

Westgate Mews, West End Southampton

Macra Ltd

LEVELS AND DRAINAGE TECHNICAL NOTE

TSH/TN/0985/7549
4th December 2025

MJA Consulting have been appointed by Macra Ltd to support with a detailed planning application for 8 residential dwellings. The development site is located off Westgate Mews, West End, Southampton, SO30 3RE. Access will be taken via an extension of the existing road known as Westgate Mews. The site is approximately 0.44 Ha in area. The proposed Site Layout is included in **Appendix A**.

This Technical Note has been produced to support a detailed planning application to Eastleigh Borough Council (EBC) in relation to drainage and flood risk. This Technical Note, along with the appendices, provides sufficient information to Hampshire County Council (HCC), as the Lead Local Flood Authority (LLFA) and statutory consultee for planning applications, and EBC to demonstrate the proposed development can be sustainably drained, in terms of foul and surface water, and that the site is not at risk of flooding nor will it increase flood risk to surrounding properties and land now and in the future.

Flood Risk Review

The site is located entirely within Flood Zone 1 and is defined as areas deemed to have less than a 1 in 1000 (0.1%) annual probability of flooding in any given year. Furthermore, even with consideration of the detrimental effects of climate change the site remains in Flood Zone 1 up to 2125. A desktop review of flood risk from all sources, as identified by National Planning Policy, has been undertaken with the results summarised in **Table 1** with flood maps provided (where available) in **Figures 1-4** below.

Table 1 – Flood Risk Summary

FLOOD RISK	ENVIRONMENT AGENCY FLOOD ZONE	Flood Zone 1 - Lowest Risk < 0.1% (<1:1000)
	FLUVIAL (RIVERS & WATERCOURSES)	Very Low Risk
	PLUVIAL (SURFACE WATER)	Very Low
	GROUNDWATER	Low Risk
	EXISTING/PROPOSED SEWERS & MAINS	Low Risk
	ARTIFICIAL	Negligible
	TIDAL	Flood Zone 1 - Lowest Risk < 0.1% (<1:1000)



Figure 1 – Flood Zone

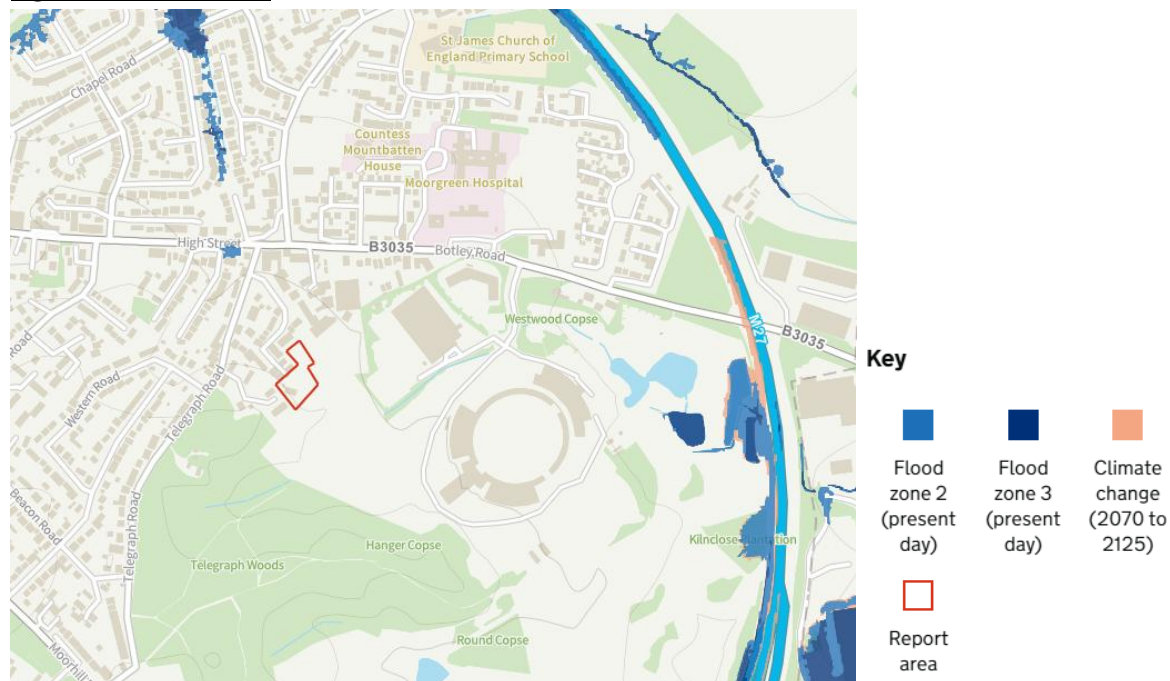


Figure 2 – Surface Water Flood Map

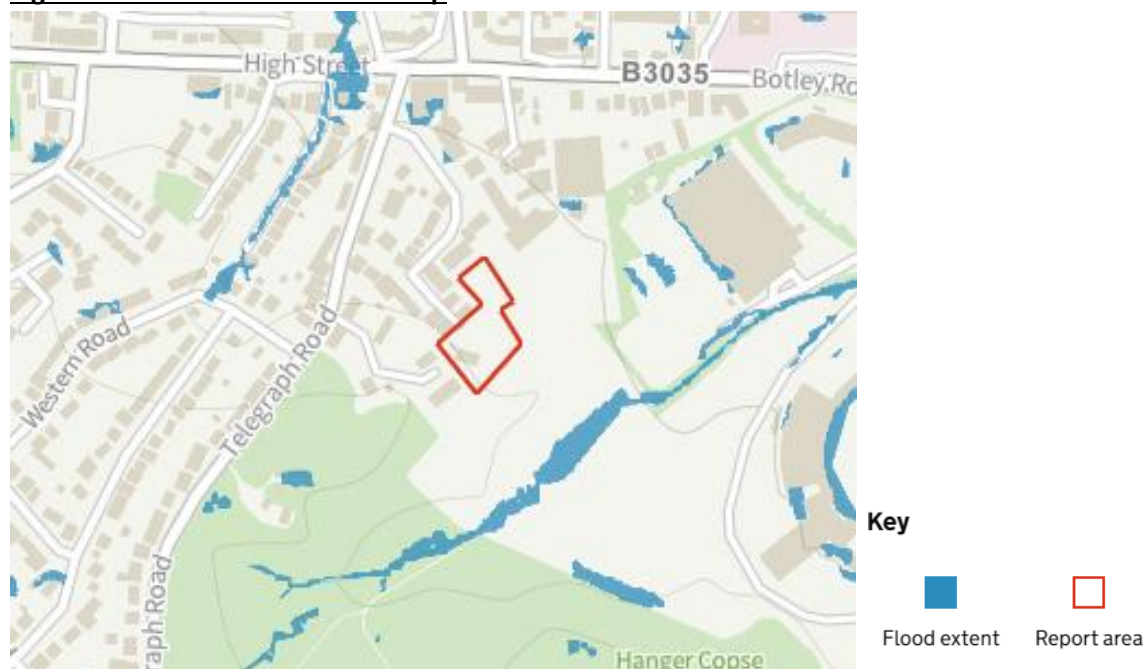


Figure 3 – Extract from Government Website Flood Risk Service - Groundwater

Groundwater
[More about your groundwater flood risk](#)

We use groundwater flood alert areas to check the risk of flooding from groundwater.

This location is outside of a groundwater flood alert area.

▼ [What this means](#)

This location is not part of a groundwater flood alert area. We do not monitor groundwater levels in this area.

There may still be a risk of groundwater flooding.

Based on the above extract and as the site is underlain with very clayey fine to medium sand and onsite infiltration testing failed it is unlikely that groundwater will be able to rise through this stratum to the surface to cause flooding. Therefore, risk of groundwater flooding is considered to be low.

Figure 4 – Extract from Government Website Flood Risk Service – Reservoir

Your selected location: Orchard Lodge, Kenilworth Gardens, West End, Southampton, SO30 3RE

This information tells you the flood risk of the land around a building, not the building itself.

Flooding from reservoirs is unlikely in this area.

How we check an area's risk

We use predicted scenarios to understand the risk of flooding from reservoirs.

Flooding from reservoirs is extremely unlikely. We have an excellent reservoir safety record in the UK.

An area is considered at risk if people's lives could be threatened in the event of a dam or reservoir failure. There has been no loss of life due to a reservoir failing in the UK since 1925.

As the site has a low risk of flooding from all sources and is also less than 1ha in area a Flood Risk Assessment is not required to support the planning application as stipulated by National Planning Policy.

National, Regional and Local Planning Policy

The National Planning Policy Framework (NPPF) provides national guidance to planning authorities, developers, the public, and the Environment Agency (EA), to ensure that flood risk is considered at all stages of the planning process.

The NPPF states that inappropriate development in areas at risk of flooding should be avoided by directing development away from areas at highest risk (whether existing or future). Where development is necessary in such areas, the development should be made safe for its lifetime without increasing flood risk elsewhere.

