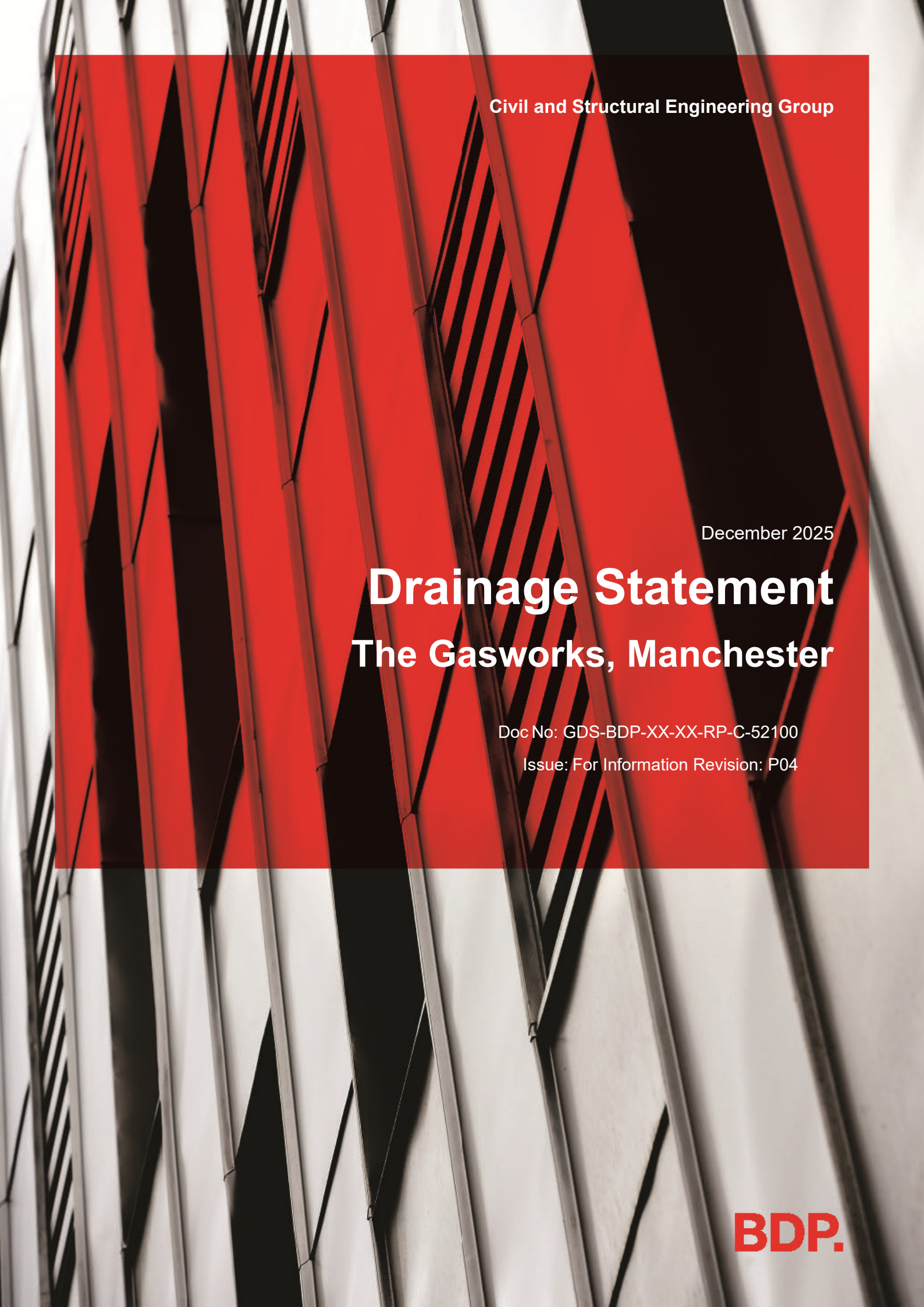


Civil and Structural Engineering Group

December 2025

Drainage Statement

The Gasworks, Manchester

Doc No: GDS-BDP-XX-XX-RP-C-52100

Issue: For Information Revision: P04

BDP.

Document Control

Revision	Description	Issued by	Date	Reviewed
P01	For Information	AB	16/04/24	DN
P02	Updated for Gas Compounds	AS	07/03/25	AS
P03	Updated for BilBrook St.	AS	19/09/25	DN
P04	Information updated	EOD	16/12/25	DN

Review Record

Author:

ELANNA O'DONOVAN
SENIOR CIVIL ENGINEER

Signature

Date 16/12/25

Approved:

DAVID NICHOLLS
ASSOCIATE STRUCTURAL ENGINEER

Signature



Date 16/12/25

Contents

1.0 Introduction 3
1.1 Limitations 3
2.0 Outline Drainage Strategy 5
2.1 Existing Drainage Infrastructure 5
2.3 Surface Water Drainage Strategy 5
2.4 Gould Street Compound 6
2.5 Bilbrook Street Compound 6
3.0 Drainage Maintenance Regimes 8
3.1 Maintenance of Private Drainage Assets 8
3.2 General Below Ground Drainage Infrastructure 8
3.3 Inlets, Outlet, Controls and Inspection Chambers 8
Appendices 10
Appendix A – Site Location Plan 11
Appendix B – United Utilities Sewer Records 12
Appendix C – GPR Survey and CCTV Survey 13
Appendix D – Drainage Layouts and Overland Flow Routes 14
Appendix E – Hydraulic Calculations 15

1.0 Introduction

Building Design Partnership (BDP) have been commissioned by MCR Property Group to produce an Outline Drainage Strategy in support of the proposed gas diversion works and associated compounds of land to the east of Gould Street and land to the south of Bilbrook Street, Manchester M4 4TF relating to the sustainable surface water drainage scheme. This diversion work is an enabling scheme to support future development of the site.

The proposed development includes the installation of 2 no. pressure reduction stations with associated boundary treatment and associated works, known as the Gould Street Compound and the Bilbrook Street Compound. The purpose of the development is to replace an existing pressure reduction station within the wider site to allow for future development proposals to be brought forward.

