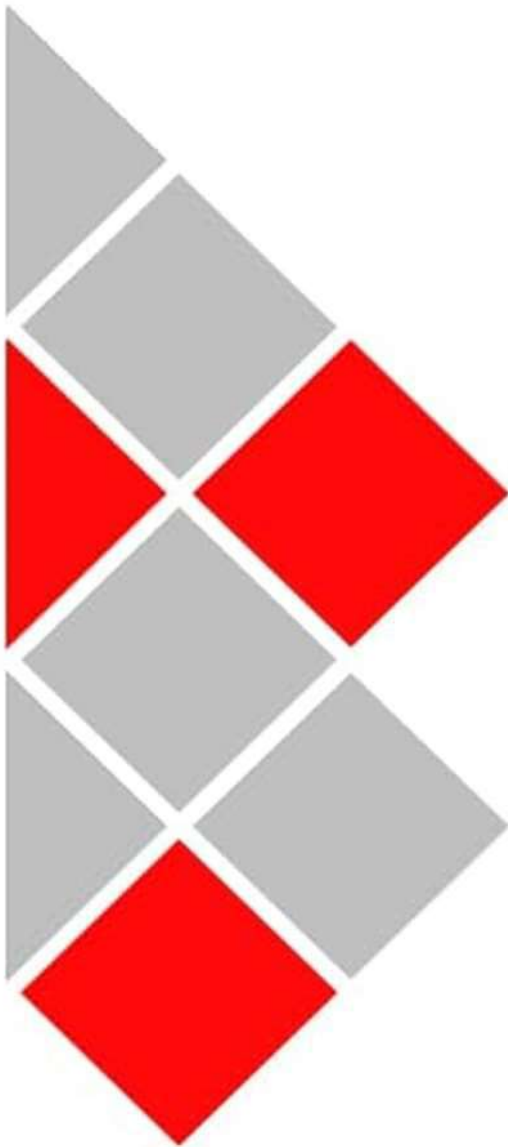


WARD COLE

consulting engineers

Document:	Flood Risk Assessment and Drainage Strategy		
Project Name:	Mixed Use Retail and Residential Development, Morrisons, High Street, Yiewsley		
Client:	Harbourside Investments Ltd		
Project Reference:	10/4897		
Date of First Issue:	December 2022	Rev:	B
Engineer:	D. Mutepfa	Checking Engineer:	W. E. Hansard



SCHEDULE OF REVISIONS

REVISION	ISSUE DATE	DESCRIPTION
A	04-01-2023	Attenuation tank and flow control chamber added upstream of proposed soakaway.
B	31-07-2023	Revised to address LLFA consultation comments.

1. Introduction

- 1.1 Background
- 1.2 Location
- 1.3 Site Description & Current Usage
- 1.4 Site Proposals
- 1.5 The Sequential Test

2. Potential Sources of Flooding

- 2.1 Fluvial Flooding
- 2.2 Surface Water Flooding
- 2.3 Flooding due to Existing Sewers
- 2.4 Groundwater Flooding
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3. Proposed Development

- 3.1 Proposed Development
- 3.2 Flood Mitigation Measures

4. Pre-Planning Consultation

- 4.1 Environment Agency
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- 4.3 Canal & River Trust

5. Drainage Strategy

- 5.1 Existing Drainage
- 5.2 Proposed Foul Water Drainage Solution
- 5.3 Sustainable Drainage Systems
- 5.4 Proposed SUDS Solution

6. Conclusion

Appendices

- A – Site Location Plan
- B – Topographical Survey Plan
- C – CCTV Drainage Survey Report
- D – Thames Water Sewer Record Map
- E – Proposed Drainage Strategy Plan
- F – Preliminary MicroDrainage SW Drainage Simulation Results
- G – Consultation Responses
- H – Soakaway Test Results

1 Introduction

1.1 Background

Ward Cole Consulting Engineers were commissioned to prepare a flood risk assessment and drainage strategy report for proposed redevelopment of the Morrisons site in Yiewsley, West Drayton. This report accompanies the planning application for the demolition of the existing buildings and the redevelopment of the site to provide a retail and residential mixed use scheme. The site will be developed to provide a replacement Morrisons foodstore, with residential accommodation provided above. This is a re-submission of updated proposals previously granted planning permission in August 2019 (application ref: 2370/APP/2018/2793).

In terms of the Town and Country Planning (Development Management Procedure) (England) Order 2015, the Local Planning Authority must consult the Lead Local Flood Authority (LLFA) with regard to surface water drainage on all planning applications for major development. It is noted that the National Planning Policy Framework only requires site-specific FRAs for development sites in Flood Zone 1 that are 1 ha or more, or that are less than 1 ha but have critical drainage problems, neither of which is the case for this site.

1.2 Location

The project site is located on the High Street in Yiewsley in the London Borough of Hillingdon. It is bounded by High Street to the east, St Matthews Primary School to the northwest and St Stephen's Road to the west and south. Grand Union Canal flows parallel to and just beyond St Stephen's Road (*see Appendix A*).

The National Grid Reference of the approximate centre of the site is 506047, 180347.

1.3 Site Description & Current Usage

The proposed development site is irregular shaped, approximately 0.52 ha in extent. The existing Morrisons supermarket building occupies approximately 2630m² of the site area with the rest comprising car parking and a service yard with some trees and planting around the fringes. More than 98% of the site area is hardstanding or buildings, with green areas less than 80m². The building includes basement car parking.

The supermarket fronts onto High Street with the customer entrance on the north-east corner, whilst the car park and service yard are accessed from St Stephen's Road.

A topographical survey plan (*see Appendix B*) produced in February 2018 indicates that floor levels in the supermarket and basement car park are 31.20m and 28.12m AOD, respectively. Ground levels around the site are approximately 29.70 – 30.40m along north-east edge, 30.00m outside the south-east corner and 29.20 – 29.50m AOD along the northwest boundary.

The BGS website describes the geology of the area as the Langley Silt Member – Clay and Silt, underlain by the London Clay Formation – Clay, Silt and Sand. Site soils are described on the LandIS Soilscales website as “freely draining, slightly acid loamy.”

1.4 Site Proposals

It is proposed to demolish the existing building and construct in its place a multi-storey structure comprising:-

- Approximately 1640m² of Class A1 floor space on the ground floor.
- 158 housing units on upper floors.
- undercroft staff parking, accessed from St Stephen's Road.
- Service yard and parking area at ground level, both accessed from St Stephen's Road.

1.5 The Sequential Test

This risk-based test has the aim of steering new development to areas at the lowest probability of flooding (Flood Zone 1) in accordance with the National Planning Policy Framework (NPPF).

According to the online Environment Agency flood map, the proposed development is situated within Flood Zone 1, having a less than 1 in 1000 chance of river or tidal flooding (<0.1%), or **low** probability. In terms of Table D3 in the NPPF, all land uses are considered to be appropriate within Flood Zone 1 areas, therefore the Sequential Test need not be applied.

2 Potential Sources of Flooding

2.1 Flood Zone

The proposed development is located within Flood Zone 1, land assessed as having a low annual probability of flooding from rivers or the sea.

2.2 Fluvial Flooding

Designated main rivers closest to the site are Fray's River approximately 340m to the west and the River Colne a little further west. These rivers are considered too remote to pose fluvial flood risk to the project site. Closer to the site is the Grand Union Canal and this too is not a source of flood risk as it is constrained within its banks. This can be seen in the EA flood map below.

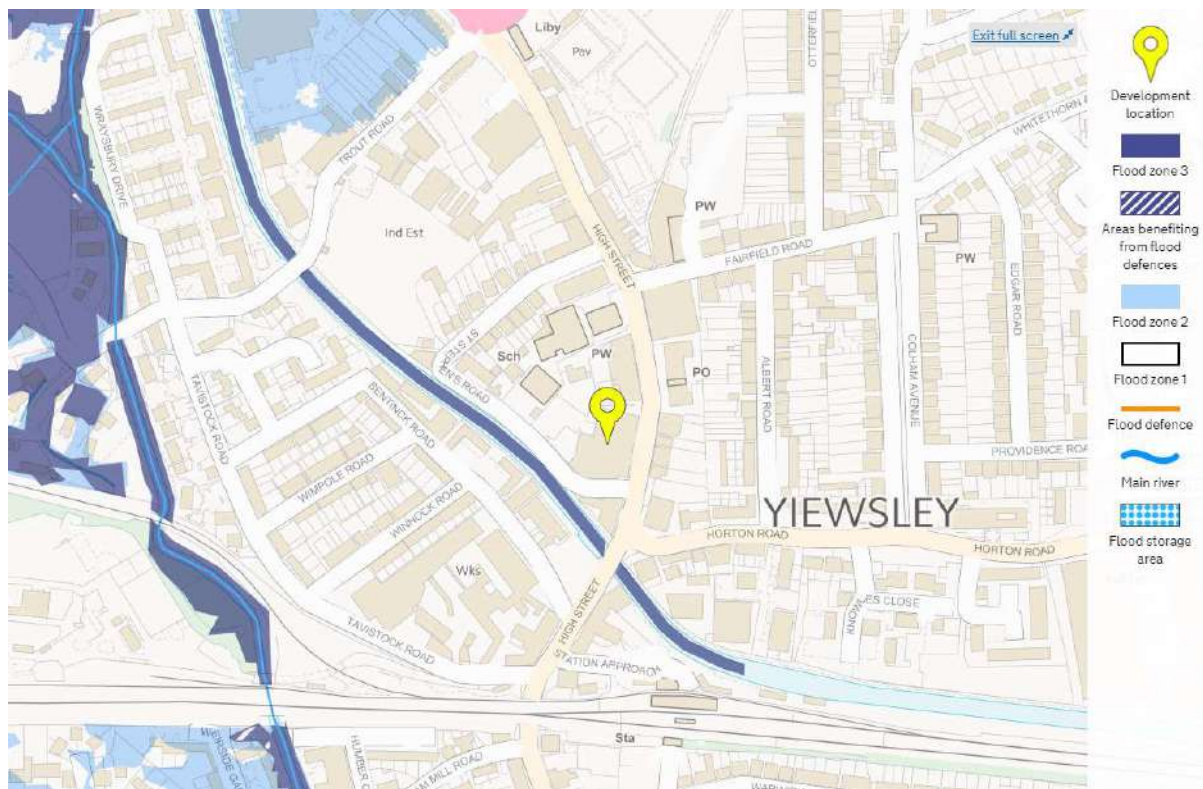


Fig. 1 : EA Flood Map – River and Tidal Flooding

2.3 Surface Water Flooding

Pluvial or surface water flooding arises out of the inability of surface water runoff to infiltrate into the ground during intense or prolonged rainfall. Urban development adds to the problem by replacing natural open spaces with hard paved impermeable surfaces. Surface water flooding is exacerbated when natural drainage channels or artificial drainage systems have insufficient capacity to absorb the additional runoff. The EA's online flood risk map indicates that the risk of flooding from surface water runoff on the site is very low (see Fig. 2 below).

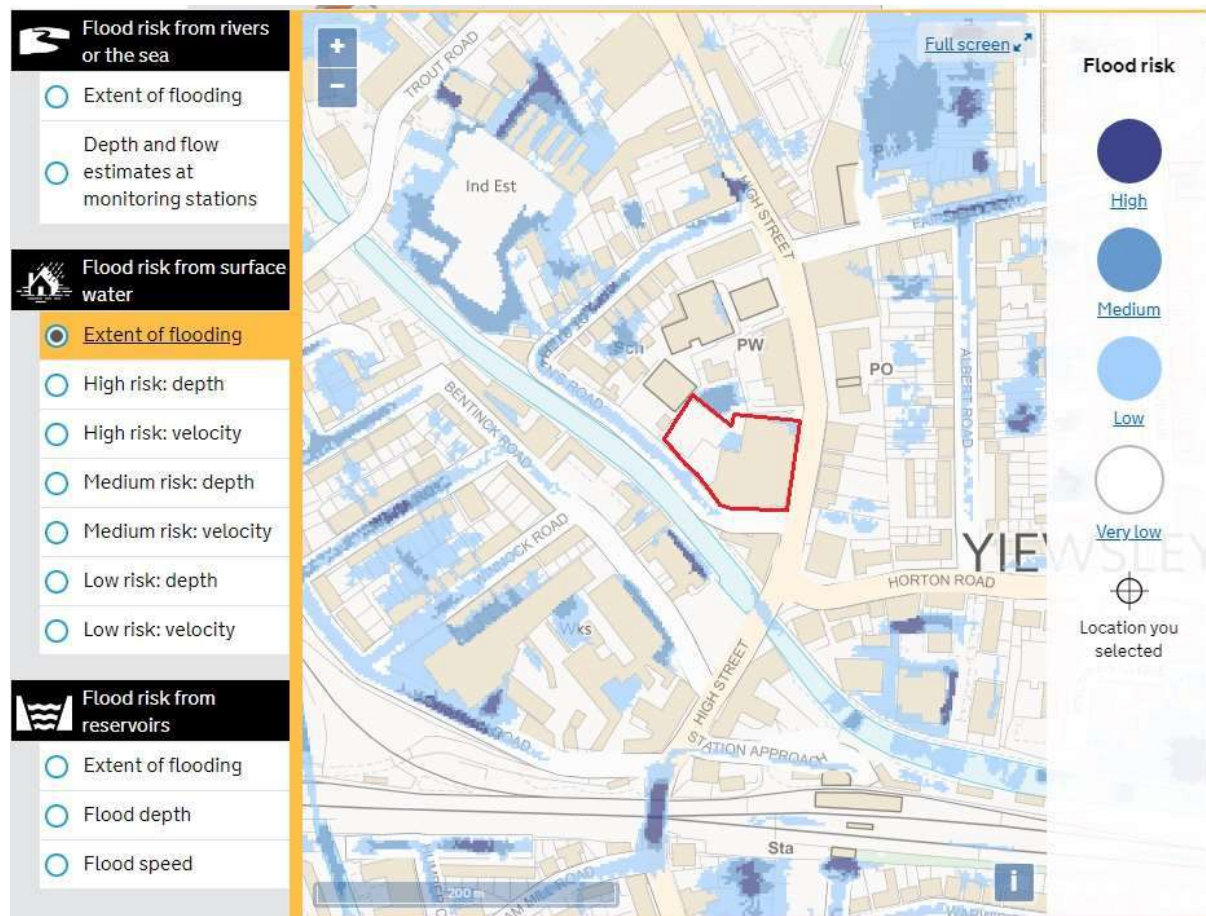


Fig. 2: EA Flood Map – Surface Water Flooding

2.3 Flooding due to Existing Sewers

Sewer flooding may result from blockage, structural failure, or overloading of sewers during intense or prolonged rainfall. High water levels in the receiving watercourses may result in outfall sewers being unable to discharge into rivers in times of flood, resulting in overflowing upstream of sewers, e.g. at manholes and gullies. Public foul sewers are present along High Street and St Stephen's Road. In the event of either of these sewers overflowing, flood flows would follow the road slope and not affect the proposed development due to the higher site levels.

2.4 Groundwater Flooding

Groundwater flooding occurs when water levels in the ground rise above the surface, e.g. from the underlying aquifer. This tends to occur after prolonged periods of sustained rainfall, with the highest risk being usually in low-lying areas where the water table is likely to be at shallow depth.

According to the Hillingdon Surface Water Management Plan (January 2013), the project site is not in an area where there is an increased potential for groundwater to rise sufficiently to interact with the ground surface or be within 2m of the ground surface. However, it is considered that where necessary, appropriate engineering design will take into account the presence of any groundwater in accordance with standard practice.

2.5 Flooding from Artificial Sources

There is no reservoir close enough to the site to pose flood risk. The Grand Union Canal is not considered to be a flood risk as flood flows will largely be constrained within the waterway banks.

2.6 Historic Flooding

There is no record of historic flood events on or close to the project site.

3 Proposed Development

3.1 Proposed Development

The proposed development comprises approximately 1640m² of Class A1 floor space plus service yard and parking at ground floor level, 158 residential units on upper floors, landscaped amenity decks and basement staff car parking. The proposed development is indicated on planning drawings submitted separately with the planning application. It is noted that the size of the proposed basement footprint has been reduced to approximately half of that in the previous 2018 submission. The proposed basement is now approximately aligned to the existing one to be demolished.

Ground floor levels will be set at least 150mm above adjacent finished site levels.

3.2 Flood Mitigation Measures

As the proposed development is in Flood Zone 1 with a low risk of flooding, specific flood mitigation measures for the development will not be required.

4 Pre-Planning Consultation

4.1 Environment Agency

Because of the proximity of Grand Union Canal to the site, a preliminary opinion on the development proposals was sought from the Environment Agency. The EA advised that it would likely not object to the proposed development.

4.2 Thames Water

Thames Water, the local Water Authority, advised that it would only consider runoff disposal into its surface water sewer network if it were not possible to dispose of it by means of infiltration into the ground or by restricted discharge into the Grand Union Canal. The water company confirmed that there is enough capacity in the public foul sewer system to accept the increased sewage flows from the proposed re-development.

4.3 Canal & River Trust

On being consulted, the Canal and River Trust offered detailed advice on the process of applying for its consent to connect and discharge runoff into the Canal.

The consultation responses may be seen in Appendix G.

5 **Drainage Strategy**

5.1 **Existing Drainage**

The available information indicates that the existing development is served by a 300mm diameter public foul sewer along St Stephen's Road. Foul flow calculations based on the existing gross floor area indicate that the site is currently discharging 0.101 l/s of foul wastewater (Dry Weather Flow), the peak flow being 0.606 l/s.

There are no public surface water sewers in the vicinity. Topographical and CCTV drainage surveys have indicated that runoff is currently disposed of through 2 soakaways on the site.

The CCTV drainage survey report and Thames Water sewer record map may be seen in Appendices C and D.

5.2 **Proposed Foul Water Drainage Solution**

Thames Water indicated that there is sufficient capacity in its foul sewer network to accommodate the additional flows from the proposed development comprising 158 residential units and the foodstore (see *Appendix G*). The proposed foul drainage will be designed and constructed in accordance with the Building Regulations and current standards. Existing foul connections from the site into the public foul sewer system will be used wherever possible.

5.3 **Sustainable Drainage Systems**

Sustainable urban drainage systems (SUDS) involve managing surface water runoff as close to its source as possible and mimicking pre-development drainage patterns. The London Borough Council of Hillingdon requires that any new development should utilise SUDS. It is noted that some SUDS options may not be feasible on a particular development site due to space or geological constraints. In this instance, the proposed building coverage on the site renders the use of features such as swales, basins, and ponds unsuitable.

5.4 **Proposed SUDS Solution**

A ground investigation by RSK Group Limited in September - October 2018 established the following:-

- Groundwater occurs approximately 6m below ground level. No visual or olfactory evidence of contamination was found during sampling.
- Asbestos was not detected in the made ground, and other contaminants were found to not be significantly elevated.
- Soakaway testing in accordance with BRE Digest 365 in the vicinity of the proposed trench soakaway resulted in soil infiltration rates (m/s) of 1.22×10^{-3} , 9.91×10^{-4} and 9.05×10^{-4} .

Infiltration testing results may be seen in Appendix H.

Policy SI 13B of the London Plan 2021 sets out the following drainage hierarchy:

- 1) rainwater use as a resource (for example rainwater harvesting, blue roofs for irrigation)
- 2) rainwater infiltration to ground at or close to source
- 3) rainwater attenuation in green infrastructure features for gradual release (for example green roofs, rain gardens)
- 4) rainwater discharge direct to a watercourse (unless not appropriate)
- 5) controlled rainwater discharge to a surface water sewer or drain
- 6) controlled rainwater discharge to a combined sewer.

Tiers 4 – 6 of the hierarchy are not applicable to this development site. The proposed SUDS scheme is in accordance with Policy SI 13B in that it incorporates a rainwater harvesting system, rainwater infiltration to ground at or close to source, and green roofs. The proposed drainage strategy plan can be seen in Appendix E.

The SUDS system includes the following: -

- A soakaway consisting of Polystorm-R cellular units (14m x 2m x 2.4m deep) that will receive and dispose of surface water runoff through infiltration into the ground. It will incorporate Polystorm Access and Polystorm Inspect cells to enable internal access and maintenance. The soakaway will be located at least 5m from buildings in accordance with Building Regulation H3.25. Installation of a geo-cellular attenuation tank (12.5m x 6m x 1.6m deep) and a Hydro-Brake flow control unit upstream of the soakaway reduces the soakaway size such that it will not encroach on the root protection areas of existing trees. This arrangement has been sized to cater for flows generated by the 1 in 100 year rainfall event including a 40% allowance for climate change (see MicroDrainage simulation results in Appendix F). The approximately 5200m² site will comprise approximately 3080m² impermeable surfaces (roofs and parking), 1660m² green roofs on first floor amenity decks and 460m² green landscaping around the new building and external parking area.
- A rainwater harvesting system that will contribute to water conservation by enabling rainwater to be reused within the development, e.g. for irrigation of soft landscaped areas and vehicle washing. The RWH tank will have integral filters and pumps. It has initially been sized to have 50000 litre storage capacity. Details of the system will be confirmed at the detailed design stage.
- Green roofs approximately 1660m² in extent. The SUDS Manual (CIRIA C753) notes that key design considerations for blue roofs are the structural capacity of the roof to deal with the extra loadings and the waterproofing required to protect the building. For this reason, underground surface water attenuation was preferred to storage on the roof.

Surface water in the service yard and basement floor will pass through an appropriately sized fuel interceptor that will be incorporated in the drainage system. This will prevent pollutants contaminating groundwater.

Basement waterproofing will be designed in accordance with BS 8102. The preferred method is Type C (Drainage Protection), but Type A (Tanking or Barrier Protection) and Type B (Structurally Integral Protection) will also be considered.

Exceedance flood flows arising during abnormal storms beyond the 1% AEP event plus 40% climate change allowance will be routed to adjacent highways as indicated on the proposed drainage strategy plan (Appendix E).

SUDS Management and Maintenance Plan

The building owner will be responsible for maintenance of the drainage. Prefabricated drainage components will be managed and maintained in accordance with the manufacturer's / installer's guidance and specifications. This may include but is not limited to the following, from the SUDS Manual (CIRIA C753).

Geo-cellular soakaway

- Inspect for sediment and debris in floor of catchpit – annually.
- Cleaning of gutters and any filters on downpipes – as required based on inspections where applicable.
- Trimming any roots that may be causing blockages – annually or as required.
- Reconstruct soakaway and if performance deteriorates or failure occurs – as required.
- Replacement of clogged geotextile (soakaway reconstruction required) – as required.
- Check soakaway to ensure emptying is occurring – annually.

Rainwater Harvesting System

- Inspect for debris and sediment buildup, inlets/outlets/withdrawal devices, overflow areas, pumps, filters – annually, and following poor performance.
- Cleaning of tank, inlets, outlets, gutters, withdrawal devices and roof drain filters of silts and other debris - annually and following poor performance.
- Cleaning and/or replacement of filters – three-monthly or as required.
- Repair of overflow erosion damage or damage to tank - as required.
- Pump repairs – as required.

