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LIDL, ROCHDALE

FLOOD RISK ASSESSMENT

Final Report for:



April 2026

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CONTENTS

1.0	INTRODUCTION	4
1.1	Overview	4
2.0	SITE DESCRIPTION AND EXISTING CONDITIONS	6
2.1	Site Description	6
2.2	Proposed Future Use	6
2.3	Site Levels.....	6
2.4	Underlying Ground	6
3.0	FLOOD RISK and FLOOD ZONES.....	9
3.1	Brief.....	9
3.2	Fluvial, Tidal.....	9
3.3	Surface Water.....	11
3.4	Other Sources	12
3.5	Historic Flooding.....	14
3.6	Internal Drainage Board	14
4.0	SUMMARY	15
5.0	MANAGING SURFACE WATER.....	16
5.1	Brief.....	16
5.2	Climate Change.....	16
5.3	Sustainable Drainage Systems (SUDS).....	17
6.0	NON-STATUTORY TECHNICAL STANDARDS FOR SUSTAINABLE DRAINAGE SYSTEMS	20
6.1	Flood risk outside the development	20
6.2	Peak flow control.....	20
6.3	Volume control.....	20
6.4	Flood risk within the development	21
6.5	Structural integrity	21
6.6	Designing for maintenance considerations	21
6.7	Construction	22
7.0	DRAINAGE STRATEGY	23
7.1	Surface Water Drainage Strategy.....	23
7.2	Foul Flows.....	23
8.0	MAINTENANCE STRATEGY	24
9.0	CONCLUSIONS	27
Appendix A		28
Appendix B		29
Appendix C		30
Appendix D		31
Appendix E.....		32
Appendix F.....		33
Appendix G		34
Appendix H		35

APPENDICES

APPENDIX A – PROPOSED SITE LAYOUT DRAWING

APPENDIX B – EXISTING TOPOGRAPHICAL AND UTILITY SURVEY

APPENDIX C – FLOOD MAP FOR PLANNING

APPENDIX D – SFRA FLOOD MAPS

APPENDIX E – GREENFIELD DISCHARGE RATE

APPENDIX F – SIMPLE INDEX APPROACH

APPENDIX G – CAUSEWAY FLOW CALCULATIONS

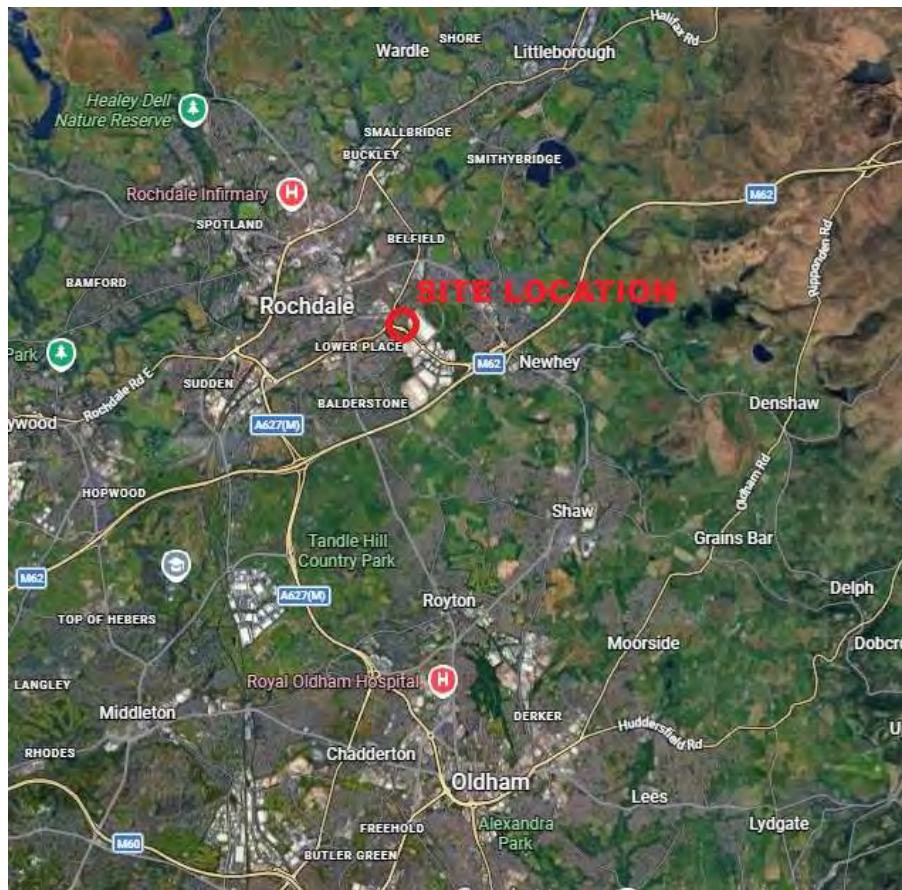
APPENDIX H – DRAINAGE ARRANGEMENT

1.0 INTRODUCTION

1.1 Overview

- 1.1.1 Cora IHT have been instructed by Lidl to prepare a Flood Risk Assessment [FRA] to support proposals for a new food store located off Wallis Avenue, Rochdale. **Figure 1.1** illustrates the site location.

Figure 1.1: Site Location



- 1.1.2 This report presents the findings of an FRA, which has been carried out in accordance with the National Planning Policy Framework (NPPF), Flood Risk and Coastal Change Technical Guidance, Environment Agency (EA) interactive maps and Level 1 Strategic Flood Risk Assessment for Greater Manchester - Update (SFRA).
- 1.1.3 This FRA aims to identify and assess the risks of all forms of flooding to and from the site and demonstrate how the flood risks will be managed, taking climate change into account. The FRA also considers the management of surface water run-off and outlines the proposed drainage strategy.
- 1.1.4 As the proposed site resides within an area designated as flood zone 1 with an approximate site area within the red line boundary of 0.8651 hectares (8,651m²) an FRA is not typically required however, due to the presence of surface water flooding shown in **figure 1.2** below an FRA has become necessary.

Figure 1.2: Requirements within Flood zone 1

This location is in flood zone 1

In your proposed development site there is a risk of flooding from:

- surface water

Flood risk assessments

Developments in flood zone 1 that are less than 1 hectare (ha) only need a flood risk assessment (FRA) where:

- land has been identified as having critical drainage problems
- land is identified in the local planning authority's (LPA) strategic flood risk assessment (SFRA) as being at increased flood risk in future
- it would increase the vulnerability classification and land may be subject to sources of flooding other than rivers or sea

1.1.5 The development should not increase the risk of flooding elsewhere and this FRA has therefore also been prepared to demonstrate that this has been achieved. Consideration has also been given to minimising the risk of pollution to controlled waters and the site conditions prior to, during and after development.

1.1.6 The content of the flood risk assessment will be delivered in line with the objectives contained within paragraph 20 of the Flood risk and coastal change guidance which indicates:

- *whether a proposed development is likely to be affected by current or future flooding from any source.*
- *whether it will increase flood risk elsewhere.*
- *whether the measures proposed to deal with these effects and risks are appropriate.*
- *the evidence for the local planning authority to apply (if necessary) the Sequential Test, and.*
- *whether the development will be safe and pass the Exception Test, if applicable.*

1.1.7 Although a flood risk assessment is necessary, following the guidance within Paragraph 21 of the Flood risk and coastal change guidance (Extract below):

A flood risk assessment needs to be appropriate to the scale, nature and location of the development. For example, where the development is an extension to an existing house (for which an application for planning permission is required) which would not significantly increase the number of people present in an area at risk of flooding, the local planning authority would generally need a less detailed assessment to be able to reach an informed decision on the planning application.

2.0 SITE DESCRIPTION AND EXISTING CONDITIONS

2.1 Site Description

- 2.1.1 The site forms circa 0.8651 hectares of Greenfield land. The site is located approximately 1.2km to the east of Rochdale centre and 7.5km to the north of Oldham. National Grid reference 391281, 412302 is located at the central point of the proposed site area with the nearest postcode is identified as OL16 4PS.
- 2.1.2 A proposed site layout plan drawing reference 2544 P418 by HTC Architects is presented in **Appendix A**.
- 2.1.3 The Rochdale Canal is located approximately 185m to the northwest of the proposed sites northern boundary.
- 2.1.4 The Stanney Brook is located 450m to the north of the site.
- 2.1.5 A body of water is highlighted on both the flood map for planning and topographical survey which looks like a potential pond, however this feature is not visible on any other records and may just be a natural depression in the topography connectivity to and from this feature should be investigated.
- 2.1.6 Although the site does not appear to have been previously developed, connections for both foul and surface water have previously been provided at the existing access location off Wallis Avenue highlighted on the existing topographical and utility survey shown in **Appendix B**, it is assumed these chambers have been provided as part of the wider development to facilitate the development of the plot.
- 2.1.7 Although no records have identified the presence of underground culverts, should any culverts be identified at detailed design a detailed condition and connectivity survey should be completed to establish the exact routes and confirm condition for reuse.

2.2 Proposed Future Use

- 2.2.1 It is proposed to develop the site for food retail purposes, the proposed site layout plan drawing reference 2544 P418 by HTC Architects is presented in **Appendix A**.

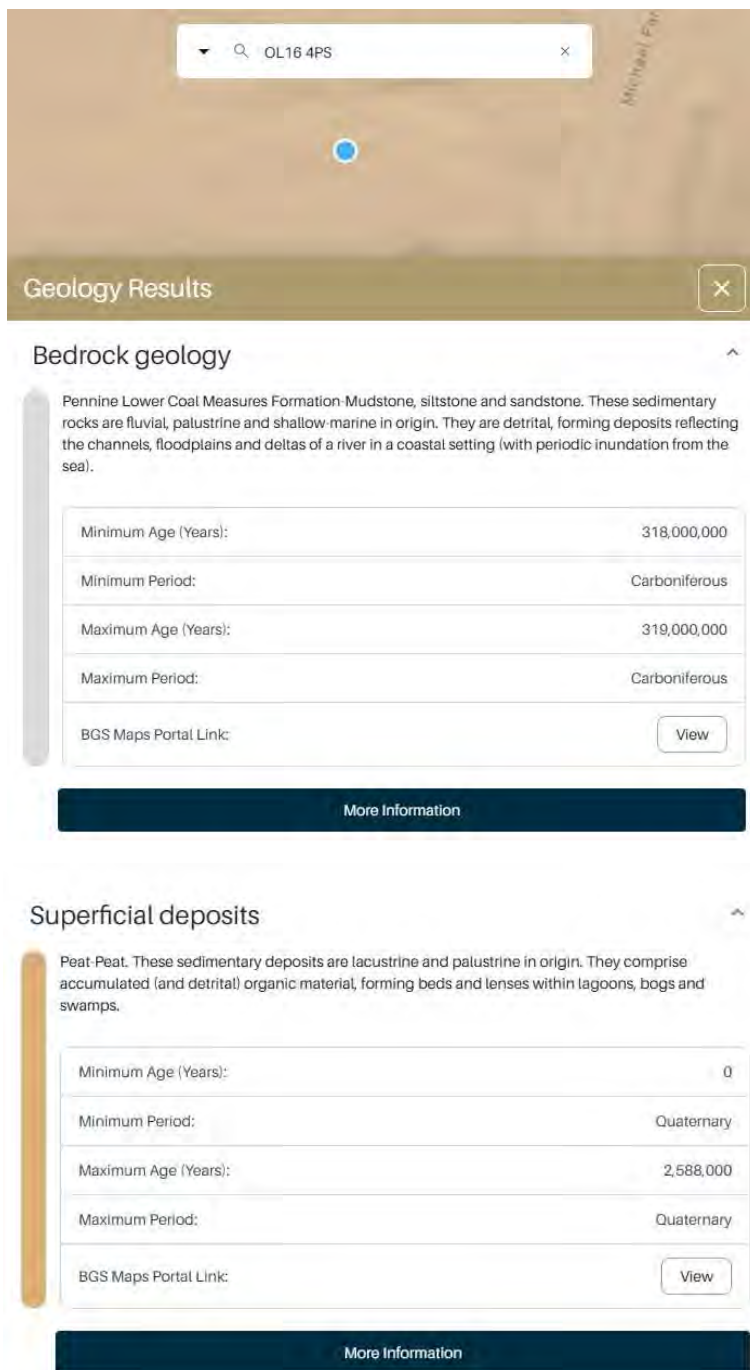
2.3 Site Levels

- 2.3.1 Following assessment of the topographical survey, the site appears to have a nominal fall, falling in a west to east direction towards Michael Faraday Avenue.

2.4 Underlying Ground

- 2.4.1 Review of British Geological Survey (BGS) geology mapping records indicates that the bedrock geology through the site is underlain Pennine Lower Coal Measures Formation-Mudstone, siltstone and sandstone with superficial deposits of Peat-Peat. These sedimentary deposits are lacustrine and palustrine in origin, Extract of the BGS information is shown in **Figure 2.1**.

Figure 2.1: BGS Information

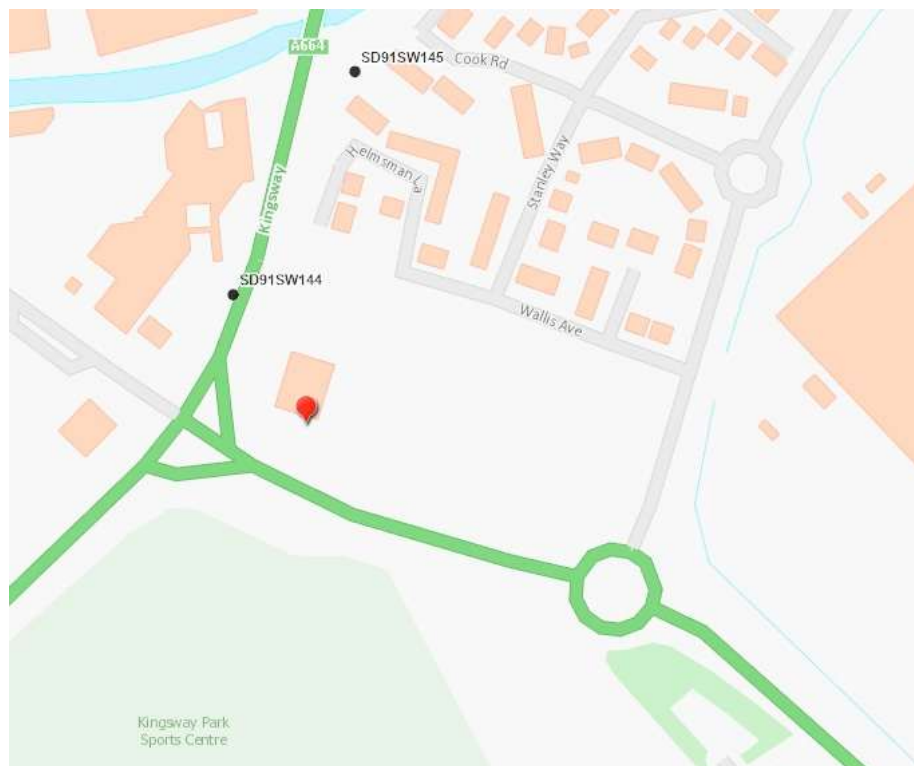


2.4.2 The bedrock geology includes many lithologies, often classified into three types based on origin: igneous, metamorphic and sedimentary.

- *Igneous rocks - are derived from molten magma in the Earth's crust. They may, for example, be extruded at the surface by volcanic activity to form lavas and tuffs (ash) or intruded into other rocks to form large masses of granite and gabbro at depth or minor, cross-cutting basalt dykes near the surface.*
- *Metamorphic rocks - such as schist and gneiss are those that have been changed from one rock type to another in the solid state by the recrystallisation of minerals, often at high temperatures and pressures when buried deep in the Earth's crust.*
- *Sedimentary rocks - are formed when grains and fragments of existing rocks are eroded away by ice, water and wind action, transported elsewhere and redeposited as a sediment. These sediments are often laid down in layers or strata of loose particles of gravel, sand, silt and clay. Over time they may be buried by later sediments and consolidated or cemented to form stratified or bedded rocks such as conglomerate, sandstone, siltstone and claystone. Other sedimentary rocks such as ironstone and limestone are created by chemical or biogenic (life) action.*

2.4.3 Although there are no boreholes located in the immediate vicinity of the proposed site there are 2 boreholes located along the route of the Rochdale Bypass shown in **Figure 2.2** below, identified as Borehole references SD91SW144 and SD91SW145 however access to the records is restricted with the records labelled confidential.

Figure 2.2: BGS Borehole Locations



3.0 FLOOD RISK and FLOOD ZONES

3.1 Brief

3.1.1 The vulnerability of the site to flooding from rivers, sea and other sources has been considered, along with the potential to increase flooding elsewhere through the addition of impermeable areas and the effect on surface water run-off. Typical sources of flooding include fluvial, tidal, surface water, groundwater, sewers and anthropogenic sources; these are considered below.

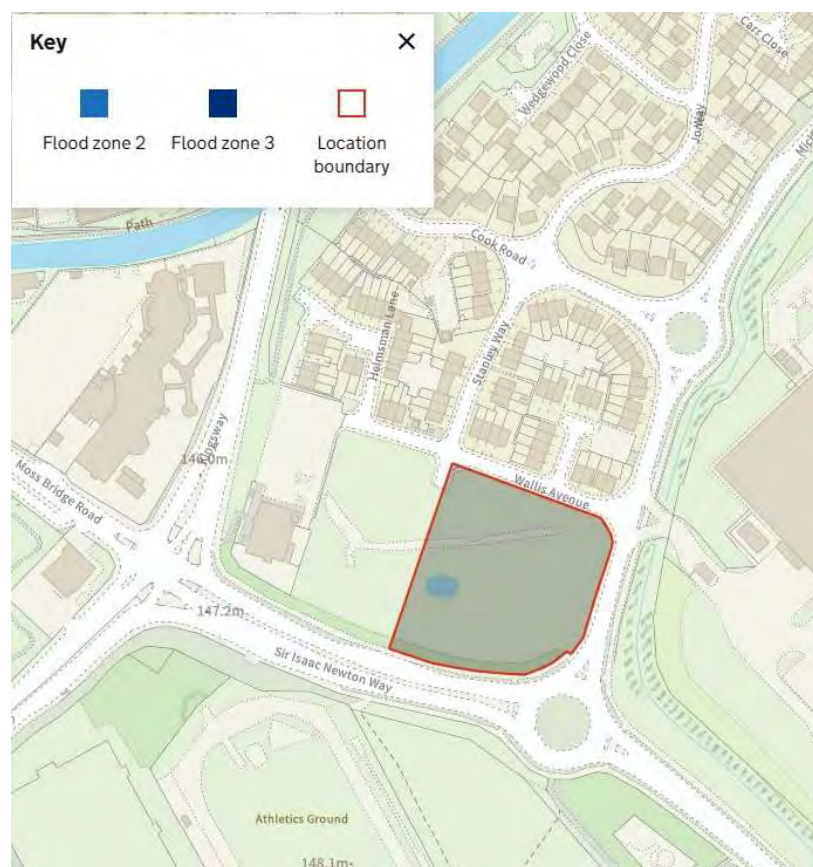
3.1.2 The local SFRA has also been consulted.