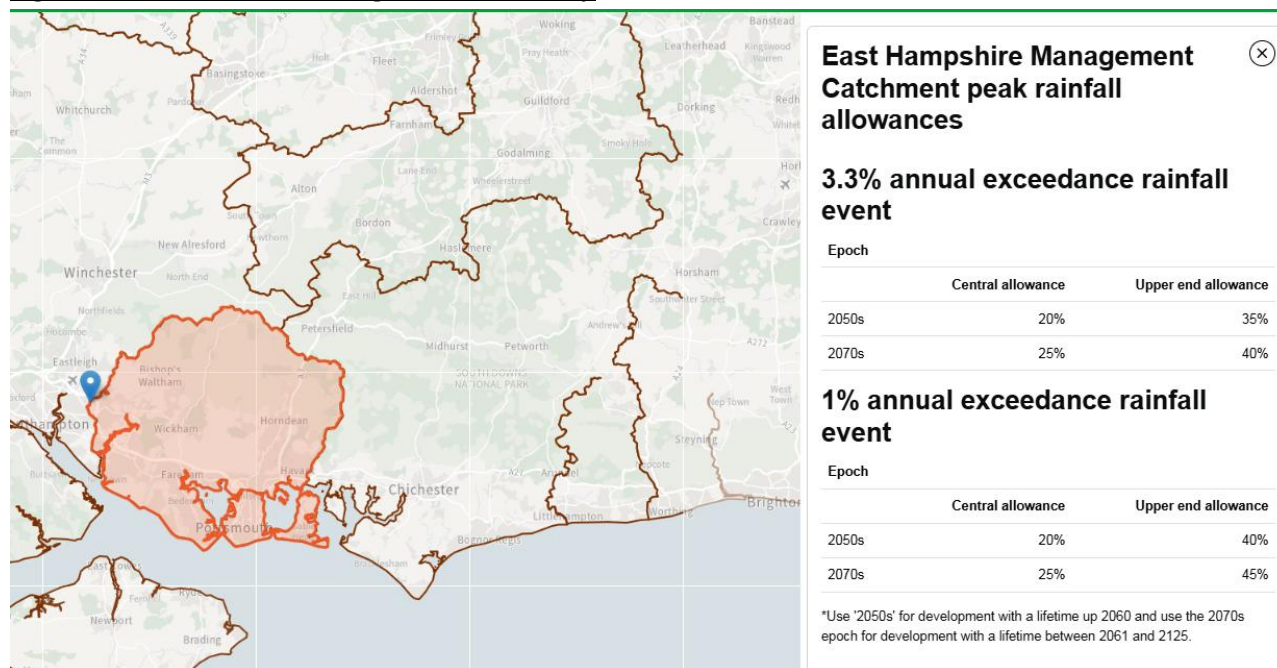
NPPF sets out a robust approach to the Sequential Test and is intended to provide a rigorous understanding of flood risk. Its aim is to steer new development to areas at the lowest probability of flooding (i.e., Flood Zone 1). The Sequential Test would normally be completed by the Local Planning Authority (LPA) to inform the preparation of the Local Development Framework (LDF). The Sequential Test requires that all sources of flooding are considered, which has been undertaken above. The site passes the Sequential Test.

Based on the most recent advice on climate change reported in NPPG, peak rainfall intensity, sea level, peak river flow, offshore wind speed and extreme wave heights are all expected to increase in the future. It is recommended that considerations for future climate change are included in Flood Risk Assessments for proposed developments.

The Environment Agency publish guidance on how to use climate change allowances in Flood Risk Assessments and Drainage Strategies. The Department for Environment and Rural Affairs has produced a Climate Change Allowance map for the country. The map provides information on the peak rainfall allowance depending on the Management Catchment the site relates to.

Having reviewed the Climate Change Allowance map the site lies within East Hampshire Management Catchment. **Figure 5** below summarises climate change allowances within this catchment.

Figure 5 – Defra Climate Change Allowance Map



The proposed surface water drainage strategy will be designed to cater for the upper allowance for the 2070s epoch, thus providing a suitable surface water drainage solution for the lifetime of the development. All events up to and including the 100 year + 45% climate change event will be catered for within the proposed system.

The proposed development complies with the National Planning Policy Framework (NPPF) in terms of flood risk and drainage as is demonstrated within this Technical Note.

Hampshire County Council (HCC) are the Lead Local Flood Authority (LLFA) for the region, and it is their responsibility for managing flood risk in the area. In 2011 HCC produced a Preliminary Flood Risk Assessment (PFRA) for the county to summarise preliminary flood risk.

The PFRA is a high-level overview of flood risk from a variety of and combination of flood sources including surface water, groundwater and ordinary water courses as well as the interaction with main rivers, the sea and reservoir flooding.

The PFRA has been reviewed in preparation of this Technical Note. There is no specific mention of historical flooding on or close to the site nor has the site been identified as a flood risk area.

HCC have also prepared a Flood and Water Management Strategy. The aim of the strategy is to set out how local flood risks will be managed in the county by the authorities involved and describes their approach in the form of a vision, a set of seven principles and tailored policies.

The vision of the council is to *“create a safer, more resilient Hampshire. Its priority is to protect people, homes and businesses and key infrastructure:*

- *Avoiding risks and managing water resources through effective planning and design;*
- *Preventing future flooding by reducing or removing existing risks;*
- *Adapting to flood risk in order to minimise the impact and enable normal life to return as soon as possible.”*

The Strategy has been reviewed in preparation of this Technical Note. The proposed development and surface water drainage strategy has been developed in accordance with HCC’s vision and complies with the Flood and Water Management Strategy.

Eastleigh Borough Council (EBC) as the Local Planning Authority have prepared a Local Plan for the period of 2016-2036, this was adopted in April 2022, and sets out the long-term vision and strategic context for managing and accommodating growth within the Borough.

The Local Plan has been reviewed as part of the preparation of this Technical Note. The Local Plan states that flooding is not likely to be a major issue in the plan period. However, there is reference to flooding within some of the Policies and some specific Policies relating to Flood Risk and Suds.

Policy DM3 states *“All development should be designed to adapt to the predicted climate change impacts for the Borough.*

- a. *To reduce the potential impacts of surface water flooding, sustainable drainage systems need to be implemented as part of an integrated SuDS strategy for the site in accordance with policy DM6 (Sustainable surface water management and watercourse management) and as part of the landscape framework for the site including green open space and green roofs where appropriate.”*

Policy DM5 relates specifically to flood risk and states *“Development will only be permitted within the areas at risk of flooding, now and in the future, as identified on the Environment Agency most recent flood maps and the Council’s Strategic Flood Risk Assessment provided that:*

- a. *it meets the sequential and exception test (where required) as outlined in Government guidance;*
- b. *a site-specific flood risk assessment demonstrates that the development, including the access, will be safe without increasing flooding elsewhere, and where possible, will reduce flood risk overall;*
- c. *the scheme incorporates flood protection, flood resilience and resistance measures appropriate to the character and biodiversity of the area and the specific requirements of the site and where appropriate takes advantage of opportunities to utilise natural flood management techniques;*

d. appropriate flood warning and evacuation plans are in place; and e. new site drainage systems are designed taking account of events which exceed the normal design standard. 2. Development should not increase flooding elsewhere. 3. Sustainable Drainage Systems (SuDS) must be designed in accordance with policy DM6.”

Policy DM6 states “New development (excluding extensions to dwellings and changes of use), will only be permitted if it incorporates Sustainable Drainage Systems (SuDS). Wherever feasible, naturalised filtration should be included within the treatment train as follows:

- a. On sites of 1 hectare or more, or within 100m of the River Itchen SAC or Solent Maritime SAC, SuDS schemes should include at least three forms of naturalised filtration. On sites within 100m of headwaters and tributaries draining into a SAC, SuDS schemes should include at least three forms of naturalised filtration unless hydrological studies and project-level Habitats Regulations Assessment demonstrate this to be unnecessary to protect the integrity of the SAC and its qualifying features;*
- b. On other sites of between 0.5 hectares and 1 hectare, SuDS schemes should include at least two forms of naturalised filtration; and*
- c. On other sites of less than 0.5 hectares non-naturalised SuDS e.g. permeable paving will be considered where justified.*

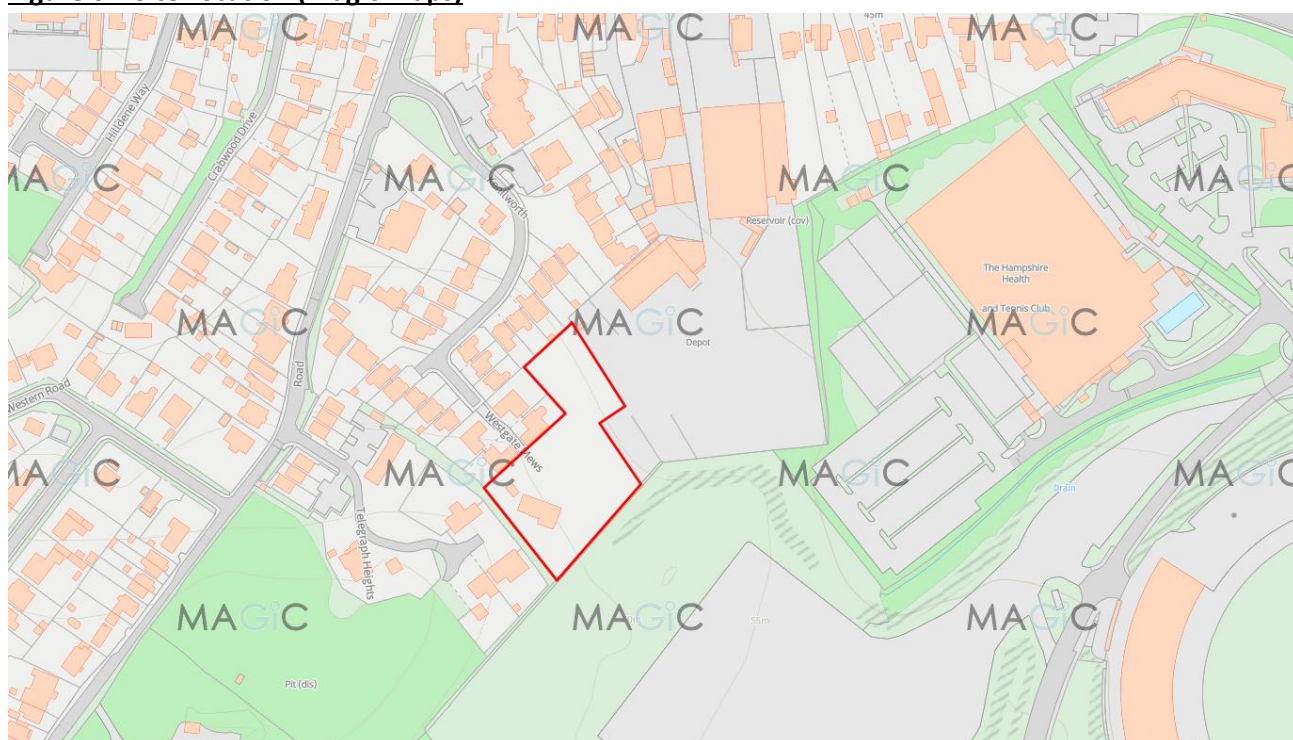
The Local Plan has been reviewed in preparation of this Technical Note. The proposed development and surface water drainage strategy has been developed in accordance with EBC’s policies and incorporates a suitable level of SuDS for the size of development (<0.5Ha).

