,350m2 of additional accommodation in the VAT stores building. This increase in accommodation could then be considered a justification for the construction of the pedestrian bridge linking Grenville Place, Tyndall National Institute, and the Mercy Hospital directly to new campus.
Considering the increase in accommodation on the site and the more direct pedestrian link to the Mercy Hospital it is proposed that the first phase of the parking structure (6,750m2) would be part of this phase. This parking structure would contain approximately 300 cars that would be controlled by UCC/MUH.

Phase 3: consists of the addition of Building C which has an approximate accommodation of 16,000 m2. With this additional accommodation it is proposed to construct second phase of the parking structure (16,050m2) which consists of approximately 600 parking spaces

Phase 4: consists of the completion of the remaining buildings along the river’s edge including Building D (10,000m2) and building E (2,500m2).
As part of this phase is also the construction of Building F(4,300m2) which not only will provide additional academic accommodation for UCC it also provides the opportunity for vertical circulation and connectivity from the St Vincentians Campus (UCC Dept of Music) and Sundays Well road to the North Mall site and public riverside walkway.



Existing Buildings

Notes:

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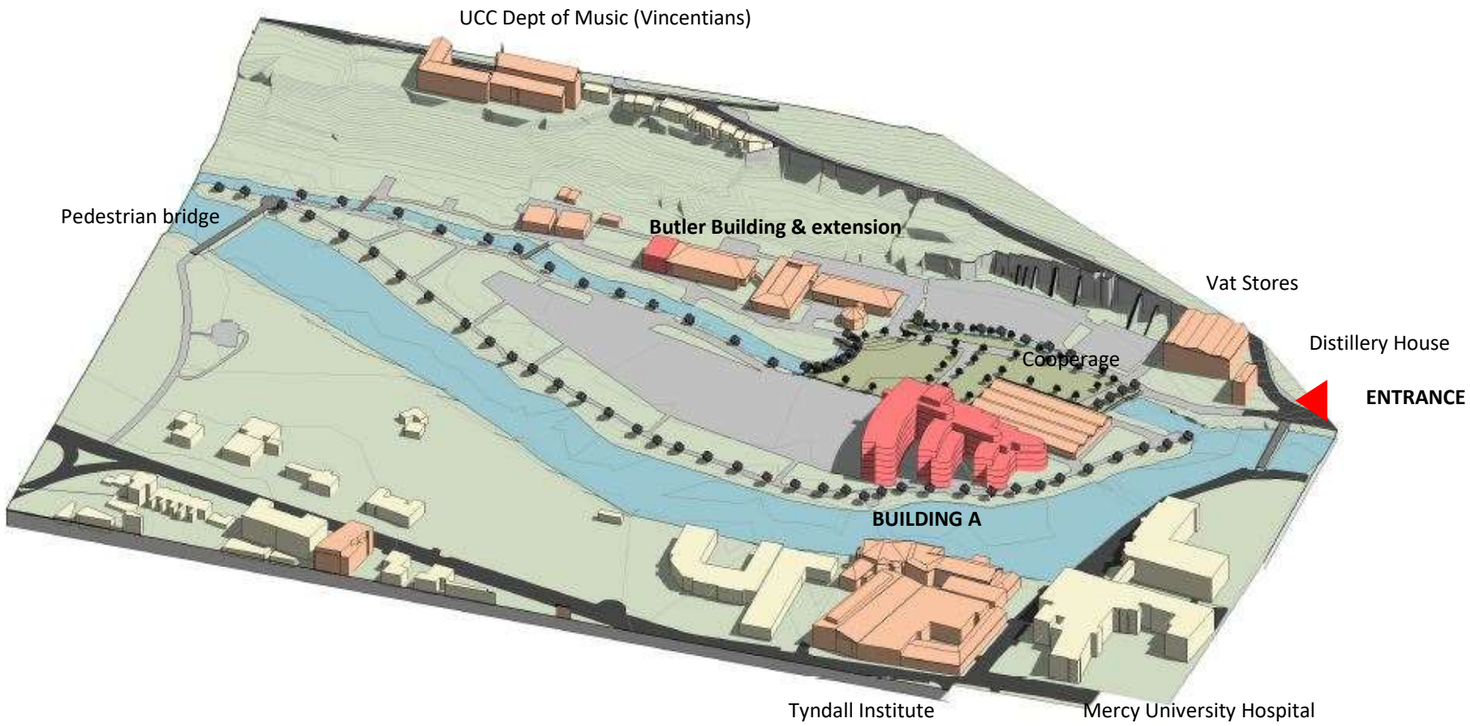
Client Details:
University College Cork

Project Details:
UCC Masterplan Review 2019

Drawing Title:
North Mall Masterplan - Existing

Job No	Date	Scale@A3
18-224C	08/11/2019	
Status		Drawn By: H.A.
Purpose		Checked By: S.K.
Drawing Number		Revision
18-224C-01		



Phase 1

Building A: 16,000m2 (Tyndall National Institute)

Butler Building extension 6,450m2

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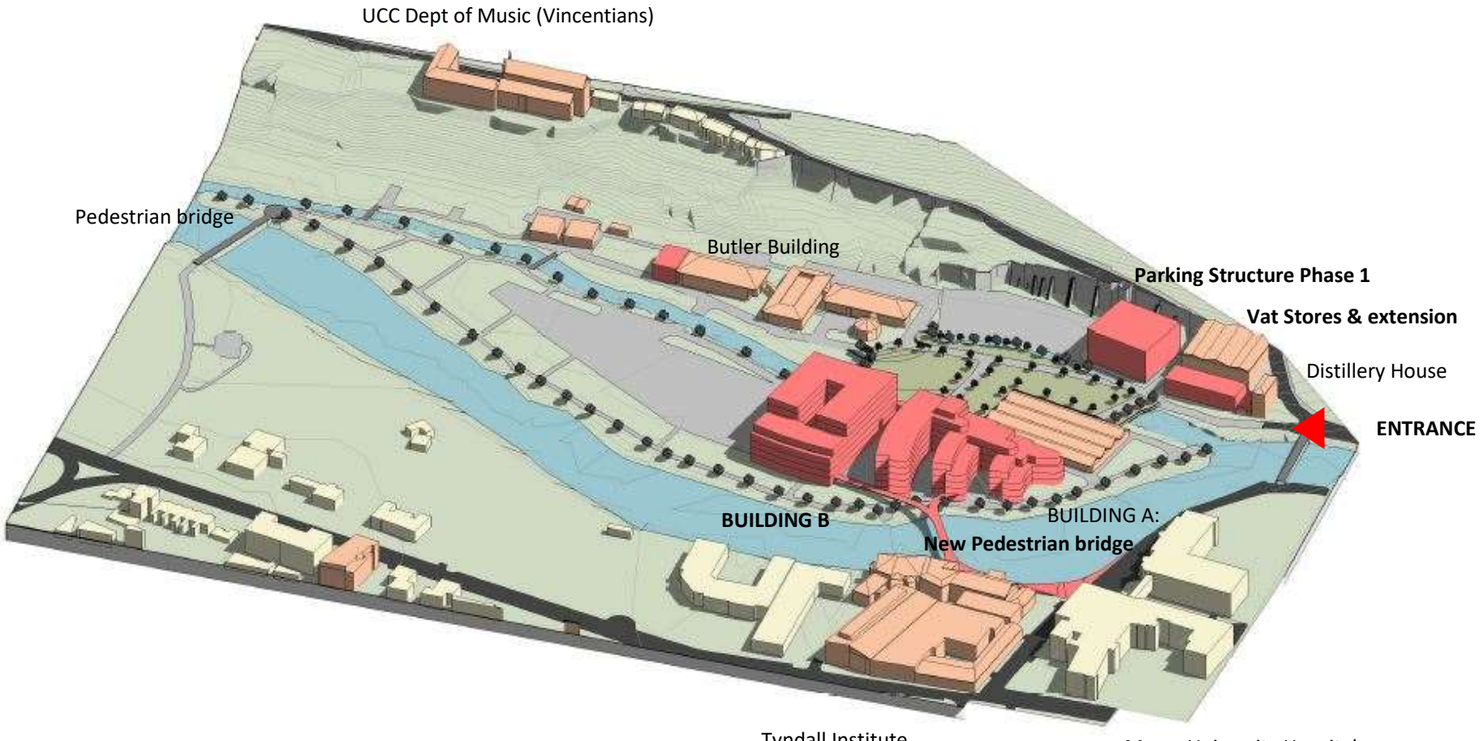
Drawing Title:
North Mall Masterplan - Phase 1

Job No	Date	Scale@A3
18-224C	24/06/2020	
Status		Drawn By: H.A.
Purpose: Masterplan		Checked By: S.K.
Drawing Number: 18-224C-02		Revision



Phase 2

Building B: 17,500m2

Vat Stores & extension: 6,350m2

Parking Structure Phase 1: 300 spaces (6,750 m2)

New Pedestrian Bridge

Notes:

Drawing Notes:

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Project Details:
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Drawing Title:
North Mall Masterplan - Phase 2

