Comhairle Chontae Chorcaí

Cork County Council

Engineering Services Report for

OLD BARRACK ROAD, BANTRY, CO CORK

Rev	Report Number	Date	Issued for
A	W19008_CE_001	09/09/2024	Part VIII

Contents

1. Introduction

Cork County Council seeks to develop 14 new residential units, hereafter referred to as 'the upper terrace' in addition to the redevelopment of 5 existing properties at Old Barrack Road, Bantry, Co Cork, hereafter referred to as 'the lower terrace'. Included in the proposed works are the installation of new pedestrian access routes to the upper terrace and installation of new hard and soft landscaping features as well as all ancillary site works.

2. Site Location

The site is located within the bounds of Bantry Town development zone, please refer to figure 1 below for details of site location, outlined in red.

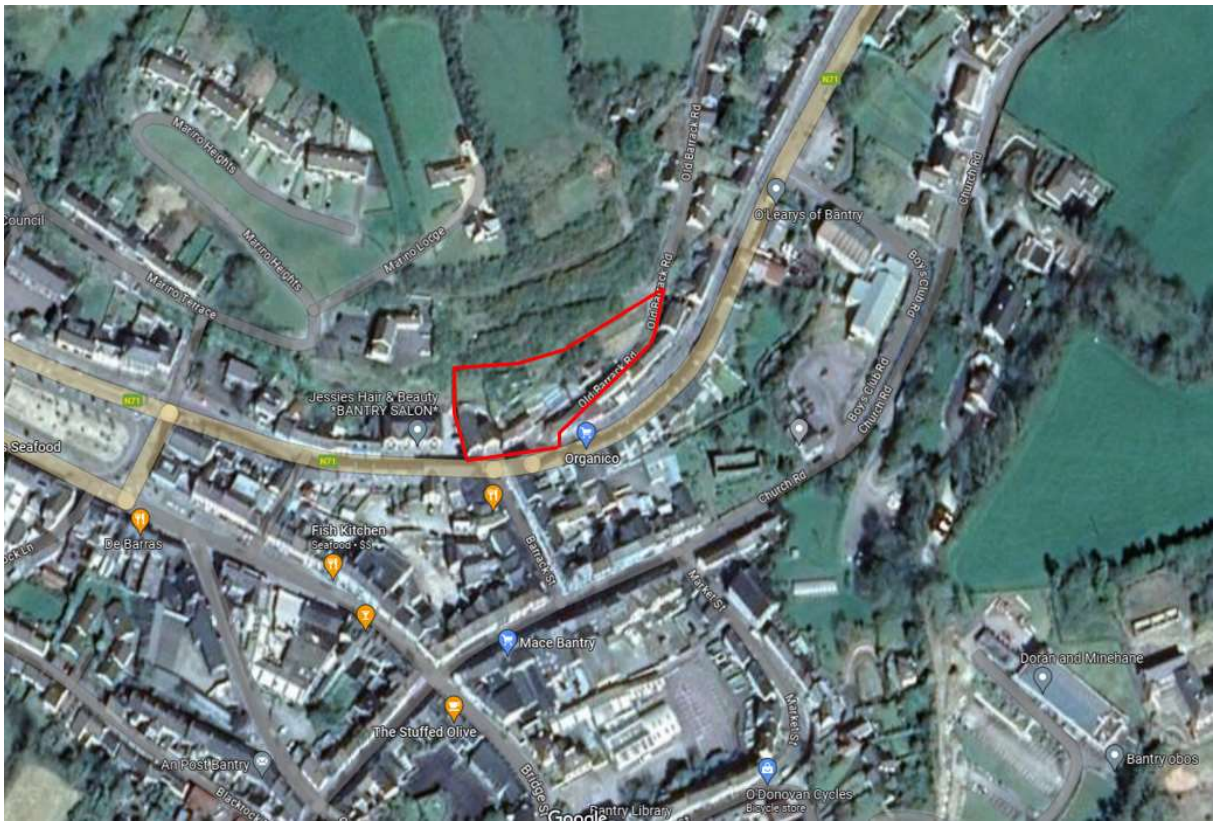


Figure 1: Bantry and wider environs

The new development is approx. 100m in length and varies in width across the site from circa 38m to 12m. The site is bounded to the north and west by private property, and to the south and south east by the N71 and local road L4745. There is an approximate change in level across the length of the site falling east to west of 2.5m. There is an approximate change in level across the width of the site falling north to south east of 2.5m.

