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**Project Title:** Proposed Sites at Seatown Road, Swords,  
Co Dublin

**Report Title:** Engineering Service Report

**Report Ref:** 22130-LDE-ZZ-ZZ-RP-0001\_ESR

**Project Ref:** 22130

**Client:** Fingal County Council

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## **Table of Contents**

1.0 Introduction.....	1
2.0 Surface Water Drainage.....	2
2.1 Existing Surface Water Drainage.....	2
2.2 Proposed Surface Water Drainage .....	2
2.2.1 Surface water Attenuation.....	2
2.2.2 Sustainable Urban Drainage .....	4
2.2.3 Surface Water Sewer Design .....	4
2.2.4 Surface Water Outfall .....	4
3.0 Foul Water Drainage.....	4
3.1 Existing Foul Water Drainage Arrangements.....	4
3.2 Proposed Foul Water Drainage Arrangements .....	4
3.2.1 Foul Water Sewer Design: .....	4
4.0 Watermain.....	5
4.1 Existing Watermain Arrangement .....	5
4.2 Proposed Watermain Arrangement.....	5

# 1.0 Introduction

Lohan & Donnelly have been commissioned by Fingal County Council to prepare drainage and civil drawings to support a part 8 planning application for the construction of 2 apartment blocks on two different sites located off Seatown Road in Swords.

The development consists of the demolition of existing dwellings on the 2 No. sites (see figure 1) and the construction of a residential apartment block on each site (see figure 2). On site number 1 it is proposed to build a 4-story apartment block consisting of 20 apartments, on site 2 it is proposed to build a 4-story apartment block consisting of 16 apartments. Ancillary services, surface car parking spaces, bike storage, bin storage to be provided to each site. All with associated site works, signage, open space, landscaping, and boundary treatments.



**Figure 1: Existing Site**



**Figure 2: Proposed Development**

## **2.0 Surface Water Drainage**

### ***2.1 Existing Surface Water Drainage***

There is a public 150 & 225mm surface water sewer and a second 225mm surface water sewer on Seatown Road. Included in Appendix A is the underground survey which shows these drainage lines.

### ***2.2 Proposed Surface Water Drainage***

Refer to drawings 22130-LDE-ZZ-00-DR-C-1C01 & 22130-LDE-ZZ-04-DR-C-1C03. It is proposed to attenuate all surface water from each site to 2.0 l/s via hydro-brake manholes. Stormtech MC 3500 chambers to provide the required attenuation storage volume. Attenuated surface water to discharge to the public surface water sewer as shown on drawing 22130-LDE-ZZ-00-DR-C-1C01. Refer to section 2.2.1 for the required attenuation volume calculations. Refer to section 2.2.2 for the SUDs measured applied.

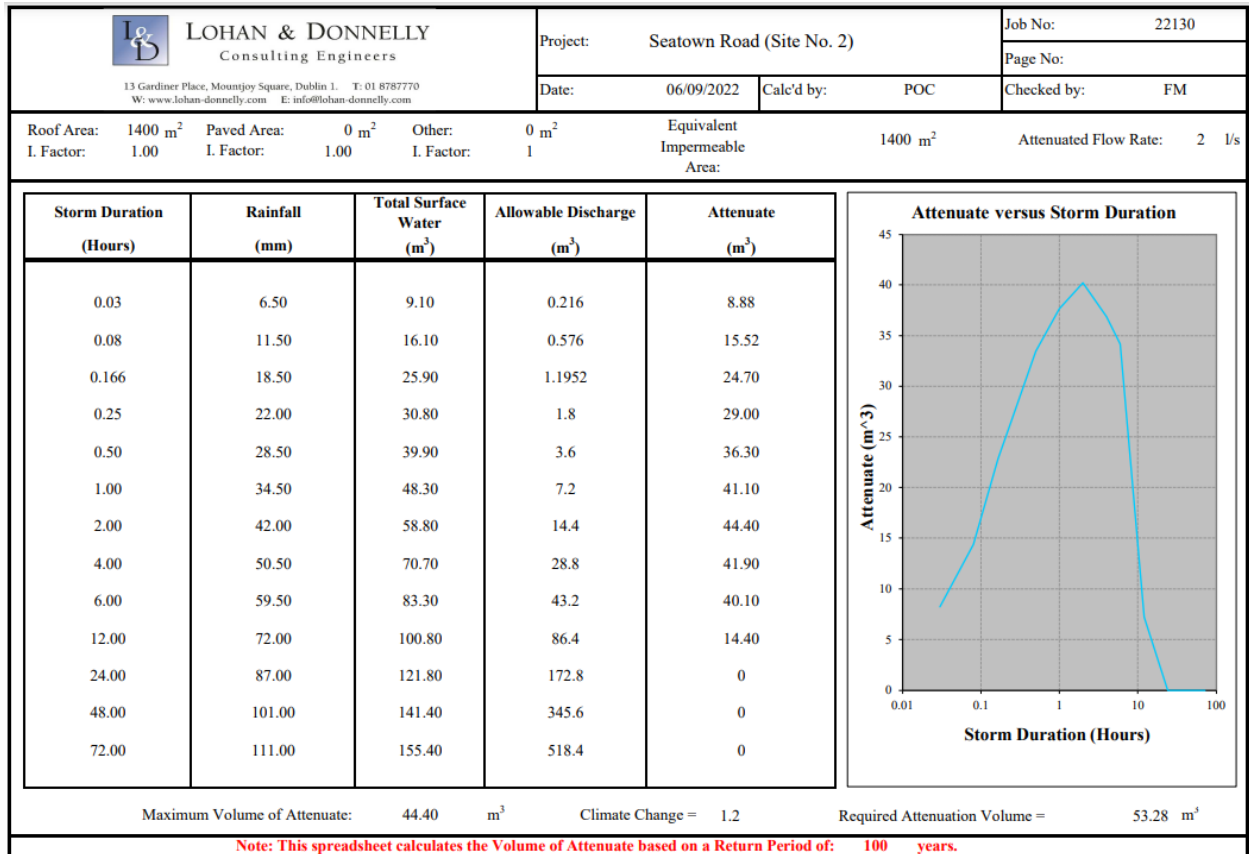
#### ***2.2.1 Surface water Attenuation***

Surface water systems are designed for the 1 in 100 year storm event and include for 20% increase in rainfall intensity to cater for climate change.

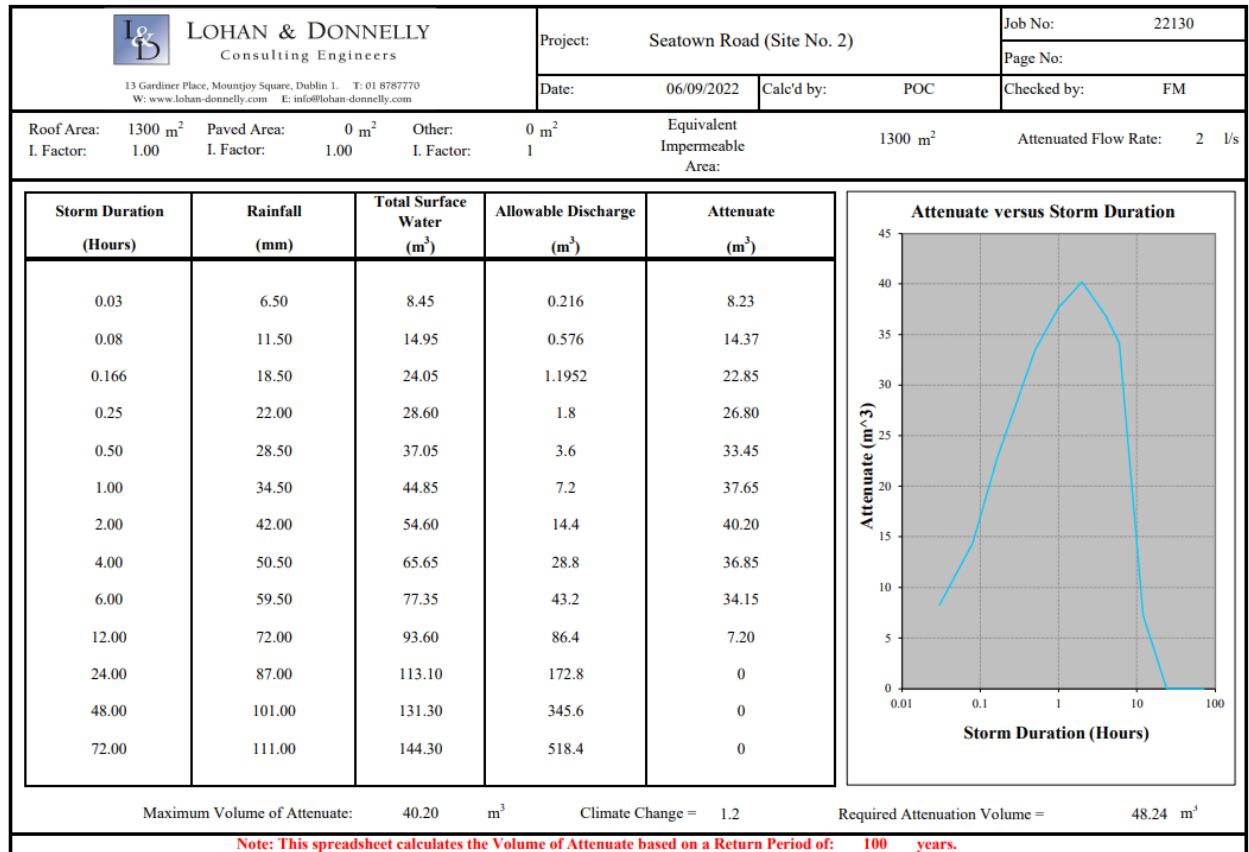
Site number 1 (from figure 1) has an area of 2,090 square metres (0.209 hectares). Calculating the Greenfield runoff rate using a SOIL value of 0.3 and SAAR of 741mm and using linear interpolation from a theoretical 50 Hectare site results in a flow rate of 0.407 l/s. Site number 2 (from figure 2) has an area of 1,816 square metres (0.1816 hectares). Calculating the Greenfield runoff rate using a SOIL value of 0.3 and SAAR of 741mm and using linear interpolation from a theoretical 50 Hectare site results in a flow rate of 0.353 l/s. GSDSDS allows for a flow rate of 2.0 l/sec/ha (2 litres/second/hectare or  $Q_{bar}(rural)$ , whichever is greater). Therefore, the site surface water runoff from each site will be limited to 2.0 l/sec as per GSDSDS guidelines.

