Part 8 Submission

INCHICORE LIBRARY

Access & Refurbishment Works

34 Emmet Road, Dublin 8

Appendix B

Civil-Structural Engineering Report & Drawings

171165
Proposed Extension at Inchicore Library
Emmet Road,
Dublin 8
Drainage and Water Services
Part VIII Summary Report

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1.0 Introduction

The following report is a summary of the drainage and water services proposals for the proposed extension and refurbishment at Inchicore Library at Emmet Road in Dublin 8 in advance of a Part VIII Planning Submission for the project. The layout of the proposed scheme is detailed in the series of planning drawings by Walsh Architects.

2.0 Site Layout and Location

2.1 Site Location

The site of the proposed development is identified in Figure 1 below.

Figure 1 – Site location

3.0Surface Water Drainage

The existing and proposed surface water drainage layouts are indicated on EirEng Consulting Engineers drawing 171165- C001 Revision PL2.

3.1 Existing Drainage

There is a combined sewer which runs around the perimeter of the building and connects to a public sewer in Emmet Road. The existing drains are at a shallow depth and are blocked at several locations. The outfall manhole is located at the northwest corner of the site.

3.2 Proposed Drainage

It is proposed to grub up the existing drains at the set and construct new separate surface and foul water drain as show. A series of backdrop manholes will be required due to the sharp changes in level at the site. Run-off will be limited as much as possible by the use of a green roof and filter drains where possible.

3.3 Sustainable Urban Drainage Systems and Attenuation

The following SUDS measures are proposed at the site in accordance with the GDSDS:

- Green Roofs
- Gravel surfaces around the building perimeter, where possible
- Filter drains
- Permeable paving where possible to new paths. (That is, the use of open jointed paving where safe to do so.)

4.0 Foul Water Drainage

The existing and proposed surface water drainage layouts are indicated on EirEng Consulting Engineers drawings 171165 C001 PL2.

4.1 Existing Drainage

As noted there are existing combined drains within the site. These are in poor condition.

4.2 Proposed Drainage

It is proposed to collect waste water from the staff and public toilets in the library in a separate foul sewer before connecting to the existing outfall manhole at the northwest corner of the site.

The estimated peak rate of waste water discharge from the development is 2.3l/s. This has been calculated using the IS EN 752 Discharge Unit method. This would be the peak outflow at busy times. Average discharge is likely to be significantly less.

5.0 Water Supply

There are existing public mains on both sides of Emmet Road and an existing connection to the site from these. Refer to the Irish Water map included in the Appendices.

5.1 Water Demand

Water demand for a building of this type and size of building is likely to be of the order of 3000 litres per day.

5.2 Fire Hydrants

There are existing hydrants on the public mains in Emmet Road. A new hydrant may be required to ensure the rear of the proposed extension is no more than 46m from a hydrant as required by the Building Regulations. This should be confirmed during the Fire Safety Certification process.

6.0 Flood Risk

6.1 Introduction

A flood risk assessment has been undertaken in accordance with the flood risk management guidelines published by the OPW and Strategic Flood Risk Assessment (SFRA) Volume 7 by Dublin City Council.

6.2 Flood maps

The OPW flood mapping database indicates that there has been some historical flooding around Kearns Place and Ladies Lane nearby.

6.3 Coastal Flooding

The site is not in an area at risk of coastal flooding.

6.4 Fluvial Flooding

We referred to OPW Map E09CAM_EXFCD_FL_23 in relation to fluvial flooding from the River Camac. A copy of this map is including in Appendix A. This map indicates that the site is outside of the 1in 1000 AEP.

6.5 Pluvial Flooding

The pluvial flooding risk map indicates, as with much of the city centre, that the site is within a pluvial flood risk zone. However building is significant height above the road and therefore is unlikely to flood.

6.6 Groundwater

Initial trial pits suggest that ground water is more than 1m below ground level. The site topography suggests that ground water is likely to be quite deep.

6.7 Private Sewers

Adequately sized site drainage and attenuation will be provided as part of the development works.

Appendix A - Flood Risk Maps

Node Label	Water Level (OD) 10% AEP	Flow (m³/s) 10% AEP	Water Level (OD) 1% AEP	Flow (m³/s) 1% AEP	Water Level (OD) 0.1% AEP	Flow (m³/s) 0.1% AEP
09CAMM00317J	23.48	N/A	24.25	N/A	25.29	N/A
09CAMM00264	19	N/A	19.88	N/A	20.81	N/A
09CAMM00219	15.33	N/A	15.77	N/A	16.11	N/A
09CAMM00174	11.76	N/A	12.46	N/A	13.57	N/A

311400 311600 311800 312000 312200 312400 312600 312800

234000 233800 233600 233400 233200 233000

09CAMM00174

09CAMM00219

09CAMM00264

09CAMM00317J

1% AEP

0 50 100 200 300 400 500 Metres

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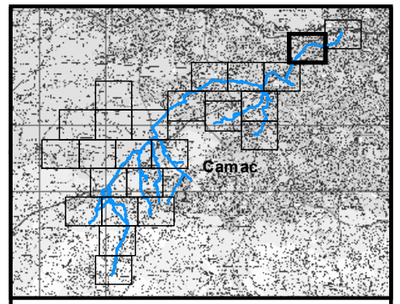

IMPORTANT USER NOTE:
THE VIEWER OF THIS MAP SHOULD REFER TO THE DISCLAIMER, GUIDANCE NOTES AND CONDITIONS OF USE THAT ACCOMPANY THIS MAP.

