

**Redemption Road, Blackpool Housing
Development**

**Civil and Structural Engineering Planning
Report**

March 2023

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1.0 Introduction

This report has been prepared to accompany a planning application for a proposed housing development in Blackpool, Cork City. The report describes the design strategy for surface water and foul water drainage design along with water supply, roads, parking and flooding.

The location of the site in relation to the local surroundings and road network is shown in Figure 1-1 below.



Figure 1-1 Site Location (boundary shown is indicative)

The proposed housing development will consist of 2 blocks of residential units in Blackpool, Cork. The first block of apartments is to be constructed at the highest point in the site fronting onto Redemption Road. The lowest level of the site will accommodate the construction of a block of sheltered housing apartments. These units will be accessed from Hattons Alley Lane which is a cul de sac adjoining Great William O'Brien St in Blackpool. The site is steeply inclined with a change of elevation from 40m A.O.D at Redemption Road in the west to 10.5m A.O.D at Hattons Alley Lane in the east. The change in elevation being catered for through the use of large soil retaining structures which mimic structures which are already in place on developments to the south of the site.

2.0 Desktop study

A desktop study was carried out at design commencement stage. The summary findings of this study are as follows:

The subject land is located to the north of Cork City approximately 150m to the west of Blackpool church and 300m to the south west of Blackpool Shopping Centre. The site is approximately 0.85 ha in area, is bordered to the north by a mixture of residential and green field land, to the south by residential development, Redemption Road to the west and residential and commercial properties to the east. Current access to the site is via Hattons Alley Lane and Redemption Road.

Historical maps were used to identify all significant past land uses relating to the proposed site. The 6" historical maps which date from the period between 1837 and 1842 indicate the presence of Glen View House, with outbuildings at the western end of the site with no significant buildings elsewhere on the property. The area covering the rest of the site was undeveloped agricultural land at this stage as shown in Figure 2-1 below.

The later historical 25" maps, which date from the period between 1888 to 1913, shows little change across the site in the intervening period. (See Figure 2-2)



Figure 2-1 Extract from 6" Map (boundary shown is indicative only and shown for location purposes)



Figure 2-2 Extract from 25" Map (boundary shown is indicative only and shown for location purposes)

Having reviewed records in the Cork city council planning department, there appears to have been a number of previous planning applications made in respect to a portion of the property, predominantly at the western end of the site.

Research of the files indicates that one of the buildings ancillary to the existing residential building was used as an abattoir at some point in the past. Also material obtained from outside the site had been dumped in the area surrounding Glen View house. The planning files did not state the type of imported material but it is assumed to have been construction & demolition waste. The importation of said material is thought to have occurred in the 1990's.

Existing utility records show a range of existing services adjoining the site including Eir, ESB, Gas, water, telecoms etc. (See Appendix C)

3.0 Structural Design

The proposed development includes 2No individual blocks which combined achieve a total of 54No units on the site. The blocks will be separate from each other due to the steeply inclined nature of the site.

The first block is 4 stories in height and fronts onto Redemption Road and will consist of 34 units.

The second block will be 4 storeys in height and will consist of 20 no. sheltered housing units. This second block being accessed from the existing cul de sac, Hattons Alley Lane.

3.1 Apartments off Redemption Road (34 No. units)

3.1.1 Substructure

Draft borehole logs indicate the presence of competent sandstone at depths of between 4.5-5.5m below ground level. Because of this, it is proposed to employ the use of bored concrete piles with reinforced concrete ground beams which will support a suspended ground floor slab. A portion of the ground floor level at the northern end of the site will necessitate the use of reinforced concrete retaining walls as part of the substructure given that the adjoining neighbours land is approximately 2m higher than floor level.

3.1.2 Building Structure

The vertical load bearing elements of the block are likely to comprise of load bearing masonry retaining walls in addition to some steel and reinforced concrete columns.

The ground floor slab, subject to site investigation findings will most likely consist of a suspended concrete slab resting on ground beams.

Floor slabs at first floor level and above are likely to consist of a structural concrete screed poured onto 200mm thick pre-stressed hollow core concrete slabs. The slabs will be simply supported on either end on either masonry walls or reinforced concrete/ steel beams

At roof level, it is likely that the building will have a flat roof. It is assumed that a sloped concrete screed will be poured on hollow core slabs with insulation and a weathering membrane fixed on top of that.

The external walls of the building are likely to be constructed from a 215mm thick load bearing inner leaf, an insulated cavity and a rendered 100mm masonry outer leaf. The outer leaf of masonry being supported in certain locations by steel relieving angles fixed to the inner load bearing structure at floor plate level.

Party walls within the building shall be formed using 215mm wide blockwork, plastered on each side.

Lateral stability within the building will be provided by the longitudinal shear capacity of the external and party walls. The lift shaft and stairs shafts will also provide sufficient resistance to lateral forces. The floor plates will also act to disperse lateral loading throughout the various floor levels via diaphragm action.

In order to comply with the disproportionate collapse requirements of IS EN 1991-1-7: Accidental Actions, horizontal ties are required for the buildings. The horizontal ties in the form of steel reinforcement will be employed within the screed.

3.2 20 No. Apartments off Hattons Alley Lane

3.2.1 Substructure

Draft borehole logs indicate the presence of competent sandstone at depths of between 3-6m below ground level. Because of this, it is proposed to employ the use of bored concrete piles with reinforced concrete ground beams which will support a suspended ground floor slab.

3.2.2 Building Structure

The structural scheme to be employed here will mirror that to be used in the apartment block located at the top of the site.

3.3 External Works

Given the sloped nature of the site, a significant usage of soil retaining structures will be required. Where the walls form part of the proposed buildings, these walls will be constructed from reinforced concrete. Where retaining walls are required in areas remote from the proposed buildings, a variety of structures can be used, be they reinforced concrete walls, segmental retaining walls or reinforced earth structures.

In the main, it is proposed to use segmental concrete retaining walls to break the site into 2 tiered levels. These segmental concrete walls have already been used on adjoining sites to the south of this property. The middle tier of the development will necessitate the removal of rock to form the rear gardens of the terrace of houses, in addition to constructing the houses themselves. It is proposed to batter the rock back at of an angle of between 10-15° to the vertical. It is envisaged that this rock face may need to be stabilised by the addition of shotcrete or alternative systems to prevent loose stones falling onto occupants below.

4.0 Foul Water Drainage Design

4.1 Existing Foul Water Drainage

The Cork City Council & Irish Water drainage record drawings show that the existing drainage infrastructure in the vicinity of the proposed development site consists of combined sewers along Redemption Road and Hatton's Alley Lane

4.2 Proposed Foul Water Drainage

A pre-enquiry form has been submitted to Irish Water with respect to the required wastewater connection. A confirmation of feasibility has been received from Irish Water. Following confirmation of feasibility, PUNCH Consulting Engineers issued a Design Submission to Irish Water, which was reviewed and accepted by Irish Water. Please note that the design submission relates to a larger number of units than is currently being proposed for the site, however a Connection Application will be submitted which covers only the 54 No. units now proposed. Please refer to Appendix D for Irish Water correspondence.

It is proposed to connect the foul water drainage from the top tier of the site to the combined sewer which flows southwards along Redemption Road. The existing Glen View House is connected to an existing manhole on the footpath south of the proposed entrance to the site. It is proposed to reuse this pipe if it can be proven to suit the purposes of the new development.

The foul water waste from the bottom level tier comprising of the sheltered housing apartments will be disposed of to the combined sewer on Hattons Alley Lane.

Please refer to PUNCH drawing no. 184-109-003 for details of the proposed foul water drainage and Appendix A to this report for detailed calculations.

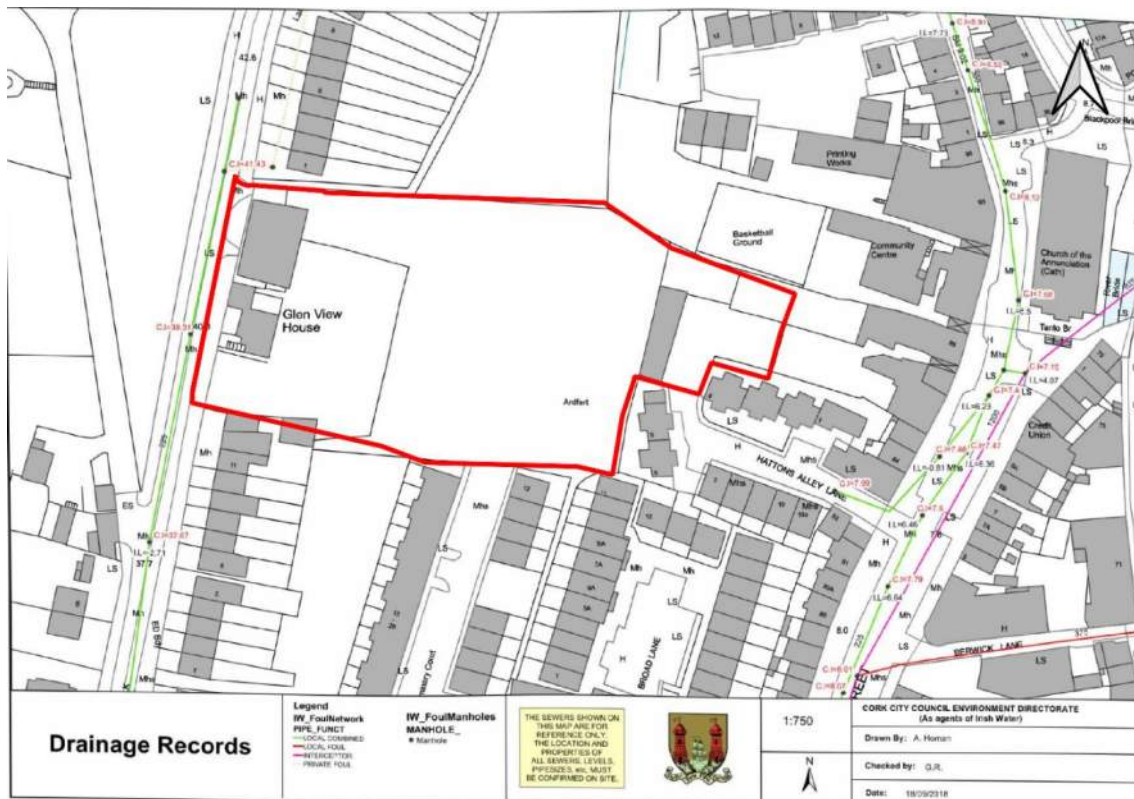


Figure 4-1: Foul Drainage Records - Cork City County Council

4.2.1 Foul Loading

A wastewater flow per capita of 150 l/day has been adopted in the calculation of design flows for the proposed development as suggested in the *Irish Water Code of Practice for Wastewater Infrastructure - Connections and Developer Services*. This code of practice also advises using a standard value of 2.7 persons per dwelling which has been applied to both the sheltered housing and the social/affordable accommodation.

The resulting average dry weather flows and design flows for the proposed housing are indicated below in Table 4-2. These are based on a daily flow per person of 150 litres with an allowance for an additional 10% flow.

Table 4-1: Foul Water Drainage Design Parameters

Description	Value
Residential Flow Rate	150l/per/day
Persons per Dwelling	2.7
Infiltration	10%
Peaking Factor	6 DWF (Residential)
Minimum Self Cleansing Velocity	0.75m/s
Minimum Pipe Diameter	150mm

Table 4-2 Foul Design Loadings

Unit Type	No. of such units	No. of occupants per unit	Daily foul loading (l/day)	DWF (l/s)	Design Flow (6DWF) (l/s)
Sheltered Accommodation	20	2.7	8,910	0.103	0.619
2 Bedroom apartments	34	2.7	15,147	0.175	1.052
TOTAL	54		24,057	0.278	1.671

4.2.2 Design Criteria

The foul water sewers have been designed using Causeway Flow drainage software in accordance with the Irish Water Code of Practice, *“Recommendations for Site Development Works for Housing Areas”* design guide published by the Department of Environment, Heritage and Local Government (DoEHLG) and with the aid of *“Sewers for Adoptions - 7th Edition”* published by WRc plc.

5.0 Surface Water Sewer Design

5.1 Existing Storm Water Drainage

Storm water drainage from the site is primarily by infiltration to ground with certain volumes running off at low level into the Hattons Alley Lane site at the bottom of the site. The existing runoff from the site finds its way into the existing combined sewer network on Hatton's Alley Lane.

5.2 Proposed Storm Water Drainage Design

5.2.1 Proposed Storm Drainage Infrastructure

It is proposed to install 2 no. storm water soakaways to deal with stormwater generated on the site. Runoff from the top tier of apartments fronting onto Redemption Road will be transferred to a soakaway to be located to the rear of the apartments.

Runoff from the bottom apartment block (Eastern network) is to be collected in a separate soakaway adjoining the proposed building. As the bottom block of apartments will be piled, there will be no danger of the soakaway having a detrimental effect on the building substructure.

The storage capacities of the two soakaways have been calculated as part of the overall drainage design, based on infiltration tests carried out on the site by PUNCH Consulting Engineers in conjunction with HG Construction.

Table 5-1: Soakaway Provision

	Volume m ³	Catchment Area ha
Soakaway Upper Tier	57.6	0.234
Soakaway Lower Tier	25	0.080
Total	82.6	0.314

5.2.2 Proposed Design Parameters

The proposed storm water drainage network has been designed and modelled using Causeway Flow software in accordance with the “Recommendations for site development works for Housing Areas” design guide and the Greater Dublin Strategic Drainage Study (GSDS). Detailed calculations are enclosed in Appendix B. Cognisance was taken of the Cork City Development Plan 2022-2028 in the design. Table 5-2 describes the stormwater drainage design parameters used and detailed calculations are enclosed in Appendix B.

Description	Value
Total Impervious Site area	0.314ha
Return period target	Pipe Design 1 in 5 year. Network Design 1 in 30 year + CC. Check 1 in 100 year + CC for flooding.
Climate Change	20%
M5-60	18.8mm
Ratio R	0.250
Rainfall Intensity	50mm/hr

Table 5-2: Stormwater drainage parameter

Please refer to PUNCH Drawing No. 184-109-003 for details of proposed storm water drainage.

Please refer to Appendix B for detailed calculations of the proposed storm water drainage infrastructure.

6.0 Flood Risk

The proposed development is located within Flood Zone C. This zone defines areas with a low probability of flooding. For river flooding it is defined as less than 0.1% probability or between less than 1 in 1,000 years, also for coastal flooding less than 0.1% probability or less than 1 in 1,000 years.

Planning guidelines on flood risk and development have been published by the OPW and Department of Environment, Heritage and Local Government (DoEHLG). The below sections summarise how the development's design will be assessed in accordance with the main principles of these guidelines.

6.1 Sequential Approach

The sequential approach makes use of flood zones for river and coastal flooding, as described below:

Zone A - High probability. This zone defines areas with the highest risk of flooding. For river flooding it is defined as more than 1% probability or more than 1 in 100 year, and for coastal flooding it is defined as 0.5% probability or more than 1 in 200 year.