Figure 3 shows the required surface water attenuation storage volume for site No. 1 and figure 4 shows the required surface water attenuation storage volume for site No. 2.





**Figure 3: Required attenuation storage volume for site No. 1**



**Figure 4: Required attenuation storage volume for site No. 2**

### ***2.2.2 Sustainable Urban Drainage***

Interception storage of surface water provided by:

- 1) Permeable paving to external footpath and car space areas as shown on drawing 22130-LDE-ZZ-00-DR-C-1C01.
- 2) Green sedum surface finish to all the blue roof areas as per drawing 22130-LDE-ZZ-04-DR-C-1C04.
- 3) Vegetation external areas.

### ***2.2.3 Surface Water Sewer Design***

All sewers are designed in accordance with BS 752: 2008 and Building Regulations TGD Part H. All drainage works shall be in accordance with the requirements of Fingal County Council. Surface water sewers have been designed using the modified rational method for a 2-year return period.

### ***2.2.4 Surface Water Outfall***

New surface hydro-brake manholes to limit the flow from each site to 2.0 l/s. Refer to drawing 22130-LDE-ZZ-00-DR-C-1C01 for the hydro-brake manhole location.

## **3.0 Foul Water Drainage**

### ***3.1 Existing Foul Water Drainage Arrangements***

There is a public 225mm concrete foul water sewer running down Seatown road and on St Columcilles Drive. Included in Appendix C is the underground survey which shows these foul drainage lines.

### ***3.2 Proposed Foul Water Drainage Arrangements***

#### ***3.2.1 Foul Water Sewer Design:***

All sewers are designed in accordance with IS 752: 2008 and Building Regulations TGD Part H. All drainage works shall be in accordance with the requirements of Irish Water and Fingal County Council.

Wastewater from the development is to flow via gravity to the existing foul line on St Columcilles Drive. Refer to drawing 22130-LDE-ZZ-00-DR-C-1C01.

Foul water pipe sizing is derived from wastewater loadings of 150 l/person/day and an allowance of 2.7 people per unit. The proposed development consists of 36 apartment units, which generates a dry weather flow (1DWF) of 0.168 l/s with a 6DWF of 1.01 l/s, a 150Ø pipe at a gradient of 1/60 has a capacity of 21.3 l/s and a flow velocity of 1.21m/s.

A pre-connection enquiry form was submitted to Irish Water for this development to determine public network capacity for a foul sewer connection (IW Reference Number: CDS22006417). The confirmation of feasibility obtained from Irish Water is included in Appendix B.

## **4.0 Watermain**

### ***4.1 Existing Watermain Arrangement***

There is a public 6 inch watermain on Seatown road and a public 4 inch watermain on St Columcilles Drive. Included in Appendix C is the underground survey which shows these Watermain lines.

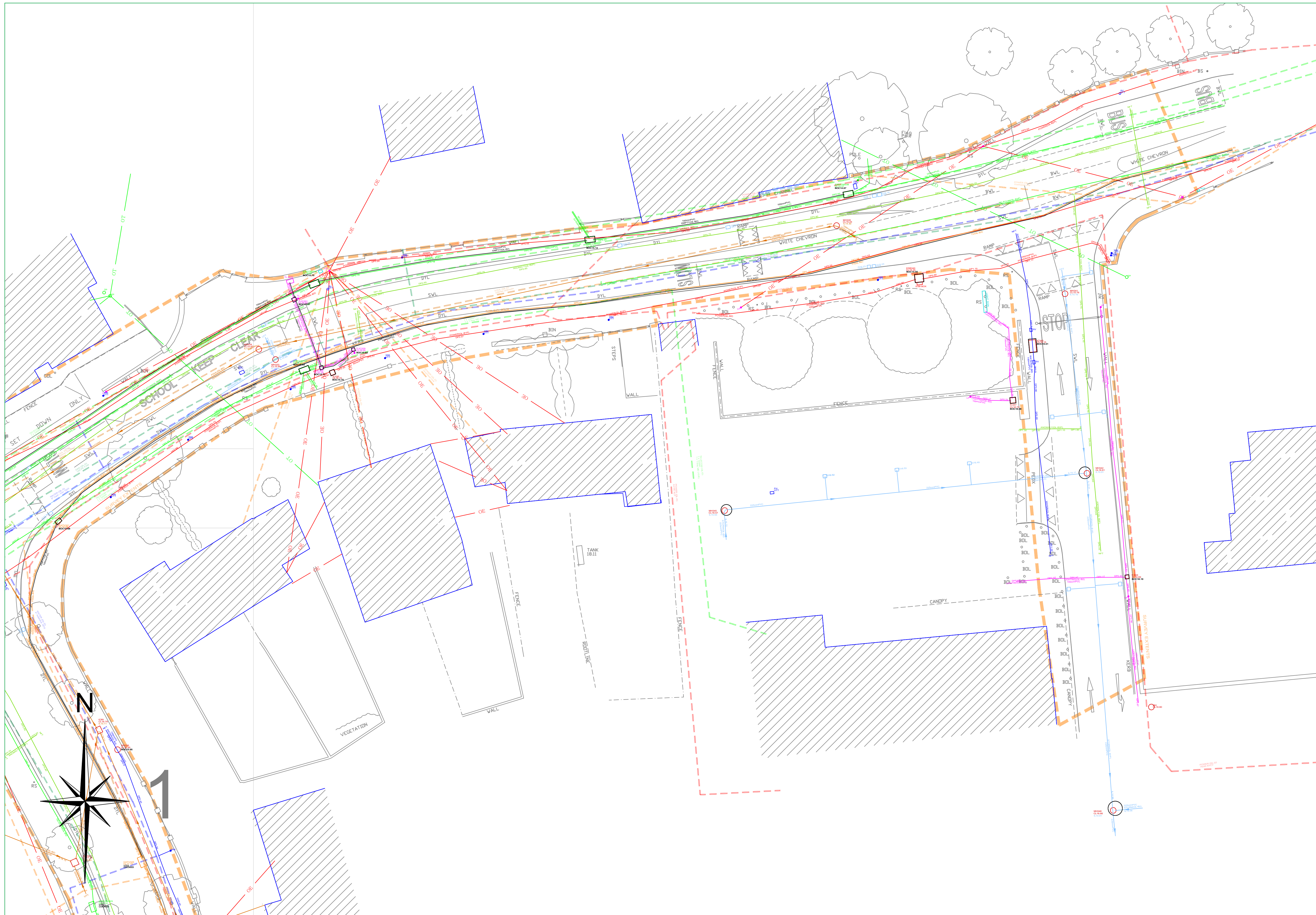
### ***4.2 Proposed Watermain Arrangement***

It is proposed to provide watermain 80mm (internal diameter) HDPE service connections to the two new apartment blocks. These service connections will connect to the public 4 inch watermain on St Columcilles Drive. Refer to drawing 22117-LDE-ZZ-00-DR-C-1C02.

A pre-connection enquiry form was submitted to Irish Water for this development to determine public network capacity for a watermain connection (IW Reference Number: CDS22006417). The confirmation of feasibility obtained from Irish Water is included in Appendix B.

# Appendix A





**PAS 128: 2014 (Quality of Survey Level Outputs):**

DESKTOP UTILITY RECORDS SEARCH	QL-D	Drafted from utility records
SITE RECONNAISSANCE	QL-C	Location Demonstrated by visual reference to street furniture or evidence of previous streetworks, ie - reinstatement scars
DETECTION	QL-B4	A segment of utility suspected to exist but has not been detected by a geophysical technique
	QL-B3	Horizontal location only of the utility detected by one of the geophysical techniques used
	QL-B2	Horizontal and vertical location of the utility detected by one of the geophysical techniques used
	QL-B1	Horizontal and vertical location of the utility detected by multiple geophysical techniques
VERIFICATION	QL-A	Horizontal and vertical location of the top and/or bottom of the utility

**Apex Surveys Ltd. Disclaimer - Utility Survey**

The interpretative nature and the non-intrusive, indirect and non-destructive survey methods must be taken into account when considering the results of the surveys. Therefore Apex Surveys, while using appropriate practice to execute, interpret and present the data, gives no guarantees that all underground utilities and underground structures will be located and mapped. Furthermore, Apex Surveys cannot guarantee the accuracy of the utility depths annotated on the survey drawings. Apex Survey shall not be liable for any omissions or inaccuracies in the survey which arise due to the limitations of the service. No liability shall attach to Apex Surveys, in any circumstances, howsoever arising, in respect of any consequential loss or damages suffered by the Client.

**The following is a non-exhaustive list of the limitations of utility surveys:**

- The Survey aims to map existing utilities subsurface utilities and provide information with respect to pipe size, material type and drainage connectivity. However utility surveying is limited by the following guidelines and it may not be possible to accurately survey, define and locate all services and sub-surface features.
  - Depth of Utility: The depth and size of a utility affect the signal response and the degree with which a utility can be located. Due to attenuation of the radar signal with depth, resolution is restricted, hence making identification of utilities more difficult with increasing depth.
  - Size of Utility: The smaller the diameter of a utility the more difficult it is to locate. This difficulty increases with depth.
  - Ground Conditions: The depth penetration and quality of the data depends on the ground conditions of the site. GPR Surveying works best within high resistivity material. Clay overburden can impair GPR Surveying. Poor data may be a result of areas with high conductivity.
  - Utility Congestion: Where different utilities converge together into a service corridor or cross paths it becomes difficult to isolate a specific utility and map its route. The reflected signal will display a single response to multiple utilities. Therefore multiple utilities may appear to be a single utility. Where similar services run on close proximity, separation may be impossible.
  - Signal Jumping: Signal from surrounding services may 'jump' to a highly conductive line masking its true identity.
  - Shadowing: (of deeper utilities by shallower objects) Shallow utilities will mask the existence of deeper utilities where they are in close proximity. Also, high reflective materials close to the surface i.e. rebar may hide deeper anomalies.
  - Surface Obstructions: The GPR system relies on a relatively flat and even surface on which to perform radar passes. If ground obstructions such as vehicles, organic material (long grass, scrub) or undulating ground surface are present then the acquired data will be of lower resolution and in some cases not viable.
  - Loss of signal: It is not always possible to trace the entire length of each underground service.
  - Connections between manholes: Connections between manhole chambers are assumed to be straight.
  - Non-metallic objects: Nonmetallic objects are amongst the most difficult to trace therefore successful tracing of non-metallic pipes/ utilities may be limited.
  - Fiber Optic Cables: Fiber optic cables may not be possible to locate except where laid with a built in tracer wire or similar conductor system.
  - Defective / flooded manholes or pipework: It may not be possible to establish connections between flooded or defective manholes or pipework.
  - Acute bends in pipework: It may not be possible to trace a pipe past an acute bend.
- Accuracy estimates:
- Locational accuracy is determined by referring to the manufacturers guidelines for the detector used.
  - In ideal conditions the spatial accuracies for the underground utilities may be +/- 5% for Radiodetection and +/- 10% of depth for the GPR to 2.5m deep. However variations within the subsurface, depth below the ground, close proximity of other services and local magnetic, atmospheric or ground conditions, bends, lateral service connections and any of the other limitations listed in this disclaimer may alter this estimated accuracy.
  - Plan accuracies of + or - 150mm may be achieved but this figure will depend on the depth of service below ground level. However variations within the subsurface, depth below the ground, close proximity of other services and local magnetic, atmospheric or ground conditions, bends, lateral service connections and any of the other limitations listed in this disclaimer may alter this estimated accuracy.
  - DP represents distance from the surface level to the top of the service/ target
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**Record Drawing Information**

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- Where Apex Surveys issue a utility drawing, this should be read in conjunction with all available public or private utility records.
- Apex Surveys endeavor to add relevant Public Utility record information onto the final drawing. However, we would recommend that direct contact is made with the asset owner or statutory undertaker.
- We shall not be held responsible for the accuracy, or otherwise, of the location of a service, as issued by the utility provider and therefore shown as "Taken From Records" on the drawing.