Legend

- 10% Fluvial AEP Event
- 1% Fluvial AEP Event
- 0.1% Fluvial AEP Event
- Modelled River Centreline
- AFA Extents
- Embankment
- Wall
- Defended Area
- 1% AEP Standard of Protection of Flood Defence (Walls / Embankments)
- Node Point
- Node ID Node Label

FINAL

REV:	NOTE:	DATE:
01	SOP label updated (Pg 21) Removal of Def. Area (Pg 21)	13/11/2017

EASTERN CFRAM STUDY
CATCHMENT FLOOD RISK ASSESSMENT AND MANAGEMENT

OPW

RPS

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Co Meath

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Map:
Camac Fluvial Flood Extents

Map Type:	EXTENT
Source:	FLUVIAL
Map Area:	HPW
Scenario:	CURRENT
Drawn By :	C.McG. Date : 13 November 2017
Checked By :	A.S. Date : 13 November 2017
Approved By :	S.P. Date : 13 November 2017
Drawing No. :	E09CAM_EXFCD_F1_23
Map Series :	Page 23 of 24
Drawing Scale :	1:5,000 @A3

309000 312000 315000 318000 321000

234000

231000

228000

225000

PHOENIX PARK
Páirc an Fhionnuisce

DUBLIN HARBO

Sandymount Strand

South Bull

DUB
Baile Átha

Merrion Strand

Clondalkin
Cluain Dolcáin

Newlands

Kingswood

Greenhills
Na Glaschnoic

Kilnamanagh
Cill na Manach

Tymon North
Tigh Mothain Thuaidh

Templeogue
Teach Mealog

Willbrook

Rathfarnham
Ráth Fearnáin

Churchtown
Baile an Teampaill

Windy Arbour

Mount Merrion
Cnoc Mhuirfean

Goatstown
Baile na nGabhar

Dundrum
Dún Droma

Kilmacud
Cill Mochuda

Stillorgan
Stigh Lorgan

Tallaght
Tamhlacht

Ballyboden
Baile Bodáin

Firhouse
Teach na Giúise

Oldbawn
Seanbhaile

Jobstown
Bóthar Montain

Ballinteer
Baile an tSaoir

Edmondstown

Sandyford
Áth an Ghaimhnín

Leopardstown

Foxrock
Carraig an tSi

Dublin Mountains

Ballymana

Knockanvinidee

Friarstown

Ballinascorney Lower

Corrageen

Mountpelier

Bolgard Door

Kilnardan

Killipper

Oldcourt

Woodtown

Newtown

Rockbrook

Orlagh

Kilmashogue Mountain

Jamestown

Stepaside

Carrickmines

Ballyogan

Taylorsgrange

Barnacullia

Three Rock Mountain

1000 0 1000 2000 3000 4000 Meters

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Location Plan:

LEGEND

- 10% AEP Pluvial
- 1% AEP Pluvial
- 0.5% AEP Pluvial

IMPORTANT USER NOTE:
THE VIEWER OF THIS MAP SHOULD REFER TO THE DISCLAIMER, GUIDANCE NOTES AND CONDITIONS OF USE THAT ACCOMPANY THIS MAP.

OPW
Oifig na nOibreacha Poiblí
The Office of Public Works

The Office Of Public Works
Jonathan Swift Street
Trim
Co. Meath

Comhairle Cathrach Bhaile Átha Cliath
Dublin City Council

Dublin City Council
Civic Offices
Wood Quay
Dublin 8

Project:

DUBLIN PLUVIAL STUDY (FloodResilienCity)

Map: **DUBLIN CITY - PLUVIAL FLOOD EXTENT MAP**

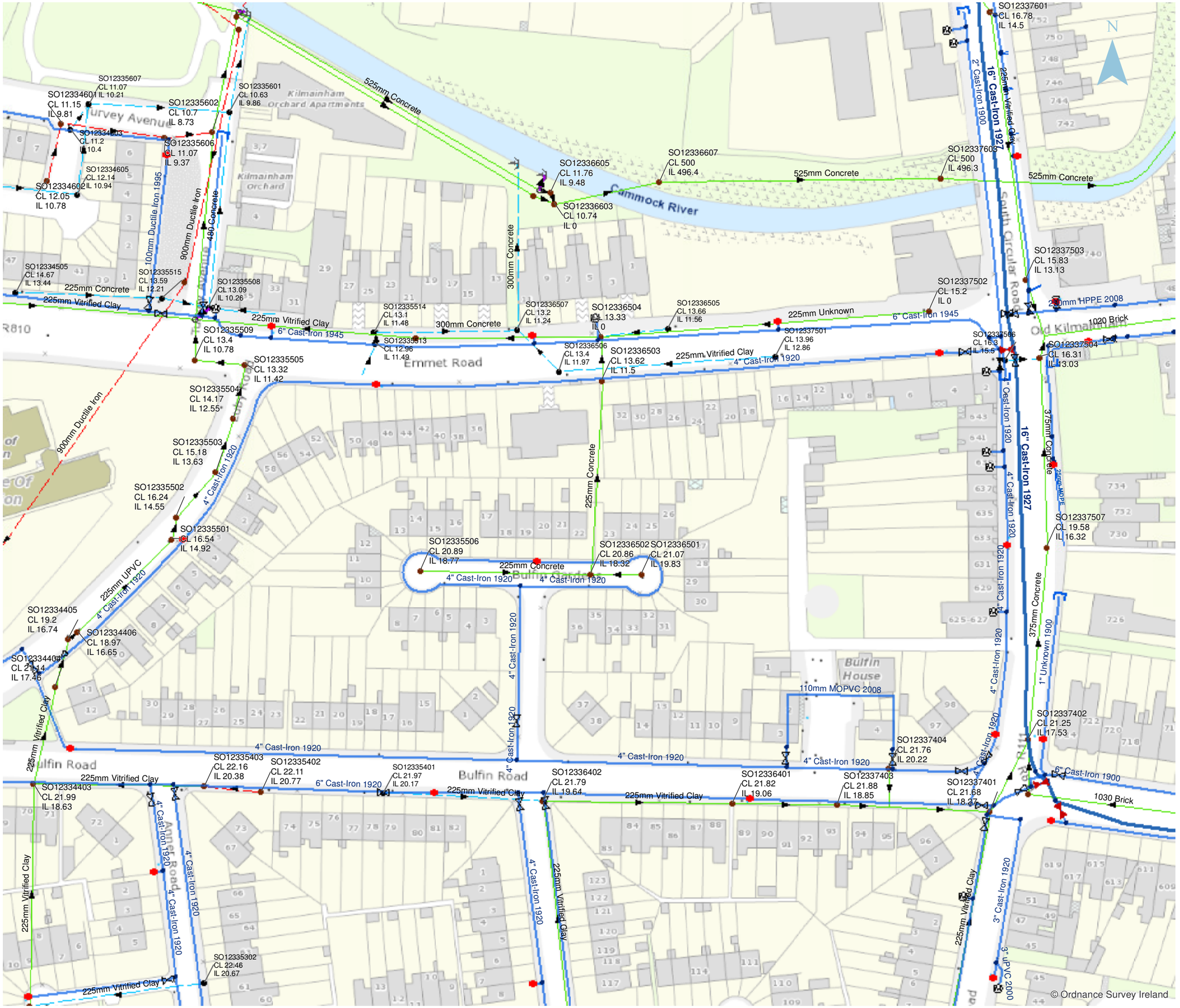
Map Type:	EXTENT - 180min Rainfall		
Source:	PLUVIAL		
Map Area:	URBAN		
Scenario:	CURRENT		
Drawn by:	IH	Date:	Aug - 2016
Checked by:	MC	Date:	Aug - 2016
Approved by:	JM	Date:	Aug - 2016