Zone B - Moderate probability. This zone defines areas with a moderate risk of flooding. For river flooding it is defined as 0.1% to 1% probability or between 1 in 100 and 1 in 1,000 years, and for coastal flooding 0.1% and 0.5% probability or between 1 in 200 and 1 in 1,000 years.

Zone C - Low probability. This zone defines areas with a low risk of flooding less than 0.1% probability or less than 1 in 1,000 years.

The flood zones are then to be looked at with the vulnerability of the building proposed;

- | | |
|-------------------|--|
| Highly Vulnerable | - Hospitals, Garda stations, homes, motorways etc. |
| Less Vulnerable | - Commercial, retail, offices etc. |
| Water Compatible | - Marina's, green areas |

A sequential approach is then taken to assess the most favourable location for the development based on its vulnerability.

Zone A - Water Compatible or Justification Test

Zone B - Less Vulnerable if no other lands are available or highly vulnerable with Justification Test

Zone C - Any development

6.2 Development Sequential Test

Coastal Flood Risk

Coastal flooding results from sea levels which are higher than normal and result in sea water overflowing onto the land. Coastal flooding is influenced by the following three factors which often work in combination: high tide level, storm surges and wave action.

There is no risk associated with coastal flooding for this site as general ground levels for the site are much higher than expected extreme coastal flood levels.

Fluvial Flood Risk

Fluvial flooding is the result of a river exceeding its capacity and excess water spilling out onto the adjacent floodplain.

CFRAMS Maps for the area to the indicate no fluvial flood risk to the proposed dwellings, with flooding confined to the east of the Blackpool Church which is close to the proposed development. As the roads accessing the site are also in Flood Zone C, access/egress from the development for emergency services during a flood event will not be compromised.

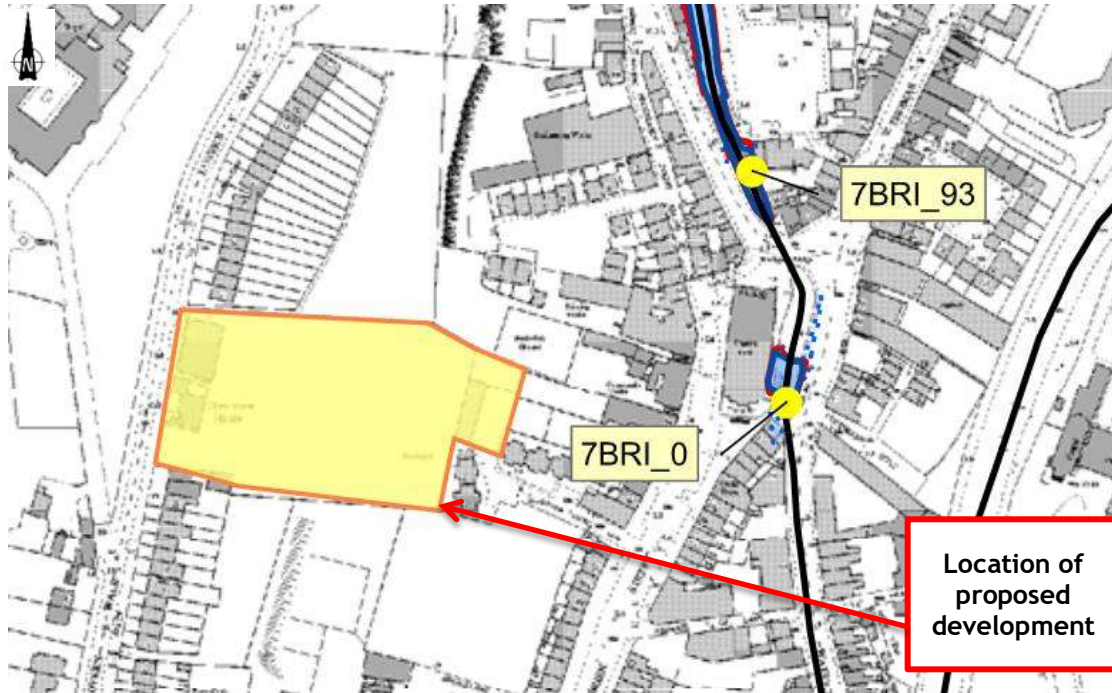


Figure 6-1 Fluvial Flood Map (image taken from CFRAM)

Pluvial Flood Risk

Pluvial flooding is the result of rainfall-generated overland flows which arise before run-off can enter any watercourse or sewer. It is usually associated with high intensity rainfall and typically occurs in the summer months. Pluvial flood risk has not been identified by the Preliminary Flood Risk Assessment (PFRA) mapping as being a risk to this site.

Additionally, the proposed drainage network will alleviate any concerns of pluvial flooding.

OPW Flood Maps

The OPW Flood Hazard Mapping Website is a record of historic flood events. This database indicates that there is no record of flooding incidents in the area of the proposed development.

6.3 Flood Risk Assessment Conclusions

The site has been assessed in accordance with the “The Planning System and Flood Risk Management” Guidelines. As part of the sequential test, the OPW flood hazard maps have been consulted, as have the Catchment Flood Risk Assessment Maps produced by the OPW.

In all cases it was found that there is a low risk of flooding at the development (less than 1 in 1000 probability in any given year) and that the development is deemed appropriate within the proposed site location.

7.0 Watermain Design

7.1 Existing Watermain

Based on Irish Water Watermain record drawings, there is an existing public watermain on Redemption Road and on Hattons Alley Lane.

The records available from Irish Water do not indicate the diameters of the mains or the materials from which they are manufactured.

7.2 Proposed Watermain

A pre-enquiry form has been submitted to Irish Water with respect to the required water connection. A confirmation of feasibility has been received from Irish Water. Following confirmation of feasibility, PUNCH Consulting Engineers issued a Design Submission to Irish Water, which was reviewed and accepted by Irish Water. Please note that the design submission relates to a larger number of units than is currently being proposed for the site, however a Connection Application will be submitted which covers only the 54 No. units now proposed. Please refer to Appendix D for Irish Water correspondence.

It is proposed to construct 2 No. 100mm diameter watermains to service each level of the development. These feeds will provide potable and firefighting water to the proposed development. A bulk water meter shall be provided in accordance with Irish Water's requirements. The watermain layout has been designed in accordance with "Irish Water Code of Practice for Water Infrastructure". All watermains are to be constructed in accordance with Irish Water Code of Practice and Cork City Council's requirements. Fire coverage is to be reviewed and certified by the fire consultant.

Fire hydrants have been included in the design for the site layout. These have been positioned such that all proposed dwellings have a fire hydrant within 46m and no closer than 6m to the building as per the Irish Water standard detail requirements and Part B of the Building Regulations.

Please refer to PUNCH Drawings 184-109-004 for details of proposed watermains.

8.0 Road & Footpath Design

8.1 Existing Road & footpaths

8.1.1 Redemption Road

Redemption Road is a two-way vehicular road which connects the Blackpool area with the Farranree suburb of the city. The existing road surface is in reasonable condition. There is evidence of patch repairs having been carried out as well as new surfaces due to utilities works. The road is approximately 6.0m wide with a concrete footpath on both sides.

8.1.2 Hattons Alley Lane

Hattons Alley Lane is a cul de sac which features on street parking. The road is narrow, allowing one way traffic when cars are parked at both sides of the road. The existing road surface consists of macadam which is in reasonable condition though there is a requirement for some localised repairs.

8.2 Proposed Road & Footpath Design

Roads have been designed with the aid of the “Design Manual for Urban Roads and Streets” (DMURS) published by Department of Transport, Tourism and Sport. The DMURS aims to aid the design of safer, more attractive and vibrant streets which will generate and sustain communities and neighbourhoods. As well as cars and other vehicles this encompasses pedestrians, cyclists and those using public transport. All roads within the development will be cul de sacs.

The road surfaces will be formed from macadam with footpaths formed from concrete.

9.0 Site Boundaries

9.1 Existing Site Boundaries

9.1.1 Redemption Road (Western boundary)

Redemption Road forms the western boundary of the site. At present the boundary consists of a mixture of buildings and secure masonry walls and gates,

9.1.2 Northern boundary

The northern boundary consists of a mixture of blockwork walls and sod and stone ditch, At the lower or eastern end of the boundary a steel palisade fence is in place.

9.1.3 Eastern boundary

The eastern boundary of the site is largely characterised by masonry walls. This end of the site adjoins dwellings on Hattons Alley Lane as well as the rear of some commercial units which front onto Great William O’Brien Street. At present there is a pedestrian door linking the site with the rear of one of the commercial premises (public house). A portion of the eastern boundary of what will be part of the site does not have a fence/ wall as it entails the purchase of a portion of the garden of a adjoining property.

9.1.4 Southern boundary

The southern boundary of the site bounds a number of residential developments. The boundaries being delineated by masonry walls and buildings.



Figure 9-1 Site Boundary (Shown for indicative purposes)

Appendix A Foul Water Drainage Calculations

Design Settings

Frequency of use (kDU)	0.00	Minimum Velocity (m/s)	0.75
Flow per dwelling per day (l/day)	2676	Connection Type	Level Inverts
Domestic Flow (l/s/ha)	0.0	Minimum Backdrop Height (m)	0.600
Industrial Flow (l/s/ha)	0.0	Preferred Cover Depth (m)	0.800
Additional Flow (%)	0	Include Intermediate Ground	✓

Nodes

Name	Dwellings	Cover Level (m)	Manhole Type	Easting (m)	Northing (m)	Depth (m)
F1-0	12	38.000	Adoptable	567180.164	573333.556	0.689
F1-1	11	38.000	Adoptable	567175.486	573313.238	1.036
F1-2	11	39.200	Adoptable	567168.536	573283.023	2.443
F1-3		39.400	Adoptable	567165.161	573283.627	2.666
F1-4 (outfall)		39.240	Adoptable	567160.844	573270.249	2.600

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)
F1.000	F1-0	F1-1	20.850	0.600	37.311	36.964	0.347	60.1	150
F1.001	F1-1	F1-2	31.004	0.600	36.964	36.757	0.207	149.8	150
F1.002	F1-2	F1-3	3.429	0.600	36.757	36.734	0.023	149.1	150
F1.003	F1-3	F1-4 (outfall)	14.057	0.600	36.734	36.640	0.094	149.5	150










Name	Pro Vel @ 1/3 Q (m/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Dwellings (ha)	Σ Units (ha)	Σ Add Inflow (ha)	Pro Depth (mm)	Pro Velocity (m/s)
F1.000	0.332	1.300	23.0	0.4	0.539	0.886	0.000	12	0.0	0.0	13	0.474
F1.001	0.305	0.819	14.5	0.7	0.886	2.293	0.000	23	0.0	0.0	23	0.422
F1.002	0.339	0.821	14.5	1.1	2.293	2.516	0.000	34	0.0	0.0	27	0.476
F1.003	0.339	0.819	14.5	1.1	2.516	2.450	0.000	34	0.0	0.0	27	0.475

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
F1.000	20.850	60.1	150	Circular	38.000	37.311	0.539	38.000	36.964	0.886
F1.001	31.004	149.8	150	Circular	38.000	36.964	0.886	39.200	36.757	2.293
F1.002	3.429	149.1	150	Circular	39.200	36.757	2.293	39.400	36.734	2.516
F1.003	14.057	149.5	150	Circular	39.400	36.734	2.516	39.240	36.640	2.450

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
F1.000	F1-0	1200	Manhole	Adoptable	F1-1	1200	Manhole	Adoptable
F1.001	F1-1	1200	Manhole	Adoptable	F1-2	1200	Manhole	Adoptable
F1.002	F1-2	1200	Manhole	Adoptable	F1-3	1200	Manhole	Adoptable
F1.003	F1-3	1200	Manhole	Adoptable	F1-4 (outfall)	1200	Manhole	Adoptable

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
F1-0	567180.164	573333.556	38.000	0.689	1200				
F1-1	567175.486	573313.238	38.000	1.036	1200		0 F1.000	37.311	150
F1-2	567168.536	573283.023	39.200	2.443	1200		1 F1.000	36.964	150
F1-3	567165.161	573283.627	39.400	2.666	1200		0 F1.001	36.964	150
F1-4 (outfall)	567160.844	573270.249	39.240	2.600	1200		1 F1.001	36.757	150
							0 F1.002	36.757	150
							1 F1.002	36.734	150
							0 F1.003	36.734	150
							1 F1.003	36.640	150

Design Settings

Frequency of use (kDU)	0.00	Minimum Velocity (m/s)	0.75
Flow per dwelling per day (l/day)	2676	Connection Type	Level Inverts
Domestic Flow (l/s/ha)	0.0	Minimum Backdrop Height (m)	0.600
Industrial Flow (l/s/ha)	0.0	Preferred Cover Depth (m)	0.800
Additional Flow (%)	0	Include Intermediate Ground	✓

Nodes

Name	Dwellings	Cover Level (m)	Manhole Type	Easting (m)	Northing (m)	Depth (m)
F20-0	6	10.900	Adoptable	567302.665	573315.049	0.950
F20-1	3	10.900	Adoptable	567313.595	573310.952	1.242
F20-2	4	10.900	Adoptable	567307.146	573292.369	1.734
F20-3		10.900	Adoptable	567294.923	573295.438	2.050
F21-0	4	11.000	Adoptable	567278.727	573317.259	0.950
F21-1	3	11.000	Adoptable	567275.326	573296.700	1.401
F20-4		10.900	Adoptable	567293.502	573290.751	2.156
F20-5		10.420	Adoptable	567292.486	573286.034	1.802
F20-6		10.340	Adoptable	567294.052	573271.524	2.087
F20-7		9.660	Adoptable	567303.270	573267.650	1.657
EX. MH		7.990	Adoptable	567329.724	573258.168	0.839

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)
F20.000	F20-0	F20-1	11.673	1.500	9.950	9.658	0.292	40.0	150
F20.001	F20-1	F20-2	19.670	1.500	9.658	9.166	0.492	40.0	150
F20.002	F20-2	F20-3	12.602	1.500	9.166	8.850	0.316	39.9	150
F20.003	F20-3	F20-4	4.898	1.500	8.850	8.744	0.106	46.2	150
F21.000	F21-0	F21-1	20.838	1.500	10.050	9.599	0.451	46.2	150
F21.001	F21-1	F20-4	19.125	1.500	9.599	8.744	0.855	22.4	150
F20.004	F20-4	F20-5	4.825	1.500	8.744	8.618	0.126	38.3	150
F20.005	F20-5	F20-6	14.594	1.500	8.618	8.253	0.365	40.0	225
F20.006	F20-6	F20-7	9.999	1.500	8.253	8.003	0.250	40.0	225
F20.007	F20-7	EX. MH	28.102	1.500	8.003	7.151	0.852	33.0	225