**The following have been excluded from the survey:**

- Location of individual service feeds to properties or buildings as access would be required into each property to apply direct connections to inlet points and this would significantly increase the scope of works, survey cost and also cause possible disruption to occupants.
- Pot ended or disconnected cables or terminated short lengths of pipe.
- Internal building services.
- Small diameter cables less than 20mm diameter or pipes less than 40mm diameter.
- Above ground services unless specifically requested.
- Lifting manholes which require longer than 10 minutes effort using standard heavy duty apparatus.

All works carried out by Apex Surveys conforms to the guidelines set out by The Survey Association (TSA) and PAS:128 Standard for utility mapping



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**STREET FURNITURE :**

BOLLARDS	BD +
BUS STOP	BS +
CRASH BARRIER	CB
GATE	GP +
ELECTRICITY POLE	EP +
TELEPHONE POLE	TP +
EARTHING ROD	ER +
LAMP POST	LP +
MARKER POST	MP +
SIGN POST	SP +
TRAFFIC LIGHT	TL +
TELEPHONE BOX	TB
POST BOX	PB
POST BOX	PB
ROADSIGN	RS-RS
BORE HOLE	BH +
TRIAL PIT	TPIT +
BOTTOM OF CHAMBER	BOC
CAST-IRON	CI
CONCRETE	CONC
DIAMETER	DIA

**SERVICES :**

AIR VALVE	AV
ARMSTRONG JUNCTION	AJ
CABLE TV IC	CATV
COVER LEVEL	CL
EIRCOM COVER	EIRCOM
EIRCOM JUNCTION BOX	EIRCOM BOX
ELECTRICAL CABLE PIT	ECP
ESAT COVER	ESAT
ESS COVER	ESS
ESS JUNCTION BOX	ESS BOX
FIRE HYDRANT	FH
GAS VALVE	GV
GULLY	G
INSPECTION COVER	IC
MANHOLE	MH
SEPTIC TANK	SEPTIC
SLUICE VALVE	SV
DOWNSPIPE	DP
EARTHENWARE	EW
NO FURTHER TRACE	NFT
OFFSITE	OIS
STOPCOCK	ST
SERVICE BOX (UNKNOWN)	BOX
TRAFFIC COVER	TLIC
VENT	VENT
WATER METER	WM +
BED LEVEL	+ BED101.50
FLOOR LEVEL	+ FL101.50
INVERT LEVEL	+ I101.50
ROAD LEVEL	+ R101.50
SOFFIT LEVEL	+ SL101.50
SPOT LEVEL	+ 101.50
TOP OF WALL LEVEL	+ TOW101.50
WATER LEVEL	+ W101.50
SURVEY CONTROL STATION	SCS
START OF RUN	SOR
UNABLE TO OPEN	UTO
UNABLE TO TRACE	UTT

**UNDERGROUND LEGEND :**

WATER MAIN	WATER
GAS MAIN	GAS
STORM DRAIN	STORM
FOUL SEWER	FOUL
COMBINED SEWER	COMB
ELECTRIC CABLE	ELECTRIC
ELECTRIC LIGHTING	LIGHTING
EIRCOM	EIRCOM
FIBRE OPTIC CABLE	FIBRE OPTIC
BROADBAND	BROADBAND
CABLE TV	CABLE TV
TRAFFIC AND SIGNAL CABLE	TRAFFIC
IRRIIGATION PIPE	IRRIIGATION
EMPTY DUCT	EMPTY
GPR ANOMALY	ANOMALY
UNKNOWN CABLE	CABLE
O'HEAD ELECTRICITY	O'HEAD
O'HEAD TELECOM	TELECOM

**SHEET LAYOUT :**



**PLAN PRODUCED BY:**



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info@apexsurveys.ie  
00353 1 691 0156

**CONTACT INFORMATION:**

**CLIENT:**

Fingal C.C.

**GRID SYSTEM:**

Irish Transverse Mercator  
DATUM: Malin Head (OSGM15)  
NOTES: Drawing Contains Scale Factor

**REVISIONS:**

No.	Date	Description
001	05/07	Original Drawing

**PROJECT:**

Seatown Rd. and North St.

SCALE : 1/100 A1

DATE : 05/07/2022

DRG No: 5176

DESCRIPTION : 2D Utilities

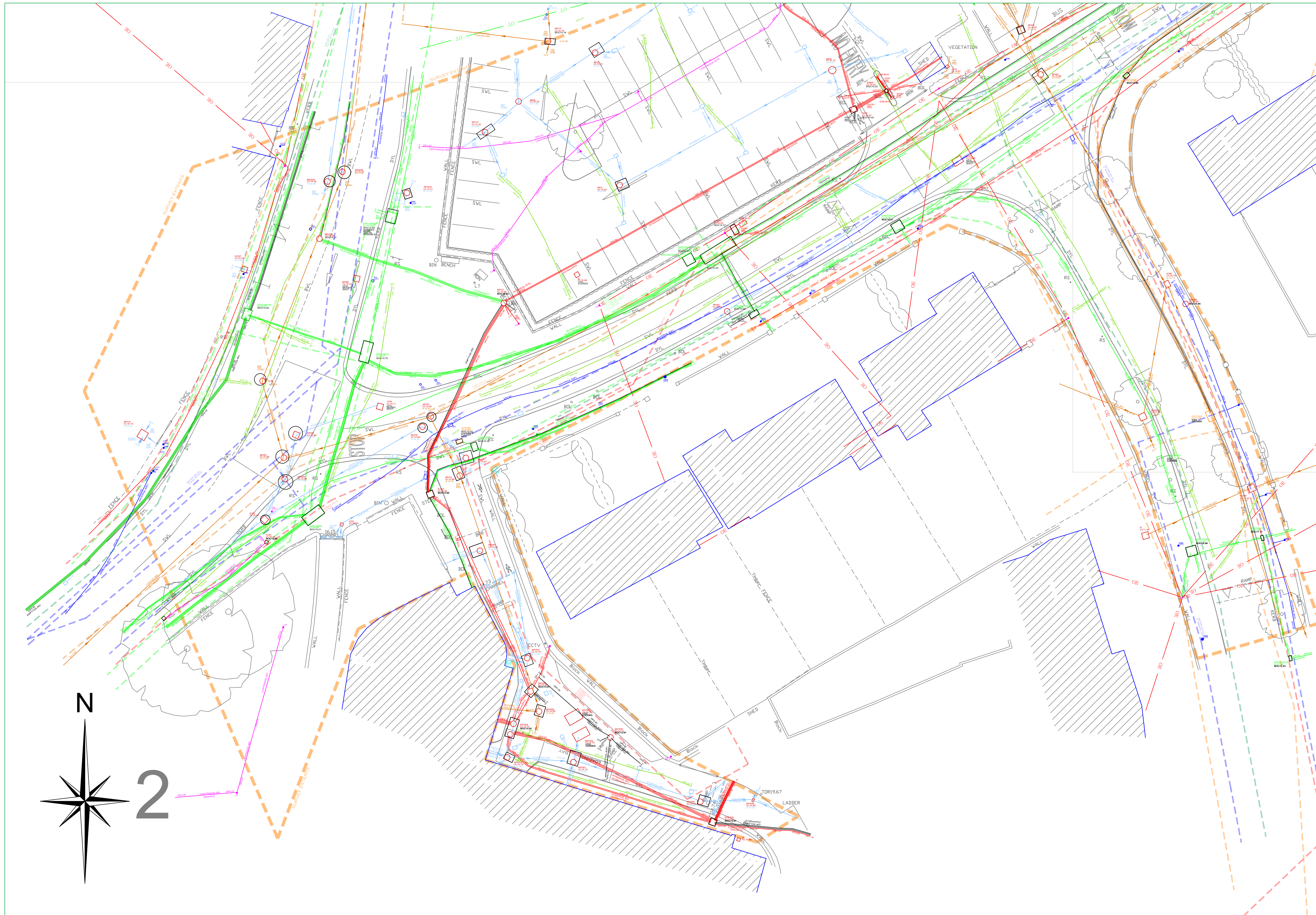
SHEET: 1 of 4

SURVEYED BY : Heitor A.