3.2 Fluvial, Tidal

3.2.1 Flood maps are produced by the EA for the whole of the UK to highlight areas at particular risk of flooding by categorising them into different Zones. These maps are based on a broad assessment of areas using digital mapping techniques and extracts from the EA flood maps for the site and its surroundings are included in the figures below.

3.2.2 The EA flood map for planning, extract in **Figure 3.1**, full report provided in **Appendix C**, shows that the development area and its immediate surroundings are wholly located within EA Flood Zone 1 (unshaded areas).

Figure 3.1: Flood Zone Map



3.2.3 Areas located in flood zone 1 are defined as having a less than 0.1% annual probability of river or sea flooding. (Shown as 'clear' on the Flood Map for Planning – all land outside Zones 2, 3a and 3b).

3.2.4 The risk of flooding from Rivers and Sea has been identified as Very Low.

Figure 3.2: Flood Map for Rivers and Sea Description

Rivers and the sea [More about your rivers and sea flood risk](#)

Yearly chance of flooding

Very low Low Medium High

Yearly chance of flooding between 2036 and 2069

Very low Low Medium High

What makes rivers and sea flooding more likely

Low-lying areas that are close to rivers or the sea are more likely to flood when water levels rise.

This information takes into account any flood defences.

[Why flood defences cannot completely prevent flooding](#)

3.2.5 All uses are considered appropriate in both Flood Zone 1 as shown in Table 2 of the NPPF shown in **Figure 3.3**.

Figure 3.3: NPPF Table 2

Table 2: Flood risk vulnerability and flood zone 'incompatibility'

Flood Zones	Flood Risk Vulnerability Classification					
		Essential infrastructure	Highly vulnerable	More vulnerable	Less vulnerable	Water compatible
Zone 1	✓	✓	✓	✓	✓	✓
Zone 2	✓	Exception Test required	✓	✓	✓	✓
Zone 3a †	Exception Test required †	X	Exception Test required	✓	✓	✓
Zone 3b *	Exception Test required *	X	X	X	✓ *	✓ *

Key:

✓ Exception test is not required

X Development should not be permitted

- 3.2.6 Inspection of Annex 3 of the NPPF shown in **Figure 3.4**, indicates buildings used for shops are classified as Less Vulnerable, as such the proposed use is acceptable in the identified flood zone.

Figure 3.4: Annex 3: Flood risk vulnerability classification

Less vulnerable

- Police, ambulance and fire stations which are not required to be operational during flooding.
- Buildings used for shops; financial, professional and other services; restaurants, cafes and hot food takeaways; offices; general industry, storage and distribution; non-residential institutions not included in the 'more vulnerable' class; and assembly and leisure.
- Land and buildings used for agriculture and forestry.
- Waste treatment (except landfill* and hazardous waste facilities).
- Minerals working and processing (except for sand and gravel working).
- Water treatment works which do not need to remain operational during times of flood.
- Sewage treatment works, if adequate measures to control pollution and manage sewage during flooding events are in place.
- Car parks.

3.3 Surface Water

- 3.3.1 The EA's surface water flood map shown in **Figures 3.5** identifies the surface water flood risk for the proposed site. The surface water flood category for the site has been identified as being very low, with a minor instance of flooding located within the surrounding area.

Figure 3.5 Surface Water flood Map



Figure 3.6 Surface Water Flood Map Description

Surface water [More about your surface water flood risk](#)

Yearly chance of flooding

Very low Low Medium High

Yearly chance of flooding between 2040 and 2060

Very low Low Medium High

What surface water is

Surface water flooding is sometimes known as flash flooding. It happens when rainwater cannot drain away through normal drainage systems.

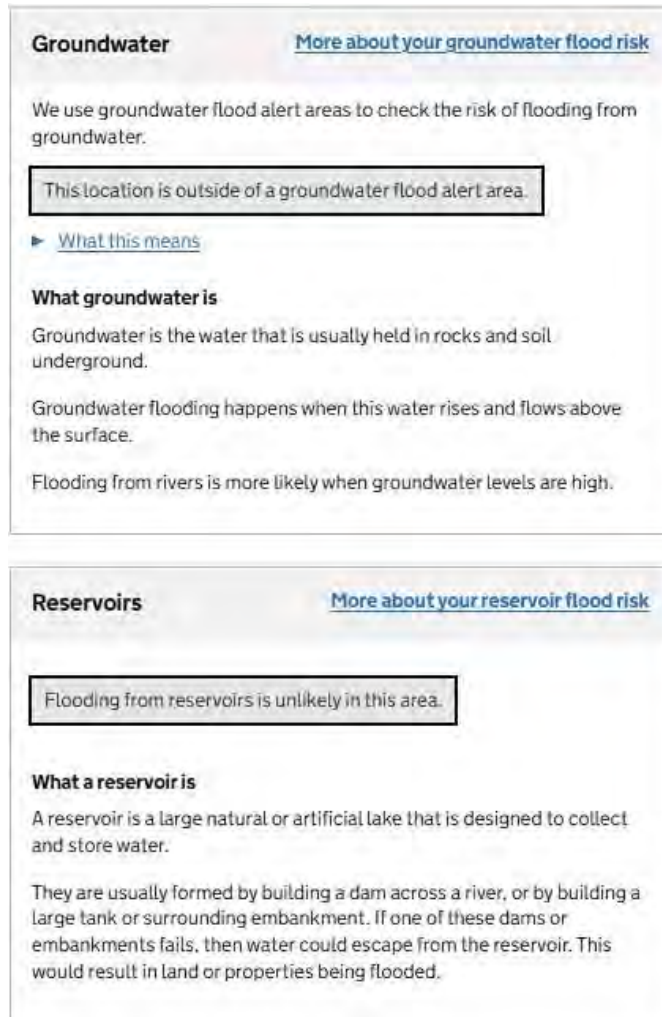
► [Why surface water flooding is a problem](#)

- 3.3.2 Surface water flooding occurs when rainwater does not drain away through normal drainage systems or soak into the ground but lies on or flows over the ground instead.
- 3.3.3 The majority of the surface water flooding is identified along the existing highway network; to reduce the sites impact on the current areas of flooding, Management of surface water is to be considered as part of the development proposals, and a preliminary drainage strategy is outlined within Section 7 of this FRA report.

3.4 Other Sources

- 3.4.1 The EA also identifies the potential for flooding from both reservoir and groundwater flooding. The extract below shown in **Figures 3.7** indicates that the proposed site is unaffected from both sources of flooding.
- 3.4.2 Groundwater flooding typically results from heavy/prolonged rainfall causing the level of the groundwater table to rise, which may lead to emergence of groundwater at the surface or into underground features such as basements. Low lying areas of land with permeable underlying strata may be particularly susceptible.
- 3.4.3 **Figure 3.7** below shows the site to not be affected from either reservoir or groundwater flooding.

Figure 3.7 Flood Map Other Sources

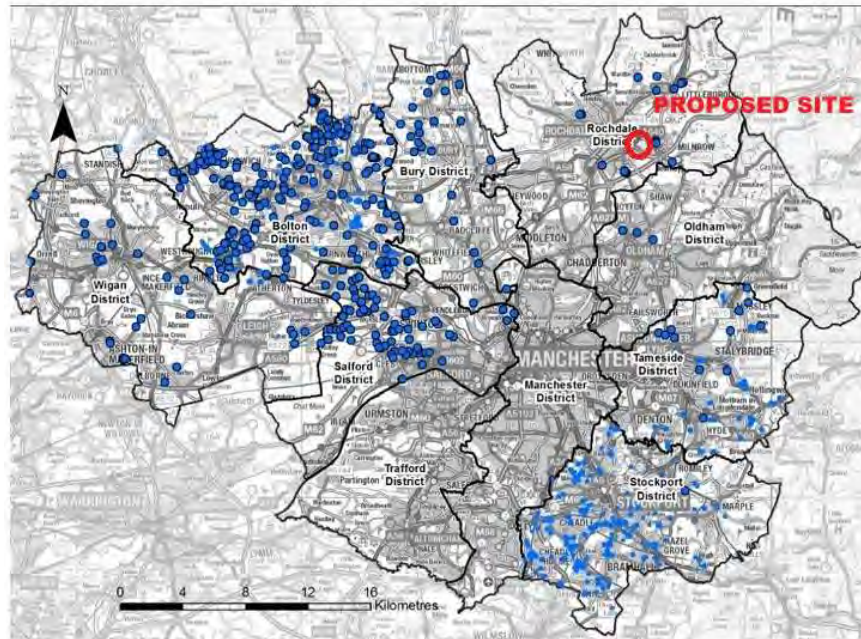


3.5 Historic Flooding

- 3.5.1 Section 6.7 of the SFRA highlights a number of historic flood events within the Study area from a number of various sources, figure 6-7 from the SFRA shows flood incidents recorded by the LLFA (extract below) with historic sewer flooding incidents recorded by United Utilities and EA flood records shown in **Appendix D**.

Figure 3.8 LLFA Historic Flood Map

Figure 6-7: GM LLFA historic flood incidents



- 3.5.2 The proposed site has not been referenced in any of these areas as such the site can be considered to not suffer from historic flooding incidents.

3.6 Internal Drainage Board

- 3.6.1 The Internal Drainage Board is a public body that manage water levels within defined areas, the proposed site is not located within an area under the control of the IDB.

4.0 SUMMARY

- 4.1.1 The site is designated as Greenfield.
- 4.1.2 The Lidl Store Development site lies wholly within an area designated as flood zone 1 and is categorised as less vulnerable use.
- 4.1.3 All Land uses including less vulnerable are acceptable within flood zone 1 areas.
- 4.1.4 Both the Surface Water and Rivers and Sea flood risk for the site have been identified as being Very low.
- 4.1.5 The site is not considered to suffer from either reservoir or groundwater flooding.
- 4.1.6 The site has not suffered from historic flood events
- 4.1.7 A preliminary drainage strategy is discussed in Section 7 which shows that post-development flood risks will not be increased due to the development plans.
- 4.1.8 The identified flood risk should not preclude the proposed development

5.0 MANAGING SURFACE WATER

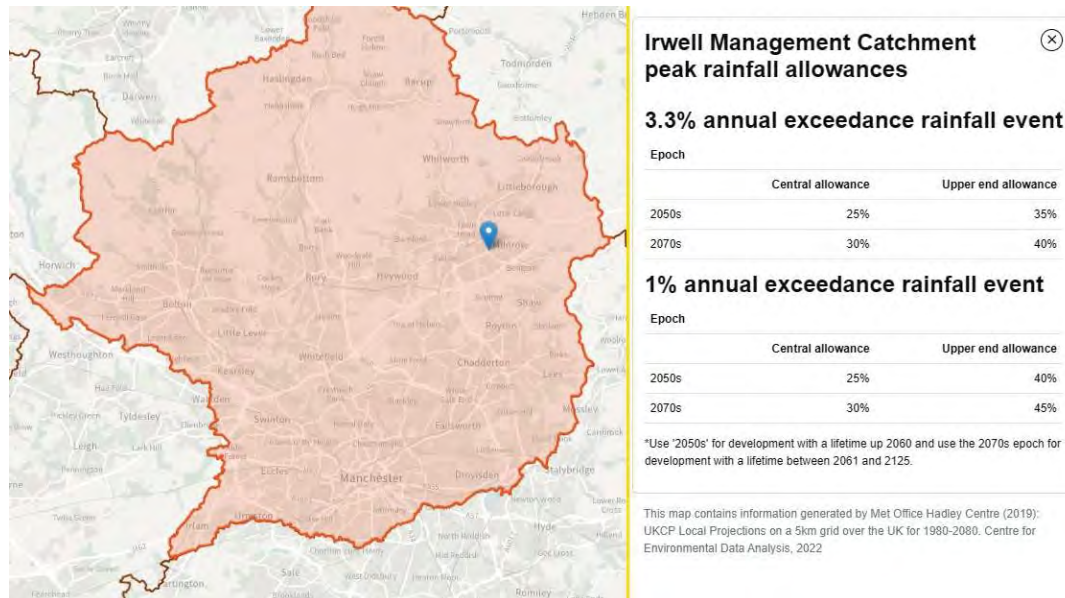
5.1 Brief

- 5.1.1 In accordance with the NPPF and SFRA, consideration should be given to natural water flows at the site. The development should not adversely affect flow or increase flood risk elsewhere, including increasing run-off rates. The disposal of surface water should be dealt with in a sustainable way and climate change should also be accounted for. The site drainage strategy is discussed in Section 7.

5.2 Climate Change

- 5.2.1 There is evidence to suggest that the climate is changing with sea levels predicted to continue to rise along with more frequent short-duration, high-intensity rainfall and more frequent periods of long-duration rainfall. The NPPF recommends that the effects of climate change be accounted for in FRA, with consideration of the EA flood maps and local authority SFRA.

Figure 5.1 Climate Change Allowances

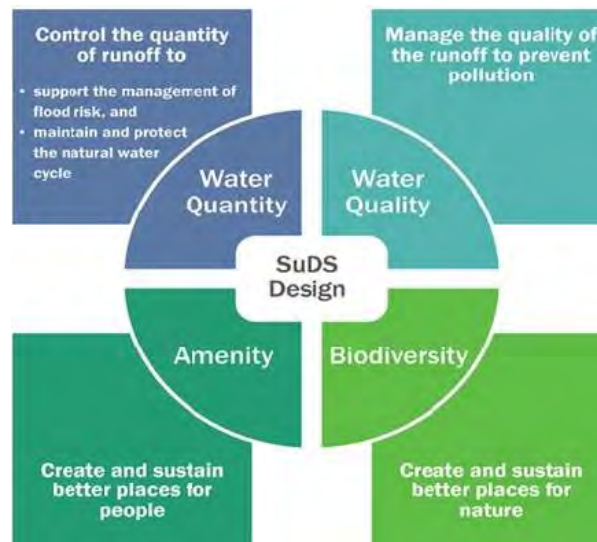


- 5.2.2 Increased rainfall or higher intensity short-duration rainfall may increase as a result of climate change. The .GOV website states that for the [Irwell Management Catchment peak rainfall allowances](#) – that the upper allowance for the 3.3% annual exceedance rainfall event a 40% allowance for climate change should be applied and 45% for the 1% annual exceedance rainfall event is therefore being allowed for within the new surface water drainage design to take account of climate change.
- 5.2.3 Climate change may also lead to variations in groundwater level which will also be considered during the drainage design.

5.3 Sustainable Drainage Systems (SUDS)

- 5.3.1 SUDS are a desirable way to manage surface water disposal within new developments and SUDS methods for surface water drainage management are discussed further within the SUDS Manual. When designing surface water drainage strategies priority should be given to disposal of surface water via infiltration drainage systems over (first) discharge to watercourses (second) prior to identifying a possible discharge to sewers.

Figure 5.2 Four Pillars of SuDS



- 5.3.2 The proposed development will address the above 4 pillars of SuDS design criteria with the inclusion of a range of sustainable features through a comprehensive treatment train.

- **Water Quantity** The site has been identified as greenfield in line with Table 4-3 of the SFRA, greenfield sites in Rochdale will be restricted to current run off rates up to the 1 in 100-year event plus climate change.
- The HR Wallingford estimation tool has been using the red line boundary area of 0.8651ha generates a greenfield run off rate for the 1 in 1 year storm of 6.6 l/s and 15.7/s for the 1 in 100-year storm shown in **Appendix E**.

A maximum rate of flow of 6.6 l/s will be applied to the proposed development for the 1 in 100-year storm plus 45% allowance for climate change.

- **Water Quality** Traditional drainage features will be supported with the inclusion of areas of vegetation to permeable construction within the parking bays to collect overland flow from the car park as well as being connected into the wider drainage network.

To further improve water quality the features above will be supported by the inclusion of a proprietary treatment facility, installed to treat all flows generated from the car park areas, prior to outfall.

The simple index approach tool has been used shown in **Appendix F**, for external car parking and roof area, the spreadsheets have confirmed that the proposed treatment train is sufficient to achieve pollution mitigation indices for the selected components.

The proposed treatment train has been deemed sufficient to achieve an acceptable level of water quality prior to discharge from the site.

- **Biodiversity** Within the Lidl site will be provided through the inclusion of significant landscaped areas to be developed in conjunction with the landscape architect at detailed design stage, creating a better environment for nature to thrive.

Amenity connecting people with water has been proven to improve the well-being of people that work in or visit the proposed store. Although we do not anticipate the sustainable features proposed to create destination for the visitor, The design has taken the opportunity to create visually attractive areas which can connect people to nature during their visit.

- 5.3.3 Standard 1 of the National standards for sustainable drainage systems (SuDS) shown in **figure 5.3** highlights the preferred final run off destinations from proposed developments where practicable.

Figure 5.3 Standard 1

Standard 1: runoff destinations

1.1 A 'SuDS approach' shall be adopted to address the management of surface water by the development and where it should be discharged. Runoff shall be treated as a resource and managed in a way that avoids negative impacts of the development on flood risk, the morphology and water quality of receiving waters and the associated ecology.