The overall site is located to the northeast of Manchester City Centre with approximate postcode M4 4TF. The approximate coordinates for the Gould Street and Bilbrook Street compounds are E:384595, N:399220 and E:384761, N: 399242, respectively. A site location plan is included in Appendix A.



Figure 1: Aerial image of the site (Google.co.uk/maps)

This Drainage Statement has been prepared in accordance with the National Planning Policy Framework (NPPF) and British Standards.

1.1 Limitations

This report has been prepared for exclusive use by our client MCR Property Group for the purpose of assisting them in evaluating the existing/proposed drainage infrastructure for the proposed development. Building Design Partnership (BDP) accepts no liability for any use of this document other than by its client and only for the purposes, stated in the document, for which it was prepared and provided. No person other than the client may copy (in whole or in part) use or rely on the contents of this document, without the prior written permission of BDP. Any advice, opinions or recommendations within this document should be read and relied upon only in the context of the document as a whole.

BDP has endeavoured to assess all information provided to them during this appraisal. The report summarises from a number of external sources and cannot offer any guarantees or warranties for the completeness or accuracy of information relied upon.

This report has been undertaken with the assumption that the site will be developed in accordance with the above proposals without significant change. The conclusions resulting from this study are not necessarily indicative of future conditions or operating practices at or adjacent to the site.

2.0 Outline Drainage Strategy

2.1 Existing Drainage Infrastructure

The Gould Street Compound is currently occupied by car parking with an area of shrubs and trees to the western boundary of the site and the Bilbrook Street Compound is occupied by an area of hardstanding.

United Utilities sewer records indicate that there are existing sewers within Gould Street. A 480x720mm combined sewer, increasing to 650x1050mm, then reducing to 600x820mm at the junction with Williamson Street which runs in a north westerly direction along Gould Street. A 550x750mm combined sewer is also located to the north of Gould Street. Both sewers run in a northwest direction and discharge to a 1550mm brick combined sewer within Dantzic Street. It is not clear if the two sewers within Gould Street combine prior to Dantzic Street. A 525mm combined sewer reducing to 300mm runs along Bilbrook Street in a north-westerly direction.

A CCTV and GPR survey of the wider site was undertaken by Survey Eng Ltd (13.08.2024) and was commissioned to establish/confirm outfall points, invert levels, alignment, system type, route and condition of any existing drainage within the site boundary and the surrounding area, including Highways.

The above surveys indicate existing on-site drainage systems which appear to be separate foul, surface water and combined systems prior to their outfall to the surrounding combined sewer network. Surface water from the area of the Gould Street Compound drains to the combined water public sewer in Gould Street whilst surface water from the area of the Bilbrook Street Compound drains to the combined sewer in Bilbrook Street.

A copy of the sewer records is included in Appendix B and a copy of the GPR and CCTV surveys is included in Appendix C.

2.3 Surface Water Drainage Strategy

In accordance with Building Regulations and the NPPF Drainage Hierarchy the management and discharge of surface water from a development should be applied in order of priority as follows:

1) Disposal to ground via infiltration, and where this is not practicable;

2) Disposal to a watercourse, and where this is not practicable;

3) Disposal to a surface water sewer or highway drain, and where this is not practicable;

4) Disposal to a combined sewer.

Based on a review of the historic ground investigation reports, which indicate previous workings and made ground, the ground conditions are considered to be unsuitable for infiltration.

The nearest watercourse is the River Irk, located circa 165m to the northwest of the site. Due to the distance from the site and the need to cross third party land this option has not been considered further.

There are no surface water sewers or highway drains in the vicinity of the site; therefore, it is proposed to discharge surface water into the combined water public sewer network, in line with the existing drainage regime. A pre-development agreement with United Utilities was previously acquired for the former site wide proposals in 2022, which confirmed that discharge into the public combined sewers on Gould Street and Bilbrook Street was acceptable in principle. A copy of the correspondence is included

in Appendix B. However, further enquiry with United Utilities is ongoing to confirm the connection locations.

2.4 Gould Street Compound

The area proposed for the Gould Street Compound currently comprises existing hardstanding and is therefore classed as brownfield development. The GPR and CCTV surveys confirmed this area to be positively drained ultimately discharging into the public combined sewer on Gould Street. Using the modified rational method, the existing site is calculated to have an existing runoff rate of 3.6 l/s. A copy of the brownfield calculation is included in Appendix E.

Taking into account the relatively small developable area of the Gould Street Compound, it is proposed for surface water to be restricted to a maximum discharge rate of 3.6l/s into the combined public sewer in Gould Street to reduce the risk of blockages associated with small orifice diameters in flow controls. Although no betterment is proposed to the existing discharge rate, the proposed surface water drainage network will be designed to attenuate up to the 1 in 100 year plus 45% climate change allowance reducing pressure on the downstream network.

The size and layout of the proposed site limit the opportunity for the use of green SuDS, therefore attenuation will be provided by the use of storage within pipes. A vortex flow control will be used to restrict the discharge rate.

The drainage network has been designed so that no flooding occurs for events up to the 1 in 100 year plus climate change events. A climate change allowance of 45% has been applied. Detailed hydraulic calculations have been carried out and are included in Appendix E.

The development levels have been designed to fall away from buildings so that exceedance flows will fall aways from buildings, for proposed overland flow routes refer to Appendix D.

It is not anticipated that the surface water network will be offered for adoption by United Utilities and as a consequence it will remain privately owned by MCR Property (South Valley Estates) and the land will be transferred to Cadent once constructed. The owner for maintenance purposes following construction will be Cadent.

The proposed drainage strategy GDS-BDP-ZZ-XX-DR-C-520011 included in Appendix D, defines the drainage strategy for the Gould Street Compound.

2.5 Bilbrook Street Compound

For the Bilbrook Street Compound, surface water drainage is required for the access ramps and parking area as well as a temporary foul water connection to serve the site compound. The existing area currently comprises hardstanding and is therefore classed as brownfield development. The GPR and CCTV surveys confirmed this area to be positively drained ultimately discharging into the public combined sewer on Bilbrook Street. Using the modified rational method, the existing site is calculated to have an existing runoff rate of 10.8 l/s. A copy of the brownfield calculation is included in Appendix E.