PROCESSED BY : Ivan Papic

CHECKED BY : Alan Brady





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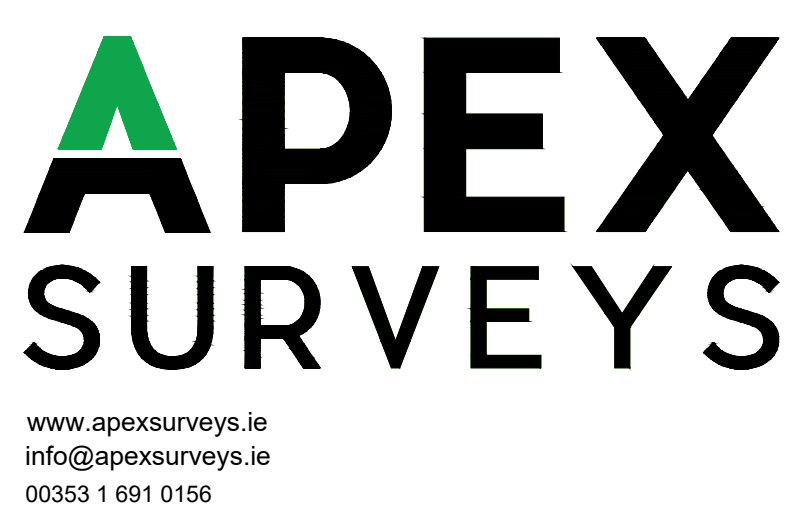
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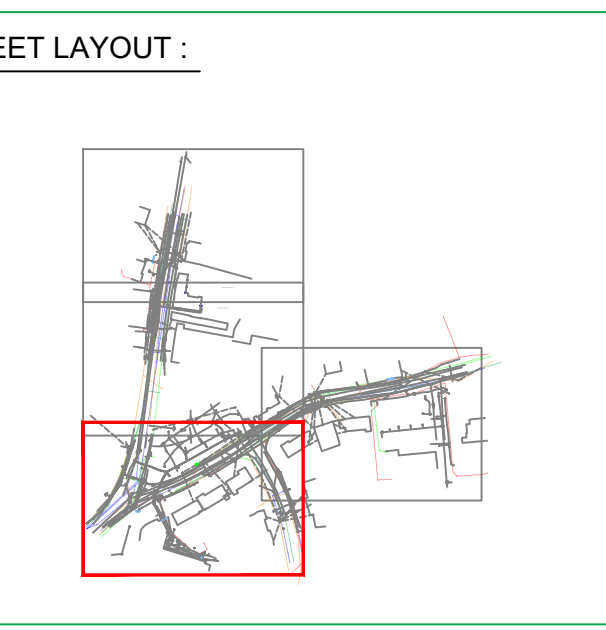
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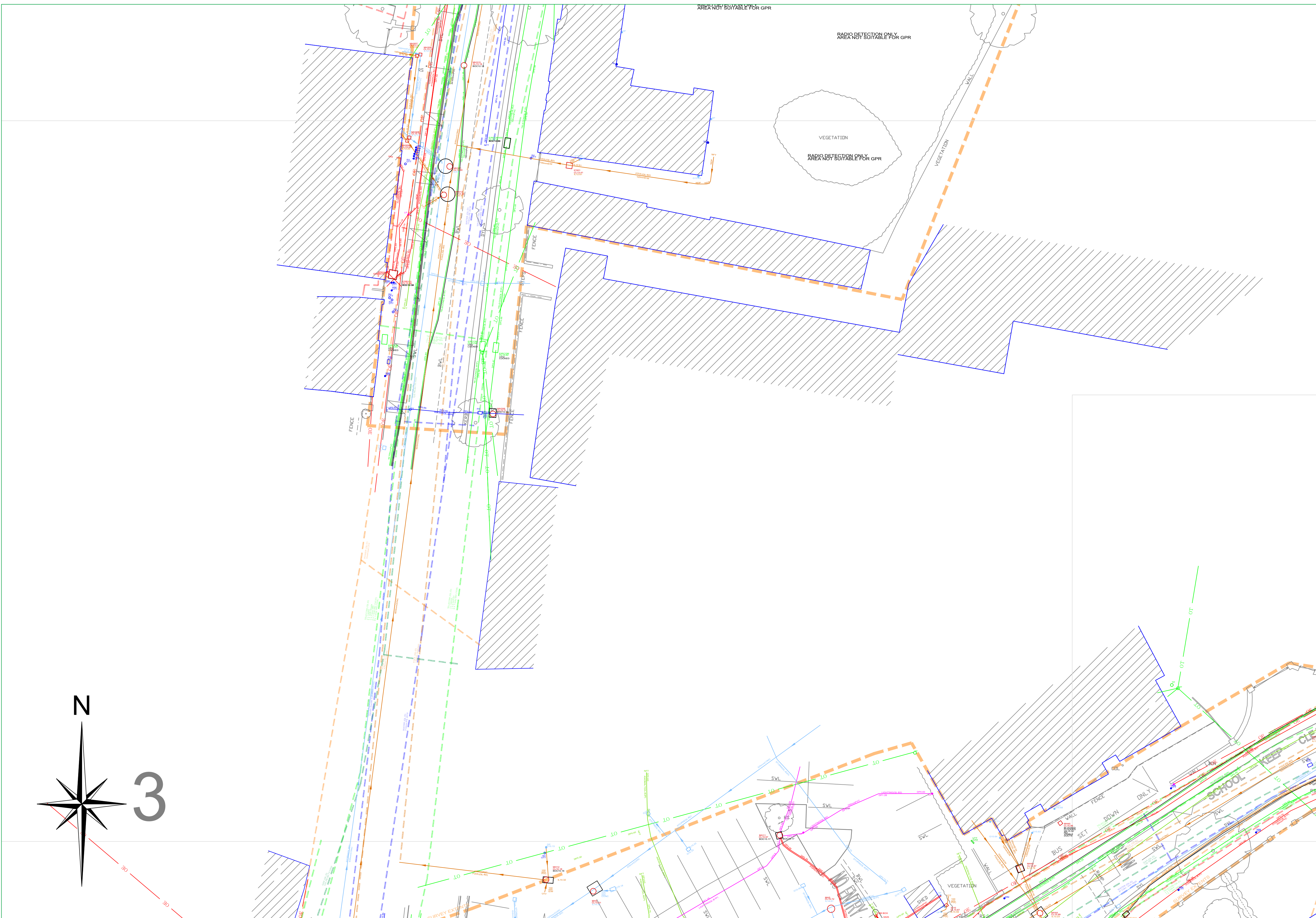
<b>STREET FURNITURE :</b>	<b>SERVICES :</b>
BOLLARDS BUS STOP CRASH BARRIER GATE ELECTRICITY POLE TELEPHONE POLE EARTHING ROD LAMP POST MARKER POST SIGN POST TRAFFIC LIGHT TELEPHONE BOX POST POST BOX ROAD SIGN BORE HOLE TRIAL PIT BOTTOM OF CHAMBER CAST-IRON CONCRETE DIAMETER	AIR VALVE ARMSTRONG JUNCTION CABLE TV IC COVER LEVEL EIRCOM COVER EIRCOM JUNCTION BOX ELECTRICAL CABLE PIT ESAT COVER ESB COVER ESB JUNCTION BOX FIRE HYDRANT GAS VALVE GULLY INSPECTION COVER MANHOLE SEPTIC TANK SLUICE VALVE DOWNPIPE EARTHENWARE NO FURTHER TRACE OFFSITE AV AJ CATV CL EIRCOM EIRCOM BOX ECP ESAT ESB ESB BOX FH GV IC MH SEPTIC SV STOPCOCK SERVICE BOX (UNKNOWN) TRAFFIC COVER VENT WATER METER <b>LEVELS :</b> BED LEVEL FLOOR LEVEL INVERT LEVEL ROAD LEVEL SOFFIT LEVEL SPOT LEVEL TOP OF WALL LEVEL WATER LEVEL SURVEY CONTROL STATION START OF RUN UNABLE TO OPEN UNABLE TO TRACE ST BOX TLIC VENT WM +BED101.50 +FL101.50 +IL101.50 +I101.50 +SL101.50 +101.50 +101.50 +TOW101.50 +101.50 DP EW NFT OIS SOR UTO UTT

<b>UNDERGROUND LEGEND :</b>
WATER MAIN GAS MAIN STORM DRAIN FOUL SEWER COMBINED SEWER ELECTRIC CABLE ELECTRIC LIGHTING EIRCOM FIBRE OPTIC CABLE BROADBAND CABLE TV TRAFFIC AND SIGNAL CABLE CCTV IRRIGATION PIPE EMPTY DUCT GPR ANOMALY UNKNOWN CABLE O/H/EAD ELECTRICITY O/H/EAD TELECOM WATER GAS STORM FOUL COMB POWER LIGHTING EIRCOM FIBRE BROADBAND TV TRAFFIC CCTV IRRIGATION EMPTY ANOMALY CABLE OE OF



<b>PLAN PRODUCED BY:</b>	<b>CLIENT:</b>	<b>PROJECT:</b>
<b>APEX SURVEYS</b>	Fingal C.C.	Seatown Rd. and North St.
<b>CONTACT INFORMATION:</b>	<b>GRID SYSTEM:</b> Irish Transverse Mercator	<b>SCALE :</b> 1/100 A1
Apex Surveys Unit 78 Dunboyne Business Park Dunboyne, Co. Meath, Ireland www.apexsurveys.ie info@apexsurveys.ie 00353 1 691 0156	<b>DATUM:</b> Malin Head (OSGM15)	<b>DATE :</b> 05/07/2022
	<b>NOTES:</b> Drawing Contains Scale Factor	<b>DRG No:</b> 5176
	<b>REVISIONS:</b>	<b>DESCRIPTION :</b> 2D Utilities
	No. Date Description	<b>SURVEYED BY :</b> Heitor A.
	001 05/07 Original Drawing	<b>PROCESSED BY :</b> Ivan Papic
		<b>CHECKED BY :</b> Alan Brady
		<b>SHEET:</b> 2 of 4





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VERIFICATION	
QL-A	Horizontal and vertical location of the top and/or bottom of the utility

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The interpretative nature and the non-intrusive, indirect and non-destructive survey methods must be taken into account when considering the results of the surveys. Therefore Apex Surveys, while using appropriate practice to execute, interpret and present the data, gives no guarantees that all underground utilities and underground structures will be located and mapped. Furthermore, Apex Surveys cannot guarantee the accuracy of the utility depths annotated on the survey drawings. Apex Survey shall not be liable for any omissions or inaccuracies in the survey which arise due to the limitations of the service. No liability shall attach to Apex Surveys, in any circumstances, howsoever arising, in respect of any consequential loss or damages suffered by the Client.