Green roofs

- Remove debris and litter to prevent clogging of drain outlets, 6 monthly.
- Replace dead plants as required annually (in autumn).
- Remove nuisance and invasive vegetation, 6 monthly.
- Remove fallen leaves and debris, mow grasses as required and remove clippings, 6 monthly.
- Any erosion channels should be stabilised with soil substrate similar to original material.
- Inspect all components including drainage and underside of roof annually and after severe storms.

Geo-cellular attenuation tank

- Remove debris from the catchment surface (where it may cause risks to performance) – monthly.
- Remove sediment from pre-treatment structures – annually or as required.
- Repair/rehabilitate inlets, outlet, and vent – as required.
- Inspect/check all inlets, outlet vent to ensure that they are in good condition and operating as designed - annually and after heavy storms.
- Survey inside of tank for sediment build-up and remove if necessary – every 5 years or as required.

Hydro-Brake Flow Control Chamber

- Ensure all extraneous materials are removed from the unit and chamber following installation.
- Inspect monthly for three months and thereafter at six monthly intervals with hose down if required.
- Contact Hydro International if problem encountered.

Foul Drainage

Thames Water indicated that there is sufficient capacity in its foul sewer network to accommodate additional foul flows from the re-development (*see Appendix G*). The proposed foul drainage will be constructed in accordance with the Building Regulations and current standards. Existing foul connections from the site into the public foul sewer system will be re-used.

6 Conclusion

The proposed development lies within Flood Zone 1 where the risk of annual flooding from any source is considered to be low.

Foul water from the development will drain into the public foul sewer network in which sufficient capacity has been confirmed by Thames Water.

An intrusive ground investigation on the site found insignificant levels of contaminants and groundwater levels at approximately 6m below ground level. Soakaway testing in accordance with BRE Digest 365 established that soil percolation rates were satisfactory. Groundwater was struck at 6m below ground level. Therefore surface water runoff on the site will be disposed of through infiltration into the ground. This means that there will be no runoff flows off-site.

The surface water drainage system will include green roofs, rainwater harvesting, surface water attenuation and a geo-cellular soakaway. There will be no flooding in any part of the system during all rainfall events up to the 1 in 100 year storm plus a 40% allowance for climate change.

A fuel interceptor will be installed to remove pollutants from any surface water in the proposed service yard and basement car park.

Basement waterproofing will be designed and installed in accordance with current best practice.

Exceedance flood flows generated during abnormal rainfall events will be routed to adjacent highways.

It is considered that flood risk on the site and adjacent land will be reduced as a result of the SUDS measures that will be implemented.

Appendix A

Site Location Plan



COMAG

Google

Appendix B

Topographical Survey Plan



Station	Easting (m)	Northing (m)	Level (m)
GH1	506058.2450	180250.5100	33.1120
GH2	506084.4635	180296.1606	30.4700
GH3	506096.0492	180374.6065	30.5710
GH4	506026.6352	180305.1676	29.4220
GH5	506053.8865	180366.9810	29.8330
GH6	506008.8040	180363.6658	29.3650
GH7	505983.8639	180349.3886	29.1380
GH8	505912.1897	180401.2709	29.0330

OS Note:
Some services may have been omitted due to parked vehicles.
The Ordnance Survey tile is to be used as a guide only.

OS Buildings Surveyed Buildings

A true OSGB36 coordinate has been established near to the site centre via a transformation using the OSTN15GB & OSGM15GB transformation models.

No scale factor has been applied to the survey therefore the coordinates shown are arbitrary & not true O.S. Coordinates which have a scale factor applied.

[illegible]

Rev	Date	Description	Drawn	Q. Re
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Rowan House
Duffield Road
Little Eaton
Derby
DE21 5DR
Tel (01332) 830044 Fax (01332) 830055
admin@greenhatch-group.co.uk
www.greenhatch-group.co.uk

St Albans Unit B, The Courtyard Alban Park St Albans Hertfordshire AL4 0LA t. (01727) 854481	Newcastle 24 Riverside Studios Armetrust Road Newcastle Bus, Park Newcastle-U-Tyne NE4 7YL t. (01912) 736391	London 27, Cornwall Terrace New Regents Park London NW1 5LL t. (02072) 241806
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CLIENT

**Hester
Architects**

**High Street,
Yiewsley**

Topographical Survey

SCALE A0@ 1: 200	DATE Feb 2018
DRAWN LP	QUALITY REF GH2494

Level datum	See note
Grid orientation	See note
Job number	29475

Drawing No.	29475_T	Rev.	0
<i>Comments</i> This plan should only be used for its original purpose. Greenhatch Group accepts no responsibility for this plan if supplied to any party other than the original client. All dimensions should be checked on site prior to design and construction. Drainage information (where applicable) has been visually inspected from the surface and therefore should be treated as approximate only.			

Appendix C

CCTV Drainage Survey Report



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Project Information

Project Name: 29.05.18 Morrisons, High Street, Yiewsley	Client's Ref:		Project Date: 04/06/2018
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Client

Company: Ward Cole
Street: Unit 16 Byron Business Centre, Duke Street
Town or City: Hucknall, Notts, NG15 7HP

Site

Company: Morrisons
Street: High Street
Town or City: Yiewsley, UB7 7QQ

Contractor

Company: Aqua-Jet Specialist Drainage Contractors Ltd
Contact: Rob Wilkinson
Street: Yard 21, Hilton Ind Est, Sutton Lane
Town or City: Hilton, Derbyshire, DE65 5FE
Phone: 01283 730333
Fax: 01283 730444
Email: aquajetltd@aol.com

**Section Inspection - 29/05/2018 - MH3X**

Section: 1	Inspection: 1	Date: 29/05/18	Time:	Client's Ref:	Weather: No Rain Or Snow	Pre Cleaned: No	PLR: MH3X
Operator: Cb/Dh		Vehicle: FJ17 ZDS		Camera: Flexi	Preset Length:	Criticality Grade:	Alternative ID:

Town or Village: YIEWSLEY	Insp Dir: MH1 << MH3	US MH: MH3
Road: High Street	Inspected Length: 15.60 m	US Depth:
Location:	Total Length: 15.60 m	DS MH: MH1
Surface Cover:	Pipe Length: 0.00 m	DS Depth:

Use: Surface water	Pipe Shape: Circular
Type of Pipe: Gravity drain/sewer	Height / Width: 150 mm
Year Constructed:	Pipe Material: Vitrified clay pipe (i.e. all clayware)
Inspection Purpose:	Lining Type: None
Flow Control: No flow control	Lining Material: None

Comment:
Recommendation:

1:142	Position [m]	Code	Observation	MPEG	Photo	Grade
Depth: MH1						
	0.00	MH	Start node type, manhole, reference number: MH1	00:00:00		
	0.00	WL	Water level, 5% of the vertical dimension	00:00:01		
	0.70	JN	Junction at 10 o'clock, diameter: 150mm	00:00:08		
	8.10	JDM	Joint displaced, medium	00:00:36		1
	11.60	JDM	Joint displaced, medium	00:00:48		1
	13.10	JN	Junction at 9 o'clock, diameter: 100mm	00:00:57		
	15.60	MHF	Finish node type, manhole, reference number: MH3	00:01:04		
MH3 Depth:						

Structural Defects**Constructional Features****Service and Maintenance Defects****Miscellaneous Features**

Note: In line with the WRc SRM, plastic pipes are not scored against structural defects.

STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
2	1.0	0.1	0.1	1.0	0	0.0	0.0	0.0	1.0

Section Pictures - 29/05/2018 - MH3X

Section Number: 1	Inspection Direction: MH1 << MH3	PLR: MH3X	Client's Ref:	Contractor's Ref:
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MH3X_a3ddf67a-6157-40fe-801c-e0e08bedef87_20180604_105126_505.jpg, 00:00:36, 8.10m
Joint displaced, medium



MH3X_d36944c7-39db-467e-8472-70c44a59c664_20180604_105151_525.jpg, 00:00:48, 11.60m
Joint displaced, medium



Section Inspection - 29/05/2018 - MH1X

Section: 2	Inspection: 2	Date: 29/05/18	Time:	Client's Ref:	Weather: No Rain Or Snow	Pre Cleaned: No	PLR: MH1X
Operator: Cb/Dh	Vehicle: FJ17 ZDS	Camera: Flexi	Preset Length:	Criticality Grade:	Alternative ID:		

Town or Village: YIEWSLEY	Insp Dir: MH1 >> MH4	US MH: MH1
Road: High Street	Inspected Length: 22.60 m	US Depth:
Location:	Total Length: 22.60 m	DS MH: MH4
Surface Cover:	Pipe Length: 0.00 m	DS Depth:

Use: Surface water	Pipe Shape: Circular
Type of Pipe: Gravity drain/sewer	Height / Width: 150 mm
Year Constructed:	Pipe Material: Vitrified clay pipe (i.e. all clayware)
Inspection Purpose:	Lining Type: None
Flow Control: No flow control	Lining Material: None

Comment:
 Recommendation:

1:205	Position [m]	Code	Observation	MPEG	Photo	Grade
	0.00	MH	Start node type, manhole, reference number: MH1	00:00:00		
Depth: MH1	0.00	WL	Water level, 5% of the vertical dimension	00:00:01		
	2.00	WL	Water level, 10% of the vertical dimension	00:00:11		
	3.00	WL	Water level, 20% of the vertical dimension	00:00:14		
	4.10	WL	Water level, 40% of the vertical dimension	00:00:18		
	4.60	S01 CUW	Loss of vision, camera under water, start	00:00:20		
	11.60	F01 CUW	Loss of vision, camera under water, finish	00:00:45		
	11.60	WL	Water level, 30% of the vertical dimension	00:00:45		
	12.50	WL	Water level, 10% of the vertical dimension	00:00:48		
	14.60	JN	Junction at 9 o'clock, diameter: 150mm	00:00:56		
	15.80	WL	Water level, 5% of the vertical dimension	00:01:02		
	17.10	WL	Water level, 30% of the vertical dimension	00:01:07		
	17.50	S02 CUW	Loss of vision, camera under water, start	00:01:09		
	22.60	F02 CUW	Loss of vision, camera under water, finish	00:01:40		
Depth: MH4	22.60	SA	Survey abandoned: DUE TO WATER LEVEL / POSSIBLE MANHOLE	00:01:40		

Structural Defects					Constructional Features				
Service and Maintenance Defects					Miscellaneous Features				
Note: In line with the WRc SRM, plastic pipes are not scored against structural defects.									
STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
0	0.0	0.0	0.0	1.0	0	0.0	0.0	0.0	1.0

Section Pictures - 29/05/2018 - MH1X

Section Number: 2	Inspection Direction: MH1 >> MH4	PLR: MH1X	Client's Ref:	Contractor's Ref:
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MH1X_4239433d-b5af-4ddc-a80a-48b68d4cb309_20180604_1
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 Water level, 40% of the vertical dimension



MH1X_df6d95d8-c6d1-46e8-9f07-eb4d7e02ebd3_20180604_1
 10121_139.jpg, 00:01:07, 17.10m
 Water level, 30% of the vertical dimension



Section Inspection - 29/05/2018 - U/S MH2X

Section: 3	Inspection: 3	Date: 29/05/18	Time:	Client's Ref:	Weather: No Rain Or Snow	Pre Cleaned: No	PLR: U/S MH2X
Operator: Cb/Dh	Vehicle: FJ17 ZDS	Camera: Flexi	Preset Length:	Criticality Grade:	Alternative ID:		

Town or Village: YIEWSLEY	Insp Dir: MH2 << U/S MH2	US MH: U/S MH2
Road: High Street	Inspected Length: 3.70 m	US Depth:
Location:	Total Length: 3.70 m	DS MH: MH2
Surface Cover:	Pipe Length: 0.00 m	DS Depth:
Use: Surface water	Pipe Shape: Circular	
Type of Pipe: Gravity drain/sewer	Height / Width: 150 mm	
Year Constructed:	Pipe Material: Vitrified clay pipe (i.e. all clayware)	
Inspection Purpose:	Lining Type: None	
Flow Control: No flow control	Lining Material: None	
Comment:		
Recommendation:		

1:50	Position [m]	Code	Observation	MPEG	Photo	Grade																																										
Depth: MH2 U/S MH2 Depth: <table><tr><td></td><td>0.00</td><td>MH</td><td>Start node type, manhole, reference number: MH2</td><td>00:00:00</td><td></td><td></td></tr><tr><td></td><td>0.00</td><td>WL</td><td>Water level, 5% of the vertical dimension</td><td>00:00:01</td><td></td><td></td></tr><tr><td></td><td>0.50</td><td>LL</td><td>Line deviates left</td><td>00:00:07</td><td></td><td></td></tr><tr><td></td><td>2.00</td><td>LR</td><td>Line deviates right</td><td>00:00:13</td><td></td><td></td></tr><tr><td></td><td>3.30</td><td>DES</td><td>Settled deposits, fine, 5% cross-sectional area loss</td><td>00:00:45</td><td></td><td>2</td></tr><tr><td></td><td>3.70</td><td>GYF</td><td>Finish node type, gully, reference number: U/S MH2: ACO CHANNEL GULLY</td><td>00:00:51</td><td></td><td></td></tr></table>								0.00	MH	Start node type, manhole, reference number: MH2	00:00:00				0.00	WL	Water level, 5% of the vertical dimension	00:00:01				0.50	LL	Line deviates left	00:00:07				2.00	LR	Line deviates right	00:00:13				3.30	DES	Settled deposits, fine, 5% cross-sectional area loss	00:00:45		2		3.70	GYF	Finish node type, gully, reference number: U/S MH2: ACO CHANNEL GULLY	00:00:51		
	0.00	MH	Start node type, manhole, reference number: MH2	00:00:00																																												
	0.00	WL	Water level, 5% of the vertical dimension	00:00:01																																												
	0.50	LL	Line deviates left	00:00:07																																												
	2.00	LR	Line deviates right	00:00:13																																												
	3.30	DES	Settled deposits, fine, 5% cross-sectional area loss	00:00:45		2																																										
	3.70	GYF	Finish node type, gully, reference number: U/S MH2: ACO CHANNEL GULLY	00:00:51																																												
Structural Defects			Constructional Features																																													
Service and Maintenance Defects			Miscellaneous Features																																													
Note: In line with the WRc SRM, plastic pipes are not scored against structural defects.																																																
STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade																																							
0	0.0	0.0	0.0	1.0	1	1.0	0.3	1.0	2.0																																							

Section Pictures - 29/05/2018 - U/S MH2X

Section Number: 3	Inspection Direction: MH2 << U/S MH2	PLR: U/S MH2X	Client's Ref:	Contractor's Ref:
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U_S

MH2X_11a977aa-52f8-4ecc-9658-b7c98e4b651a_20180604_1

10848_924.jpg, 00:00:45, 3.30m

Settled deposits, fine, 5% cross-sectional area loss



Section Inspection - 29/05/2018 - MH2X

Section: 4	Inspection: 4	Date: 29/05/18	Time:	Client's Ref:	Weather: No Rain Or Snow	Pre Cleaned: No	PLR: MH2X
Operator: Cb/Dh	Vehicle: FJ17 ZDS	Camera: Flexi	Preset Length:	Criticality Grade:	Alternative ID:		

Town or Village: YIEWSLEY	Insp Dir: MH2 >> INT1	US MH: MH2
Road: High Street	Inspected Length: 0.90 m	US Depth:
Location:	Total Length: 0.90 m	DS MH: INT1
Surface Cover:	Pipe Length: 0.00 m	DS Depth:

Use: Surface water	Pipe Shape: Circular
Type of Pipe: Gravity drain/sewer	Height / Width: 150 mm
Year Constructed:	Pipe Material: Vitrified clay pipe (i.e. all clayware)
Inspection Purpose:	Lining Type: None
Flow Control: No flow control	Lining Material: None

Comment:
Recommendation:

1:50	Position [m]	Code	Observation	MPEG	Photo	Grade
	0.00	MH	Start node type, manhole, reference number: MH2	00:00:00		
	0.00	WL	Water level, 5% of the vertical dimension	00:00:01		
	0.90	OCF	Finish node type, other special chamber, reference number: INT1: INTERCEPTOR	00:00:12		

Structural Defects

Constructional Features

Service and Maintenance Defects

Miscellaneous Features

Note: In line with the WRc SRM, plastic pipes are not scored against structural defects.

STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
0	0.0	0.0	0.0	1.0	0	0.0	0.0	0.0	1.0



Section Inspection - 29/05/2018 - INT1X

Section: 5	Inspection: 5	Date: 29/05/18	Time:	Client's Ref:	Weather: No Rain Or Snow	Pre Cleaned: No	PLR: INT1X
Operator: Cb/Dh	Vehicle: FJ17 ZDS	Camera: Flexi	Preset Length:	Criticality Grade:	Alternative ID:		

Town or Village: YIEWSLEY	Insp Dir: INT1 >> D/S INT1	US MH: INT1
Road: High Street	Inspected Length: 2.40 m	US Depth:
Location:	Total Length: 2.40 m	DS MH: D/S INT1
Surface Cover:	Pipe Length: 0.00 m	DS Depth:
Use: Surface water	Pipe Shape: Circular	
Type of Pipe: Gravity drain/sewer	Height / Width: 150 mm	
Year Constructed:	Pipe Material: Vitrified clay pipe (i.e. all clayware)	
Inspection Purpose:	Lining Type: None	
Flow Control: No flow control	Lining Material: None	
Comment:		
Recommendation:		

1:50	Position [m]	Code	Observation	MPEG	Photo	Grade
Depth: INT1 0.00 0.00 0.90 2.40						



Section Inspection - 29/05/2018 - A/INT1X

Section: 6	Inspection: 6	Date: 29/05/18	Time:	Client's Ref:	Weather: No Rain Or Snow	Pre Cleaned: No	PLR: A/INT1X
Operator: Cb/Dh	Vehicle: FJ17 ZDS	Camera: Flexi	Preset Length:	Criticality Grade:	Alternative ID:		

Town or Village: YIEWSLEY	Insp Dir: INT1 << A/INT1	US MH: A/INT1
Road: High Street	Inspected Length: 2.70 m	US Depth:
Location:	Total Length: 2.70 m	DS MH: INT1
Surface Cover:	Pipe Length: 0.00 m	DS Depth:

Use: Surface water	Pipe Shape: Circular
Type of Pipe: Gravity drain/sewer	Height / Width: 100 mm
Year Constructed:	Pipe Material: Polyvinyl chloride
Inspection Purpose:	Lining Type: None
Flow Control: No flow control	Lining Material: None

Comment:
Recommendation:

1:50	Position [m]	Code	Observation	MPEG	Photo	Grade
	0.00	OC	Start node type, other special chamber, reference number: INT1: INTERCEPTOR	00:00:00		
	0.00	WL	Water level, 5% of the vertical dimension	00:00:02		
	0.20	LR	Line deviates right	00:00:06		
	0.30	DES	Settled deposits, fine, 5% cross-sectional area loss	00:00:08		2
	2.50	DES	Settled deposits, fine, 40% cross-sectional area loss	00:00:23		4
	2.70	SA	Survey abandoned: DUE TO DEBRIS / POSSIBLE LINE UP	00:00:27		

Structural Defects					Constructional Features				
Service and Maintenance Defects					Miscellaneous Features				
Note: In line with the WRc SRM, plastic pipes are not scored against structural defects.									
STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
0	0.0	0.0	0.0	1.0	2	5.0	2.2	6.0	4.0

Section Pictures - 29/05/2018 - A/INT1X

Section Number: 6	Inspection Direction: INT1 << A/INT1	PLR: A/INT1X	Client's Ref:	Contractor's Ref:
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A_INT1X_d93bc85b-68b5-4cbd-a036-2f44e01cce6d_20180604_112539_134.jpg, 00:00:08, 0.30m
 Settled deposits, fine, 5% cross-sectional area loss



A_INT1X_e7e7eead-7a53-40b7-88a5-a5bca6dd5703_20180604_112635_734.jpg, 00:00:23, 2.50m
 Settled deposits, fine, 40% cross-sectional area loss

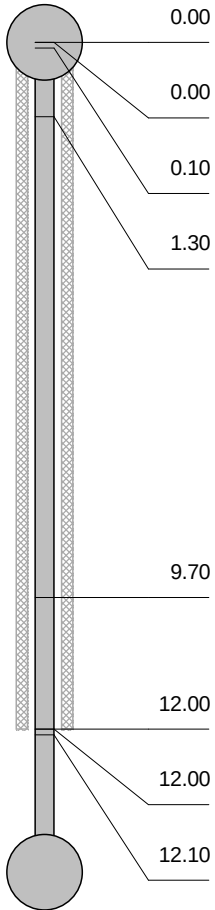
Section Inspection - 29/05/2018 - GY1X

Section: 7	Inspection: 7	Date: 29/05/18	Time:	Client's Ref:	Weather: No Rain Or Snow	Pre Cleaned: No	PLR: GY1X
Operator: Cb/Dh	Vehicle: FJ17 ZDS	Camera: Flexi	Preset Length:	Criticality Grade:	Alternative ID:		

Town or Village: YIEWSLEY	Insp Dir: GY1 >> MH4	US MH: GY1
Road: High Street	Inspected Length: 12.10 m	US Depth:
Location:	Total Length: 14.50 m	DS MH: MH4
Surface Cover:	Pipe Length: 0.00 m	DS Depth:

Use: Surface water	Pipe Shape: Circular
Type of Pipe: Gravity drain/sewer	Height / Width: 100 mm
Year Constructed:	Pipe Material: Vitrified clay pipe (i.e. all clayware)
Inspection Purpose:	Lining Type: None
Flow Control: No flow control	Lining Material: None

Comment:
Recommendation:

1:132	Position [m]	Code	Observation	MPEG	Photo	Grade
	0.00	GY	Start node type, gully, reference number: GY1	00:00:00		
	0.00	WL	Water level, 5% of the vertical dimension	00:00:01		
	0.10	S01	DES Settled deposits, fine, 5% cross-sectional area loss, start: HANGING DEBRIS	00:00:06		
	1.30	REM	General remark: RESTRICTED VIEW DUE TO DEBRIS	00:00:14		
	9.70	WL	Water level, 10% of the vertical dimension	00:00:44		
	12.00	CUW	Loss of vision, camera under water	00:00:53		
	12.00	F01	DES Settled deposits, fine, 5% cross-sectional area loss, finish: HANGING DEBRIS	00:00:53		2
	12.10	CPF	Finish node type, catchpit, reference number: MH4	00:01:17		

Structural Defects					Constructional Features				
Service and Maintenance Defects					Miscellaneous Features				
Note: In line with the WRc SRM, plastic pipes are not scored against structural defects.									
STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
0	0.0	0.0	0.0	1.0	1	1.0	0.1	1.0	2.0