Name	Pro Vel @ 1/3 Q (m/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Dwellings (ha)	Σ Units (ha)	Σ Add Inflow (ha)	Pro Depth (mm)	Pro Velocity (m/s)
F20.000	0.279	1.388	24.5	0.2	0.800	1.092	0.000	6	0.0	0.0	10	0.391
F20.001	0.318	1.388	24.5	0.3	1.092	1.584	0.000	9	0.0	0.0	11	0.441
F20.002	0.356	1.390	24.6	0.4	1.584	1.900	0.000	13	0.0	0.0	14	0.504
F20.003	0.331	1.291	22.8	0.4	1.900	2.006	0.000	13	0.0	0.0	14	0.482
F21.000	0.220	1.291	22.8	0.1	0.800	1.251	0.000	4	0.0	0.0	8	0.331
F21.001	0.347	1.857	32.8	0.2	1.251	2.006	0.000	7	0.0	0.0	9	0.501
F20.004	0.417	1.418	25.1	0.6	2.006	1.652	0.000	20	0.0	0.0	17	0.588
F20.005	0.381	1.818	72.3	0.6	1.577	1.862	0.000	20	0.0	0.0	15	0.550
F20.006	0.381	1.818	72.3	0.6	1.862	1.432	0.000	20	0.0	0.0	15	0.550
F20.007	0.390	2.002	79.6	0.6	1.432	0.614	0.000	20	0.0	0.0	15	0.582

Pipeline Schedule

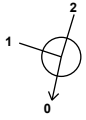


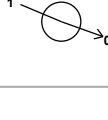

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
F20.000	11.673	40.0	150	Circular	10.900	9.950	0.800	10.900	9.658	1.092
F20.001	19.670	40.0	150	Circular	10.900	9.658	1.092	10.900	9.166	1.584
F20.002	12.602	39.9	150	Circular	10.900	9.166	1.584	10.900	8.850	1.900
F20.003	4.898	46.2	150	Circular	10.900	8.850	1.900	10.900	8.744	2.006
F21.000	20.838	46.2	150	Circular	11.000	10.050	0.800	11.000	9.599	1.251
F21.001	19.125	22.4	150	Circular	11.000	9.599	1.251	10.900	8.744	2.006
F20.004	4.825	38.3	150	Circular	10.900	8.744	2.006	10.420	8.618	1.652
F20.005	14.594	40.0	225	Circular	10.420	8.618	1.577	10.340	8.253	1.862
F20.006	9.999	40.0	225	Circular	10.340	8.253	1.862	9.660	8.003	1.432
F20.007	28.102	33.0	225	Circular	9.660	8.003	1.432	7.990	7.151	0.614

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
F20.000	F20-0	1200	Manhole	Adoptable	F20-1	1200	Manhole	Adoptable
F20.001	F20-1	1200	Manhole	Adoptable	F20-2	1200	Manhole	Adoptable
F20.002	F20-2	1200	Manhole	Adoptable	F20-3	1200	Manhole	Adoptable
F20.003	F20-3	1200	Manhole	Adoptable	F20-4	1200	Manhole	Adoptable
F21.000	F21-0	1200	Manhole	Adoptable	F21-1	1200	Manhole	Adoptable
F21.001	F21-1	1200	Manhole	Adoptable	F20-4	1200	Manhole	Adoptable
F20.004	F20-4	1200	Manhole	Adoptable	F20-5	1200	Manhole	Adoptable
F20.005	F20-5	1200	Manhole	Adoptable	F20-6	1200	Manhole	Adoptable
F20.006	F20-6	1200	Manhole	Adoptable	F20-7	1200	Manhole	Adoptable
F20.007	F20-7	1200	Manhole	Adoptable	EX. MH	1200	Manhole	Adoptable

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
F20-0	567302.665	573315.049	10.900	0.950	1200				
						0	F20.000	9.950	150
F20-1	567313.595	573310.952	10.900	1.242	1200				
						1	F20.000	9.658	150
						0	F20.001	9.658	150
F20-2	567307.146	573292.369	10.900	1.734	1200				
						1	F20.001	9.166	150
						0	F20.002	9.166	150
F20-3	567294.923	573295.438	10.900	2.050	1200				
						1	F20.002	8.850	150
						0	F20.003	8.850	150
F21-0	567278.727	573317.259	11.000	0.950	1200				
						0	F21.000	10.050	150
F21-1	567275.326	573296.700	11.000	1.401	1200				
						1	F21.000	9.599	150
						0	F21.001	9.599	150

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
F20-4	567293.502	573290.751	10.900	2.156	1200		1	F21.001	8.744	150
							2	F20.003	8.744	150
							0	F20.004	8.744	150
F20-5	567292.486	573286.034	10.420	1.802	1200		1	F20.004	8.618	150
							0	F20.005	8.618	225
F20-6	567294.052	573271.524	10.340	2.087	1200		1	F20.005	8.253	225
							0	F20.006	8.253	225
F20-7	567303.270	573267.650	9.660	1.657	1200		1	F20.006	8.003	225
							0	F20.007	8.003	225
EX. MH	567329.724	573258.168	7.990	0.839	1200		1	F20.007	7.151	225

Appendix B Storm Water Drainage Calculation

Design Settings

Frequency of use (kDU)	0.00	Minimum Velocity (m/s)	0.75
Flow per dwelling per day (l/day)	2676	Connection Type	Level Inverts
Domestic Flow (l/s/ha)	0.0	Minimum Backdrop Height (m)	0.600
Industrial Flow (l/s/ha)	0.0	Preferred Cover Depth (m)	0.800
Additional Flow (%)	0	Include Intermediate Ground	✓

Nodes

Name	Dwellings	Cover Level (m)	Manhole Type	Easting (m)	Northing (m)	Depth (m)
F1-0	12	38.000	Adoptable	567180.164	573333.556	0.689
F1-1	11	38.000	Adoptable	567175.486	573313.238	1.036
F1-2	11	39.200	Adoptable	567168.536	573283.023	2.443
F1-3		39.400	Adoptable	567165.161	573283.627	2.666
F1-4 (outfall)		39.240	Adoptable	567160.844	573270.249	2.600

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)
F1.000	F1-0	F1-1	20.850	0.600	37.311	36.964	0.347	60.1	150
F1.001	F1-1	F1-2	31.004	0.600	36.964	36.757	0.207	149.8	150
F1.002	F1-2	F1-3	3.429	0.600	36.757	36.734	0.023	149.1	150
F1.003	F1-3	F1-4 (outfall)	14.057	0.600	36.734	36.640	0.094	149.5	150










Name	Pro Vel @ 1/3 Q (m/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Dwellings (ha)	Σ Units (ha)	Σ Add Inflow (ha)	Pro Depth (mm)	Pro Velocity (m/s)
F1.000	0.332	1.300	23.0	0.4	0.539	0.886	0.000	12	0.0	0.0	13	0.474
F1.001	0.305	0.819	14.5	0.7	0.886	2.293	0.000	23	0.0	0.0	23	0.422
F1.002	0.339	0.821	14.5	1.1	2.293	2.516	0.000	34	0.0	0.0	27	0.476
F1.003	0.339	0.819	14.5	1.1	2.516	2.450	0.000	34	0.0	0.0	27	0.475

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
F1.000	20.850	60.1	150	Circular	38.000	37.311	0.539	38.000	36.964	0.886
F1.001	31.004	149.8	150	Circular	38.000	36.964	0.886	39.200	36.757	2.293
F1.002	3.429	149.1	150	Circular	39.200	36.757	2.293	39.400	36.734	2.516
F1.003	14.057	149.5	150	Circular	39.400	36.734	2.516	39.240	36.640	2.450

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
F1.000	F1-0	1200	Manhole	Adoptable	F1-1	1200	Manhole	Adoptable
F1.001	F1-1	1200	Manhole	Adoptable	F1-2	1200	Manhole	Adoptable
F1.002	F1-2	1200	Manhole	Adoptable	F1-3	1200	Manhole	Adoptable
F1.003	F1-3	1200	Manhole	Adoptable	F1-4 (outfall)	1200	Manhole	Adoptable

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
F1-0	567180.164	573333.556	38.000	0.689	1200				
F1-1	567175.486	573313.238	38.000	1.036	1200		0 F1.000	37.311	150
F1-2	567168.536	573283.023	39.200	2.443	1200		1 F1.000	36.964	150
F1-3	567165.161	573283.627	39.400	2.666	1200		0 F1.001	36.964	150
F1-4 (outfall)	567160.844	573270.249	39.240	2.600	1200		1 F1.001	36.757	150
							0 F1.002	36.757	150
							1 F1.002	36.734	150
							0 F1.003	36.734	150
							1 F1.003	36.640	150

Design Settings

Frequency of use (kDU)	0.00	Minimum Velocity (m/s)	0.75
Flow per dwelling per day (l/day)	2676	Connection Type	Level Inverts
Domestic Flow (l/s/ha)	0.0	Minimum Backdrop Height (m)	0.600
Industrial Flow (l/s/ha)	0.0	Preferred Cover Depth (m)	0.800
Additional Flow (%)	0	Include Intermediate Ground	✓

Nodes

Name	Dwellings	Cover Level (m)	Manhole Type	Easting (m)	Northing (m)	Depth (m)
F20-0	6	10.900	Adoptable	567302.665	573315.049	0.950
F20-1	3	10.900	Adoptable	567313.595	573310.952	1.242
F20-2	4	10.900	Adoptable	567307.146	573292.369	1.734
F20-3		10.900	Adoptable	567294.923	573295.438	2.050
F21-0	4	11.000	Adoptable	567278.727	573317.259	0.950
F21-1	3	11.000	Adoptable	567275.326	573296.700	1.401
F20-4		10.900	Adoptable	567293.502	573290.751	2.156
F20-5		10.420	Adoptable	567292.486	573286.034	1.802
F20-6		10.340	Adoptable	567294.052	573271.524	2.087
F20-7		9.660	Adoptable	567303.270	573267.650	1.657
EX. MH		7.990	Adoptable	567329.724	573258.168	0.839

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)
F20.000	F20-0	F20-1	11.673	1.500	9.950	9.658	0.292	40.0	150
F20.001	F20-1	F20-2	19.670	1.500	9.658	9.166	0.492	40.0	150
F20.002	F20-2	F20-3	12.602	1.500	9.166	8.850	0.316	39.9	150
F20.003	F20-3	F20-4	4.898	1.500	8.850	8.744	0.106	46.2	150
F21.000	F21-0	F21-1	20.838	1.500	10.050	9.599	0.451	46.2	150
F21.001	F21-1	F20-4	19.125	1.500	9.599	8.744	0.855	22.4	150
F20.004	F20-4	F20-5	4.825	1.500	8.744	8.618	0.126	38.3	150
F20.005	F20-5	F20-6	14.594	1.500	8.618	8.253	0.365	40.0	225
F20.006	F20-6	F20-7	9.999	1.500	8.253	8.003	0.250	40.0	225
F20.007	F20-7	EX. MH	28.102	1.500	8.003	7.151	0.852	33.0	225

Name	Pro Vel @ 1/3 Q (m/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Dwellings (ha)	Σ Units (ha)	Σ Add Inflow (ha)	Pro Depth (mm)	Pro Velocity (m/s)
F20.000	0.279	1.388	24.5	0.2	0.800	1.092	0.000	6	0.0	0.0	10	0.391
F20.001	0.318	1.388	24.5	0.3	1.092	1.584	0.000	9	0.0	0.0	11	0.441
F20.002	0.356	1.390	24.6	0.4	1.584	1.900	0.000	13	0.0	0.0	14	0.504
F20.003	0.331	1.291	22.8	0.4	1.900	2.006	0.000	13	0.0	0.0	14	0.482
F21.000	0.220	1.291	22.8	0.1	0.800	1.251	0.000	4	0.0	0.0	8	0.331
F21.001	0.347	1.857	32.8	0.2	1.251	2.006	0.000	7	0.0	0.0	9	0.501
F20.004	0.417	1.418	25.1	0.6	2.006	1.652	0.000	20	0.0	0.0	17	0.588
F20.005	0.381	1.818	72.3	0.6	1.577	1.862	0.000	20	0.0	0.0	15	0.550
F20.006	0.381	1.818	72.3	0.6	1.862	1.432	0.000	20	0.0	0.0	15	0.550
F20.007	0.390	2.002	79.6	0.6	1.432	0.614	0.000	20	0.0	0.0	15	0.582

Pipeline Schedule

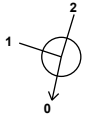


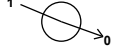

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
F20.000	11.673	40.0	150	Circular	10.900	9.950	0.800	10.900	9.658	1.092
F20.001	19.670	40.0	150	Circular	10.900	9.658	1.092	10.900	9.166	1.584
F20.002	12.602	39.9	150	Circular	10.900	9.166	1.584	10.900	8.850	1.900
F20.003	4.898	46.2	150	Circular	10.900	8.850	1.900	10.900	8.744	2.006
F21.000	20.838	46.2	150	Circular	11.000	10.050	0.800	11.000	9.599	1.251
F21.001	19.125	22.4	150	Circular	11.000	9.599	1.251	10.900	8.744	2.006
F20.004	4.825	38.3	150	Circular	10.900	8.744	2.006	10.420	8.618	1.652
F20.005	14.594	40.0	225	Circular	10.420	8.618	1.577	10.340	8.253	1.862
F20.006	9.999	40.0	225	Circular	10.340	8.253	1.862	9.660	8.003	1.432
F20.007	28.102	33.0	225	Circular	9.660	8.003	1.432	7.990	7.151	0.614

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
F20.000	F20-0	1200	Manhole	Adoptable	F20-1	1200	Manhole	Adoptable
F20.001	F20-1	1200	Manhole	Adoptable	F20-2	1200	Manhole	Adoptable
F20.002	F20-2	1200	Manhole	Adoptable	F20-3	1200	Manhole	Adoptable
F20.003	F20-3	1200	Manhole	Adoptable	F20-4	1200	Manhole	Adoptable
F21.000	F21-0	1200	Manhole	Adoptable	F21-1	1200	Manhole	Adoptable
F21.001	F21-1	1200	Manhole	Adoptable	F20-4	1200	Manhole	Adoptable
F20.004	F20-4	1200	Manhole	Adoptable	F20-5	1200	Manhole	Adoptable
F20.005	F20-5	1200	Manhole	Adoptable	F20-6	1200	Manhole	Adoptable
F20.006	F20-6	1200	Manhole	Adoptable	F20-7	1200	Manhole	Adoptable
F20.007	F20-7	1200	Manhole	Adoptable	EX. MH	1200	Manhole	Adoptable

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
F20-0	567302.665	573315.049	10.900	0.950	1200				
						0	F20.000	9.950	150
F20-1	567313.595	573310.952	10.900	1.242	1200				
						1	F20.000	9.658	150
						0	F20.001	9.658	150
F20-2	567307.146	573292.369	10.900	1.734	1200				
						1	F20.001	9.166	150
						0	F20.002	9.166	150
F20-3	567294.923	573295.438	10.900	2.050	1200				
						1	F20.002	8.850	150
						0	F20.003	8.850	150
F21-0	567278.727	573317.259	11.000	0.950	1200				
						0	F21.000	10.050	150
F21-1	567275.326	573296.700	11.000	1.401	1200				
						1	F21.000	9.599	150
						0	F21.001	9.599	150

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
F20-4	567293.502	573290.751	10.900	2.156	1200		1	F21.001	8.744	150
							2	F20.003	8.744	150
							0	F20.004	8.744	150
F20-5	567292.486	573286.034	10.420	1.802	1200		1	F20.004	8.618	150
							0	F20.005	8.618	225
F20-6	567294.052	573271.524	10.340	2.087	1200		1	F20.005	8.253	225
							0	F20.006	8.253	225
F20-7	567303.270	573267.650	9.660	1.657	1200		1	F20.006	8.003	225
							0	F20.007	8.003	225
EX. MH	567329.724	573258.168	7.990	0.839	1200		1	F20.007	7.151	225

Appendix C Utilities records



Important Safety Notice:
 Damage to gas pipelines can result in serious injury or death. Gas network information is provided as a general guide. The exact location and depth of medium or low pressure distribution gas pipes must be verified on site by carrying out necessary investigations, including, for example, hand digging trial holes along the route of the pipe.
 Service pipes are not generally shown but their presence should always be anticipated.
 High pressure transmission pipelines are shown in red. If a transmission pipeline is identified within 10m of any intended excavations then work must not proceed before GNI has been consulted. The true location and depth of a transmission pipeline must be verified on site by a representative of GNI. Contact can be made through 1850 427 747.
 All work in the vicinity of the gas network must be completed in accordance with the current edition of the Health & Safety Authority publication, Code of Practice For Avoiding Danger From Underground Services, which is available from the Health and Safety Authority (1890 289 389) or can be downloaded at www.hsa.ie.