1.2 Runoff from the development shall be discharged to the following final destinations, to the maximum extent practicable, in accordance with the below hierarchy:

- priority 1: collected for non-potable use
- priority 2: infiltrated to ground
- priority 3: discharged to an above ground surface water body
- priority 4: discharged to a surface water sewer, or another piped surface water drainage system
- priority 5: discharged to a combined sewer

Note 1: priority 1 is the highest priority and priority 5 is the lowest.

Note 2: for the purposes of this standard, a combined sewer is a sewer intended to receive both foul sewage and surface runoff and does not include a sewer intended to receive only foul sewage, even if it has the capacity to accommodate additional flows or has an element of surface water in it already.

1.3 To utilise a lesser priority final destination, appropriate evidence shall be provided that demonstrates all higher priority final destinations have been utilised to the maximum extent practicable. Higher cost alone shall not be a reason to utilise lower priority final destinations.

1.4 Where more than one final destination is utilised, each final destination's ability to accept runoff shall be maximised in order of priority.

5.3.4 The proposed site will address the new guidance as follows:

- **Priority 1 – Non-Potable Uses** – Although The site does not have a significant demand for non-potable uses with only a few sanitary units being proposed, to satisfy priority 1, water from the proposed canopy will be collected and directed back into the store.
- **Priority 2 – Infiltration** – infiltration as a standalone discharge methodology is not considered feasible, however where possible all surface water flows will be provided the opportunity to recharge the existing ground satisfying priority 2.
- **Priority 3 – Discharge to above ground Surface Water Body** – There are no identified watercourse in the immediate vicinity of the proposed site making a connection impossible.
- **Priority 4 – discharge to a surface water sewer** – It has been identified within the existing topographic and utility survey shown in **Appendix B** that existing connections are available for both surface and foul water, in line with the SuDS hierarchy, infiltration is not considered suitable as a standalone discharge methodology, together with connection to watercourse not being possible, It is proposed to discharge all surface water flows generated by the proposed Lidl development, at an attenuated rate, into the United Utilities asset.
- **Priority 5 – Discharge to combined sewer** – Not Required

5.3.5 The proposed drainage strategy will reduce discharge from the Lidl site to no more than 6.6 l/s inclusive of an allowance for climate change.

6.0 NON-STATUTORY TECHNICAL STANDARDS FOR SUSTAINABLE DRAINAGE SYSTEMS

6.1 *Flood risk outside the development*

S1 Where the drainage system discharges to a surface water body that can accommodate uncontrolled surface water discharges without any impact on flood risk from that surface water body (e.g. the sea or a large estuary) the peak flow control standards (S2 and S3 below) and volume control technical standards (S4 and S6 below) need not apply.

- 6.1.1 The proposed discharge position cannot accept uncontrolled discharge therefore references S2, S3, S4 and S6 apply.

6.2 *Peak flow control*

S2 For greenfield developments, the peak runoff rate from the development to any highway drain, sewer or surface water body for the 1 in 1 year rainfall event and the 1 in 100-year rainfall event should never exceed the peak greenfield runoff rate for the same event.

- 6.2.1 Proposed site is identified as brownfield as such S2 is not applicable.

S3 For developments which were previously developed, the peak runoff rate from the development to any drain, sewer or surface water body for the 1 in 1 year rainfall event and the 1 in 100 year rainfall event must be as close as reasonably practicable to the greenfield runoff rate from the development for the same rainfall event, but should never exceed the rate of discharge from the development prior to redevelopment for that event.

- 6.2.2 The total discharge rate will be restricted to 6.6/s.

6.3 *Volume control*

S4 Were reasonably practicable, for greenfield development, the runoff volume from the development to any highway drain, sewer or surface water body in the 1 in 100-year, 6-hour rainfall event should never exceed the greenfield runoff volume for the same event.

- 6.3.1 Proposed site is identified as brownfield a such S4 is not applicable.

S5 Where reasonably practicable, for developments which have been previously developed, the runoff volume from the development to any highway drain, sewer or surface water body in the 1 in 100 year, 6 hour rainfall event must be constrained to a value as close as is reasonably practicable to the greenfield runoff volume for the same event, but should never exceed the runoff volume from the development site prior to redevelopment for that event.

- 6.3.2 The total discharge rate will be restricted to 6.6/s.

S6 Where it is not reasonably practicable to constrain the volume of runoff to any drain, sewer or surface water body in accordance with S4 or S5 above, the runoff volume must be discharged at a rate that does not adversely affect flood risk.

- 6.3.3 The proposed drainage system has been designed to accommodate for the runoff volumes noted in section S4.

6.4 Flood risk within the development

S7 The drainage system must be designed so that, unless an area is designated to hold and/or convey water as part of the design, flooding does not occur on any part of the site for a 1 in 30-year rainfall event.

- 6.4.1 The proposed system has been designed to avoid any exceedance from the system indicating all flows will be held within the storage areas/layers designed, for all storms including the 1 in 30-year storm.

S8 The drainage system must be designed so that, unless an area is designated to hold and/or convey water as part of the design, flooding does not occur during a 1 in 100 year rainfall event in any part of: a building (including a basement); or in any utility plant susceptible to water (e.g. pumping station or electricity substation) within the development.

- 6.4.2 The proposed system has been designed to avoid any exceedance from the system for all storms including the 1 in 100-year storm.

S9 The design of the site must ensure that, so far as is reasonably practicable, flows resulting from rainfall in excess of a 1 in 100-year rainfall event are managed in exceedance routes that minimise the risks to people and property.

- 6.4.3 Any rainfall in excess of the 1 in 100-year storm will be contained within the proposed car parking areas.

6.5 Structural integrity

S10 Components must be designed to ensure structural integrity of the drainage system and any adjacent structures or infrastructure under anticipated loading conditions over the design life of the development taking into account the requirement for reasonable levels of maintenance.

- 6.5.1 All features through the proposed drainage system have been specifically chosen using detailed manufactures specifications as well as current technical guidance to accommodate for the anticipated sites use and associated loadings across the design life of the site.

S11 The materials, including products, components, fittings or naturally occurring materials, which are specified by the designer must be of a suitable nature and quality for their intended use.

- 6.5.2 All materials through the proposed drainage system have been specifically chosen using detailed manufactures specifications as well as current technical guidance to make sure they are of sufficient quality for their intended use.

6.6 Designing for maintenance considerations

S12 Pumping should only be used to facilitate drainage for those parts of the site where it is not reasonably practicable to drain water by gravity.

- 6.6.1 A pump to the proposed loading bay is anticipated.

6.7 Construction

S13 The mode of construction of any communication with an existing sewer or drainage system must be such that the making of the communication would not be prejudicial to the structural integrity and functionality of the sewerage or drainage system.

- 6.7.1 Considerate construction practices should be employed by the nominated civils contractor when forming the proposed connection.

S14 Damage to the drainage system resulting from associated construction activities must be minimised and must be rectified before the drainage system is considered to be completed.

- 6.7.2 Continuous checks both during and post construction should be completed by the nominated contractor and supervising agent. Completion of the continuous inspections should limit the potential opportunity for damage/defects. All surveys should be made available to the design team subsequent approval or issue of appropriate remedial actions.

7.0 DRAINAGE STRATEGY

7.1 *Surface Water Drainage Strategy*

- 7.1.1 With both infiltration and discharge to watercourse not considered possible, and due to the presence of existing connection off site, in accordance with the SUDS hierarchy, it is proposed that all surface water flows arising from the proposed Lidl development are to discharge at an attenuated rate into the offsite adopted Untied Utilities network via the existing connection.
- 7.1.2 The site area within the red line boundary has been established as 0.8651 hectares.
- 7.1.3 With the above in mind the area within the red line boundary has been used to provide the greenfield discharge rate of 6.6l/s.
- 7.1.4 The external car park areas will be designed to fall towards a combination of proposed gullies and permeable surfacing providing not only interception but also source control and online attenuation.
- 7.1.5 Although a number of sustainable technologies have been used across the development wherever possible, the proposed permeable surfacing storage layers only provide a maximum void ratio of 30%, which is insufficient to accommodate for the critical storms plus climate change combined with a flow rate at discharge restricted to 6.6 l/s, with this in mind it has become necessary to introduce more traditional attenuation within a cellular storage facility laid beneath the landscaped area to provide an improved void ratio of 95% and avoid exceedance.
- 7.1.6 Causeway Flow modelling software has been used to identify the necessary storage volumes inclusive of 45% allowance for climate change and a safety factor of 2 shown in **Appendix G**.
- 7.1.7 Attenuation will be provided on the site to ensure that the flow rate of 6.6 l/s is not exceeded during a 1 in 100-year storm event, inclusive of a 45% allowance for climate change.
- 7.1.8 The site drainage network will be designed in accordance with current best practice to have sufficient capacity not to flood during the critical 1 in 30-year storm (plus 40% allowance for climate change) and also to constrain within the site the flood water generated for the critical 1 in 100-year storm event (plus 45% allowance for climate change). In this way the risk of off-site flooding, which could result in damage to other buildings and essential services, will be minimised and the risk of flooding elsewhere should not be increased as a result of the development proposals.
- 7.1.9 Using onsite attenuation, it will be possible to avoid any exceedance occurring at the site for all storms up to and significantly beyond the 1 in 100-year storm plus 45% climate change allowance.
- 7.1.10 An indicative drainage strategy and contributing drainage area plan are shown in **Appendix H**.
- 7.1.11 Further discussions with the appropriate approving bodies are required to agree the proposed drainage strategy.

7.2 *Foul Flows*

- 7.2.1 An existing connection has been provided to the offsite public United Utilities Network; it is proposed that all foul flows will be discharged through the existing connection.

8.0 MAINTENANCE STRATEGY

- 8.1.1 SuDS components require good maintenance including inspections to identify performance issues and plan appropriate maintenance needs, checks on the operation and maintenance of the drainage system and landscape management. Therefore, it is intended that those responsible for the drainage within a development will be provided with an Operation and Maintenance Manual as part of the documentation provided under the Construction (Design and Management) regulations 2015 at the end of the construction works. Maintenance requirements that would be appropriate for this development, to be included in the document are outlined below.
- 8.1.2 All maintenance necessary for the Lidl site only will be undertaken, appointed and/or suitably managed by Lidl Great Britain Limited.
- 8.1.3 The Drainage network and inherent SuDS have been designed with minimal maintenance in mind. The maintenance is generally of a 'common sense' approach and is to comprise:
- Regular day to day care: - litter collection, grass cutting and checking the inlets and outlets where water enters or leaves a drainage feature.
 - Occasional tasks: - managing vegetation in wet areas (ponds, swales, etc.) and removing any silt that builds up in the drainage features.
 - Remedial work: -repairing damage when, and where, necessary.

Specific recommendations for each feature are provided in the following sections and should be referred to in the first instance if there are any issues.

Manholes and PPICs

- 8.1.4 Manholes are typically sized in accordance with Sewers for Adoption, which relates to the incoming and outgoing pipe diameters. However, as the system is not Adopted, PPICs have been used where manufacturer's limitations permit. Typically, PPICs can be used for depths up to 3m and for pipe diameters up to 150mm.

Personnel access into PPIC chambers is not possible, and therefore rodding/jetting should be carried out from ground level. This is generally accepted as good practice and in accordance with good health and safety procedures. Where larger manholes, which could accommodate man access, have been included maintenance should also take place from ground level. Man, access should be resisted and only used as a last resort.

Maintenance schedule	Required action	Frequency
Occasional Maintenance and Monitoring	Covers should be lifted and inspected for litter and debris to ensure that the runs are free flowing.	3 Monthly (or as required).

Inlets, Outlets, Flow Control Device and Inspection Chambers

- 8.1.5 Inlets and outlets structures may be surface structures or conveyance pipes with guards or headwalls. They must be free from obstruction at all times.
- 8.1.6 The surface water flow off site is limited to the agreed rates as shown in the drawings in **Appendix H**. The flow is limited by a Hydrobrake. This is a proprietary system and will be installed in line with the manufacturers written instructions. Operation and Maintenance guidance is provided within the manufacturers' standard documentation.

Maintenance schedule	Required action	Frequency
Regular Maintenance	Inlets, outlets and surface control structures Inspect surface structures removing obstructions and silt as necessary. Check there is no physical damage. Strim vegetation 1m min. surround to structures and keep hard aprons free from silt and debris	Monthly (or as required).
Occasional Maintenance	Check topsoil levels are 20mm above edges of baskets and chambers to avoid mower damage	As required.
Remedial Works	Unpack stone in basket features and unblock or repair and repack stone as design detail as necessary. As required Repair physical damage if necessary	As required.
Inspection chambers and below ground	Remove cover and inspect ensuring water is flowing freely and that the exit route for water is unobstructed. Remove debris and silt. Undertake inspection after leaf fall in autumn	Every 6 months (or as required).

Attenuation Tank

- 8.1.7 Regular inspection of cellular storage tank systems is required to ensure effective long-term performance of the system. Maintenance needs of the system should be monitored, and schedules adjusted to suit the specific requirements of the Development.
- 8.1.8 The following maintenance regime is recommended as a minimum, but actions and frequencies should be adjusted to suit the specific requirements of the food store and associated car parking. Manufacturer's specific recommendations should also be followed.
- 8.1.9 The proposed cellular tank if installed in accordance with the manufacturers recommendations has a design life in excess of 60 years, as a result should it be maintained in line with the recommendation below and the literature within Appendix B the facility will not need to be replaced for the life of the store.

8.1.10

Maintenance Schedule	Required Action	Frequency
Occasional Maintenance and Monitoring	Litter and debris removal from upstream and downstream. Manholes/PPICs.	Monthly (or as required).
	Inspect inlets for silt accumulation. Establish appropriate silt removal frequencies. Significant silt build-ups suggest the tanks may be silting up; the tanks should be cleaned with reference to the manufacturers' literature.	Half yearly as a minimum. Additional checks following significant rainfall events.

Flow Control Device

- 8.1.11 The surface water flow off site is limited to no more than 6.6 l/s. The flow is limited by a Hydrobrake Optimum flow control. These are proprietary systems and will be installed in line with the manufacturers written instructions. Operation and Maintenance guidance is provided within the manufacturers' standard documentation.

Pumping Station

- 8.1.12 This is a proprietary system and will be installed in line with the manufacturers written instructions. Operation and Maintenance guidance is provided within the manufacturers' standard documentation.

9.0 CONCLUSIONS

- 9.1.1 The site is Wholly contained within in Environment Agency (EA) Flood Zone 1. Reference to NPPF Table 3 shows that an Exception Test is not required as buildings used for shops are classified as less vulnerable and buildings used for dwelling houses are classified as more vulnerable, both uses are acceptable in areas categorised as flood Zone 1.
- 9.1.2 The risk of flooding elsewhere should not be increased as a result of the development.
- 9.1.3 A maximum permissible discharge rate of 6.6 l/s for the 1 in 100-year storm event plus 45% allowance for climate change will be used to inform the proposed Lidl application site drainage design.
- 9.1.4 Attenuation will be provided to ensure that the reduction to only 6.6 l/s which is significantly below the calculated brownfield run off rate is not exceeded during a 1 in 100-year storm event, inclusive of a 45% allowance for climate change.
- 9.1.5 The Lidl site drainage will be designed with sufficient capacity not to flood during a 1 in 30-year storm event as well as to contain flood water generated from a 1 in 100 year plus climate change storm event (+45%) within the site. The risk of off-site flooding would not increase as a result of the development and safe access, and egress will be maintained.
- 9.1.6 Foul flows generated by the new Lidl Store are anticipated to communicate with the adopted United Utilities network within the following identification of the existing connection.
- 9.1.7 Discharge restrictions/charges may apply for connections to the public drainage network and for discharge of surface waters into the adjacent watercourse.
- 9.1.8 The potential for pollution of controlled waters is considered to be low provided best practice procedures are following during development. Drainage systems should be maintained to ensure that they do not become blocked and unable to discharge.