Job No	Date	Scale@A3
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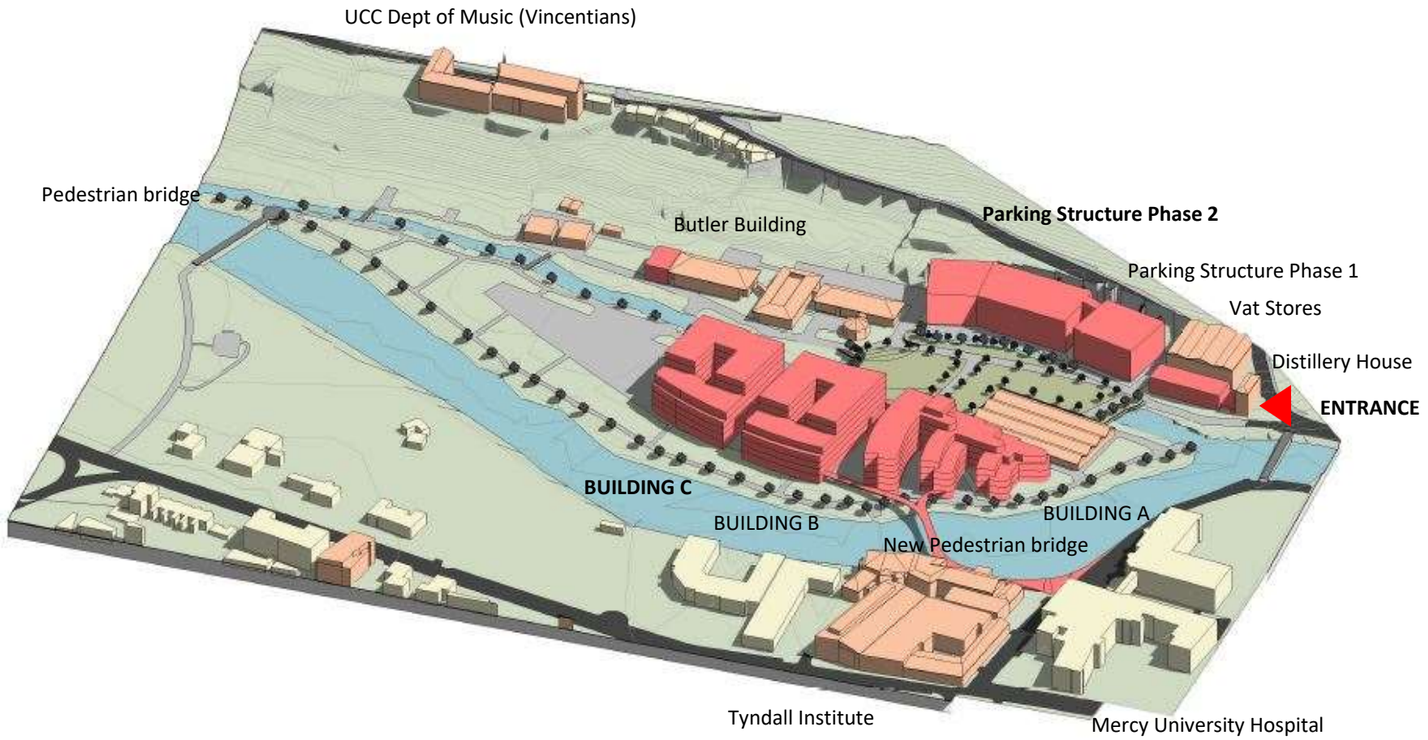
Status		Drawn By: H.A.
Purpose: Masterplan		Checked By: S.K.

Drawing Number	Revision
18-224C-03	



Phase 3

Building C:16,000m2

Parking Structure Phase 2: 600 spaces (16,050 m2)

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Project Details:
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Drawing Title:
North Mall Masterplan - Phase 3

Job No	Date	Scale@A3
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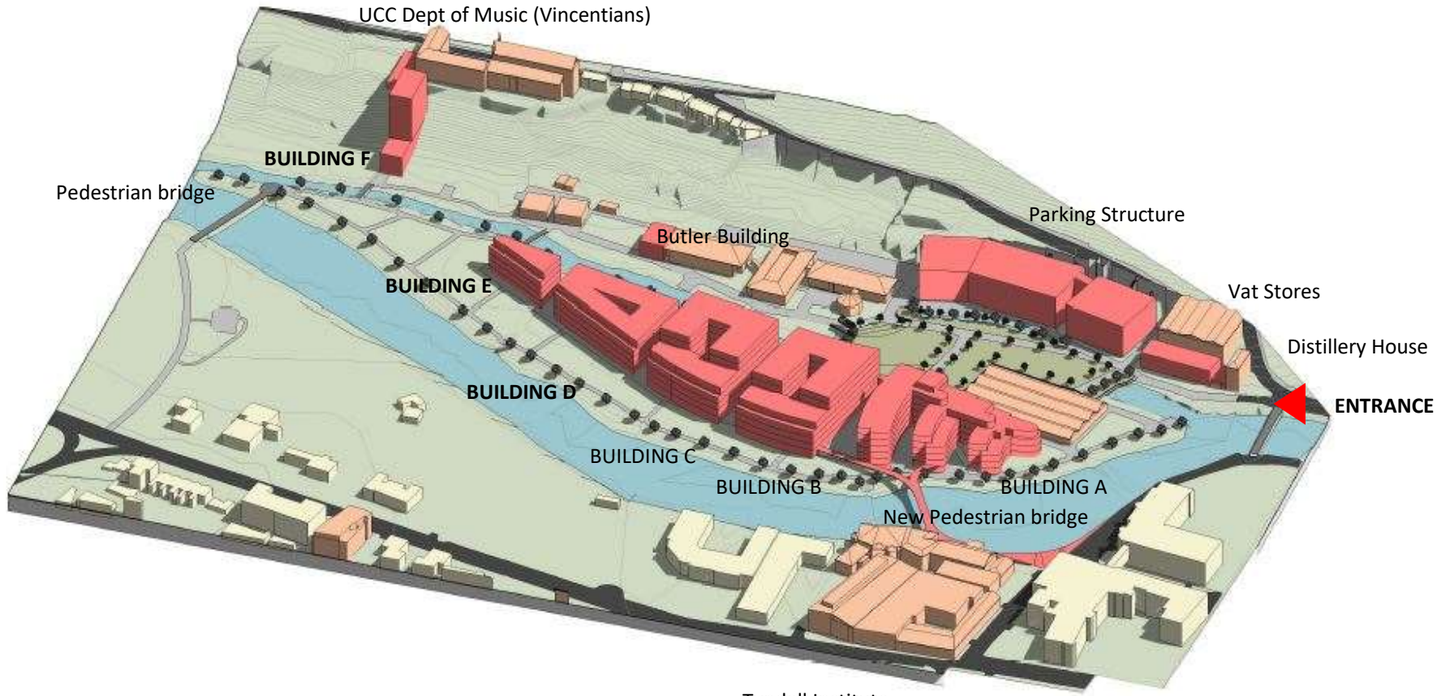
Drawing Number: 18-224C-04		Revision



Phase 4

Building D:10,000m2

Building E: 2,500m2

Building F: 4,300m2

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Project Details:
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Drawing Title:
North Mall Masterplan - Phase 4

Job No	Date	Scale@A3
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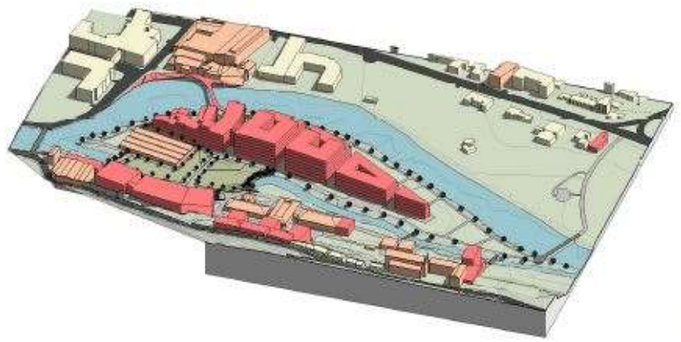

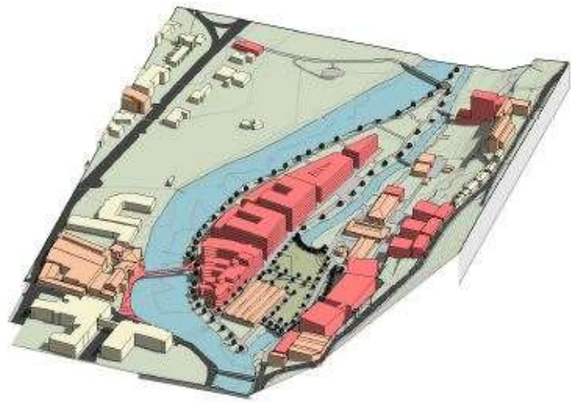

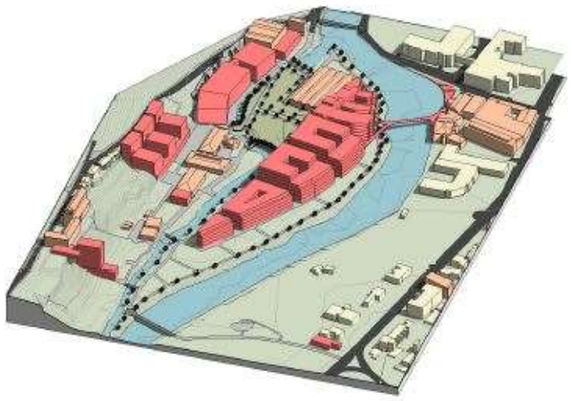

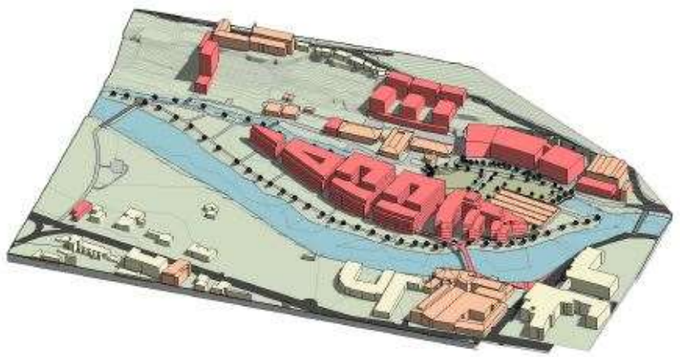

Model Views

Notes:

Drawing Notes:

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Project Details:
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Drawing Title:
Northmall 3D Axonometric