Map No.:
E09DCC_EXPCD_F0_03

Revision: F0

Map Scale: 1:50,000 Plot Scale: 1:1 @ A3

Appendix B – Irish Water Map



UISCE ÉIREANN : IRISH WATER

Ⓜ Unknown Meter ; Other Meter
Sluice Valve Open
Sluice Valve Closed
Sluice Valve Closed

Water Hydrants

Hydrant Function

- Fire Hydrant
- Cap
- Other Fittings

Water Distribution Mains

Owned By

- Irish Water
- Irish Water
- Irish Water

Sewer Manholes

Manhole Type

- Standard

Sewer Discharge Points

Discharge Type

- Other; Unknown
- Gravity - Combined
- Gravity - Foul
- Gravity - Overflow

Storm Manholes

Manhole Type

- Standard

Storm Discharge Points

Discharge Type

- Outfall
- Surface Gravity Mains

1:1,000 at A3

Last edited: 13/10/2017

Metres

0 7.5 15 30

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2. Whilst every care has been taken in its compilation, Irish Water gives this information as to the position of its underground network as a general guide only on the strict understanding that it is based on the best available information provided by each Local Authority in Ireland to Irish Water. Irish Water can assume no responsibility for and give no guarantees, undertakings or warranties concerning the accuracy, completeness or up to date nature of the information provided and does not accept any liability whatsoever arising from any errors or omissions.This information should not be relied upon in the event of excavations or any other works being carried out in the vicinity of the Irish Water underground network. The onus is on the parties carrying out excavations or any other works to ensure the exact location of the Irish Water underground network is identified prior to excavations or any other works being carried out.
Service connection pipes are not generally shown but their presence should be anticipated.

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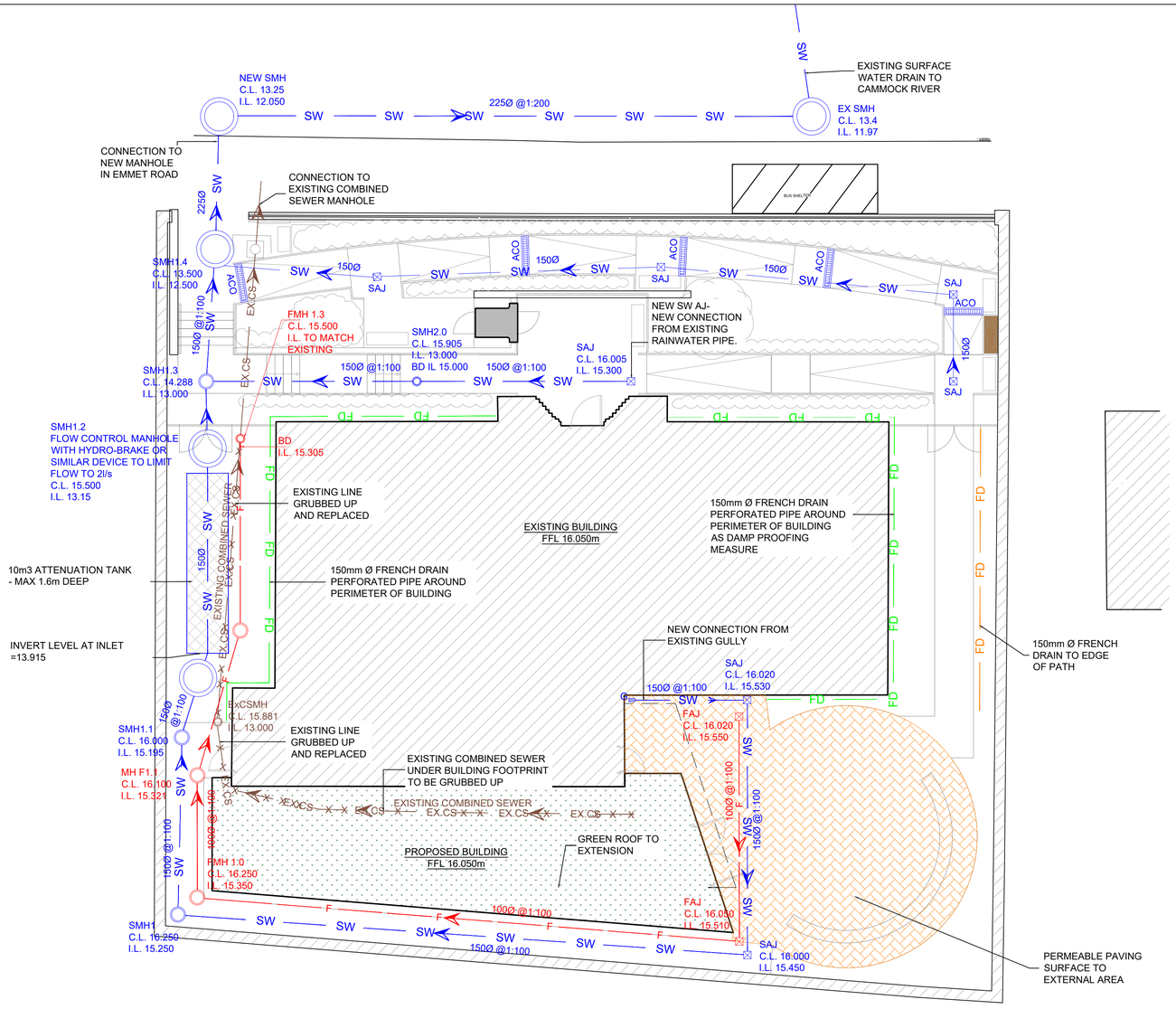
Appendix C – Drainage Drawings



DRAINAGE NOTES

1/ All dimensions are in (mm.) unless otherwise noted. Contractor shall be responsible for setting out junction boxes, chambers, manholes, gullies to ensure no clashes with service ducts and pipes.