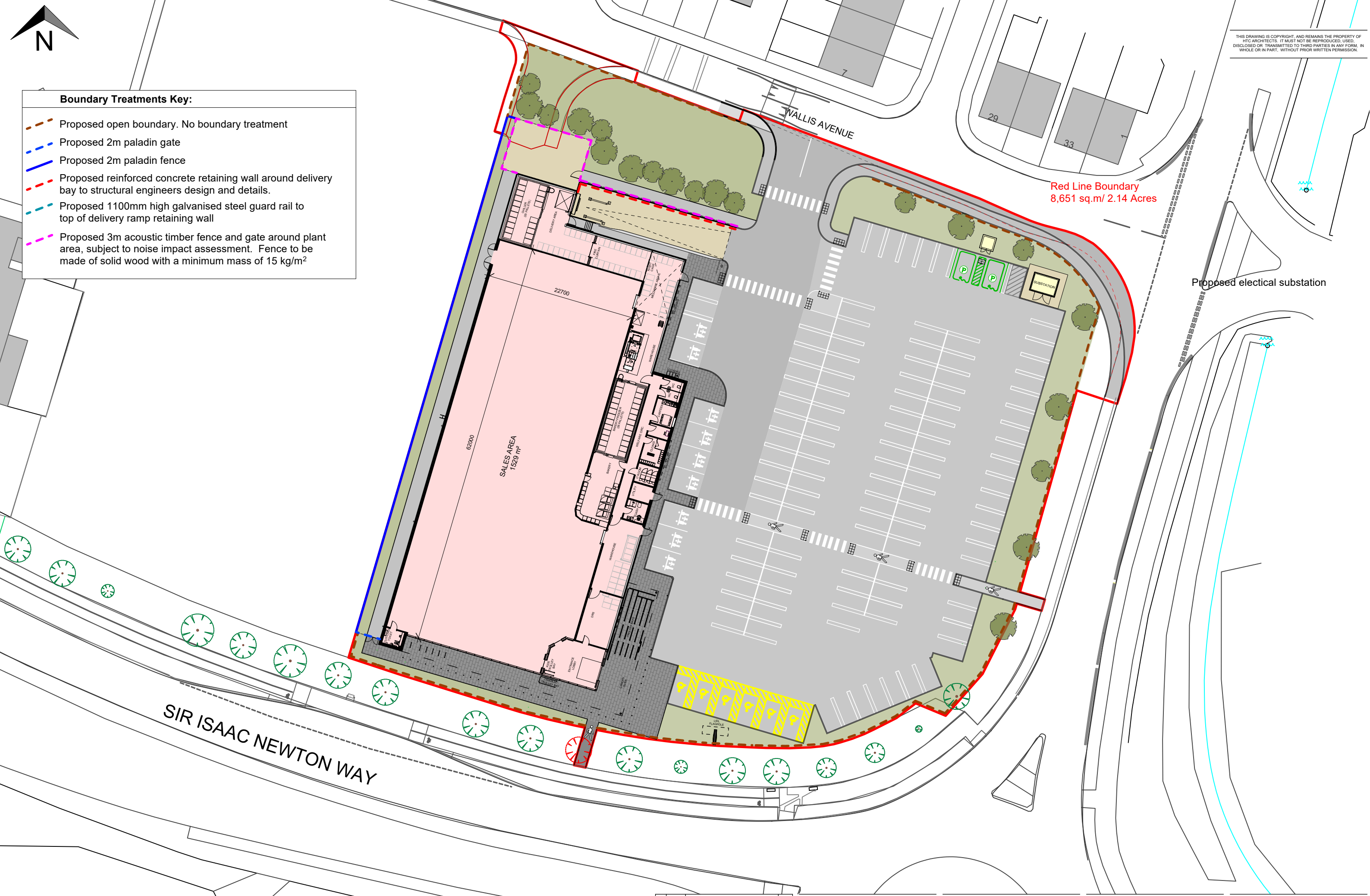
Appendix A



Boundary Treatments Key:

- Proposed open boundary. No boundary treatment
- Proposed 2m paladin gate
- Proposed 2m paladin fence
- Proposed reinforced concrete retaining wall around delivery bay to structural engineers design and details.
- Proposed 1100mm high galvanised steel guard rail to top of delivery ramp retaining wall
- Proposed 3m acoustic timber fence and gate around plant area, subject to noise impact assessment. Fence to be made of solid wood with a minimum mass of 15 kg/m²

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client
Lidl GB Ltd.

project
Kingsway, Rochdale

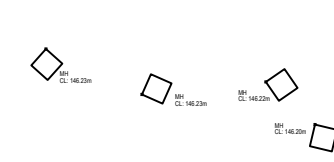
drawing title
Proposed Boundary
Treatments



date March 2026
status Planning
scale 1:500
drawn SPN checked
job no. 2544 dwg no. P416 rev. B

B	10/04/2026	Planning red line indicated	SPN
A	31/03/2026	Car park white lining updated as per Lidl request.	SPN
Rev	Date	Description	Drawn

Appendix B



Key Plan

[illegible]

Quality Level	Life Type Post Process(es)	Description	Accuracy	
			Horizontal	Vertical
Q-C	→ ECC →	Utility records information	Undefined	Vertical
Q-D	→ ECC →	A utility whose location is determined by evidence of physical distress to street features, topographical features or evidence of previous distress	Undefined	Undefined
Q-E	→ ECC →	A utility segment which is not suspected and is not present (see Q-C or Q-D records) but has been detected and is therefore known as an "invisible" utility	Undefined	Undefined
Q-F1	→ ECC →	Horizontal and vertical location of the utility detected by one of the geophysical techniques	±50 mm Horizontal	±50 mm
Q-F2	→ ECC →	Horizontal location only of the utility detected by one of the geophysical techniques used. Not including TDS.	±200 mm or ±40% of detected depth whichever is greater	±40% of detected depth
Q-G	→ ECC →	Horizontal and vertical location of the utility detected by multiple geophysical techniques	±100 mm or ±15% of detected depth whichever is greater	±15% of detected depth
Q-H	→ ECC →	Utilities verified in an open excavation, using an inspection chamber / manhole or the use of utility camera (see the product chapter)	±50 mm	±25mm

Color	Symbol	Feature	Feature
Blue	○	Aggregates/Cluster Events	Base - Bottom
Blue	○	Changes - Full Water Q.81P	Base - Top
Blue	○	Changes - Full Water Q.82	Bank - Bottom
Blue	○	Changes - Full Water Q.84	Bank - Top
Blue	○	Changes - Full Water Q.85	Building entry
Blue	○	Changes - Full Water Q.86	Concrete
Blue	○	Changes - Stone Water Q.84	Ditch - Bottom
Blue	○	Changes - Stone Water Q.85	Ditch - Top
Blue	○	Changes - Stone Water Q.86	Drainage Channel
Blue	○	Excavated Q.81P	Grass - Bottom
Blue	○	Excavated Q.82	Grass - Top
Blue	○	Excavated Q.84	Overhead Decking
Blue	○	Excavated Q.85	Overhead Decking
Blue	○	Excavated Q.86	Overhead Decking
Blue	○	Excavated Q.87	Overhead Decking
Blue	○	Excavated Q.88	Overhead Decking
Blue	○	Excavated Q.89	Overhead Decking
Blue	○	Excavated Q.90	Overhead Decking
Blue	○	Excavated Q.91	Overhead Decking
Blue	○	Excavated Q.92	Overhead Decking
Blue	○	Excavated Q.93	Overhead Decking
Blue	○	Excavated Q.94	Overhead Decking
Blue	○	Excavated Q.95	Overhead Decking
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Blue	○	Excavated Q.97	Overhead Decking
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Blue	○	Excavated Q.157	Overhead Decking
Blue	○	Excavated Q.158	Overhead Decking
Blue	○	Excavated Q.159	Overhead Decking
Blue	○	Excavated Q.160	Overhead Decking
Blue	○	Excavated Q.161	Overhead Decking
Blue	○	Excavated Q.162	Overhead Decking
Blue	○	Excavated Q.	

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Desktop Utility Records:				
Utility Type	Provider Details	Date Acquired	Affected	
BT	Openreach	17/10/2025		
Gas	Cadent, ESP and Fulcrum	17/10/2025	Y	
Electric	Electric North West	17/10/2025	Y	
Telecoms	Virgin & Vodafone	17/10/2025	Y	
Drainage	United Utilities	17/10/2025	Y	
Water	United Utilities	17/10/2025	Y	

Pseudo Ordinance Survey plane grid tied to National Grid via GPS observations at survey control point STN01.
 Bearing STN01 to STN02: 90°32'19"
 Survey control as indicated.

SURVEY STATIONS			
Name	Survey	Bearing	Height
STN01	STN01-454	010348.080	140.402
STN02	STN02-005	010344.080	140.209
STN03	STN03-403	010331.055	140.102
STN04	STN04-146	010339.131	140.060
STN06	STN05-144	010337.241	140.006
STN07	STN06-360	010344.120	141.011
STN08	STN07-353	010336.306	140.203
STN09	STN08-001	010337.162	140.000

Rev.	Date	Revision	Signed
A	29/10/2025	First Issue	LW
B	6/11/2025	Gas QLD Added	LW

Client	Lidl Great Britain Limited			
Address	Kingsway Business Park, Rochdale			
Service Quality	Topographical and QL"B" Utility Survey			
Start Date of Survey	20/10/2025			
Survey Status	Final	TE	TE	L/W
SP251504-1025-018.dwg	All	1:200	1 of 1	

Drawing No.	SP251504-1025-01A	Revision	B
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Sheet

Appendix C

Flood map for planning

Your reference
Unspecified

Location (easting/northing)
391276/412290

Created
10 April 2026 11:37

Your selected location is in flood zone 1, an area with a low probability of flooding.

You will need to do a flood risk assessment if your site is **any of the following**:

- bigger than 1 hectare (ha)
- in an area with critical drainage problems as notified by the Environment Agency
- identified as being at increased flood risk in future by the local authority's strategic flood risk assessment
- at risk from other sources of flooding (such as surface water or reservoirs) and its development would increase the vulnerability of its use (such as constructing an office on an undeveloped site or converting a shop to a dwelling)

Notes

The flood map for planning shows river and sea flooding data only. It doesn't include other sources of flooding. It is for use in development planning and flood risk assessments.

This information relates to the selected location and is not specific to any property within it. The map is updated regularly and is correct at the time of printing.

Flood risk data is covered by the Open Government Licence which sets out the terms and conditions for using government data. <https://www.nationalarchives.gov.uk/doc/open-government-licence/version/3>

Use of the address and mapping data is subject to Ordnance Survey public viewing terms under Crown copyright and database rights 2026 AC0000807064. <https://flood-map-for-planning.service.gov.uk/os-terms>



Flood map for planning

Your reference

Unspecified

Location (easting/northing)

391276/412290

Scale

1:2,500

Created

10 Apr 2026 11:37

-  Selected area
-  Flood zone 3
-  Flood zone 2
-  Flood zone 1
-  Flood defence
-  Main river
-  Water storage area


0 20 40 60m

Appendix D

Figure 6-9: HFM and RFO outlines

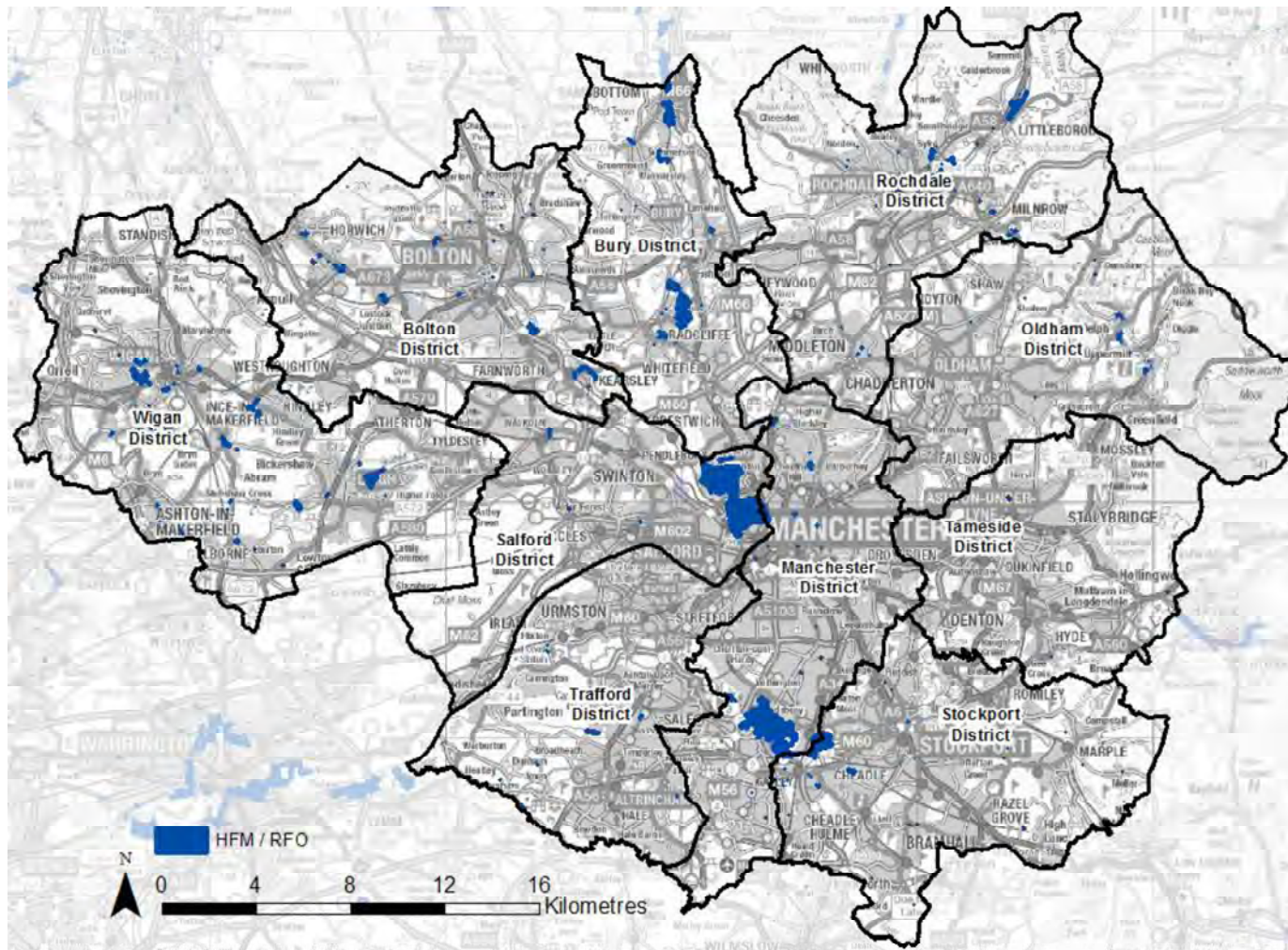


Figure 6-7: GM LLFA historic flood incidents

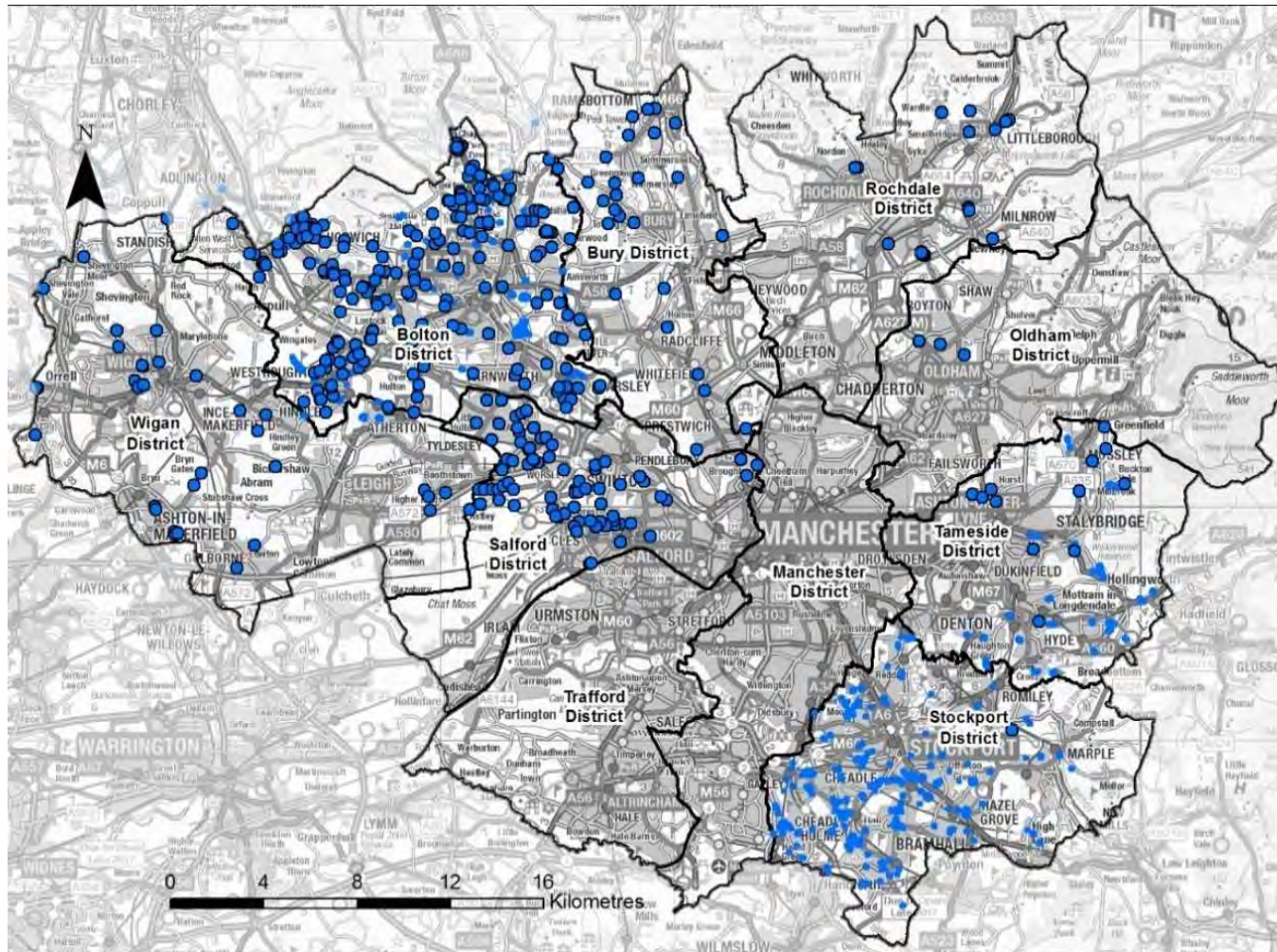
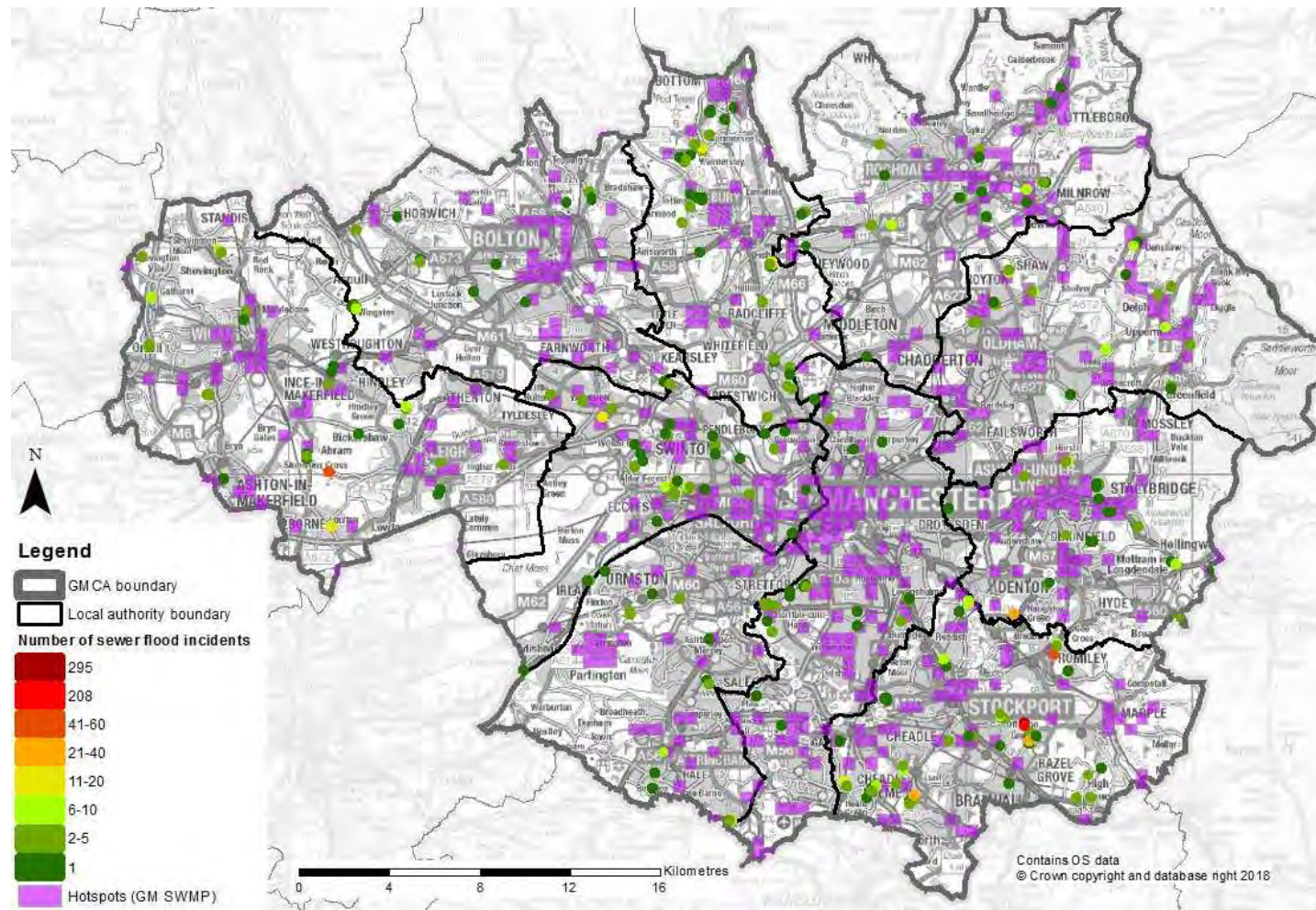