3. Foul Water Drainage

Existing Foul Drainage

As part of the initial scheme design, Uisce Éireann and the local Cork County Council area office were contacted to establish the existing foul water sewer network in the vicinity of the development and a utility survey was also taken on the grounds of the site taking in a portion of the N71 and local road L4745.

It has been established that an existing foul water sewer runs along the local road L4745, falling from the north east to south west to the junction with the N71, and is connected into the existing combined sewer system. It is proposed to upsize this portion of foul sewer pipe to 225mm, as per the confirmation of feasibility provided by Uisce Éireann, see Appendix A.

It is proposed that the existing foul sewer connection to the re-developed lower terraced units will be made good in accordance with IS EN 752, the Building Regulations Part H and the Uisce Éireann Code of Practice for Wastewater.

Proposed Foul Sewer

A new foul drainage network will be required for the upper terrace and will be designed in accordance with IS EN 752, the Building Regulations Part H and the Irish Water ode of Practice for Wastewater.

Maximum Design Flow

(Any individual 150mm dia. Sewer)

14 No Duplex Units @ 2.7*150l/dwelling/day = 5670 l/day

= 0.065l/sec (DWF)

Sewer Design for (6*DWF) = 0.39L/SEC (6DWF))

The outfall pipe from the development is a 150mm diameter pipe laid at a gradient of approximately 1:150, which gives a capacity of 12.61 litres / second. Therefore, there is adequate capacity within the foul sewer network. A Pre-Connection Enquiry Form has been submitted to Uisce Éireann for the proposed development and a Confirmation of Feasibility Letter has been received. Uisce Éireann have confirmed that based upon the capacity available within the network at the time of the enquiry the proposed connection to the Uisce Éireann network can be facilitated, subject to a valid connection agreement being put in place.

4. Storm Water Drainage

Overview

The stormwater drainage elements are designed in accordance with ISEN 752& the Building Regulations Part H.

All new developments must ensure that a comprehensive sustainable urban drainage system, SuDS, Is incorporated into the development. SuDS requires that post development run-off rates are maintained at equivalent or lower levels than pre-development levels. The development must be able to retain, within its boundaries, stormwater volumes from extreme storm events up to a probability of 1 in 100 years, more commonly expressed as a 1.0% AEP (Annual Exceedance Probability). Any new development must have the physical capacity to retain stormwater volumes and, if necessary, release these attenuated surface water volumes to an outfall at a controlled flow rate.

A further component of the SuDS protocols is to increase the overall water quality of surface water run off before it enters a natural watercourse or into a public sewer, which ultimately discharged to a water body. This is to ensure the highest possible standard of storm water quality and to prevent degradation of the watercourse resource by contamination.

Existing Surface Water Infrastructure

As part of the initial scheme design, the local area engineer within Cork County Council was contacted to establish if there is an existing storm water drainage network in the vicinity of the proposed upper terrace development. An existing land drain was identified running down the local road L4745 and this feeds into the existing combined sewer of the N71.

Proposed Surface Water Design

The majority of the proposed surface water drainage from the site is proposed to discharge to a new 225mm storm water sewer to replace the existing land drain along the repaved section of the local road L0475.

Surface water shall be collected via a series of downpipes, channel drains and gullies before discharging into an onsite attenuation tank. From here surface water shall be released via a flow controlled hydro break to the new 225mm public storm sewer. Outflow from the site shall be restricted to the greenfield runoff rate at 3.9l/s. the proposed surface water network will consist of a new gravity fed sewer system in accordance with IS EN 752. The pipes will be HDPE and will vary from 150mm to 225mmin diameter. In addition to the above, water Butts will be provided to each ground floor unit and permeable paving will be provided to all walkways where practical to facilitate the discharge of surface water runoff at the front and rear of the upper terrace proposed units.

Specific SuDs Measures Proposed

There are a number of systems available to address the SuDS requirements for new developments. It is proposed that, at a minimum, the following mechanisms will be considered and incorporated into the SuDS surface water management regime:

- **Attenuated storage** is proposed to be provided in the form of a cellular underground storage tank for events up to and including the 1% AEP rainfall with a climate allowance up to 25%. The minimum storage of the tank is 9.1m³.
- **Permeable paving** shall be provided to public walkways and private terraced areas.