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- Fiber Optic Cables: Fiber optic cables may not be possible to locate except where laid with a built in tracer wire or similar conductor system.
- Defective / flooded manholes or pipework: It may not be possible to establish connections between flooded or defective manholes or pipework.
- Acute bends in pipework: It may not be possible to trace a pipe past an acute bend.
- Accuracy estimates:
  - Locational accuracy is determined by referring to the manufacturers guidelines for the detector used.
  - In ideal conditions the spatial accuracies for the underground utilities may be +/- 5% for Radiodetection and +/- 10% of depth for the GPR to 2.5m deep. However variations within the subsurface, depth below the ground, close proximity of other services and local magnetic, atmospheric or ground conditions, bends, lateral service connections and any of the other limitations listed in this disclaimer may alter this estimated accuracy.
  - Plan accuracies of + or - 150mm may be achieved but this figure will depend on the depth of service below ground level. However variations within the subsurface subsurface, depth below the ground, close proximity of other services and local magnetic, atmospheric or ground conditions, bends, lateral service connections and any of the other limitations listed in this disclaimer may alter this estimated accuracy.
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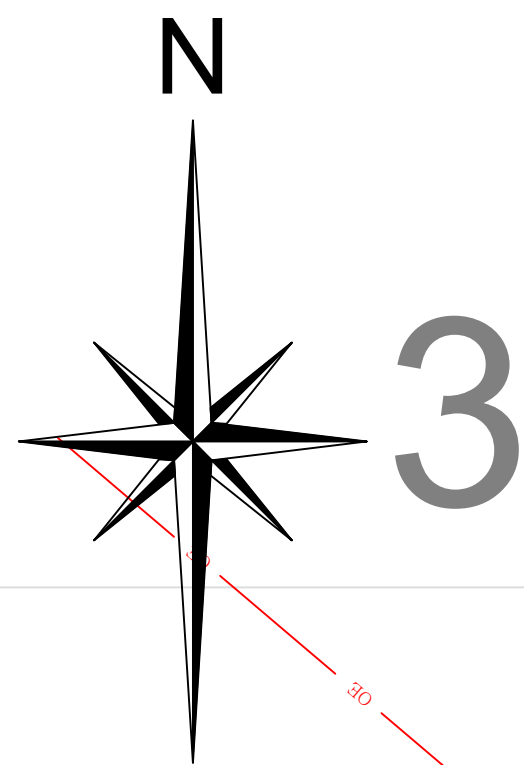
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- Lifting manholes which require longer than 10 minutes effort using standard heavy duty apparatus.

All works carried out by Apex Surveys conforms to the guidelines set out by The Survey Association (TSA) and PAS:128 Standard for utility mapping



**STREET FURNITURE :**

BOLLARDS	BD+
BUS STOP	BS+
CRASH BARRIER	CB
GATE	GP
ELECTRICITY POLE	EP+
TELEPHONE POLE	TP+
EARTHING ROD	ER+
LAMP POST	LP+
MARKER POST	MP+
SIGN POST	SP+
TRAFFIC LIGHT	TL
TELEPHONE BOX	TB
POST BOX	PB
POST BOX	RS-RS
ROADSIGN	RS
BORE HOLE	BH+
TRIAL PIT	TPIT+
BOTTOM OF CHAMBER	BOC
CAST-IRON	CI
CONCRETE	CONC
DIAMETER	DIA

**SERVICES :**

AIR VALVE	AV
ARMSTRONG JUNCTION	AJ
CABLE TV IC	CATV
COVER LEVEL	CL
EIRCOM COVER	EIRCOM
EIRCOM JUNCTION BOX	EIRCOM BOX
ELECTRICAL CABLE PIT	ECP
ESAT COVER	ESAT
ESS COVER	ESS
ESS JUNCTION BOX	ESS BOX
FIRE HYDRANT	FH
GAS VALVE	GV
GULLY	G
INSPECTION COVER	IC
MANHOLE	MH
SEPTIC TANK	SEPTIC
SLUICE VALVE	SV
DOWNSPIPE	DP
EARTHENWARE	EW
NO FURTHER TRACE	NFT
OFFSITE	OIS

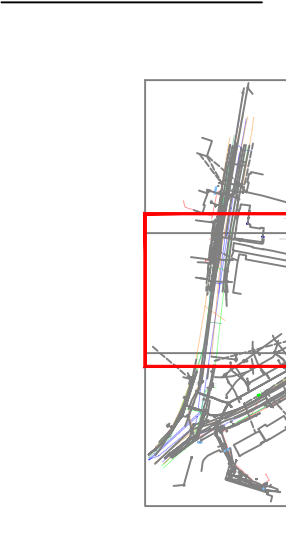
**LEVELS :**

STOPCOCK	ST
SERVICE BOX (UNKNOWN)	BOX
TRAFFIC COVER	TLIC
VENT	VENT
WATER METER	WM
BED LEVEL	+BED101.50
FLOOR LEVEL	+FL101.50
INVERT LEVEL	+I101.50
ROAD LEVEL	+R101.50
SOFFIT LEVEL	+SL101.50
SPOT LEVEL	+101.50
TOP OF WALL LEVEL	+TOW101.50
WATER LEVEL	+WL101.50
SURVEY CONTROL STATION	SCS
START OF RUN	SOR
UNABLE TO OPEN	UTO
UNABLE TO TRACE	UTT

**UNDERGROUND LEGEND :**

WATER MAIN	WATER
GAS MAIN	GAS
STORM DRAIN	STORM
FOUL SEWER	FOUL
COMBINED SEWER	COMB
ELECTRIC CABLE	POWER
ELECTRIC LIGHTING	LIGHTING
EIRCOM	EIRCOM
FIBRE OPTIC CABLE	FIBRE OPTIC
BROADBAND	BROADBAND
CABLE TV	TV
TRAFFIC AND SIGNAL CABLE	TRAFFIC
CCTV	CCTV
IRRIGATION PIPE	IRRIGATION
EMPTY DUCT	EMPTY
GPR ANOMALY	ANOMALY
UNKNOWN CABLE	CABLE
O/H HEAD ELECTRICITY	OH
O/H HEAD TELECOM	OT

**SHEET LAYOUT :**



**PLAN PRODUCED BY:**



CONTACT INFORMATION:  
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Unit 78 Dunboyne Business Park  
Dunboyne, Co. Meath, Ireland  
www.apexsurveys.ie  
info@apexsurveys.ie  
00353 1 691 0156

**CLIENT:**

Fingal C.C.

**PROJECT:**

Seatown Rd. and North St.

GRID SYSTEM:	Irish Transverse Mercator	
DATUM:	Malin Head (OSGM15)	
NOTES:	Drawing Contains Scale Factor	
REVISIONS:		
No.	Date	Description
001	05/07	Original Drawing

SCALE :	1/100 A1	DATE :	05/07/2022
DRG No:	5176	DESCRIPTION :	2D Utilities
SHEET:	3 of 4	SURVEYED BY :	Heitor A.
		PROCESSED BY :	Ivan Papic
		CHECKED BY :	Alan Brady

**APEX SURVEYS**  
www.apexsurveys.ie  
info@apexsurveys.ie  
00353 1 691 0156



**PAS 128: 2014 (Quality of Survey Level Outputs):**

DESKTOP UTILITY RECORDS SEARCH	
QL-D	Drafted from utility records
SITE RECONNAISSANCE	
QL-C	Location Demonstrated by visual reference to street furniture or evidence of previous streetworks, ie - reinstatement scars
DETECTION	
QL-B4	A segment of utility suspected to exist but has not been detected by a geophysical technique
QL-B3	Horizontal location only of the utility detected by one of the geophysical techniques used
QL-B2	Horizontal and vertical location of the utility detected by one of the geophysical techniques used
QL-B1	Horizontal and vertical location of the utility detected by multiple geophysical techniques
VERIFICATION	
QL-A	Horizontal and vertical location of the top and/or bottom of the utility

**Apex Surveys Ltd. Disclaimer - Utility Survey**

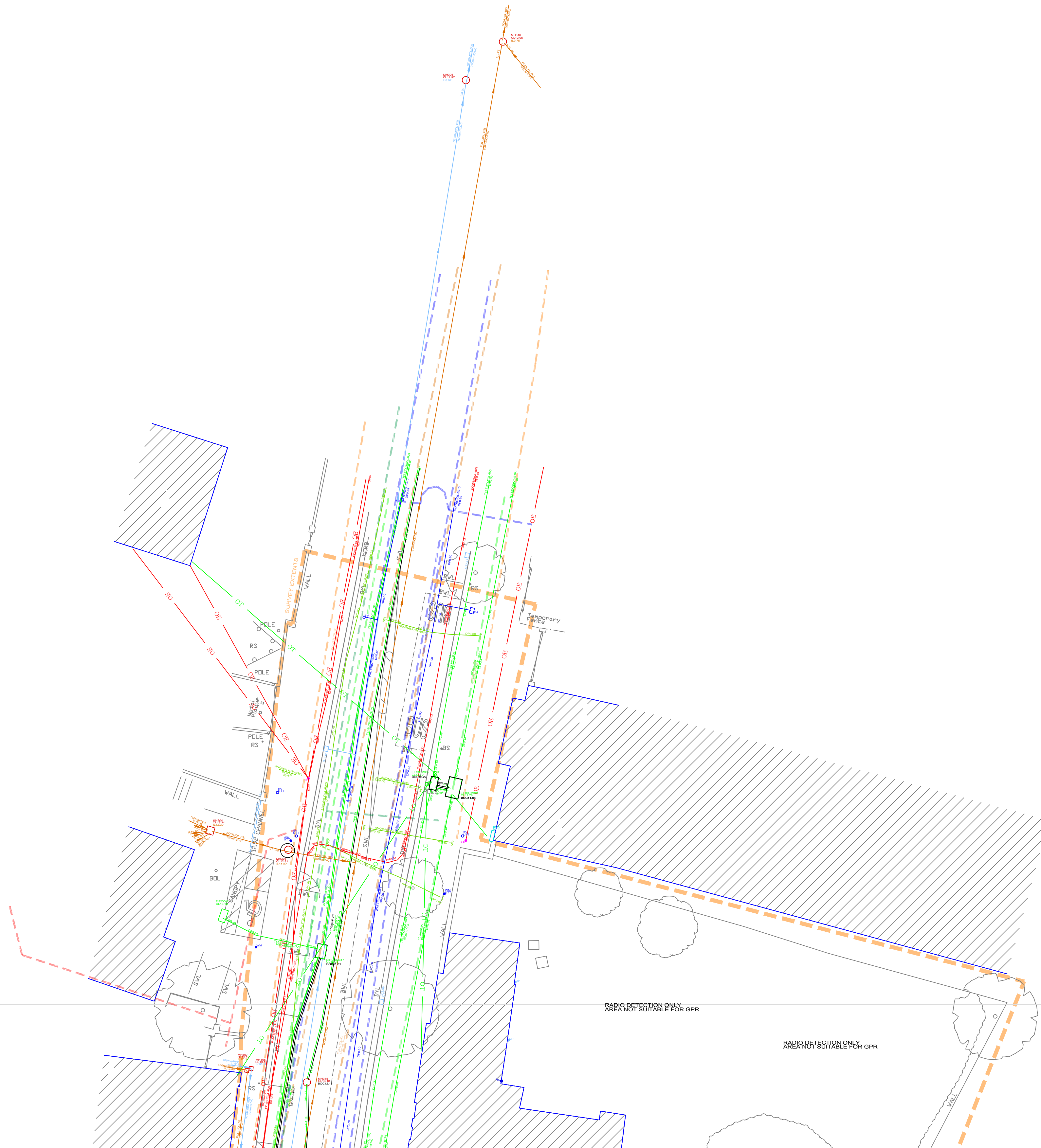
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SLUICE VALVE	SV
DOWNPIPE	DP
EARTHENWARE	EW
NO FURTHER TRACE	NFT
OFFSITE	OIS

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SERVICE BOX ( UNKNOWN )	SB
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VENT	V
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O'HEAD ELECTRICITY	OH
O'HEAD TELECOM	OT

**SHEET LAYOUT :**



**PLAN PRODUCED BY:**



Apex Surveys  
Unit 78 Dunboyne Business Park  
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**CLIENT:**

Fingal C.C.