In accordance with local policy a 50% betterment on existing runoff rates is to be applied to the surface water drainage strategy. As such, it is proposed for surface water runoff to be limited to 5.4 l/s prior to discharge into the existing United Utilities combined sewer at Manhole ref 7306, via an existing connection. Hydraulic modelling has been undertaken for the 1 in 100 year return period storm event, with an additional 45% allowance for climate change. The results indicate a minor exceedance volume

of approximately 2.6m³, which will be managed and retained within the site boundary, with no off-site flooding anticipated. Detailed hydraulic calculations have been carried out and are included in Appendix E.

It is not anticipated that the surface water network will be offered for adoption by United Utilities and as a consequence it will remain privately owned by Cadent who will be responsible for its maintenance.

A separate foul water drainage network is proposed to discharge foul flows from the site compound into the public combined sewer on Bilbrook Street via an existing outfall connection.

The proposed drainage strategy GDS-BDP-ZZ-XX-DR-C-520012 included in Appendix D, defines the drainage strategy for the Bilbrook Street Compound.

3.0 Drainage Maintenance Regimes

3.1 Maintenance of Private Drainage Assets

It is understood that the proposed drainage infrastructure for the Gould Street and Bilbrook Street compounds will be under private ownership i.e. not adopted by United Utilities to form part of the public sewer network. Therefore, the inspection and maintenance of all private drainage infrastructure will be the responsibility of Cadent.

In accordance with BS EN 752 and Part H of the Building Regulations the surface water and foul water drainage pipework will be designed to be self-cleansing and as such maintenance should only be required if a fault or a blockage occurs. The following section details the general maintenance regime associated with the proposed drainage infrastructure. A more detailed maintenance schedule will be provided post construction.

3.2 General Below Ground Drainage Infrastructure

The drainage network, including above ground drainage features, chambers and associated pipework, should be inspected and cleaned every 5 years as a minimum as outlined in the tables below.

Drains should be inspected via CCTV survey which will identify any defects or damage to the pipe. Defects may include pipe deformation, root ingress, joint displacement, cracking and/or pipe collapse and a number of remedial options are available including jetting, pipe rodding, pipe flailing, lining, patch repairs and or full pipe / manhole replacement.

Table 1 summaries the essential maintenance regime for the below ground drainage pipework, manholes and channels.

Table 1: Essential maintenance regime for below ground drainage pipework, manholes and channels.

Maintenance Schedule	Required Action	Recorded Frequency
Regular maintenance	Inspect and identify areas that are not operating correctly. If required, take remedial action.	Monthly for the first three months then six-monthly
	Remove sediment from pre-treatment structures (e.g. gullies, channels, silt traps).	Six-monthly or as required
Occasional maintenance	Debris removal from catchment surface where this may cause risks to performance.	Monthly
Remedial actions	Repair / rehabilitation of inlets, outlets, overflows and vents.	As required
Monitoring	Inspect all manholes, inspection chambers, inlets, outlets, overflows and vents to ensure they are in good condition and operating as designed.	Annually and after large storms. CCTV surveys of the pipework may be required to ascertain conditions

3.3 Inlets, Outlet, Controls and Inspection Chambers

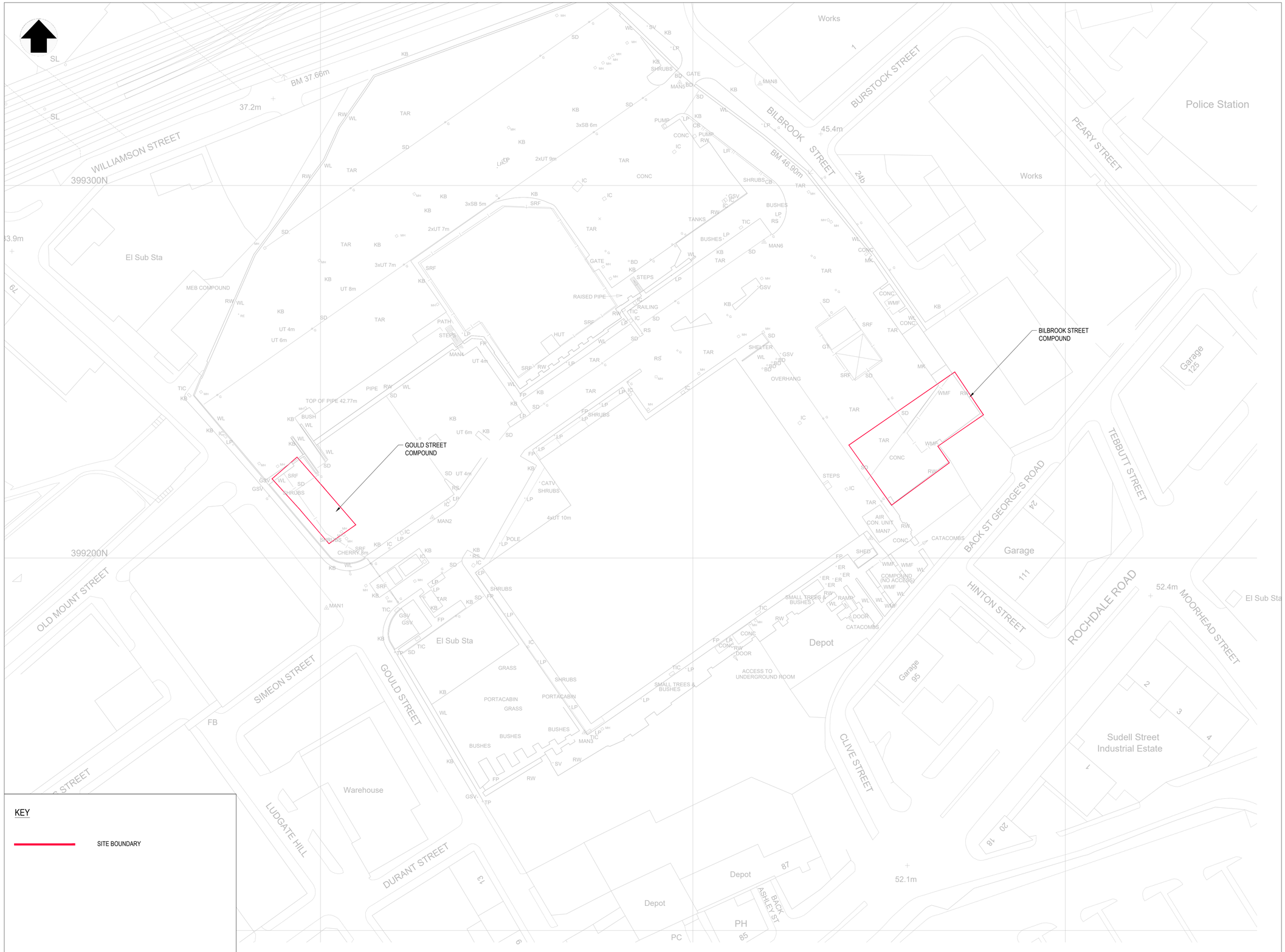
Table 2 summaries the essential maintenance regime for inlets, outlets, controls and inspection chambers.