Figure 6-8: UU historic sewer flooding incidents and GM SWMP Hotspots



Appendix E

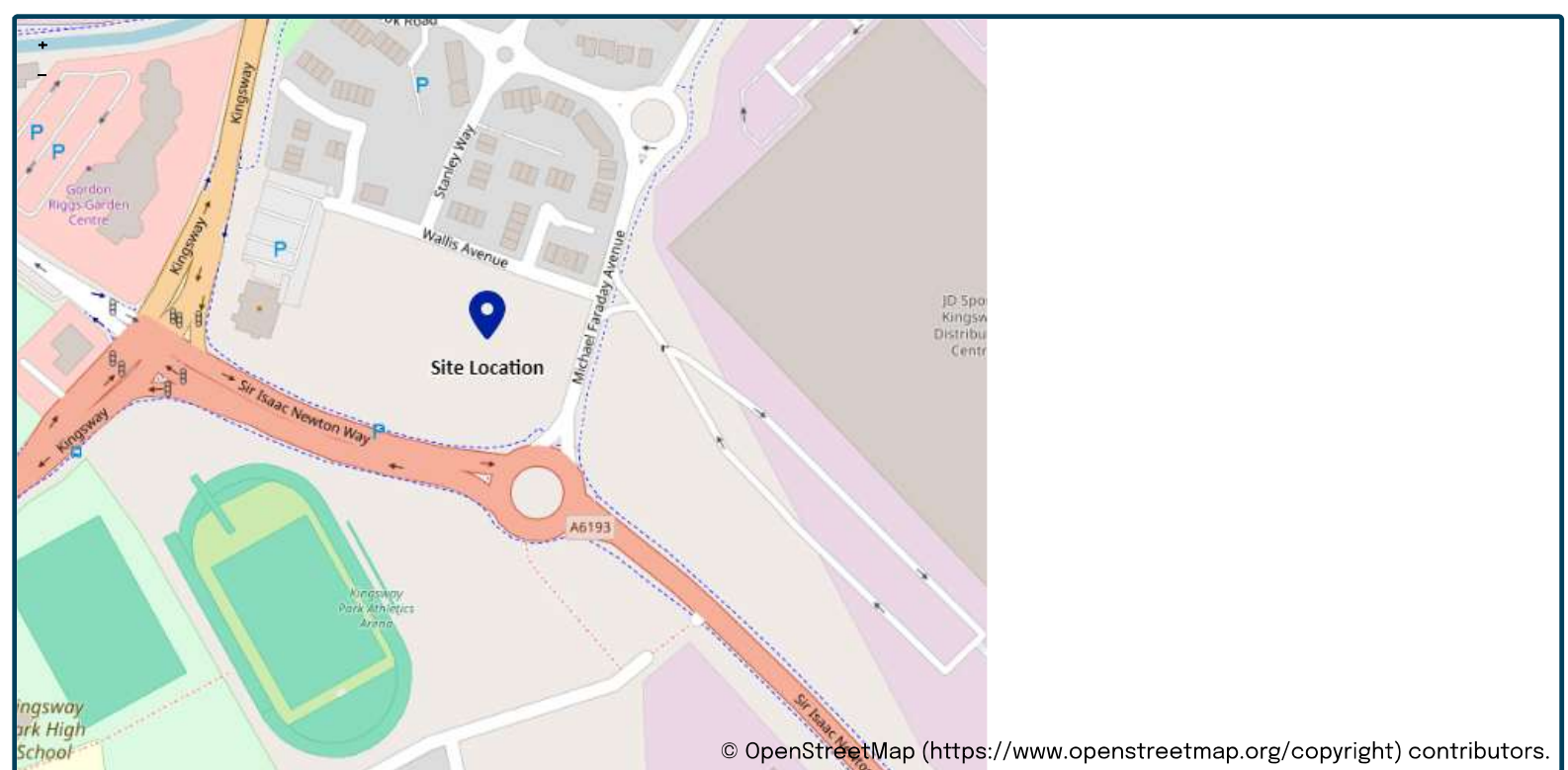
This is an estimation of the greenfield runoff rates that are used to meet normal best practice criteria in line with Environment Agency guidance “Rainfall runoff management for developments”, SC030219 (2013), the SuDS Manual C753 (CIRIA, 2015) and the non-statutory standards for SuDS (Defra, 2015). This information on greenfield runoff rates may be the basis for setting consents for the drainage of surface water runoff from sites.

Project details

Date	11/04/2026
Calculated by	Garry Eyres
Reference	
Model version	2.2.3

Location

Site name	Rochdale
Site location	



Site easting (British National Grid)	391282
Site northing (British National Grid)	412288

Site details

Total site area (ha)	0.8651	ha
----------------------	-------------------------------------	----

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Greenfield runoff

Method

Method	IH124
--------	-------

IH124

	<u>My value</u>		<u>Map value</u>
SAAR (mm)	1163 mm	☒	1163
How should SPR be derived?	WRAP soil type		
WRAP soil type	4	☐	4
SPR	0.47		
QBar (IH124) (l/s)	7.6 l/s		

Growth curve factors

	<u>My value</u>		<u>Map value</u>
Hydrological region	10	☒	10
1 year growth factor	0.87		
2 year growth factor	0.93		
10 year growth factor	1.38		
30 year growth factor	1.7		
100 year growth factor	2.08		
200 year growth factor	2.37		

Results

Method	IH124	
Flow rate 1 year (l/s)	6.6	l/s
Flow rate 2 year (l/s)	7.0	l/s
Flow rate 10 years (l/s)	10.4	l/s
Flow rate 30 years (l/s)	12.9	l/s
Flow rate 100 years (l/s)	15.7	l/s
Flow rate 200 years (l/s)	17.9	l/s

Please note runoff estimation is subject to significant uncertainty. Results are therefore normally reported to only 1 decimal place. Where 2 decimal places are provided, this does not indicate accuracy to this level, it has been adopted to prevent 'zero' figures from being reported. Outputs less than 0.01 l/s are reported as 0.01 l/s.

Disclaimer

This report was produced using the Greenfield runoff rate estimation tool (2.2.3) developed by HR Wallingford and available at [uksuds.com](https://www.uksuds.com) (<https://www.uksuds.com/>). The use of this tool is subject to the UK SuDS terms and conditions and licence agreement, which can both be found at [uksuds.com/terms-conditions](https://www.uksuds.com/terms-conditions) (<https://www.uksuds.com/terms-conditions>). The outputs from this tool have been used to estimate Greenfield runoff rates. The use of these results is the responsibility of the users of this tool. No liability will be accepted by HR Wallingford, the Environment Agency, Centre for Ecology and Hydrology, Wallingford Hydrosolutions or any other organisation for the use of these data in the design or operational characteristics of any drainage scheme.

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Appendix F

SUMMARY TABLE		DESIGN CONDITIONS			
		1	2	3	4
Land Use Type Pollution Hazard Level Pollution Hazard Indices TSS Metals Hydrocarbons	Non-residential car parking with frequent change (eg hospitals, retail) Medium 0.7 0.6 0.7				
SuDS components proposed					
Component 1	Pervious pavement (where the pavement is not designed as an infiltration component)	SuDS components can only be assumed to deliver these indices if they follow design guidance with respect to hydraulics and treatment set out in the relevant technical component chapters of the SuDS Manual. See also checklists in Appendix B Detailed assessment of performance of designed component in reducing inflow concentrations of each pollutant type required as evidence of adopted indices. Enter indices approved by the environmental regulator in appropriate 'User Defined Indices' row below	SEPA only considers proprietary treatment systems as appropriate in exceptional circumstances where other types of SuDS component are not practicable. Proprietary treatment systems may also be considered appropriate for existing sites that are causing pollution where there is a requirement to retrofit treatment. WAT-RM-08 (SEPA, 2014) also provides a flow chart with a summary of checks on suitability of a proprietary system	See Chapter 15 Proprietary treatment systems for approaches to demonstrate product performance. Note: a British Water/Environment Agency assessment Code of Practice is currently under development that will allow manufacturers to complete an agreed test protocol for systems intended to treat contaminated surface water runoff. Full details can be found at: http://www.britishwater.co.uk/Publications/codes-of-practise.aspx .	
Component 2	By Pass Separator				
Component 3	None				
SuDS Pollution Mitigation Indices TSS Metals Hydrocarbons	>0.95 0.9 0.95				
Groundwater protection type Groundwater protection Pollution Mitigation Indices TSS Metals Hydrocarbons	Pervious pavement underlain by 300 mm minimum depth of soils with good contamination attenuation potential 0.7 0.6 0.7	All designs must include a minimum of 1 m unsaturated depth of subsoil or aquifer material between the infiltration surface and the maximum likely groundwater level. Infiltration components should always be preceded by upstream component(s) that trap(s) silt, or designed specifically to retain sediment in a separate lined zone, easily accessible for maintenance, such that the sediment will not be re-suspended in subsequent events	The permeable pavement must include a suitable filtration layer provides treatment and must include a geotextile at the base separating the foundation from the sub-grade. The underlying soils must provide good contaminant attenuation potential (eg as recommended in Sniffer 2008 (a) and (b) / Scott Wilson (2010) or other appropriate guidance). Alternative depth and soil combinations must provide equivalent protection to the underlying groundwater		
Combined Pollution Mitigation Indices TSS Metals Hydrocarbons Acceptability of Pollution Mitigation TSS Metals Hydrocarbons	>0.95 >0.95 >0.95 Sufficient Sufficient Sufficient	Reference to local planning documents should also be made to identify any additional protection required for sites due to habitat conservation (see Chapter 7 The SuDS design process). The implications of developments on or within close proximity to an area with an environmental designation, such as a Site of Special Scientific Interest (SSSI), should be considered via consultation with relevant conservation bodies such as Natural England			

Appendix G

Results for 2 year Critical Storm Duration. Lowest mass balance: 99.57%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute summer	SMH1	10	144.694	0.094	14.4	0.1066	0.0000	OK
15 minute summer	SMH2	11	144.569	0.122	25.9	0.1380	0.0000	OK
15 minute summer	SMH3	11	144.353	0.096	25.6	0.1080	0.0000	OK
15 minute summer	SMH4	11	144.652	0.106	17.3	0.1203	0.0000	OK
15 minute summer	SMH5	11	144.325	0.116	31.2	0.1313	0.0000	OK
15 minute summer	SMH6	11	144.297	0.149	58.9	0.1690	0.0000	OK
360 minute summer	CELL STORE	264	144.049	0.397	23.3	79.6827	0.0000	OK
360 minute summer	SMH7	264	144.049	0.397	24.1	0.4492	0.0000	OK
15 minute summer	SMH8	10	144.412	0.062	9.0	0.0698	0.0000	OK
15 minute summer	SMH9	11	144.152	0.102	23.6	0.1158	0.0000	OK
15 minute summer	SMH10-FCC	10	144.050	0.501	33.7	0.8852	0.0000	OK
15 minute summer	EXG.SW	1	143.510	0.000	4.9	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute summer	SMH1	1.000	SMH2	14.0	0.616	0.219	1.0489	
15 minute summer	SMH2	1.001	SMH3	25.6	1.026	0.286	0.1552	
15 minute summer	SMH3	1.002	SMH6	25.7	0.738	0.099	0.5956	
15 minute summer	SMH4	2.000	SMH5	16.6	0.787	0.260	1.1863	
15 minute summer	SMH5	2.001	SMH6	31.2	0.814	0.097	0.2432	
15 minute summer	SMH6	1.003	SMH7	58.6	1.316	0.225	2.0496	
360 minute summer	CELL STORE	4.000	SMH7	-23.3	-0.514	-0.082	1.1781	
360 minute summer	SMH7	1.004	SMH10-FCC	-5.2	0.150	-0.009	3.5687	
15 minute summer	SMH8	3.000	SMH9	8.8	0.575	0.095	0.6692	
15 minute summer	SMH9	3.001	SMH10-FCC	23.0	1.071	0.246	1.0099	
15 minute summer	SMH10-FCC	Hydro-Brake®	EXG.SW	4.9				37.8

Results for 30 year +40% CC Critical Storm Duration. Lowest mass balance: 99.57%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
360 minute winter	SMH1	352	145.145	0.545	8.2	7.9858	0.0000	SURCHARGED
360 minute winter	SMH2	352	145.145	0.698	15.0	8.1575	0.0000	SURCHARGED
360 minute winter	SMH3	352	145.145	0.888	15.0	1.0042	0.0000	SURCHARGED
360 minute winter	SMH4	352	145.145	0.599	9.9	9.1118	0.0000	SURCHARGED
360 minute winter	SMH5	352	145.145	0.936	18.7	9.4891	0.0000	SURCHARGED
360 minute winter	SMH6	352	145.145	0.998	31.9	1.1286	0.0000	SURCHARGED
360 minute winter	CELL STORE	352	145.145	1.493	42.7	299.5076	0.0000	SURCHARGED
360 minute winter	SMH7	352	145.145	1.493	43.7	1.6884	0.0000	SURCHARGED
360 minute winter	SMH8	352	145.145	0.795	5.2	0.8989	0.0000	SURCHARGED
360 minute winter	SMH9	352	145.145	1.095	13.3	1.2383	0.0000	SURCHARGED
360 minute winter	SMH10-FCC	352	145.145	1.596	18.4	2.8198	0.0000	SURCHARGED
15 minute summer	EXG.SW	1	143.510	0.000	4.9	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
360 minute winter	SMH1	1.000	SMH2	8.2	0.532	0.128	3.2280	
360 minute winter	SMH2	1.001	SMH3	15.0	0.891	0.167	0.4374	
360 minute winter	SMH3	1.002	SMH6	13.8	0.628	0.053	2.6777	
360 minute winter	SMH4	2.000	SMH5	9.9	0.676	0.155	3.9609	
360 minute winter	SMH5	2.001	SMH6	17.7	0.715	0.055	0.9841	
360 minute winter	SMH6	1.003	SMH7	29.5	0.962	0.113	6.5599	
360 minute winter	CELL STORE	4.000	SMH7	-42.7	-0.575	-0.151	1.6763	
360 minute winter	SMH7	1.004	SMH10-FCC	-13.7	0.161	-0.025	4.4778	
360 minute winter	SMH8	3.000	SMH9	5.0	0.456	0.053	2.9875	
360 minute winter	SMH9	3.001	SMH10-FCC	12.4	0.735	0.133	2.0081	
360 minute winter	SMH10-FCC	Hydro-Brake®	EXG.SW	5.2				171.1

Results for 100 year +45% CC Critical Storm Duration. Lowest mass balance: 99.57%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
360 minute winter	SMH1	352	145.637	1.037	10.6	29.3027	0.0000	FLOOD RISK
360 minute winter	SMH2	352	145.637	1.190	18.9	42.1197	0.0000	FLOOD RISK
360 minute winter	SMH3	352	145.637	1.380	18.3	1.5604	0.0000	FLOOD RISK
360 minute winter	SMH4	352	145.637	1.091	12.8	51.3609	0.0000	FLOOD RISK
360 minute winter	SMH5	352	145.637	1.428	23.4	35.9577	0.0000	FLOOD RISK
360 minute winter	SMH6	352	145.637	1.490	42.1	1.6848	0.0000	FLOOD RISK
360 minute winter	CELL STORE	352	145.637	1.985	61.1	301.5943	0.0000	SURCHARGED
360 minute winter	SMH7	352	145.637	1.985	61.4	2.2445	0.0000	FLOOD RISK
360 minute winter	SMH8	352	145.637	1.286	6.7	1.4550	0.0000	SURCHARGED
360 minute winter	SMH9	352	145.636	1.586	17.4	1.7943	0.0000	SURCHARGED
360 minute winter	SMH10-FCC	352	145.637	2.088	24.9	3.6886	0.0000	SURCHARGED
15 minute summer	EXG.SW	1	143.510	0.000	4.9	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
360 minute winter	SMH1	1.000	SMH2	10.3	0.558	0.161	3.2280	
360 minute winter	SMH2	1.001	SMH3	18.3	0.931	0.205	0.4374	
360 minute winter	SMH3	1.002	SMH6	18.0	0.633	0.069	2.6777	
360 minute winter	SMH4	2.000	SMH5	12.4	0.697	0.194	3.9609	
360 minute winter	SMH5	2.001	SMH6	22.7	0.722	0.070	0.9841	
360 minute winter	SMH6	1.003	SMH7	41.8	0.960	0.160	6.5599	
360 minute winter	CELL STORE	4.000	SMH7	-61.1	-0.665	-0.216	1.6763	
360 minute winter	SMH7	1.004	SMH10-FCC	-19.9	0.159	-0.036	4.4778	
360 minute winter	SMH8	3.000	SMH9	6.4	0.456	0.068	2.9875	
360 minute winter	SMH9	3.001	SMH10-FCC	17.0	0.712	0.183	2.0081	
360 minute winter	SMH10-FCC	Hydro-Brake®	EXG.SW	5.9				185.4