Furthermore, it has been demonstrated that the site is not at risk of flooding, nor will it increase flood risk elsewhere and therefore it can be considered to comply with National, Regional and Local Planning Policy.

Surface Water Drainage Strategy

The site is located off Westgate Mews, West End, Southampton. There is an existing property on the site that will remain as part of the new development. Refer to **Figure 6** below for the site location.

Figure 6 – Site Location (Magic Maps)



There are no existing watercourses on or in close proximity to the site. The site falls steeply from the south western boundary to the north western boundary. There is an existing drainage system for the existing property on the site, but the remainder of the site is greenfield. Surface water flows that are not collected by the existing drainage system will fall towards the north eastern boundary, following the contours of the land, and beyond into the existing truck dealership known as Pitter Commercials Limited. **Appendix B** contains a topographical survey of the site.

The Building Regulations Document H (2015) details the appropriate hierarchy of potential methods for disposing surface water from a development:

1. A soakaway or some other adequate infiltration system, or where that is not practicable;
2. A watercourse, or where that is not possible;
3. A sewer.

Site investigation in the form of infiltration testing has been undertaken. Infiltration testing was undertaken in 2 locations within the site. Both trial pits reported a silty sandy clay topsoil layer of between 0.25m and 0.7m deep. The topsoil is underlain with very clayey fine to medium sand (marsh formation) up to 1.5m deep. Groundwater was not encountered in either pit.

Infiltration testing was attempted in both pits within the sand however the water only dropped by 20-25mm in 3 hours. The report concluded that an infiltrating drainage strategy would not be viable for this site. The full report including infiltration testing results is included in **Appendix C**.

As described above there are no watercourses on or in close proximity to the site so the only viable solution for disposing surface water from the development is to pump run off at a controlled rate to the existing public sewer in Kenilworth Gardens. Refer to **Appendix D** for Southern Water Sewer records.

The proposed surface water strategy includes permeable paving on the private drives, and the flatter sections of the main access road. Flows will be directed from roofs and driveways into the permeable paving sub-bases, where they will be partially treated and attenuated. Flows will be routed to an attenuation tank located in the lowest point of the site, before discharging to a surface water pump at a restricted rate of 3.8 l/s. The pump will pump flows into a new gravity sewer in Westgate Mews before connecting the existing the Southern Water sewer 2251. Refer to **Appendix E** for the Proposed Drainage Strategy.

The surface water attenuation tank has been modelled to ensure it can contain the surface water flows for the 100year + 45% climate change whilst maintaining a maximum discharge to the pump of 3.8 l/s. The Modelled Simulation Calculations have been included in **Appendix F**.

Foul Water Drainage Strategy

The proposed foul water drainage strategy is similar to the surface water strategy in that foul flows emanating from the development will be piped to a package pumping station. From here flows will be pumped to a gravity sewer in Westgate Mews before connecting the existing the Southern Water sewer 2202. Refer to **Appendix E** for the Proposed Drainage Strategy.

Levels and Retaining Strategy

Appendix G contains a preliminary levels design for the layout. Based on the current layout there will be a requirement for retaining features in the form of walls and concrete gravel boards to allow suitable garden and driveway gradients and tie in levels. Retaining walls may also be required along some of the boundaries. There will also be a requirement for steps into Plot 1 and the existing plot.

Appendices:

Appendix A: Site Layout

Appendix B: Topographical Survey

Appendix C: Site Investigation – Infiltration Testing

Appendix D: Southern Water Sewer Records

Appendix E: Proposed Drainage Strategy

Appendix F: Modelled Simulation Calculations

Appendix G: Proposed Levels and Retaining Wall Strategy

Appendix A: Site Layout

This drawing is copyright and the property of DMWA Ltd Chartered Architects. It may not be copied reproduced or altered in any way without their written authority.

All dimensions to be checked on site and any discrepancies reported to the Architect immediately. All structural and specialist elements/components/details, including glazing are to be approved by the Structural Engineer or Specialist Contractor.

HEALTH AND SAFETY

The proposed works are designed on a well established method of construction, which can be carried out by a competent contractor. However, should the contractor find any area of concern he must inform the designer immediately in order that appropriate action can be taken.

The site plan illustrates the proposed development at 24137 TPP-3, featuring units 01 through 08. The plan includes various annotations and a legend to guide the viewer.

Legend:

- TREES REMOVED
- RPA'S RETAINED TREES
- BUILDINGS REMOVED
- HEDGE REMOVED

Key Annotations:

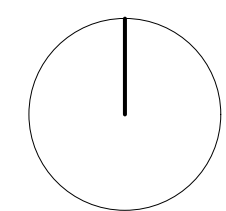
- Retaining Walls:**
 - EXISTING 4.2M WALL ON BOUNDARY WITH PITTER COMMERCIAL
 - PROPOSED CONTINUATION OF 4.2M WALL ON BOUNDARY WITH PITTER COMMERCIAL
 - New retaining wall between units 7 & 8
 - New retaining walls between Units 3, 4 & 5
 - New retaining walls between Existing and Unit 3
- Other Features:**
 - Carport for Unit 6
 - Units 01 through 08, including Unit 06 with a carport.
 - Various elevation points (e.g., +54.30, +54.67, +54.75, +54.76, +54.80, +54.82, +54.85, +54.90, +54.95, +55.00, +55.05, +55.10, +55.15, +55.20, +55.25, +55.30, +55.35, +55.40, +55.45, +55.50, +55.55, +55.60, +55.65, +55.70, +55.75, +55.80, +55.85, +55.90, +55.95, +56.00, +56.05, +56.10, +56.15, +56.20, +56.25, +56.30, +56.35, +56.40, +56.45, +56.50, +56.55, +56.60, +56.65, +56.70, +56.75, +56.80, +56.85, +56.90, +56.95, +57.00, +57.05, +57.10, +57.15, +57.20, +57.25, +57.30, +57.35, +57.40, +57.45, +57.50, +57.55, +57.60, +57.65, +57.70, +57.75, +57.80, +57.85, +57.90, +57.95, +58.00, +58.05, +58.10, +58.15, +58.20, +58.25, +58.30, +58.35, +58.40, +58.45, +58.50, +58.55, +58.60, +58.65, +58.70, +58.75, +58.80, +58.85, +58.90, +58.95, +59.00, +59.05, +59.10, +59.15, +59.20, +59.25, +59.30, +59.35, +59.40, +59.45, +59.50, +59.55, +59.60, +59.65, +59.70, +59.75, +59.80, +59.85, +59.90, +59.95, +60.00, +60.05, +60.10, +60.15, +60.20, +60.25, +60.30, +60.35, +60.40, +60.45, +60.50, +60.55, +60.60, +60.65, +60.70, +60.75, +60.80, +60.85, +60.90, +60.95, +61.00, +61.05, +61.10, +61.15, +61.20, +61.25, +61.30, +61.35, +61.40, +61.45, +61.50, +61.55, +61.60, +61.65, +61.70, +61.75, +61.80, +61.85, +61.90, +61.95, +62.00, +62.05, +62.10, +62.15, +62.20, +62.25, +62.30, +62.35, +62.40, +62.45, +62.50, +62.55, +62.60, +62.65, +62.70, +62.75, +62.80, +62.85, +62.90, +62.95, +63.00, +63.05, +63.10, +63.15, +63.20, +63.25, +63.30, +63.35, +63.40, +63.45, +63.50, +63.55, +63.60, +63.65, +63.70, +63.75, +63.80, +63.85, +63.90, +63.95, +64.00, +64.05, +64.10, +64.15, +64.20, +64.25, +64.30, +64.35, +64.40, +64.45, +64.50, +64.55, +64.60, +64.65, +64.70, +64.75, +64.80, +64.85, +64.90, +64.95, +65.00, +65.05, +65.10, +65.15, +65.20, +65.25, +65.30, +65.35, +65.40, +65.45, +65.50, +65.55, +65.60, +65.65, +65.70, +65.75, +65.80, +65.85, +65.90, +65.95, +66.00, +66.05, +66.10, +66.15, +66.20, +66.25, +66.30, +66.35, +66.40, +66.45, +66.50, +66.55, +66.60, +66.65, +66.70, +66.75, +66.80, +66.85, +66.90, +66.95, +67.00, +67.05, +67.10, +67.15, +67.20, +67.25, +67.30, +67.35, +67.40, +67.45, +67.50, +67.55, +67.60, +67.65, +67.70, +67.75, +67.80, +67.85, +67.90, +67.95, +68.00, +68.05, +68.10, +68.15, +68.20, +68.25, +68.30, +68.35, +68.40, +68.45, +68.50, +68.55, +68.60, +68.65, +68.70, +68.75, +68.80, +68.85, +68.90, +68.95, +69.00, +69.05, +69.10, +69.15, +69.20, +69.25, +69.30, +69.35, +69.40, +69.45, +69.50, +69.55, +69.60, +69.65, +69.70, +69.75, +69.80, +69.85, +69.90, +69.95, +70.00, +70.05, +70.10, +70.15, +70.20, +70.25, +70.30, +70.35, +70.40, +70.45, +70.50, +70.55, +70.60, +70.65, +70.70, +70.75, +70.80, +70.85, +70.90, +70.95, +71.00, +71.05, +71.10, +71.15, +71.20, +71.25, +71.30, +71.35, +71.40, +71.45, +71.50, +71.55, +71.60, +71.65, +71.70, +71.75, +71.80, +71.85, +71.90, +71.95, +72.00, +72.05, +72.10, +72.15, +72.20, +72.25, +72.30, +72.35, +72.40, +72.45, +72.50, +72.55, +72.60, +72.65, +72.70, +72.75, +72.80, +72.85, +72.90, +72.95, +73.00, +73.05, +73.10, +73.15, +73.20, +73.25, +73.30, +73.35, +73.40, +73.45, +73.50, +73.55, +73.60, +73.65, +73.70, +73.75, +73.80, +73.85, +73.90, +73.95, +74.00, +74.05, +74.10, +74.15, +74.20, +74.25, +74.30, +74.35, +74.40, +74.45, +74.50, +74.55, +74.60, +74.65, +74.70, +74.75, +74.80, +74.85, +74.90, +74.95, +75.00, +75.05, +75.10, +75.15, +75.20, +75.25, +75.30, +75.35, +75.40, +75.45, +75.50, +75.55, +75.60, +75.65, +75.70, +75.75, +75.80, +75.85, +75.90, +75.95, +76.00, +76.05, +76.10, +76.15, +76.20, +76.25, +76.30, +76.35, +76.40, +76.45, +76.50, +76.55, +76.60, +76.65, +76.70, +76.75, +76.80, +76.85, +76.90, +76.95, +77.00, +77.05, +77.10, +77.15, +77.20, +77.25, +77.30, +77.35, +77.40, +77.45, +77.50, +77.55, +77.60, +77.65, +77.70, +77.75, +77.80, +77.85, +77.90, +77.95, +78.00, +78.05, +78.10, +78.15, +78.20, +78.25, +78.30, +78.35, +78.40, +78.45, +78.50, +78.55, +78.60, +78.65, +78.70, +78.75, +78.80, +78.85, +78.90, +78.95, +79.00, +79.05, +79.10, +79.15, +79.20, +79.25, +79.30, +79.35, +79.40, +79.45, +79.50, +79.55, +79.60, +79.65, +79.70, +79.75, +79.80, +79.85, +79.90, +79.95, +80.00, +80.05, +80.10, +80.15, +80.20, +80.25, +80.30, +80.35, +80.40, +80.45, +80.50, +80.55, +80.60, +80.65, +80.70, +80.75, +80.80, +80.85, +80.90,