**PROJECT:**

Seatown Rd. and North St.

GRID SYSTEM: Irish Transverse Mercator  
DATUM: Malin Head (OSGM15)  
NOTES: Drawing Contains Scale Factor

No.	Date	Description
001	05/07	Original Drawing

SCALE : 1/100 A1

DATE : 05/07/2022

DRG No: 5176

DESCRIPTION : 2D Utilities

SHEET: 4 of 4

SURVEYED BY : Heitor A.  
PROCESSED BY : Ivan Papic  
CHECKED BY : Alan Brady

# Appendix B



## CONFIRMATION OF FEASIBILITY

Peter O'Connor  
13 Gardiner Place  
Dublin 1  
Co. Dublin  
D01V0T8

18 October 2022

**Our Ref: CDS22006417 Pre-Connection Enquiry  
1A - 10 Seatown Road, Townparks, Dublin**

Dear Applicant/Agent,

### **We have completed the review of the Pre-Connection Enquiry.**

Irish Water has reviewed the pre-connection enquiry in relation to a Water & Wastewater connection for a Housing Development of 36 unit(s) at 1A - 10 Seatown Road, Townparks, Dublin, (the **Development**).

Based upon the details provided we can advise the following regarding connecting to the networks;

- **Water Connection** - Feasible without infrastructure upgrade by Irish Water
- **Wastewater Connection** - Feasible without infrastructure upgrade by Irish Water

This letter does not constitute an offer, in whole or in part, to provide a connection to any Irish Water infrastructure. Before the Development can be connected to our network(s) you must submit a connection application and be granted and sign a connection agreement with Irish Water.

As the network capacity changes constantly, this review is only valid at the time of its completion. As soon as planning permission has been granted for the Development, a completed connection application should be submitted. The connection application is available at [www.water.ie/connections/get-connected/](http://www.water.ie/connections/get-connected/)

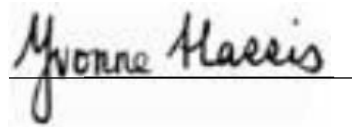
### **Where can you find more information?**

- **Section A** - What is important to know?

**This letter is issued to provide information about the current feasibility of the proposed connection(s) to Irish Water's network(s). This is not a connection offer and capacity in Irish Water's network(s) may only be secured by entering into a connection agreement with Irish Water.**

For any further information, visit [www.water.ie/connections](http://www.water.ie/connections), email [newconnections@water.ie](mailto:newconnections@water.ie) or contact 1800 278 278.

Yours sincerely,

A handwritten signature in black ink that reads "Yvonne Harris". The signature is written in a cursive style and is positioned above a thin horizontal line.

**Yvonne Harris  
Head of Customer Operations**

## Section A - What is important to know?

What is important to know?	Why is this important?
<p><b>Do you need a contract to connect?</b></p>	<ul style="list-style-type: none"> <li>• Yes, a contract is required to connect. This letter does not constitute a contract or an offer in whole or in part to provide a connection to Irish Water's network(s).</li> <li>• Before the Development can connect to Irish Water's network(s), you must submit a connection application <u>and be granted and sign</u> a connection agreement with Irish Water.</li> </ul>
<p><b>When should I submit a Connection Application?</b></p>	<ul style="list-style-type: none"> <li>• A connection application should only be submitted after planning permission has been granted.</li> </ul>
<p><b>Where can I find information on connection charges?</b></p>	<ul style="list-style-type: none"> <li>• Irish Water connection charges can be found at: <a href="https://www.water.ie/connections/information/charges/">https://www.water.ie/connections/information/charges/</a></li> </ul>
<p><b>Who will carry out the connection work?</b></p>	<ul style="list-style-type: none"> <li>• All works to Irish Water's network(s), including works in the public space, must be carried out by Irish Water*.</li> </ul> <p>*Where a Developer has been granted specific permission and has been issued a connection offer for Self-Lay in the Public Road/Area, they may complete the relevant connection works</p>
<p><b>Fire flow Requirements</b></p>	<ul style="list-style-type: none"> <li>• The Confirmation of Feasibility does not extend to fire flow requirements for the Development. Fire flow requirements are a matter for the Developer to determine.</li> <li>• <b>What to do?</b> - Contact the relevant Local Fire Authority</li> </ul>
<p><b>Plan for disposal of storm water</b></p>	<ul style="list-style-type: none"> <li>• The Confirmation of Feasibility does not extend to the management or disposal of storm water or ground waters.</li> <li>• <b>What to do?</b> - Contact the relevant Local Authority to discuss the management or disposal of proposed storm water or ground water discharges.</li> </ul>
<p><b>Where do I find details of Irish Water's network(s)?</b></p>	<ul style="list-style-type: none"> <li>• Requests for maps showing Irish Water's network(s) can be submitted to: <a href="mailto:datarequests@water.ie">datarequests@water.ie</a></li> </ul>

<p><b>What are the design requirements for the connection(s)?</b></p>	<ul style="list-style-type: none"> <li>The design and construction of the Water &amp; Wastewater pipes and related infrastructure to be installed in this Development shall comply with <b><i>the Irish Water Connections and Developer Services Standard Details and Codes of Practice</i></b>, available at <a href="http://www.water.ie/connections">www.water.ie/connections</a></li> </ul>
<p><b>Trade Effluent Licensing</b></p>	<ul style="list-style-type: none"> <li>Any person discharging trade effluent** to a sewer, must have a Trade Effluent Licence issued pursuant to section 16 of the Local Government (Water Pollution) Act, 1977 (as amended).</li> <li>More information and an application form for a Trade Effluent License can be found at the following link: <a href="https://www.water.ie/business/trade-effluent/about/">https://www.water.ie/business/trade-effluent/about/</a></li> </ul> <p>**trade effluent is defined in the Local Government (Water Pollution) Act, 1977 (as amended)</p>

# Appendix C





**GROUND INVESTIGATIONS IRELAND**  
Geotechnical & Environmental

Catherinestown House,  
Hazelhatch Road,  
Newcastle,  
Co. Dublin.  
D22 YD52

Tel: 01 601 5175 / 5176  
Email: [info@gii.ie](mailto:info@gii.ie)  
Web: [www.gii.ie](http://www.gii.ie)

Ground Investigations Ireland  
Seatown Road Soakaways  
Lohan & Donnelly  
Ground Investigation Report  
September 2022





**GROUND INVESTIGATIONS IRELAND**  
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## DOCUMENT CONTROL SHEET

Project Title	Soakaway Test Seatown Road
Engineer	Lohan & Donnelly
Client	Fingal County Council
Project No	12154-08-22
Document Title	Ground Investigation Report

Rev.	Status	Author(s)	Reviewed By	Approved By	Office of Origin	Issue Date
A	Final	M. Kearns	P. Moloney	F. McNamara	Dublin	05 September 2022

*Ground Investigations Ireland Ltd. present the results of the fieldworks and laboratory testing in accordance with the specification and related documents provided by or on behalf of the client. The possibility of variation in the ground and/or groundwater conditions between or below exploratory locations or due to the investigation techniques employed must be taken into account when this report and the appendices inform designs or decisions where such variation may be considered relevant. Ground and/or groundwater conditions may vary due to seasonal, man-made or other activities not apparent during the fieldworks and no responsibility can be taken for such variation. The data presented and the recommendations included in this report and associated appendices are intended for the use of the client and the client's geotechnical representative only and any duty of care to others is excluded unless approved in writing.*



[www.gii.ie](http://www.gii.ie)



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## **GROUND INVESTIGATIONS IRELAND**

Geotechnical & Environmental

### **CONTENTS**

1.0	Preamble.....	1
2.0	Overview.....	1
2.1.	Background.....	1
2.2.	Purpose and Scope .....	1
3.0	Subsurface Exploration .....	1
3.1.	General .....	1
3.2.	Trial Pits.....	2
3.3.	Soakaway Testing .....	2
3.12.	Insitu Plate Bearing Test.....	2
4.0	Ground Conditions.....	2
4.1.	General .....	2
4.3.	Groundwater .....	3
5.0	Recommendations & Conclusions .....	3
5.1.	General .....	3
5.5.	Soakaway Design .....	3

### **APPENDICES**

Appendix 1	Site Location Plan
Appendix 2	Trial Pit Records
Appendix 3	Soakaway Records
Appendix 4	CBR Plate Tests



[www.gii.ie](http://www.gii.ie)

## **1.0 Preamble**

On the instructions of Lohan & Donnelly Engineers, a site investigation was carried out by Ground Investigations Ireland Ltd., in September 2022 at the site of the proposed residential development in Seatown Road, Swords, Co. Dublin.

## **2.0 Overview**

### **2.1. Background**

It is proposed to construct a new residential development with associated services, access roads and car parking at the proposed site. The site is currently occupied by residential buildings and is situated in Swords. The proposed construction is envisaged to consist of conventional foundations and pavement make up with some local excavations for services and plant.

### **2.2. Purpose and Scope**

The purpose of the site investigation was to investigate subsurface conditions utilising a variety of investigative methods in accordance with the project specification. The scope of the work undertaken for this project included the following:

- Visit project site to observe existing conditions
- Carry out 2 No. Trial Pits to a maximum depth of 1.5m BGL
- Carry out 2 No. Soakaways to determine a soil infiltration value to BRE digest 365
- Carry out 2 No. CBR Plate tests
- Report on infiltration rate

## **3.0 Subsurface Exploration**

### **3.1. General**

During the ground investigation a programme of intrusive investigation specified by the Consulting Engineer was undertaken to determine the sub surface conditions at the proposed site. Regular sampling and in-situ testing was undertaken in the exploratory holes to facilitate the geotechnical descriptions and to enable laboratory testing to be carried out on the soil samples recovered during excavation and drilling.