Job No	Date	Scale@A3
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Purpose: Masterplan		Checked By: S.K.
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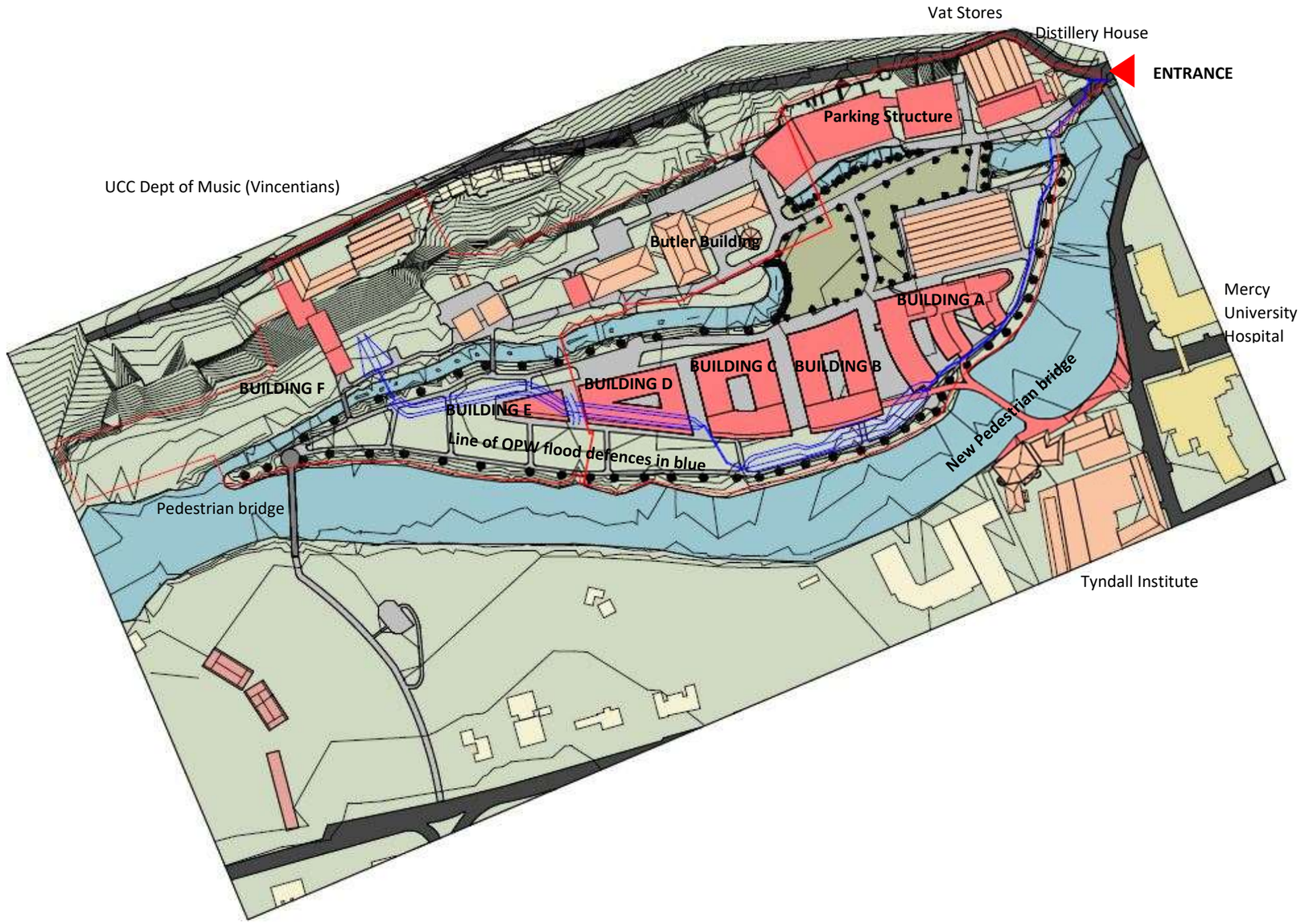

Masterplan

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Drawing Title:
Northmall Masterplan

Job No	Date	Scale@A3
18-224C	14/07/2020	
Status: For Information		Drawn By: H.A.
Purpose: Masterplan		Checked By: S.K.
Drawing Number: 18-224C-08		Revision:

Schedule of Areas:

Please find below a schedule of areas for the proposed new and retained buildings in the North Mall Masterplan. In general potential uses for each building are not specifically identified however Block A is being considered for the new Tyndall Institute building for UCC and the MUH campus study has identified opportunity on the IDL site for the expansion of healthcare facilities particularly with respect to buildings B and C.

Total quantum of proposed development is in the order of 103, 600 sqm, including 6 new major buildings and a parking structure for 900 cars, as well as public realm landscape places, and a pedestrian bridge.

UCC/MUH North Mall Campus Masterplan		04/11/2020
Area Schedule		
Proposed New Buildings :	**UCC/MUH land SQM**	**UCC land SQM**
Building A	16,000.00	
Building B	17,500.00	
Building C	16,000.00	
Building D	10,000.00	
Building E		2,500.00
Building F		4,300.00
carpark structure	22,800.00	
Vat Stores Extension	1,800.00	
Total New Build	**84,100.00**	**6,800.00**
Existing Buildings:		
Distillery House& Warehouse	4,550.00	
Cooperage	2,475.00	
Butler and Enterprise Building		5,684.00
Total Existing Retained	**7,025.00**	**5,684.00**
Total Accommodation provided	**91,125.00**	**12,484.00**
Carparking:	**Spaces**	**Spaces**
Multi storey Car park structure	900	
on grade (existing)		96
Total Car spaces provided	**900**	**96**

APPENDIX B: FLOOD RISK ASSESSMENT

B

N

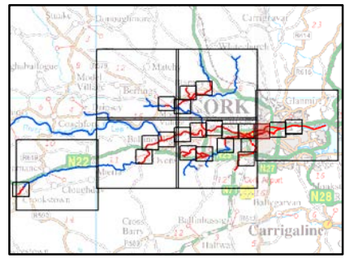
8LEE_2859
8LEE_3099
8LEE_3288
8LEE_3479
8LEE_3719
8LEE_3912
8LEE_4104
8LEE_4291
8LEE_4491
8SOU_1297
8SOU_1588
8SOU_1807
8SOU_1977
8SOU_2253
8SOU_2516
8SOU_2705
8SOU_2871
8SOU_2997

Tidal flooding may also occur within the area shown on this map. Please refer to the tidal flood extent map. Figure No. M9/UA/EXT/CURS/003

0.1 0.05 0 0.1 0.2 0.3 0.4 Kilometres

	Water Level (mOD) per AEP		
Node Label	WL 10%	WL 1%	WL 0.1%
8LEE_4491	3.64	4.20	4.73
8LEE_4291	3.60	4.17	4.70
8LEE_4104	3.44	4.09	4.63
8LEE_3912	2.66	3.72	4.37
8LEE_3719	2.57	3.59	4.20
8LEE_3479	2.57	3.61	4.22
8LEE_3288	2.40	3.45	4.00
8LEE_3099	2.25	3.30	3.84
8LEE_2859	2.11	3.10	3.50
8SOU_2997	3.88	4.51	5.04
8SOU_2871	3.80	4.41	4.94
8SOU_2705	3.43	4.04	4.61
8SOU_2516	3.31	3.99	4.59
8SOU_2253	2.96	3.70	4.31
8SOU_1977	2.80	3.61	4.24
8SOU_1807	2.63	3.43	4.07
8SOU_1588	2.48	3.26	3.79
8SOU_1297	2.22	3.05	3.50

Location Plan :



EXTENT MAP

Legend:

- 10 % AEP Flood Extent (1 in 10 chance in any given year)
- 1 % AEP Flood Extent (1 in 100 chance in any given year)
- 0.1 % AEP Flood Extent (1 in 1000 chance in any given year)
- Defended area
- High Confidence (<20m) (10% AEP)
- Medium Confidence (<40m) (10% AEP)
- Low Confidence (>40m) (10% and 0.1% AEP)
- High Confidence (<20m) (1% AEP)
- Medium Confidence (<40m) (1% AEP)
- Low Confidence (>40m) (1% AEP)
- River Centreline
- Node Point
- BOWG_376 Node Label (refer to table)

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OPW
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Dublin 2
Ireland

Project :
LEE CATCHMENT FLOOD RISK ASSESSMENT AND MANAGEMENT STUDY

Map :
CORK CITY

Map Type :	FLOOD EXTENT		
Source :	FLUVIAL FLOODING		
Map area :	URBAN AREA		
Scenario :	CURRENT		
Figure By :	Valeria Medina	Date :	10 March 2014
Checked By :	Ricardo Santaella	Date :	10 March 2014
Approved By :	Clare Dewar	Date :	10 March 2014

Figure No. : M8/UA/EXT/CURS/010
Revision : 2

Drawing Scale : 1:5,000
Plot Scale : 1:1 @ A3

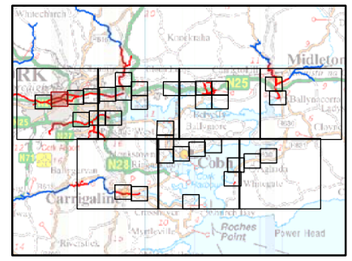
N

8LEE_4491
8LEE_4291
8LEE_4104
8LEE_3912
8LEE_3719
8LEE_3479
8LEE_3288
8LEE_3099
8LEE_2859
8SOU_1807
8SOU_1588
8SOU_1977
8SOU_1297
8SOU_2253
8SOU_2516
8SOU_2705
8SOU_2871

Fluvial flooding may also occur within the area shown on this map. Please refer to the fluvial flood extent map. Figure No. M8/UA/EXT/CURS/010

0.1 0.05 0 0.1 0.2 0.3 0.4
Kilometres

Location Plan :



EXTENT MAP

Legend:

- 10 % AEP Flood Extent (1 in 10 chance in any given year)
- 0.5 % AEP Flood Extent (1 in 200 chance in any given year)
- 0.1 % AEP Flood Extent (1 in 1000 chance in any given year)
- Defended area
- High Confidence (<20m) (10% AEP)
- Medium Confidence (<40m) (10% AEP)
- Low Confidence (> 40m) (10% and 0.1% AEP)
- High Confidence (<20m) (0.5% AEP)
- Medium Confidence (<40m) (0.5% AEP)
- Low Confidence (>40m) (0.5% AEP)
- River Centreline
- Node Point
- 001 Node Label (refer to table)

USER NOTE :

USERS OF THESE MAPS SHOULD REFER TO THE DETAILED DESCRIPTION OF THEIR DERIVATION, LIMITATIONS IN ACCURACY AND GUIDANCE AND CONDITIONS OF USE PROVIDED AT THE FRONT OF THIS BOUND VOLUME. IF THIS MAP DOES NOT FORM PART OF A BOUND VOLUME, IT SHOULD NOT BE USED FOR ANY PURPOSE.

Node Label	Water Level (mOD) per AEP		
	WL 10%	WL 0.5%	WL 0.1%
8LEE_4491	3.07	3.97	4.27
8LEE_4291	3.05	3.94	4.25
8LEE_4104	2.98	3.87	4.19
8LEE_3912	2.84	3.59	3.94
8LEE_3719	2.82	3.52	3.84
8LEE_3479	2.82	3.53	3.85
8LEE_3288	2.78	3.43	3.74
8LEE_3099	2.75	3.34	3.64
8LEE_2859	2.72	3.21	3.45
8SOU_2871	3.33	4.05	4.43
8SOU_2705	3.17	3.79	4.15
8SOU_2516	3.11	3.74	4.12
8SOU_2253	2.97	3.54	3.91
8SOU_1977	2.92	3.48	3.86
8SOU_1807	2.86	3.36	3.73
8SOU_1588	2.81	3.27	3.58
8SOU_1297	2.75	3.15	3.43

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Project :
LEE CATCHMENT FLOOD RISK ASSESSMENT AND MANAGEMENT STUDY

Map :
CORK CITY

Map Type :	FLOOD EXTENT		
Source :	TIDAL FLOODING		
Map area :	URBAN AREA		
Scenario :	CURRENT		
Figure By :	Valeria Medina	Date :	10 March 2014
Checked By :	Ricardo Santaella	Date :	10 March 2014
Approved By :	Clare Dewar	Date :	10 March 2014

Figure No. : M9/UA/EXT/CURS/003
Revision : 2

Drawing Scale : 1:5,000
Plot Scale : 1:1 @ A3

Active Layers Add Layer

Layers

Tools

Info

Coastal Flood Extents – Present Day Off

PDF Maps (Printable)

Past Flood Events

River Flood Extents – Mid-Range Future Scenario

Off River - Low Probability

Legend: Layer Queryable: No

On River - Medium Probability

Legend: Layer Queryable: No

Off River - High Probability

Legend: Layer Queryable: No

Flood Map for fluvial with Climate Change (Mid-Range Future Scenario)

Saint Mary's Hospital

Castle (Site Of)

N20

R847

Castle

R854

N8

R846

Cork

N22

N22

N27

R851

R610

R608

U.C.C.