2/ All levels are in metres above datum unless otherwise noted.

3/ This drawing should be read in conjunction with all relevant Architect's, Engineer's and Manufacturers' drawings and specifications.

4/ All pipe diameters are nominal.

5/ The contractor must contact the relevant authorities prior to construction work, and satisfy himself in respect to the location of all existing services.

6/ All stormwater pipes to be polypipe rigidrain (Twinwall) or similar approved. All foul pipe to be upvc pipes by wavin or similar approved to WIS 4-35-01 and BS EN 13476.

7/ All road gully drains are 150mm.

8/ 600mm max. length rocker pipes are to be provided on sewers where:
(a). A pipe enters a manhole or pumping station.
(b). A pipe leaves a manhole.
(c). A pipe enters concrete encasement.
(d). A pipe leaves concrete encasement.
(e). Any other location as directed by the engineer.

9/ All sewer rocker pipes are to be formed by cutting and trimming a length of spigot & socket pipe to form a spigot at the cut end, thereby forming spigot & socket joints at both ends of the rocker pipe.

10/ All rocker pipes shall be no more than 150mm from their associated manhole, pumping station, concrete encased section or valve connection.

11/ Where sewer pipes, rising mains or road gully drains cross existing roads, the contractor is required to:
(a). Contact the relevant authorities prior to commencing work
(b). Make good the existing road to its original specification as approved by the Engineer.
(c). Undertake work to the standards of the relevant local authority specification.

12/ All existing foul & surface water runs serving the building that becomes redundant due to the new development to be broken out and trench / manholes to be backfilled with CL16/20 lean mix concrete

13/ Where pipes pass under foundations pipe trench to be backfilled to formation level with CL16/20 concrete.

14/ Where pipes are located within 3m of pad foundations concrete surround CL16/20 required to a level above the pad foundations. Where pipes pass under floor slabs, pipes to be surround with 150mm concrete. +50mm compressible fill board/sand should divide underside of slab & top of concrete surround (Detail to be agreed with Structural Engineer)

15/ A CCTV drainage survey and report is to be carried out both at the pre-commencement of construction and at the completion of the contract to prove the integrity of the as-built drainage systems. All drainage runs & manholes to be jetted to remove debris and blockages. At completion of the contract this is to be carried out and approved by the Engineer prior to the issue of the practical completion certificate.

16/ Cover levels detailed are indicative. Cover levels to tie in flush with proposed pavement & landscaping details. All existing mh's and gullies to be adjusted locally to tie into proposed levels.

17/ Internal drainage to Architect & M&E details.

18/ Gully layout to be confirmed with Architect prior to detailed design.

19/ Levels on all existing drainage to be confirmed on-site.

20/ All existing drains to be investigated for live connections prior to construction. Live connections to be maintained to sewers drains at all times during construction.

21/ All surface water manhole covers to be square in shape. All foul water manholes to be circular in shape.

22/ Contractor to coordinate all roof drainage & downpipes locations to be agreed with the Engineer & Architect.

23/ Contractor to provide IL, pipe diameter & direction of flow in existing manholes on commencement of the works to design engineer.

24/ Foul sewer & combined manholes to be pre-cast to Irish Water Specification, all surface water manholes to be to GDSDS V6.0

25/ All pipework to be laid soffit to soffit unless noted otherwise. All chamber invert levels, shown on the drawing are for the outgoing pipe.

26/ Concrete surround on all pipes wher cover < 1.2m except filter drains.

27/ Backdrop invert levels shown are the invert of the pipe immediately before it enters the backdrop

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DRAINAGE LEGEND

- S1.2 — DENOTES PROPOSED SURFACE WATER MANHOLES
- SAJ — DENOTES PROPOSED SURFACE WATER AJ
- ACO — DENOTES NEW SURFACE WATER ACO DRAIN
- DENOTES EXISTING SURFACE WATER SEWER
- DENOTES EXISTING SURFACE WATER SEWER TO BE REMOVED
- DENOTES PROPOSED FOUL SEWER
- F1.1 — DENOTES PROPOSED FOUL SEWER MANHOLE
- FAJ — DENOTES PROPOSED FOUL AJ
- DENOTES EXISTING FOUL SEWER
- DENOTES EXISTING SEWER COMBINED TO BE REMOVED
- FD — DENOTES EXISTING 150mm Ø FRENCH DRAIN
- DENOTES NEW PERMEABLE PAVING
- DENOTES PROPOSED GRASS GREEN ROOF

REV	DATE	BY	DESCRIPTION
PL3	10/09/19	FF	ISSUED FOR PLANNING
PL2	30/08/18	LL	ISSUED FOR PLANNING
PL1	25/05/18	LL	ISSUED FOR PLANNING
REVISIONS			

CLIENT
Dublin City Council

PROJECT TITLE
Proposed Extension To Inchicore Library

DRAWING TITLE
Proposed Drainage Layout

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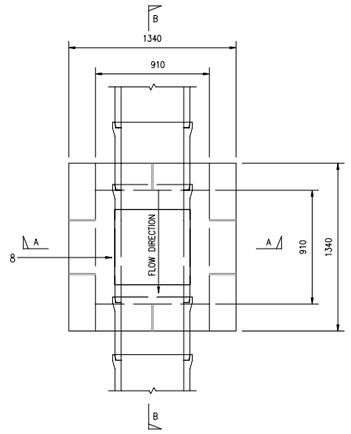
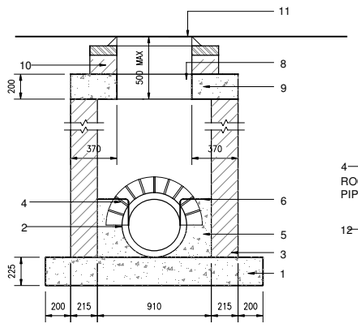
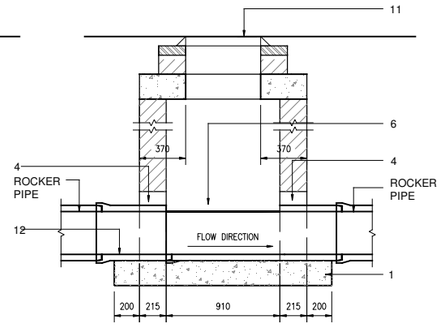
DRAWN BY	L Lonergan	DATE	10.05.18
ENG CHECK	F.Fleming	DATE	10.05.18
APPROVED	T.Sheehan	DATE	10.05.18
SCALE	1:100	SHEET	A1
STATUS	FOR PLANNING		
JOB NO.	171165	DRAWING NUMBER	C001
		REVISION	PL3