TREES REMOVED

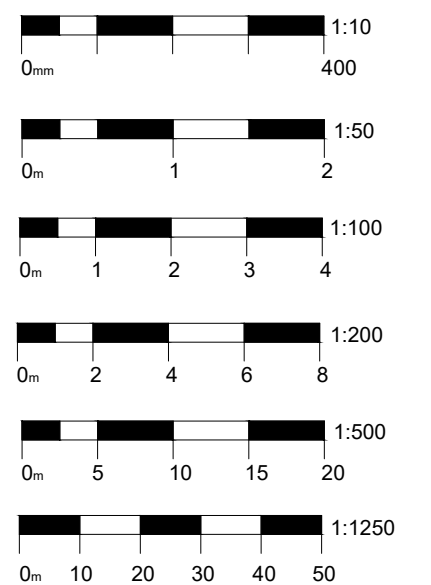
RPA'S RETAINED TREES

BUILDINGS REMOVED

HEDGE REMOVED



Proposed Site Plan
1:200



New retaining walls between
Units 3, 4 & 5

New retaining walls between
Existing and Unit 3

For tree protection and management proposals please refer to Barrell Tree Protection Plan 24137-TPP-3

Project: 5 Westgate Mews
Kenilworth Gardens
West End
Southampton SO30 3RE

Client: Macra Homes

Drawing Title: Site and Location

Job No: 240722
 Drawn: DW
 Date: 31.10.2025
 Scale: as indicated @ A1

Drawing No: PI 02

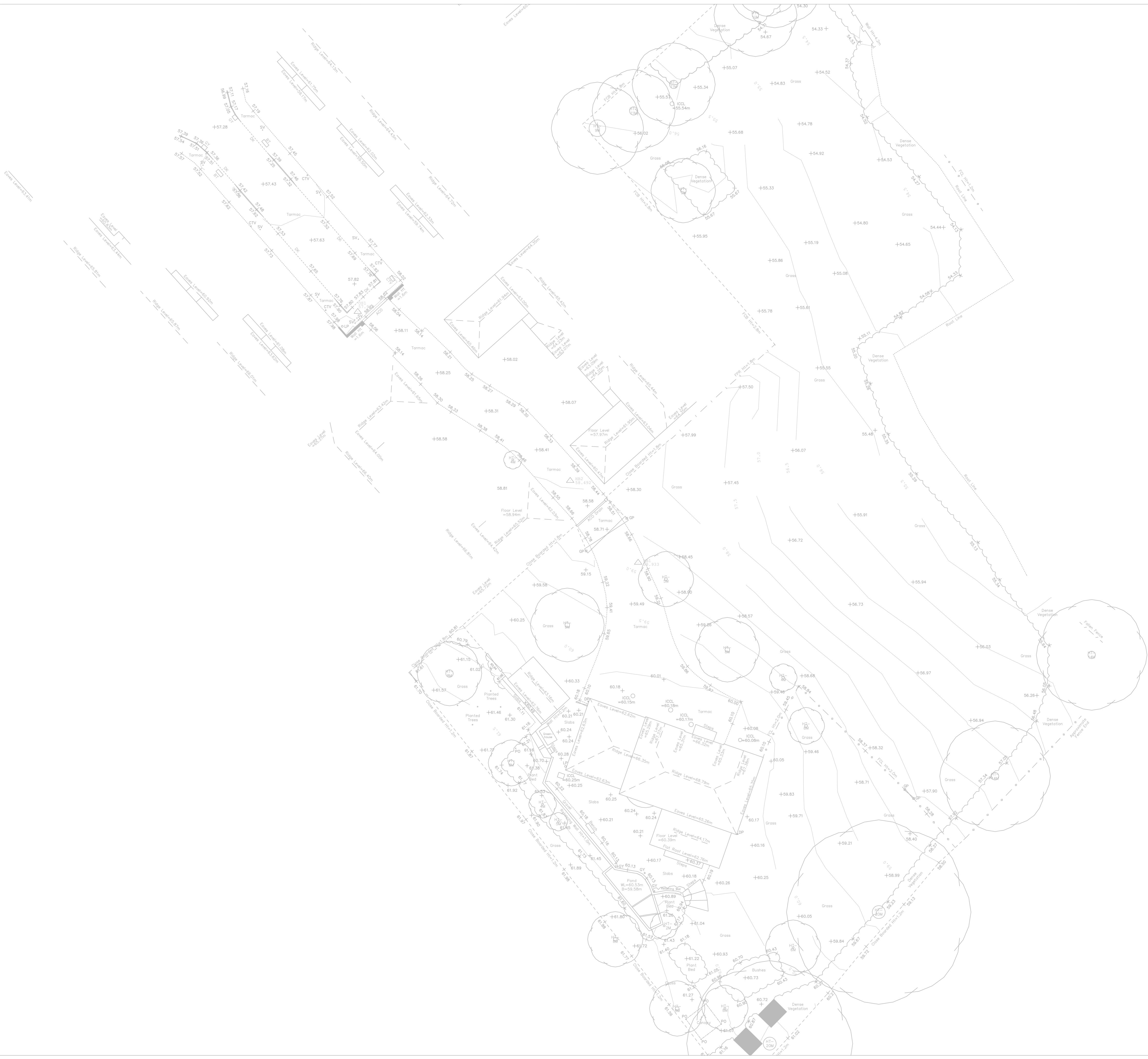
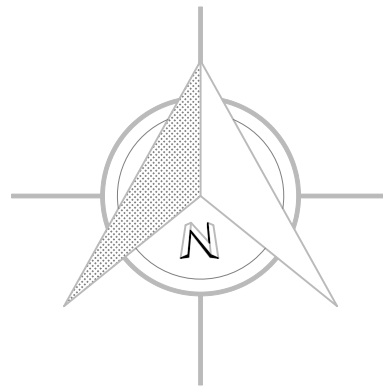
Rev: *

DMW
architects

41c East St, Wimborne, Dorset, BH21 1DX
01202 884024 www.dmwa.co.uk



Appendix B: Topographical Survey



AV	Air Vent	F	Frame Measurement
B	Bullseye	L	Level Measurement
BD	Black Drop Level	LC	Level Line
BN	Black Hole	MD	Manhole
BT	British Telecom Cover	LP	Lamp Post
CD	Cable Duct	MC	Manhole Cover
CL	Cable Level	MR	Manhole
CM	Cable Marker	MS	Manhole
CP	Catch Pit	NB	Notice Board
CR	Catch Pit	NP	Notice Plate
DP	Down Pipe	OC	Overhead Cable
EC	Electricity Cover	OSM	Ordnance Survey Bench Mark
EDT	Extent of Traces	P	Post
EP	Electricity Pole	PCM	Permanent Ground Marker
FEW	Barbed Wire Fence	PEAV	Excavation Point
FIS	Close Barbed Fence	PS	Ridge Post
FCL	Chain Link Fence	RE	Roading Eye
FDP	Close Piling Fence	RS	Road Sign
FEL	Finished Floor Level	RW	Retaining Wall
FI	Fire Hydrant	RWP	Road Work Pipe
FIM	Fire Hydrant Marker	SC	Spade
FIMM	Hot and cold fence	SV	Stop Valve
FIR	Iron Railings	SW	Stop Valve
FW	Intersecting Fence	TBM	Temporary Bench Mark
FL	Floor Level	TL	Traffic Light
FMS	Moist Ratings	TP	Telephone Post
FPL	Post and Rail Fence	TRAV	Traffic Paving
FW	Foot Water Main	UTL	Unable to locate
FWM	Foot Water Main	UTL	Unable to locate
GP	Gravel	W	Wall
GV	Gas Valve	WM	Water Main
H	Manhole	WV	Water Valve
HS	Spot Level		



UT = True Height

Survey Station

Service Lines			
Storm Sewer	--->>>150<<<---	Gas Trace	---Gas---
Foul Sewer	--->>>150<<<---	Water Trace	---Water---
Combined Sewer	--->>>150<<<---		
Overhead Cable	---Overhead_Cable---		
Electricity Trace	---Electric---		
Radio/BT Trace	---Radio---		

Station	Eastings	Northings	Level
101	411110	611110	54.30
102	411110	611110	54.30

NOTES
The survey is fixed to the Ordnance Survey National Grid (OSGB36) using Global Navigation Satellite System (GNSS) equipment.
Chilcote Engineering Services accepts no liability if this drawing is passed to a third party or used for a purpose other than originally intended.
All dimensions should be checked on site prior to proposed construction.
Whilst every effort has been made to survey all above ground features, there may have been items obscured/covered at the time of survey.