200 m

Flood Maps

Layers

Tools

Info

Active Layers

Add Layer

Off River - Medium Probability

Legend: Layer Queryable: No

Off River - High Probability

Legend: Layer Queryable: No

Coastal Flood Extents – Mid-Range Future Scenario

Off Coastal - Low Probability

Legend: Layer Queryable: No

On Coastal - Medium Probability

Legend: Layer Queryable: No

Flood Map for tidal with Climate Change (Mid-Range Future Scenario)

Saint Mary's Hospital

Castle (Site Of)

N20

R847

Castle

R854

N8

R846

N22

R608

Cork

R848

Castle

N22

N27

UCC

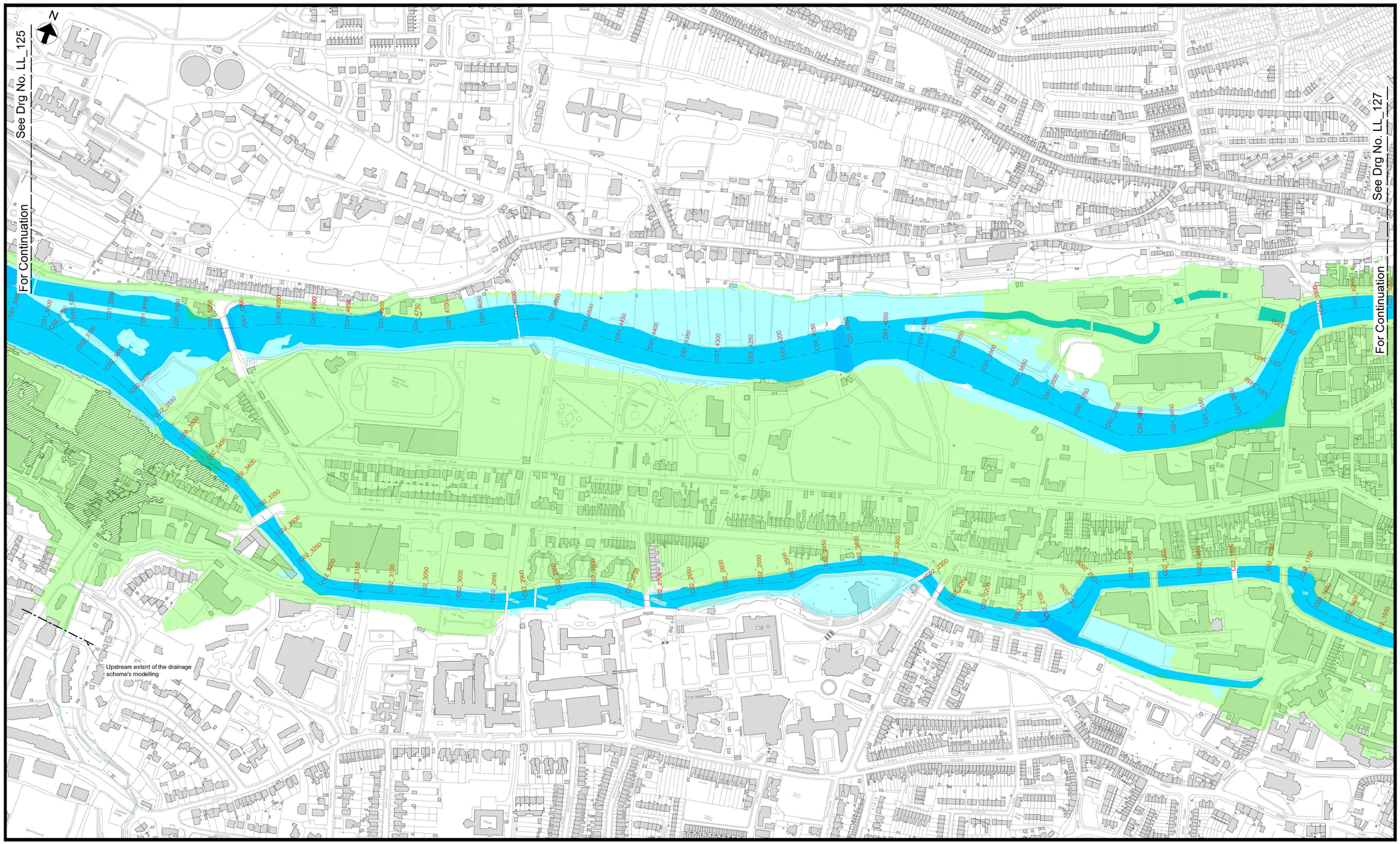
R851

R610

R608

200 m

i − +



Location Plan

0 25 50 100 Metres

Legend:

- 1% AEP Fluvial (River Lee) / 0.5% AEP Tidal Flood Extent (1 in 100 year fluvial / 1 in 200 year tidal flood extent)
- Benefitting Lands (Defended against River Lee events up to the 1% AEP Fluvial / 0.5% AEP Tidal)
- Lands defended against River Lee events up to the 1% AEP Fluvial / 0.5% AEP Tidal, but retaining a residual risk of flooding from extreme Curragheen flood events
- Watercourse
- C01_C50 — Channel Centreline Reference (C01) and Chainage (1250)

Scale 1:2,500 at A1
Scale 1:5,000 at A3

Drg. No. LL_126 Flood Extents and Benefitting Areas (Sheet 7 of 9)

Notes:
1. Do not scale from drawing.
2. The channels on this drawing have been assigned colours for the purpose of assigning identification labels and interference references.
3. This drawing should be read in conjunction with all other Lower Lee (Cork City) Drainage Scheme Exhibition Drawings and Schedules.

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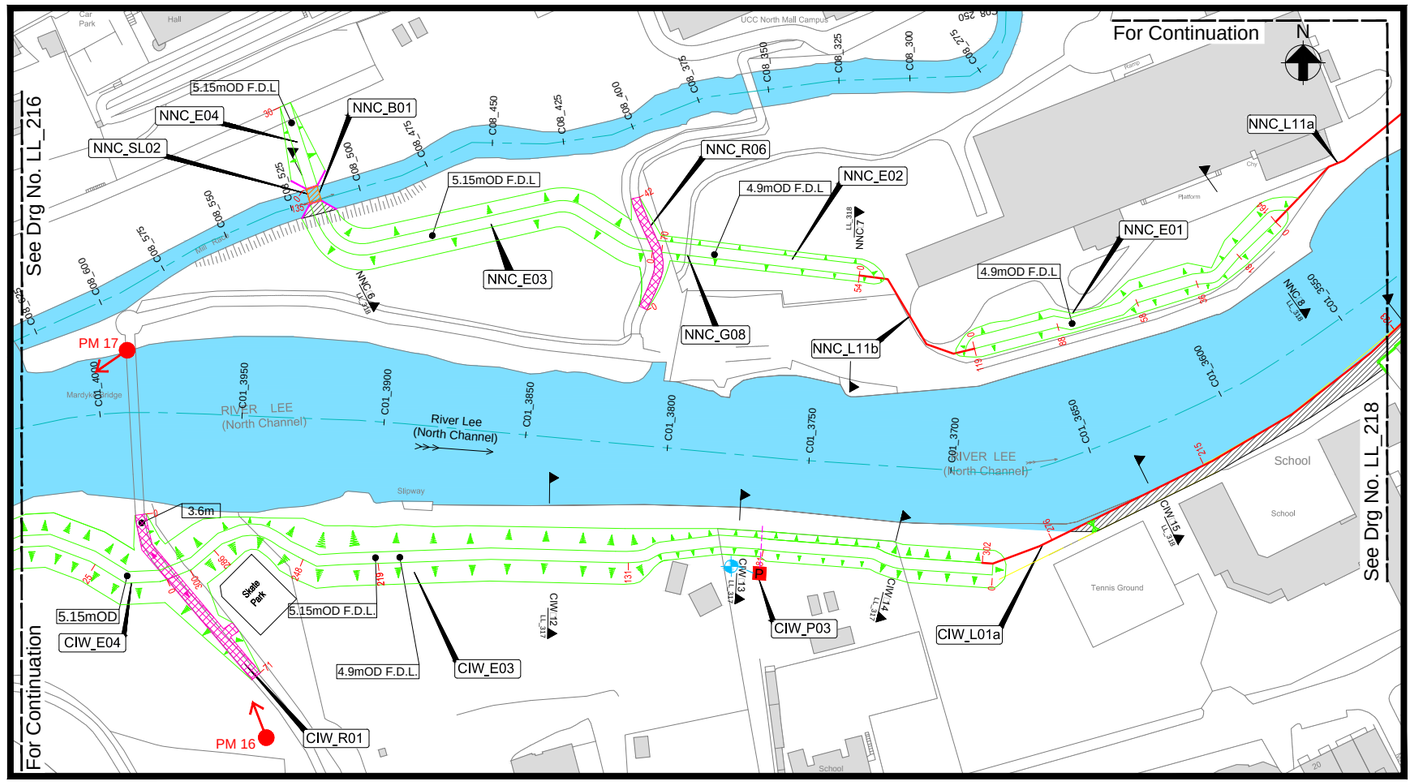
Lower Lee (Cork City) Drainage Scheme

Issued for Exhibition December 2016



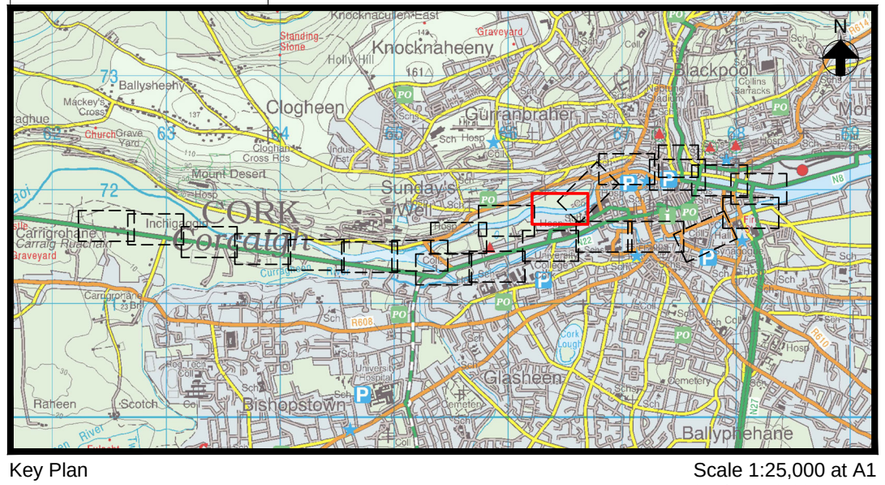
Location Plan

0 5 10 20 50 Metres

Scale 1:1,000 at A1
Scale 1:2,000 at A3

Notes:

1. Do not scale from drawing.
2. Proposed works geometry and extents are subject to detailed design.
3. This drawing should be read in conjunction with all other Lower Lee (Cork City) Drainage Scheme Exhibition Drawings and Schedules.