PLAN



SECTION A-A

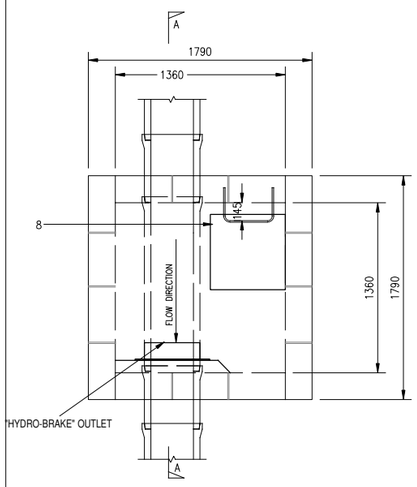


SECTION B-B

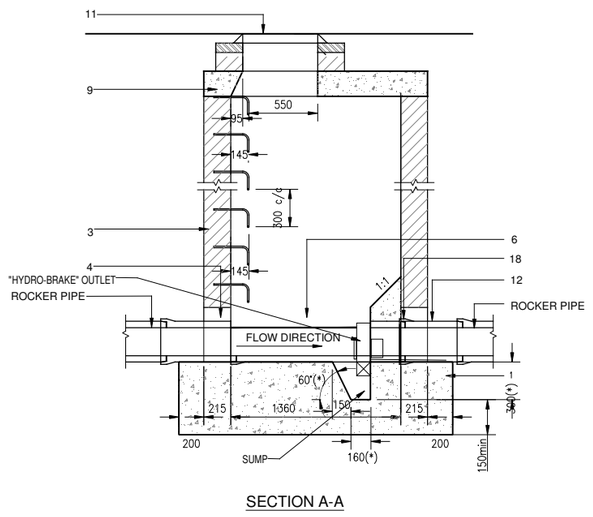
DUBLIN CITY COUNCIL - TYPE A MANHOLE

(SCALE 1:25 A1 1:50 A3)

MANHOLE DETAILS FOR PIPE ø's 150, 225, 300, 375 & 450mm.
DEPTH TO INVERT LESS THAN 1.0m.



PLAN

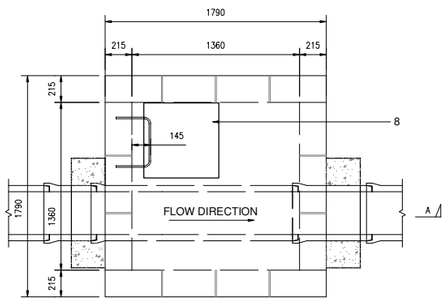


SECTION A-A

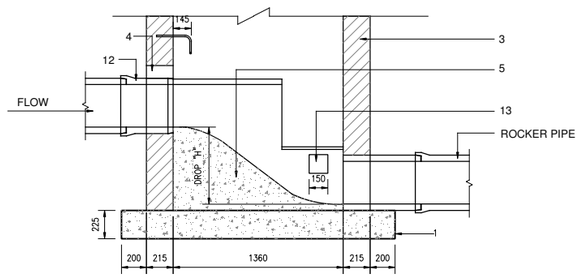
DUBLIN CITY COUNCIL - HYDRO BRAKE IN TYPE B MANHOLE

(SCALE 1:25 A1 1:50 A3)

(*) DIMENSION TO BE APPROVED BY "HYDRO-BRAKE" SUPPLIERS



PLAN



SECTION A-A

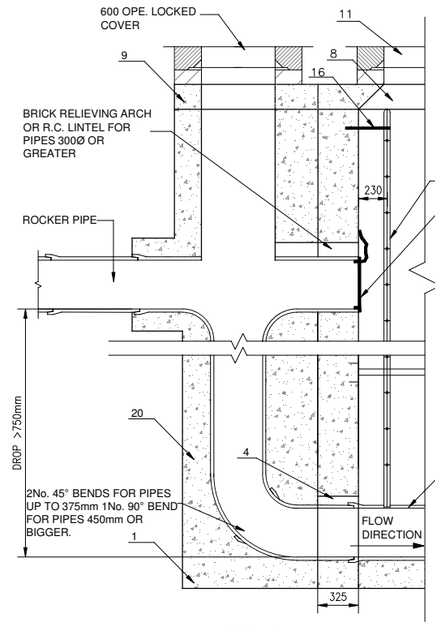
INLET DIA (mm)	"H" (MAX) (mm)
225	600
300	600
375	750
450	750
525	750
600	750
750	750

WHEN THE DROP "H" IS GREATER THAN THE MAX. VALUE SHOWN USE BACKDROP MANHOLE.

RAMP MANHOLE DETAIL FOR PIPE ø's 150, 225, 300, 375, 450, 525, 600 & 750mm.
DROP < 750mm

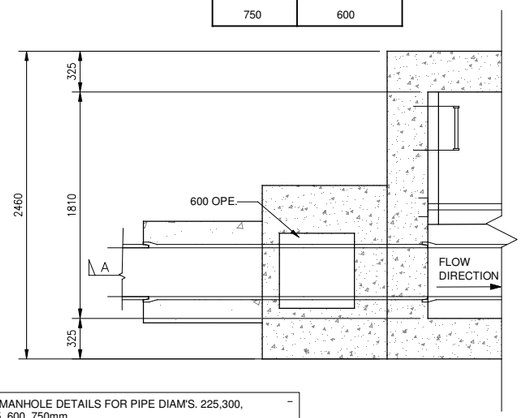
DUBLIN CITY COUNCIL - TYPE F MANHOLE

(SCALE 1:25 A1 1:50 A3)



SECTION A-A

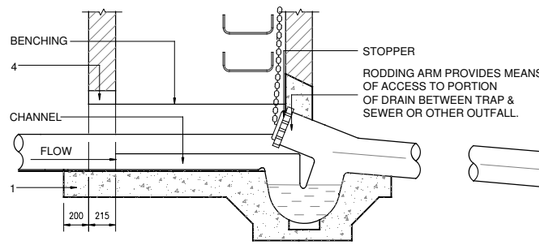
INLET DIA. mm	DROP DIA. mm
225	300
300	375
375	375
450	450
525	450
600	450
750	600



BACKDROP MANHOLE DETAILS FOR PIPE DIAM'S. 225,300, 375, 450, 525, 600, 750mm
Drop >750mm.