Table 2: Essential maintenance regime for inlets, outlets, controls and inspection chambers.

Maintenance Schedule	Required Action	Recorded Frequency
Regular maintenance	Inlets, outlets and surface control structures: Inspect surface structures removing obstructions and silt as necessary. Check there is no physical damage.	Monthly or as required
	Trim vegetation 1m min. surround to structures and keep hard aprons free from silt and debris.	Monthly
	Inspection chambers and below ground control chambers: Remove cover and inspect ensuring water is flowing freely and that the exit route for water is unobstructed. Remove debris and silt. Undertake inspection after leaf fall in autumn.	Annually
Occasional maintenance	Check topsoil levels are 20mm above edges of baskets and chambers to avoid mower damage.	As necessary
Remedial actions	Unpack stone in basket features and unblock or repair and repack stone as design detail as necessary.	As required
	Repair physical damage if necessary.	As required
Monitoring	Initial inspection	Every 3 months or after large storms
	Monitor inspection chambers	Annually

Appendices

Appendix A – Site Location Plan



BUILDING DESIGN PARTNERSHIP SHALL HAVE NO RESPONSIBILITY FOR ANY USE MADE OF THIS DOCUMENT OTHER THAN FOR THAT WHICH IT WAS PREPARED AND ISSUED.

ALL DIMENSIONS SHOULD BE CHECKED ON SITE.

DO NOT SCALE FROM THIS DRAWING.

ANY DRAWING ERRORS OR DIVERGENCES SHOULD BE BROUGHT TO THE ATTENTION OF BUILDING DESIGN PARTNERSHIP AT THE ADDRESS SHOWN BELOW.

1. ALL DIMENSIONS ARE IN METRES UNLESS STATED OTHERWISE.
2. THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT ARCHITECTURAL AND ENGINEERING DETAILS, DRAWINGS AND SPECIFICATIONS.

REVISION	DESCRIPTION	DRAWN	CHECKED	DATE
P01	FOR INFORMATION	AB	EH	016/04/24

KEY PLAN

CLIENT

MCR PROPERTY GROUP

BDP.
11 Ducie Street
PO BOX 85
Picadilly Basin
Manchester
M60 3JA
United Kingdom

T +44 [0]161 828 2200
www.bdp.com

PROJECT TITLE

GOULD STREET DEVELOPMENT

BDP JOB NUMBER	SECTOR CLASSIFICATION
P3001012	COMMERCIAL IN CONFIDENCE

DRAWING TITLE	SCALE
NEW GAS WORKS SITE LOCATION PLAN	1:500 @ A1
	DATE: 16/04/24
DRAWING No. GDS-BDP-ZZ-XX-DR-C-520003	REVISION P01

P:_MRF\P3001012\WIP\CF\BIM\ZO\MODEL\GDS-BDP-ZZ-XX-DR-C-520003-P1_DRAINAGE STRATEGY.DWG

Appendix B – United Utilities Sewer Records

Elanna O'Donovan

From: Perry, Graham <Graham.Perry@uuplc.co.uk>
Sent: 21 January 2022 18:24
To: Herod, Elanna
Cc: Wastewater Developer Services
Subject: FW: GENQ 4200046306 Gould Street Manchester M4 4DD

Follow Up Flag: Follow up
Flag Status: Completed

Categories: Filed by Newforma

Hello Elanna

I have considered both option 1 & option 2 and can confirm that either approach would be acceptable

I have noted your comments about the ground conditions and the unviability of infiltration as a method of surface water disposal and would ask you to provide any survey information to confirm your finding when looking to discharge planning conditions

I would also suggest that if any basements or underground car parks are being proposed , you consider and mitigate any potential flood risk from overland flooding and surcharge levels in the public sewer that could potentially be higher that the level of the basement /carpark

Thanks

Graham Perry

Graham Perry
Development Engineer
Developer Services
M: 07557 577548
T: 01925 679405
unitedutilities.com

If you have received a great service today why not tell us?
Visit: unitedutilities.com/wow

From: Elanna Herod [mailto:Elanna.Herod@bdp.com]
Sent: 11 January 2022 09:59
To: Wastewater Developer Services <WastewaterDeveloperServices@uuplc.co.uk>
Subject: File Transfer: P3001012 Gould Street, Manchester - Connection Point Enquiry - Gould Street, Manchester

EXTERNAL EMAIL This email originated outside of the organisation. Do not click links or open attachments unless you recognise the sender and know the content is safe.

A transfer (File Transfer) has arrived on the BDP Info Exchange Site.

Download all associated files

Additional links:
Reply to All

Project Name:	Gould Street, Manchester
Project Number:	P3001012
From:	Elanna Herod (BDP)
To:	wastewaterdeveloperservices@uuplc.co.uk
CC:	Andrew Williams (BDP); Elanna Herod (BDP)
Subject:	P3001012 Gould Street, Manchester - Connection Point Enquiry
Sent via:	Info Exchange
Expiration Date:	10/02/2022
Remarks:	Good morning,

We are currently producing the detailed drainage design for Phase 1 of the proposed development on Gould Street and would like to seek confirmation of connection points to the existing public combined sewer. The site is located in Manchester City Centre, M4 4AP with Phase 1 located in the south west corner of the site. Please see attached site location plan and phasing plan for reference.