Key Plan

Scale 1:25,000 at A1
Scale 1:50,000 at A3

Key to Plan

- Watercourse
- C01_300 — Channel centreline, reference (C01) and chainage (300m)
- PM 01 — Photomontage (Location, Orientation and No.)
- CELL_B01 — Interference reference.
- CELL.1 / LL_301 — Location and reference of cross section
- −50 — Proposed works chainage (m)
- Flood defence wall
- Proposed flood defence embankment
- Proposed regrading of ground levels
- Land to be reclaimed
- Proposed bridge
- P — Proposed pumping station (surface water)
- Proposed manhole (surface water)
- Proposed drain (surface water)
- Proposed rising main (surface water)

Interference Reference	Scheme Element Chainage (m) (DS-US)	Channel Chainage (m)	General Description of New Works
NNC_L11a	0 to 164	C01_3355 to C01_3550	Proposed reinforced concrete flood defence wall to be constructed on the eastern side of the existing road to flood defence level of 4.60mOD, between 0.15m to 1.1m above existing ground levels. Palisade fencing to be installed on the proposed wall to 2.1m above existing ground level (1m to 1.95m of railing) to tie in with existing palisade fencing. All drainage outfalls to be fitted with non□return valves.
NNC_E01	0 to 18	C01_3550 to C01_3565	Proposed flood defence embankment to flood defence level of 4.9mOD, typically 1.0m to 1.3m above existing ground levels. Crest width to be 4m with 1 in 3 side slopes. All drainage outfalls to be fitted with non□return valves.
NNC_E01	18 to 36	C01_3565 to C01_3583	Proposed flood defence embankment to flood defence level of 4.9mOD, typically 1.3m to 1.4m above existing ground levels. Crest width to be 4m with 1 in 2 side slopes. All drainage outfalls to be fitted with non□return valves.
NNC_E01	36 to 58	C01_3583 to C01_3610	Proposed flood defence embankment to flood defence level of 4.9mOD, typically 1.3m to 1.5m above existing ground levels. Crest width to be 4m with 1 in 3 side slopes. All drainage outfalls to be fitted with non□return valves.
NNC_E01	58 to 88	C01_3610 to C01_3647	Proposed flood defence embankment to flood defence level of 4.9mOD, typically 1.1m to 1.2m above existing ground levels. Crest width to be 4m with 1 in 1 side slopes. All drainage outfalls to be fitted with non□return valves.
NNC_E01	88 to 119	C01_3647 to C01_3680	Proposed flood defence embankment to flood defence level of 4.9mOD, typically 1.0m above existing ground levels. Crest width to be 4m with 1 in 3 side slopes. All drainage outfalls to be fitted with non□return valves.
NNC_L11b	0 to 54	C01_3680 to C01_3742	Proposed reinforced concrete flood defence wall to flood defence level of 4.7mOD, typically 0.7m above existing ground levels. Palisade fencing is to be installed on the proposed parapet to 2.1m above existing ground level (1.4m of railing). All drainage outfalls to be fitted with non□return valves.
NNC_E02	0 to 70	C01_3742 to C01_3812	Proposed flood defence embankment to flood defence level of 4.9mOD, typically 0.7m to 0.8m above existing ground levels. Crest width to be 4m with 1 in 3 side slopes. All drainage outfalls to be fitted with non□return valves.
NNC_G08	□	C01_3810	Existing track to be extinguished
NNC_R06	0 to 42	C01_3812 to C01_3815	Existing pedestrian footpath to be re□graded to tie in with the proposed embankment crest at 4.9mOD. Regrading to have a maximum gradient of 1 in 20 with landings provided as required.
NNC_E03	0 to 135	C01_3812 to C01_3925	Proposed flood defence embankment to flood defence level of 5.15mOD, typically 0.8m above existing ground levels. Crest width to be 4m with 1 in 3 side slopes. Embankment to tie into the proposed penstock structure at the western end. All drainage outfalls to be fitted with non□return valves.
NNC_SL02	□	C08_516	Proposed headwall and penstock to prevent flow entering the channel during flood events. Penstock will normally be in the open position and closed to prevent flooding due to high water levels in the River Lee.
NNC_□01	□	C08_516	Proposed reinforced concrete footbridge to flood defence level of 5.15mOD. □ridge to tie into the proposed embankments at both sides of the River Lee Distillery □ranch. The bridge will provide access to the proposed penstock.
NNC_E04	0 to 30	C08_516	Proposed flood defence embankment to flood defence level of 5.15mOD, typically 1.5m to 2.8m above existing ground levels. Crest width to be 4m with 1 in 3 side slopes. Embankment to tie into existing ground level at northern extent and the proposed penstock structure at the southern extent. All drainage outfalls to be fitted with non□return valves.
CIW_L01a	0 to 133	C01_3537 to C01_3616	Proposed sheet pile flood defence wall to be constructed in channel to flood defence level of 4.65mOD on the wet side of the existing boundary wall, typically 1.5m above existing ground levels. All drainage outfalls to be fitted with non□return valves.
CIW_L01a	133 to 302	C01_3616 to C01_3688	Proposed sheet pile flood defence wall to be constructed in channel to flood defence level of 4.70mOD on the wet side of the existing boundary wall, typically 1.5m above existing ground levels. Flood wall to tie into proposed flood defence embankment at western end. All drainage outfalls to be fitted with non□return valves.
CIW_E03	0 to 81	C01_3684 to C01_3763	Proposed flood defence embankment to flood defence level of 4.90mOD, typically 1 to 1.5m above existing ground levels. Crest width to be 4m with 1 in 3 side slopes. Embankment to tie into sheet pile flood defence wall at eastern end. All drainage outfalls to be fitted with non□return valves.
CIW_E03	81 to 131	C01_3763 to C01_3810	Proposed flood defence embankment to flood defence level of 4.90mOD, typically 2.5m above existing ground levels. Crest width to be 4m with 1 in 1 side slopes. All drainage outfalls to be fitted with non□return valves.
CIW_P03	□	C01_3770	Proposed surface water pumping station and rising main to operate during a flood event. All outlets to be fitted with non□return valves.
CIW_E03	131 to 219	C01_3810 to C01_3900	Proposed flood defence embankment to flood defence level of 4.90mOD, typically 2.5m above existing ground levels. Crest width to be 4m with 1 in 3 side slopes. All drainage outfalls to be fitted with non□return valves.
CIW_E03	219 to 300	C01_3900 to C01_3966	Proposed flood defence embankment to flood defence level of 5.15mOD, typically 2.65m above existing ground levels. Crest width to be 4m with 1 in 3 side slopes. All drainage outfalls to be fitted with non□return valves.
CIW_R01	0 to 71	C01_3980 to C01_4000	Existing pedestrian access to be re□graded to achieve a crest level at flood defence level of 5.15mOD. Regrading to be at a maximum gradient of 1 in 20 with landings provided as required.
CIW_E04	0 to 103	C01_3980 to C01_4110	Proposed flood defence embankment to flood defence level of 5.15mOD, typically 2.5m above existing ground levels. Crest width to be 4m with 1 in 3 side slopes. Embankment to tie into proposed pedestrian access at eastern end and proposed sheet pile flood defence wall at western end. All drainage outfalls to be fitted with non□return valves.

Drg. No. LL_217 Proposed Flood Defences □Plan Layout (Sheet 17 of 30)