See appendix B for details of the attenuated tank.

5. Water Supply

Existing Water Supply

All proposed potable water design has been carried out in accordance with Uisce Éireann Code of Practice for Water Infrastructure. As noted, a Pre-Connection Enquiry Form was submitted to Uisce Éireann and a Confirmation of Feasibility Letter was received. Irish Water have confirmed via the Confirmation of Feasibility Letter that a connection to the public water network can be facilitated subject to a valid connection agreement. Refer to Appendix A for details.

Proposed Water Supply

It is proposed to take a connection from the existing watermain and provide a 100mm diameter HDPE ring water main to the perimeter of the proposed dwellings. A water meter will be provided where the watermain enters the development and individual properties will be fitted with an approved meter box located as required for water metering purposes in accordance with Irish Water specifications. One fire hydrant will be provided within the site and will be in accordance with Technical Guidance Document B of the Building Regulations.

6. Flooding

An investigation was undertaken to determine the susceptibility of the site to flooding as part of the scheme design. From examination of the Office of Public Works (OPW) Fluvial & Tidal flood maps it was established that the proposed development is not within a Fluvial or Tidal flood risk zone

Appendix A

as is practically possible
• be no greater than that which existed prior to the redevelopment of a brownfield development area that already discharged storm flows to a combined sewer
• be such as to ensure that there is no increased risk of causing environmental harm or increased flooding risk.

This letter does not constitute an offer, in whole or in part, to provide a connection to any Uisce Éireann 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 Uisce Éireann.

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/

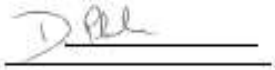
Where can you find more information?

- **Section A** - What is important to know?
- **Section B** - Details of Uisce Éireann's Network(s)

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

For any further information, visit www.water.ie/connections, email newconnections@water.ie or contact 1800 278 278.

Yours sincerely,



Dermot Phelan
Connections Delivery Manager

CONFIRMATION OF FEASIBILITY

Uisce Éireann
Irish Water

Ciaran Galvin

Cork County Council
The Courthouse
Skibbereen
Co. Cork
P81DX52

10 October 2023

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

Uisce Éireann
PO Box 448
South City
Delivery Office
Cork City

www.water.ie

Our Ref: CDS23006701 Pre-Connection Enquiry
Old Barrack Road, Bantry, Co. Cork

Dear Applicant/Agent,

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

Uisce Éireann has reviewed the pre-connection enquiry in relation to a Water & Wastewater connection for a Housing Development of 22 unit(s) at Old Barrack Road, Bantry, Bantry, Cork, (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

- Please note that the size of the existing foul sewer on Old Barrack Rd must be checked at Connection Application stage. If it is 150mm, you will be required to fund the upsizing of the sewer to 225mm.

- The applicant shall confirm to Irish Water the proposal in respect of any proposed discharge of stormwater to the public wastewater network. Stormwater discharge to the public wastewater network shall only be accepted in exceptional circumstances and in accordance with the following:
  • be below or as near to greenfield storm runoff rate and discharge volumes