DUBLIN CITY COUNCIL - TYPE G BACK DROP MANHOLE

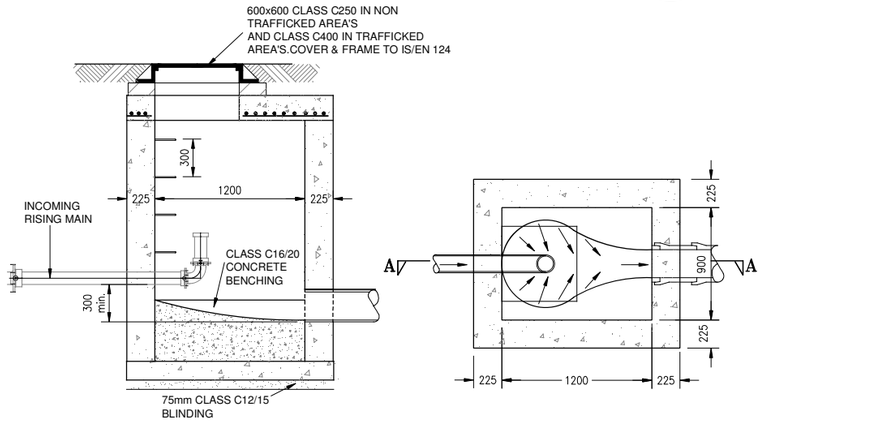
(SCALE 1:25 A1)



DETAIL OF MANHOLE WITH INTERCEPTOR TRAP

DUBLIN CITY COUNCIL - TYPE H MANHOLE

(SCALE 1:25 A1 1:50 A3)



SECTION A-A

PLAN

STAND OFF MANHOLE

(SCALE 1:25 A1 1:50 A3)

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Notes:

1. 225mm THICK CL20/20 MASS CONCRETE FOUNDATIONS.
2. PREFORMED HALF CIRCLE CHANNEL PIPES. THE PIPELINE MAY WHERE PRACTICABLE,BE LAID THROUGH THE MANHOLE AND THE CROWN CUT OUT TO HALF DIAMETER, PROVIDED FLEXIBLE JOINTS ARE SITUATED ON EACH SIDE NO FURTHER THAN 600mm FROM THE INNER FACE OF THE MANHOLE WALL.
3. FOR SURFACE WATER MANHOLES HIGH DENSITY BLOCKS TO CL.S10 OF I.S.20 PART 1: 1987 OR CL.30/20 IN-SITU CONCRETE. BLOCKWORK SHALL BE BEDDED AND JOINTED USING MORTAR DESIGNATION THREE TO I.S.406. BEDS AND VERTICAL J OINTS SHALL BE COMPLETELY FILLED WITH MORTAR AS THE BLOCKS ARE LAID. JOINTS SHALL BE FLUSH POINTED AS THE WORK PROCEEDS. ALL FOUL MANHOLES MUST BE FACED IN SOLID ENGINEERING BRICK (MIN CLASS A OR B). OR IN-SITU CONCRETE FOR 1m ABOVE BENCHING LEVEL BRICK TO BE BONDED TO BLOCKWORK USING ENGLISH GARDEN WALL BOND.
4. RELIVING ARCH FORMED BY 215x103x65 BRICK AS PER DRAWING. RELIEVING ARCHES USED IN BRICK OR BLOCKWORK MANHOLES TO EXTEND OVER FULL THICKNESS OF WALL. DOUBLE ARCHES TO BE FORMED FOR PIPE DIAMETRES GREATER THAN 600mm.
5. BENCHING AND PIPE CHANNEL PIPE SURROUND -CL.20/20 CONCRETE.
6. BENCHING FINISHED IN 2:1 SAND-CEMENT MORTAR WITH SMOOTH TROWEL FINISH AT 1 IN 30 SLOPE TOWARDS CHANNEL.
7. STANDARD RUNGS AT 300c/c VERTICALLY AND GALVANIZED TO BS729
8. 600mm SQUARE OPE. IN ROOF SLAB.
9. 150thk. PRECAST R.C. ROOF SLAB IN CL.30/20 CONCRETE. COVER TO STEEL SHALL BE 40mm.
10. 1 TO 2 No. ENGINEERING BRICKS CLASS B TO I.S.91: 1983 SET IN 1:3 (CEMENT:SAND:MORTAR)
11. CLASS D400 MANHOLE COVER AND FRAME TO IS/EN 124. 150mm DEEP FRAME FOR ROADS, 100mm DEEP FOR FOOTPATHS AND GREEN AREAS. NON ROCK DESIGN, CLOSED KEYWAYS, MANUFACTURED FROM SPHEROIDAL GRAPHITE CAST IRON (DUCTILECAST IRON). 600x600 (OR 600 DIAM) CLEAR OPENING. COVER & FRAME COATED IN BITUMEN OR OTHER APPROVED MATERIAL. COVER TO HAVE A MINIMUM MASS OF 140kg/m2. FRAME BEARING AREA SHALL BE 80,000mm2 MIN., FRAMES SHALL BE DESIGNED TO PREVENT COVERS FALLING INTO MANHOLE. FRAMES SHALL BE BEDDED ON APPROVED MORTAR TO MANUFACTURER'S CONSTRUCTIONS.
12. SHORT LENGTH PIPE, PIPE JOINT EXTERNAL TO MANHOLE SHALL NOT EXCEED 600mm FROM THE INNER FACE OF MANHOLE WALL.
13. TOE HOLES OF 230mm MIN. DEPTH AND GALVANIZED STEEL SAFETY RAILINGS TO BE PROVIDED IN BENCHING OF SEWERS GREATER THAN 525 DIAMETER, AND DEPTH TO INVERT >3m FOR ACCESS TO INVERT.
14. SAFETY CHAIN TO BE PROVIDED IN MANHOLES >450mm. MILD STEEL SAFETY CHAIN SHALL BE 10mm NOMINAL SIZE GRADE M(H) NON CALIBRATED CHAIN TYPE 1,COMPLYING WITH BS: 4942 Part 2.
15. WHEN DEPTH OF MANHOLES TO INVERT IS GREATER THAN 3.0m LADDERS SHALL BE USED, INSTEAD OF RUNGS, TO BSA211 EXCEPT THAT STRINGERS SHOULD BE NOT LESS THAN 65x12mm IN SECTION AND RUNGS 25mm IN DIAMETER, FIXED LADDERS SHOULD MEET THE DIMENSIONAL REQUIREMENTS OF BS 4211.
16. LADDER STRINGERS SHOULD BE ADEQUATELY SUPPORTED FROM THE MANHOLE WALL AT INTERVALS OF NOT MORE THAN 2.0m. STRINGERS SHOULD BE BOLTED TO CLEATS TO FACILITATE RENEWAL.
17. ALL LADDERS, RUNGS, HANDRAILS, SAFETY CHAINS ETC. SHALL BE HOT DIP GALVANIZED TO BS729.
18. SOCKET OF PIPE SHOULD BE CUT FLUSH WITH THE INSIDE SURFACE OF THE MANHOLE WALL.
19. POSITION OF 910 SQUARE OPENING IN INTERMEDIATE ROOF SLAB.
    -ALL MANHOLES SHALL BE WATERTIGHT TO THE SATISFACTION OF THE ENGINEER.
    -FORMWORK TO REINFORCEMENT CONCRETE AND MASS CONCRETE SHALL COMPLY TO CLASS 2, SECTION 6.2.7, BS8110: PART 1: 1997.
    -FINISH TO THE TOP OF SLABS SHALL COMPLY TO TYPE A, SECTION 6.2.7, BS8110: PART 1: 1997.
    -PLAN DIMENSIONS OF MANHOLES ARE BASED ON BLOCKWORK HAVING CO-ORDINATING SIZE OF 450x225x100.
    -MANHOLES ARE DESIGNED TO BS8005 AND WALL THICKNESSES TO IS325 BLOCKWORK DESIGN CODE TAKING GRANULAR F.L. PRESSURE AND H.B. SURCHARGE.
    -REINFORCEMENT TO SLABS TO ENGINEERS DETAILS.
20. FOR MANHOLES >3.0m DEPTH TO INVERT USE 30N/20 IN-SITU CONCRETE. REINFORCING MESH REF. A393 @6.16kg/m TO BE FIXED AT MID POINT OF WALL. ADDITIONAL REINFORCEMENT TO BE SUPPLIED OVER PIPE CROWN.
21. FOR PRE-CAST MANHOLES, CHAMBER WALLS AND COVER SLAB TO BE CONSTRUCTED TO IS EN 1917 AND IS 420 2004.
22. MANHOLE OPENINGS TO BE SITUATED FURTHEST FROM THE NEAREST CARRIAGEWAY. MANHOLE STEPS/ACCESS TO BE POSITIONED TO ALLOW VIEWING OF ONCOMING TRAFFIC.
23. FOR BEDDING AND SEALING OF CHAMBER RINGS, THE TOP RING (TO PRE-CAST COVER SLAB) AND BOTTOM RING TO BE BEDDED WIRH CEMENT MORTAR. FOR INTERMEDIATE RINGS, JOINTS TO BE SEALED WITH APPROVED PRE-FORMED JOINTING STRIP.
24. PRE-CAST MANHOLES TO BE SURROUNDED WITH A MINIMUM OF 150mm THICK GRADE C20/40 CONCRETE.