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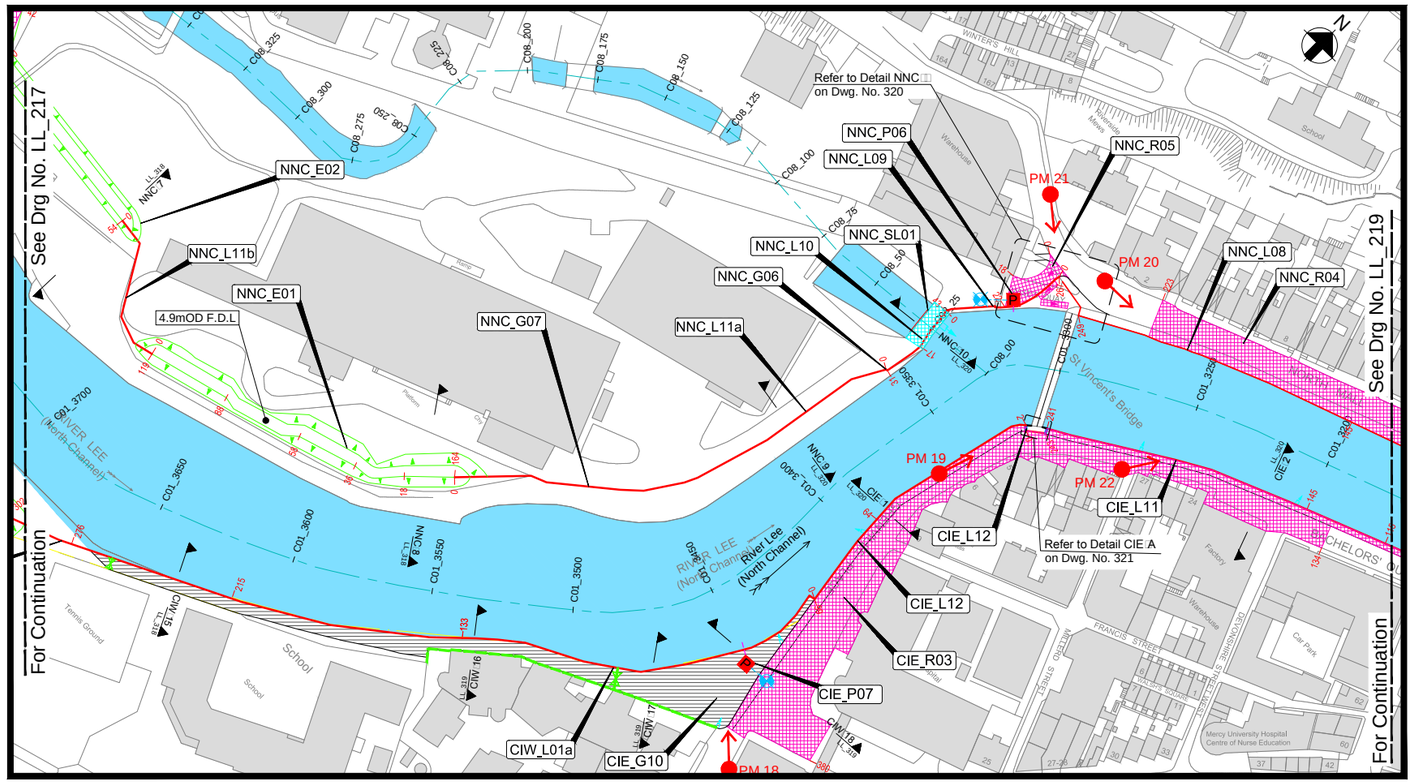
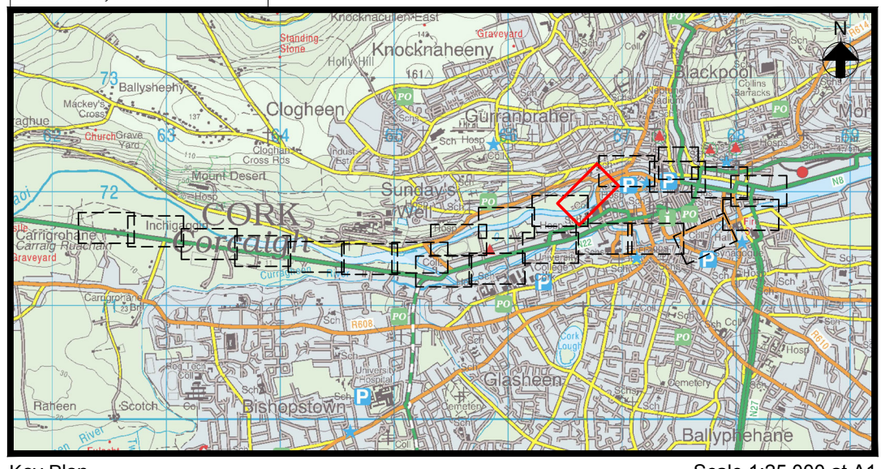


Location Plan

Scale 1:1,000 at A1
Scale 1:2,000 at A3

Notes:

1. Do not scale from drawing.
2. Proposed works geometry and extents are subject to detailed design.
3. This drawing should be read in conjunction with all other Lower Lee (Cork City) Drainage Scheme Exhibition Drawings and Schedules.



Key Plan

Scale 1:25,000 at A1
Scale 1:50,000 at A3

Key to Plan

- Watercourse
- C01_300 — Channel centreline, reference (C01) and chainage (300m)
- PM 01 — Photomontage (Location, Orientation and No.)
- CELL_B01 — Interference reference.
- CELL.1 / LL_301 — Location and reference of cross section
- −50 — Proposed works chainage (m)
- Flood defence wall
- Demountable flood defence (type varies)
- Proposed flood defence embankment
- Proposed regrading of ground levels
- Existing surcharged bridge □culvert
- Land to be reclaimed
- Proposed security fence and gate
- P — Proposed pumping station (surface water)
- Proposed manhole (surface Water)
- Proposed drain (surface Water)
- Proposed rising main (surface water)

Interference Reference	Scheme Element Chainage (m) (DS-US)	Channel Chainage (m)	General Description of New Works
NNC_L08	145 to 249	C01_3200 to C01_3298	The existing railing is to be demolished and replaced with a new reinforced concrete flood defence parapet to flood defence level of 4.5mOD (typically 1.2m above existing ground level). The existing river wall and foundation □ones are to be grouted. The granular soil backing □one is to be grouted. The face of the existing wall is to be cleaned and repointed and the stonework repaired where necessary. All outlets to be fitted with non□return valves.
NNC_R04	0 to 223	C01_3055 to C01_3275	Road and footpath to be regraded to reduce the relative height of proposed flood defence wall.
NNC_L08	249 to 267	C01_3298 to C01_3308	Proposed reinforced concrete flood defence wall to flood defence level of 4.60mOD, typically 1.2m above existing ground levels. Wall to tie into the proposed regraded ground levels at the western end. All drainage outfalls to be fitted with non□return valves.
NNC_R05	0 to 42	C01_3304 to C01_3310	Proposed re□alignment and re□grading of Wise's Quay. Regrading to tie into existing road level at North Mall and at the western end. Pedestrian access from St. Vincent's □ridge to be regraded to achieve a crest level at flood defence level of 4.60mOD. Ramped and stairs access to be provided.
NNC_P06	□	C01_3310	Proposed surface water pumping station and rising main to operate during a flood event. All outlets to be fitted with non□return valves.
NNC_L09	0 to 43	C01_3308 to C01_3320	Proposed reinforced concrete flood defence wall to flood defence level of 4.60mOD, typically 1.2m to 1.5m above proposed ground levels. The existing river wall and foundation □ones are to be grouted. The granular soil backing □one is to be grouted. The face of the existing wall is to be cleaned and repointed and the stonework repaired where necessary. The wall will tie into the proposed ground levels at the western end. All drainage outfalls to be fitted with non□return valves.
NNC_SL01	□	C01_3320	Proposed penstock to be placed on upstream face of the existing bridge. Remedial works to the existing bridge as required to ensure masonry arches have capacity to resist potential uplift.
NNC_L10	0 to 17	C01_3320 to C01_3335	Proposed reinforced concrete flood defence wall to be constructed on the existing bridge to flood defence level of 4.60mOD, typically 1.2m above existing ground levels. The proposed wall will be offset from the existing parapet and will be constructed at the western edge of the existing pedestrian walkway.
NNC_L10	17 to 31	C01_3335 to C01_3353	Proposed reinforced concrete flood defence wall to flood defence level of 4.60mOD, typically 1.2m above existing ground levels. The existing river wall and foundation □ones are to be grouted. The granular soil backing □one is to be grouted. The face of the existing wall is to be cleaned and repointed and the stonework repaired where necessary. All drainage outfalls to be fitted with non□return valves.
NNC_G06	□	C01_3348 to C01_3353	Existing gated access to be extinguished.
NNC_G07	□	C01_3497 to C01_3500	Existing gated access to be extinguished.
NNC_L11a	0 to 164	C01_3355 to C01_3550	Proposed reinforced concrete flood defence wall to be constructed on the eastern side of the existing road to flood defence level of 4.60mOD, between 0.15m to 1.1m above existing ground levels. Palisade fencing to be installed on the proposed wall to 2.1m above existing ground level to tie in with existing palisade fencing, typically 1.0m to 1.95m of railing. All drainage outfalls to be fitted with non□return valves.
NNC_E01	0 to 18	C01_3550 to C01_3565	Proposed flood defence embankment to flood defence level of 4.9mOD, typically 1.0m to 1.3m above existing ground levels. Crest width to be 4m with 1 in 3 side slopes. All drainage outfalls to be fitted with non□return valves.
NNC_E01	18 to 36	C01_3565 to C01_3583	Proposed flood defence embankment to flood defence level of 4.9mOD, typically 1.3m to 1.4m above existing ground levels. Crest width to be 4m with 1 in 2 side slopes. All drainage outfalls to be fitted with non□return valves.
NNC_E01	36 to 58	C01_3583 to C01_3610	Proposed flood defence embankment to flood defence level of 4.9mOD, typically 1.3m to 1.5m above existing ground levels. Crest width to be 4m with 1 in 3 side slopes. All drainage outfalls to be fitted with non□return valves.
NNC_E01	58 to 88	C01_3610 to C01_3647	Proposed flood defence embankment to flood defence level of 4.9mOD, typically 1.1m to 1.2m above existing ground levels. Crest width to be 4m with 1 in 1 side slopes. All drainage outfalls to be fitted with non□return valves.
NNC_E01	88 to 119	C01_3647 to C01_3680	Proposed flood defence embankment to flood defence level of 4.9mOD, typically 1.0m above existing ground levels. Crest width to be 4m with 1 in 3 side slopes. All drainage outfalls to be fitted with non□return valves.
NNC_L11b	0 to 54	C01_3680 to C01_3742	Proposed reinforced concrete flood defence wall to flood defence level of 4.7mOD, typically 0.7m above existing ground levels. Palisade fencing is to be installed on the proposed parapet to 2.1m above existing ground level (1.4m of railing). All drainage outfalls to be fitted with non□return valves.
NNC_E02	0 to 70	C01_3742 to C01_3812	Proposed flood defence embankment to flood defence level of 4.9mOD, typically 0.7m to 0.8m above existing ground levels. Crest width to be 4m with 1 in 3 side slopes. All drainage outfalls to be fitted with non□return valves.
CIE_L11	145 to 241	C01_3179 to C01_3300	The existing stone parapet is to be removed, salvaged and replaced with a new reinforced concrete parapet wall to flood defence level of 4.4mOD, 1.2m above proposed ground levels. The existing river wall and foundation □ones are to be grouted. Possible additional strengthening works may include the incorporation of micro□piles. The face of the existing wall is to be cleaned and repointed and the stonework repaired where necessary. All drainage outfalls to be fitted with non□return valves.
CIE_L11	241 to 243	C01_3300	Proposed flood gate to be fitted to flood defence wall. Top of gate to be at flood defence level of 4.50mOD.
CIE_R03	0 to 380	C01_3200 to 3470	Road to be regraded to reduce the relative height of proposed flood defence wall. New footpath to be provided adjacent to quay wall.
CIE_L12	0 to 2	C01_3307 to C01_3310	Proposed flood defence gate to be fitted to flood defence wall. Top of gate to be at flood defence level of 4.50mOD.
CIE_L12	2 to 64	C01_3310 to C01_3395	The existing stone parapet is to be removed, salvaged and replaced with a new reinforced concrete parapet wall to flood defence level of 4.50mOD, 1.2m above existing ground level. The existing soil backing □one, river wall □one and foundation □one to be grouted. All outlets to be fitted with non□return valves.
CIE_L12	64 to 99	C01_3395 to C01_3435	The existing stone parapet is to be removed, salvaged and replaced with a new reinforced concrete parapet wall to flood defence level of 4.65mOD, typically 1.2m above existing ground levels. The existing soil backing □one, river wall □one and foundation □one to be grouted. All outlets to be fitted with non□return valves.
CIE_P07	□	C01_3450	Proposed surface water pumping station and rising main to operate during a flood event. All outlets to be fitted with non□return valves.
CIE_G10	□	C01_3450	Proposed public pla□a to be constructed on reclaimed land.
CIW_L11	0 to 133	C01_3425 to C01_3616	Proposed sheet pile flood defence wall to be constructed in channel to flood defence level of 4.65mOD, typically 1.5m above existing ground levels. All drainage outfalls to be fitted with non□return valves.
CIW_L11	133 to 302	C01_3616 to C01_3688	Proposed sheet pile flood defence wall to be constructed in channel to flood defence level of 4.70mOD, typically 1.5m above existing ground levels. Flood wall to tie into proposed flood defence embankment at western end. All drainage outfalls to be fitted with non□return valves.