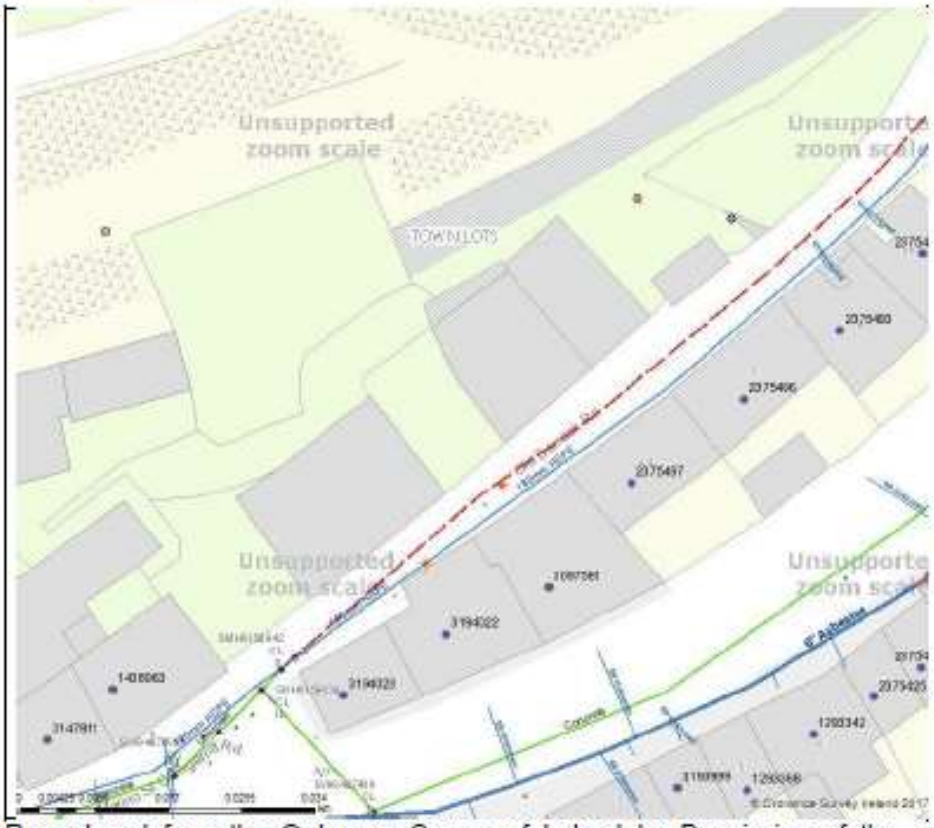
Section A - What is important to know?

What is important to know?	Why is this important?
Do you need a contract to connect?	• 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 Uisce Éireann's network(s). • Before the Development can connect to Uisce Éireann's network(s), you must submit a connection application and be granted and sign a connection agreement with Uisce Éireann.
When should I submit a Connection Application?	• A connection application should only be submitted after planning permission has been granted.
Where can I find information on connection charges?	• Uisce Éireann connection charges can be found at: https://www.water.ie/connections/information/charges/
Who will carry out the connection work?	• All works to Uisce Éireann's network(s), including works in the public space, must be carried out by Uisce Éireann*. *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
Fire flow Requirements	• 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. • **What to do?** - Contact the relevant Local Fire Authority
Plan for disposal of storm water	• The Confirmation of Feasibility does not extend to the management or disposal of storm water or ground waters. • **What to do?** - Contact the relevant Local Authority to discuss the management or disposal of proposed storm water or ground water discharges.
Where do I find details of Uisce Éireann's network(s)?	• Requests for maps showing Uisce Éireann's network(s) can be submitted to: datarequests@water.ie

What are the design requirements for the connection(s)?	• The design and construction of the Water & Wastewater pipes and related infrastructure to be installed in this Development shall comply with *the Uisce Éireann Connections and Developer Services Standard Details and Codes of Practice*, available at www.water.ie/connections
Trade Effluent Licensing	• 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). • More information and an application form for a Trade Effluent License can be found at the following link: https://www.water.ie/business/trade-effluent/about/ **trade effluent is defined in the Local Government (Water Pollution) Act, 1977 (as amended)

Section B – Details of Uisce Éireann's Network(s)

The map included below outlines the current Uisce Éireann infrastructure adjacent the Development: To access Uisce Éireann Maps email datarequests@water.ie



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Note: The information provided on the included maps as to the position of Uisce Éireann's underground network(s) is provided as a general guide only. The information is based on the best available information provided by each Local Authority in Ireland to Uisce Éireann.

Whilst every care has been taken in respect of the information on Uisce Éireann's network(s), Uisce Éireann assumes no responsibility for and gives no guarantees, undertakings or warranties concerning the accuracy, completeness or up to date nature of the information provided, nor does it accept any liability whatsoever arising from or out of any errors or omissions. This information should not be solely relied upon in the event of excavations or any other works being carried out in the vicinity of Uisce Éireann's underground network(s). The onus is on the parties carrying out excavations or any other works to ensure the exact location of Uisce Éireann's underground network(s) is identified prior to excavations or any other works being carried out. Service connection pipes are not generally shown but their presence should be anticipated.