GENERAL NOTES:

i) ALL BRICK TO BE SOLID ENGINEERING BRICK CLASS A OR B

ii) FOR PIPE DIAMETER >750mm USE MANHOLE WITH INTERNAL DIAMETER SIZE= PIPE SIZE + 1 METRE + 300mm

iii) DISTANCE FROM THE TOP RUNG OF THE LADDER TO GROUND LEVEL MUST BE A MAXIMUM OF 500mm.

REV	DATE	BY	DESCRIPTION
PL2	30/08/18	LL	ISSUED FOR PLANNING
PL1	25/05/18	LL	ISSUED FOR PLANNING
REVISIONS			

CLIENT
Dublin City Council

PROJECT TITLE
Proposed Extension To Inchicore Library

DRAWING TITLE
Drainage Details
Sheet 1 of 2

eIReNG CONSULTING ENGINEERS
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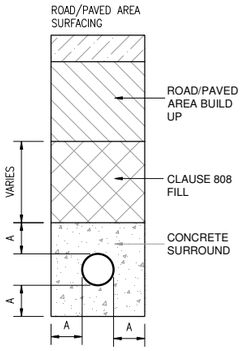
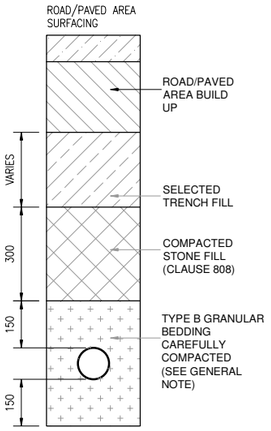
DRAWN BY: L Lonergan	DATE: 10.05.18
ENG CHECK: F.Fleming	DATE: 10.05.18
APPROVED: T.Sheehan	DATE: 10.05.18
SCALE: AS SHOWN	SHEET: A1
STATUS: FOR PLANNING	
JOB NO.: 171165	DRAWING NUMBER: C002
	REVISION: PL2

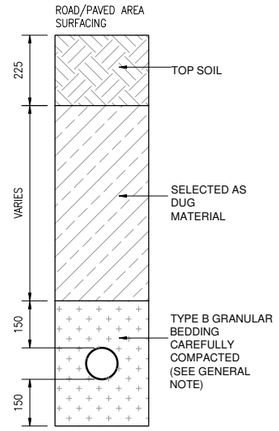


NOTE:
DIM A =100mm C20/20 CONCRETE REQUIRED WHERE COVER TO PIPES IN ROADWAYS IS LESS THAN 1.2m & REQUIRED THROUGHOUT FOR PIPES UNDER FLOOR SLABS ALSO REQUIRED WHERE COVER TO SEWER PIPES IN GRASSED/LIGHTLY TRAFFICKED AREAS IS LESS THAN 0.9m FOR PVC PIPES & 0.6m FOR EARTHENWARE PIPES PROVIDE 12mm VERTICAL MOVEMENT AT MAX INTERVAL OF 5m IN CONCRETE SURROUND