Legal Notice:
 Gas Networks Ireland (GNI) and its affiliates, accept no responsibility for the accuracy of any information contained in this document including data concerning location and technical designation of the gas distribution and transmission network (the Information). The Information should not be relied on for accurate distance or depth of cover measurements.
 Any representations and warranties, express or implied, are excluded to the fullest extent permitted by law. No liability shall be accepted for any loss or damage including, without limitation, direct, indirect or consequential loss, arising out of or in connection with the use or re-use of the Information.

- Aurora Telecom Fibre Optic Cable
- - - - - Aurora Telecom Duct
- - - - - Aurora Telecom Sub-duct
- ||||| Aurora Telecom Inserted Gas Pipe

Contact Aurora Telecom on 1850-427-399 or (01)203-0120.

- Transmission Pipe (High Pressure)
- - - - - Transmission Pipe (Construction Issue)
- - - - - Distribution Pipe (Medium Pressure)
- - - - - Distribution Pipe (Low Pressure)
- - - - - Service Pipe (Medium Pressure)
- - - - - Service Pipe (Low Pressure)
- ||||| Strategic Pipe (Medium Pressure)
- ||||| Strategic Pipe (Low Pressure)
- - - - - Inserted Pipe (Medium Pressure)
- - - - - Inserted Pipe (Low Pressure)
- x x Distribution Pipe (Abandoned)

- C=? Cover (depth in meters)
- CP Test Point
- D End Cap
- Hot Tap
- Installation
- Valve
- Mains Verification **
- ⊗ Pressure Monitor
- Protection (Sleeve)
- Protection (Slabbing)
- Reducer
- Service Terminator
- Tee
- Transition

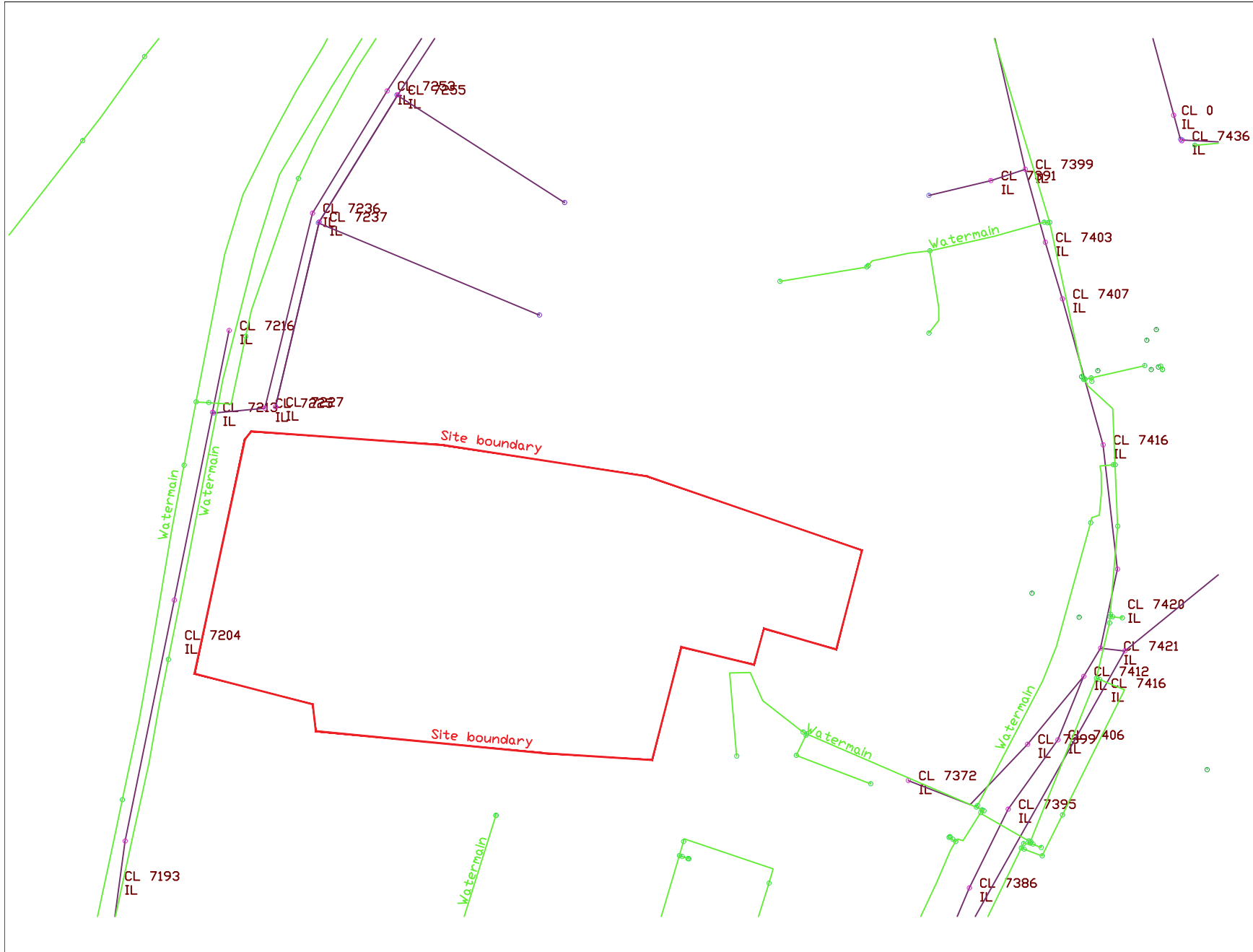
** Please contact GNI on 1850-427747 for specific information.

Design Department - DUBLIN

GAS NETWORK INFORMATION

Issue: Punch	
Location: Lovers Walk, Farranferris, Cork	
Plot Date: 17/09/2018	Contact: AC
Plotted by: A.Abbott	Scale: 1:1000

REPRODUCED FROM THE ORDNANCE SURVEY BY PERMISSION OF THE GOVERNMENT. LICENCE No. 3-3-34





TITLE: 20180926-035_A3

COLOUR CODE:

- BLACK - 38KV & HIGHER VOLTAGE OVERHEAD LINES
- GREEN - MV(10KV/20KV) OVERHEAD LINES
- BLUE - LV (400V/230V) OVERHEAD LINES
- CYAN - 38KV & HIGHER VOLTAGE UNDERGROUND CABLE ROUTES
- RED - MV/LV (10KV/20KV/400V/230V) UNDERGROUND CABLE ROUTES

DATE: 26-Sep-2018

** SCALE: 1:1000

** SCALE WHEN PRINTED ON AN A3 PAGE
XY COORDINATES DISPLAYED IN IRISH GRID COORDINATE SYSTEM

WARNING

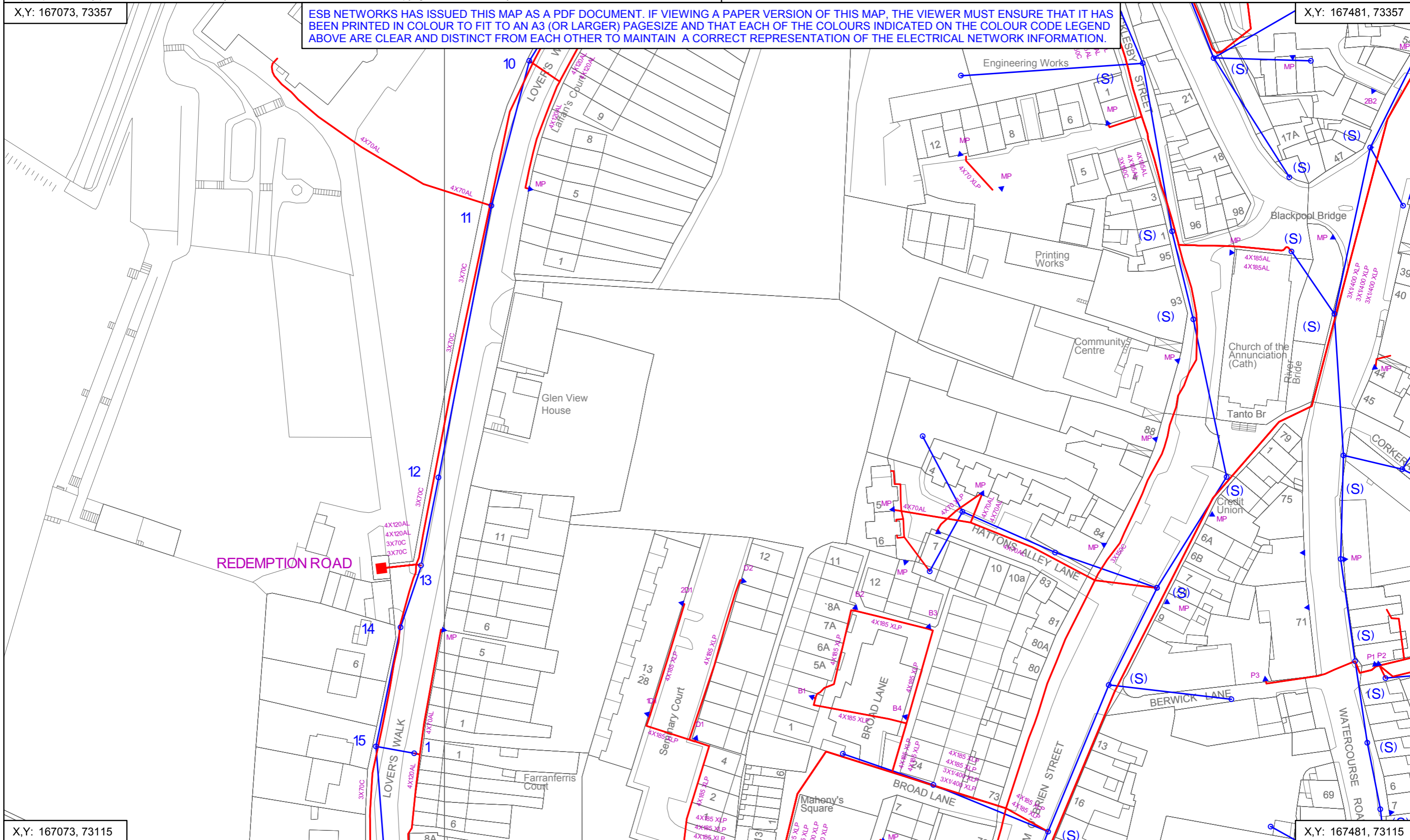
THIS MAP INDICATES THE APPROXIMATE LOCATION OF ESB TRANSMISSION (400KV, 220KV, 110KV, 38KV) AND DISTRIBUTION (20KV, 10KV, 230V/400V) UNDERGROUND CABLES AND OVERHEAD LINES IN THE GENERAL AREA OF THE PROPOSED WORKS. ESB NETWORKS TAKES NO RESPONSIBILITY FOR THE ACCURACY OR COMPLETENESS OF THE MAP. IT IS THE USER'S RESPONSIBILITY TO INDEPENDENTLY VERIFY THE INFORMATION AND THE LOCATION OF UNDERGROUND CABLES AND OVERHEAD LINES. LOW VOLTAGE (230V/400V) SERVICE CABLES (E.G. HOUSE SERVICES, FACTORY/SHOP SERVICES, PUBLIC LIGHTING LAMP SERVICES, ETC) ARE NOT INCLUDED BUT THEIR PRESENCE SHOULD BE ANTICIPATED. THE DEPTHS OF UNDERGROUND CABLES MUST NEVER BE ASSUMED. ADDITIONAL MORE DETAILED INFORMATION IS AVAILABLE FOR HIGH VOLTAGE TRANSMISSION UNDERGROUND CABLES (38KV, 110KV, 220KV, 400KV) FROM THE LOCAL ESB NETWORKS TRANSMISSION REPRESENTATIVE - SEE ATTACHED LIST FOR CONTACT DETAILS OR CALL 1850 372 757. NO WORK SHOULD BE CARRIED OUT IN THE VICINITY OF 38KV OR HIGHER VOLTAGE UNDERGROUND CABLES WITHOUT PRIOR CONSULTATION WITH ESB NETWORKS. BEFORE ANY MECHANICAL EXCAVATION IS UNDERTAKEN, THE ACTUAL LOCATION OF ALL UNDERGROUND ELECTRICITY CABLES MUST BE ESTABLISHED AND VERIFIED ON THE SITE USING: (A) UP-TO-DATE MAP RECORDS; (B) CABLE LOCATER EQUIPMENT OPERATED IN BOTH POWER AND RADIO MODES; (C) CAREFUL HAND DIGGING OF TRIAL HOLES USING 'SAFE DIGGING PRACTICE'. REFER ALSO TO 'HSA CODE OF PRACTICE FOR AVOIDING DANGER FROM UNDERGROUND SERVICES'. ESB TAKES NO RESPONSIBILITY FOR AND SHALL BEAR NO LIABILITY, HOWSOEVER ARISING, IN RELATION TO ANY DAMAGE, INJURY/DEATH OR LOSS OF SUPPLY AS A RESULT OF DAMAGE OR INTERFERENCE WITH ITS NETWORKS.

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X,Y: 167073, 73357

ESB NETWORKS HAS ISSUED THIS MAP AS A PDF DOCUMENT. IF VIEWING A PAPER VERSION OF THIS MAP, THE VIEWER MUST ENSURE THAT IT HAS BEEN PRINTED IN COLOUR TO FIT TO AN A3 (OR LARGER) PAGESIZE AND THAT EACH OF THE COLOURS INDICATED ON THE COLOUR CODE LEGEND ABOVE ARE CLEAR AND DISTINCT FROM EACH OTHER TO MAINTAIN A CORRECT REPRESENTATION OF THE ELECTRICAL NETWORK INFORMATION.

X,Y: 167481, 73357



X,Y: 167073, 73115

X,Y: 167481, 73115



Drainage Records

- Legend**
- IW_FoulNetwork**
- LOCAL COMBINED
 - LOCAL FOUL
 - INTERCEPTOR
 - PRIVATE FOUL
- IW_FoulManholes**
- MANHOLE_**
- Manhole

THE SEWERS SHOWN ON THIS MAP ARE FOR REFERENCE ONLY. THE LOCATION AND PROPERTIES OF ALL SEWERS, LEVELS, PIPESIZES, etc, MUST BE CONFIRMED ON SITE.