Section Pictures - 29/05/2018 - GY1X

Section Number: 7	Inspection Direction: GY1 >> MH4	PLR: GY1X	Client's Ref:	Contractor's Ref:
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GY1X_4ae48c69-bb7e-4f0a-8a19-bf8cd0d8e4c5_20180604_113150_073.jpg, 00:00:06, 0.10m
 Settled deposits, fine, 5% cross-sectional area loss, start



GY1X_62b55fb9-55af-4203-8062-cc2fc1078ddd_20180604_113822_372.jpg, 00:01:17, 12.10m
 Finish node type, catchpit, reference number: MH4



Section Inspection - 29/05/2018 - GY2X

Section: 8	Inspection: 8	Date: 29/05/18	Time:	Client's Ref:	Weather: No Rain Or Snow	Pre Cleaned: No	PLR: GY2X
Operator: Cb/Dh		Vehicle: FJ17 ZDS		Camera: Flexi	Preset Length:	Criticality Grade:	Alternative ID:

Town or Village: YIEWSLEY	Insp Dir: GY2 >> MH7	US MH: GY2
Road: High Street	Inspected Length: 13.20 m	US Depth:
Location:	Total Length: 13.20 m	DS MH: MH7
Surface Cover:	Pipe Length: 0.00 m	DS Depth:

Use: Surface water	Pipe Shape: Circular
Type of Pipe: Gravity drain/sewer	Height / Width: 100 mm
Year Constructed:	Pipe Material: Vitrified clay pipe (i.e. all clayware)
Inspection Purpose:	Lining Type: None
Flow Control: No flow control	Lining Material: None

Comment:
 Recommendation:

1:120	Position [m]	Code	Observation	MPEG	Photo	Grade
Depth: GY2 MH7 Depth:						
	0.00	GY	Start node type, gully, reference number: GY2	00:00:00		
	0.00	WL	Water level, 5% of the vertical dimension	00:00:01		
	0.20	HJ	Hole in drain or sewer at a joint from 11 o'clock to 3 o'clock	00:00:07		5
	0.80	JDM	Joint displaced, medium	00:00:12		1
	1.80	CC	Crack, circumferential from 12 o'clock to 12 o'clock	00:00:19		2
	4.70	JDM	Joint displaced, medium	00:00:34		1
	13.20	CPF	Finish node type, catchpit, reference number: MH7	00:01:19		

Structural Defects					Constructional Features				
Service and Maintenance Defects					Miscellaneous Features				
Note: In line with the WRc SRM, plastic pipes are not scored against structural defects.									
STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
4	165.0	13.4	13.4	5.0	0	0.0	0.0	0.0	1.0

Section Pictures - 29/05/2018 - GY2X

Section Number: 8	Inspection Direction: GY2 >> MH7	PLR: GY2X	Client's Ref:	Contractor's Ref:
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GY2X_dd061343-718e-4456-898a-1efea845b377_20180604_114119_072.jpg, 00:00:07, 0.20m
 Hole in drain or sewer at a joint from 11 o'clock to 3 o'clock



GY2X_33c5c1ea-f169-4d8f-ada0-a495ecdef433_20180604_114148_482.jpg, 00:00:12, 0.80m
 Joint displaced, medium



GY2X_d3e3e17c-9730-48b7-b2a5-2de544580fdd_20180604_114259_842.jpg, 00:00:19, 1.80m
 Crack, circumferential from 12 o'clock to 12 o'clock



GY2X_a79ea17b-9a1f-4af5-83d4-555353067472_20180604_114230_449.jpg, 00:00:34, 4.70m
 Joint displaced, medium



Section Inspection - 29/05/2018 - GY3X

Section: 9	Inspection: 9	Date: 29/05/18	Time:	Client's Ref:	Weather: No Rain Or Snow	Pre Cleaned: No	PLR: GY3X
Operator: Cb/Dh	Vehicle: FJ17 ZDS	Camera: Flexi	Preset Length:	Criticality Grade:	Alternative ID:		

Town or Village: YIEWSLEY	Insp Dir: GY3 >> MH6	US MH: GY3
Road: High Street	Inspected Length: 5.90 m	US Depth:
Location:	Total Length: 5.90 m	DS MH: MH6
Surface Cover:	Pipe Length: 0.00 m	DS Depth:

Use: Surface water	Pipe Shape: Circular
Type of Pipe: Gravity drain/sewer	Height / Width: 100 mm
Year Constructed:	Pipe Material: Vitrified clay pipe (i.e. all clayware)
Inspection Purpose:	Lining Type: None
Flow Control: No flow control	Lining Material: None

Comment:
 Recommendation:

1:54	Position [m]	Code	Observation	MPEG	Photo	Grade
Depth: GY3 Depth: MH6						
	0.00	GY	Start node type, gully, reference number: GY3	00:00:00		
	0.00	WL	Water level, 5% of the vertical dimension	00:00:00		
	0.80	CC	Crack, circumferential from 12 o'clock to 12 o'clock	00:00:10		2
	1.30	CC	Crack, circumferential from 12 o'clock to 12 o'clock	00:00:13		2
	3.00	CC	Crack, circumferential from 7 o'clock to 5 o'clock	00:00:23		2
	5.00	CC	Crack, circumferential from 7 o'clock to 5 o'clock	00:00:31		2
	5.80	CL	Crack, longitudinal at 2 o'clock	00:00:37		2
	5.90	CPF	Finish node type, catchpit, reference number: MH6	00:00:41		

Structural Defects					Constructional Features				
Service and Maintenance Defects					Miscellaneous Features				
Note: In line with the WRc SRM, plastic pipes are not scored against structural defects.									
STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
5	10.0	8.5	8.5	2.0	0	0.0	0.0	0.0	1.0

Section Pictures - 29/05/2018 - GY3X

Section Number: 9	Inspection Direction: GY3 >> MH6	PLR: GY3X	Client's Ref:	Contractor's Ref:
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GY3X_dd9d2f66-7a16-4d3e-a03f-82c0c425fc5c_20180604_115332_276.jpg, 00:00:10, 0.80m
 Crack, circumferential from 12 o'clock to 12 o'clock



GY3X_50057357-3fb3-43e8-84e6-5fc63ff7c92e_20180604_115348_849.jpg, 00:00:13, 1.30m
 Crack, circumferential from 12 o'clock to 12 o'clock



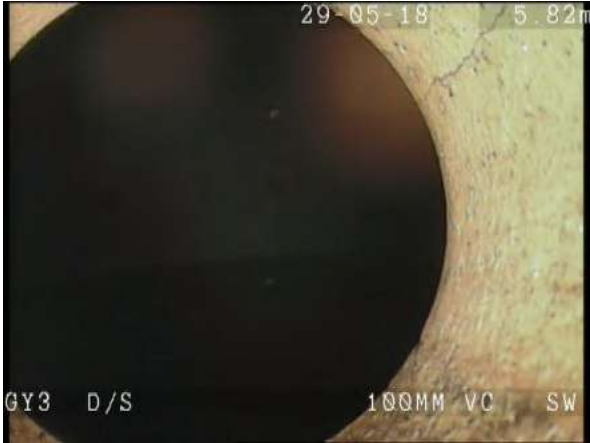
GY3X_f5782e97-a6ba-4fec-a11c-89e9b0a02103_20180604_115415_309.jpg, 00:00:23, 3.00m
 Crack, circumferential from 7 o'clock to 5 o'clock



GY3X_b9039a48-1108-4694-bd18-1360eff10592_20180604_115439_085.jpg, 00:00:31, 5.00m
 Crack, circumferential from 7 o'clock to 5 o'clock

Section Pictures - 29/05/2018 - GY3X

Section Number: 9	Inspection Direction: GY3 >> MH6	PLR: GY3X	Client's Ref:	Contractor's Ref:
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GY3X_323402f6-742c-4e3a-aa89-da4814f1e971_20180604_11
 5520_333.jpg, 00:00:37, 5.80m
 Crack, longitudinal at 2 o'clock



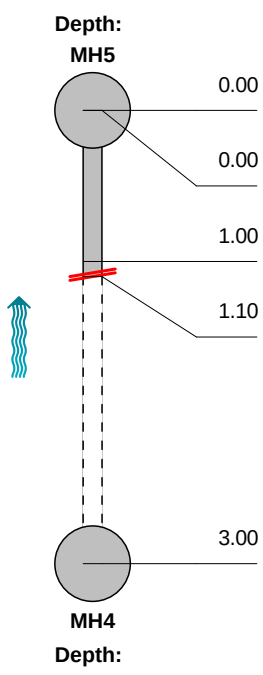
Section Inspection - 29/05/2018 - MH4X

Section: 10	Inspection: 10	Date: 29/05/18	Time:	Client's Ref:	Weather: No Rain Or Snow	Pre Cleaned: Yes	PLR: MH4X
Operator: Cb/Dh		Vehicle: FJ17 ZDS		Camera: Flexi	Preset Length:	Criticality Grade:	Alternative ID:

Town or Village: YIEWSLEY	Insp Dir: MH5 << MH4	US MH: MH4
Road: High Street	Inspected Length: 1.10 m	US Depth:
Location:	Total Length: 3.00 m	DS MH: MH5
Surface Cover:	Pipe Length: 0.00 m	DS Depth:

Use: Surface water	Pipe Shape: Circular
Type of Pipe: Gravity drain/sewer	Height / Width: 150 mm
Year Constructed:	Pipe Material: Vitrified clay pipe (i.e. all clayware)
Inspection Purpose:	Lining Type: None
Flow Control: No flow control	Lining Material: None

Comment:
Recommendation:

1:50	Position [m]	Code	Observation	MPEG	Photo	Grade
						
	0.00	MH	Start node type, manhole, reference number: MH5	00:00:00		
	0.00	WL	Water level, 10% of the vertical dimension	00:00:00		
	1.00	DES	Settled deposits, fine, 80% cross-sectional area loss	00:00:25		5
	1.10	SA	Survey abandoned: DUE TO DEBRIS	00:00:36		
	3.00		End of pipe			

Structural Defects					Constructional Features				
Service and Maintenance Defects					Miscellaneous Features				
Note: In line with the WRc SRM, plastic pipes are not scored against structural defects.									
STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
0	0.0	0.0	0.0	1.0	1	10.0	3.3	10.0	5.0

Section Pictures - 29/05/2018 - MH4X

Section Number: 10	Inspection Direction: MH5 << MH4	PLR: MH4X	Client's Ref:	Contractor's Ref:
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MH4X_43c76f17-273d-43f7-9a21-59457ef01918_20180604_11

5830_834.jpg, 00:00:25, 1.00m

Settled deposits, fine, 80% cross-sectional area loss

**Aqua-Jet Specialist Drainage Contractors Ltd**

Yard 21, Hilton Ind Est, Sutton Lane, Hilton, Derbyshire, DE65 5FE

Tel. 01283 730333

aquajetltd@aol.com

Section Inspection - 29/05/2018 - MH7X

Section: 11	Inspection: 11	Date: 29/05/18	Time:	Client's Ref:	Weather: No Rain Or Snow	Pre Cleaned: No	PLR: MH7X
Operator: Cb/Dh		Vehicle: FJ17 ZDS		Camera: Flexi	Preset Length:	Criticality Grade:	Alternative ID:

Town or Village: YIEWSLEY	Insp Dir: MH6 << MH7	US MH: MH7
Road: High Street	Inspected Length: 6.10 m	US Depth:
Location:	Total Length: 6.10 m	DS MH: MH6
Surface Cover:	Pipe Length: 0.00 m	DS Depth:

Use: Surface water	Pipe Shape: Circular
Type of Pipe: Gravity drain/sewer	Height / Width: 100 mm
Year Constructed:	Pipe Material: Vitrified clay pipe (i.e. all clayware)
Inspection Purpose:	Lining Type: None
Flow Control: No flow control	Lining Material: None

Comment:
Recommendation:

1:56	Position [m]	Code	Observation	MPEG	Photo	Grade
Depth: MH6						
	0.00	CP	Start node type, catchpit, reference number: MH6	00:00:00		
	0.00	WL	Water level, 5% of the vertical dimension	00:00:00		
	6.10	CPF	Finish node type, catchpit, reference number: MH7	00:00:46		
MH7 Depth:						

Structural Defects**Constructional Features****Service and Maintenance Defects****Miscellaneous Features**

Note: In line with the WRc SRM, plastic pipes are not scored against structural defects.

STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
0	0.0	0.0	0.0	1.0	0	0.0	0.0	0.0	1.0



Section Inspection - 29/05/2018 - MH8X

Section: 12	Inspection: 12	Date: 29/05/18	Time:	Client's Ref:	Weather: No Rain Or Snow	Pre Cleaned: No	PLR: MH8X
Operator: Cb/Dh		Vehicle: FJ17 ZDS		Camera: Flexi	Preset Length:	Criticality Grade:	Alternative ID:

Town or Village: YIEWSLEY	Insp Dir: MH8 >> MH6	US MH: MH8
Road: High Street	Inspected Length: 1.80 m	US Depth:
Location:	Total Length: 1.80 m	DS MH: MH6
Surface Cover:	Pipe Length: 0.00 m	DS Depth:
Use: Surface water	Pipe Shape: Circular	
Type of Pipe: Gravity drain/sewer	Height / Width: 100 mm	
Year Constructed:	Pipe Material: Vitrified clay pipe (i.e. all clayware)	
Inspection Purpose:	Lining Type: None	
Flow Control: No flow control	Lining Material: None	
Comment:		
Recommendation:		

1:50	Position [m]	Code	Observation	MPEG	Photo	Grade																								
Depth: MH8 0.00 0.00 0.10 1.80 MH6 Depth: <table><tr><td>MH</td><td>Start node type, manhole, reference number: MH8</td><td>00:00:00</td><td></td><td></td><td></td></tr><tr><td>WL</td><td>Water level, 5% of the vertical dimension</td><td>00:00:00</td><td></td><td></td><td></td></tr><tr><td>DES</td><td>Settled deposits, fine, 5% cross-sectional area loss</td><td>00:00:06</td><td></td><td></td><td>2</td></tr><tr><td>CPF</td><td>Finish node type, catchpit, reference number: MH6</td><td>00:00:25</td><td></td><td></td><td></td></tr></table>							MH	Start node type, manhole, reference number: MH8	00:00:00				WL	Water level, 5% of the vertical dimension	00:00:00				DES	Settled deposits, fine, 5% cross-sectional area loss	00:00:06			2	CPF	Finish node type, catchpit, reference number: MH6	00:00:25			
MH	Start node type, manhole, reference number: MH8	00:00:00																												
WL	Water level, 5% of the vertical dimension	00:00:00																												
DES	Settled deposits, fine, 5% cross-sectional area loss	00:00:06			2																									
CPF	Finish node type, catchpit, reference number: MH6	00:00:25																												
Structural Defects					Constructional Features																									
Service and Maintenance Defects					Miscellaneous Features																									
Note: In line with the WRc SRM, plastic pipes are not scored against structural defects.																														
STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade																					
0	0.0	0.0	0.0	1.0	1	1.0	0.6	1.0	2.0																					

Section Pictures - 29/05/2018 - MH8X

Section Number: 12	Inspection Direction: MH8 >> MH6	PLR: MH8X	Client's Ref:	Contractor's Ref:
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MH8X_bee0a5bd-6969-44a3-b524-0a7d76b6459c_20180604_1
 20848_871.jpg, 00:00:06, 0.10m
 Settled deposits, fine, 5% cross-sectional area loss

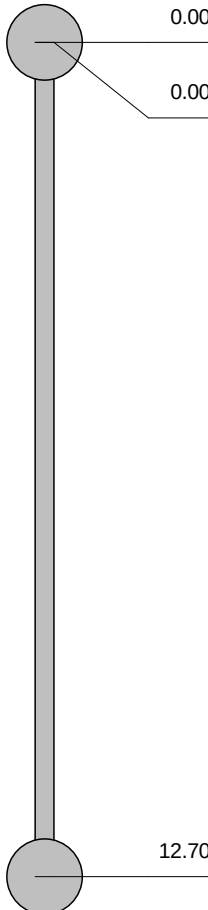
**Section Inspection - 30/05/2018 - A/MH10X**

Section: 13	Inspection: 13	Date: 30/05/18	Time:	Client's Ref:	Weather: No Rain Or Snow	Pre Cleaned: No	PLR: A/MH10X
Operator: Cb/Dh		Vehicle: FJ17 ZDS		Camera: Flexi	Preset Length:	Criticality Grade:	Alternative ID:

Town or Village: YIEWSLEY	Insp Dir: MH10 << A/MH10	US MH: A/MH10
Road: High Street	Inspected Length: 12.70 m	US Depth:
Location:	Total Length: 12.70 m	DS MH: MH10
Surface Cover:	Pipe Length: 0.00 m	DS Depth:

Use: Surface water	Pipe Shape: Circular
Type of Pipe: Gravity drain/sewer	Height / Width: 100 mm
Year Constructed:	Pipe Material: Vitrified clay pipe (i.e. all clayware)
Inspection Purpose:	Lining Type: None
Flow Control: No flow control	Lining Material: None

Comment:
Recommendation:

1:115	Position [m]	Code	Observation	MPEG	Photo	Grade
Depth:						
MH10						
						
	0.00	MH	Start node type, manhole, reference number: MH10	00:00:00		
	0.00	WL	Water level, 5% of the vertical dimension	00:00:01		
	12.70	GYF	Finish node type, gully, reference number: A/MH10: GULLY	00:01:15		
A/MH10						
Depth:						

Structural Defects**Constructional Features****Service and Maintenance Defects****Miscellaneous Features**

Note: In line with the WRc SRM, plastic pipes are not scored against structural defects.

STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
0	0.0	0.0	0.0	1.0	0	0.0	0.0	0.0	1.0



Section Inspection - 30/05/2018 - B/MH10X

Section: 14	Inspection: 14	Date: 30/05/18	Time:	Client's Ref:	Weather: No Rain Or Snow	Pre Cleaned: No	PLR: B/MH10X
Operator: Cb/Dh	Vehicle: FJ17 ZDS	Camera: Flexi	Preset Length:	Criticality Grade:	Alternative ID:		

Town or Village: YIEWSLEY	Insp Dir: MH10 << B/MH10	US MH: B/MH10
Road: High Street	Inspected Length: 9.40 m	US Depth:
Location:	Total Length: 9.40 m	DS MH: MH10
Surface Cover:	Pipe Length: 0.00 m	DS Depth:
Use: Surface water	Pipe Shape: Circular	
Type of Pipe: Gravity drain/sewer	Height / Width: 100 mm	
Year Constructed:	Pipe Material: Vitrified clay pipe (i.e. all clayware)	
Inspection Purpose:	Lining Type: None	
Flow Control: No flow control	Lining Material: None	
Comment:		
Recommendation:		

1:86	Position [m]	Code	Observation	MPEG	Photo	Grade
Depth: MH10 0.00 0.00 9.30 9.40 B/MH10 Depth:						
		MH	Start node type, manhole, reference number: MH10	00:00:00		
		WL	Water level, 5% of the vertical dimension	00:00:00		
		DER	Settled deposits, coarse, 90% cross-sectional area loss: POSSIBLY COLLAPSE OR REDUNDANT	00:00:54		5
		SA	Survey abandoned: DUE TO DEBRIS	00:00:59		

Structural Defects					Constructional Features				
Service and Maintenance Defects					Miscellaneous Features				
Note: In line with the WRc SRM, plastic pipes are not scored against structural defects.									
STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
0	0.0	0.0	0.0	1.0	1	10.0	1.1	10.0	5.0

Section Pictures - 30/05/2018 - B/MH10X

Section Number: 14	Inspection Direction: MH10 << B/MH10	PLR: B/MH10X	Client's Ref:	Contractor's Ref:
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B_MH10X_4d6fb09f-78bf-47cb-b3e9-59aa1e942ddd_20180604_122311_591.jpg, 00:00:54, 9.30m
 Settled deposits, coarse, 90% cross-sectional area loss



Section Inspection - 30/05/2018 - C/MH10X

Section: 15	Inspection: 15	Date: 30/05/18	Time:	Client's Ref:	Weather: No Rain Or Snow	Pre Cleaned: No	PLR: C/MH10X
Operator: Cb/Dh		Vehicle: FJ17 ZDS		Camera: Flexi	Preset Length:	Criticality Grade:	Alternative ID:

Town or Village: YIEWSLEY	Insp Dir: MH10 << C/MH10	US MH: C/MH10
Road: High Street	Inspected Length: 4.20 m	US Depth:
Location:	Total Length: 4.20 m	DS MH: MH10
Surface Cover:	Pipe Length: 0.00 m	DS Depth:

Use: Surface water	Pipe Shape: Circular
Type of Pipe: Gravity drain/sewer	Height / Width: 100 mm
Year Constructed:	Pipe Material: Vitrified clay pipe (i.e. all clayware)
Inspection Purpose:	Lining Type: None
Flow Control: No flow control	Lining Material: None

Comment:
Recommendation:

1:50	Position [m]	Code	Observation	MPEG	Photo	Grade
Depth: MH10 0.00 0.00 3.90 4.20 4.20 C/MH10 Depth:						
		MH	Start node type, manhole, reference number: MH10	00:00:00		
		WL	Water level, 5% of the vertical dimension	00:00:00		
		JDM	Joint displaced, medium	00:00:27		1
		LU	Line deviates up: 90 BEND	00:00:32		
		SA	Survey abandoned: DUE TO BEND	00:00:32		

Structural Defects

Constructional Features

Service and Maintenance Defects

Miscellaneous Features

Note: In line with the WRc SRM, plastic pipes are not scored against structural defects.

STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
1	1.0	0.2	0.2	1.0	0	0.0	0.0	0.0	1.0

Section Pictures - 30/05/2018 - C/MH10X

Section Number: 15	Inspection Direction: MH10 << C/MH10	PLR: C/MH10X	Client's Ref:	Contractor's Ref:
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C_MH10X_194d6610-d4d8-461b-be4e-2840784a06d6_201806
 04_122550_959.jpg, 00:00:27, 3.90m
 Joint displaced, medium



Section Inspection - 30/05/2018 - D/MH10X

Section: 16	Inspection: 16	Date: 30/05/18	Time:	Client's Ref:	Weather: No Rain Or Snow	Pre Cleaned: No	PLR: D/MH10X
Operator: Cb/Dh		Vehicle: FJ17 ZDS		Camera: Flexi	Preset Length:	Criticality Grade:	Alternative ID:

Town or Village: YIEWSLEY	Insp Dir: MH10 << D/MH10	US MH: D/MH10
Road: High Street	Inspected Length: 6.20 m	US Depth:
Location:	Total Length: 6.20 m	DS MH: MH10
Surface Cover:	Pipe Length: 0.00 m	DS Depth:
Use: Surface water	Pipe Shape: Circular	
Type of Pipe: Gravity drain/sewer	Height / Width: 100 mm	
Year Constructed:	Pipe Material: Vitrified clay pipe (i.e. all clayware)	
Inspection Purpose:	Lining Type: None	
Flow Control: No flow control	Lining Material: None	
Comment:		
Recommendation:		

1:57	Position [m]	Code	Observation	MPEG	Photo	Grade
Depth: MH10 0.00 0.00 6.20 Start node type, manhole, reference number: MH10 Water level, 5% of the vertical dimension Finish node type, gully, reference number: D/MH10 00:00:00 00:00:00 00:00:49						

Structural Defects					Constructional Features				
Service and Maintenance Defects					Miscellaneous Features				
Note: In line with the WRc SRM, plastic pipes are not scored against structural defects.									
STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
0	0.0	0.0	0.0	1.0	0	0.0	0.0	0.0	1.0



Section Inspection - 30/05/2018 - MH11X

Section: 18	Inspection: 18	Date: 30/05/18	Time:	Client's Ref:	Weather: No Rain Or Snow	Pre Cleaned: No	PLR: MH11X
Operator: Cb/Dh	Vehicle: FJ17 ZDS	Camera: Flexi	Preset Length:	Criticality Grade:	Alternative ID:		

Town or Village: YIEWSLEY	Insp Dir: MH11 >> MH13	US MH: MH11
Road: High Street	Inspected Length: 15.70 m	US Depth:
Location:	Total Length: 15.70 m	DS MH: MH13
Surface Cover:	Pipe Length: 0.00 m	DS Depth:
Use: Surface water	Pipe Shape: Circular	
Type of Pipe: Gravity drain/sewer	Height / Width: 100 mm	
Year Constructed:	Pipe Material: Vitrified clay pipe (i.e. all clayware)	
Inspection Purpose:	Lining Type: None	
Flow Control: No flow control	Lining Material: None	
Comment:		
Recommendation:		

1:143	Position [m]	Code	Observation	MPEG	Photo	Grade
Depth: MH11 						
	0.00	MH	Start node type, manhole, reference number: MH11	00:00:00		
	0.00	WL	Water level, 5% of the vertical dimension	00:00:00		
	7.50	JN	Junction at 9 o'clock, diameter: 100mm	00:00:57		
	7.50	FLJ	Fracture, longitudinal at joint at 4 o'clock	00:00:57		3
	12.40	S01	Settled deposits, fine, 5% cross-sectional area loss, start	00:01:23		
	12.50	WL	Water level, 10% of the vertical dimension	00:01:24		
	13.70	WL	Water level, 20% of the vertical dimension	00:01:32		
	14.70	CUD	Loss of vision, silt	00:01:58		
	15.40	F01	Settled deposits, fine, 5% cross-sectional area loss, finish	00:02:02		2
	15.50	WL	Water level, 10% of the vertical dimension	00:02:04		
	15.70	MHF	Finish node type, manhole, reference number: MH13	00:02:09		
Depth:						

Structural Defects					Constructional Features				
Service and Maintenance Defects					Miscellaneous Features				
Note: In line with the WRc SRM, plastic pipes are not scored against structural defects.									
STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
1	40.0	2.5	2.5	3.0	1	1.0	0.1	1.0	2.0

Section Pictures - 30/05/2018 - MH11X

Section Number: 18	Inspection Direction: MH11 >> MH13	PLR: MH11X	Client's Ref:	Contractor's Ref:
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MH11X_45b8ff6e-664e-4988-89f3-78e69c1534ea_20180604_1

30155_767.jpg, 00:00:57, 7.50m

Fracture, longitudinal at joint at 4 o'clock



MH11X_c36e24ac-677f-42e1-8109-ac41a0b01cfb_20180604_1

30344_193.jpg, 00:01:23, 12.40m

Settled deposits, fine, 5% cross-sectional area loss, start

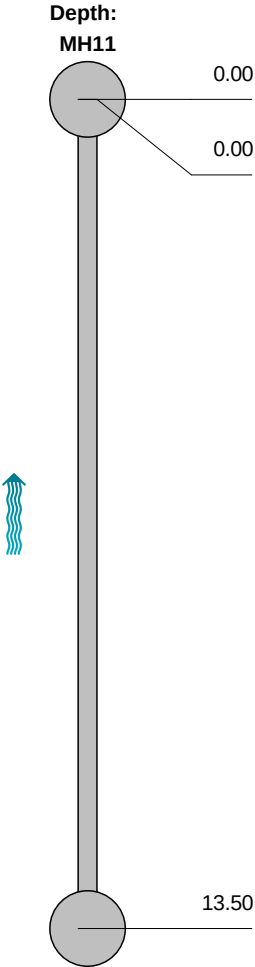
**Section Inspection - 30/05/2018 - A/MH11X**

Section: 19	Inspection: 19	Date: 30/05/18	Time:	Client's Ref:	Weather: No Rain Or Snow	Pre Cleaned: No	PLR: A/MH11X
Operator: Cb/Dh		Vehicle: FJ17 ZDS		Camera: Flexi	Preset Length:	Criticality Grade:	Alternative ID:

Town or Village: YIEWSLEY	Insp Dir: MH11 << A/MH11	US MH: A/MH11
Road: High Street	Inspected Length: 13.50 m	US Depth:
Location:	Total Length: 13.50 m	DS MH: MH11
Surface Cover:	Pipe Length: 0.00 m	DS Depth:

Use: Surface water	Pipe Shape: Circular
Type of Pipe: Gravity drain/sewer	Height / Width: 100 mm
Year Constructed:	Pipe Material: Vitrified clay pipe (i.e. all clayware)
Inspection Purpose:	Lining Type: None
Flow Control: No flow control	Lining Material: None

Comment:
Recommendation:

1:123	Position [m]	Code	Observation	MPEG	Photo	Grade
Depth:						
MH11						
	0.00	MH	Start node type, manhole, reference number: MH11	00:00:00		
	0.00	WL	Water level, 5% of the vertical dimension	00:00:00		
	13.50	GYF	Finish node type, gully, reference number: A/MH11	00:01:20		
A/MH11						
Depth:						

Structural Defects**Constructional Features****Service and Maintenance Defects****Miscellaneous Features**

Note: In line with the WRc SRM, plastic pipes are not scored against structural defects.

STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
0	0.0	0.0	0.0	1.0	0	0.0	0.0	0.0	1.0



Section Inspection - 30/05/2018 - B/MH11X

Section: 20	Inspection: 20	Date: 30/05/18	Time:	Client's Ref:	Weather: No Rain Or Snow	Pre Cleaned: No	PLR: B/MH11X
Operator: Cb/Dh		Vehicle: FJ17 ZDS		Camera: Flexi	Preset Length:	Criticality Grade:	Alternative ID:

Town or Village: YIEWSLEY	Insp Dir: MH11 << B/MH11	US MH: B/MH11
Road: High Street	Inspected Length: 8.80 m	US Depth:
Location:	Total Length: 8.80 m	DS MH: MH11
Surface Cover:	Pipe Length: 0.00 m	DS Depth:

Use: Surface water	Pipe Shape: Circular
Type of Pipe: Gravity drain/sewer	Height / Width: 100 mm
Year Constructed:	Pipe Material: Vitrified clay pipe (i.e. all clayware)
Inspection Purpose:	Lining Type: None
Flow Control: No flow control	Lining Material: None

Comment:
Recommendation:

1:80	Position [m]	Code	Observation	MPEG	Photo	Grade
Depth: MH11 0.00 0.00 8.80 8.80 B/MH11 Depth:						
		MH	Start node type, manhole, reference number: MH11	00:00:00		
		WL	Water level, 5% of the vertical dimension	00:00:00		
		DER	Settled deposits, coarse, 50% cross-sectional area loss: POSSIBLY LINE UP	00:01:07		4
		SA	Survey abandoned: DUE TO DEBRIS / POSSIBLY 90 BEND	00:01:07		

Structural Defects

Constructional Features

Service and Maintenance Defects

Miscellaneous Features

Note: In line with the WRc SRM, plastic pipes are not scored against structural defects.

STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
0	0.0	0.0	0.0	1.0	1	5.0	0.6	5.0	4.0

Section Pictures - 30/05/2018 - B/MH11X

Section Number: 20	Inspection Direction: MH11 << B/MH11	PLR: B/MH11X	Client's Ref:	Contractor's Ref:
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B_MH11X_ece2156b-2a64-47e8-81b9-f28b627ce6dd_2018060

4_131600_646.jpg, 00:01:07, 8.80m

Settled deposits, coarse, 50% cross-sectional area loss



Section Inspection - 30/05/2018 - C/MH11X

Section: 21	Inspection: 21	Date: 30/05/18	Time:	Client's Ref:	Weather: No Rain Or Snow	Pre Cleaned: No	PLR: C/MH11X
Operator: Cb/Dh		Vehicle: FJ17 ZDS		Camera: Flexi	Preset Length:	Criticality Grade:	Alternative ID:

Town or Village: YIEWSLEY	Insp Dir: MH11 << C/MH11	US MH: C/MH11
Road: High Street	Inspected Length: 3.40 m	US Depth:
Location:	Total Length: 3.50 m	DS MH: MH11
Surface Cover:	Pipe Length: 0.00 m	DS Depth:
Use: Surface water	Pipe Shape: Circular	
Type of Pipe: Gravity drain/sewer	Height / Width: 100 mm	
Year Constructed:	Pipe Material: Vitrified clay pipe (i.e. all clayware)	
Inspection Purpose:	Lining Type: None	
Flow Control: No flow control	Lining Material: None	
Comment:		
Recommendation:		

1:50	Position [m]	Code	Observation	MPEG	Photo	Grade
Depth: MH11 <						

Section Pictures - 30/05/2018 - C/MH11X

Section Number: 21	Inspection Direction: MH11 << C/MH11	PLR: C/MH11X	Client's Ref:	Contractor's Ref:
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C_MH11X_2567db29-1375-41da-92e6-dec86a3494df_20180604_131952_395.jpg, 00:00:29, 3.40m
 Settled deposits, coarse, 95% cross-sectional area loss



Section Inspection - 30/05/2018 - D/MH11X

Section: 22	Inspection: 22	Date: 30/05/18	Time:	Client's Ref:	Weather: No Rain Or Snow	Pre Cleaned: No	PLR: D/MH11X
Operator: Cb/Dh		Vehicle: FJ17 ZDS		Camera: Flexi	Preset Length:	Criticality Grade:	Alternative ID:

Town or Village: YIEWSLEY	Insp Dir: MH11 << D/MH11	US MH: D/MH11
Road: High Street	Inspected Length: 10.50 m	US Depth:
Location:	Total Length: 12.00 m	DS MH: MH11
Surface Cover:	Pipe Length: 0.00 m	DS Depth:

Use: Surface water	Pipe Shape: Circular
Type of Pipe: Gravity drain/sewer	Height / Width: 100 mm
Year Constructed:	Pipe Material: Vitrified clay pipe (i.e. all clayware)
Inspection Purpose:	Lining Type: None
Flow Control: No flow control	Lining Material: None

Comment:
Recommendation:

1:109	Position [m]	Code	Observation	MPEG	Photo	Grade
	0.00	MH	Start node type, manhole, reference number: MH11	00:00:00		
	0.00	WL	Water level, 5% of the vertical dimension	00:00:01		
	0.40	S01	DES Settled deposits, fine, 10% cross-sectional area loss, start	00:00:10		
	3.50	F01	DES Settled deposits, fine, 10% cross-sectional area loss, finish	00:00:27		3
	10.30	LL	Line deviates left	00:01:04		
	10.50	SA	Survey abandoned: DUE TO BEND	00:02:18		
	12.00		End of pipe			
Depth:						
MH11						
D/MH11						
Depth:						

Structural Defects

Constructional Features

Service and Maintenance Defects

Miscellaneous Features

Note: In line with the WRc SRM, plastic pipes are not scored against structural defects.

STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
0	0.0	0.0	0.0	1.0	1	2.0	0.2	2.0	3.0

Section Pictures - 30/05/2018 - D/MH11X

Section Number: 22	Inspection Direction: MH11 << D/MH11	PLR: D/MH11X	Client's Ref:	Contractor's Ref:
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D_MH11X_836448f8-7026-4146-97aa-9682418fdd29_20180604_132208_441.jpg, 00:00:10, 0.40m
 Settled deposits, fine, 10% cross-sectional area loss, start



Section Inspection - 30/05/2018 - GY4X

Section: 23	Inspection: 23	Date: 30/05/18	Time:	Client's Ref:	Weather: No Rain Or Snow	Pre Cleaned: No	PLR: GY4X
Operator: Cb/Dh		Vehicle: FJ17 ZDS		Camera: Flexi	Preset Length:	Criticality Grade:	Alternative ID:

Town or Village: YIEWSLEY	Insp Dir: GY4 >> D/S GY4	US MH: GY4
Road: High Street	Inspected Length: 6.50 m	US Depth:
Location:	Total Length: 6.50 m	DS MH: D/S GY4
Surface Cover:	Pipe Length: 0.00 m	DS Depth:

Use: Surface water	Pipe Shape: Circular
Type of Pipe: Gravity drain/sewer	Height / Width: 100 mm
Year Constructed:	Pipe Material: Vitrified clay pipe (i.e. all clayware)
Inspection Purpose:	Lining Type: None
Flow Control: No flow control	Lining Material: None

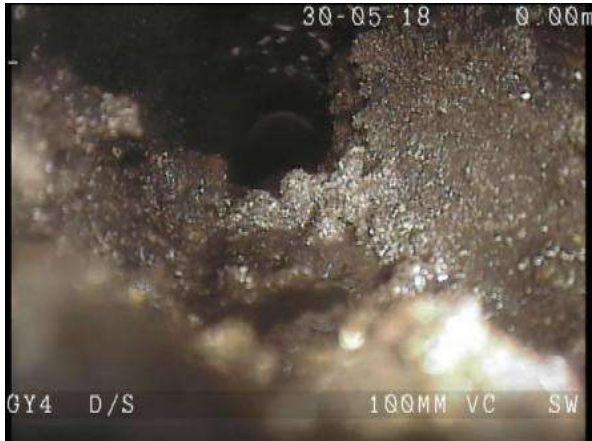
Comment:
Recommendation:

1:59	Position [m]	Code	Observation	MPEG	Photo	Grade
Depth: GY4 D/S GY4 Depth:						
	0.00	GY	Start node type, gully, reference number: GY4	00:00:00		
	0.00	WL	Water level, 5% of the vertical dimension	00:00:00		
	0.10	DES	Settled deposits, fine, 10% cross-sectional area loss	00:00:00		3
	0.60	JDM	Joint displaced, medium	00:00:18		1
	2.10	WL	Water level, 20% of the vertical dimension	00:00:28		
	2.40	CUW	Loss of vision, camera under water	00:00:37		
	4.50	WL	Water level, 10% of the vertical dimension	00:00:59		
	6.00	LL	Line deviates left	00:01:11		
	6.50	SA	Survey abandoned: JOINS CARRIER RUN BLIND	00:01:15		

Structural Defects					Constructional Features				
Service and Maintenance Defects					Miscellaneous Features				
Note: In line with the WRc SRM, plastic pipes are not scored against structural defects.									
STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
1	1.0	0.2	0.2	1.0	1	2.0	0.3	2.0	3.0

Section Pictures - 30/05/2018 - GY4X

Section Number: 23	Inspection Direction: GY4 >> D/S GY4	PLR: GY4X	Client's Ref:	Contractor's Ref:
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GY4X_89492c26-b0de-426a-9dc6-f6b212b91f96_20180604_132822_598.jpg, 00:00:00, 0.10m
 Settled deposits, fine, 10% cross-sectional area loss



GY4X_fb7ebc75-bacb-4bc7-9aa2-9c46b27d4ab2_20180604_132856_232.jpg, 00:00:18, 0.60m
 Joint displaced, medium



GY4X_f2a9412c-e04b-47e4-a18a-4c80e63c3138_20180604_132918_034.jpg, 00:00:28, 2.10m
 Water level, 20% of the vertical dimension



Section Inspection - 30/05/2018 - U/S MH12X

Section: 24	Inspection: 24	Date: 30/05/18	Time:	Client's Ref:	Weather: No Rain Or Snow	Pre Cleaned: No	PLR: U/S MH12X
Operator: Cb/Dh		Vehicle: FJ17 ZDS		Camera: Flexi	Preset Length:	Criticality Grade:	Alternative ID:

Town or Village: YIEWSLEY	Insp Dir: MH12 << U/S MH12	US MH: U/S MH12
Road: High Street	Inspected Length: 19.20 m	US Depth:
Location:	Total Length: 19.20 m	DS MH: MH12
Surface Cover:	Pipe Length: 0.00 m	DS Depth:

Use: Surface water	Pipe Shape: Circular
Type of Pipe: Gravity drain/sewer	Height / Width: 100 mm
Year Constructed:	Pipe Material: Vitrified clay pipe (i.e. all clayware)
Inspection Purpose:	Lining Type: None
Flow Control: No flow control	Lining Material: None

Comment:
Recommendation:

1:174	Position [m]	Code	Observation	MPEG	Photo	Grade
Depth: MH12 U/S MH12 Depth:						
	0.00	MH	Start node type, manhole, reference number: MH12	00:00:00		
	0.00	WL	Water level, 5% of the vertical dimension	00:00:00		
	5.60	JN	Junction at 9 o'clock, diameter: 100mm	00:00:41		
	10.10	S01	DES Settled deposits, fine, 5% cross-sectional area loss, start	00:01:11		
	11.70	DES	Settled deposits, fine, 10% cross-sectional area loss	00:01:21		3
	16.30	F01	DES Settled deposits, fine, 5% cross-sectional area loss, finish	00:01:51		2
	19.20	OCF	Finish node type, other special chamber, reference number: U/S MH12: ACO CHANNEL SUMP	00:02:07		

Structural Defects

Constructional Features

Service and Maintenance Defects

Miscellaneous Features

Note: In line with the WRc SRM, plastic pipes are not scored against structural defects.

STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
0	0.0	0.0	0.0	1.0	2	2.0	0.2	3.0	3.0

Section Pictures - 30/05/2018 - U/S MH12X

Section Number: 24	Inspection Direction: MH12 << U/S MH12	PLR: U/S MH12X	Client's Ref:	Contractor's Ref:
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U_S
 MH12X_427be56e-b667-4e80-a128-1737d92584ef_20180604_
 133524_873.jpg, 00:01:11, 10.10m
 Settled deposits, fine, 5% cross-sectional area loss, start



U_S
 MH12X_2bbc4dde-a064-4af7-8145-a1a1beeace39_20180604_
 133947_373.jpg, 00:01:21, 11.70m
 Settled deposits, fine, 10% cross-sectional area loss



Section Inspection - 30/05/2018 - MH12X

Section: 25	Inspection: 25	Date: 30/05/18	Time:	Client's Ref:	Weather: No Rain Or Snow	Pre Cleaned: No	PLR: MH12X
Operator: Cb/Dh		Vehicle: FJ17 ZDS		Camera: Flexi	Preset Length:	Criticality Grade:	Alternative ID:

Town or Village: YIEWSLEY	Insp Dir: MH12 >> MH13	US MH: MH12
Road: High Street	Inspected Length: 16.40 m	US Depth:
Location:	Total Length: 16.40 m	DS MH: MH13
Surface Cover:	Pipe Length: 0.00 m	DS Depth:
Use: Surface water	Pipe Shape: Circular	
Type of Pipe: Gravity drain/sewer	Height / Width: 100 mm	
Year Constructed:	Pipe Material: Vitrified clay pipe (i.e. all clayware)	
Inspection Purpose:	Lining Type: None	
Flow Control: No flow control	Lining Material: None	
Comment:		
Recommendation:		

1:149	Position [m]	Code	Observation	MPEG	Photo	Grade
Depth: MH12 MH13 Depth:						
	0.00	MH	Start node type, manhole, reference number: MH12	00:00:00		
	0.00	WL	Water level, 5% of the vertical dimension	00:00:00		
	16.40	MHF	Finish node type, manhole, reference number: MH13	00:01:48		

Structural Defects					Constructional Features				
Service and Maintenance Defects					Miscellaneous Features				
Note: In line with the WRc SRM, plastic pipes are not scored against structural defects.									
STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
0	0.0	0.0	0.0	1.0	0	0.0	0.0	0.0	1.0

Section Inspection - 30/05/2018 - MH13X

Section: 26	Inspection: 26	Date: 30/05/18	Time:	Client's Ref:	Weather: No Rain Or Snow	Pre Cleaned: No	PLR: MH13X
Operator: Cb/Dh	Vehicle: FJ17 ZDS	Camera: Flexi	Preset Length:	Criticality Grade:	Alternative ID:		

Town or Village: YIEWSLEY	Insp Dir: MH13 >> INT2	US MH: MH13
Road: High Street	Inspected Length: 29.90 m	US Depth:
Location:	Total Length: 29.90 m	DS MH: INT2
Surface Cover:	Pipe Length: 0.00 m	DS Depth:

Use: Surface water	Pipe Shape: Circular
Type of Pipe: Gravity drain/sewer	Height / Width: 150 mm
Year Constructed:	Pipe Material: Vitrified clay pipe (i.e. all clayware)
Inspection Purpose:	Lining Type: None
Flow Control: No flow control	Lining Material: None

Comment:
Recommendation:

1:271	Position [m]	Code	Observation	MPEG	Photo	Grade
	0.00	MH	Start node type, manhole, reference number: MH13	00:00:00		
Depth: MH13	0.00	WL	Water level, 5% of the vertical dimension	00:00:01		
	15.30	JN	Junction at 10 o'clock, diameter: 100mm	00:01:32		
	15.40	LR	Line deviates right	00:01:34		
	16.30	WL	Water level, 10% of the vertical dimension	00:01:42		
	16.60	S01	DES Settled deposits, fine, 5% cross-sectional area loss, start	00:01:44		
	20.70	JN	Junction at 2 o'clock, diameter: 100mm	00:02:03		
	22.80	F01	DES Settled deposits, fine, 5% cross-sectional area loss, finish	00:02:15		2
	24.30	WL	Water level, 20% of the vertical dimension	00:02:23		
	26.10	DER	Settled deposits, coarse, 10% cross-sectional area loss	00:02:36		3
	27.00	S02	DES Settled deposits, fine, 5% cross-sectional area loss, start	00:02:42		
	28.80	WL	Water level, 10% of the vertical dimension	00:02:53		
	29.30	LR	Line deviates right	00:02:56		
	29.50	F02	DES Settled deposits, fine, 5% cross-sectional area loss, finish	00:02:56		2
INT2	29.90	OCF	Finish node type, other special chamber, reference number: INT2: INTERCEPTOR	00:02:58		
Depth:						

Structural Defects					Constructional Features				
Service and Maintenance Defects					Miscellaneous Features				
Note: In line with the WRc SRM, plastic pipes are not scored against structural defects.									
STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
0	0.0	0.0	0.0	1.0	3	2.0	0.1	4.0	3.0

Section Pictures - 30/05/2018 - MH13X

Section Number: 26	Inspection Direction: MH13 >> INT2	PLR: MH13X	Client's Ref:	Contractor's Ref:
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MH13X_3a5ea860-e9c1-4aa8-bd1c-61770eea8ec1_20180604_140213_355.jpg, 00:01:44, 16.60m
Settled deposits, fine, 5% cross-sectional area loss, start



MH13X_7c3a29fa-817e-4c34-b5ab-992eafca8806_20180604_140331_807.jpg, 00:02:23, 24.30m
Water level, 20% of the vertical dimension



MH13X_5646dd2b-e2fd-4983-bc3b-baadbd282d9a_20180604_140400_848.jpg, 00:02:36, 26.10m
Settled deposits, coarse, 10% cross-sectional area loss



MH13X_1bfd6dfd-bb9d-4c16-adf4-dd01b0b5bb0a_20180604_140445_777.jpg, 00:02:42, 27.00m
Settled deposits, fine, 5% cross-sectional area loss, start

**Section Inspection - 30/05/2018 - GY6X**

Section: 27	Inspection: 27	Date: 30/05/18	Time:	Client's Ref:	Weather: No Rain Or Snow	Pre Cleaned: No	PLR: GY6X
Operator: Cb/Dh		Vehicle: FJ17 ZDS		Camera: Flexi	Preset Length:	Criticality Grade:	Alternative ID:

Town or Village: YIEWSLEY	Insp Dir: GY6 >> D/S GY6	US MH: GY6
Road: High Street	Inspected Length: 4.50 m	US Depth:
Location:	Total Length: 4.50 m	DS MH: D/S GY6
Surface Cover:	Pipe Length: 0.00 m	DS Depth:

Use: Surface water	Pipe Shape: Circular
Type of Pipe: Gravity drain/sewer	Height / Width: 100 mm
Year Constructed:	Pipe Material: Vitrified clay pipe (i.e. all clayware)
Inspection Purpose:	Lining Type: None
Flow Control: No flow control	Lining Material: None

Comment:
Recommendation:

1:50	Position [m]	Code	Observation	MPEG	Photo	Grade
	0.00	GY	Start node type, gully, reference number: GY6	00:00:00		
	0.00	WL	Water level, 5% of the vertical dimension	00:00:00		
	0.10	S01	DES Settled deposits, fine, 20% cross-sectional area loss, start	00:00:05		
	2.50	F01	DES Settled deposits, fine, 20% cross-sectional area loss, finish	00:00:26		3
	2.60	WL	Water level, 20% of the vertical dimension	00:00:26		
	4.10	LR	Line deviates right	00:00:46		
	4.50	SA	Survey abandoned: JOINS ANOTHER RUN BLIND	00:00:54		

Structural Defects**Constructional Features****Service and Maintenance Defects****Miscellaneous Features**

Note: In line with the WRc SRM, plastic pipes are not scored against structural defects.

STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
0	0.0	0.0	0.0	1.0	1	2.0	0.4	2.0	3.0

Section Pictures - 30/05/2018 - GY6X

Section Number: 27	Inspection Direction: GY6 >> D/S GY6	PLR: GY6X	Client's Ref:	Contractor's Ref:
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GY6X_4f11b5a9-0457-4edd-8c58-6809d6ef90ec_20180604_141001_233.jpg, 00:00:05, 0.10m
 Settled deposits, fine, 20% cross-sectional area loss, start



GY6X_b725a713-67d4-4dc1-8d3a-32cf0ec695b7_20180604_141144_644.jpg, 00:00:26, 2.60m
 Water level, 20% of the vertical dimension



Section Inspection - 30/05/2018 - U/S MH3X

Section: 28	Inspection: 28	Date: 30/05/18	Time:	Client's Ref:	Weather: No Rain Or Snow	Pre Cleaned: No	PLR: U/S MH3X
Operator: Cb/Dh		Vehicle: FJ17 ZDS		Camera: Flexi	Preset Length:	Criticality Grade:	Alternative ID:

Town or Village: YIEWSLEY	Insp Dir: MH3 << U/S MH3	US MH: U/S MH3
Road: High Street	Inspected Length: 5.00 m	US Depth:
Location:	Total Length: 5.00 m	DS MH: MH3
Surface Cover:	Pipe Length: 0.00 m	DS Depth:

Use: Surface water	Pipe Shape: Circular
Type of Pipe: Gravity drain/sewer	Height / Width: 150 mm
Year Constructed:	Pipe Material: Vitrified clay pipe (i.e. all clayware)
Inspection Purpose:	Lining Type: None
Flow Control: No flow control	Lining Material: None

Comment:
Recommendation:

1:50	Position [m]	Code	Observation	MPEG	Photo	Grade
Depth: MH3 0.00 MH Start node type, manhole, reference number: MH3 00:00:00 0.00 WL Water level, 5% of the vertical dimension 00:00:01 1.20 LL Line deviates left 00:00:16 1.50 WL Water level, 10% of the vertical dimension 00:00:19 2.60 DES Settled deposits, fine, 20% cross-sectional area loss 00:00:26 3 3.40 REM General remark: RESTRICTED VIEW DUE TO DIRT ON LENSE 00:00:44 5.00 LU Line deviates up: 90 BEND 00:00:53 5.00 SA Survey abandoned: DUE TO BEND 00:00:53 Depth: U/S MH3						

Structural Defects

Constructional Features

Service and Maintenance Defects

Miscellaneous Features

Note: In line with the WRc SRM, plastic pipes are not scored against structural defects.

STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
0	0.0	0.0	0.0	1.0	1	2.0	0.4	2.0	3.0

Section Pictures - 30/05/2018 - U/S MH3X

Section Number: 28	Inspection Direction: MH3 << U/S MH3	PLR: U/S MH3X	Client's Ref:	Contractor's Ref:
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U_S
 MH3X_f8612077-ef92-47e7-a340-44c9e82f0511_20180604_14
 2336_384.jpg, 00:00:26, 2.60m
 Settled deposits, fine, 20% cross-sectional area loss



Section Inspection - 30/05/2018 - A/MH14X

Section: 29	Inspection: 29	Date: 30/05/18	Time:	Client's Ref:	Weather: No Rain Or Snow	Pre Cleaned: No	PLR: A/MH14X
Operator: Cb/Dh		Vehicle: FJ17 ZDS		Camera: Flexi	Preset Length:	Criticality Grade:	Alternative ID:

Town or Village: YIEWSLEY	Insp Dir: MH14 << A/MH14	US MH: A/MH14
Road: High Street	Inspected Length: 7.30 m	US Depth:
Location:	Total Length: 7.30 m	DS MH: MH14
Surface Cover:	Pipe Length: 0.00 m	DS Depth:

Use: Foul	Pipe Shape: Circular
Type of Pipe: Gravity drain/sewer	Height / Width: 100 mm
Year Constructed:	Pipe Material: Vitrified clay pipe (i.e. all clayware)
Inspection Purpose:	Lining Type: None
Flow Control: No flow control	Lining Material: None

Comment:
 Recommendation:

1:67	Position [m]	Code	Observation	MPEG	Photo	Grade
Depth: MH14 0.00 0.00 0.10 1.90 5.30 5.40 7.20 7.30 7.30 A/MH14 Depth:						
	0.00	MH	Start node type, manhole, reference number: MH14	00:00:00		
	0.00	WL	Water level, 5% of the vertical dimension	00:00:01		
	0.10	DEG	Attached deposits, grease from 3 o'clock to 8 o'clock, 5% cross-sectional area loss	00:00:05		2
	1.90	JDM	Joint displaced, medium	00:00:16		1
	5.30	JDM	Joint displaced, medium	00:00:38		1
	5.40	DEG	Attached deposits, grease from 3 o'clock to 6 o'clock, 5% cross-sectional area loss	00:00:38		2
	7.20	OBZ	Other obstacles from 5 o'clock to 7 o'clock, 20% cross-sectional area loss: ON 90 BEND	00:00:52		5
	7.30	LU	Line deviates up: 90 BEND	00:00:53		
	7.30	SA	Survey abandoned: DUE TO BEND/OBSTRUCTION	00:01:04		

Structural Defects					Constructional Features				
Service and Maintenance Defects					Miscellaneous Features				
Note: In line with the WRc SRM, plastic pipes are not scored against structural defects.									
STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
2	1.0	0.3	0.3	1.0	3	10.0	1.6	12.0	5.0

Section Pictures - 30/05/2018 - A/MH14X

Section Number: 29	Inspection Direction: MH14 << A/MH14	PLR: A/MH14X	Client's Ref:	Contractor's Ref:
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A_MH14X_04528b0a-7455-46eb-b22f-35010d4167e5_20180604_143517_428.jpg, 00:00:05, 0.10m
 Attached deposits, grease from 3 o'clock to 8 o'clock, 5% cross-sectional area loss



A_MH14X_0ebe5ef9-0fe6-42d8-a01f-5de9df510e83_20180604_143440_621.jpg, 00:00:16, 1.90m
 Joint displaced, medium



A_MH14X_f734058e-39ba-499b-9f6f-974fac535ce5_20180604_143727_323.jpg, 00:00:38, 5.30m
 Joint displaced, medium



A_MH14X_9e96a233-ed1c-48e5-94ed-759369fd6198_20180604_143909_323.jpg, 00:00:52, 7.20m
 Other obstacles from 5 o'clock to 7 o'clock, 20% cross-sectional area loss



Section Inspection - 30/05/2018 - B/MH14X

Section: 30	Inspection: 30	Date: 30/05/18	Time:	Client's Ref:	Weather: No Rain Or Snow	Pre Cleaned: No	PLR: B/MH14X
Operator: Cb/Dh		Vehicle: FJ17 ZDS		Camera: Flexi	Preset Length:	Criticality Grade:	Alternative ID:

Town or Village: YIEWSLEY	Insp Dir: MH14 << B/MH14	US MH: B/MH14
Road: High Street	Inspected Length: 18.20 m	US Depth:
Location:	Total Length: 18.20 m	DS MH: MH14
Surface Cover:	Pipe Length: 0.00 m	DS Depth:

Use: Foul	Pipe Shape: Circular
Type of Pipe: Gravity drain/sewer	Height / Width: 100 mm
Year Constructed:	Pipe Material: Vitrified clay pipe (i.e. all clayware)
Inspection Purpose:	Lining Type: None
Flow Control: No flow control	Lining Material: None

Comment:
 Recommendation:

1:165	Position [m]	Code	Observation	MPEG	Photo	Grade
Depth: MH14 B/MH14 Depth:						
	0.00	MH	Start node type, manhole, reference number: MH14	00:00:00		
	0.00	WL	Water level, 5% of the vertical dimension	00:00:01		
	7.10	JN	Junction at 9 o'clock, diameter: 100mm	00:00:57		
	10.00	JDM	Joint displaced, medium	00:01:13		1
	13.50	MCCI	Material changes to cast iron	00:01:44		
	16.20	LL	Line deviates left	00:02:07		
	18.20	GYF	Finish node type, gully, reference number: B/MH14	00:02:46		

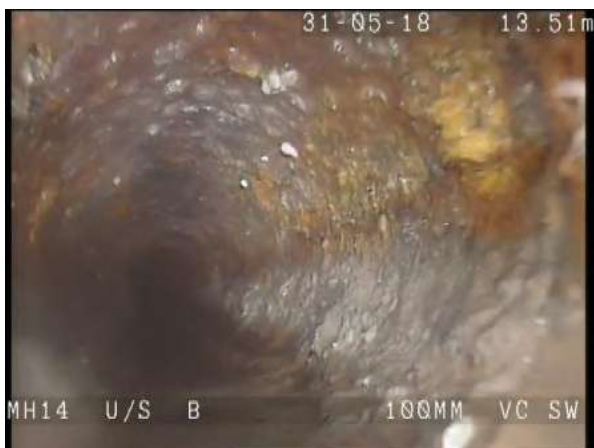
Structural Defects					Constructional Features				
Service and Maintenance Defects					Miscellaneous Features				
Note: In line with the WRc SRM, plastic pipes are not scored against structural defects.									
STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
1	1.0	0.1	0.1	1.0	0	0.0	0.0	0.0	1.0

Section Pictures - 30/05/2018 - B/MH14X

Section Number: 30	Inspection Direction: MH14 << B/MH14	PLR: B/MH14X	Client's Ref:	Contractor's Ref:
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B_MH14X_f80fcc4a-b6ef-4fc9-a41e-e90103d837d1_20180604_145211_035.jpg, 00:01:13, 10.00m
 Joint displaced, medium



B_MH14X_18d6d96b-3466-4bf2-97b0-6d6743690ace_20180604_150518_290.jpg, 00:01:44, 13.50m
 Material changes to cast iron



Section Inspection - 30/05/2018 - C/MH14X

Section: 31	Inspection: 31	Date: 30/05/18	Time:	Client's Ref:	Weather: No Rain Or Snow	Pre Cleaned: No	PLR: C/MH14X
Operator: Cb/Dh	Vehicle: FJ17 ZDS	Camera: Flexi	Preset Length:	Criticality Grade:	Alternative ID:		

Town or Village: YIEWSLEY	Insp Dir: MH14 << C/MH14	US MH: C/MH14
Road: High Street	Inspected Length: 2.50 m	US Depth:
Location:	Total Length: 2.50 m	DS MH: MH14
Surface Cover:	Pipe Length: 0.00 m	DS Depth:

Use: Foul	Pipe Shape: Circular
Type of Pipe: Gravity drain/sewer	Height / Width: 100 mm
Year Constructed:	Pipe Material: Vitrified clay pipe (i.e. all clayware)
Inspection Purpose:	Lining Type: None
Flow Control: No flow control	Lining Material: None

Comment:
Recommendation:

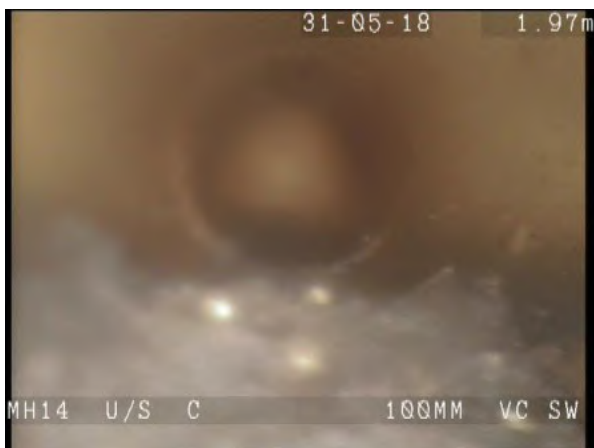
1:50	Position [m]	Code	Observation	MPEG	Photo	Grade
	0.00	MH	Start node type, manhole, reference number: MH14	00:00:00		
	0.00	WL	Water level, 5% of the vertical dimension	00:00:00		
	0.10	DES	Settled deposits, fine, 5% cross-sectional area loss	00:00:07		2
	1.30	JN	Junction at 2 o'clock, diameter: 100mm	00:00:19		
	2.00	DES	Settled deposits, fine, 5% cross-sectional area loss	00:00:23		2
	2.40	LU	Line deviates up: 90 BEND	00:00:28		
	2.50	SA	Survey abandoned: DUE TO BEND	00:00:28		

Section Pictures - 30/05/2018 - C/MH14X

Section Number: 31	Inspection Direction: MH14 << C/MH14	PLR: C/MH14X	Client's Ref:	Contractor's Ref:
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C_MH14X_680d6f3c-0fea-4b52-9ccd-474b44ce4e91_20180604_151707_649.jpg, 00:00:07, 0.10m
 Settled deposits, fine, 5% cross-sectional area loss



C_MH14X_4ecbaa30-d2c2-4194-8ce2-954695fa2ab7_20180604_151814_784.jpg, 00:00:23, 2.00m
 Settled deposits, fine, 5% cross-sectional area loss



Section Inspection - 30/05/2018 - D/MH14X

Section: 32	Inspection: 32	Date: 30/05/18	Time:	Client's Ref:	Weather: No Rain Or Snow	Pre Cleaned: No	PLR: D/MH14X
Operator: Cb/Dh	Vehicle: FJ17 ZDS	Camera: Flexi	Preset Length:	Criticality Grade:	Alternative ID:		

Town or Village: YIEWSLEY	Insp Dir: MH14 << D/MH14	US MH: D/MH14
Road: High Street	Inspected Length: 2.90 m	US Depth:
Location:	Total Length: 2.90 m	DS MH: MH14
Surface Cover:	Pipe Length: 0.00 m	DS Depth:

Use: Foul	Pipe Shape: Circular
Type of Pipe: Gravity drain/sewer	Height / Width: 100 mm
Year Constructed:	Pipe Material: Vitrified clay pipe (i.e. all clayware)
Inspection Purpose:	Lining Type: None
Flow Control: No flow control	Lining Material: None

Comment:
 Recommendation:

1:50	Position [m]	Code	Observation	MPEG	Photo	Grade
	0.00	MH	Start node type, manhole, reference number: MH14	00:00:00		
	0.00	WL	Water level, 5% of the vertical dimension	00:00:00		
	0.80	S01	DES Settled deposits, fine, 10% cross-sectional area loss, start	00:00:11		
	2.90	F01	DES Settled deposits, fine, 10% cross-sectional area loss, finish	00:00:45		3
	2.90	OBZ	Other obstacles from 4 o'clock to 8 o'clock, 40% cross-sectional area loss: ON 90 BEND	00:00:45		5
	2.90	LU	Line deviates up: 90 BEND	00:00:45		
	2.90	SA	Survey abandoned: DUE TO BEND/OBSTRUCTION	00:00:45		

Depth:

Structural Defects					Constructional Features				
Service and Maintenance Defects					Miscellaneous Features				
Note: In line with the WRc SRM, plastic pipes are not scored against structural defects.									
STR No. Def	STR Peak	STR Mean	STR Total	STR Grade	SER No. Def	SER Peak	SER Mean	SER Total	SER Grade
0	0.0	0.0	0.0	1.0	2	10.0	4.1	12.0	5.0

Section Pictures - 30/05/2018 - D/MH14X

Section Number: 32	Inspection Direction: MH14 << D/MH14	PLR: D/MH14X	Client's Ref:	Contractor's Ref:
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D_MH14X_b1db26ca-8089-47d0-a1ff-45bb5a26b379_20180604_152331_678.jpg, 00:00:11, 0.80m
 Settled deposits, fine, 10% cross-sectional area loss, start



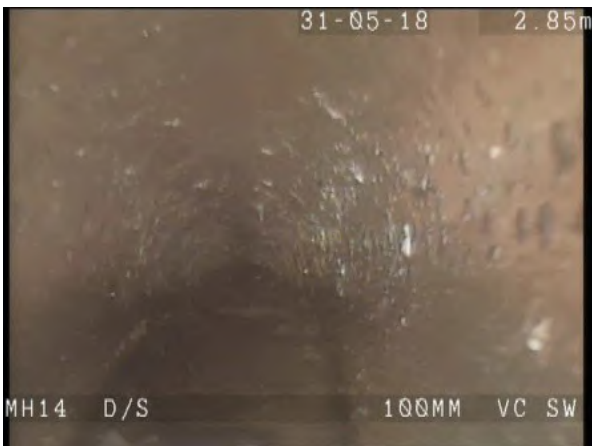
D_MH14X_a3025a4a-48bc-453f-b890-f5ff270501e4_20180604_154048_176.jpg, 00:00:45, 2.90m
 Other obstacles from 4 o'clock to 8 o'clock, 40% cross-sectional area loss

Section Pictures - 30/05/2018 - MH14X

Section Number: 33	Inspection Direction: MH14 >> D/S MH14	PLR: MH14X	Client's Ref:	Contractor's Ref:
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MH14X_168c0c70-77c0-4d60-9b76-dbb6a92cb306_20180604_154812_244.jpg, 00:00:09, 0.50m
 Crack, longitudinal at joint at 2 o'clock



MH14X_cb3f99e3-0051-486d-941d-521f01aa8701_20180604_154912_875.jpg, 00:00:22, 2.90m
 Water level, 20% of the vertical dimension

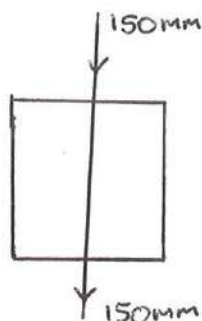
REFERENCE:

MHI

DUTY:

SW

DIAGRAM:



DEPTH AT OUTLET: 1160mm

MH SIZE 1000mm x 700mm

MH MATERIAL Brick

OBSERVATIONS/ COMMENTS:

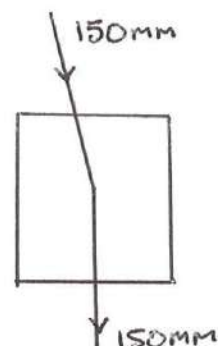
REFERENCE:

MHZ

DUTY:

SW

DIAGRAM:



DEPTH AT OUTLET: 950mm

MH SIZE 800mm X 800mm

MH MATERIAL Brick

OBSERVATIONS/ COMMENTS:

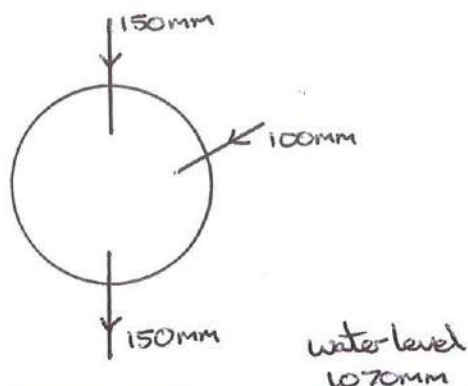
REFERENCE:

Int 1

DUTY:

SW

DIAGRAM:



DEPTH AT OUTLET: 1100mm (Total depth 2300mm)

MH SIZE 1100mm Ø

MH MATERIAL

OBSERVATIONS/ COMMENTS:

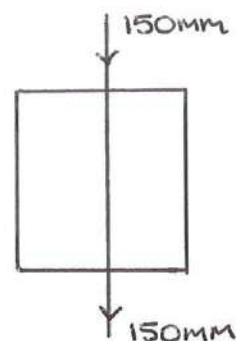
REFERENCE:

MH3

DUTY:

SW

DIAGRAM:



DEPTH AT OUTLET: 1730mm

MH SIZE 900mm x 700mm

MH MATERIAL Brick

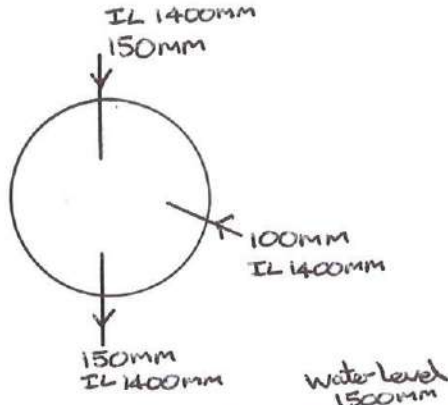
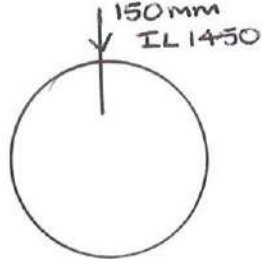
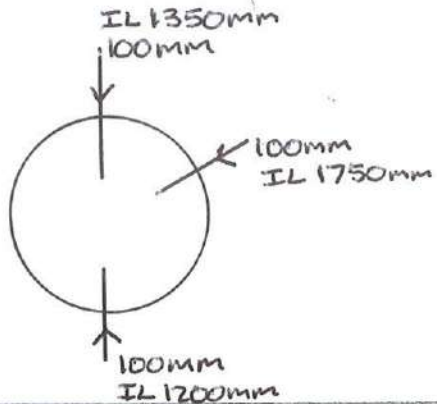
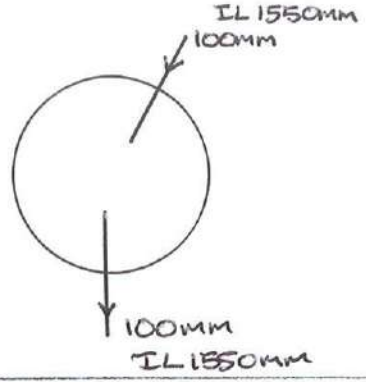
OBSERVATIONS/ COMMENTS:

Jetting • Vacuumation • Camera Inspection • Excavation & Repairs • Septic Tanks

tel: 01283 / 30333 fax: 01283 / 30141 www.aquajetltd.co.uk aquajetltd@aol.com

Aqua Jet Specialist Drainage Contractors Ltd, Yard 21, Hilton Industrial Estate, Sutton Lane, Hilton, Derbyshire, DE65 5FL

Manhole Information

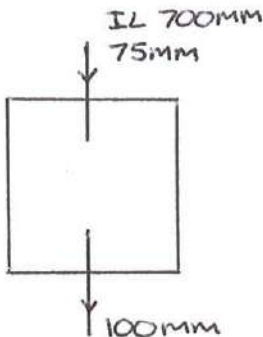
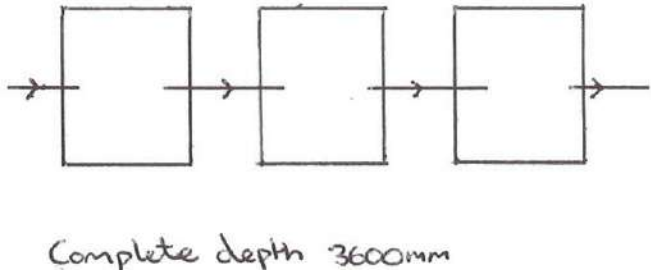
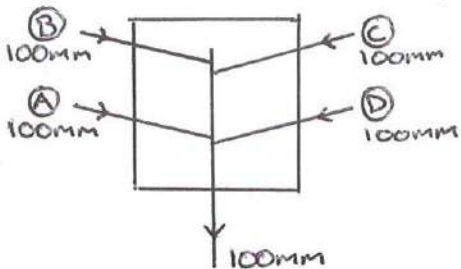
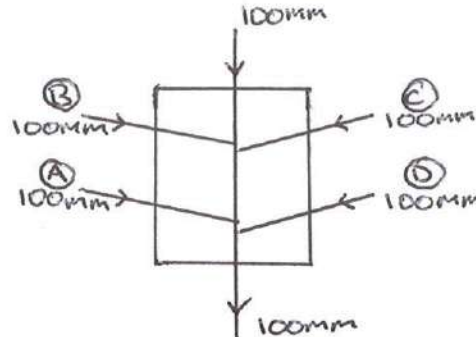
REFERENCE: MH4	DUTY: SW	REFERENCE: MH5	DUTY: SW
DIAGRAM: 		DIAGRAM: 	
DEPTH AT OUTLET: Total depth 3000mm		DEPTH AT OUTLET: Total depth 2450mm	
MH SIZE 1250mm Ø		MH SIZE 1250mm Ø	
MH MATERIAL Concrete		MH MATERIAL Concrete	
OBSERVATIONS/ COMMENTS:		OBSERVATIONS/ COMMENTS: No outlet Possible soakaway	
REFERENCE: MH6	DUTY: SW	REFERENCE: MH7	DUTY: SW
DIAGRAM: 		DIAGRAM: 	
DEPTH AT OUTLET: No outlet		DEPTH AT OUTLET: 1550mm	
MH SIZE 1250mm Ø		MH SIZE 1250mm Ø	
MH MATERIAL Concrete		MH MATERIAL Concrete	
OBSERVATIONS/ COMMENTS: Catch pit possible soakaway		OBSERVATIONS/ COMMENTS: Catch pit	

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Manhole Information

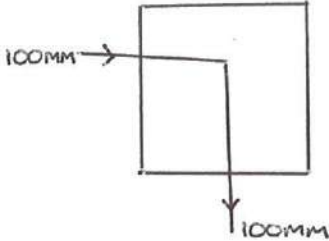
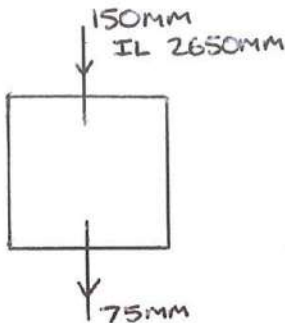
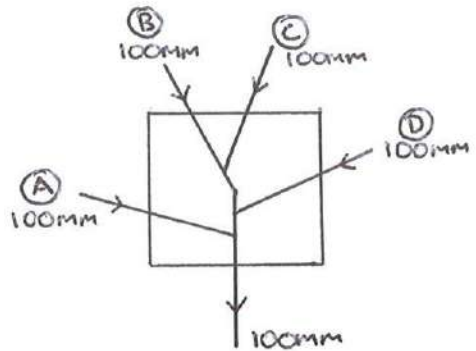
REFERENCE: MH8	DUTY: SW	REFERENCE: Int 2	DUTY: SW
DIAGRAM: 		DIAGRAM: 	
DEPTH AT OUTLET: 1200mm		DEPTH AT OUTLET: 2550mm	
MH SIZE 700mm x 600mm		MH SIZE 750mm x 500mm	
MH MATERIAL Brick		MH MATERIAL PVC	
OBSERVATIONS/ COMMENTS: Catch pit		OBSERVATIONS/ COMMENTS: Interceptor	
REFERENCE: MH10	DUTY: SW	REFERENCE: MH11	DUTY: SW
DIAGRAM: 		DIAGRAM: 	
DEPTH AT OUTLET: 550mm		DEPTH AT OUTLET: 750mm	
MH SIZE 800mm x 650mm		MH SIZE 750mm x 700mm	
MH MATERIAL Concrete		MH MATERIAL Concrete	
OBSERVATIONS/ COMMENTS:		OBSERVATIONS/ COMMENTS:	

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Manhole Information

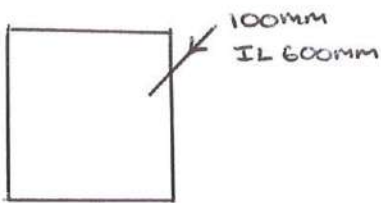
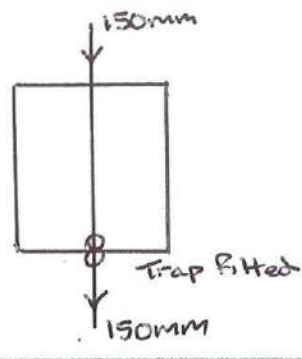
REFERENCE: MH12	DUTY: SW	REFERENCE: MH13	DUTY: SW
DIAGRAM: 		DIAGRAM: UTR	
DEPTH AT OUTLET: 690mm		DEPTH AT OUTLET:	
MH SIZE 750mm x 750mm		MH SIZE	
MH MATERIAL Concrete		MH MATERIAL	
OBSERVATIONS/ COMMENTS:		OBSERVATIONS/ COMMENTS:	
REFERENCE: MH9	DUTY: SW	REFERENCE: MH14	DUTY: FW
DIAGRAM: 		DIAGRAM: 	
DEPTH AT OUTLET: 750mm (total depth 3700mm)		DEPTH AT OUTLET: 1550mm	
MH SIZE 1500mm x 1500mm		MH SIZE 1200mm x 800mm	
MH MATERIAL Brick		MH MATERIAL Brick	
OBSERVATIONS/ COMMENTS: Pump station		OBSERVATIONS/ COMMENTS:	

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Manhole Information

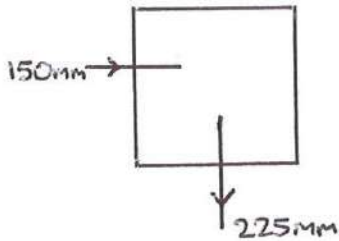
REFERENCE: MH15	DUTY: FW	REFERENCE: MH16	DUTY: ?
DIAGRAM: Blocked unable to clear		DIAGRAM: 	
DEPTH AT OUTLET:		DEPTH AT OUTLET: 1750mm	
MH SIZE		MH SIZE 900mm x 500mm	
MH MATERIAL		MH MATERIAL Brick	
OBSERVATIONS/ COMMENTS:		OBSERVATIONS/ COMMENTS: Heavy silt unable to see outlet	
REFERENCE: MH17	DUTY:	REFERENCE: MH20	DUTY: FW
DIAGRAM: 		DIAGRAM: 	
DEPTH AT OUTLET: 1750mm		DEPTH AT OUTLET: 1250mm	
MH SIZE		MH SIZE 700mm x 550mm	
MH MATERIAL		MH MATERIAL Brick	
OBSERVATIONS/ COMMENTS: Possible Redundant chamber		OBSERVATIONS/ COMMENTS: Trap on outlet	

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Manhole Information

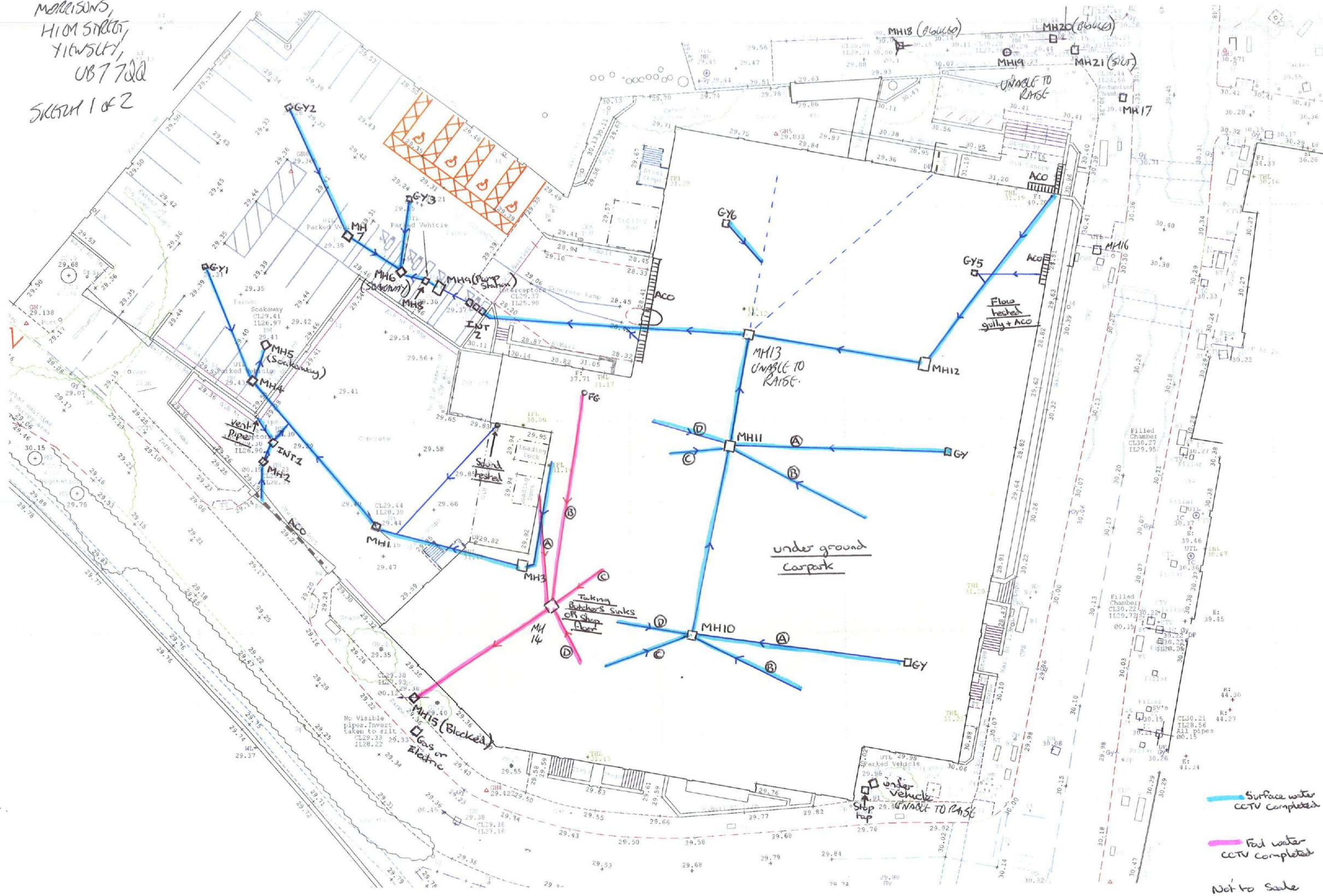
REFERENCE: MH21	DUTY: SW	REFERENCE:	DUTY:
DIAGRAM: 		DIAGRAM:	
DEPTH AT OUTLET: 1150 mm		DEPTH AT OUTLET:	
MH SIZE 700mm x 650mm		MH SIZE	
MH MATERIAL Brick		MH MATERIAL	
OBSERVATIONS/ COMMENTS: Catchpit , Heavy Silt		OBSERVATIONS/ COMMENTS:	
REFERENCE:	DUTY:	REFERENCE:	DUTY:
DIAGRAM:		DIAGRAM:	
DEPTH AT OUTLET:		DEPTH AT OUTLET:	
MH SIZE		MH SIZE	
MH MATERIAL		MH MATERIAL	
OBSERVATIONS/ COMMENTS:		OBSERVATIONS/ COMMENTS:	

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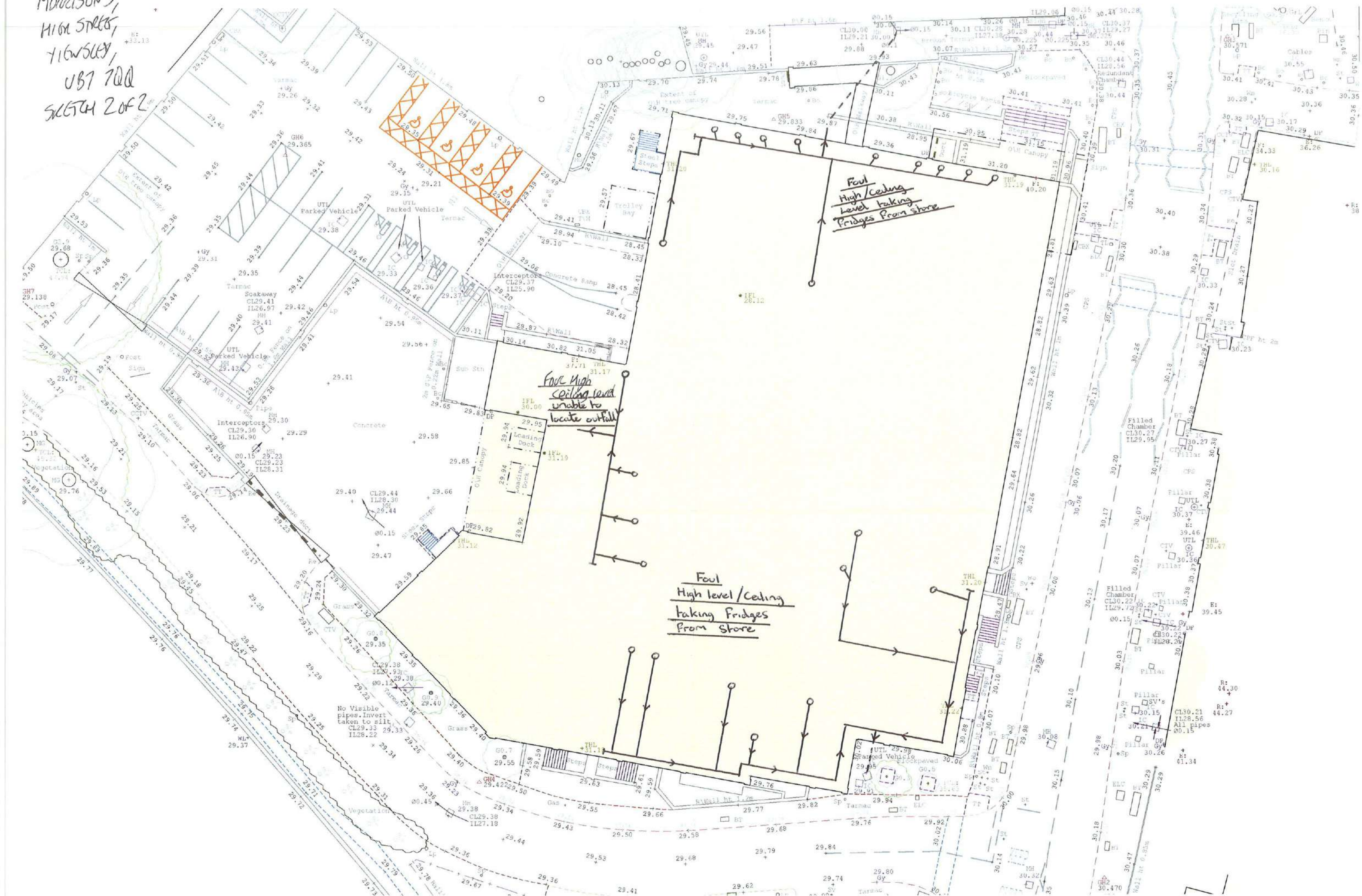
Tel: 01283 730333 Fax: 01283 730144 www.aquajetltd.co.uk aquajetltd@aol.com

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MORRISONS,
H10M STREET,
TILWORTHY,
UB7 7QQ
SHEET 1 of 2



MORRISONS,
HIGH STREET,
TILWUSLEY,
UB7 7QQ
SKETCH 2 of 2



Appendix D

Thames Water Sewer Record Map

Asset Location Search Sewer Map - ALS/ALS Standard/2018 3729609

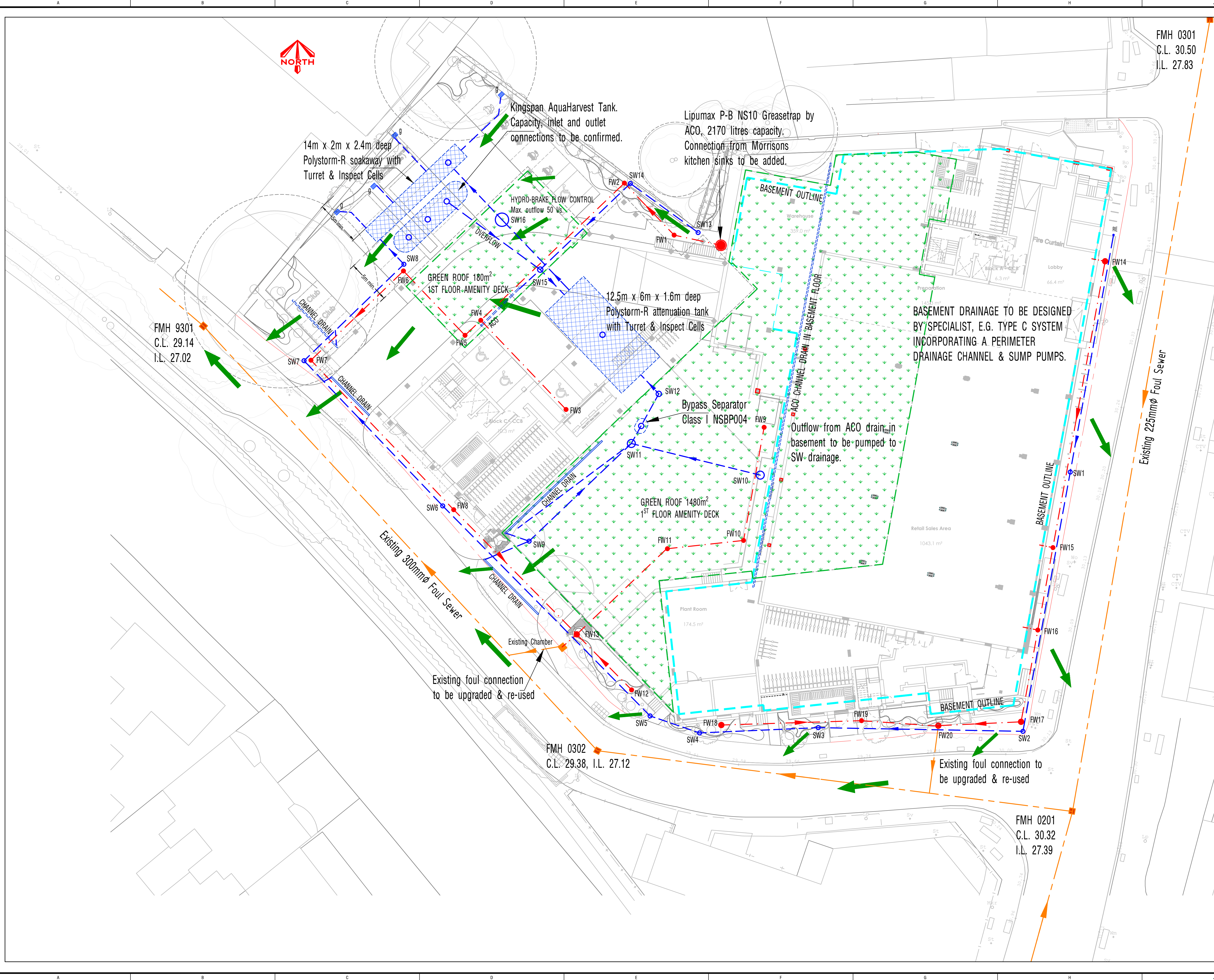


The width of the displayed area is 500 m and the centre of the map is located at OS coordinates 506031,180348
The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.

Based on the Ordnance Survey Map with the Sanction of the controller of H.M. Stationery Office, License no. 100019345 Crown Copyright Reserved.