Node SMH10-FCC Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	✓	Sump Available	✓
Invert Level (m)	143.549	Product Number	CTL-SHE-0099-6600-2600-6600
Design Depth (m)	2.600	Min Outlet Diameter (m)	0.150
Design Flow (l/s)	6.6	Min Node Diameter (mm)	1200

Node SMH1 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Porosity	0.30	Width (m)	10.400	Depth (m)	0.450
Side Inf Coefficient (m/hr)	0.00000	Invert Level (m)	145.000	Length (m)	21.775	Inf Depth (m)	
Safety Factor	2.0	Time to half empty (mins)		Slope (1:X)	300.0		

Node SMH2 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Porosity	0.30	Width (m)	10.400	Depth (m)	
Side Inf Coefficient (m/hr)	0.00000	Invert Level (m)	145.000	Length (m)	21.775	Inf Depth (m)	
Safety Factor	2.0	Time to half empty (mins)		Slope (1:X)	300.0		

Node SMH4 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Porosity	0.30	Width (m)	10.400	Depth (m)	
Side Inf Coefficient (m/hr)	0.00000	Invert Level (m)	145.000	Length (m)	27.175	Inf Depth (m)	
Safety Factor	2.0	Time to half empty (mins)		Slope (1:X)	300.0		

Node SMH5 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Porosity	0.30	Width (m)	10.400	Depth (m)	0.450
Side Inf Coefficient (m/hr)	0.00000	Invert Level (m)	145.000	Length (m)	27.175	Inf Depth (m)	
Safety Factor	2.0	Time to half empty (mins)		Slope (1:X)	300.0		

Node CELL STORE Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	143.652
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.95	Time to half empty (mins)	

Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	210.0	0.0	1.000	210.0	0.0	1.500	210.0	0.0	1.501	0.0	0.0

Design Settings

Rainfall Methodology	FEH-22	Maximum Time of Concentration (mins)	30.00	Preferred Cover Depth (m)	1.200
Return Period (years)	2	Maximum Rainfall (mm/hr)	50.0	Include Intermediate Ground	✓
Additional Flow (%)	0	Minimum Velocity (m/s)	1.00	Enforce best practice design rules	x
CV	1.000	Connection Type	Level Soffits		
Time of Entry (mins)	5.00	Minimum Backdrop Height (m)	0.200		

Simulation Settings

Rainfall Methodology	FEH-22	Analysis Speed	Detailed	Additional Storage (m ³ /ha)	0.0
Summer CV	1.000	Skip Steady State	x	Check Discharge Rate(s)	x
Winter CV	1.000	Drain Down Time (mins)	240	Check Discharge Volume	x

Storm Durations

15 | 30 | 60 | 120 | 180 | 240 | 360

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)	Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
2	0	0	0	100	45	0	0
30	40	0	0				

Appendix H

- GENERAL NOTES:**
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS AND ENGINEERS DRAWINGS AND SPECIFICATIONS.
 - DESIGN BASED ON TOPOGRAPHICAL SURVEY AND SURVEY INFORMATION AVAILABLE AT THE TIME OF DESIGN.
 - ALL EXISTING SEWERS, CONNECTIONS, PIPE SIZES AND INVERT LEVELS TO BE CONFIRMED BY CONTRACTOR PRIOR TO COMMENCEMENT OF WORKS TO ENSURE CONNECTIVITY. ANY VARIANCE FROM THE INFORMATION SHOWN SHOULD BE REPORTED TO THE ENGINEER FOR REVIEW.
 - DO NOT SCALE THIS DRAWING. ANY AMBIGUITIES, OMISSIONS AND ERRORS ON DRAWINGS SHALL BE BROUGHT TO THE ENGINEERS ATTENTION IMMEDIATELY. ALL DIMENSIONS MUST BE CHECKED / VERIFIED ON SITE.
 - ALL DIMENSIONS ARE IN METRES AND LEVELS IN METRES ABOVE ORDNANCE DATUM UNLESS OTHERWISE NOTED.
 - WHERE EXISTING DRAINAGE IS BEING USED, ALLOWANCES SHOULD BE MADE TO REMEDIATE THIS DRAINAGE IN LINE WITH AVAILABLE CCTV SURVEY INFORMATION. IF NO SURVEY IS AVAILABLE, IT IS ADVISED TO OBTAIN ONE PRIOR TO COMMENCEMENT OF WORKS.
 - ALL EXISTING SERVICES TO BE LOCATED PRIOR TO COMMENCEMENT OF ANY DRAINAGE WORKS, AND WHERE NECESSARY PROTECTION OR DIVERSIONS TO BE UNDERTAKEN TO AVOID CONFLICT WITH THE PROPOSED WORK.
 - ALL RAINWATER AND FOUL POP UPS LOCATIONS AND SIZES INDICATIVE ONLY AND TO BE CONFIRMED BY THE ARCHITECT AND M&E ENGINEER.
 - COVER LEVELS, GULLY POSITIONS, AND BUILDINGS LOCATION ARE APPROXIMATE AND SHALL BE CONFIRMED BY ARCHITECT/ LANDSCAPE ARCHITECT.
 - ALL PIPE DIAMETERS GIVEN ARE NOMINAL INTERNAL PIPE DIAMETERS. THESE ARE TO BE CONFIRMED ONCE A DETAILED CAPACITY CHECK HAS BEEN UNDERTAKEN AT A LATER DESIGN STAGE.
 - OUTFALL CONNECTION(S) SUBJECT TO AGREEMENT WITH THE APPROVING AUTHORITY.

HYDRO-BRAKE (OR SIMILAR) FLOW CONTROL CHAMBER RESTRICTED TO 6.6l/s.

T1-CELLULAR STORAGE
26.5m x 8m X 1.5m
318m³
CL146.00
TOP OF CRATES 145.152
IL143.652

EXG.SW
CL146.47
IL143.51

EXG.FW
CL146.49
IL142.86

SMH10-FCC
1500mmØ
CL146.15
IL143.549

FMH7
1200mmØ
CL145.90
IL142.93

SMH7-CP
1500mmØ
CL145.80
IL143.652

SMH6
1500mmØ
CL145.70
IL144.147

SMH5-CP
1200mmØ
CL145.70
IL144.209

SMH3
1500mmØ
CL145.70
IL144.257

SMH2-CP
1200mmØ
CL145.70
IL144.447

SMH9
1200mmØ
CL146.15
IL144.050

SMH8
1200mmØ
CL146.15
IL144.35

FPPI6
450mmØ
CL146.15
IL144.78

KLARGESTER FULL RETENTION / BYPASS SEPARATOR. AREA c.3750m². SIZE TBC.

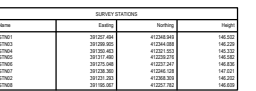
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SALES AREA
1529 m²

SMH4
1200mmØ
CL145.60
IL144.546

SMH1
1200mmØ
CL145.70
IL144.60

WALKWAY TO BE REVIEWED WITH LEVEL DESIGN



KEY

- PROPOSED SURFACE WATER DRAIN
- PROPOSED FOUL WATER DRAIN
- PROPOSED PERFORATED PIPE WRAPPED IN PERMEABLE MEMBRANE
- EXISTING FOUL WATER NETWORK
- EXISTING SURFACE WATER NETWORK
- PROPOSED CELLULAR STORAGE
- PROPOSED SEPERATOR
- PROPOSED PERMEABLE PAVING PARKING BAYS
- NEW FOUL WATER INSPECTION CHAMBER
- NEW FOUL WATER MANHOLE
- NEW SURFACE WATER MANHOLE
- NEW SURFACE WATER HYDROBRAKE OPTIMUM REFERENCE CTL-SHE-0120-7800-1660-7800 MANHOLE 1500mm DIAMETER TO RESTRICT THE FLOW TO NO MORE THAN 7.8 L/S
- NEW RAIN WATER HARVESTING TANK. SIZE TO BE CONFIRMED SUBJECT TO REQUIREMENTS. LOCATION SHOWN INDICATIVE.
- NEW PACKAGE PUMP AND RISING MAIN TO CONNECT TO DRAINAGE SYSTEM ABOVE THE 100YR WATER LEVEL TO PREVENT DOCK LEVEL AREA FROM FLOODING.

P1	APR 26	FIRST ISSUE	CD	GRE	GRE
Rev	Date	Revision Details	By	Chkd	Appd

CoraⁱHt

Client
LIDL GREAT BRITAIN Ltd

Project
ROCHDALE

Title
DRAINAGE ARRANGEMENT
SHEET 1 OF 3

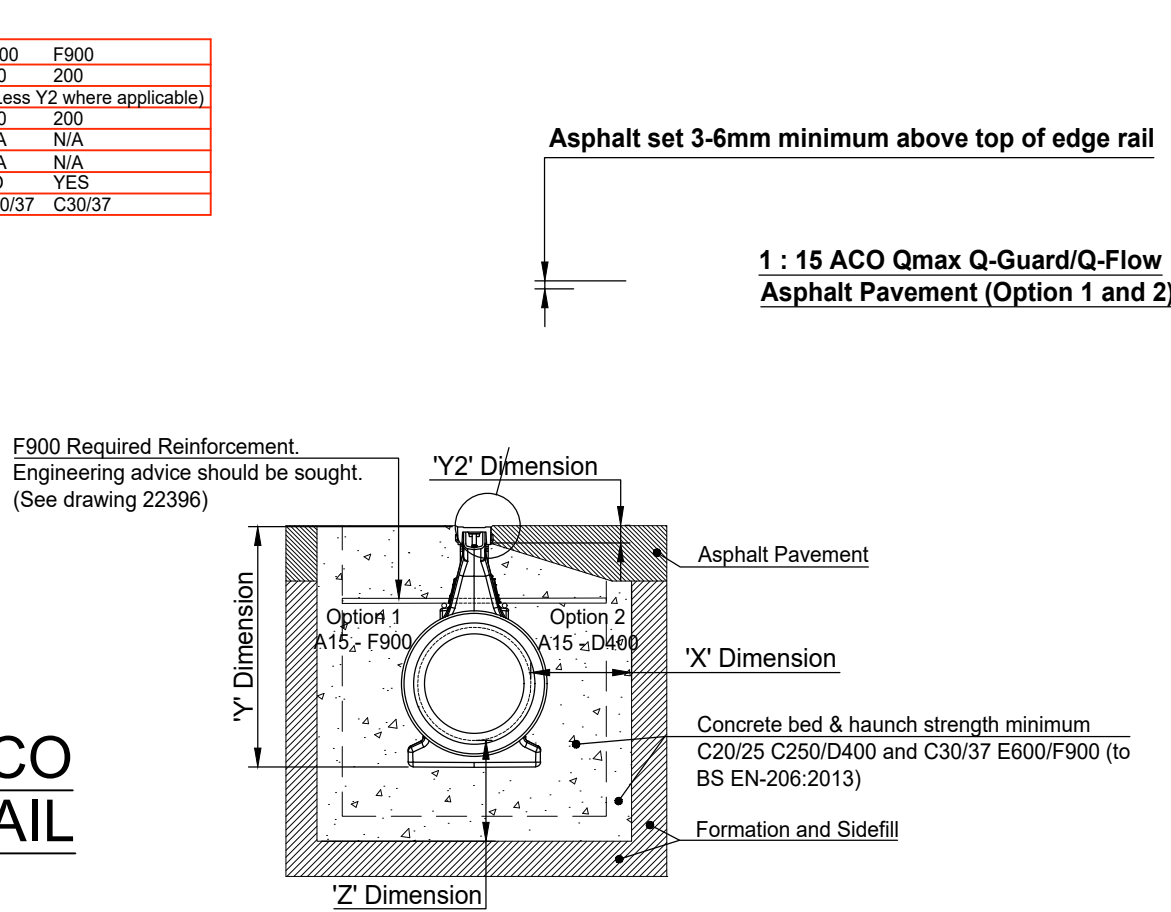
Drawing No.	16-3264-100	Revision	P1
Scale	1:250 @ A1	Date	APRIL 2026
Drawn	CD	Chk	GRE
		App	GRE



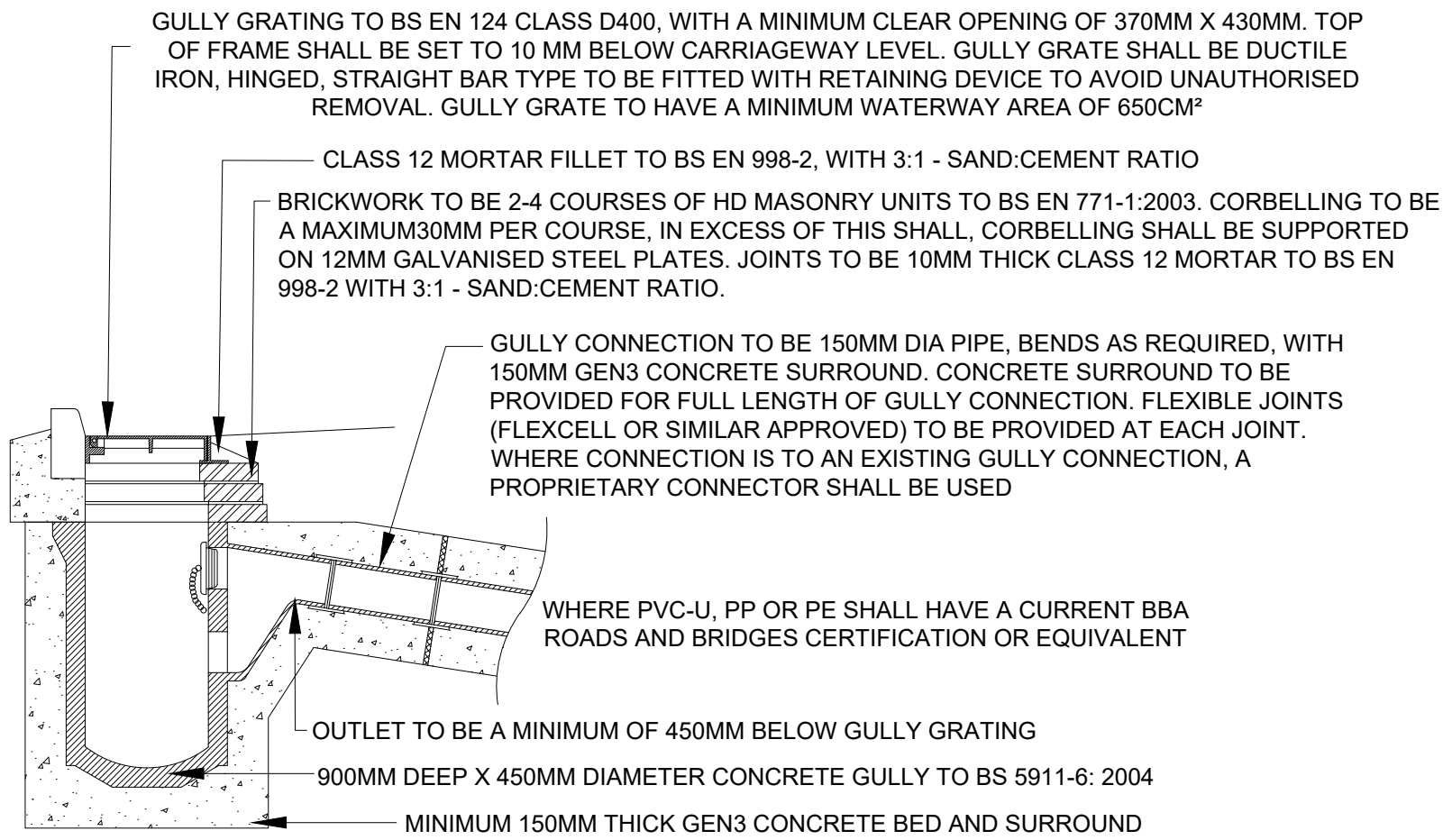
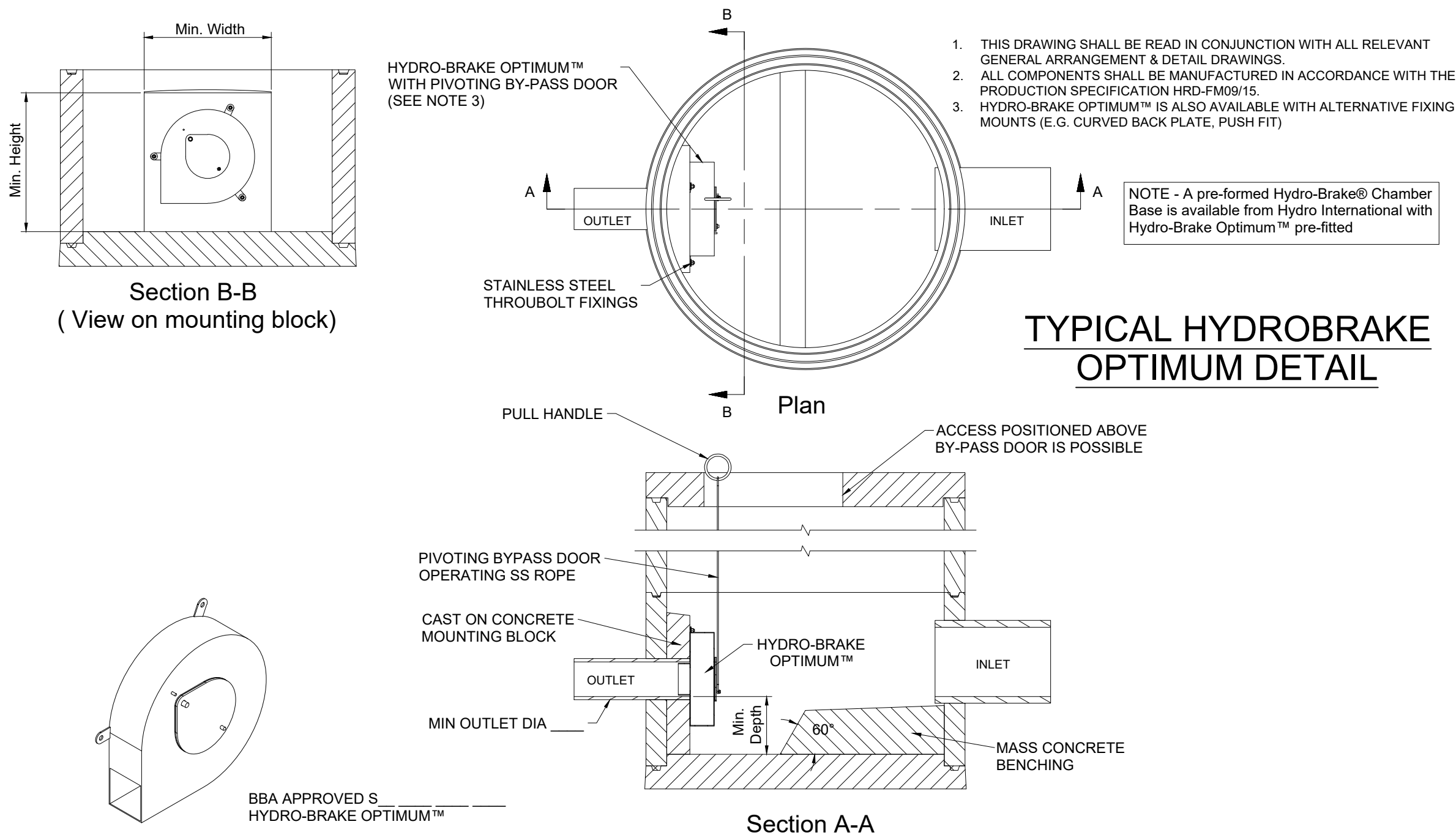
ALL COVER AND INVERT LEVELS SHOWN INDICATIVELY EXACT LEVELS TO BE CONFIRMED AT DETAILED DESIGN