1:750



CORK CITY COUNCIL ENVIRONMENT DIRECTORATE (As agents of Irish Water)	
Drawn By: A. Homan	
Checked by: G.R.	
Date:	18/09/2018



Drainage Records

Legend

- IW_FoulNetwork**
PIPE_FUNC
 - LOCAL COMBINED
 - LOCAL FOUL
 - INTERCEPTOR
 - PRIVATE FOUL

- IW_FoulManholes**
MANHOLE_
 ● Manhole

THE SEWERS SHOWN ON THIS MAP ARE FOR REFERENCE ONLY. THE LOCATION AND PROPERTIES OF ALL SEWERS, LEVELS, PIPESIZES, etc, MUST BE CONFIRMED ON SITE.



1:750



CORK CITY COUNCIL ENVIRONMENT DIRECTORATE
 (As agents of Irish Water)

Drawn By: A. Homan

Checked by: G.R.

Date: 18/09/2018



Drainage Records

Legend
CCC_StormNetwork
PIPE_FUNC
 — LOCAL STORM
 - - - PRIVATE STORM

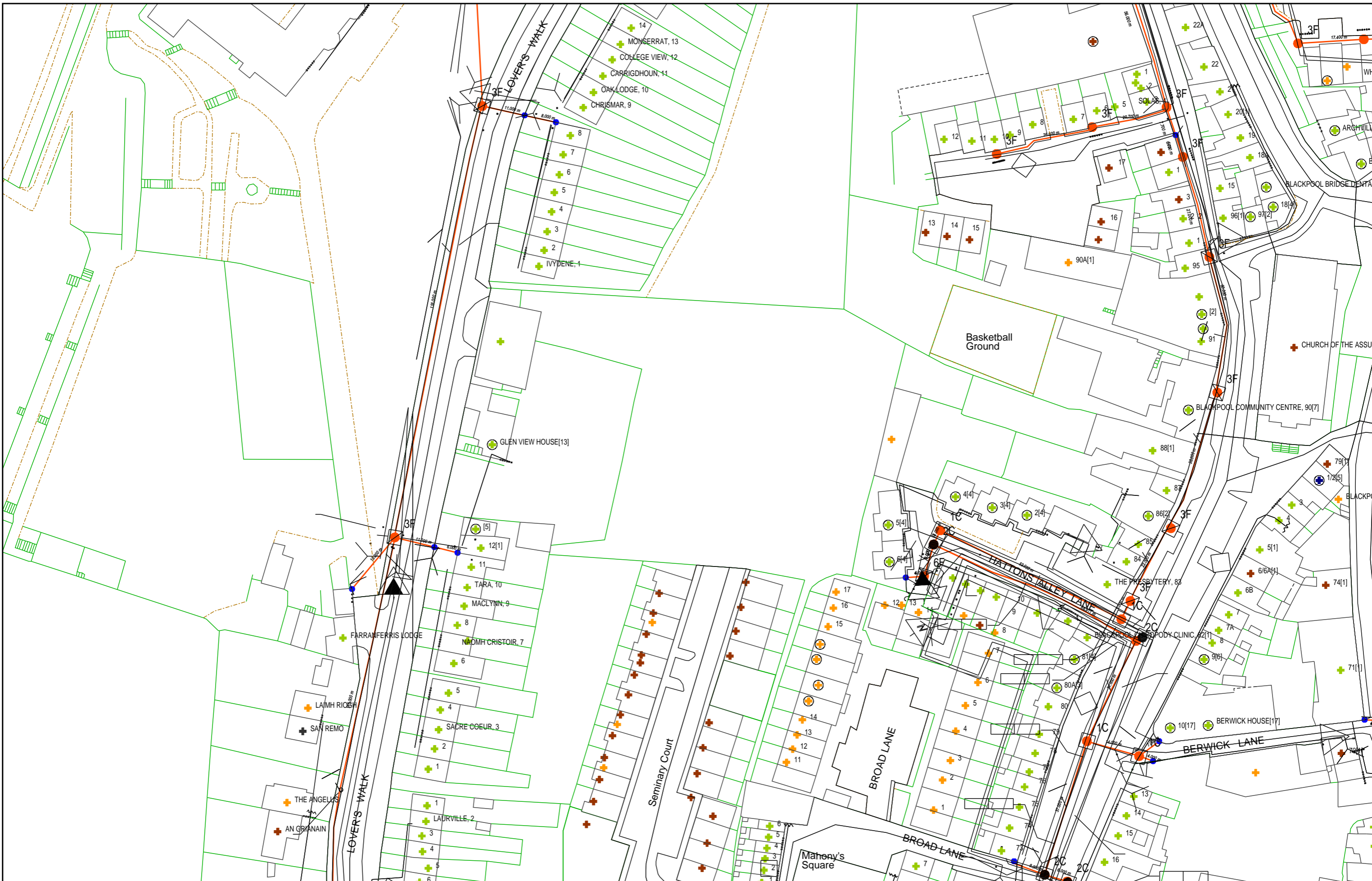
THE SEWERS SHOWN ON THIS MAP ARE FOR REFERENCE ONLY. THE LOCATION AND PROPERTIES OF ALL SEWERS, LEVELS, PIPESIZES, etc, MUST BE CONFIRMED ON SITE.



1:750



CORK CITY COUNCIL ENVIRONMENT DIRECTORATE Storm Network	
Drawn By:	A. Homan
Checked by:	G.R.
Date:	18/09/2018



Appendix D Irish Water Confirmation of Feasibility & Design Acceptance

HG Construction Ltd. c/o Michael O'Connor,
Punch Consulting Engineers,
Unit 2,
Copley Hall,
Cotters Street,
Cork

13 June 2019

Uisce Éireann
Bosca OP 448
Oifig Sheachadta
na Cathrach Theas
Cathair Chorcaí

Irish Water
PO Box 448
South City
Delivery Office
Cork City

www.water.ie

Re: Design Submission for Development at Glenview House, Lovers Walk, Redemption Road, Cork (the “Development”) (the “Design Submission”) / 4517062213.

Dear Michael,

Many thanks for your recent Design Submission.

We have reviewed your proposal for the connection(s) at the Development. Based on the information provided, which included the documents outlined in Appendix A to this letter, Irish Water has no objection to your proposals.

This letter does not constitute an offer, in whole or in part, to provide a connection to any Irish Water infrastructure. Before you can connect to our network you must sign a connection agreement with Irish Water. This can be applied for by completing the connection application form at www.water.ie/connections. Irish Water's current charges for water and wastewater connections are set out in the Water Charges Plan as approved by the Commission for Regulation of Utilities (CRU) (https://www.cru.ie/document_group/irish-waters-water-charges-plan-2018/).

You the Customer (including any designers/contractors or other related parties appointed by you) is entirely responsible for the design and construction of all water and/or wastewater infrastructure within the Development which is necessary to facilitate connection(s) from the boundary of the Development to Irish Water's network(s) (the “**Self-Lay Works**”), as reflected in your Design Submission. Acceptance of the Design Submission by Irish Water does not, in any way, render Irish Water liable for any elements of the design and/or construction of the Self-Lay Works.

If you have any further questions, please contact your Irish Water Representative

Name: Brian O'Mahony
Phone: 022 52205
Email: bomahony@water.ie

Yours sincerely,



Maria O'Dwyer

Connections and Developer Services

Appendix A

Document Title & Revision

- 184-109-001 Site Location Plan
- 184-109-003-PR4 Proposed Drainage Layout
- 184-109-004-PR3 Proposed Water Main Layout
- 184-109|MOC|01-04-2018|SK010 Rev01 Foul Long Sections

Standard Details/Code of Practice Exemption: N/A

For further information, visit www.water.ie/connections

Notwithstanding any matters listed above, the Customer (including any appointed designers/contractors, etc.) is entirely responsible for the design and construction of the Self-Lay Works. Acceptance of the Design Submission by Irish Water will not, in any way, render Irish Water liable for any elements of the design and/or construction of the Self-Lay Works.



MAP CENTRE COORDINATES (ITM): 567225,573300

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	AMENDMENT		

Lover's Walk Blackpool Housing Development

Site Location Plan

	PL0
Stage:	PLANNING
Scale:	1:2,500 @A3
Drawn:	RW
Checked:	AC
Approved:	AC
Date:	21/09/2018
Drawing No:	184-109-001

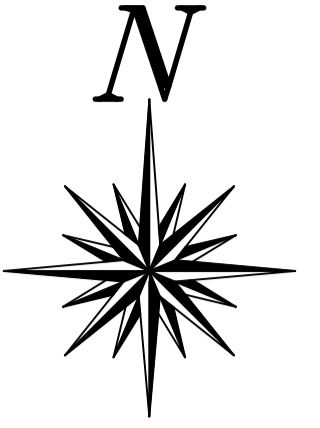
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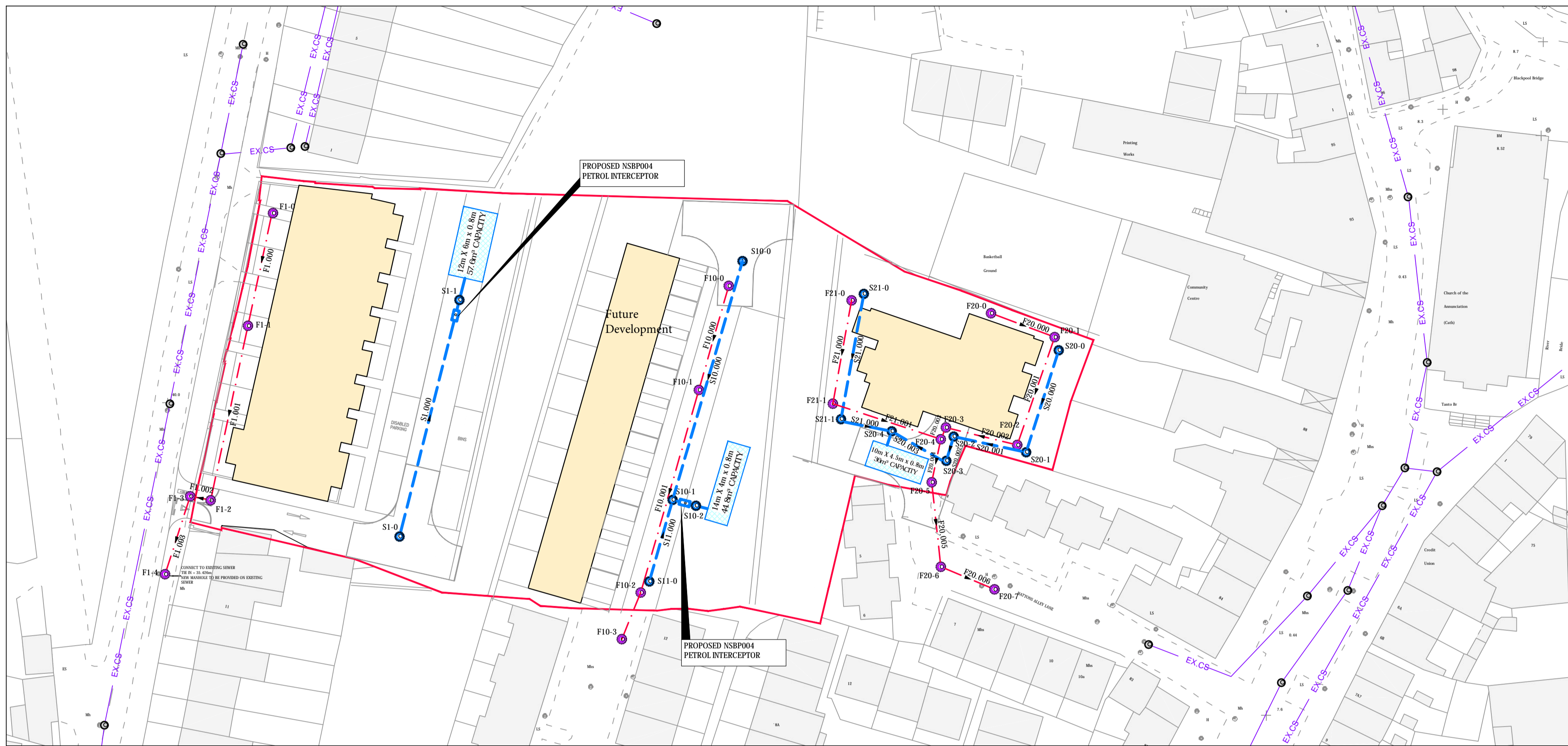
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Consulting Engineers

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Limerick
Cork

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Copley Hall, Cotters Street, Cork, Ireland
t +353 21 462 4000 | f +353 21 462 4001 | e cork@punchconsulting.com
www.punchconsulting.com



IRISH WATER WASTEWATER DETAILS	
Drawing No.	Drawing Title
STD-WW-01	Waste water service connection responsibility
STD-WW-02	Typical layout for sewer within new developments
STD-WW-03	Drain & service connection pipework
STD-WW-04	Typical sewer / service pipe connection
STD-WW-05	Typical service layout indicating separation distances
STD-WW-06	Restrictions on trees/shrubs planting adjacent to sewers
STD-WW-07	Trench backfill & bedding
STD-WW-08	Concrete bed, haunch & surround to wastewater pipes
STD-WW-09	Blockwork manhole (<450mm dia.)
STD-WW-10	Pre-cast concrete manhole
STD-WW-11	In-situ concrete manhole
STD-WW-12	Backdrop manholes
STD-WW-13	Private side inspection chamber
STD-WW-14	Thrust blocks for rising mains
STD-WW-15	Scour valve chamber (foul rising main <200mm dia.)
STD-WW-16	Sluice valve details for rising mains ductile iron (D.I.) pipe (<200mm dia.) (sheet 1 of 2)
STD-WW-17	Sluice valve details for rising mains polyethylene (P.E.) pipe (<200mm dia.) (sheet 2 of 2)
STD-WW-18	Air valve chamber (foul rising main <200mm dia.)
STD-WW-19	Duct chamber
STD-WW-20	Emergency overflow structure
STD-WW-21	Typical ditch/stream crossing for gravity main (sheet 1 of 2)
STD-WW-22	Typical ditch/stream crossing for rising main (sheet 2 of 2)
STD-WW-23	Typical bridge crossing for rising main (sheet 1 of 2)
STD-WW-24	Typical bridge crossing for rising main (sheet 2 of 2)
STD-WW-25	Security gate & fencing
STD-WW-26	Indicative pumping station layout
STD-WW-27	Flow meter chamber (foul rising main <200mm dia.)
STD-WW-28	Indicative submersible pumping station
STD-WW-28A	Indicative pre-cast concrete submersible pumping station
STD-WW-29	Rising main discharge manhole
STD-WW-30	Kiosk type 1 pumping station & wet kiosk (sheet 1 of 2)
STD-WW-31	Kiosk type 2 + 3 pumping station & wet kiosk (sheet 2 of 2)
STD-WW-32	Hardstanding area pumping station (permeable & impermeable)
STD-WW-33	Lamp bollard & lamp standard
STD-WW-34	Vent stack