Appendix B

Attenuation - Application Suggestion - Wavin Aquacell Units

Consulting Engineer: Cork CoCo
Contact: Ciaran Galvin
Project: Old Barrack road, Bantry
Date: 02/10/2023

Factory Extension	Length	Width	Depth
Attenuation Dimensions (m)	3	2	1.6
Wavin Aquacell Storage Volume (m^3)	9.1		

Impermeable Area m^2	500
Climate Change %	25

Max Discharge Rate l/s	2.60

Met Eireann Rainfall Data : Easting 99793, Northing 48545

A	B	C	D	E	F	G	H	J	K
Time	Rainfall	Rainfall	Inflow 30 YR	Inflow 100 YR	Outflow / Discharge	Attenuation Storage 30YR	Attenuation Storage 100yr	Depth of Storage 30yr	Depth of Storage 100yr
	30 yr	100yr	Area	Area		Cols D – F	Cols E – F		
			500	500					
Mins	mm	mm	M^3	M^3	M^3	M^3	M^3	M	M
5		9.4	0.0	5.9	0.8	0.0	5.1	0.00	0.89
10		13.2	0.0	8.3	1.6	0.0	6.7	0.00	1.17
15		15.5	0.0	9.7	2.3	0.0	7.3	0.00	1.29
30		20.9	0.0	13.1	4.7	0.0	8.4	0.00	1.47
60		28.1	0.0	17.6	9.4	0.0	8.2	0.00	1.44
120		37.9	0.0	23.7	18.7	0.0	5.0	0.00	0.87
180		45.1	0.0	28.2	28.1	0.0	0.1	0.00	0.02
240		51.0	0.0	31.9	37.4	0.0	0.0	0.00	0.00
360		60.7	0.0	37.9	56.2	0.0	0.0	0.00	0.00
540		72.3	0.0	45.2	84.2	0.0	0.0	0.00	0.00
720		81.8	0.0	51.1	112.3	0.0	0.0	0.00	0.00
1080		97.4	0.0	60.9	168.5	0.0	0.0	0.00	0.00
1440		110.2	0.0	68.9	224.6	0.0	0.0	0.00	0.00
2880		128.7	0.0	80.4	449.3	0.0	0.0	0.00	0.00
4320		145.1	0.0	90.7	673.9	0.0	0.0	0.00	0.00
5760		160.1	0.0	100.1	898.6	0.0	0.0	0.00	0.00
8640		187.4	0.0	117.1	1347.8	0.0	0.0	0.00	0.00
11520		212.3	0.0	132.7	1797.1	0.0	0.0	0.00	0.00
14400		235.6	0.0	147.3	2246.4	0.0	0.0	0.00	0.00

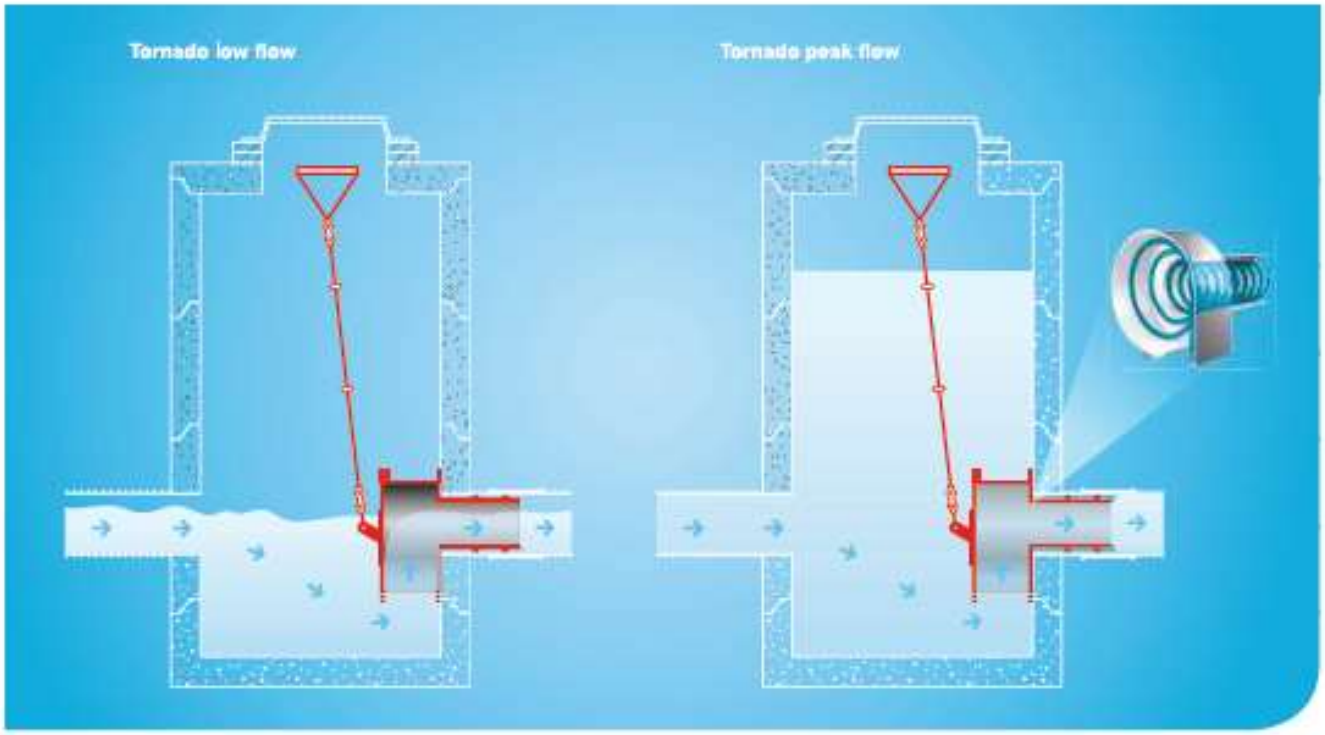
Wavin + Mosbaek
Vortex Flow Control Valves