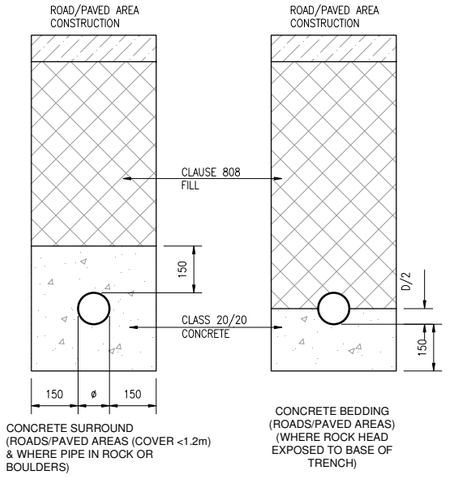
CONCRETE SURROUND
SCALE 1:10 A1 1:20 A3



GRANULAR BEDDING
FOR PIPES UNDER ROADS/PAVED AREAS
SCALE 1:10 A1 1:20 A3



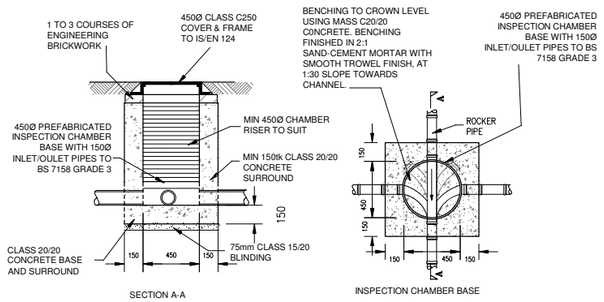
GRANULAR BEDDING
FOR PIPES UNDER GRASSED AREAS
(COVER P 0.6m)
SCALE 1:10 A1 1:20 A3



CONCRETE SURROUND
(ROADS/PAVED AREAS (COVER <1.2m) & WHERE PIPE IN ROCK OR BOULDERS)

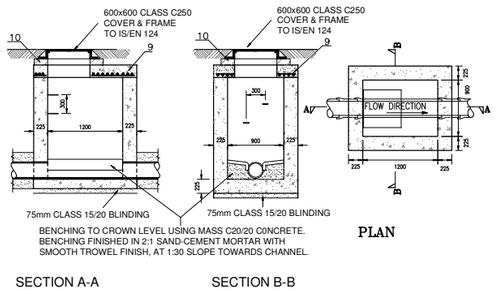
CONCRETE BEDDING
(ROADS/PAVED AREAS)
(WHERE ROCK HEAD EXPOSED TO BASE OF TRENCH)

FOUL AND SURFACE WATER BEDDING DETAILS
SCALE 1:10 A1 1:20 A3



PRIVATE MANHOLE UP TO 1.0m DEEP
SCALE 1:25 A1 1:50 A3

FOR USE
1.) WHERE CHANNEL IS STRAIGHT OR CURVED <45° FOR FOR ALL PIPES UP TO 375Ø
2.) FOR JUNCTION MANHOLES OR CURVED CHANNELS >45° FOR ALL PIPES UP TO 375mmØ.



SECTION A-A

SECTION B-B

PLAN

PRIVATE MANHOLE MORE THAN 1.0m DEEP
SCALE 1:50 A1 1:100 A3

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Figured dimension only to be taken from this drawing. All dimensions to be checked on site. Consultants to be informed immediately of any discrepancies before work proceeds.

Notes:

1. 225mm THICK CL20/20 MASS CONCRETE FOUNDATIONS.
2. PREFORMED HALF CIRCLE CHANNEL PIPES. THE PIPELINE MAY WHERE PRACTICABLE,BE LAID THROUGH THE MANHOLE AND THE CROWN CUT OUT TO HALF DIAMETER, PROVIDED FLEXIBLE JOINTS ARE SITUATED ON EACH SIDE NO FURTHER THAN 600mm FROM THE INNER FACE OF THE MANHOLE WALL.
3. FOR SURFACE WATER MANHOLES HIGH DENSITY BLOCKS TO CL.S10 OF I.S.20 PART 1: 1987 OR CL.30/20 IN-SITU CONCRETE. BLOCKWORK SHALL BE BEDDED AND JOINTED USING MORTAR DESIGNATION THREE TO I.S.406. BEDS AND VERTICAL J OINTS SHALL BE COMPLETELY FILLED WITH MORTAR AS THE BLOCKS ARE LAID. JOINTS SHALL BE FLUSH POINTED AS THE WORK PROCEEDS.ALL FOUL MANHOLES MUST BE FACED IN SOLID ENGINEERING BRICK (MIN CLASS A OR B). OR IN-SITU CONCRETE FOR 1m ABOVE BENCHING LEVEL.BRICK TO BE BONDED TO BLOCKWORK USING ENGLISH GARDEN WALL BOND.
4. RELIVING ARCH FORMED BY 215x103x65 BRICK AS PER DRAWING. RELIEVING ARCHES USED IN BRICK OR BLOCKWORK MANHOLES TO EXTEND OVER FULL THICKNESS OF WALL. DOUBLE ARCHES TO BE FORMED FOR PIPE DIAMETRES GREATER THAN 600mm.
5. BENCHING AND PIPE CHANNEL PIPE SURROUND -CL.20/20 CONCRETE.
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CLIENT
Dublin City Council

PROJECT TITLE
Proposed Extension To Inchicore Library

DRAWING TITLE
Drainage Details
Sheet 2 of 2

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DRAWN BY	L Lonergan	DATE	10.05.18
ENG CHECK	F.Fleming	DATE	10.05.18
APPROVED	T.Sheehan	DATE	10.05.18
SCALE	AS SHOWN	SHEET	A1
STATUS	FOR PLANNING		
JOB NO.	171165	DRAWING NUMBER	C003
		REVISION	PL2