ISSUE	REVISION	DATE
-------	----------	------

PROJECT
Westgate Mews, West End, Southampton

TITLE
Topographical Survey

CLIENT
Macra Ltd.

TO BE READ IN CONJUNCTION WITH

SCALE: 1:200	DRAWING NUMBER: 00000000
DRAWN: HB	DATE: 05/07/24
CHECKED: OS	

CHILCOTE ENGINEERING SERVICES

YEW TREE FARM
CHILCOTE
SWADLINCOTE
DERBYS DE12 8DQ
TELEPHONE: (01283) 763249
E-Mail: info@chilcoteeng.co.uk

A1

Appendix C:
Site Investigation – Infiltration Testing

Macra Ltd
10 Monks Brook Ind Park
School Close
Chandlers Ford
Hampshire
SO53 4RA

☎ 01935 840 346

✉ richard@forgeeml.co.uk

🌐 www.forgeeml.co.uk

6th April 2024

For the attention of Matt Allsopp

Dear Matt

Re: 5 Westgate Mews, Kenilworth Gardens – Infiltration Testing

As instructed an engineer from Forge EML attended the above site on the 26th March 2024 and undertook two infiltration tests at the locations indicated on the attached plan.

Summary of Site Works

As shown on the attached logs the test pits, which were dug to 1.5m and 1.7m bgl, revealed below the topsoil, which was up to 0.7m thick, a predominantly very clayey fine to medium SAND.

No Groundwater was encountered in either of the holes.

Infiltration Results

Water was placed in the pits so the time for it to drain away could be recorded in accordance with the requirements of BRE365 to determine the time for it drop between 25% and 75%. However, as can be seen from the attached record sheets and the table below although the soils were a sand due to the high clay content it did not readily permit the passage of water so the water levels only drop around 20mm in about three hours.

Summary of the Infiltration Test Results

Trial Pit	Depth to Base (m)	Depth to Standing water (m)	Depth of Added Water (m)	Total Water Level Drop (m)	Total Time Taken (min)	Infiltration Rate (m/s)
SA01						
Test Round 1	1.500	dry	0.380	0.025	180	N/A
SA02						
Test Round 1	1.700	dry	0.330	0.020	150	N/A

Conclusion

Based upon the results of the test undertaken on the 26th March 2024 it is not considered a soakaway drainage design would be suitable for the discharge of surface water from the site.

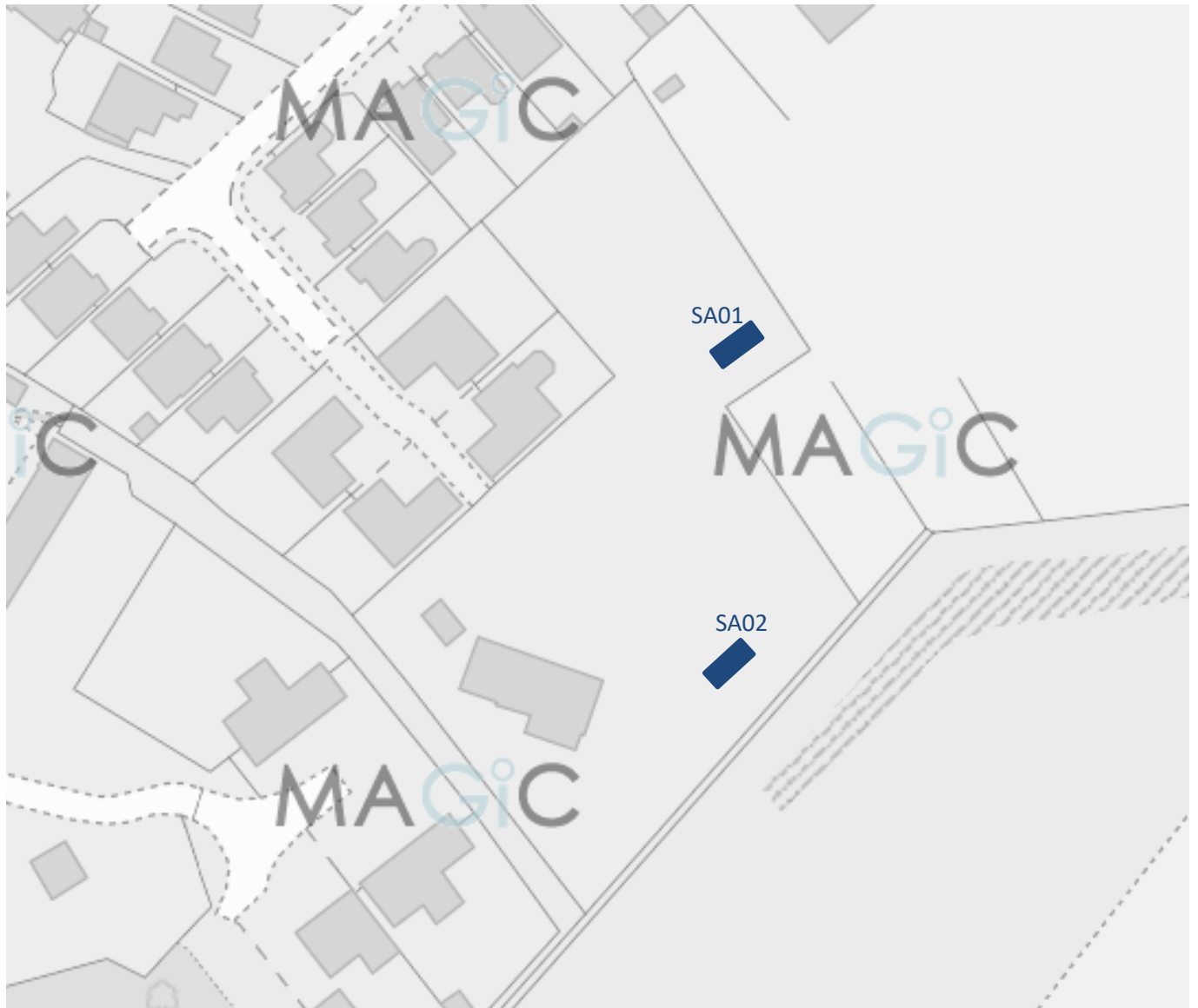
I hope the above and attached are sufficiently detailed but if you have any queries or would like to discuss the results further then please do not hesitate to contact me.

Yours sincerely



Richard Blaney
for Forge Environmental Management Ltd

encl.



KEY

 Soakaway trial pit position

PROJECT 5 Westgate Mews, Kenilworth Gardens, Southampton	CLIENT Macra Ltd	Date : 26 th March 2024	 FORGE Environmental Management Ltd The Forge Lower Vagg Chilthorne Domer Yeovil Somerset BA21 3PY Tel : 01935 840 346
		Scale : Not To Scale	
DRAWING TITLE Soakaway test pit locations		DRAWING No. ORC460.S/sk01	

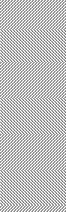
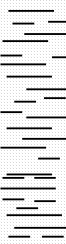


PLATE 1 – Infiltration Test Pit SA01 and arisings



PLATE 2 – Digging test pit SA02

Issue No	A	Dug by		Logged by	RB	Approved by	RB
 Forge Environemntal Management Ltd The Forge, Lower Vagg, Chilthorne Domer, Yeovil, Somerset. BA21 3PY Tel : 01935 840346						Trial Pit No. SA02	
Project 5 Westgate Mews, Kenilworth Road, West End, Southampton							
Job No	ORC460.S		Date	26th March 2027		Ground Level	
						Co-Ordinates	
						Depth	1.7
Client Macra Ltd						Method/Plant 5T tracked 360	Sheet 1 of 1

STRATA					SAMPLES & TESTS			Field Records
Water	Level (mOD)	Legend	Depth (thickness)	Strat Description	Depth	Type No	Test Result	
			(0.700)	Dark brown soft silty sandy CLAY				
			0.70	TOPSOIL				
			(0.700_	Orange /yellow very clayey fine to medium SAND				
			1.40	MARSH FORMATION				
				Light yellow/light grey slightly gravelly silty fine SAND				
				MARSH FORMATION				
				BASE OF TRIAL PIT				

GENERAL REMARKS

- 1 No groundwater encountered
- 2 Trial was stable whilst open



Borehole No: SA01	Length [m]: 1.30
Test No: 1	Depth [m]: 1.50
Date: 26th March 2024	Width [m]: 0.70
Logged by: RB	Groundwater [m bgl]:

Time	Water Depth
[min]	[m bgl]
0	1.120
1	1.120
2	1.120
3	1.120
4	1.120
5	1.120
6	1.120
7	1.120
8	1.120
9	1.120
10	1.120
15	1.120
30	1.125
45	1.130
60	1.130
90	1.135
120	1.140
150	1.145
180	1.145

The plot displays the relationship between time and water depth during a soakage test. The x-axis represents time in minutes, ranging from 0 to 1500. The y-axis represents the depth to water in meters below ground level (m bgl), ranging from 0.000 to -2.000. The data points (Readings) show a steady increase in depth over time, starting at 1.120 m bgl at 0 minutes and reaching 1.145 m bgl at 180 minutes. The extrapolation line (red) continues this trend, showing a linear increase in depth over time. The groundwater level (solid blue line) is constant at approximately -1.120 m bgl. The bottom of the trial pit is at -1.500 m bgl. The 25%, 50%, and 75% infiltration levels are shown as dashed lines at approximately -1.250, -1.375, and -1.500 m bgl, respectively.