The procedures used in this site investigation are in accordance with Eurocode 7 Part 2: Ground Investigation and testing (ISEN 1997 – 2:2007) and B.S. 5930:2015.

### 3.2. Trial Pits

The trial pits were excavated using a 3.5T excavator at the locations shown in the exploratory hole location plan in Appendix 1. The locations were checked using a CAT scan to minimise the potential for encountering services during the excavation. The trial pits were sampled, logged and photographed by a Geotechnical Engineer/Engineering Geologist prior to backfilling with arisings. Notes were made of any services, inclusions, pit stability, groundwater encountered and the characteristics of the strata encountered and are presented on the trial pit logs which are provided in Appendix 2 of this Report.

### 3.3. Soakaway Testing

The soakaway testing was carried out in selected trial pits at the locations shown in the exploratory hole location plan in Appendix 1. These pits were carefully excavated and filled with water to assess the infiltration characteristics of the proposed site. The pits were allowed to drain and the drop in water level was recorded over time as required by BRE Digest 365. The pits were logged prior to completing the soakaway test and were backfilled with arising's upon completion. The soakaway test results are provided in Appendix 2 of this Report.

### 3.4. Insitu Plate Bearing Test

The plate bearing tests were carried out using a 305mm or 450mm diameter plate at the locations shown on the site plan in Appendix 1. The plate was loaded in increments using a hydraulic jack and an excavator to provide a reaction and the displacement was monitored in accordance with BS1377 Part 9 using independently mounted digital strain gauges. The constrained modulus and equivalent CBR are calculated in accordance with HD29/75 and are provided on the test reports in Appendix 3 of this Report.

## 4.0 Ground Conditions

### 4.1. General

The ground conditions encountered during the investigation are summarised below with reference to insitu and laboratory test results. The full details of the strata encountered during the ground investigation are provided in the exploratory hole logs included in the appendices of this report.

The sequence of strata encountered were consistent across the site and generally comprised;

- Made Ground
- Cohesive Deposits

**TOPSOIL:** Topsoil was encountered in all the exploratory holes and was present to a maximum depth of 0.1m BGL.



**MADE GROUND:** Made Ground deposits were encountered beneath the Topsoil/Surfacing and were present to a depth of between 0.1m and 0.6m BGL. These deposits were described generally as *brown sandy slightly gravelly CLAY and contained occasional fragments of red brick, glass and metal.*

**COHESIVE DEPOSITS:** Cohesive deposits were encountered beneath the Made Ground and were described typically as *brown sandy gravelly CLAY with occasional cobbles and boulders.* The strength of the cohesive deposits typically increased with depth and was firm to stiff or stiff below 0.6m BGL in the majority of the exploratory holes. These deposits had some, occasional or frequent cobble and boulder content were noted on the exploratory hole logs.

#### **4.2. Groundwater**

No groundwater was noted during the investigation.

### **5.0 Recommendations & Conclusions**

#### **5.1. General**

The recommendations given and opinions expressed in this report are based on the findings as detailed in the exploratory hole records. Where an opinion is expressed on the material between exploratory hole locations, this is for guidance only and no liability can be accepted for its accuracy. No responsibility can be accepted for conditions which have not been revealed by the exploratory holes. Limited information has been provided at the ground investigation stage and any designs based on the recommendations or conclusions should be completed in accordance with the current design codes, taking into account the variation and the specific details contained within the exploratory hole logs.

#### **5.2. Soakaway Design**

At the locations SA01 and SA02 the water level dropped too slowly to allow calculation of 'f' the soil infiltration rate. These locations are therefore not recommended as suitable for soakaway design and construction.

The recommendations provided in this report should be verified in the design of the proposed buildings, using the full details of the loading conditions and taking into consideration the allowable tolerable settlements/movements that the building can accommodate. The founding strata should be inspected and verified by a suitably qualified engineer prior to construction of the building foundations.

# APPENDIX 1 - Site Location Plan





SA01/ CBR01

SA02/ CBR02

Seatown Rd

St Columille's Dr

St Columille's Dr

St Columille's Dr

Marine Parts Direct  
Temporarily closed

Google

## **APPENDIX 2 – Trial Pit Records**





Machine : 3.5T Excavator Method : Trial Pit		Dimensions 0.50m x 1.70m x 1.50m (W x L x D)	Ground Level (mOD)	Client Lohan & Donnelly	Job Number 12154-08-22
		Location	Dates 02/09/2022	Engineer	Sheet 1/1

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					0.10	Brown slightly sandy slightly gravelly TOPSOIL		
					0.10	Firm brown slightly sandy slightly gravelly Clay MADE GROUND: Made Ground consists of red brick wood fragments glass and metal with angular to subangular cobbles and boulders		
					0.50			
					0.60	Firm brown mottled grey slightly sandy slightly gravelly CLAY		
					0.90			
					1.50	Complete at 1.50m		

<b>Plan</b> .	<b>Remarks</b> Trial pit complete at 1.50m No groundwater encountered Trial pit stable Trial pit backfilled upon completion of infiltration test					
	<table border="1"> <tr> <td>Scale (approx)</td> <td>Logged By</td> <td>Figure No.</td> </tr> <tr> <td>1:25</td> <td>MK</td> <td>12154-08-22.SA01</td> </tr> </table>	Scale (approx)	Logged By	Figure No.	1:25	MK
Scale (approx)	Logged By	Figure No.				
1:25	MK	12154-08-22.SA01				





Machine : 3.5T Excavator Method : Trial Pit		Dimensions 0.60m x 1.80m x 1.00m (W x L x D)		Ground Level (mOD)		Client Lohan & Donnelly		Job Number 12154-08-22	
		Location		Dates 02/09/2022		Engineer		Sheet 1/1	

Depth (m)	Sample / Tests	Water Depth (m)	Field Records	Level (mOD)	Depth (m) (Thickness)	Description	Legend	Water
					0.05	Brown slightly sandy slightly gravelly TOPSOIL		
					(0.55)	Firm brown slightly gravelly SAND with subangular to subrounded cobbles and boulders		
					0.60 (0.40)	Firm brown slightly sandy slightly gravelly CLAY with occasional angular to subangular cobbles and boulders		
					1.00	Complete at 1.00m		

<b>Plan</b> .					<b>Remarks</b> Trial pit stable Trial pit backfilled upon completion of infiltration test Trial pit complete at 1.00m- refusal due to possible rock No groundwater encountered				
Scale (approx)			Logged By		Figure No.				
1:25			MK		12154-08-22.SA02				

## **APPENDIX 3 – Soakaway Records**



**SA01**

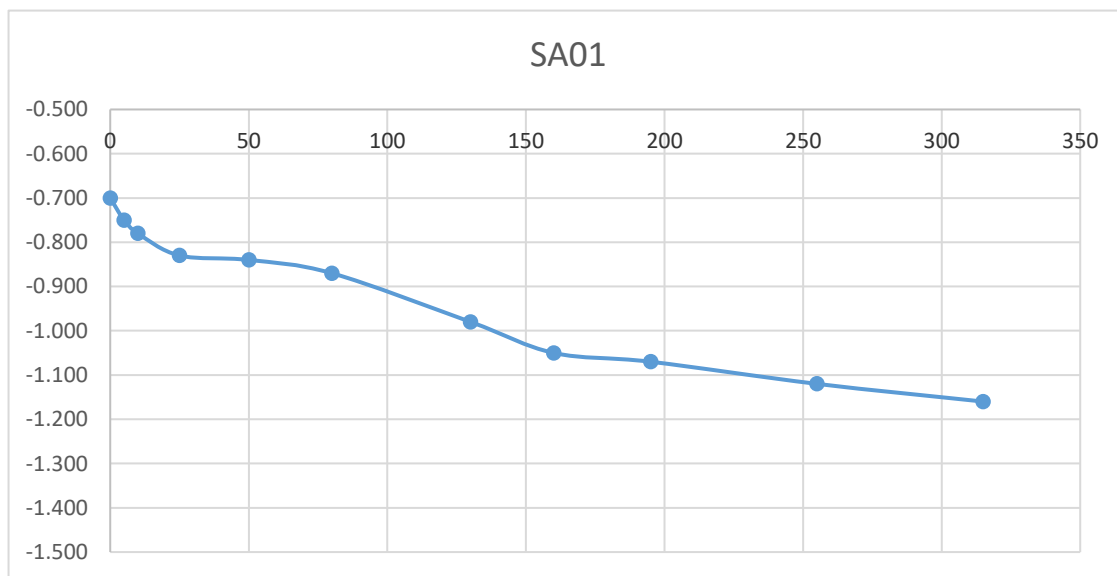
**Soakaway Test to BRE Digest 365**

**Trial Pit Dimensions: 1.70m x 0.50m x 1.50m (L x W x D)**

Date	Time	Water level (m bgl)
02/09/2022	0	-0.700
02/09/2022	5	-0.750
02/09/2022	10	-0.780
02/09/2022	25	-0.830
02/09/2022	50	-0.840
02/09/2022	80	-0.870
02/09/2022	130	-0.980
02/09/2022	160	-1.050
02/09/2022	195	-1.070
02/09/2022	255	-1.120
02/09/2022	315	-1.160

**\*Soakaway failed - Pit backfilled**

Start depth	Depth of Pit	Diff	75% full	25%full
0.70	1.500	0.800	0.9	1.3



**SA02**

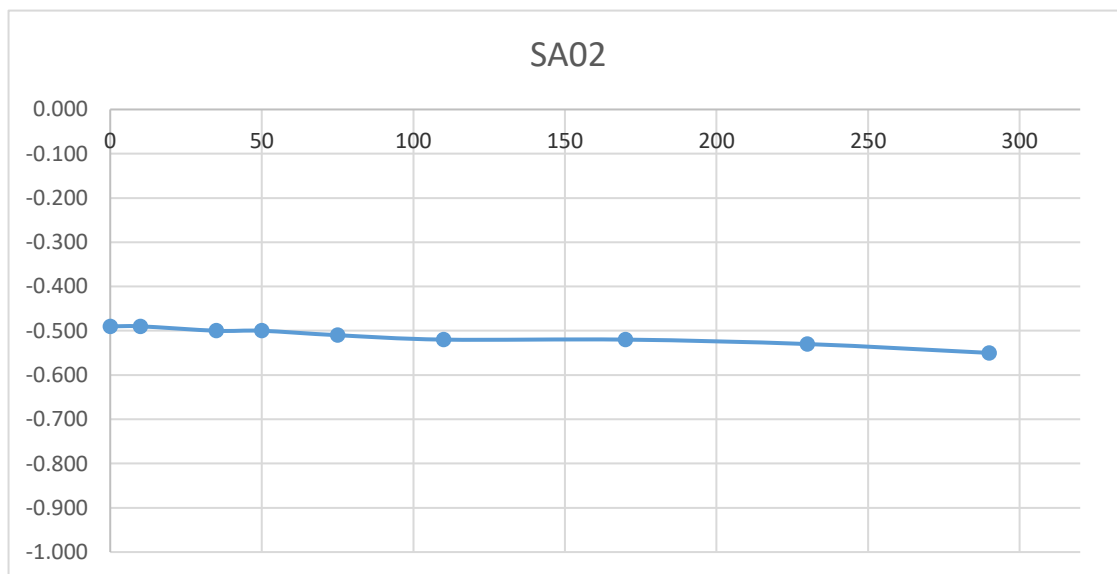
**Soakaway Test to BRE Digest 365**

**Trial Pit Dimensions: 1.80m x 0.60m x 1.00m (L x W x D)**

Date	Time	Water level (m bgl)
02/09/2022	0	-0.490
02/09/2022	10	-0.490
02/09/2022	35	-0.500
02/09/2022	50	-0.500
02/09/2022	75	-0.510
02/09/2022	110	-0.520
02/09/2022	170	-0.520
02/09/2022	230	-0.530
02/09/2022	290	-0.550