Tornado

The Tornado series offers an emergency drain-down facility by means of an integral, pivoting door mounted on the front face of the unit. This bypass door is fitted with a stainless steel rope which, when pulled from ground level, will open the door, exposing a larger aperture and allowing the system to be drained.

The Tornado valve is ideal for installations in either shallow or deep chambers, where man access is possible to clean out/ maintain the valve head if required. Emergency drain-down is also possible remotely, by opening the bypass door using the stainless steel rope provided.

Type	Options
Door	Spigot or plate fixing



AquaCell Core-R

Product description

AquaCell Core-R has been designed for use in deep applications, subject to regular and heavy traffic loadings, e.g. cars and HGV's. AquaCell Core-R can also be used in both landscaped and deep soakaway applications.

Technical specification

Product code / SAP code	6LB150 / 4064830	Void ratio	95%
Colour	Black	Material	Recycled PP
Dimensions	1m x 0.5m x 0.4m	Vertical loading	68.9 tonnes/m² (669 kN/m²)
Weight	11.5kg	Lateral loading	12.3 tonnes/m² (123 kN/m²)
Storage volume	190 litres	BBA approval	Certificate 03/4018

Maximum installation depths

Typical soil type	Maximum depth of installation – to base of units (m)[1]				
	Soil weight kN/m³	Angle of internal friction φ (degrees)[2, 3]	Landscaped areas	Vehicle mass <9 tonnes[4, 5]	Vehicle mass <44 tonnes
Over consolidated stiff clay	20	24	3.85	3.61	3.36
Silty sandy clay	19	26	4.35	4.09	3.83
Loose sand and gravel	18	30	5.34	5.06	4.78
Medium dense sand and gravel	19	34	5.94	5.68	5.41
Dense sand and gravel	20	38	6.68	6.43	6.18

Minimum cover depths

	Landscaped areas	Car parks with vehicle mass <3 tonnes[5]	Car parks with vehicle mass <9 tonnes	Car parks with vehicle mass <12 tonnes	Low speed roads with vehicle mass <60 tonnes
Minimum cover depth (m)	0.30	0.50	0.60	0.70	1.11

1. Without groundwater present below base of units – AquaCell Core-R may be used where groundwater is present, contact Wavin for technical advice.
2. Loosening of dense sand or softening of clay by water can occur during installation. The designer should allow for any such likely effects when choosing an appropriate value of φ.
3. The design is very sensitive to small changes in the assumed value of φ, therefore, it should be confirmed by a chartered geotechnical engineer. In clay soils, it may be possible to utilise cohesion in some cases.
4. Applicable for car parks or other areas trafficked only by cars or occasional refuse collection trucks or similar vehicles (typically one per week).
5. This category should be used when considering landscaped areas that may be trafficked by ride on mowers.

Assumptions made:

- Ground surface is horizontal
- Shear planes or other weaknesses are not present within the structure of the soil

Source: BBA

Wavin Ireland Ltd | Balbriggan | Co Dublin | K32 K840
Tel 01 8020200 | Email info.ie@wavin.com | Website www.wavin.ie

June 2021