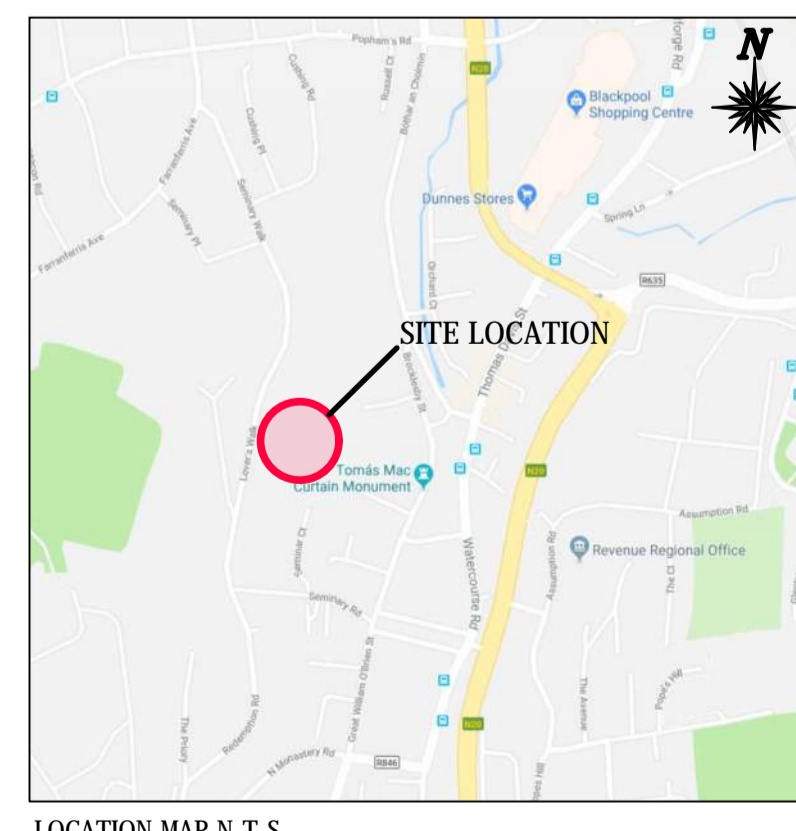
- DRAINAGE GENERAL**
- CONTRACTOR SHALL BE RESPONSIBLE FOR SETTING OUT ALL DRAINAGE INFRASTRUCTURE TO ENSURE NO CLASHES OCCUR WITH SERVICE DUCTS, CHAMBERS ETC.
 - CARE SHOULD BE TAKEN BY THE CONTRACTOR WHEN HANDLING PIPES, PARTICULARLY WHEN UNLOADING AND STACKING, SO AS TO AVOID DAMAGING THEM.
 - ALL PIPE SEALS AND GASKETS SHOULD BE STORED INDOORS AWAY FROM DIRECT SUNLIGHT.
 - ALL SEWERS TO BE THERMOPLASTIC STRUCTURED WALL SEWER PIPE AND SHALL COMPLY WITH THE RELEVANT PROVISIONS OF WIS 4-35-01. (I.E. POLYSEWER BY POLYPIPE CIVILS OR EQUIVALENT APPROVED)
 - EXCAVATION SHOULD NOT BE CARRIED OUT TOO FAR IN ADVANCE OF PIPE INSTALLATION. ALL RELEVANT HEALTH & SAFETY REQUIREMENTS IN RESPECT OF EXCAVATION SHOULD BE OBSERVED BY THE CONTRACTOR DURING EXCAVATION WORKS.
 - MINIMUM COVER TO PIPES:
 - 1200mm ROADWAYS
 - 900mm OPEN SPACES & FOOTPATHS NOT ADJACENT TO ROADS
 - 600mm GARDENS
 - THE CONTRACTOR SHOULD PLAN HIS WORK FOR CHAMBERS AND MANHOLES SO AS TO MINIMISE AS MUCH AS POSSIBLE WORKING REQUIRED IN CONFINED SPACES.
 - JOINT LUBRICANTS FOR SLIDING JOINTS SHALL HAVE NO DELETERIOUS EFFECT ON EITHER THE JOINT RINGS OR PIPES AND SHALL BE UNAFFECTED BY SEWAGE.
 - ALL ABANDONED SEWER PIPES TO BE FILLED WITH C12/15 CONCRETE. ABANDONED MANHOLES TO BE BROKEN OUT IF POSSIBLE. OTHERWISE THEY SHOULD BE FILLED WITH C12/15 CONCRETE.
 - THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING THE RELEVANT SERVICE PROVIDERS IN ADVANCE OF ANY PLANNED EXCAVATION WORKS TO VERIFY THE LOCATION, DEPTH AND NATURE OF ANY UNDERGROUND SERVICES.
 - ROCKER PIPES:**
 - ROCKER PIPES SHOULD BE PROVIDED AT ALL LOCATIONS WHERE:
 - A PIPE ENTERS OR LEAVES A MANHOLE, PUMPING STATION OR OTHER RIGID STRUCTURE.
 - A PIPE ENTERS OR LEAVES A CONCRETE ENCASEMENT.
 - ANY LOCATION AS DIRECTED BY THE ENGINEER.
 - ROCKER PIPE JOINT TO BE LOCATED NO MORE THAN 150mm FROM THE OUTSIDE FACE OF THE STRUCTURE TO WHICH THE PIPEWORK IS SERVING. THE EFFECTIVE LENGTH OF THE ROCKER PIPE SHOULD BE:
 - PIPE DIAMETER 150mm TO 600mm: 0.60m
 - PIPE DIAMETER 600mm TO 750mm: 1.00m
 - PIPE DIAMETER GREATER THAN 750mm: 1.25m
 - ALL 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.
 - PIPEWORK AND BENCHING TO A SINGLE MANHOLE CHAMBER SHOULD BE COMPLETED AND THE ENGINEER INVITED TO INSPECT SAME BEFORE ALL REMAINING CHAMBERS ARE COMPLETED.
 - ONLY PROPRIETARY CONNECTION PIECES TO BE USED FOR MAKING CONNECTIONS TO SEWERS.
 - WHEN INSTALLING FLEXIBLE PIPES (SINGLE/TWIN WALLED PVC OR SIMILAR) PARTICULAR CARE SHOULD BE TAKEN BY THE CONTRACTOR TO ENSURE THE PIPES ARE WELL BEDDED AND SURROUNDED IN GOOD QUALITY GRANULAR MATERIAL IN ACCORDANCE WITH THE SPECIFICATION.

- THE CONTRACTOR MUST TAKE GREAT CARE WHEN COMPACTING MATERIAL OVER DRAINAGE PIPES SO AS NOT TO DISLODGE THEM FROM THEIR CORRECT LINE AND LEVEL.
- TYPE E BEDDING TO BE USED WHERE MINIMUM COVER OR GREATER IS PROVIDED TO FLEXIBLE PIPES.
- FOR PIPES IN ROADWAYS WHERE COVER IS LESS THAN 1200mm BUT GREATER THAN 800mm TYPE G BEDDING TO BE USED.
- FOR PIPES IN OPEN SPACES, FOOTPATHS NOT ADJACENT TO ROADS AND GARDENS WHERE MINIMUM COVER OR GREATER IS NOT ACHIEVED, TYPE G BEDDING TO BE USED.
- ALL MANHOLES TO BE CONSTRUCTED WITH PRECAST CONCRETE RINGS IN ACCORDANCE WITH RELEVANT ENGINEERS DETAILS DRAWING.
- PROPRIETARY CONNECTIONS TO BE USED THROUGHOUT.
- ALL JOINTS TO BE WATERTIGHT TO CL 504 SUB CLAUSE 3 OF THE NRA SPECIFICATION FOR ROADWAYS.
- MANHOLES WITHIN PAVING TO BE D400 AND RECESSED TO RECEIVE PAVINGS.
- MANHOLES IN TARMACDAM/GRASSED AREAS TO BE NON ROCK D400 LOCKABLE MANHOLES.
- TRENCHES IN EXISTING SURFACES TO BE SAW CUT.
- IF CONSTRUCTING MANHOLE CHAMBERS USING PRECAST CONCRETE RINGS, THE CONTRACTOR SHOULD ENSURE THAT THE JOINTS IN THE PRECAST CONCRETE RINGS ARE STAGGERED WITH THE JOINTS IN THE CONCRETE SURROUND TO REDUCE THE POSSIBILITY OF GROUND WATER INGRESS.
- WHERE A CONNECTION IS REQUIRED TO AN EXISTING PUBLIC SEWER SYSTEM, THE CONTRACTOR MUST MAKE A FORMAL APPLICATION TO THE LOCAL AUTHORITY TO DO SO.
- A DETAILED METHOD STATEMENT MUST BE SUBMITTED TO THE LOCAL AUTHORITY FOR APPROVAL AT LEAST FOUR WEEKS IN ADVANCE OF THE PLANNED CONSTRUCTION WORKS.
- WHERE NEW DRAINAGE INFRASTRUCTURE IS TO CROSS AN EXISTING ROAD, THE CONTRACTOR IS REQUIRED TO:
 - CONTACT THE RELEVANT AUTHORITIES WELL IN ADVANCE OF THE PLANNED WORKS.
 - MAKE AN APPLICATION AND PAY FOR A ROAD OPENING LICENCE IF APPLICABLE.
 - MAKE GOOD THE EXISTING ROAD TO THE SATISFACTION OF THE ENGINEER & THE RELEVANT AUTHORITIES ON COMPLETION OF THE WORKS.
- THE CONTRACTOR IS ADVISED TO COMPLETE AIR TESTING ON A DAILY BASIS DURING THE COURSE OF THE WORKS TO ENSURE ISOLATION OF ANY FAILED TESTS.
- THE COMPLETE DRAINAGE WORKS SHOULD BE PROTECTED, WHERE NECESSARY, FROM LOADS IMPOSED BY CONSTRUCTION PLANT DURING CONSTRUCTION.
- ON COMPLETION OF THE WORKS, THE CONTRACTOR MUST ENSURE ALL INTERNAL SURFACES OF THE NEW SEWERS ARE THOROUGHLY CLEANED TO REMOVE ALL DELETERIOUS MATERIAL. THIS MATERIAL MUST BE PREVENTED FROM ENTERING THE PUBLIC SEWER SYSTEM.
- A CCTV SURVEY OF THE COMPLETED UNDERGROUND DRAINAGE NETWORK SHOULD BE CARRIED OUT BY THE CONTRACTOR ON COMPLETION OF THE WORKS. IT IS RECOMMENDED THAT THIS EXERCISE IS COMPLETED BEFORE FINAL SURFACE COURSES AND FINISHES ARE APPLIED IN CASE ANY REMEDIAL WORKS ARE REQUIRED TO THE DRAINAGE.

DRAINAGE LEGEND

- PROPOSED FOUL SEWER & MANHOLE: F1-0, F1-000, S1-0, S1-000
- PROPOSED SURFACE WATER & MANHOLE: S1-0, S1-000
- PROPOSED ATTENUATION TANK: A1-0, A1-000
- PROPOSED PETROL INTERCEPTOR: NSRP004
- PROPOSED BUILDING: Yellow rectangle
- EXISTING COMBINED SEWER & MANHOLE: EX-CS, EX-CS-000
- PROPOSED SITE BOUNDARY: Red line

PN	USMH Name	Length (m)	Fall (m)	Slope (1:X)	USCL (m)	USIL (m)	DSCL (m)	DSIL (m)	Dia (mm)
F1.000	F1-0	20.850	0.347	60.1	38.000	37.311	38.000	36.964	150
F1.001	F1-1	31.004	0.207	149.8	38.000	36.964	39.200	36.757	225
F1.002	F1-2	3.429	0.023	149.1	39.200	36.757	39.400	36.734	225
F1.003	F1-3	14.057	0.094	149.5	39.400	36.734	39.240	36.640	225
F10.000	F10-0	18.597	0.372	50.0	23.000	20.700	22.350	20.328	150
F10.001	F10-1	36.182	0.905	40.0	22.350	20.328	20.400	19.423	150
F10.002	F10-2	8.629	0.173	50.0	20.400	19.423	20.200	19.250	150
F20.000	F20-0	11.673	0.292	40.0	10.900	9.950	10.900	9.658	150
F20.001	F20-1	19.670	0.492	40.0	10.900	9.658	10.900	9.166	150
F20.002	F20-2	12.602	0.316	39.9	10.900	9.166	10.900	8.850	150
F20.003	F20-3	2.201	0.106	20.8	10.900	8.850	11.000	8.744	150
F20.004	F20-4	18.028	0.451	40.0	11.000	10.050	11.000	9.599	150
F20.005	F20-5	19.516	0.855	22.8	11.000	9.599	10.900	8.744	150
F20.006	F20-6	7.548	0.126	59.9	10.900	8.744	10.420	8.618	225
F20.007	F20-7	14.594	0.365	40.0	10.420	8.618	10.340	8.253	225
F20.008	F20-8	9.999	0.250	40.0	10.340	8.253	9.660	8.003	225
S10.000	S10-0	41.895	0.698	60.0	37.500	36.000	37.300	35.302	225
S10.001	S10-1	42.720	2.136	20.0	23.200	22.175	20.400	20.039	225
S11.000	S11-0	14.560	0.588	24.8	20.400	19.375	21.400	18.787	225
S10.001	S10-1	4.123	0.016	257.7	21.400	18.787	20.700	18.771	225
S20.000	S20-0	18.376	0.306	60.0	10.900	9.875	10.900	9.569	225
S20.001	S20-1	12.738	0.212	60.0	10.900	9.569	10.900	9.357	225
S20.002	S20-2	4.349	0.072	60.0	10.900	9.357	10.900	9.285	225
S20.003	S20-3	10.317	0.172	60.0	10.900	9.285	11.000	9.113	225
S21.000	S21-0	21.860	0.364	60.0	11.000	9.975	11.000	9.829	225
S21.001	S21-1	9.658	0.498	19.4	11.000	9.829	10.900	9.792	225
S20.004	S20-4	2.924	0.049	60.0	10.900	9.113	10.800	9.064	225



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 Consultants to be informed immediately of any discrepancies before work proceeds.