**\*Soakaway failed - Pit backfilled**

Start depth	Depth of Pit	Diff	75% full	25%full
0.49	1.000	0.510	0.6175	0.8725





# Seatown Road Soakaways– Trial Pit Photographs

SA01





# Seatown Road Soakaways– Trial Pit Photographs

SA02



## **APPENDIX 4 – CBR Plate Tests**



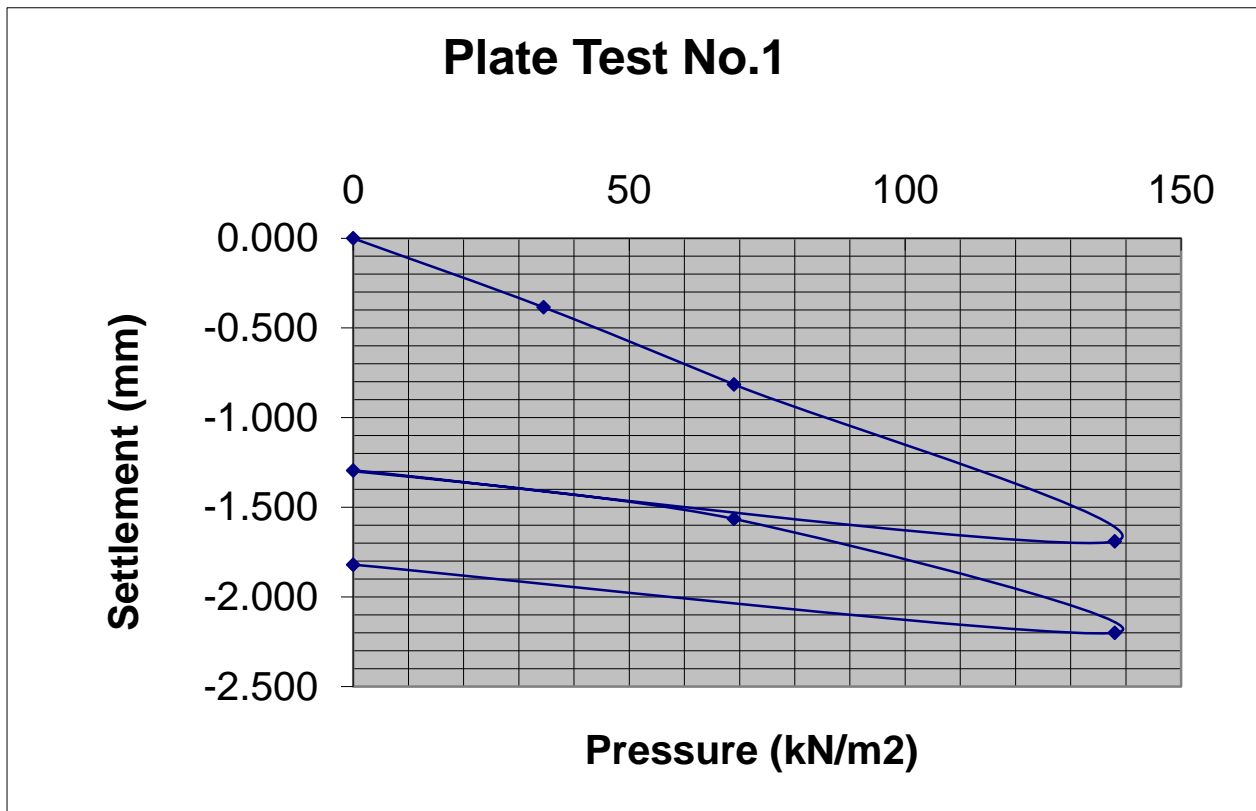


Applied Load	Gauge settlement
0	<b>0.000</b>
34.5	-0.385
69	-0.815
138	-1.69
0	-1.295
69	-1.565
138	-2.2
0	-1.82



**GROUND INVESTIGATIONS IRELAND**  
Geotechnical & Environmental

<b>LOCATION</b>	Seatwon Road	<b>MATERIAL</b>	Made ground: firm brown slightly sandy slightly gravelly Clay with red brick, wood, glass and metal fragments
<b>CONTRACT NO.</b>	12154-08-22	<b>DEPTH</b>	0.50m
<b>DATE</b>	02/09/2022	<b>NOTES</b>	
<b>CLIENT</b>	Lohan & Donnelly	<b>SAMPLES</b>	
<b>PLATE DIAMETER</b>	305mm		
<b>TEST NO.</b>	Test 1		



Modulus of subgrade reaction, K (Initial) = **38.48 MN/m<sup>2</sup>/m**  
 Modulus of subgrade reaction, K (Reload) = **116.15 MN/m<sup>2</sup>/m**

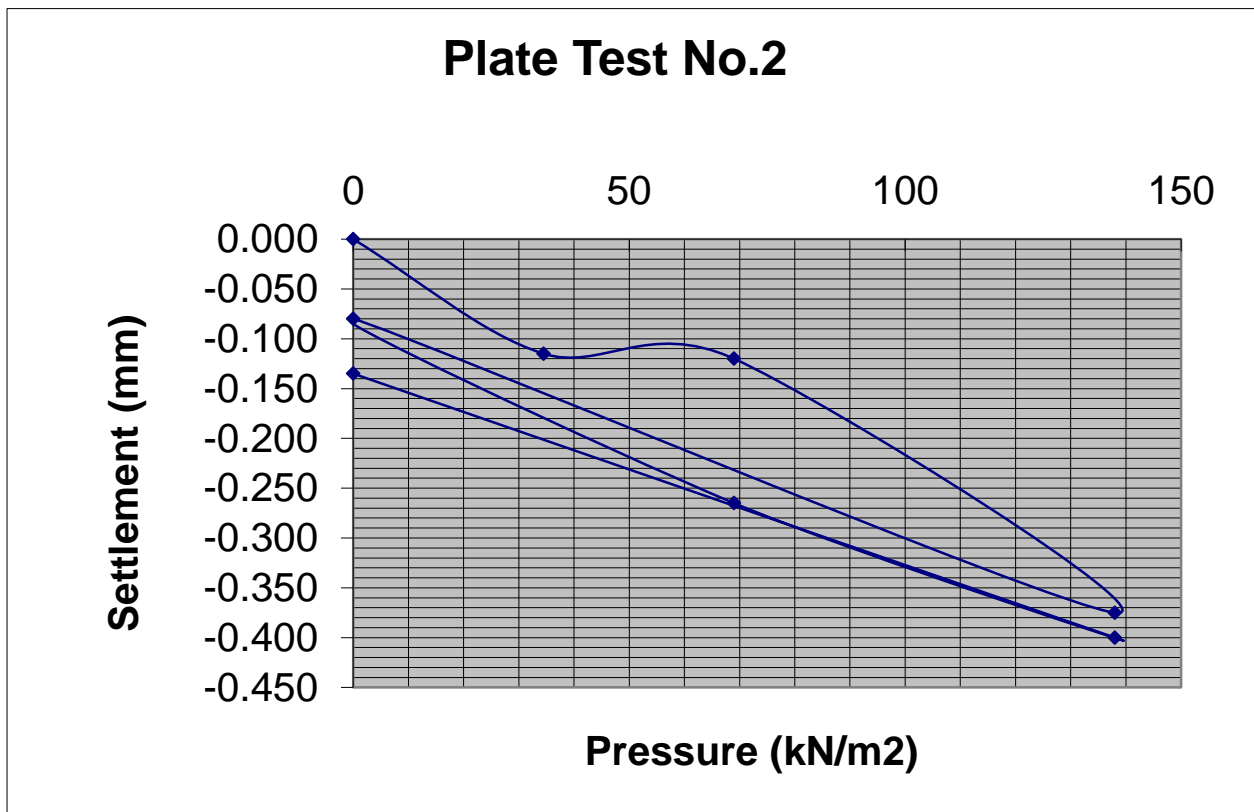
Equivalent CBR(initial)in accordance with HD25/94 volume7 section2 = **5.39 %**  
 Equivalent CBR(reload)in accordance with HD25/94 volume7 section2 = **36.56 %**

Applied Load	Gauge settlement
0	<b>0.000</b>
34.5	-0.115
69	-0.12
138	-0.375
0	-0.08
69	-0.265
138	-0.4
0	-0.135



**GROUND INVESTIGATIONS IRELAND**  
Geotechnical & Environmental

<b>LOCATION</b>	Seatwon Road	<b>MATERIAL</b>	Firm brown slightly sandy slightly gravelly Boulder CLAY
<b>CONTRACT NO.</b>	12154-08-22	<b>DEPTH</b>	0.50m
<b>DATE</b>	02/09/2022	<b>NOTES</b>	
<b>CLIENT</b>	Lohan & Donnelly	<b>SAMPLES</b>	
<b>PLATE DIAMETER</b>	305mm		
<b>TEST NO.</b>	Test 2		



Modulus of subgrade reaction, K (Initial) = **261.34 MN/m<sup>2</sup>/m**

Modulus of subgrade reaction, K (Reload) = **169.52 MN/m<sup>2</sup>/m**

Equivalent CBR(initial)in accordance with HD25/94 volume7 section2 = **149.05 %**

Equivalent CBR(reload)in accordance with HD25/94 volume7 section2 = **70.40 %**