Phase 1 comprises the development of 2no apartment buildings and the relocation of the gas compound to the west of the site, off Gould Street. Due to the proposed level difference at the relocated gas compound, we are proposing to have a separate outfall into the combined sewer to reduce the depth of the drainage network proposed for Phase 1.

The outcome of the pre-development enquiry confirmed that surface water could discharge to the public combined sewer at a rate agreed by the Lead

local Flood Authority. I have included a copy of the correspondence from United Utilities and the draft conditions confirming that the total discharge rate to leave the development as a whole should not exceed 46.29 l/s. I have also attached the draft borehole logs undertaken so far, showing the underlying ground to be predominantly made ground, underlain by clay. As such, infiltration is not feasible at the site.

The drainage strategy submitted and approved at planning, proposed to split the agreed discharge rate across two separate outfalls. Phase 1 and 2 were to connect to the public combined sewer on Gould Street at a rate of 23 l/s and Phase 3 and 4 were to discharge to the combined sewer on Williamson Street at a rate of 23.29 l/s. Due to the location of existing/diverted services within the site we are potentially looking at the option to discharge Phase 2 into Bilbrook Street at a rate of 10.1 l/s. This will subsequently reduce the rate going into Gould Street to 12.9 l/s.

As such, we are currently looking at the following options for connection points:

Option 1:
Phase 1 and 2 to discharge to Gould Street at a combined restricted rate of 18 l/s discharging into manhole 5201 or through the existing connection further north.
Gas compound to be restricted to 5 l/s connecting downstream of manhole of 6102 – Total combined rate to Gould Street = 23 l/s
Phase 3 and 4 to discharge to one connection point on Williamson Street restricted to 23.29 l/s – exact location to be confirmed at a later date during detailed design phase

Option 2:
Phase 1 to discharge to Gould Street at a restricted rate of 7.9 l/s discharging into manhole 5201 or through the existing connection further north.
Gas compound to be restricted to 5 l/s connecting downstream of manhole of 6102 – Total combined rate to Gould Street = 12.9 l/s
Phase 3 and 4 to discharge to one connection point on Williamson Street restricted to 23.29 l/s – exact location to be confirmed at a later date during detailed design phase
Phase 2 to discharge to Bilbrook Street between manhole 7203 and 7306 at a restricted rate of 10.1 l/s.

I have attached the GPR Survey and CCTV survey plans, which confirms the locations of the four existing connections into the combined sewers. One connection is to the Gould Street sewer near the vehicular entrance to the site, two connections into Bilbrook Street to the north east and one on Williamson Street to the north.

Please can you confirm if you are happy for us to proceed with the proposed connection points for option 1 and/or option 2? Due to the complex nature of the site, I am happy to discuss the strategy in more detail via a team's meeting if required.

Kind regards,

Elanna Herod
Senior Civil Engineer

BDP
Postal address:
11 Ducie Street, PO Box 85, Piccadilly Basin
Manchester M60 3JA, United Kingdom
Location postcode for sat nav purposes: M1 2JE

T 0161 828 2230
E elanna.herod@bdp.com
www.bdp.com

Please consider the environment before printing this e-mail



Transferred Files

NAME	TYPE	DATE	TIME	SIZE
Approved_Outline drainage strategy.pdf	PDF File	11/01/2022	09:23	7,280 KB
CCTV Survey Plan.pdf	PDF File	23/06/2020	12:05	3,656 KB
Draft Borehole logs\21353-HYD-XX-XX-DR-GE-1003_S2_P04.pdf	PDF File	05/01/2022	11:48	948 KB
Draft Borehole logs\Draft Engineers Log MPBH712.pdf	PDF File	10/01/2022	12:58	199 KB
Draft Borehole logs\Draft Engineers Log MPBH714.pdf	PDF File	10/01/2022	12:58	977 KB
Draft Borehole logs\Draft Engineers Logs MPBH701-715.pdf	PDF File	05/01/2022	11:48	838 KB
Draft Borehole logs\Draft Engineers Logs TP701-722.pdf	PDF File	05/01/2022	11:48	722 KB
Draft Borehole logs\Draft Engineers Logs WS701-704.pdf	PDF File	05/01/2022	11:48	227 KB
Draft conditions 19-05-21.pdf	PDF File	11/01/2022	09:24	183 KB
Proposed Connection Points.pdf	PDF File	11/01/2022	09:44	1,746 KB
Site Location Plan_Gould Street_sm -.pdf	PDF File	11/01/2022	09:21	250 KB
SK-C-1001_GPR Survey.pdf	PDF File	11/01/2022	09:20	387 KB
Updated Phasing Plan_200713.pdf	PDF File	11/01/2022	09:50	2,125 KB
UU correspondence - Discharge rate.pdf	PDF File	10/01/2022	11:19	1,217 KB

Email Disclaimer

The information contained in this e-mail is intended only for the individual to whom it is addressed. It may contain legally privileged or confidential information or otherwise

be exempt from disclosure. If you have received this Message in error or there are any problems, please notify the sender immediately and delete the message from your computer. You must not use, disclose, copy or alter this message for any unauthorised purpose. Neither United Utilities Group PLC nor any of its subsidiaries will be liable for any direct, special, indirect or consequential damages as a result of any virus being passed on, or arising from the alteration of the contents of this message by a third party.

United Utilities Group PLC, Haweswater House, Lingley Mere Business Park, Lingley Green Avenue, Great Sankey, Warrington, WA5 3LP
Registered in England and Wales. Registered No 6559020

www.unitedutilities.com
www.unitedutilities.com/subsidiaries

How to contact us:

United Utilities Water Limited
Property Searches
Haweswater House
Lingley Mere Business Park
Great Sankey
Warrington
WA5 3LP

Telephone: 0370 7510101

E-mail: propertysearches@uuplc.co.uk

Tracey Lunt

3
St Paul's Place, 129 Norfolk Street
Sheffield,
S2 2JE

FAO:

Your Ref: P3000101_LJ_TLL01042020
Our Ref: UUPS-ORD-159956
Date: 01/04/2020

Dear Sirs

Location: Gould Street

I acknowledge with thanks your request dated 01/04/2020 for information on the location of our services.

Please find enclosed plans showing the approximate position of United Utilities' apparatus known to be in the vicinity of this site.