Date Drawn: 2018-10-03
 Drawn By: COLIN OSULLIVAN
 Date Issued: 2018-10-05
 Issued By: COLIN OSULLIVAN

Rev	Amendment	By	Date
PR1	SCALES REVISED AS REQUESTED	COS	2018-10-08
PR2	REVISED TO INCORPORATE NEW INFORMATION (INFILTRATION TESTING, IW COMMENTS, NEW LAYOUT)	COS	2019-03-22
PR3	NETWORK F1.000 REVISED	COS	2019-04-01
PR4	REVISIONS TO ACCOUNT FOR IRISH WATER DESIGN COMPLIANCE COMMENTS	MOC	2019-05-30

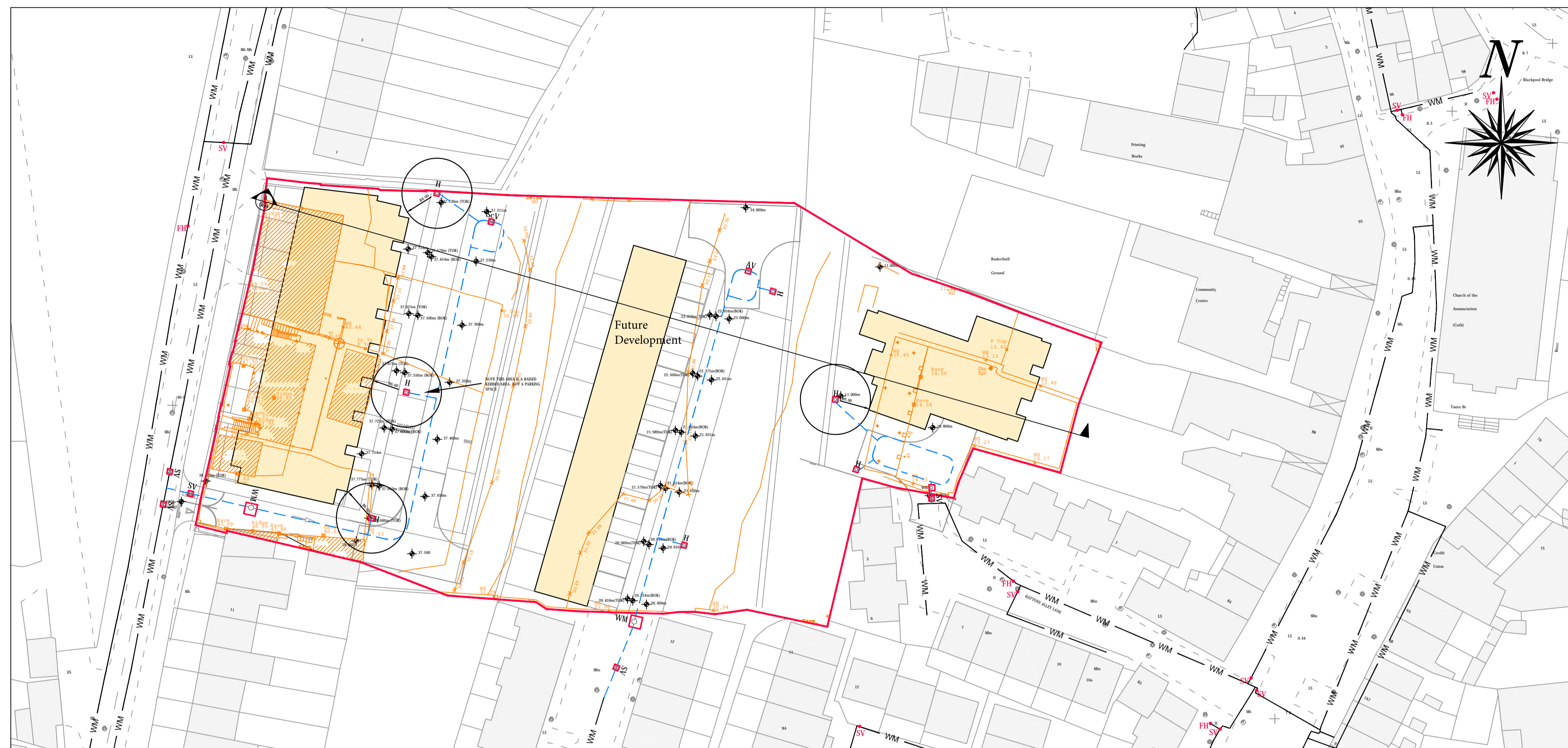
Client:
HG CONSTRUCTION

Job: REDEMPTION ROAD, BLACKPOOL, CORK
 Title: PROPOSED DRAINAGE LAYOUT
 Stage: PRELIMINARY
 Scale @ A1: 1:500
 Technician Check: TIMCROMLEY
 Engineer Check: ALAN CASHMAN
 Approved: CIAN M. RPH
 Drawing No: 184-109-003
 Rev: PR4

IRL: +353 21 462 4000 www.punchconsulting.com

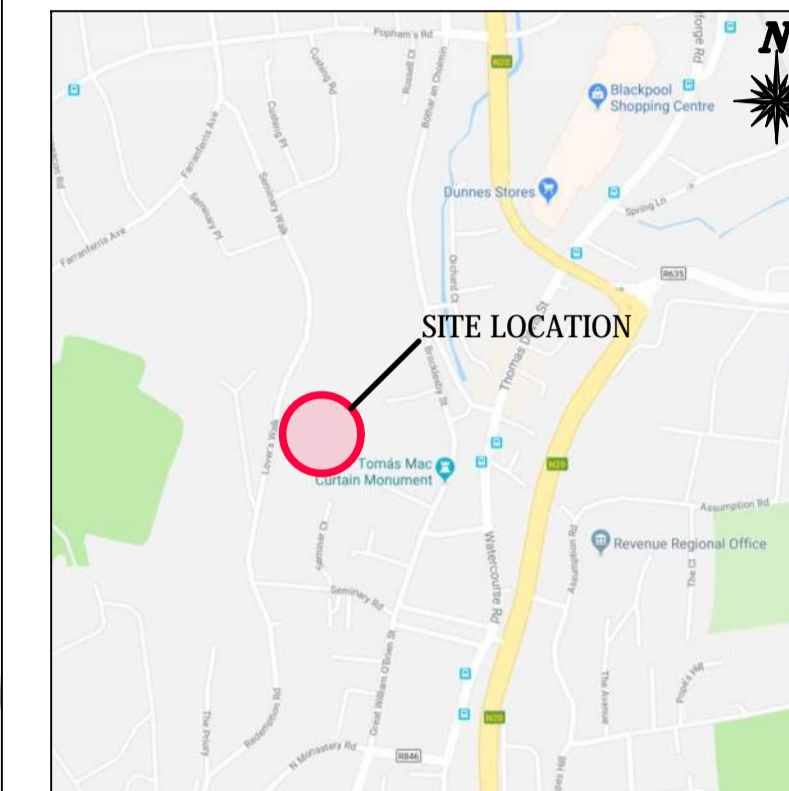
IRISH WATER WATERMAIN DETAILS

Drawing No.	Drawing Title
STD-W-01	STD-WW-01 Waste water service connection responsibility
STD-W-02	Typical layout for water mains within developments
STD-W-03	Customer connection & boundary box
STD-W-04	General pipe connections (sheet 1 of 7)
STD-W-05	General pipe connections (sheet 2 of 7)
STD-W-06	General pipe connections (sheet 3 of 7)
STD-W-07	General pipe connections (sheet 4 of 7)
STD-W-08	General pipe connections (sheet 5 of 7)
STD-W-09	General pipe connections (sheet 6 of 7)
STD-W-10	General pipe connections (sheet 7 of 7)
STD-W-11	Typical service layout indicating separation distances
STD-W-12	Restrictions on trees / shrubs planting adjacent to watermains
STD-W-13	Trench backfill & bedding
STD-W-14	Sluice valve for ductile iron (D.I.) pipe (<350mm dia.) (sheet 1 of 2)
STD-W-15	Sluice valve for polyethylene (P.E.) pipe (<350mm dia.) (sheet 2 of 2)
STD-W-16	On-line hydrant for ductile iron (D.I.) pipe (sheet 1 of 4)
STD-W-17	Off-line hydrant for ductile iron (D.I.) pipe (sheet 2 of 4)
STD-W-18	On-line hydrant for polyethylene (P.E.) pipe (sheet 3 of 4)
STD-W-19	Off-line hydrant for polyethylene (P.E.) pipe (sheet 4 of 4)
STD-W-20	On-line air valve for ductile iron (D.I.) pipe (sheet 1 of 4)
STD-W-21	Off-line air valve for ductile iron (D.I.) pipe (sheet 2 of 4)
STD-W-22	On-line air valve for polyethylene (P.E.) pipe (sheet 3 of 4)
STD-W-23	Off-line air valve for polyethylene (P.E.) pipe (sheet 4 of 4)
STD-W-24	Pressure reducing / sustaining valve (P.R.V. / P.S.V.) chamber
STD-W-25	Booster pump station arrangement
STD-W-26	Meter chamber (≤300mm dia.)
STD-W-27	Marker posts / plates
STD-W-28	Water main thrust & support blocks
STD-W-29	Duct chamber
STD-W-30	Scour chamber & head wall arrangements
STD-W-30A	Washout hydrant
STD-W-31	Typical ditch / stream crossing for water main
STD-W-32	Typical bridge crossing for water main (sheet 1 of 2)
STD-W-33	Typical bridge crossing for water main (sheet 2 of 2)
STD-W-34	Security gate & fencing
STD-W-35	Pipe repair to existing mains
STD-W-36	Telemetry and wet kiosk
STD-W-37	Lamp bollard & lamp standard



LEGEND

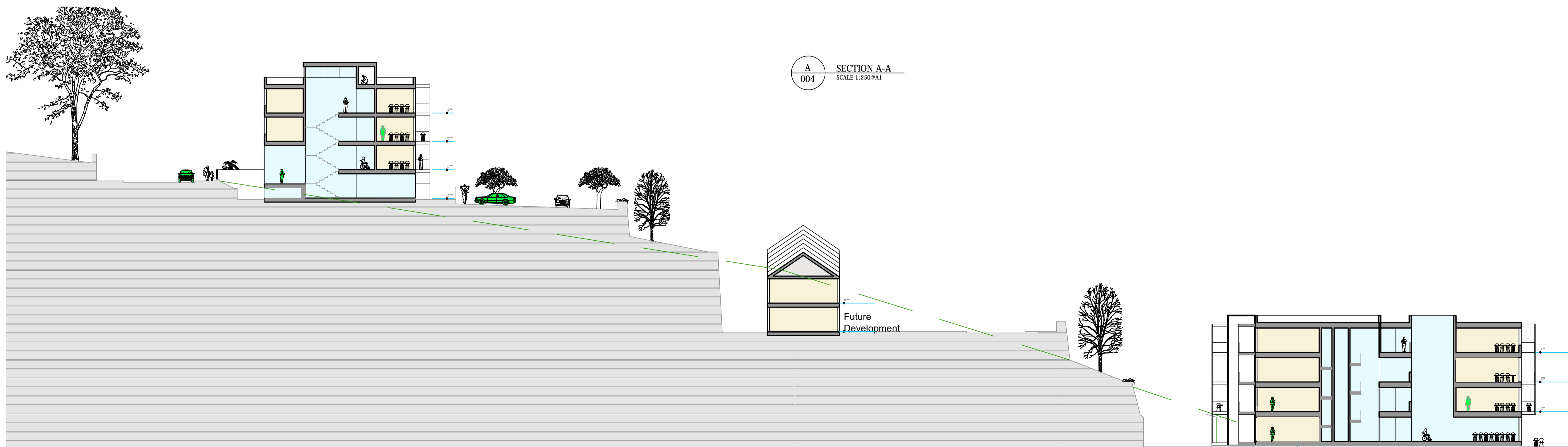
EXISTING IW WATERMAIN (DETAILS & LOCATION TBC)	WM
PROPOSED WATERMAIN (125mm OD PE100 SDR11 PIPE)	---
PROPOSED PROPERTY BOUNDARY BOX	BB
PROPOSED FIRE HYDRANT	H
PROPOSED SLUICE VALVE	SV
PROPOSED AIR VALVE	AV
PROPOSED WATERMETER	WM
PROPOSED SCOUR VALVE	S-CV
EXISTING HYDRANT	FH
EXISTING SLUICE VALVE	SV
EXISTING METER	M
PROPOSED SITE BOUNDARY	---



LOCATION MAP N.T.S.

WATERMAIN:

- THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS, ENGINEERS & MANUFACTURERS DRAWINGS & SPECIFICATIONS.
- ALL PIPE DIAMETERS ARE NOMINAL.
- WHERE CONNECTION IS REQUIRED TO AN EXISTING PUBLIC WATERMAIN, THE CONTRACTOR MUST ISSUE DETAILED DOCUMENTATION FOR APPROVAL TO THE RELEVANT LOCAL AUTHORITY AND IRISH WATER. THIS DOCUMENTATION MUST BE ISSUED AT LEAST 40 WORKING DAYS IN ADVANCE OF THE PLANNED WORKS OR AS AGREED WITH THE LOCAL AUTHORITY AND IRISH WATER.
- ALL THRUST BLOCKS MUST BE CAST AGAINST UNDISTURBED GROUND. FLEXIBLE PIPES SHOULD BE WRAPPED IN ONE LAYER OF 1000 GAUGE POLYTHENE TO AVOID DIRECT CONTACT WITH THE CONCRETE. MARKER POSTS AND PLATES TO BE PROVIDED FOR ALL VALVES, METERS AND HYDRANTS.
- CHLORINATION AND BACTERIOLOGICAL TESTS TO BE UNDERTAKEN BY EXTERNAL TESTER AND TEST CERTIFICATION TO BE SUBMITTED TO ENGINEER.
- MARKER POSTS AND PLATES TO BE PROVIDED FOR ALL VALVES.
- IN ADVANCE OF TESTING OF THE WATERMANS, THE CONTRACTOR MUST PRESENT TO THE ENGINEER A CALIBRATION CERTIFICATE FOR THE APPARATUS TO BE USED IN THE TEST.
- ALL DETAILS TO BE AGREED WITH LOCAL AUTHORITY.
- ALL EXISTING WATERMANS TO BE ADEQUATELY PROTECTED. ANY WATERMANS DAMAGED DURING THE COURSE OF CONSTRUCTION WILL BE REPLACED BY THE CONTRACTOR AT THEIR COST.
- COVERS OF ALL HYDRANT CHAMBERS TO BE PAINTED YELLOW.
- ALL ROCKER PIPES SHALL BE NO MORE THAN 150mm FROM THEIR ASSOCIATED CHAMBER.
- WHERE PIPE RUN IS LOCATED ADJACENT TO FOUNDATION AND IS AT A LEVEL BELOW UNDERSIDE OF THE FOUNDATION, PIPE TRENCH TO BE BACKFILLED TO FORMATION LEVEL WITH CLASS 15/20 CONCRETE.
- PROVIDE ANCHOR/THRUST BLOCKS ON ALL BENDS EQUAL TO OR IN EXCESS OF 90°. DEAD ENDS AND TERS ON ALL PIPES.
- TRENCHES IN EXISTING SURFACES TO BE SAW CUT.
- CONTRACTOR SHALL BE RESPONSIBLE FOR SETTING OUT WATERMANS & SLUICE VALVES TO ENSURE NO CLASHES WITH SERVICE DUCTS OR PIPES.
- METERS FOR APARTMENTS OR SIMILAR PROPERTIES WILL BE INSTALLED INTERNALLY WITHIN THE PREMISES IN ACCORDANCE WITH THE BUILDING CONTROLS AUTHORITY REQUIREMENTS AND SUBJECT TO REVIEW BY IRISH WATER.
- WHERE BOOSTER PUMPS TO BE PROVIDED, ISOLATION DEVICE SHALL BE PROVIDED USING A CONNECTION VIA AN UNRESTRICTED AIR-GAP DEVICE (AA TYPE DEVICE IS EN 1717) TO PREVENT BACKFLOW FROM THE INTERNAL WATER DISTRIBUTION SYSTEM TO IRISH WATER'S NETWORK TO PREVENT THE RISK OF BACKFLOW CONTAMINATION.
- LOOPS SHALL HAVE A MINIMUM OF 4 CONNECTED PROPERTIES.