Soil Infiltration Rate $[m/s]$: n/a

Remarks: Result could not be calculated. Soakage test failed.



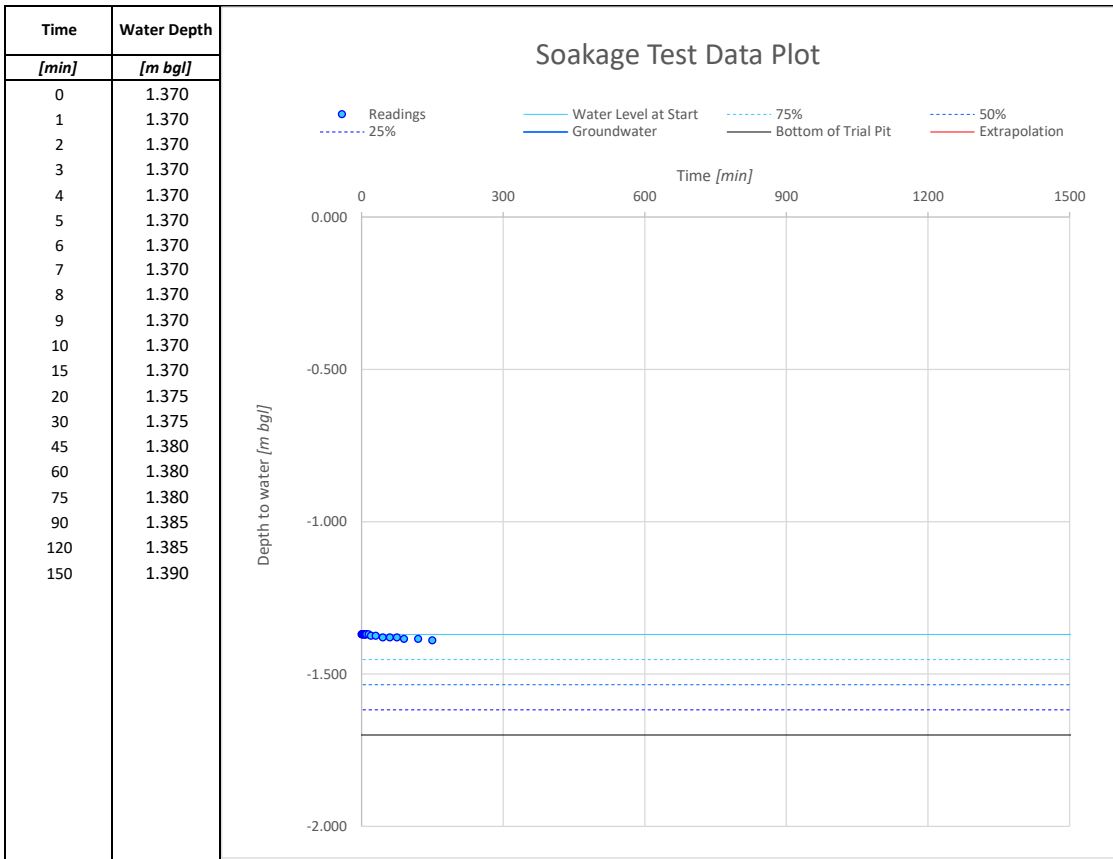
SOIL INFILTRATION RATE

Client: Macra
Project Title: 5 Westgate Mews, Kenilworth Gardens, Southampton
Project No: ORC460.S

Borehole No: SA01
Test No: 1
Date: 26th March 2024
Logged by: RB

Length [m]: 1.40
Depth [m]: 1.70
Width [m]: 0.70
Groundwater [m bgl]:

Ground	Conditions	from - to [m bgl]		Description
		0.00	0.70	Topsoil
		0.70	1.40	Very clayey fine to medium SAND
		1.40	1.70	Slightly gravelly, silty fine SAND



Soil Infiltration Rate [m/s]:
$$f = \frac{V_{p75-25}}{a_{s50} \times t_{p75-25}}$$

with:

V_{p75-25} as Effective Storage Volume of water between 75% and 25% effective storage depth [m³] **0.16**

a_{s50} as Internal Surface Area of the soakage trial pit up to 50% storage depth including the base area [m²] **1.67**

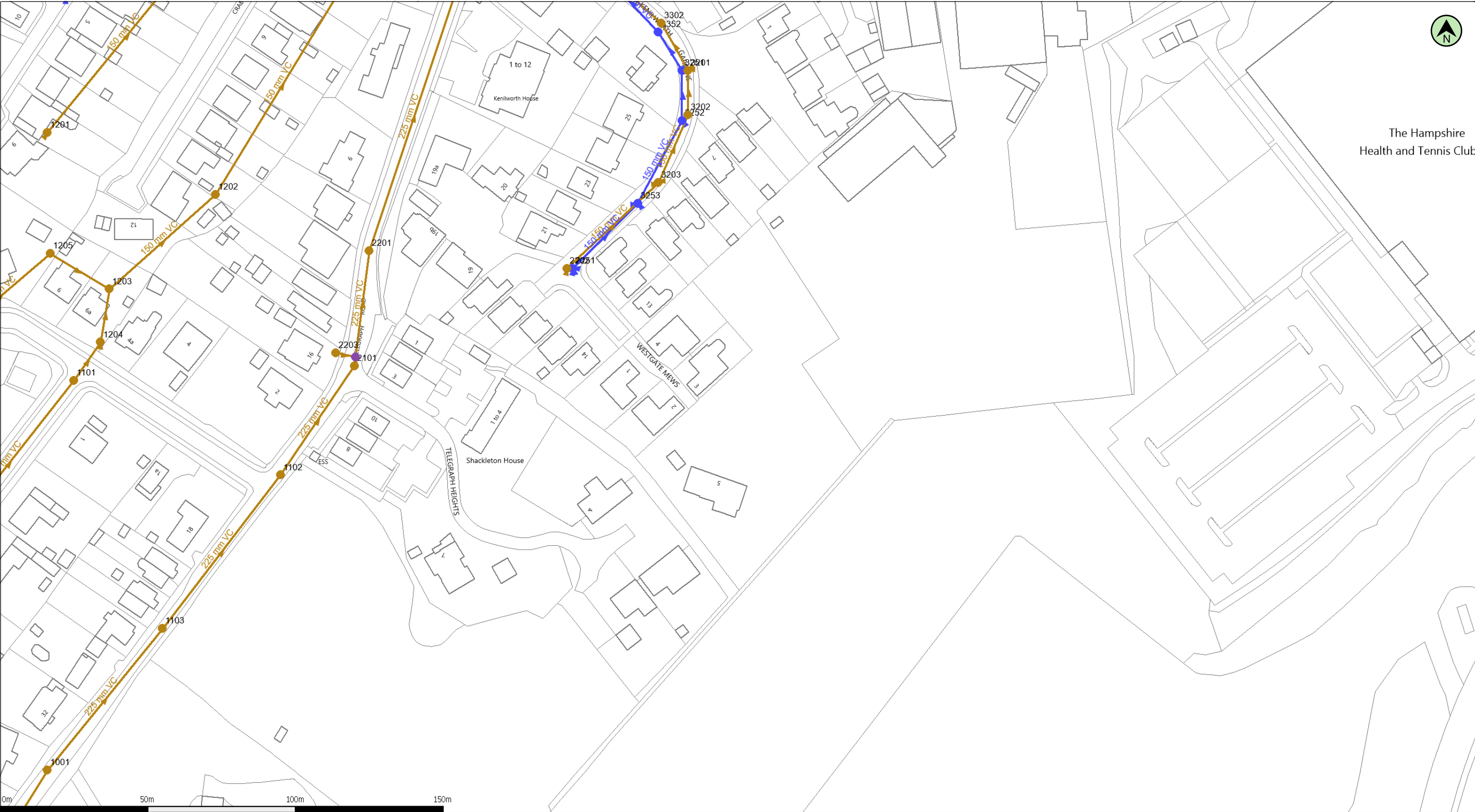
t_{p75-25} as Time for the water level to fall from 75% to 25% effective storage depth [s] **n/a**

Soil Infiltration Rate [m/s]: **n/a**

Remarks: Result could not be calculated. Soakage test failed.



Appendix D:
Southern Water Sewer Records



(c) Crown copyright and database rights 2025 Ordnance Survey AC0000808122 Date: 03/04/25 Scale: 1:1250 Map Centre: 447347,114184 Data updated: 20/03/25 Our Ref: 1735383 - 2 Wastewater Plan A3
Powered by digdat

The positions of pipes shown on this plan are believed to be correct, but Southern Water Services Ltd accept no responsibility in the event of inaccuracy. The actual positions should be determined on site. This plan is produced by Southern Water Services Ltd (c) Crown copyright and database rights 2025 Ordnance Survey AC0000808122. This map is to be used for the purposes of viewing the location of Southern Water plant only. Any other uses of the map data or further copies is not permitted.

WARNING: BAC pipes are constructed of Bonded Asbestos Cement.