Load Class	C250	D400	E600	F900
Minimum	X	150	150	200
Dimensions (mm)	Y	Full Channel Height (Less Y2 where applicable)		
	Z	150	150	200
Maximum	Y2	35	35	N/A
Dimensions (mm)	Y3	110	110	N/A
Reinforcement	NO	NO	NO	YES
Load Class Concrete	C20/25	C20/25	C30/37	C30/37

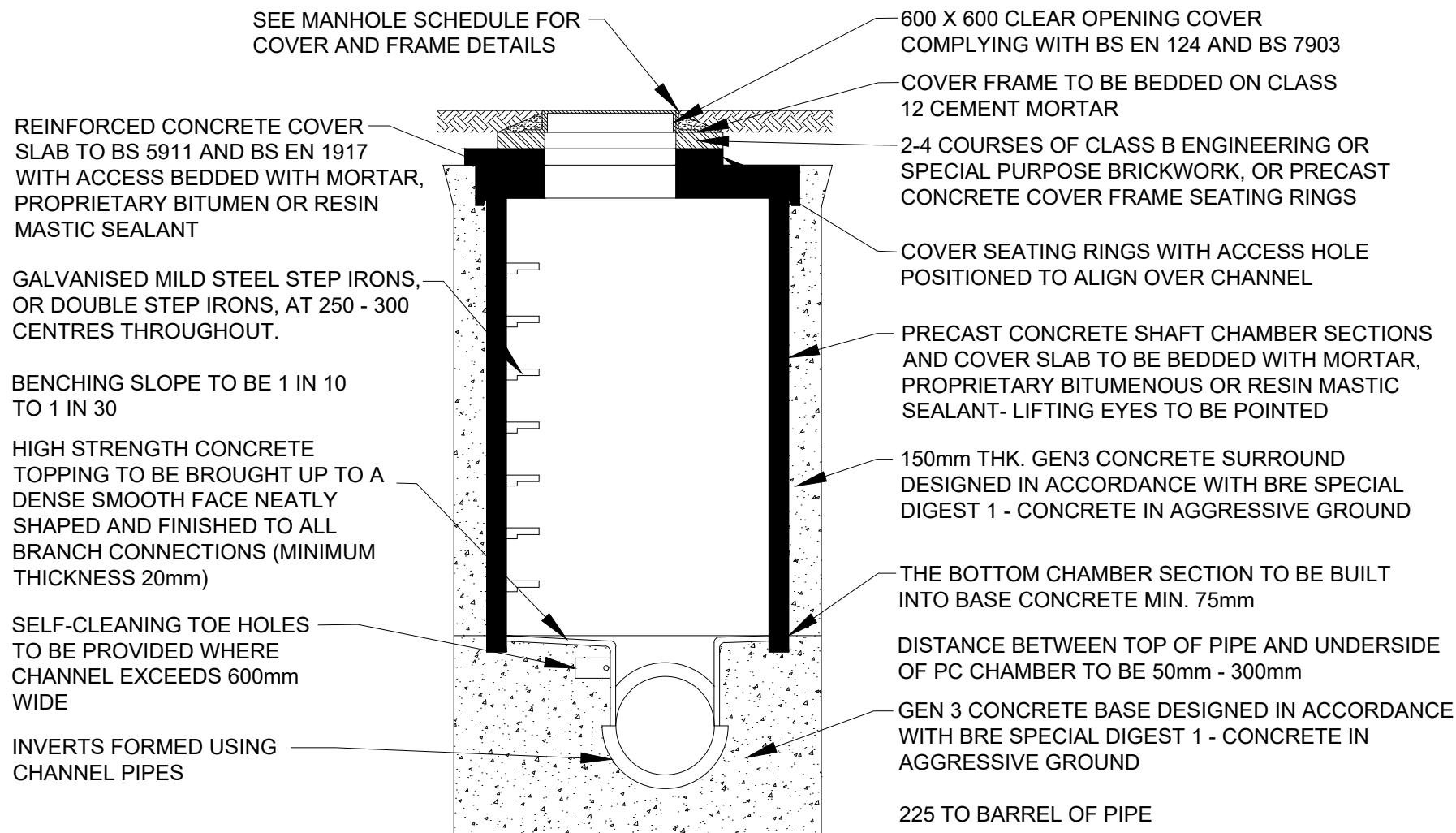
TYPICAL ACO QMAX DETAIL



QMAX 150, 225 AND 350 (D400) ACCESS, OUTLET/INLET AND SILT CHAMBER DETAIL



ROAD GULLY DETAIL



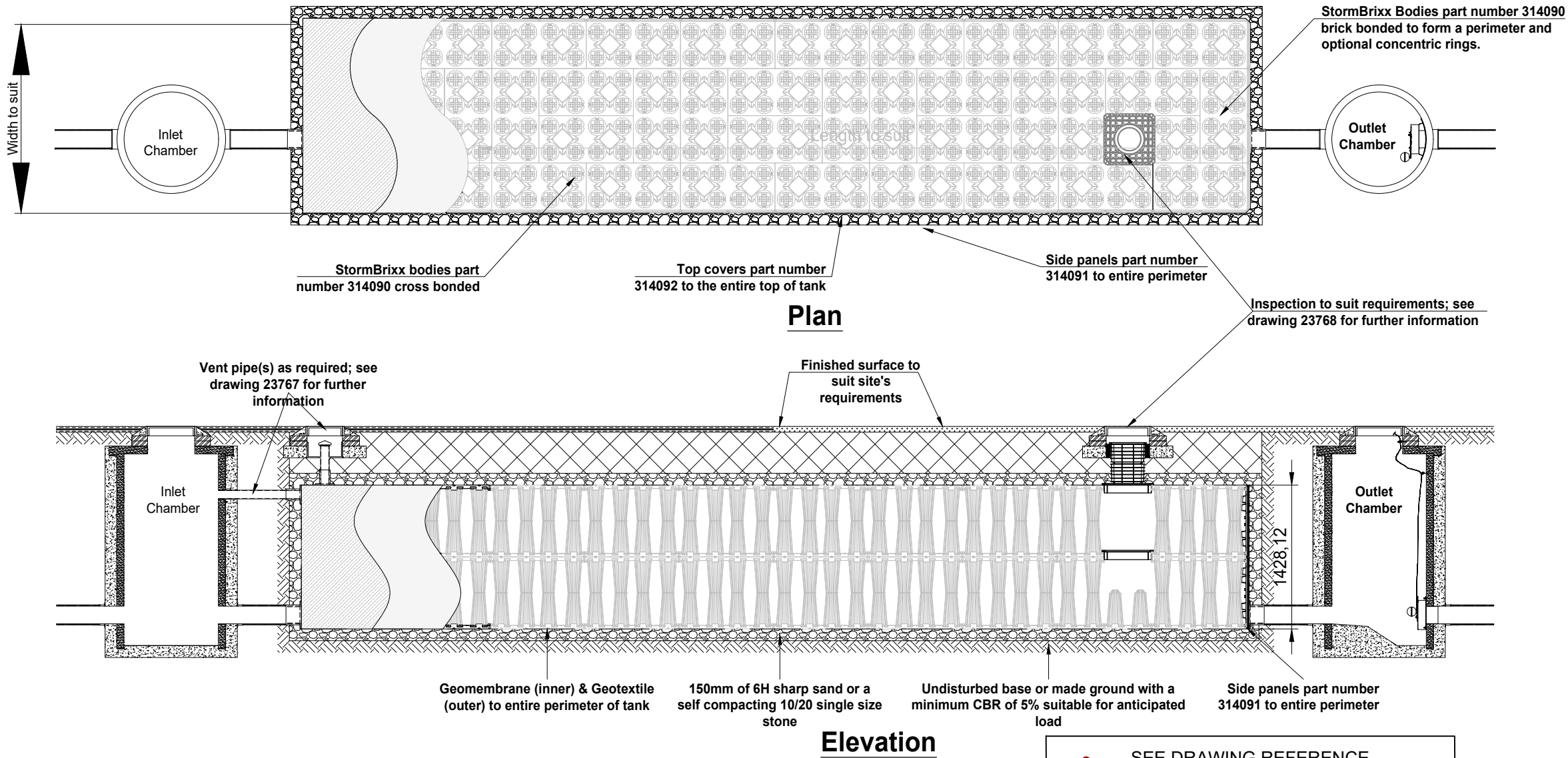
TYPICAL TYPE 2 CONCRETE MANHOLE (PCC) DETAIL

MAX DEPTH FROM COVER LEVEL TO SOFFIT OF PIPE 0m - 3m

700mm ULTIFLOW GRANULAR RESERVOIR TO PROVIDE ONLINE STORAGE OR SIMILAR APPROVED

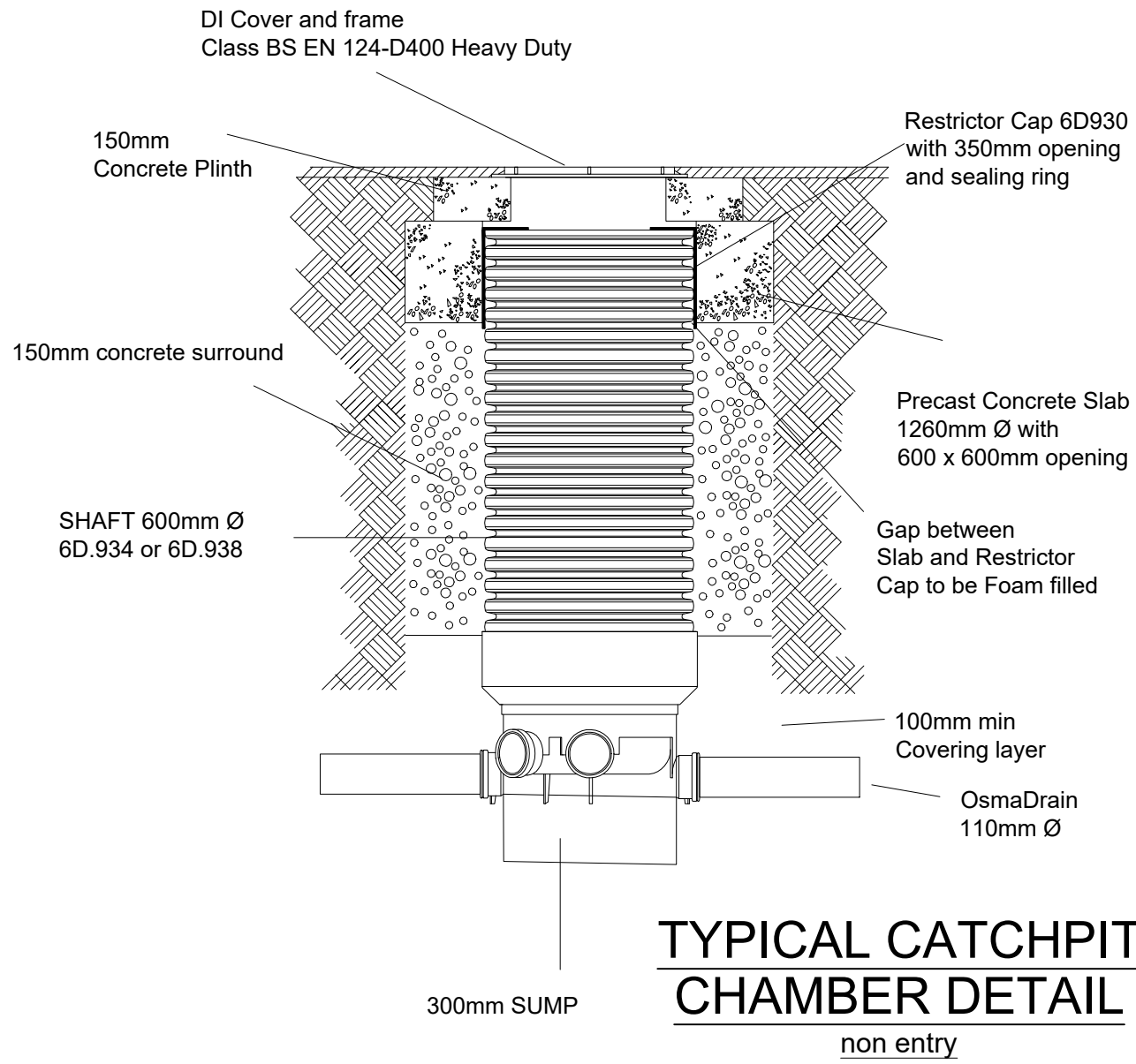
60mm ULTISuDS PERMEABLE ASPHALT BINDER COURSE OR SIMILAR APPROVED

40mm ULTISuDS PERMEABLE ASPHALT SURFACE COURSE OR SIMILAR APPROVED



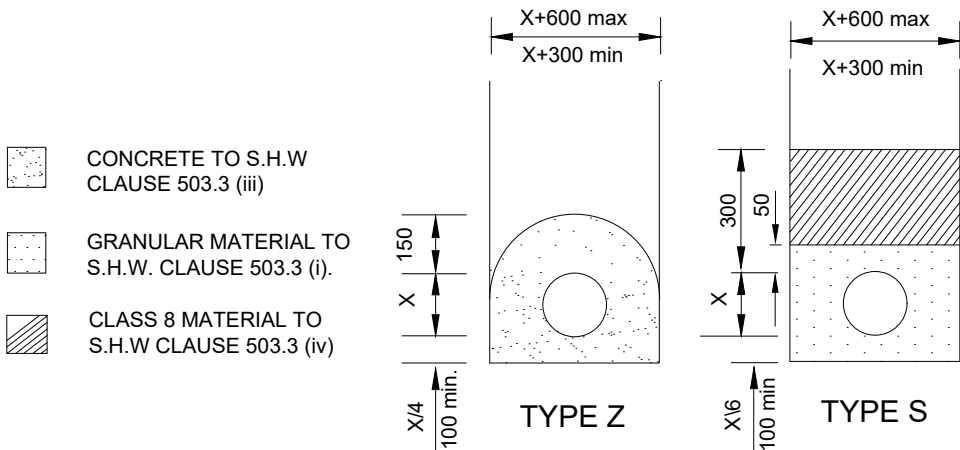
TYPICAL ACO Stombrix detail

OR SIMILAR APPROVED



DRAINAGE NOTES

- ALL NON ADOPTABLE DRAINS UP TO 150 Dia. TO BE 'POLYPIPE UPVC UNDERGROUND DRAIN' MANUFACTURED IN ACCORDANCE WITH BS EN 1401-1 OR EQUAL APPROVED.
- ALL NON ADOPTABLE DRAINS WITH A PIPE Dia of 225 or 300 TO BE EITHER A PLAIN WALLED PLASTIC PIPE TO BS 1401-1 (POLYSEWER) OR A STRUCTURED WALL PLASTIC PIPE TO WIS-04-35-01 'POLYSEWER'. OR EQUAL APPROVED
- ALL ADOPTABLE DRAINS UP TO 300 Dia. TO BE 'POLYSEWER' BY 'POLYPIPE' AND MANUFACTURED IN ACCORDANCE WITH THE WATER INDUSTRY SPECIFICATION WIS-4-35-01.
- DRAINAGE PIPEWORK 400mm to 600mm DIA TO BE 'RIDGIDRAIN' HDPE BY POLYPIPE OR EQUAL APPROVED.
- ALL PIPE LENGTHS NOT TO EXCEED 3m.
- DRAINS TO BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS.
- NEW INSPECTION CHAMBERS (IC) TO BE A MINIMUM OF 450MM DIA. EXCEPT FOR MINI ACCESS CHAMBERS WHICH MAY BE SMALLER, REFER TO M.H. SCHEDULE FOR ACTUAL SIZES.
- ALL EXTERNAL RAINWATER PIPES (RWP) TO BE TERMINATED AT RODDABLE GULLIES. INTERNAL RWP'S TO ARCHITECTS DETAILS BUT SHOULD ALLOW FOR RODDABLE ACCESS.
- FOR ALL DRAINAGE ABOVE GROUND FLOOR SLAB INCLUDING SETTING OUT FOR PENETRATIONS THROUGH THE GROUND FLOOR SLAB REFER TO ARCHITECTS DRAWING & SPECIFICATIONS
- ANY DRAINS PASSING THROUGH SUBSTRUCTURE WALLS TO HAVE A MINIMUM 50mm CLEAR SPACE, RC LINTEL SUPPORT ABOVE & CEMENT FIBRE COLLARS EITHER SIDE TO PREVENT VERMIN ENTRY
- ANY DRAINS CAST IN & PASSING THROUGH CONCRETE GROUND BEAMS TO HAVE A FLEXIBLE JOINT NOT MORE THAN 150mm FROM THE FACE OF THE GROUND BEAM. (FLEXIBLE JOINT TO MANUFACTURERS DETAILS) AND A MAXIMUM 600mm LONG ROCKER PIPER EITHER SIDE
- ANY ALTERATIONS TO DRAINAGE PROPOSED BY CONTRACTOR TO BE SUBMITTED TO ENGINEER FOR APPROVAL PRIOR TO COMMENCEMENT OF WORK ON SITE. ANY REVISIONS ARE ALSO SUBJECT TO THE APPROVAL OF THE LOCAL BUILDING INSPECTOR.
- ALL DRAINS RUNNING UNDER BUILDINGS TO HAVE A MINIMUM FALL OF 1:40 TOWARDS THE BUILDING EXTERIOR. PIPE TO BE ENCASED IN 100MM GRANULAR FILL.
- COVER LEVELS SHOWN ARE APPROXIMATE ONLY AND SHOULD BE ALTERED TO SUIT FINISHED SURFACE LEVELS.
- THE BEDDING SPECIFICATION FOR ALL ADOPTABLE DRAINS WHERE COVER IS GREATER THAN 1200mm SHALL BE TYPE 'S'...WHERE COVER IS LESS THAN 1200mm TYPE 'Z' SHALL BE USED
- THE DEVELOPER/CONTRACTOR MUST SELF VET AND CERTIFY THAT THE DESIGN CRITERIA, MATERIAL STANDARDS AND WORKMANSHIP SPECIFICATIONS FOR THE PROPOSED SEWERS ARE IN ACCORDANCE WITH THOSE SET OUT IN 'SEWERS FOR ADOPTION 7TH EDITION' PROPOSED COVER AND INVERT LEVELS TO BE CONFIRMED BY THE CONTRACTOR PRIOR TO ANY WORKS COMMENCING ONSITE