Drg. No. LL_218 Proposed Flood Defences □Plan Layout (Sheet 18 of 30)

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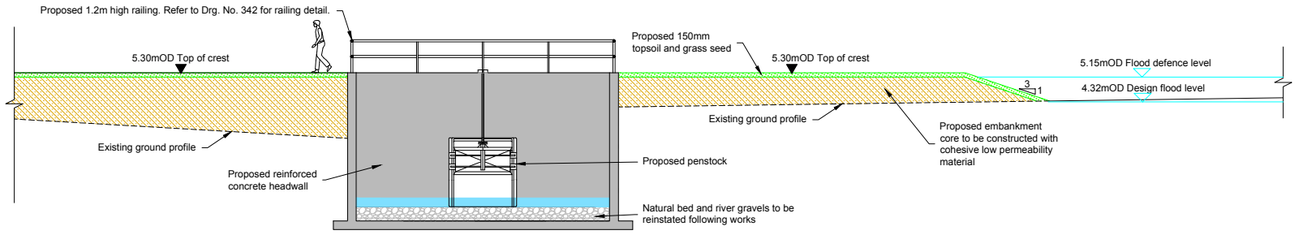
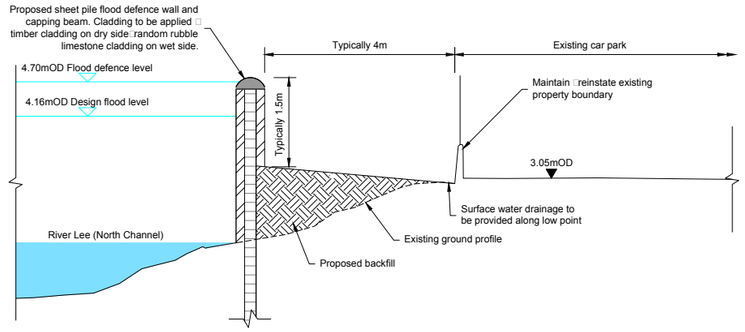


Section NNC 6

(Distillery Fields Drg. No. LL_217)

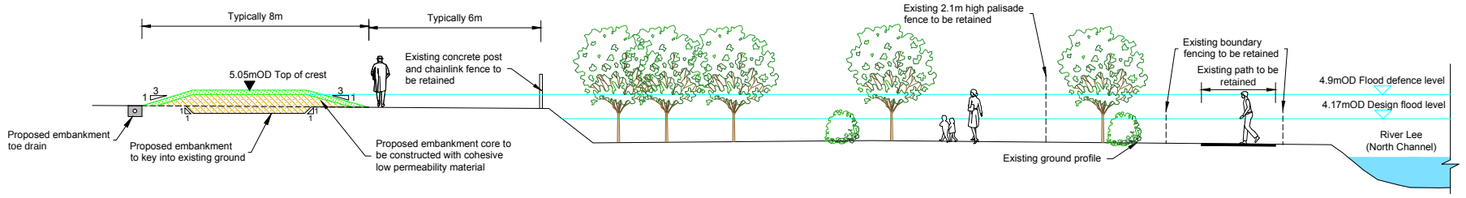
Scale 1:100 A1, 1:200 A3



Section CIW 15

(P S Drg. No. LL_217)

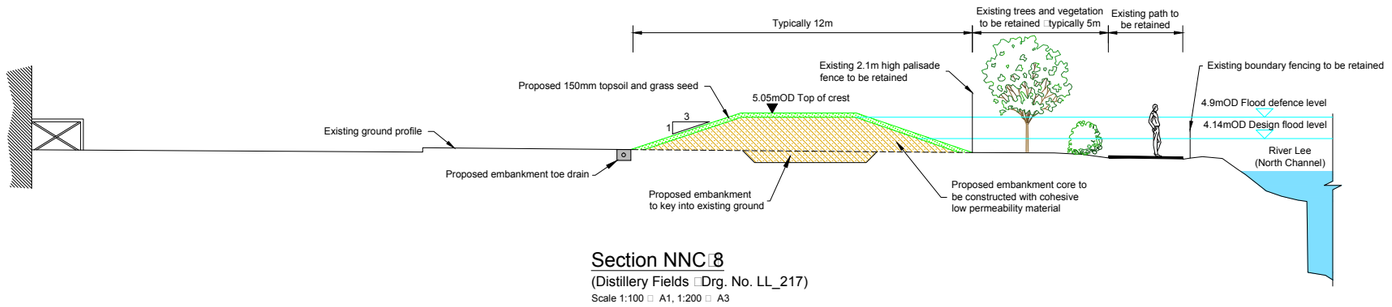
Scale 1:50 A1, 1:100 A3



Section NNC 7

(Distillery Fields Drg. No. LL_217)

Scale 1:100 A1, 1:200 A3



Section NNC 8

(Distillery Fields Drg. No. LL_217)

Scale 1:100 A1, 1:200 A3

Notes:

1. Do not scale from drawing.
2. Proposed works geometry and extents are subject to detailed design.
3. This drawing should be read in conjunction with all other Lower Lee (Cork City) Drainage Scheme Exhibition Drawings and Schedules.

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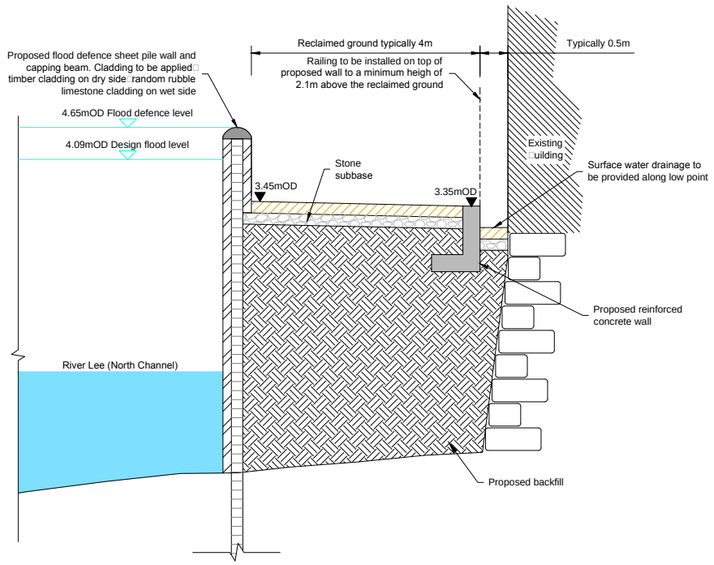
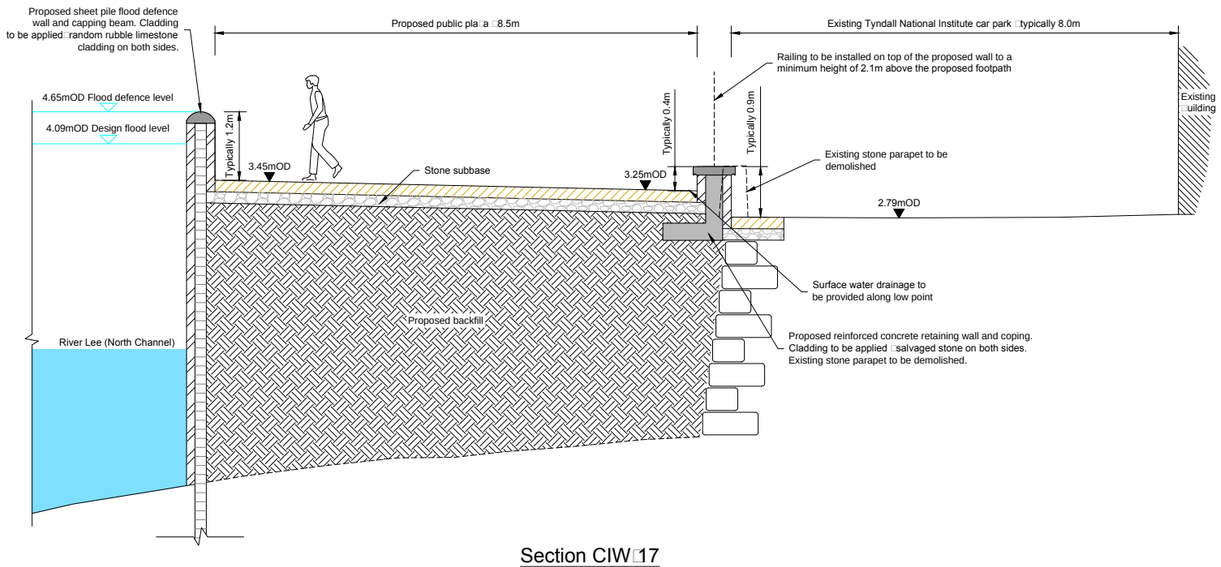