The enclosed plans are being provided to you subject to the United Utilities terms and conditions for both the wastewater and water distribution plans which are shown attached.

If you are planning works anywhere in the North West, please read United Utilities' access statement before you start work to check how it will affect our network. http://www.unitedutilities.com/work-near-asset.aspx .

I trust the above meets with your requirements and look forward to hearing from you should you need anything further.

If you have any queries regarding this matter please contact us .

Yours Faithfully,

Karen McCormack
Property Searches Manager

United Utilities Water Limited
Registered In England & Wales No. 2366678
Registered Office Haweswater House, Lingley Mere Business Park,
Lingley Green Avenue, Great Sankey, Warrington, WA5 3LP

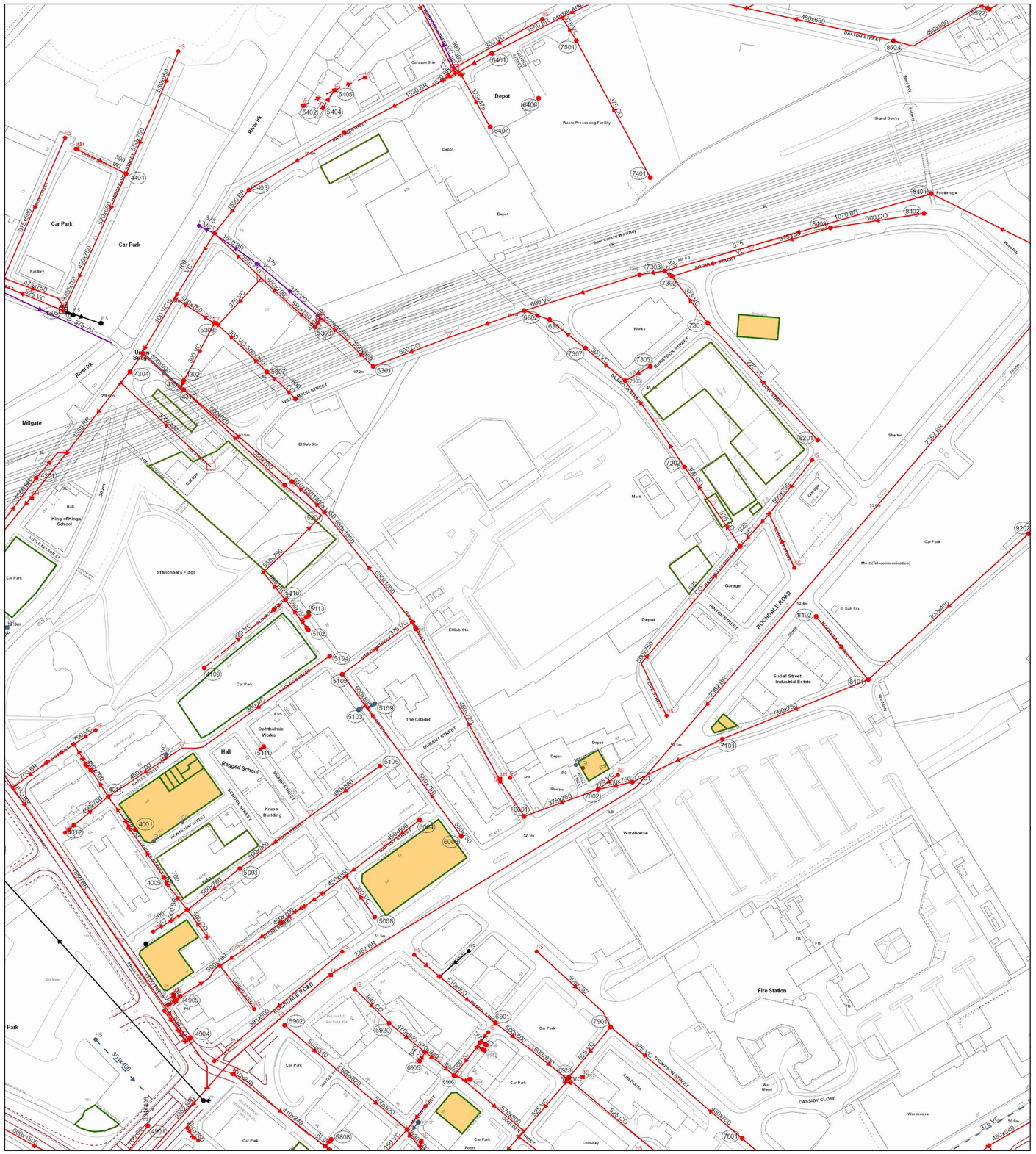
TERMS AND CONDITIONS - WASTEWATER AND WATER DISTRIBUTION PLANS

These provisions apply to the public sewerage, water distribution and telemetry systems (including sewers which are the subject of an agreement under Section 104 of the Water Industry Act 1991 and mains installed in accordance with the agreement for the self construction of water mains) (UUWL apparatus) of United Utilities Water Limited "(UUWL)".

TERMS AND CONDITIONS:

- This Map and any information supplied with it is issued subject to the provisions contained below, to the exclusion of all others and no party relies upon any representation, warranty, collateral contract or other assurance of any person (whether party to this agreement or not) that is not set out in this agreement or the documents referred to in it.
- This Map and any information supplied with it is provided for general guidance only and no representation, undertaking or warranty as to its accuracy, completeness or being up to date is given or implied.
- In particular, the position and depth of any UUWL apparatus shown on the Map are approximate only. UUWL strongly recommends that a comprehensive survey is undertaken in addition to reviewing this Map to determine and ensure the precise location of any UUWL apparatus. The exact location, positions and depths should be obtained by excavation trial holes.
- The location and position of private drains, private sewers and service pipes to properties are not normally shown on this Map but their presence must be anticipated and accounted for and you are strongly advised to carry out your own further enquiries and investigations in order to locate the same.
- The position and depth of UUWL apparatus is subject to change and therefore this Map is issued subject to any removal or change in location of the same. The onus is entirely upon you to confirm whether any changes to the Map have been made subsequent to issue and prior to any works being carried out.
- This Map and any information shown on it or provided with it must not be relied upon in the event of any development, construction or other works (including but not limited to any excavations) in the vicinity of UUWL apparatus or for the purpose of determining the suitability of a point of connection to the sewerage or other distribution systems.
- No person or legal entity, including any company shall be relieved from any liability howsoever and whensoever arising for any damage caused to UUWL apparatus by reason of the actual position and/or depths of UUWL apparatus being different from those shown on the Map and any information supplied with it.
- If any provision contained herein is or becomes legally invalid or unenforceable, it will be taken to be severed from the remaining provisions which shall be unaffected and continue in full force and affect.
- This agreement shall be governed by English law and all parties submit to the exclusive jurisdiction of the English courts, save that nothing will prevent UUWL from bringing proceedings in any other competent jurisdiction, whether concurrently or otherwise.