TYPICAL PIPE BED AND SURROUND DETAIL

P1	APR 26	FIRST ISSUE	GRE		
Rev	Date	Revision Details	By	Chkd	Appd

Cora^{iHt}

Client	LIDL GREAT BRITAIN Ltd				
Project	ROCHDALE				
Title	DRAINAGE ARRANGEMENT SHEET 2 of 3				
Drawing No.	16-3264-100				Revision P4
Scale	1:250 @ A1	Date	APRIL 2026		
Drawn	GRE	Chk	App		

BREAK TANK & BOOSTER SET SCHEDULE

ITEM	LOCATION	MAX. FLOW RATE (L/s)	MAX. PRESSURE (BAR)	ELECTRICAL DATA	POWER	MANUFACTURER/ MODEL
BS01	SLUICE	0.13	1.5	1 PHASE, 230V, 50Hz	0.35kW	ARROW VALVES LTD / BTMIDI-1L

1.00 BS01 SHALL BE PROVIDED WITH AN MIDBRA WALL MOUNTING BRACKET AND A BTDT3 STAINLESS STEEL DRIP TRAY.
2.00 CONTACT: MILLIE GRADY (ARROW VALVES LTD); TEL 01442 823 123

WATER CONDITIONER SCHEDULE

ITEM	LOCATION	MAKE	MODEL	ELECTRICAL DATA	POWER
HY01	UTILITY ROOM	HYDROTEC	HY-MAG-DN25	1 PHASE, 230V, 50Hz	31W

ELECTRIC WATER HEATER SCHEDULE

ITEM	LOCATION	ELECTRICAL DATA	RATED POWER	MANUFACTURER/ MODEL	ACCESSORIES
EWH01	SLUICE AREA	1 PHASE, 230V, IP24	3kW	HYCO - POWERFLOW SMART PF30LS	-
EWH02	STAFF WELFARE	1 PHASE, 230V, IP24D	1.2kW	HYCO - SPEEDFLOW SF15L1	SF7 KIT
EWH03	BAKERY	1 PHASE, 230V, IP24D	1.2kW	HYCO - SPEEDFLOW SF15L1	SF7 KIT
EWH04	CUSTOMER WC	1 PHASE, 230V, IP24D	1.2kW	HYCO - SPEEDFLOW SF15L1	SF7 KIT

FLOW LIMITING VALVE AND CARTRIDGE SCHEDULE

MANUFACTURER	TYPE	MODEL	LOCATION	MANUFACTURER/ MODEL	COMMENTS
ARROW VALVES LTD	VALVE	AFL15CL	ALL AREAS	-	15mm AFL VALVE COMP DZR NICKEL c/w LEVER
	CARTRIDGE	AFLC04	WHB'S	0.040	IDENTITY DISC COLOUR: PURPLE
	CARTRIDGE	AFLC07	KITCHEN SINK	0.070	IDENTITY DISC COLOUR: LIGHT GREY
	CARTRIDGE	AFLC10	REMAINING SINKS	0.100	IDENTITY DISC COLOUR: BLACK

1.00 CONTACT: MILLIE GRADY (ARROW VALVES LTD); TEL 01442 823 123

LEGEND

- (B) TMV3 BLENDING VALVE SET AT 40-43°C c/w CHECK VALVES AND STRAINERS.
- (SF) SENSOR FLUSH.
- (ST) SENSOR TAP.
- (M) WATER METER c/w PULSED OUTPUT WIRED BACK TO STORE BMS.
- SC - STOP COCK
- STR - STRAINER.
- SgV - SERVICE GATE VALVE.
- DOC - DRAIN OFF COCK.
- CV - CHECK VALVE.
- DCV - DOUBLE CHECK VALVE.
- IV - ISOLATING VALVE.
- SV - SOLENOID VALVE.
- DC - DC INTERRUPTER VALVE.
- HWS - HOT WATER SERVICE.
- MWS - MAINS WATER SERVICE.
- PRV - PRESSURE REDUCING VALVE

SgV (FL) - 15mm SERVICING VALVE WITH AUTOMATIC FLOW LIMITING CARTRIDGE LIMITING FLOW TO THE FOLLOWING:
WHB's - 0.048l/s
SINK's (KITCHEN SINK) - 0.08l/s
SINK's (BAKERY, CLEANERS) - 0.12l/s
URINAL - 2l/BOWL PER HOUR
WC's - 4lflush
DISHWASHER - 12l/cycle

NOTES

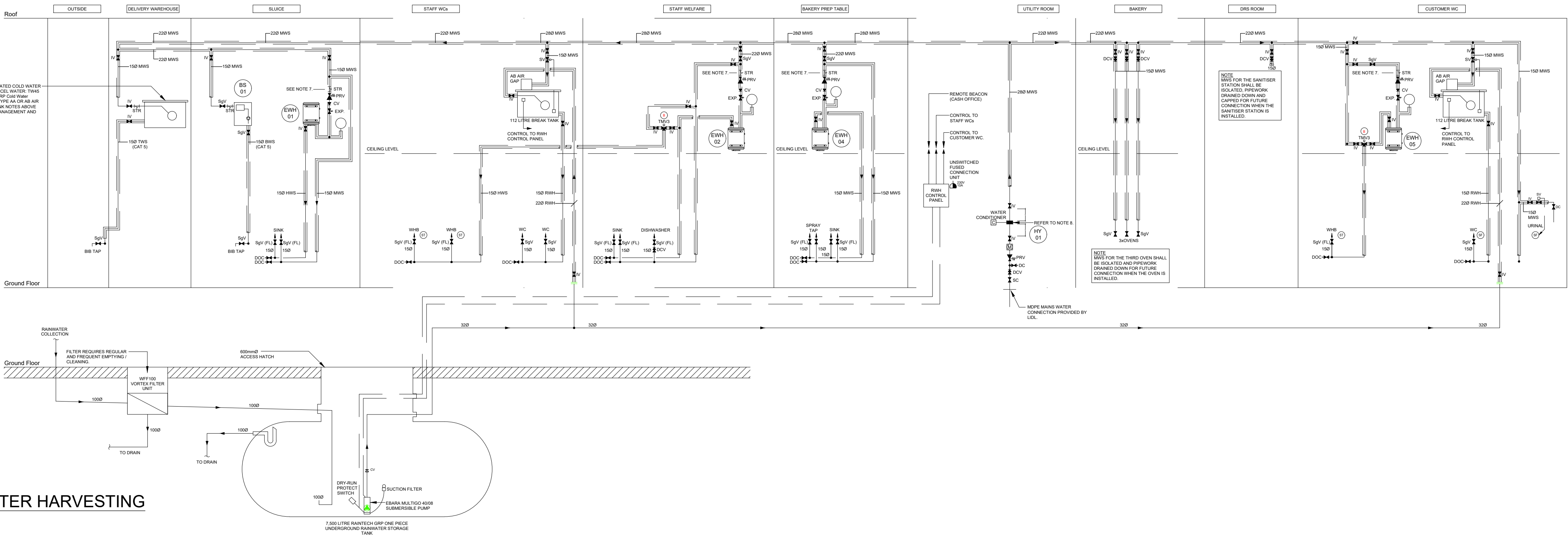
- ALL PIPEWORK TO BE INSULATED. CWS TO BE ADDITIONALLY VAPOUR SEALED.
- ALL PIPEWORK TO BE ENCLOSED SUPPLEMENTARY BONDING.
- ALL PIPE SIZES AND EQUIPMENT ARE INDICATIVE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CALCULATING ALL FINAL PLANT SELECTIONS AND EQUIPMENT SIZES.
- TAPS TO INCORPORATE SENSOR CONTROL AND TOILETS INFRA-RED FLUSHING CONTROL.
- CONTRACTOR SHALL ALLOW FOR THE INSTALLATION OF WATERLESS TRAPS ON ALL PRESSURE RELIEF PIPEWORK.
- ALL PENETRATIONS THROUGH FLOOR SLAB TO GROUND FLOOR TO BE FIRE SEALED.
- MAINS WATER COLD FILL TO ELECTRIC WATER HEATER TO INCLUDE MANUFACTURER'S UNVENTED KIT.
- REGIONS WHERE WATER HARDNESS IS GREATER THAN 10 DEGREE CLARK (OR 143 PPM) A PHYSICAL WATER CONDITIONER SHALL BE PROVIDED ON THE INCOMING MAIN. REFER TO PERFORMANCE SPECIFICATION FOR DETAILS.

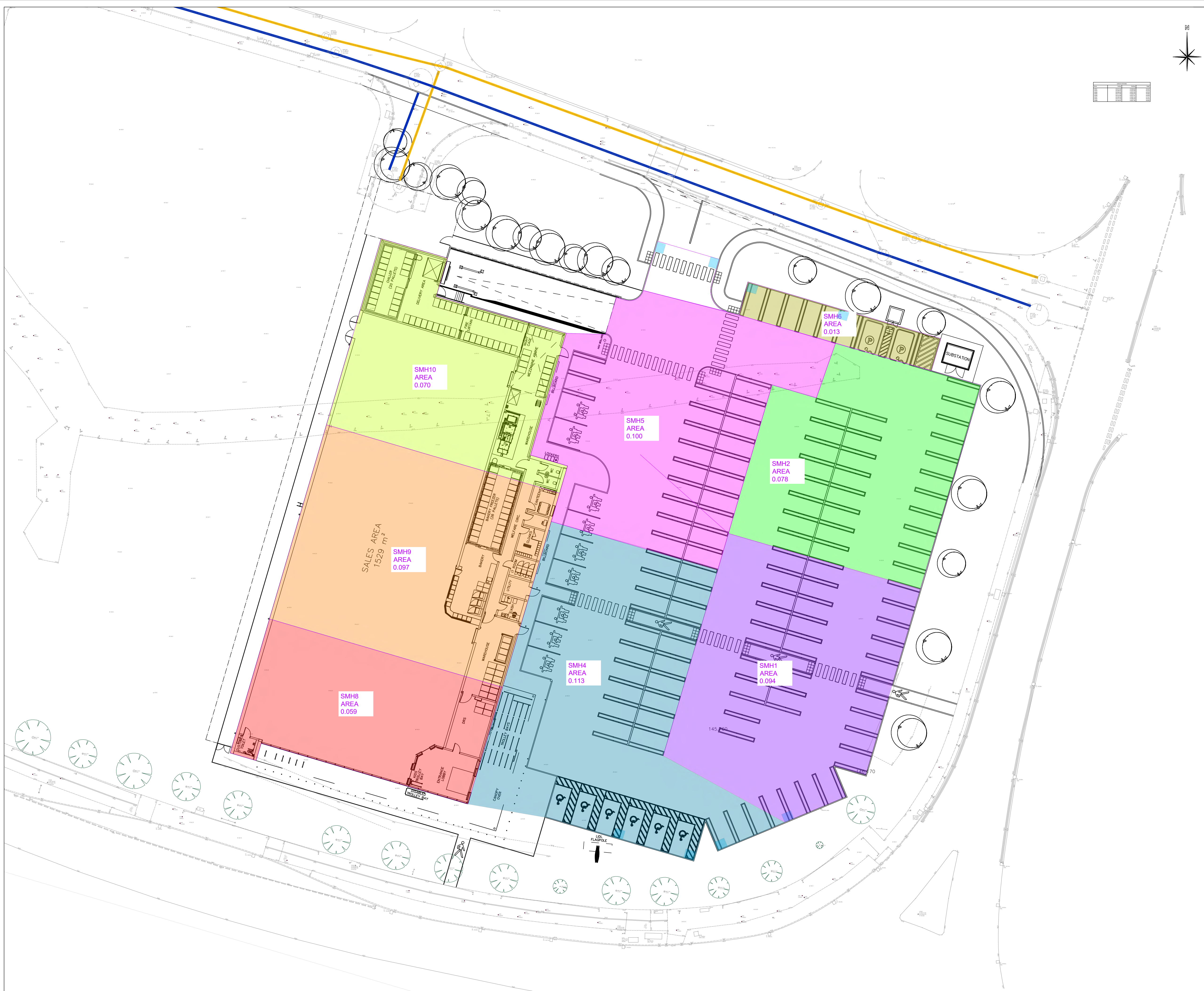
COLD WATER STORAGE TANK NOTES

- COLD WATER STORAGE TANKS MUST BE CONSTRUCTED FROM NON-DELETERIOUS MATERIALS WHICH MUST BE WRAS APPROVED.
- COLD WATER STORAGE TANKS SHALL BE DESIGNED AND INSTALLED IN ACCORDANCE WITH THE CURRENT WATER SUPPLY (WATER FITTINGS) REGULATIONS 1999. INSTALLED IN APPROPRIATE AND SUITABLE LOCATIONS TO ALLOW EASY AND SAFE ACCESS TO FACILITATE INSPECTION AND MAINTENANCE.
- COLD WATER STORAGE TANKS SHOULD BE PROTECTED FROM THE INGRESS OF LIGHT, INSECTS AND BIRDS.
- COLD WATER STORAGE TANKS SHOULD BE ARRANGED SO AS TO MINIMISE THE RETENTION TIME OF STORAGE WATER AND THEREFORE INCREASE THE RATE OF STORED WATER EXCHANGE.
- COLD WATER STORAGE TANKS SHOULD BE DESIGNED IN ORDER THAT THE STORED WATER IS MAINTAINED AT A TEMPERATURE OF <20°C.

RAINWATER HARVESTING NOTES

- SYSTEM TO BE DESIGNED, SUPPLIED INSTALLED AND COMMISSIONED IN FULL ACCORDANCE WITH BS EN 16941-1:2024.
- CONTRACTOR TO ENSURE ALL COMPONENTS (FILTERS, STORAGE TANKS, PUMPS, PIPEWORK, CONTROLS) ARE SIZED AND SPECIFIED TO SUIT SYSTEM DEMAND AND INTENDED USE (E.G. WC FLUSHING).
- NON-POTABLE PIPEWORK TO BE INSTALLED IN ACCORDANCE WITH BS EN 16941-1:2024 AND CLEARLY IDENTIFIED:
 - EXTERNALLY: USE BLACK PIPE WITH GREEN STRIPES AS PER BS 8515:2009+A1:2013.
 - INTERNALLY (ONCE INSULATED OR CONCEALED): PIPEWORK MUST BE LABELLED AT REGULAR INTERVALS, WITH PIPE MARKERS OR IDENTIFICATION TAPE INDICATING "NON-POTABLE - DO NOT DRINK," PER BS 1710 AND BS 8554 GUIDANCE.
- BACKFLOW PROTECTION TO BE PROVIDED TO FLUID CATEGORY 5 RISK IN ACCORDANCE WITH WATER SUPPLY (WATER FITTINGS) REGULATIONS 1999.
- STORAGE TANKS MUST BE VENTED, ACCESSIBLE FOR MAINTENANCE, AND INCLUDE OVERFLOW PROTECTION, AND FILTRATION AS PER STANDARD.
- ENSURE CLEAR SEPARATION BETWEEN POTABLE AND NON-POTABLE SYSTEMS; CROSS-CONNECTION IS PROHIBITED.
- CONTRACTOR TO ALLOW FOR COMMISSIONING AND SYSTEM TESTING, INCLUDING OVERFLOW CHECKS AND SYSTEM START-UP PROCEDURES.
- CONTRACTOR TO INCLUDE PROVISION FOR OPERATION & MAINTENANCE MANUALS, USER GUIDANCE, AND PERMANENT SYSTEM SIGNAGE AS PER STANDARD.
- CONTACT: PAUL MUNNS (GREENSHOP GROUP). TEL: 01452 772 000 EMAIL: paul@greenshopgroup.co.uk





KEY

P1	APR 26	FIRST ISSUE	CD	GRE	GRE
Rev	Date	Revision Details	By	Chkd	Appd
Cora iHt					
ClientLIDL GREAT BRITAIN Ltd					
ProjectROCHDALE					
TitleDRAINAGE AREA PLAN					
Drawing No.16-3264-101					RevisionP1
Scale	1:250 @ A1	Date	APRIL 2026		
Drawn	CD	Chk	GRE	App	GRE