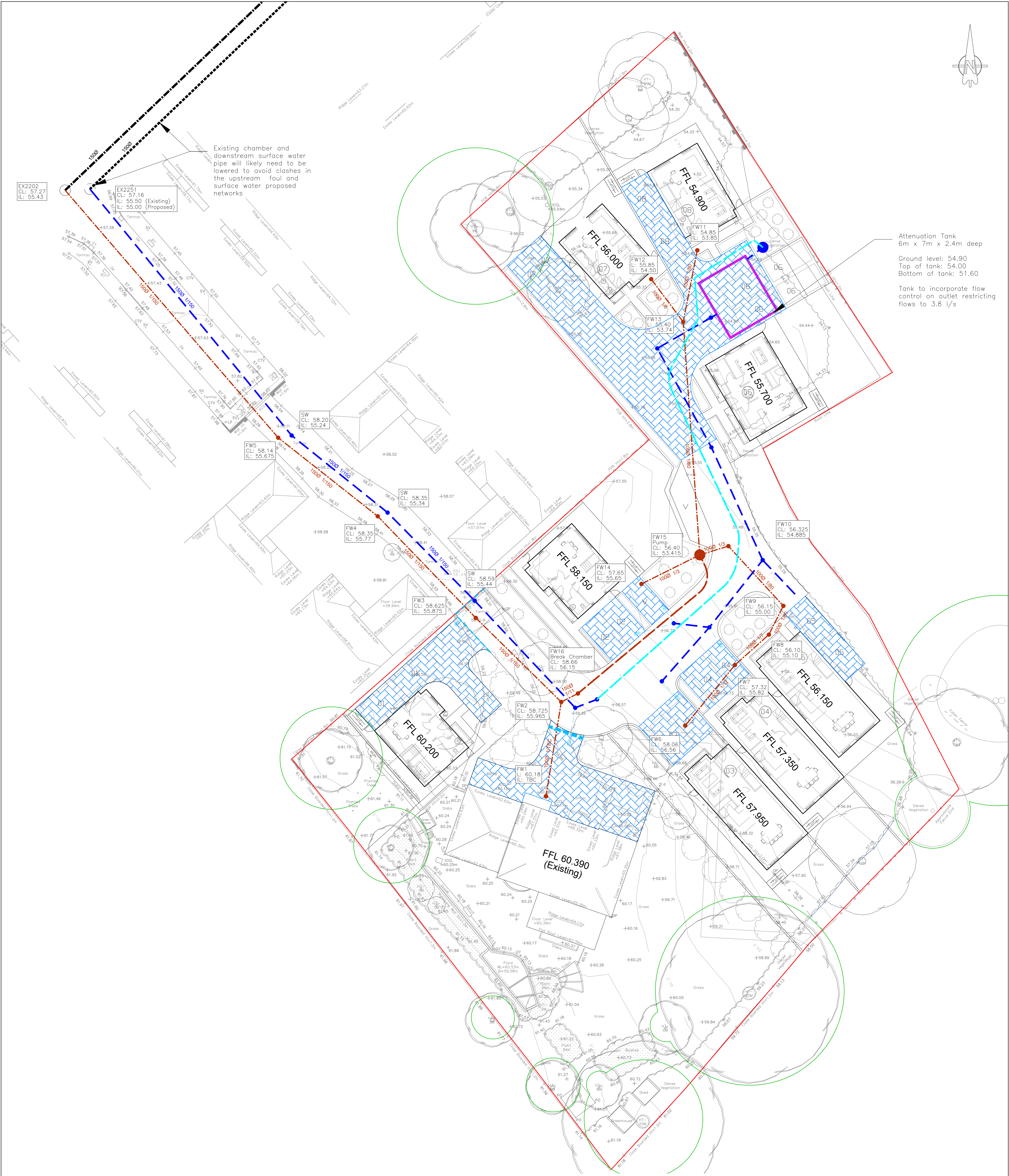
WARNING: Unknown (UNK) materials may include Bonded Asbestos Cement.

 Foul Gravity Sewer	 Combined Gravity Sewer	 Culverted Water Course or Treated Effluent	 Surface Water Gravity Sewer
 Rising Main, Vacuum or Syphon	 Combined Outfall	 Surface Water Outfall	 Surface Water Inlet
 Combined Pumping Station	 Foul Manhole	 Water Treatment Works	 Side Entry Manhole, Demarcation Chamber, Dummy Manhole or Surface Water Soakaway
 Surface Water Pumping Station	 Combined Manhole	 Section 104 Area	
 Foul Pumping Station		 Building Over Agreement Area	

duncan@cornerstoneprojects.co.uk
SO30 3RE



Appendix E:
Proposed Drainage Strategy



Notes:

- Do not scale from this drawing.
- All dimensions in metres unless stated otherwise.
- All levels relate to ordnance datum.
- This drawing shall be read in conjunction with all other contract documents.
- Any discrepancies with the drawings shall be reported to the Engineer.
- Design levels are based on information provided by others, MJA accept no responsibility for any inaccuracies. All existing levels and pipe sizes are to be confirmed on site prior to works commencing.
- Final route of rising mains and extent of permeable paving to be confirmed at detailed design stage when proposed services designs are confirmed.
- All RWPs from houses, garages and carports to discharge into permeable paving. Exact locations to be confirmed at detailed design stage.

Key

- Proposed Foul Water Sewer
- Proposed Foul Water Inspection Chamber (450mmØ)
- Proposed Foul Water Pump Chamber
- Proposed Foul Water Rising Main
- Proposed Surface Water Sewer
- Proposed Surface Water Chamber
- Proposed Permeable Paving
- Proposed Diffuser Unit (permeable paving outlet/inlet)
- Proposed Surface Water Pump
- Proposed Surface Water Rising Main
- Proposed Channel Drain
- Proposed Attenuation Tank
- Proposed Finished Floor Level
- Existing Public Foul Water Sewer
- Existing Public Surface Water Sewer

P2	04.12.25	Amended to suit pump designer input		TH	TSH
P1	20.11.25	First Issue		TH	TSH
REV. No.	DATE	DESCRIPTION		DRAWN	CHECKED
Client		Macra Ltd		MJA CONSULTING CIVIL & STRUCTURAL ENGINEERS  Ipsium Court, 24 The Quadrant, Abingdon Science Park, Abingdon Oxon, OX14 3YS Tel: 01235 555173 Email: mail@mjaconsulting.co.uk	
Project		Westgate Mews West End			
Title		Proposed Indicative Drainage Strategy			
Scale:		1:200 @ A1		Status: PRELIMINARY	
Drawn:		Project Engineer		MJA Project No:	
TH		TSH		7549	
Date:		20/11/2025			
Drawing Number:		7549-MJA-SW-XX-DR-C-002			
Rev:		P2			

Appendix F:
Modelled Simulation Calculations

MJA Consulting					Page 1
Ipsum Court, 24 The Quadrant Abingdon Science Park Abingdon, OX14 3YS		Westgate Mews West End Surface Water			
Date 20/11/2025 13:06 File 7549 - West End Tank.SRCX		Designed by TH Checked by TSH			
Innovyze		Source Control 2020.1.3			
Summary of Results for 100 year Return Period (+45%)					
Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m³)	Status
15 min Summer	52.695	1.095	2.4	46.0	O K
30 min Summer	53.036	1.436	2.7	60.3	O K
60 min Summer	53.358	1.758	3.0	73.8	O K
120 min Summer	53.434	1.834	3.0	77.0	O K
180 min Summer	53.416	1.816	3.0	76.3	O K
240 min Summer	53.371	1.771	3.0	74.4	O K
360 min Summer	53.289	1.689	2.9	70.9	O K
480 min Summer	53.218	1.618	2.9	67.9	O K
600 min Summer	53.155	1.555	2.8	65.3	O K
720 min Summer	53.097	1.497	2.8	62.9	O K
960 min Summer	52.992	1.392	2.7	58.5	O K
1440 min Summer	52.809	1.209	2.5	50.8	O K
2160 min Summer	52.579	0.979	2.3	41.1	O K
2880 min Summer	52.382	0.782	2.3	32.9	O K
4320 min Summer	51.983	0.383	2.3	16.1	O K
5760 min Summer	51.824	0.224	2.3	9.4	O K
7200 min Summer	51.754	0.154	2.2	6.5	O K
8640 min Summer	51.719	0.119	2.0	5.0	O K
10080 min Summer	51.697	0.097	1.9	4.1	O K
15 min Winter	52.831	1.231	2.5	51.7	O K
30 min Winter	53.219	1.619	2.9	68.0	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)	
15 min Summer	138.857	0.0	48.7	25	
30 min Summer	92.629	0.0	64.9	39	
60 min Summer	59.016	0.0	82.8	68	
120 min Summer	33.580	0.0	94.2	124	
180 min Summer	24.150	0.0	101.6	180	
240 min Summer	19.124	0.0	107.3	212	
360 min Summer	13.785	0.0	116.0	274	
480 min Summer	10.957	0.0	122.9	342	
600 min Summer	9.184	0.0	128.8	410	
720 min Summer	7.959	0.0	133.9	480	
960 min Summer	6.361	0.0	142.7	618	
1440 min Summer	4.657	0.0	156.8	890	
2160 min Summer	3.430	0.0	173.2	1296	
2880 min Summer	2.777	0.0	186.9	1684	
4320 min Summer	2.087	0.0	210.7	2340	
5760 min Summer	1.724	0.0	232.2	3000	
7200 min Summer	1.503	0.0	252.9	3680	
8640 min Summer	1.352	0.0	273.1	4408	
10080 min Summer	1.244	0.0	293.1	5136	
15 min Winter	138.857	0.0	54.5	25	
30 min Winter	92.629	0.0	72.7	39	
©1982-2020 Innovyze					

MJA Consulting					Page 2
Ipsium Court, 24 The Quadrant Abingdon Science Park Abingdon, OX14 3YS		Westgate Mews West End Surface Water			
Date 20/11/2025 13:06 File 7549 - West End Tank.SRCX		Designed by TH Checked by TSH			
Innovyze		Source Control 2020.1.3			
Summary of Results for 100 year Return Period (+45%)					
Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m³)	Status
60 min Winter	53.591	1.991	3.1	83.6	O K
120 min Winter	53.698	2.098	3.2	88.1	O K
180 min Winter	53.699	2.099	3.2	88.2	O K
240 min Winter	53.658	2.058	3.2	86.4	O K
360 min Winter	53.557	1.957	3.1	82.2	O K
480 min Winter	53.466	1.866	3.0	78.4	O K
600 min Winter	53.377	1.777	3.0	74.7	O K
720 min Winter	53.293	1.693	2.9	71.1	O K
960 min Winter	53.136	1.536	2.8	64.5	O K
1440 min Winter	52.861	1.261	2.5	52.9	O K
2160 min Winter	52.515	0.915	2.3	38.4	O K
2880 min Winter	52.106	0.506	2.3	21.2	O K
4320 min Winter	51.771	0.171	2.2	7.2	O K
5760 min Winter	51.697	0.097	1.9	4.1	O K
7200 min Winter	51.683	0.083	1.7	3.5	O K
8640 min Winter	51.675	0.075	1.5	3.1	O K
10080 min Winter	51.669	0.069	1.4	2.9	O K
Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)	
60 min Winter	59.016	0.0	92.7	66	
120 min Winter	33.580	0.0	105.5	122	
180 min Winter	24.150	0.0	113.8	178	
240 min Winter	19.124	0.0	120.2	230	
360 min Winter	13.785	0.0	129.9	288	
480 min Winter	10.957	0.0	137.7	364	
600 min Winter	9.184	0.0	144.3	442	
720 min Winter	7.959	0.0	150.0	518	
960 min Winter	6.361	0.0	159.9	666	
1440 min Winter	4.657	0.0	175.6	956	
2160 min Winter	3.430	0.0	194.0	1384	
2880 min Winter	2.777	0.0	209.4	1732	
4320 min Winter	2.087	0.0	236.0	2296	
5760 min Winter	1.724	0.0	260.0	2936	
7200 min Winter	1.503	0.0	283.2	3672	
8640 min Winter	1.352	0.0	305.9	4368	
10080 min Winter	1.244	0.0	328.3	5024	
©1982-2020 Innovyze					