United Utilities Water Limited
Registered In England & Wales No. 2366678
Registered Office Haweswater House, Lingley Mere Business Park,
Lingley Green Avenue, Great Sankey, Warrington, WA5 3LP


GALTON STREET
DUNCAN STREET
UNION STREET
DURANT STREET
ROCHDALE ROAD
THOMPSON STREET
GOULD STREET
WELLINGTON STREET
NEW MARKET STREET
SCHOOL STREET
SHARP STREET
TRAFFORD
River Irk
Car Park
Depot
Millgate
Urban Bypass
Waste Processing Facility
Signal Gantry
Caravan Site
Works
Warehouse
Fire Station
Sudell Street Industrial Estate
The Citadel
Ragged School
Knupa Building
Ophthalmic Works
King of Kings School
St Michael's Flags
Shelter
Mast
Mast (Telecommunication)
Garage
Hall
Factory
Shop
Pub
PH
Chimney
Posts
Warehouse
Adria House
War Mem'l
CASSIDY CLOSE
Footbridge
Shelter
Sluice
Weir
Bus Stop
Bollard
Bench
Bus Shelter
Bus Station
Bus Shelter
Bus Station
Bus Shelter
Bus Station

Appendix C – GPR Survey and CCTV Survey

SurveyEng Ltd
14 Green Mill, Westhoughton
Tel. 0800 772 3040

Project

Project Name: CCTV117 -MCR Property Group - Gould Street_ Manchester

Project Description: WinCan Import in Miraculix WRc4 Standard

Project Date: 14/06/2024

SurveyEng Ltd
14 Green Mill, Westhoughton
Tel. 0800 772 3040

Table of Contents

Project Name	Project Number	Project Date
CCTV117 -MCR Property Group - Gould Street_ Manchester		14/06/2024

Project Information P-1
Scoring Summary P-2
Section Profile P-4
Section Summary P-5
Section Item 1: mh2 > PIPE X (MH2X) 1
Section Item 3: MH3 > mh2 (MH3X) 5
Section Item 4: MH6 > MH7 (MH6X) 8
Section Item 5: PIPE A > mh6 (PIPE AX) 12
Section Item 6: mh7 > PIPE X (MH7X) 14
Section Item 7: MH8 > PIPE X (MH8X) 17
Section Item 8: MH9 > PIPE X (MH9X) 20
Section Item 9: pipeB > mh6 (pipeBX) 23
Section Item 10: PIPE B > MH1 (PIPE BX) 25
Section Item 11: PIPE C > mh2 (pipe cX) 28
Section Item 12: PIPE B > MH5 (PIPE BX) 30
Section Item 13: PIPE C > mh6 (pipe cX) 32
Section Item 14: PIPE B > mh2 (pipe bX) 34
Section Item 16: PIPE A > MH5 (PIPE AX) 36
Section Item 17: PIPE B > mh7 (pipe bX) 38
Section Item 18: mh11 > PIPE X (mh11X) 40
Section Item 19: MH10 > PIPE X (MH10X) 42
Section Item 20: MH1 > PIPE X (MH1X) 45
Section Item 21: PIPE A > MH1 (PIPE AX) 47
Section Item 22: MH5 > PIPE X (MH5X) 50
Section Item 23: PIPE C > MH5 (PIPE CX) 52

SurveyEng Ltd
14 Green Mill, Westhoughton
Tel. 0800 772 3040

Project Information

Project Name	Project Number	Project Date
CCTV117 -MCR Property Group - Gould Street_ Manchester		14/06/2024

Client

Company: MCR Property Group
Street: 2 Universal Square
Town or City: Devonshire St N
County: Manchester M12

Manager

Street: Gould Street
Town or City: Manchester

Contractor

Company: SurveyEng Ltd
Contact: Peter Forber
Street: 14 Green Mill
Town or City: Westhoughton
County: Lancashire
Post Code: BL5 3GE
Phone: 0800 772 3040

SurveyEng

SurveyEng Ltd
14 Green Mill, Westhoughton
Tel. 0800 772 3040

Scoring Summary

Project Name	Project Number	Project Date
CCTV117 -MCR Property Group - Gould Street_ Manchester		14/06/2024

Structural Defects

Grade 3: Best practice suggests consideration should be given to repairs in the medium term.

Grade 4: Best practice suggests consideration should be given to repairs to avoid a potential collapse.

Grade 5: Best practice suggests that this pipe is at risk of collapse at any time. Urgent consideration should be given to repairs to avoid total failure.

Section	PLR	Grade	Description
3	MH3X	4	Fracture, multiple from 4 o'clock to 7 o'clock
7	MH8X	4	Broken pipe from 4 o'clock to 7 o'clock
21	PIPE AX	4	Fracture, multiple from 3 o'clock to 9 o'clock
23	PIPE CX	5	Collapsed drain or sewer

Service / Operational Condition

Grade 3: Best practice suggests consideration should be given to maintenance activities in the medium term.

Grade 4: Best practice suggests consideration should be given to maintenance activity to avoid potential blockages.

Grade 5: Best practice suggests that this pipe is at a high risk of backing up or causing flooding.