Appendix E

Proposed Drainage Strategy Plan



FMH 0301
C.L. 30.50
I.L. 27.83

FMH 9301
C.L. 29.14
I.L. 27.02

FMH 0302
C.L. 29.38, I.L. 27.12

FMH 0201
C.L. 30.32
I.L. 27.39

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NOTES:

- 1. THE DRAINAGE IS TO BE CONSTRUCTED IN ACCORDANCE WITH PART H OF THE BUILDING REGULATIONS & THE CIVIL ENGINEERING SPECIFICATION FOR THE WATER INDUSTRY. MANHOLE TYPES ARE IN ACCORDANCE WITH THE DESIGN AND CONSTRUCTION GUIDANCE (SEWERAGE SECTOR GUIDANCE).
- 2. ALL UNDERGROUND SW & FW DRAINAGE TO BE 150mmØ MINIMUM LAID NO FLATTER THAN 1:150.
- 3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL ASSOCIATED ARCHITECT'S AND ENGINEERS' DRAWINGS AND SPECIFICATIONS.
- 4. PREFABRICATED DRAINAGE COMPONENTS ARE TO BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS' INSTRUCTIONS & GUIDELINES.
- 5. CONNECTIONS TO THE PUBLIC FOUL SEWER TO BE SUBJECT TO APPROVAL BY THAMES WATER UNDER SECTION 106 OF THE WATER INDUSTRY ACT.

KEY

- PROPOSED SURFACE WATER DRAIN
- PROPOSED FOUL WATER DRAIN
- EXISTING FOUL DRAIN
- PROPOSED GREEN ROOF
- EXCEEDANCE FLOW ROUTE

A	27.07.2023	Green roofs, rainwater harvesting tank and exceedance flow routes added.	DM	WEH
-	04.01.2023	Preliminary issue - Planning	DM	WEH
rev.	date	Description	Drawn	Chk.

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Lincoln
LN1 1SR
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client:
Harbourside Investments Ltd

project:
Morrisons, High Street
Viewsley

drawing title:
Drainage Strategy Plan

scale: 1:200 (A1) status: Planning

job number: 10-4897 drawing number: SK500 revision: A

Appendix F

Preliminary MicroDrainage SW Drainage Simulation Results

Ward Cole Consulting Engineers		Page 1
Fosse House Roman Wharf Lincoln LN1 1SR	Morrisons, High Street Yiewsley 10/4897	
Date 27/07/2023	Designed by DM	
File Preliminary Surface Water Dr...	Checked by	
Innovyze	Network 2020.1.3	

STORM SEWER DESIGN by the Modified Rational Method

Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	n	HYD SECT	DIA (mm)	Section Type	Auto Design
1.000	2.957	0.030	98.6	0.038	4.00	0.0	0.600		o	225	Pipe/Conduit	
2.000	3.919	0.030	130.6	0.076	4.00	0.0	0.600		o	150	Pipe/Conduit	
1.001	12.500	0.001	12500.0	0.120	0.00	0.0		0.050	→[↓]		Cellular Storage	
1.002	10.970	0.049	223.9	0.000	0.00	0.0	0.600		o	300	Pipe/Conduit	
1.003	7.875	0.030	262.5	0.000	0.00	0.0	0.600		o	375	Pipe/Conduit	
1.004	14.000	0.001	14000.0	0.074	0.00	0.0		0.050	→[↓]		Cellular Storage	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
1.000	50.00	4.04	28.250	0.038	0.0	0.0	0.0	1.32	52.4	5.1
2.000	50.00	4.07	28.250	0.076	0.0	0.0	0.0	0.88	15.5	10.3
1.001	50.00	5.69	27.000	0.234	0.0	0.0	0.0	0.13	1128.7	31.7
1.002	50.00	5.87	26.999	0.234	0.0	0.0	0.0	1.05	74.0	31.7
1.003	50.00	5.99	26.950	0.234	0.0	0.0	0.0	1.11	123.0	31.7
1.004	50.00	8.10	26.500	0.308	0.0	0.0	0.0	0.11	514.3	41.7

Ward Cole Consulting Engineers		Page 2
Fosse House Roman Wharf Lincoln LN1 1SR	Morrisons, High Street Yiewsley 10/4897	
Date 27/07/2023 File Preliminary Surface Water Dr...	Designed by DM Checked by	
Innovyze	Network 2020.1.3	

PIPELINE SCHEDULES for Storm

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
1.000	o		SW12	29.800	28.250	1.325	Open Manhole	1200
2.000	o	150	SW15	29.800	28.250	1.400	Open Manhole	600
1.001	→[↓]		ATT	29.800	27.000	1.100	Open Manhole	3000
1.002	o	300	ATT	29.800	26.999	2.501	Open Manhole	3000
1.003	o	375	SW16	29.700	26.950	2.375	Open Manhole	1200
1.004	→[↓]		SKWY	29.500	26.500	0.500	Open Manhole	3000

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
1.000	2.957	98.6	ATT	29.800	28.220	1.355	Open Manhole	3000
2.000	3.919	130.6	ATT	29.800	28.220	1.430	Open Manhole	3000
1.001	12.500	12500.0	ATT	29.800	26.999	1.101	Open Manhole	3000
1.002	10.970	223.9	SW16	29.700	26.950	2.450	Open Manhole	1200
1.003	7.875	262.5	SKWY	29.500	26.920	2.205	Open Manhole	3000
1.004	14.000	14000.0	DUMMY	29.500	26.499	0.501	Open Manhole	3000

Ward Cole Consulting Engineers		Page 3
Fosse House	Morrisons, High Street	
Roman Wharf	Yiewsley	
Lincoln LN1 1SR	10/4897	
Date 27/07/2023	Designed by DM	
File Preliminary Surface Water Dr...	Checked by	
Innovyze	Network 2020.1.3	

Online Controls for Storm

Hydro-Brake® Optimum Manhole: SW16, DS/PN: 1.003, Volume (m³): 3.7

Unit Reference	MD-SHE-0288-5000-1500-5000
Design Head (m)	1.500
Design Flow (l/s)	50.0
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	288
Invert Level (m)	26.950
Minimum Outlet Pipe Diameter (mm)	375
Suggested Manhole Diameter (mm)	2100

Control Points	Head (m)	Flow (l/s)	Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.500	49.9	Kick-Flo®	1.067	42.4
Flush-Flo™	0.505	49.8	Mean Flow over Head Range	-	42.1

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

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	8.9	0.800	48.2	2.000	57.4	4.000	80.3	7.000	105.4
0.200	29.7	1.000	44.8	2.200	60.1	4.500	85.0	7.500	109.0
0.300	47.6	1.200	44.9	2.400	62.7	5.000	89.5	8.000	112.5
0.400	49.4	1.400	48.3	2.600	65.1	5.500	93.7	8.500	115.9
0.500	49.8	1.600	51.5	3.000	69.8	6.000	97.8	9.000	119.2
0.600	49.6	1.800	54.5	3.500	75.2	6.500	101.7	9.500	122.4

Ward Cole Consulting Engineers		Page 4
Fosse House Roman Wharf Lincoln LN1 1SR	Morrisons, High Street Yiewsley 10/4897	
Date 27/07/2023	Designed by DM	
File Preliminary Surface Water Dr...	Checked by	
Innovyze	Network 2020.1.3	

Storage Structures for Storm

Cellular Storage Pipe: 1.001

Manning's N 0.050 Infiltration Coefficient Side (m/hr) 0.00000
Invert Level (m) 27.000 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95

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	70.0	70.0	1.600	70.0	130.8	1.700	0.0	130.8

Cellular Storage Pipe: 1.004

Manning's N 0.050 Infiltration Coefficient Side (m/hr) 3.25800
Invert Level (m) 26.500 Safety Factor 5.0
Infiltration Coefficient Base (m/hr) 3.25800 Porosity 0.95

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	28.0	28.0	2.400	28.0	104.8	2.500	0.0	104.8

Time Area Diagram for Green Roof at Pipe Number 1.000 (Storm)

Area (m³) 1000 Evaporation (mm/day) 3
Depression Storage (mm) 5 Decay Coefficient 0.050

Time (mins)	Area (ha)	Time (mins)	Area (ha)	Time (mins)	Area (ha)	Time (mins)	Area (ha)
From:	To:	From:	To:	From:	To:	From:	To:
0	4 0.018172	32	36 0.003669	64	68 0.000741	96	100 0.000150
4	8 0.014878	36	40 0.003004	68	72 0.000606	100	104 0.000122
8	12 0.012181	40	44 0.002459	72	76 0.000497	104	108 0.000100
12	16 0.009973	44	48 0.002014	76	80 0.000407	108	112 0.000082
16	20 0.008165	48	52 0.001649	80	84 0.000333	112	116 0.000067
20	24 0.006685	52	56 0.001350	84	88 0.000272	116	120 0.000055
24	28 0.005473	56	60 0.001105	88	92 0.000223		
28	32 0.004481	60	64 0.000905	92	96 0.000183		

Time Area Diagram for Green Roof at Pipe Number 2.000 (Storm)

Area (m³) 660 Evaporation (mm/day) 3
Depression Storage (mm) 5 Decay Coefficient 0.050

Time (mins)	Area (ha)	Time (mins)	Area (ha)	Time (mins)	Area (ha)	Time (mins)	Area (ha)
From:	To:	From:	To:	From:	To:	From:	To:
0	4 0.011993	32	36 0.002421	64	68 0.000489	96	100 0.000099
4	8 0.009819	36	40 0.001983	68	72 0.000400	100	104 0.000081
8	12 0.008039	40	44 0.001623	72	76 0.000328	104	108 0.000066
12	16 0.006582	44	48 0.001329	76	80 0.000268	108	112 0.000054
16	20 0.005389	48	52 0.001088	80	84 0.000220	112	116 0.000044
20	24 0.004412	52	56 0.000891	84	88 0.000180	116	120 0.000036
24	28 0.003612	56	60 0.000729	88	92 0.000147		
28	32 0.002958	60	64 0.000597	92	96 0.000121		

Ward Cole Consulting Engineers		Page 5
Fosse House	Morrisons, High Street	
Roman Wharf	Yiewsley	
Lincoln LN1 1SR	10/4897	
Date 27/07/2023	Designed by DM	
File Preliminary Surface Water Dr...	Checked by	
Innovyze	Network 2020.1.3	

1 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

Simulation Criteria

Areal Reduction Factor 1.000 Additional Flow - % of Total Flow 0.000
 Hot Start (mins) 0 MADD Factor * 10m³/ha Storage 0.000
 Hot Start Level (mm) 0 Inlet Coefficient 0.800
 Manhole Headloss Coeff (Global) 0.500 Flow per Person per Day (l/per/day) 0.000
 Foul Sewage per hectare (l/s) 0.000

 Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 2
 Number of Online Controls 1 Number of Storage Structures 2 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FEH D3 (1km) 0.226
 FEH Rainfall Version 1999 E (1km) 0.304
 Site Location GB 505850 180400 TQ 05850 80400 F (1km) 2.571
 C (1km) -0.025 Cv (Summer) 0.750
 D1 (1km) 0.318 Cv (Winter) 0.840
 D2 (1km) 0.297

 Margin for Flood Risk Warning (mm) 300.0
 Analysis Timestep 2.5 Second Increment (Extended)
 DTS Status ON
 DVD Status ON
 Inertia Status ON

 Profile(s) Summer and Winter
 Duration(s) (mins) 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960,
 1440, 2160, 2880, 4320, 5760, 7200, 8640, 10080
 Return Period(s) (years) 1, 30, 100
 Climate Change (%) 0, 0, 40

US/MH		Return Climate		First (X)		First (Y)		First (Z)		Water	Surcharged
PN	Name	Storm	Period	Change	Surcharge	Flood	Overflow	Overflow	Act.	Level	Depth
1.000	SW12	60 Winter	1	+0%	100/15 Summer					28.303	-0.172
2.000	SW15	60 Winter	1	+0%	100/15 Summer					28.302	-0.098
1.001	ATT	120 Winter	1	+0%						27.080	-1.620
1.002	ATT	120 Winter	1	+0%	30/15 Winter					27.080	-0.219
1.003	SW16	120 Winter	1	+0%	30/30 Summer					27.049	-0.276
1.004	SKWY	120 Winter	1	+0%						26.751	-2.249

Flooded		Half Drain		Pipe		Level	
US/MH	Volume	Flow /	Overflow	Time	Flow	Status	Exceeded
PN	Name	(m ³)	Cap.	(l/s)	(mins)	(l/s)	
1.000	SW12	0.000	0.13			3.7	OK
2.000	SW15	0.000	0.23			2.5	OK
1.001	ATT	0.000	0.00		44	10.3	OK
1.002	ATT	0.000	0.15			8.8	OK
1.003	SW16	0.000	0.10			8.8	OK
1.004	SKWY	0.000	0.01		36	9.9	OK

Ward Cole Consulting Engineers		Page 6
Fosse House	Morrisons, High Street	
Roman Wharf	Yiewsley	
Lincoln LN1 1SR	10/4897	
Date 27/07/2023	Designed by DM	
File Preliminary Surface Water Dr...	Checked by	
Innovyze	Network 2020.1.3	

30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

Simulation Criteria

Areal Reduction Factor 1.000 Additional Flow - % of Total Flow 0.000
 Hot Start (mins) 0 MADD Factor * 10m³/ha Storage 0.000
 Hot Start Level (mm) 0 Inlet Coefficient 0.800
 Manhole Headloss Coeff (Global) 0.500 Flow per Person per Day (l/per/day) 0.000
 Foul Sewage per hectare (l/s) 0.000

 Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 2
 Number of Online Controls 1 Number of Storage Structures 2 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FEH D3 (1km) 0.226
 FEH Rainfall Version 1999 E (1km) 0.304
 Site Location GB 505850 180400 TQ 05850 80400 F (1km) 2.571
 C (1km) -0.025 Cv (Summer) 0.750
 D1 (1km) 0.318 Cv (Winter) 0.840
 D2 (1km) 0.297

 Margin for Flood Risk Warning (mm) 300.0
 Analysis Timestep 2.5 Second Increment (Extended)
 DTS Status ON
 DVD Status ON
 Inertia Status ON

 Profile(s) Summer and Winter
 Duration(s) (mins) 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960,
 1440, 2160, 2880, 4320, 5760, 7200, 8640, 10080
 Return Period(s) (years) 1, 30, 100
 Climate Change (%) 0, 0, 40

US/MH		Return Climate		First (X)		First (Y)		First (Z)		Overflow	Water	Surcharged
PN	Name	Storm	Period	Change	Surcharge	Flood	Overflow	Act.			Level	Depth
1.000	SW12	15 Winter	30	+0%	100/15 Summer						28.362	-0.113
2.000	SW15	15 Winter	30	+0%	100/15 Summer						28.377	-0.023
1.001	ATT	120 Winter	30	+0%							27.523	-1.177
1.002	ATT	120 Winter	30	+0%	30/15 Winter						27.523	0.224
1.003	SW16	120 Winter	30	+0%	30/30 Summer						27.523	0.198
1.004	SKWY	120 Winter	30	+0%							27.416	-1.584

Flooded		Half Drain		Pipe		Level	
PN	US/MH Name	Volume (m ³)	Flow / Cap.	Time (mins)	Flow (l/s)	Status	Exceeded
1.000	SW12	0.000	0.45		13.5	OK	
2.000	SW15	0.000	0.84		9.1	OK	
1.001	ATT	0.000	0.01	61	27.6	OK	
1.002	ATT	0.000	0.39		22.9	SURCHARGED	
1.003	SW16	0.000	0.26		22.5	SURCHARGED	
1.004	SKWY	0.000	0.02	100	26.3	OK	

Ward Cole Consulting Engineers		Page 7
Fosse House	Morrisons, High Street	
Roman Wharf	Yiewsley	
Lincoln LN1 1SR	10/4897	
Date 27/07/2023	Designed by DM	
File Preliminary Surface Water Dr...	Checked by	
Innovyze	Network 2020.1.3	

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

Simulation Criteria

Areal Reduction Factor 1.000 Additional Flow - % of Total Flow 0.000
 Hot Start (mins) 0 MADD Factor * 10m³/ha Storage 0.000
 Hot Start Level (mm) 0 Inlet Coefficient 0.800
 Manhole Headloss Coeff (Global) 0.500 Flow per Person per Day (l/per/day) 0.000
 Foul Sewage per hectare (l/s) 0.000

 Number of Input Hydrographs 0 Number of Offline Controls 0 Number of Time/Area Diagrams 2
 Number of Online Controls 1 Number of Storage Structures 2 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FEH D3 (1km) 0.226
 FEH Rainfall Version 1999 E (1km) 0.304
 Site Location GB 505850 180400 TQ 05850 80400 F (1km) 2.571
 C (1km) -0.025 Cv (Summer) 0.750
 D1 (1km) 0.318 Cv (Winter) 0.840
 D2 (1km) 0.297

 Margin for Flood Risk Warning (mm) 300.0
 Analysis Timestep 2.5 Second Increment (Extended)
 DTS Status ON
 DVD Status ON
 Inertia Status ON

 Profile(s) Summer and Winter
 Duration(s) (mins) 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960,
 1440, 2160, 2880, 4320, 5760, 7200, 8640, 10080
 Return Period(s) (years) 1, 30, 100
 Climate Change (%) 0, 0, 40

US/MH		Storm	Return Period	Climate Change	First (X) Surge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level	Surcharged Depth
PN	Name								(m)	(m)
1.000	SW12	120 Winter	100	+40%	100/15 Summer				28.516	0.041
2.000	SW15	120 Winter	100	+40%	100/15 Summer				28.520	0.120
1.001	ATT	120 Winter	100	+40%					28.513	-0.187
1.002	ATT	120 Winter	100	+40%	30/15 Winter				28.512	1.213
1.003	SW16	120 Winter	100	+40%	30/30 Summer				28.502	1.177
1.004	SKWY	120 Winter	100	+40%					28.375	-0.625

Flooded		Half Drain		Pipe		Status	Level Exceeded
PN	US/MH Name	Volume (m³)	Flow / Cap. (l/s)	Time (mins)	Flow (l/s)		
1.000	SW12	0.000	0.61		18.2	SURCHARGED	
2.000	SW15	0.000	1.11		12.0	SURCHARGED	
1.001	ATT	0.000	0.02	107	52.8	OK	
1.002	ATT	0.000	0.42		24.9	SURCHARGED	
1.003	SW16	0.000	0.28		24.0	SURCHARGED	
1.004	SKWY	0.000	0.02	148	29.6	OK	

Appendix G

Consultation Responses

Mr Daniel Mutepfa
Ward Cole
Byron Business Centre (Unit 16) Duke
Street
Hucknall
Nottingham
NG15 7HP

Our ref: NE/2018/128309/01-L01
Your ref: 180302/KS05
Date: 20 March 2018

Dear Mr. Mutepfa,

**Mixed development comprising 1565m² supermarket/warehouse floor space (ground Floor), 160 housing units on 7 floors, ground floor and basement car parking
41-67 High Street, West Drayton, Hillingdon, UB7 7QQ**

Preliminary opinion regarding development at the application site

Thank you for the above pre-application enquiry. The response below is a preliminary opinion of the constraints which should be considered for the proposed use at this site. I understand that you may only be focusing on one aspect of the development, however I have included all the environmental constraints and opportunities for the site within our remit. If you would like further advice, such as the review of a Flood Risk Assessment (FRA), we now charge for this service. Further information about this can be found on our [website](#).

EA opinion

The proposal as submitted does not coincide with any constraints that fall within the remit of the Environment Agency. For example, the site is within Flood Zone 1 (low probability of flooding) and not within a Source Protection Zone (sensitive groundwater areas). If a planning application was submitted for this development as proposed, we would likely have no objections.

Note to applicant

Please note that the view expressed in this letter by the Environment Agency is a response to a pre application enquiry only and does not represent our final view in relation to any future planning application made in relation to this site.

We reserve the right to change our position in relation to any such application. You should seek your own expert advice in relation to technical matters relevant to any planning application before submission.

This opinion is based on the information submitted and current planning policy and guidance.

Cont/d..

If you have any questions please contact me on 0208 474 9008 or email me at HNL.SustainablePlaces@environment-agency.gov.uk, quoting the reference at the beginning of this letter.

Invitation for further advice

We have provided this initial preliminary opinion in response to the pre application enquiry. If you would like any further detailed advice we would be happy to provide this subject to a charge.

Yours sincerely,

Mr. James Passmore
Sustainable Places Planning Advisor

Direct dial: 0208 474 9008

Direct e-mail: james.passmore1@environment-agency.gov.uk



Mr Daniel Mutepfa
Ward Cole Consulting Engineers
Fosse House, Roman Wharf
Lincoln
LN1 1SR



Your account number
DS6045471



Developer.services@thameswater.co.uk



0800 009 3921

Mon – Fri 9am-5pm,

20/03/2018

Pre Development Enquiry

Site Address: Morrison's, 43-67 High Street, Yiewsley, West Drayton, London, UB7 7QQ, OS grid ref. 506047, 180347.

Existing site: Commercial: 2540m². Foul water discharging by gravity into foul water sewer in St. Stephen's Road, Existing SW run off for 1 in 1: 69.5l/s 1 in 10: 142.4l/s, 1 in 30: 178.7l/s 1 in 100: 228.3l/s discharging into soakaway.

Proposed Development: Units Houses: 160, Commercial: 1565m². Foul water discharging by gravity into foul water sewer in St. Stephen's Road, Unknown surface water strategy.

Dear Mr Mutepfa,

I write in relation to the Pre-Development application submitted, we have completed the assessment of the foul water flows and surface water run-off based on the information submitted in your application with the purpose of assessing sewer capacity within the existing Thames Water sewer network.

Foul Water

From the information you have provided, we can confirm that the existing foul sewer network does have sufficient capacity to accommodate the proposed foul water discharge from the proposed development.

Surface Water

Please note that discharging surface water to the public sewer network should only be considered after all other methods of disposal have been investigated and proven to not be viable. In accordance with the Building Act 2000 Clause H3.3, positive connection to a public sewer will only be consented when it can be demonstrated that the hierarchy of disposal methods have been examined and proven to be impracticable. The disposal hierarchy being: 1st Soakaways; 2nd Watercourses; 3rd Sewers.

Only when it can be proven that soakage into the ground or a connection into the adjacent watercourse is not possible would we consider a restricted discharge into the public surface water sewer network.

We would encourage techniques such as green roofs and/or permeable paving that restricts surface water discharge from your site.

Based upon policy 5.13 of the London Plan. Typically greenfield run off rates of 5l/s/ha should be aimed for using the drainage hierarchy. The hierarchy lists the preference for surface water disposal as follows; Store Rainwater for later use > Use infiltration techniques, such as porous surfaces in non-clay areas > Attenuate rainwater in ponds or open water features for gradual release > Discharge rainwater direct to a watercourse > Discharge rainwater direct to a surface water sewer/drain > Discharge rainwater to the combined sewer. Due to the proximity of the development site to the adjacent watercourse, Thames Water would not support a connection to the public sewer network for surface water disposal.

Where disposal of surface water is other than to a public sewer, then the applicant shall ensure that approval for the discharge has been obtained from the appropriate authorities.

Please note that the Local Planning authority may comment on surface water discharge under the planning process.

Please Note

All connection requests are subject to a full Section 106 (Water Industry Act 1991) application before the Company can confirm approval to the connection itself. Please also note that capacity in the public sewerage system cannot be reserved.