MJA Consulting		Page 3																																																						
Ipsium Court, 24 The Quadrant Abingdon Science Park Abingdon, OX14 3YS	Westgate Mews West End Surface Water																																																							
Date 20/11/2025 13:06 File 7549 - West End Tank.SRCX	Designed by TH Checked by TSH																																																							
Innovyze		Source Control 2020.1.3																																																						
<u>Rainfall Details</u> <table> <tr><td>Rainfall Model</td><td>FEH</td></tr> <tr><td>Return Period (years)</td><td>100</td></tr> <tr><td>FEH Rainfall Version</td><td>2013</td></tr> <tr><td>Site Location</td><td>GB 447362 114193 SU 47362 14193</td></tr> <tr><td>Data Type</td><td>Point</td></tr> <tr><td>Summer Storms</td><td>Yes</td></tr> <tr><td>Winter Storms</td><td>Yes</td></tr> <tr><td>Cv (Summer)</td><td>0.750</td></tr> <tr><td>Cv (Winter)</td><td>0.840</td></tr> <tr><td>Shortest Storm (mins)</td><td>15</td></tr> <tr><td>Longest Storm (mins)</td><td>10080</td></tr> <tr><td>Climate Change %</td><td>+45</td></tr> </table> <u>Time Area Diagram</u> Total Area (ha) 0.187 <table> <thead> <tr> <th>Time (mins)</th> <th>Area (ha)</th> <th>Time (mins)</th> <th>Area (ha)</th> <th>Time (mins)</th> <th>Area (ha)</th> </tr> <tr> <th>From:</th> <th>To:</th> <th>From:</th> <th>To:</th> <th>From:</th> <th>To:</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>4</td> <td>0.063</td> <td>4</td> <td>8</td> <td>0.062</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td>8</td> <td>12</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td>0.062</td> </tr> </tbody> </table>			Rainfall Model	FEH	Return Period (years)	100	FEH Rainfall Version	2013	Site Location	GB 447362 114193 SU 47362 14193	Data Type	Point	Summer Storms	Yes	Winter Storms	Yes	Cv (Summer)	0.750	Cv (Winter)	0.840	Shortest Storm (mins)	15	Longest Storm (mins)	10080	Climate Change %	+45	Time (mins)	Area (ha)	Time (mins)	Area (ha)	Time (mins)	Area (ha)	From:	To:	From:	To:	From:	To:	0	4	0.063	4	8	0.062					8	12						0.062
Rainfall Model	FEH																																																							
Return Period (years)	100																																																							
FEH Rainfall Version	2013																																																							
Site Location	GB 447362 114193 SU 47362 14193																																																							
Data Type	Point																																																							
Summer Storms	Yes																																																							
Winter Storms	Yes																																																							
Cv (Summer)	0.750																																																							
Cv (Winter)	0.840																																																							
Shortest Storm (mins)	15																																																							
Longest Storm (mins)	10080																																																							
Climate Change %	+45																																																							
Time (mins)	Area (ha)	Time (mins)	Area (ha)	Time (mins)	Area (ha)																																																			
From:	To:	From:	To:	From:	To:																																																			
0	4	0.063	4	8	0.062																																																			
				8	12																																																			
					0.062																																																			
©1982-2020 Innovyze																																																								

MJA Consulting		Page 4																																																																																																			
Ipsum Court, 24 The Quadrant Abingdon Science Park Abingdon, OX14 3YS	Westgate Mews West End Surface Water																																																																																																				
Date 20/11/2025 13:06 File 7549 - West End Tank.SRCX	Designed by TH Checked by TSH																																																																																																				
InnovyzeSource Control 2020.1.3																																																																																																					
Model Details Storage is Online Cover Level (m) 54.900 Tank or Pond Structure Invert Level (m) 51.600 <table><tr><th>Depth (m)</th><th>Area (m²)</th><th>Depth (m)</th><th>Area (m²)</th><th>Depth (m)</th><th>Area (m²)</th></tr><tr><td>0.000</td><td>42.0</td><td>2.400</td><td>42.0</td><td>2.401</td><td>0.0</td></tr></table> Hydro-Brake® Optimum Outflow Control Unit Reference MD-SHE-0072-3800-3000-3800 Design Head (m)3.000 Design Flow (l/s)3.8 Flush-Flo™Calculated ObjectiveMinimise upstream storage ApplicationSurface Sump AvailableYes Diameter (mm)72 Invert Level (m)51.600 Minimum Outlet Pipe Diameter (mm)100 Suggested Manhole Diameter (mm)1200 <table><tr><th>Control Points</th><th>Head (m)</th><th>Flow (l/s)</th></tr><tr><td>Design Point (Calculated)</td><td>3.000</td><td>3.8</td></tr><tr><td>Flush-Flo™</td><td>0.313</td><td>2.3</td></tr><tr><td>Kick-Flo®</td><td>0.645</td><td>1.9</td></tr><tr><td>Mean Flow over Head Range</td><td>-</td><td>2.8</td></tr></table> The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated <table><tr><th>Depth (m)</th><th>Flow (l/s)</th><th>Depth (m)</th><th>Flow (l/s)</th><th>Depth (m)</th><th>Flow (l/s)</th><th>Depth (m)</th><th>Flow (l/s)</th></tr><tr><td>0.100</td><td>1.9</td><td>1.200</td><td>2.5</td><td>3.000</td><td>3.8</td><td>7.000</td><td>5.6</td></tr><tr><td>0.200</td><td>2.3</td><td>1.400</td><td>2.7</td><td>3.500</td><td>4.1</td><td>7.500</td><td>5.8</td></tr><tr><td>0.300</td><td>2.3</td><td>1.600</td><td>2.8</td><td>4.000</td><td>4.3</td><td>8.000</td><td>6.0</td></tr><tr><td>0.400</td><td>2.3</td><td>1.800</td><td>3.0</td><td>4.500</td><td>4.6</td><td>8.500</td><td>6.2</td></tr><tr><td>0.500</td><td>2.2</td><td>2.000</td><td>3.1</td><td>5.000</td><td>4.8</td><td>9.000</td><td>6.4</td></tr><tr><td>0.600</td><td>2.0</td><td>2.200</td><td>3.3</td><td>5.500</td><td>5.0</td><td>9.500</td><td>6.5</td></tr><tr><td>0.800</td><td>2.1</td><td>2.400</td><td>3.4</td><td>6.000</td><td>5.3</td><td></td><td></td></tr><tr><td>1.000</td><td>2.3</td><td>2.600</td><td>3.6</td><td>6.500</td><td>5.5</td><td></td><td></td></tr></table>			Depth (m)	Area (m²)	Depth (m)	Area (m²)	Depth (m)	Area (m²)	0.000	42.0	2.400	42.0	2.401	0.0	Control Points	Head (m)	Flow (l/s)	Design Point (Calculated)	3.000	3.8	Flush-Flo™	0.313	2.3	Kick-Flo®	0.645	1.9	Mean Flow over Head Range	-	2.8	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	0.100	1.9	1.200	2.5	3.000	3.8	7.000	5.6	0.200	2.3	1.400	2.7	3.500	4.1	7.500	5.8	0.300	2.3	1.600	2.8	4.000	4.3	8.000	6.0	0.400	2.3	1.800	3.0	4.500	4.6	8.500	6.2	0.500	2.2	2.000	3.1	5.000	4.8	9.000	6.4	0.600	2.0	2.200	3.3	5.500	5.0	9.500	6.5	0.800	2.1	2.400	3.4	6.000	5.3			1.000	2.3	2.600	3.6	6.500	5.5		
Depth (m)	Area (m²)	Depth (m)	Area (m²)	Depth (m)	Area (m²)																																																																																																
0.000	42.0	2.400	42.0	2.401	0.0																																																																																																
Control Points	Head (m)	Flow (l/s)																																																																																																			
Design Point (Calculated)	3.000	3.8																																																																																																			
Flush-Flo™	0.313	2.3																																																																																																			
Kick-Flo®	0.645	1.9																																																																																																			
Mean Flow over Head Range	-	2.8																																																																																																			
Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)																																																																																														
0.100	1.9	1.200	2.5	3.000	3.8	7.000	5.6																																																																																														
0.200	2.3	1.400	2.7	3.500	4.1	7.500	5.8																																																																																														
0.300	2.3	1.600	2.8	4.000	4.3	8.000	6.0																																																																																														
0.400	2.3	1.800	3.0	4.500	4.6	8.500	6.2																																																																																														
0.500	2.2	2.000	3.1	5.000	4.8	9.000	6.4																																																																																														
0.600	2.0	2.200	3.3	5.500	5.0	9.500	6.5																																																																																														
0.800	2.1	2.400	3.4	6.000	5.3																																																																																																
1.000	2.3	2.600	3.6	6.500	5.5																																																																																																
©1982-2020 Innovyze																																																																																																					

Appendix G:
Proposed Levels & Retaining Strategy