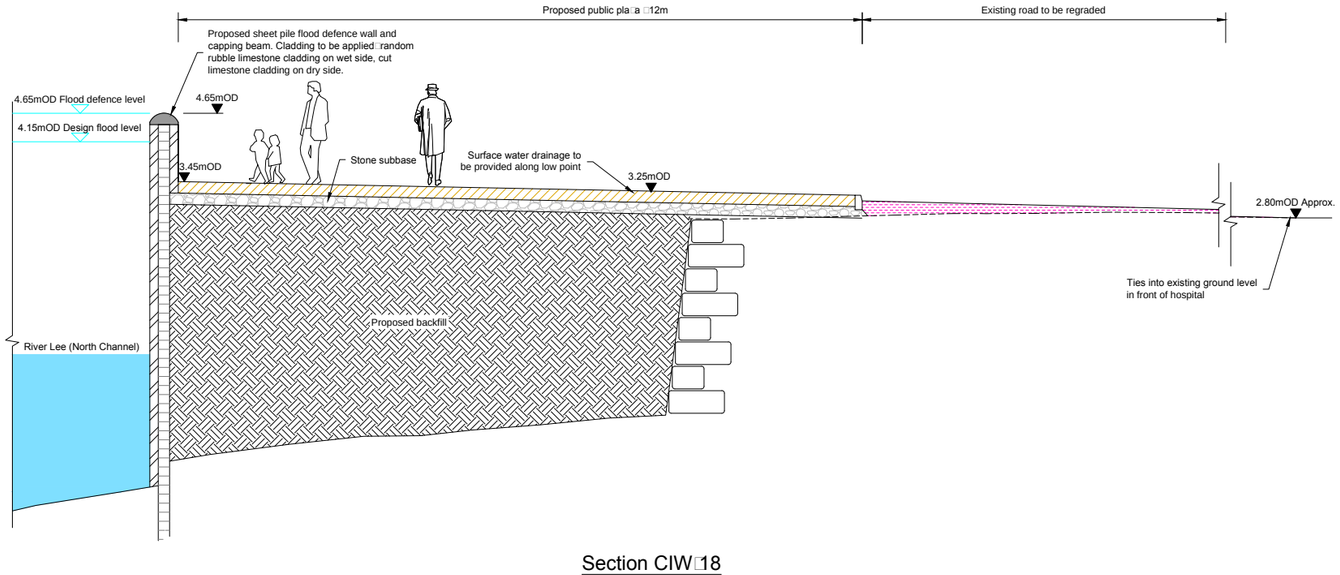
Section CIW 16

(Tyndall National Insitute Drg. No. LL_218)
Scale 1:50 A1, 1:100 A3



Section CIW 17

(Tyndall National Insitute Drg. No. LL_218)
Scale 1:50 A1, 1:100 A3



Section CIW 18

(Grenville Place Drg. No. LL_218)
Scale 1:50 A1, 1:100 A3

Notes:

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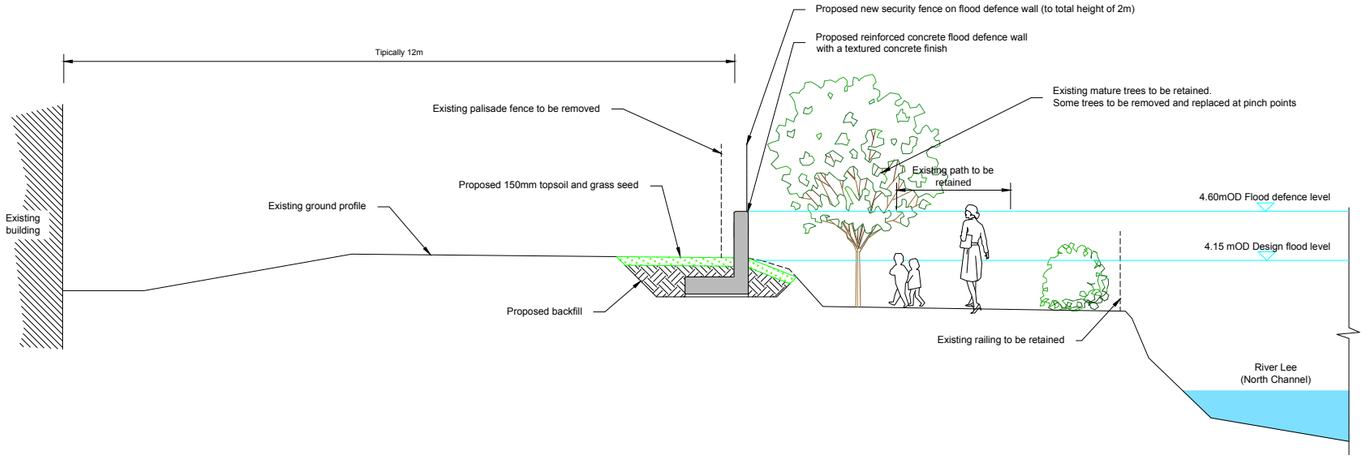
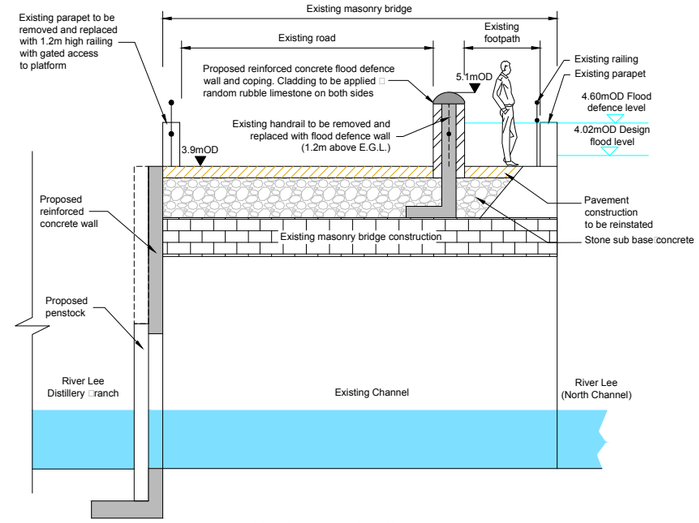


Section NNC 9

(Distillery Fields East Drg. No. LL_218)

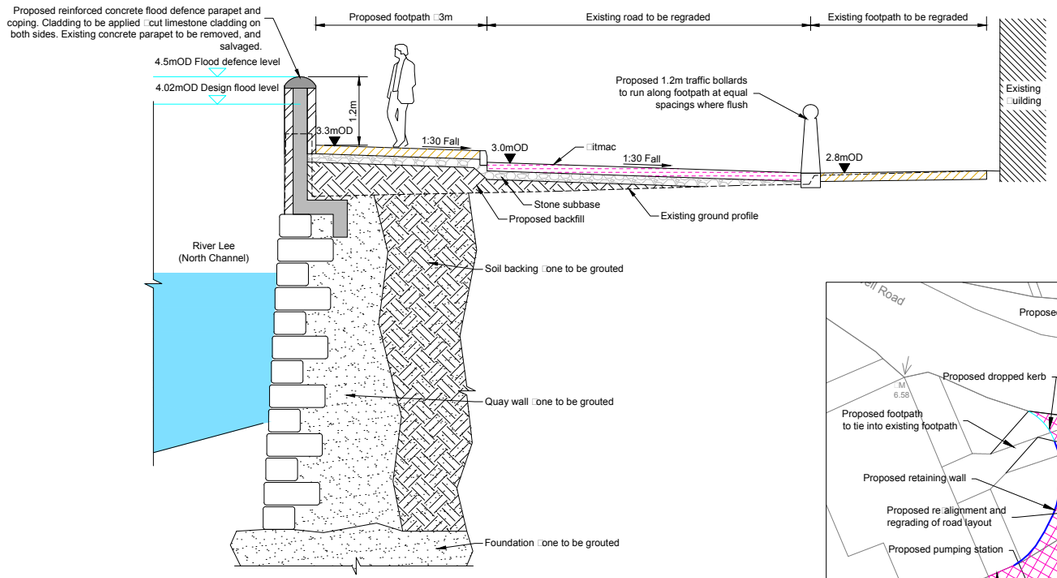
Scale 1:50 A1, 1:100 A3



Section NNC 10

(Distillery Fields East Drg. No. LL_218)

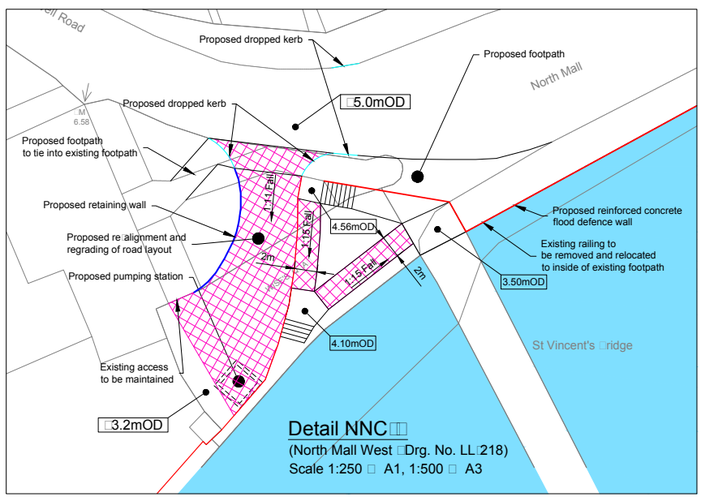
Scale 1:50 A1, 1:100 A3



Section CIE 1

(Grenville Place Drg. No. LL_218)

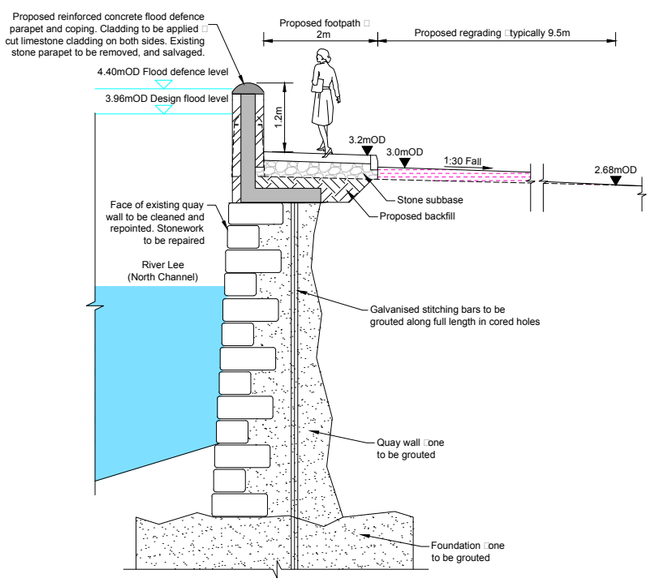
Scale 1:50 A1, 1:100 A3



Detail NNC

(North Mall West Drg. No. LL 218)

Scale 1:250 A1, 1:500 A3



Section CIE 2

(achelor's Quay West Drg. No. LL_218)

Scale 1:50 A1, 1:100 A3

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APPENDIX C: ECOLOGICAL CONSTRAINTS REPORT

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