Foul and surface water must not be combined. This will only be permitted when a combined public sewerage system exists. When it is proposed to connect to a combined public sewer, the site drainage should be separate and combined at the final manhole nearest the boundary. Connections are not permitted for the removal of Ground Water. The discharge of non-domestic effluent is not permitted until a valid trade effluent consent has been issued by Thames Water. If anything other than domestic sewage is discharged into the public sewers without the above agreement an offence is committed and the applicant will be liable to the penalties contained in Section 109(1) (WIA 1991). Applicants should contact Trade Effluent prior to seeking a connection approval, to discuss trade effluent consent and conditions of discharge. A Trade Effluent reference number should be obtained and included in the relevant box of the attached application form. The address for Trade Effluent is - Thames Water Utilities Limited, Waste Water Quality, Crossness Sewage Treatment Works, Belvedere Road, Abbeywood, London. SE2 9AQ. Alternatively you can telephone them on 020 8507 4321.

Any approvals are subject to conditions that may be imposed through the planning process

Note on trunk sewers: Connecting directly to Trunk sewers can be complex and dangerous, which means we often refuse permission. In this case, you will need to find an alternative sewer or method of discharge. Please contact the Sewer Connections team through our Helpdesk on 0800 009 39 21 for further information.

If Thames Water permits a connection to the trunk sewer, we will insist on carrying out the connection ourselves under Section 107 of the Water Industry Act. We would advise for you to apply as soon as possible.

Connections are not permitted for the removal of Ground Water. The discharge of non-domestic effluent is not permitted until a valid trade effluent consent has been issued by Thames Water. If anything other than domestic sewage is discharged into the public sewers without the above agreement an offence is committed and the applicant will be liable to the penalties contained in Section 109(1) (WIA 1991).

Applicants should contact Trade Effluent prior to seeking a connection approval, to discuss trade effluent consent and conditions of discharge. A Trade Effluent reference number should be obtained and included in the relevant box of the attached application form. The address for Trade Effluent is - Thames Water Utilities Limited, Waste Water Quality, Crossness Sewage Treatment Works, Belvedere Road, Abbeywood, London. SE2 9AQ. Alternatively you can telephone them on 020 8507 4321.

The views expressed by Thames Water in this letter are in response to this pre development enquiry at this time and do not represent our final views on any future planning applications made in relation to this site.

Yours sincerely,

Artur Jaroma
Developer Services

Daniel Mutepfa

From: Osi Ivowi <Osi.Ivowi@canalrivertrust.org.uk>
Sent: 01 March 2018 14:20
To: Daniel Mutepfa
Cc: Nick Pogson; Enquiries TPWSouth
Subject: RE: Proposed Mixed Development, Morrisons High Street, Yiewsley, West Drayton
Attachments: Form 1.doc; Form 2 - Form version April 2017 - National.docx; Form 6 - Surface Water Discharge Application.doc

Good day Daniel,

Thank you for your enquiry regarding the discharge of surface water from the proposed site into the Grand Union Canal.

The Canal & River Trust undertakes a staged process to review the impact of all new or modified discharges to its network, in addition to any considerations that are made by the Environment Agency via the environmental permitting process and/or the Local Planning Authority via the normal planning process.

This initial correspondence constitutes Stage 1 of our process. We will need to ensure your application is formally recorded onto our system before we can progress for licenses to undertake operations that may affect the Canal & River Trust assets. We need you to be aware of our *"Code of Practice for Works Affecting the Canal & River Trust"* and link below will gain you access to the Code which is in 3 parts;

<https://canalrivertrust.org.uk/business-and-trade/undertaking-works-on-our-property-and-our-code-of-practice>

To commence Stage 2 of our process requires the applicant to complete and submit Forms 1 and 6 from the Code of Practice so that consistent information about the proposal is provided by all applicants. The relevant documents are attached. Section 3 of Part 2, the Detailed Information section of the Code of Practice provides details on the surface water discharge process including guidance on how to undertake the Outline Impact Assessment. Table 3 provides a list of the required information that should be submitted at the Outline and Detailed Impact Assessment stages and should be read in conjunction with Form 6 and used as a check list for submission. The initial submission of Forms 1 and 6 must be accompanied by a cheque for the relevant Administration Fee of **£380.00 plus VAT (£456.00)** in accordance with the above-mentioned code.

To commence Stage 3 of our process requires that, once the documentation is received, logged and checked for completeness, a further contribution of **£2000.00+VAT (£2400.00)** is submitted along with a Cost Undertaking (Form 2). This is a contribution towards the cost of a technical review by the Canal & River Trust of the impacts of the proposed discharge on the flood risk and water quality of the receiving Waterway.

Depending on the outcome of this technical review (which normally takes around 4 weeks), further work may be required (by the Applicant) to enable a more detailed consideration to be completed (Stage 4) or the proposal may be accepted in principle at that point. Further guidance can be found in the Code of Practice and your attention is brought to the fact that a commercial agreement will always be sought before any discharge to our network can take place, an estimation of this can be provided by our Utilities Surveyor. The Canal & River Trust is not a drainage authority and we have no obligation to accept discharges.

In addition to Forms 1 and 6, we will also need the following from you for invoicing purposes:

- Company name or individual responsible for receiving invoices.
- Address to which invoices should be sent.
- Company Registration Number (if applicable).
- Company VAT Registration Number (if applicable).
- Your Purchase Order Number included on the Cost Undertaking (if not please state in writing that you do not issue PO number).

The above information is required so that we can issue a WBS number (your unique identifier) for use in all future communication. All submissions, other than payments, by commercial organisations should be in electronic format; hard copy presentations are not permissible unless in exceptional circumstances and then only by prior agreement.

A Discharge Consent or Environmental Permit from the Environment Agency does not confer the right to discharge to the waterways that are owned or managed by the Canal & River Trust.

Regards

Osi Ivowi

Regional Manager (South)
Infrastructure Services Team

T: 01908 302591 M: 07776 472644

E: osi.ivowi@canalrivertrust.org.uk

Canal & River Trust, First Floor North, Station House,
500 Elder Gate, Milton Keynes MK9 1BB

Please do not encroach upon Canal & River Trust land or apparatus until you have written consent from Canal & River Trust to do so.



The Canal & River Trust is a new charity entrusted with the care of 2,000 miles of waterways in England and Wales. Get involved, join us - Visit | Donate | Volunteer at www.canalrivertrust.org.uk

Canal & River Trust is a charitable company limited by guarantee registered in England & Wales with company number **07807276**; and charity number **1146792**.

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From: Nick Pogson

Sent: 01 March 2018 13:12

To: daniel@wardcole.co.uk

Cc: Osi Ivowi <Osi.Ivowi@canalrivertrust.org.uk>; Claire McLean <Claire.McLean@canalrivertrust.org.uk>; Jacquie Watt <Jacquie.Watt@canalrivertrust.org.uk>; Bernadette McNicholas <Bernadette.McNicholas@canalrivertrust.org.uk>

Subject: FW: Proposed Mixed Development, Morrisons High Street, Yiewsley, West Drayton

Daniel,

Thank you for your email.

CRT have a standard process for reviewing surface water discharges and I'll ask Osi (Works Engineer) to provide you the forms by cc to this email. Should the proposal be acceptable, the commercial contract would be handled by Jacquie Watt (Utilities Surveyor) also cc'd.

Please also let us know if you may require rights to discharge ground water discharge during the construction of the basement?

I've also cc'd Bernadette (Estates Surveyor) who is the relevant contact for any property agreements such as crane over sail, hoarding licences, bridge crossings, etc.

Any queries, please let me know.

Kind regards
Nick

Online Comment

30-10-18

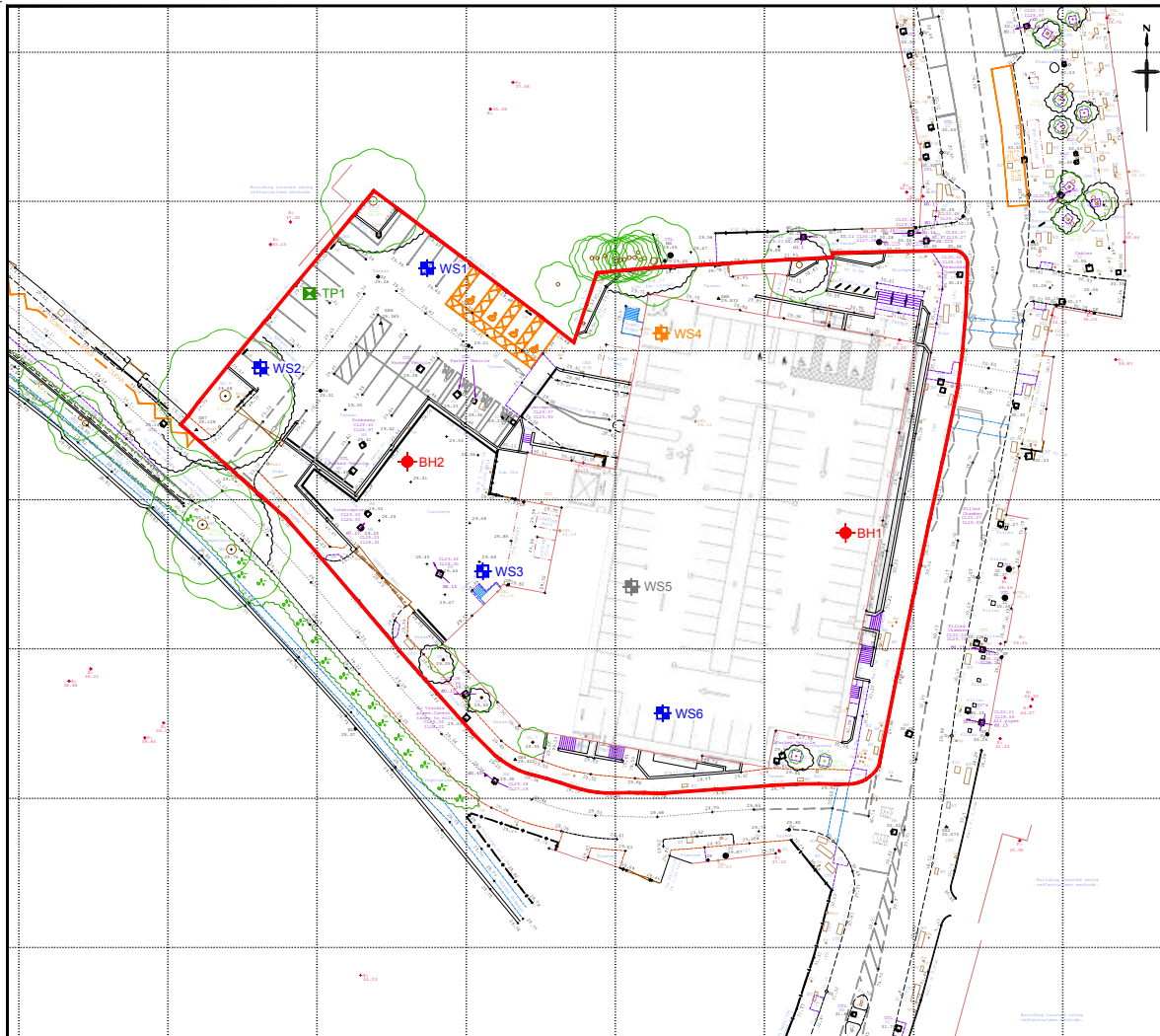
Application Reference:	2370/APP/2018/2793
Site Location:	MORRISON SUPERMARKET 41-67 HIGH STREET YIEWSLEY
Officer:	Richard Phillips
Date Entered:	03-09-18
Date Transferred:	04-09-18
Consultee:	Flood and Water Management
Address of Consultee:	Planning Specialists Team
Reference:	CRS34353

[Click to view comments and associated attachments/documents](#)

Comments:	See preapplication comments regarding Blue Ribbon Network and layout and arrangement of the building and landscaping along a strategic water way which do not yet appear to have been addressed. A Flood Risk Assessment has been submitted with the application produced by Ward and Cole dated July 2018. The Groundwater assessments provided within the application are insufficient to assess the level of risk from a multi storey basement on the surrounding area. A full and detailed ground investigation is needed and the basement should be reduced in size so that it is not the full width of the site. It is known from other nearby developments that have occurred in the last few years that ground water is high and need to be managed. It is noted that Blue Roofs are proposed however statement that an assumed 5l/s discharge rate would be appropriate is not acceptable as flow control devices have evolved significantly. The assumed discharge of water to a soakaway may not be feasible due to the high levels of groundwater and this must be demonstrated is feasible or it can alter significantly what can be implemented on site. it is noted and supported that the site should discharge firstly to the nearby Canal subject to their permissions and requirements. There is no information on the water reuse or recycling to be implemented on the site.
-----------	--

Appendix H

Soakaway Test Results



LEGEND

- Site Boundary
- Deep Borehole Location with Monitoring Well
- Shallow Borehole Location with Soakage Test
- Shallow Borehole Location with Gas Monitoring Well
- Shallow Borehole Location Refusal
- Trial Pit Soakage Test Location

Rev.	Date	Amendment	Drawn	Chkd.	Appd.

RSK

18 Frogmore Road
Hemel Hempstead
Hertfordshire
HP3 8ST
United Kingdom

Tel: +44 (0) 1442 437500
Fax: +44 (0) 1442 437550
Email: info@rsk.co.uk
Web: www.rsk.co.uk

Client
HARBOURSIDE INVESTMENTS LTD

Project Title
**MORRISONS,
HIGH STREET,
YIEWSLEY**

Drawing Title
**EXPLORATORY HOLE
LOCATION PLAN**

Drawn	Date	Checked	Date	Approved	Date
ASC	12.09.18	DA	12.09.18	DA	12.09.18

Scale	Orig Size	Dimensions
1:500	A3	m

Project No.	Drawing File
1920199 - R01 (00)	1920199 (R01-00) Fig 2.dwg

Drawing No.	Rev.
FIGURE 2	P1

Scale 1 : 500

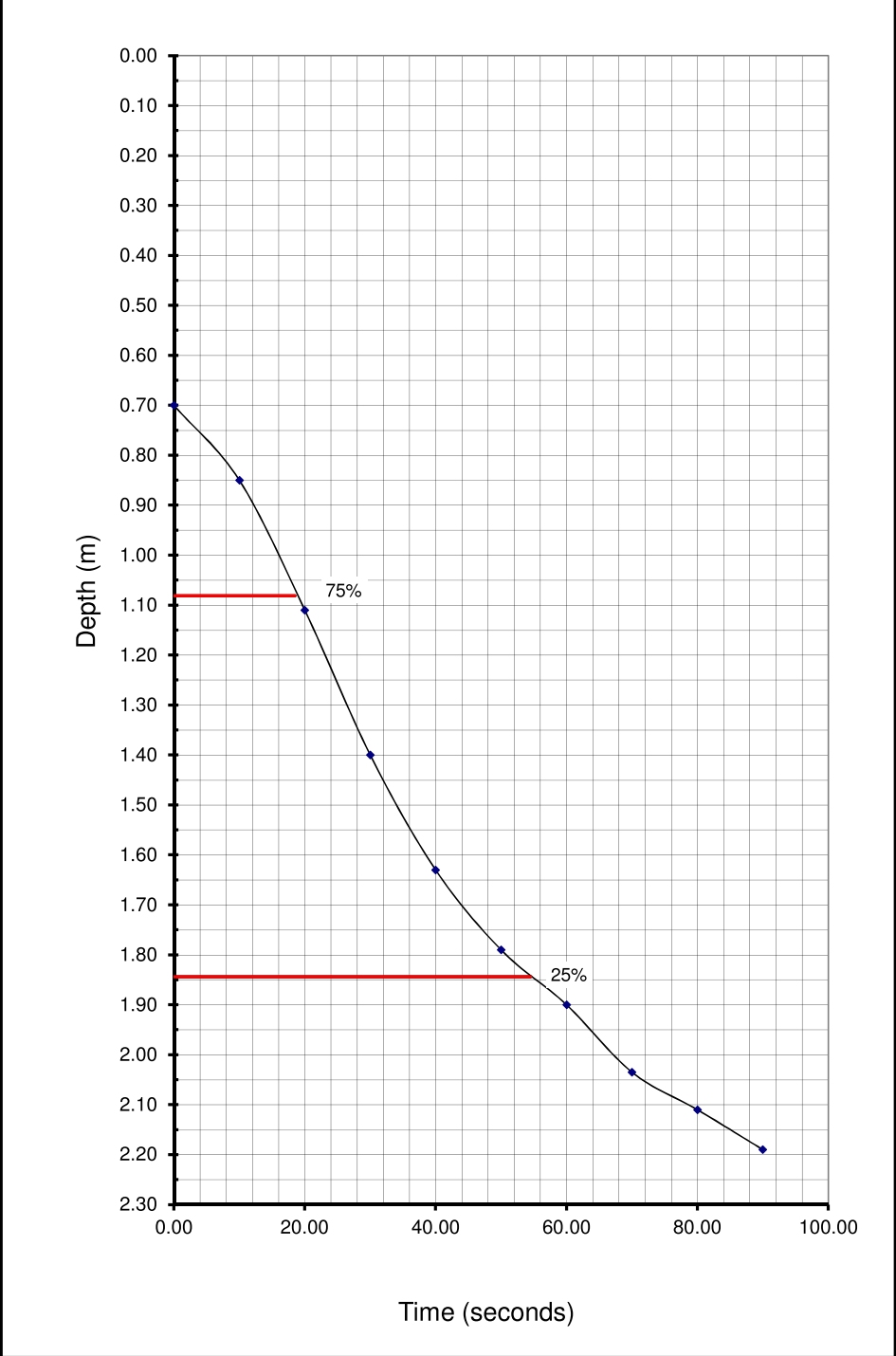
0 5 10 15 20 25m

TRIAL PIT SOAKAWAY TEST TO BRE 365 (BACKFILLED PIT)

Location	TP1	Test No	Test 1
Client	Deacon and Jones	Length of Trial Pit (m)	1.20
Job Number	1920199	Width of Trial Pit (m)	0.35
Date	24-Sep-18	Water level at start (mbgl)	0.70
Operator	George Andrew	Water level prior to testing (mbgl)	2.23

Time (Secs)	Water level (mbgl)
0.00	0.70
10.00	0.85
20.00	1.11
30.00	1.40
40.00	1.63
50.00	1.79
60.00	1.90
70.00	2.04
80.00	2.11
90.00	2.19

Trial Pit Soakaway Test Results



Results	
---------	--

Vp 75-25 (m3)	0.10
ap 50 (m2)	2.78
tp 75-25 (s)	36.00
Infiltration Rate (m/s)	9.91E-04

RSK

TRIAL PIT SOAKAWAY TEST TO BRE 365 (BACKFILLED PIT)			
Location	TP1	Test No	Test 1
Client	Deacon and Jones	Length of Trial Pit (m)	1.20
Job Number	1920199	Width of Trial Pit (m)	0.35
Date	24-Sep-18	Water level at start (mbgl)	1.45
Operator	George Andrew	Water level prior to testing (mbgl)	2.23

Time (Secs)	Water level (mbgl)
0	1.45
10	1.70
20	1.84
30	1.95
40	2.28

Trial Pit Soakaway Test Results

Time (seconds)	Depth (m)
0	1.45
10	1.70
20	1.84
30	1.95
40	2.28

Results	
Vp 75-25 (m3)	0.05
ap 50 (m2)	1.62
tp 75-25 (s)	25.50
Infiltration Rate (m/s)	1.22E-03

S Borehole Soakaway - Falling Head Test

Based on Roads in Hertfordshire A Design Guide

Location	Yiewsley	Diameter of casing (m)	0.033
Client	Deacon and Jones	Diameter of test zone (m)	0.1
Soakaway	WS4	Casing depth (m)	0.7
Date	02-Oct-18	Depth to base of hole (m)	1.45
Operator	George Andrew	Job Number	1920199

Time (Minutes)	Water level (mbgl)	Head (m)	Falling Head Test Results
0.00	0.40	0.68	
0.33	0.49	0.45	
0.66	0.81	0.27	
1.00	0.85	0.23	
1.33	0.89	0.19	
1.66	0.92	0.16	
2.00	0.95	0.13	
2.33	0.97	0.11	
2.66	0.99	0.09	
3.00	1.02	0.05	
3.33	1.03	0.04	
3.66	1.04	0.04	
4.00	1.04	0.03	

Results

th (mins)	0.87	Comments:
Hp (m)	0.70	
Infiltration Rate (l/m ² /min)	2.92	
Infiltration Rate (m/s)	4.87E-05	

S Borehole Soakaway - Falling Head Test

Based on Roads in Hertfordshire A Design Guide

Location	Yiewsley	Diameter of casing (m)	0.033
Client	Deacon and Jones	Diameter of test zone (m)	0.1
Soakaway	WS4	Casing depth (m)	0.7
Date	02-Oct-18	Depth to base of hole (m)	1.45
Operator	George Andrew	Job Number	1920199

Time (Minutes)	Water level (mbgl)	Head (m)	Falling Head Test Results
0.00	0.45	0.63	
0.33	0.56	0.45	
0.66	0.81	0.27	
1.00	0.84	0.24	
1.33	0.87	0.21	
1.66	0.89	0.19	
2.00	0.91	0.17	
2.33	0.94	0.14	
2.66	0.96	0.12	
3.00	0.97	0.11	
3.33	0.99	0.09	
3.66	1.02	0.05	
4.00	1.03	0.04	
4.33	1.04	0.04	
4.66	1.04	0.03	

Results

th (mins)	1.10	Comments:
Hp (m)	0.62	
Infiltration Rate (l/m ² /min)	2.05	
Infiltration Rate (m/s)	3.41E-05	

S Borehole Soakaway - Falling Head Test

Based on Roads in Hertfordshire A Design Guide

Location	Yiewsley	Diameter of casing (m)	0.033
Client	Deacon and Jones	Diameter of test zone (m)	0.1
Soakaway	WS4	Casing depth (m)	0.7
Date	02-Oct-18	Depth to base of hole (m)	1.45
Operator	George Andrew	Job Number	1920199

Time (Minutes)	Water level (mbgl)	Head (m)	Falling Head Test Results
0.00	0.47	0.61	
0.33	0.75	0.45	
0.66	0.80	0.28	
1.00	0.83	0.25	
1.33	0.85	0.23	
1.66	0.86	0.22	
2.00	0.88	0.20	
2.33	0.89	0.19	
2.66	0.91	0.17	
3.00	0.92	0.16	
3.33	0.94	0.14	
3.66	0.95	0.13	
4.00	0.96	0.12	
4.33	0.98	0.10	
4.66	0.99	0.09	
5.33	1.01	0.06	
6.00	1.03	0.05	
6.66	1.04	0.03	

Results

th (mins)	1.20	Comments:
Hp (m)	0.60	
Infiltration Rate (l/m ² /min)	1.82	
Infiltration Rate (m/s)	3.03E-05	