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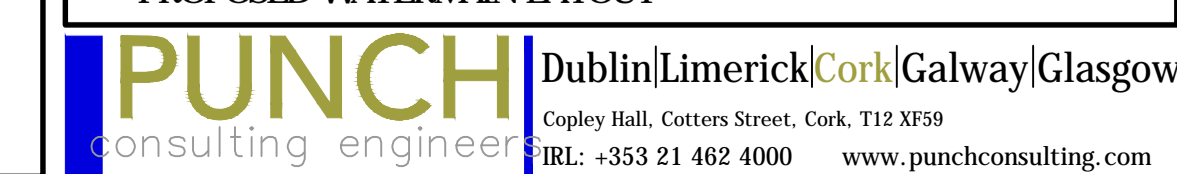
Date Drawn: 2018-10-03
Drawn By: COLIN O'SULLIVAN
Date Issued: 2018-10-05
Issued By: COLIN O'SULLIVAN



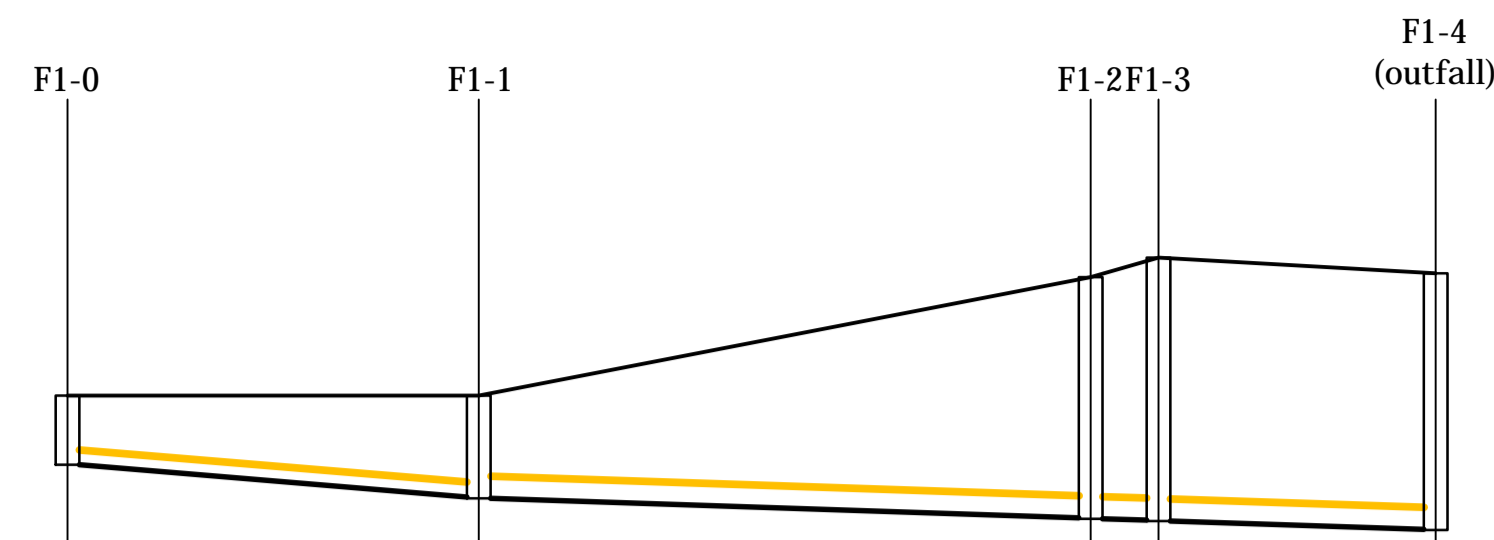
Rev	Amendment	By	Date
PR1	SCALES REVISED AS REQUESTED	COS	2018-10-08
PR2	LAYOUT REVISED	COS	2019-03-22
PR3	REVISIONS TO ACCOUNT FOR IRISH WATER DESIGN COMPLIANCE COMMENTS	MOC	2019-05-30

Client:
HG CONSTRUCTION

Job: REDEMPTION ROAD, BLACKPOOL, CORK	Stage: PRELIMINARY
Title: PROPOSED WATERMAIN LAYOUT	Scale @ A1: 1:500
Engineer Check: ALAN CASHMAN	Technician Check: TIMCROWLEY
Approved: CIAN M. R. P. M.	Approved: CIAN M. R. P. M.
Drawing No: 184-109-004	Rev: PR3



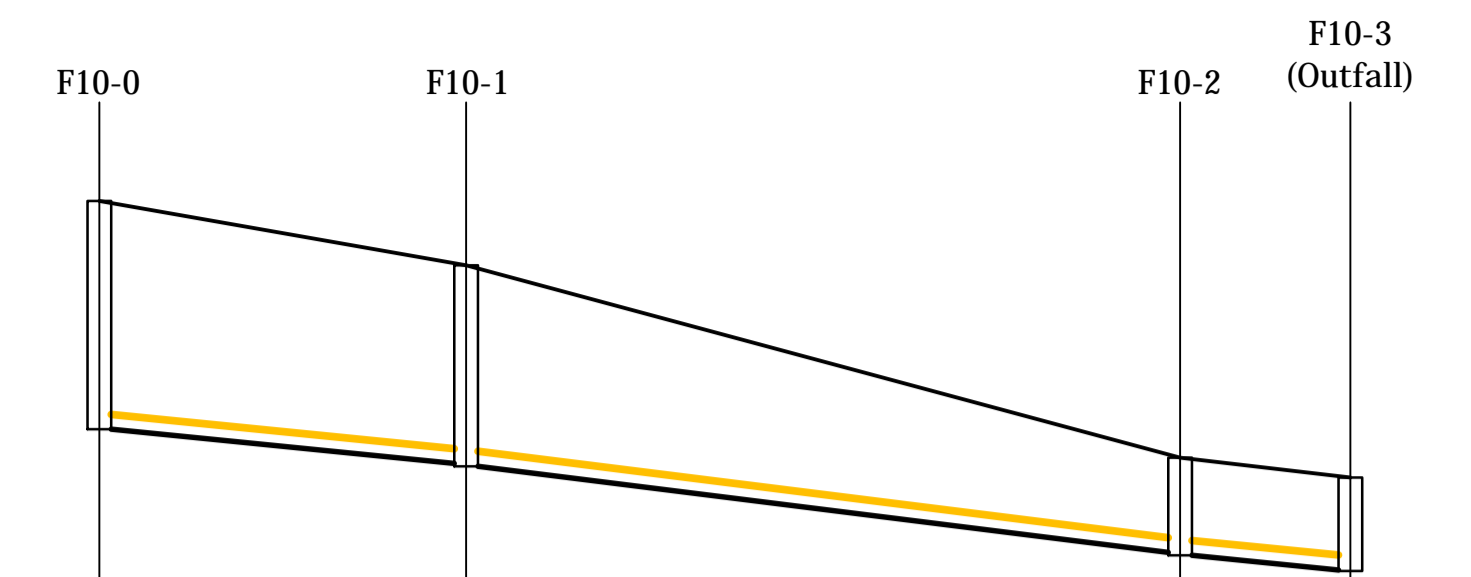
Dublin | Limerick | Cork | Galway | Glasgow
Copley Hall, Cotters Street, Cork, T12 XF59
IRL: +353 21 462 4000 www.punchconsulting.com



Vert exaggeration = 5.0

Datum = 35.0

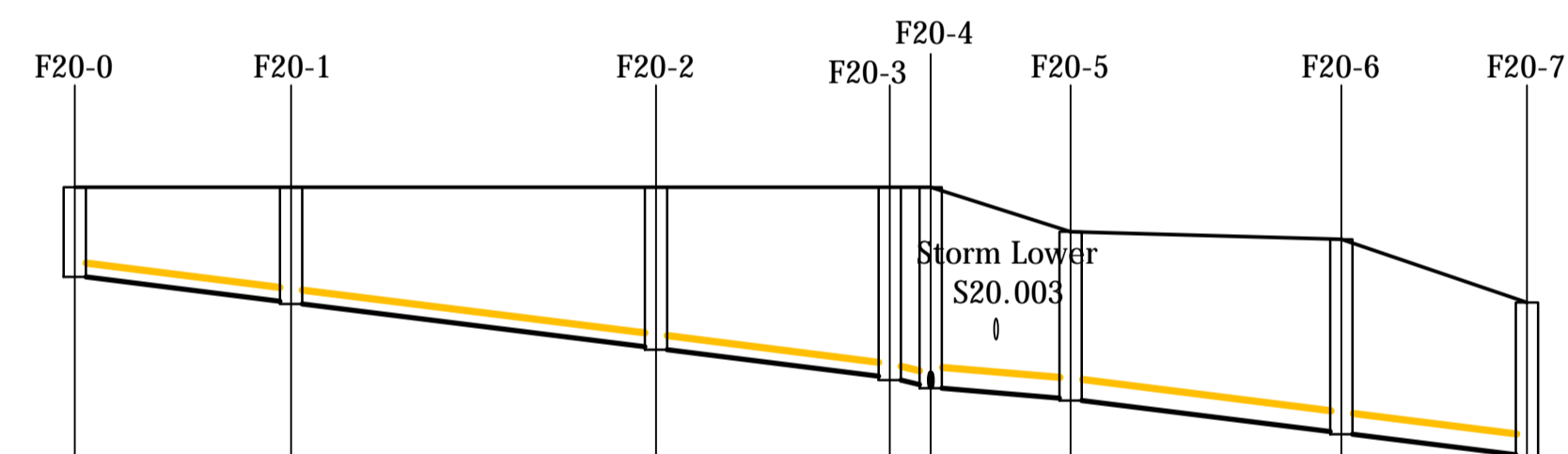
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Section Type	150mm	225mm	225mm	225mm
Slope	1:60.1	1:149.8	1:149.1	1:149.5
Cover Level	38.000	38.000	39.200 39.400	39.240
Invert Level	37.311	36.964 36.964	36.757 36.734 36.734	36.640
Length	20.850	31.004	3.429	14.057



Vert exaggeration = 5.0

Datum = 18.0

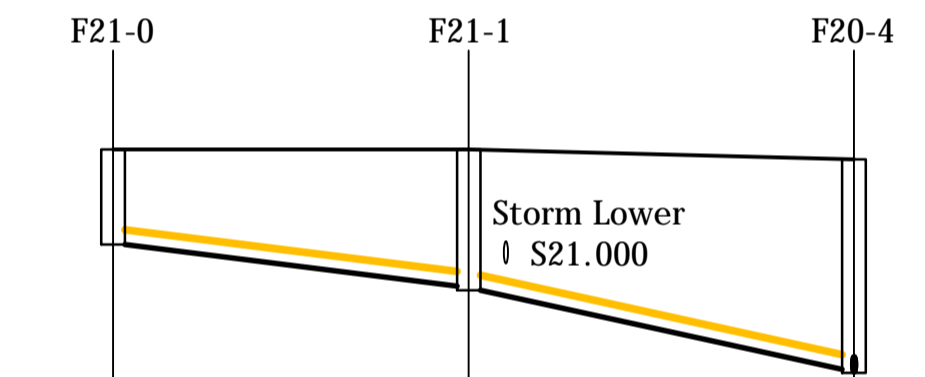
Link Name	F10.000	F10.001	F10.002
Section Type	150mm	150mm	150mm
Slope	1:50.0	1:40.0	1:50.0
Cover Level	23.000	22.350	20.400 20.200
Invert Level	20.700	20.328 20.328	19.423 19.423 19.250
Length	18.597	36.182	8.629



Vert exaggeration = 5.0

Datum = 7.0

Link Name	F20.000	F20.001	F20.002	F20.003	F20.004	F20.005	F20.006
Section Type	150mm	150mm	150mm	150mm	225mm	225mm	225mm
Slope	1:40.0	1:40.0	1:39.9	1:20.81	1:59.9	1:40.0	1:40.0
Cover Level	10.900	10.900	10.900	10.900 10.900	10.420	10.340	9.660
Invert Level	9.950	9.658 9.658	9.166 9.166	8.850 8.840 8.744	8.618 8.618	8.253 8.253	8.003
Length	11.673	19.670	12.602	2.201 7.548	14.594	9.999	



Vert exaggeration = 5.0

Datum = 7.0

Link Name	F21.000	F21.001
Section Type	150mm	150mm
Slope	1:40.0	1:22.8
Cover Level	11.000	11.000
Invert Level	10.050	9.599 9.599
Length	18.028	19.516

184-109 | MOC | 13-06-2019 | SK010 Rev 1
 Redemption Road Social Housing
 Foul Long Sections NOT TO SCALE

HG Construction IRL LTD
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www.water.ie

22 November 2018

Dear Sir/Madam,

**Re: Customer Reference No 4517062213 pre-connection enquiry - Subject to contract | Contract denied
62 unit housing development at Glenview House, Lovers Walk, Redemption Road, Cork**

Irish Water has reviewed your pre-connection enquiry in relation to water and wastewater connections at Glenview House, Lovers Walk, Redemption Road, Cork. Based upon the details that you have provided with your pre-connection enquiry and on the capacity currently available in the network(s), as assessed by Irish Water, we wish to advise you that, subject to a valid connection agreement being put in place, your proposed connection to the Irish Water network(s) can be facilitated.

In the case of wastewater connections this assessment does not confirm that a gravity connection is achievable. Therefore a suitably sized pumping station may be required to be installed on your site. All infrastructure should be designed and installed in accordance with the Irish Water Code of Practice.

While your water and wastewater connection can be facilitated, we regret to inform you that the discharge of stormwater as requested cannot be accommodated. You are advised to consider onsite disposal measures for the stormwater or alternatively consider contacting your Local Authority to discuss a connection to a stormwater sewer in the area.

All infrastructure should be designed and installed in accordance with the Irish Water Codes of Practice and Standard Details. A design proposal for the water and/or wastewater infrastructure should be submitted to Irish Water for assessment. Prior to submitting your planning application, you are required to submit these detailed design proposals to Irish Water for review.

You are advised that this correspondence does not constitute an offer in whole or in part to provide a connection to any Irish Water infrastructure and is provided subject to a connection agreement being signed at a later date.

A connection agreement can be applied for by completing the connection application form available at www.water.ie/connections. Irish Water's current charges for water and wastewater connections are set out in the Water Charges Plan as approved by the Commission for Regulation of Utilities.

If you have any further questions, please contact Brian O'Mahony from the design team on 022 52205 or email bomahony@water.ie. For further information, visit www.water.ie/connections

Yours sincerely,

Maria O'Dwyer

Connections and Developer Services

Stiúrthóirí / Directors: Mike Quinn (Chairman), Jerry Grant, Cathal Marley, Brendan Murphy, Michael G. O'Sullivan

Oifig Chláraithe / Registered Office: Teach Colvill, 24-26 Sráid Thalbóid, Baile Átha Cliath 1, D01 NP86 / Colvill House, 24-26 Talbot Street, Dublin 1, D01 NP86

Is cuideachta ghníomhaíochta ainmnithe atá faoi theorainn scaireanna é Uisce Éireann / Irish Water is a designated activity company, limited by shares.

Uimhir Chláraithe in Éirinn / Registered in Ireland No.: 530363