Section	PLR	Grade	Description
10	PIPE BX	3	Settled deposits, fine, 15% cross-sectional area loss
14	pipe bX	4	Roots, tap
19	MH10X	5	Settled deposits, fine, 100% cross-sectional area loss
20	MH1X	4	Settled deposits, fine, 50% cross-sectional area loss
21	PIPE AX	5	Settled deposits, other, 100% cross-sectional area loss

Abandoned Surveys

Section	PLR	Description
5	PIPE AX	Survey abandoned
6	MH7X	Survey abandoned
8	MH9X	Survey abandoned
9	pipeBX	Survey abandoned
10	PIPE BX	Survey abandoned
11	pipe cX	Survey abandoned
14	pipe bX	Survey abandoned
16	PIPE AX	Survey abandoned
16	PIPE AX	Survey abandoned
19	MH10X	Survey abandoned
20	MH1X	Survey abandoned
21	PIPE AX	Survey abandoned

SurveyEng Ltd
14 Green Mill, Westhoughton
Tel. 0800 772 3040

Scoring Summary

Project Name	Project Number	Project Date
CCTV117 -MCR Property Group - Gould Street_ Manchester		14/06/2024

Information

These scoring summaries are based on the SRM grading from the WRc.

SurveyEng

SurveyEng Ltd
14 Green Mill, Westhoughton
Tel. 0800 772 3040

Section Profile

Project Name	Project Number	Project Date
CCTV117 -MCR Property Group - Gould Street_ Manchester		14/06/2024

Circular, 100 mm

Item No.	Upstream Node	Downstream Node	Date	Road	Pipe Material	Total Length	Inspected Length
23	PIPE C	MH5	10/06/2024	GOULD STREET	Vitrified clay pipe (i.e. all clayware)	5.87 m	5.87 m

Total: 1 Inspection x Circular 100 mm, 0 mm = 5.87 m Total Length and 5.87 m Inspected Length

Circular, 150 mm

Item No.	Upstream Node	Downstream Node	Date	Road	Pipe Material	Total Length	Inspected Length
12	PIPE B	MH5	10/06/2024	GOULD STREET	Polyvinyl chloride	2.73 m	2.73 m
13	PIPE C	mh6	10/06/2024	GOULD STREET	Vitrified clay pipe (i.e. all clayware)	1.53 m	1.53 m
17	PIPE B	mh7	10/06/2024	GOULD STREET	Vitrified clay pipe (i.e. all clayware)	7.91 m	7.91 m
22	MH5	PIPE X	10/06/2024	GOULD STREET	Vitrified clay pipe (i.e. all clayware)	16.20 m	16.20 m

Total: 4 Inspections x Circular 150 mm, 0 mm = 28.37 m Total Length and 28.37 m Inspected Length

Circular, 225 mm

Item No.	Upstream Node	Downstream Node	Date	Road	Pipe Material	Total Length	Inspected Length
18	mh11	PIPE X	10/06/2024	GOULD STREET	Polyvinyl chloride	4.00 m	**3.60 m**

Total: 1 Inspection x Circular 225 mm, 0 mm = 4.00 m Total Length and 3.60 m Inspected Length

Circular, 300 mm

Item No.	Upstream Node	Downstream Node	Date	Road	Pipe Material	Total Length	Inspected Length
1	mh2	PIPE X	10/06/2024	GOULD STREET	Vitrified clay pipe (i.e. all clayware)	11.42 m	11.42 m
3	MH3	mh2	10/06/2024	GOULD STREET	Vitrified clay pipe (i.e. all clayware)	2.58 m	2.58 m
4	MH6	MH7	10/06/2024	GOULD STREET	Vitrified clay pipe (i.e. all clayware)	21.03 m	21.03 m
7	MH8	PIPE X	10/06/2024	GOULD STREET	Vitrified clay pipe (i.e. all clayware)	15.29 m	15.29 m

Total: 4 Inspections x Circular 300 mm, 0 mm = 50.32 m Total Length and 50.32 m Inspected Length

Total: 10 Inspections = 88.56 m Total Length and 88.16 m Inspected Length

SurveyEng Ltd
14 Green Mill, Westhoughton
Tel. 0800 772 3040

Section Summary

Project Name	Project Number	Project Date
CCTV117 -MCR Property Group - Gould Street_ Manchester		14/06/2024

Number of sections	21
Total length of sections	8207.36 m
Total length of inspected sections	160.16 m
Total length of not inspected sections	8046.80 m
Total abandoned inspections	12
Number of section inspection photos	93
Number of section inspection videos	21
Number of section inspection scans	0
Number of section inclination measurements	0

PLR:	MH2X	**Upstream Node:**	mh2
Inspection Direction:	Downstream	**Downstream Node:**	PIPE X
Inspected Length:	11.42 m	**Dia/Height:**	300 mm
Total Length:	11.42 m	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)

No.	m+	Code	Observation
1	0.00	MH	Start node, manhole, reference: MH2
2	0.00	WL	Water level, 5% of the vertical dimension
3	0.70	LL	Line deviates left
4	2.64	CC	Crack, circumferential from 12 o'clock to 4 o'clock
5	2.64	CC	Crack, circumferential from 8 o'clock to 1 o'clock
6	2.83	CL	Crack, longitudinal at 9 o'clock
7	5.05	CC	Crack, circumferential from 1 o'clock to 4 o'clock
8	5.05	CC	Crack, circumferential from 7 o'clock to 11 o'clock
9	7.64	CC	Crack, circumferential from 1 o'clock to 4 o'clock
10	7.64	CC	Crack, circumferential from 7 o'clock to 12 o'clock
11	9.94	CC	Crack, circumferential from 8 o'clock to 4 o'clock
12	11.42	MHF	Finish node, manhole, reference: PIPE X

PLR:	MH3X	**Upstream Node:**	MH3
Inspection Direction:	Downstream	**Downstream Node:**	mh2
Inspected Length:	2.58 m	**Dia/Height:**	300 mm
Total Length:	2.58 m	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)

No.	m+	Code	Observation
1	0.00	CP	Start node, catchpit, reference: MH3
2	0.00	WL	Water level, 5% of the vertical dimension
3	0.90	OJL	Open joint, large
4	2.06	FLJ	Fracture, longitudinal at joint at 3 o'clock

SurveyEng Ltd
14 Green Mill, Westhoughton
Tel. 0800 772 3040

Section Summary

Project Name	Project Number	Project Date
CCTV117 -MCR Property Group - Gould Street_ Manchester		14/06/2024

No.	m+	Code	Observation
5	2.06	FM	Fracture, multiple from 4 o'clock to 7 o'clock
6	2.27	REM	General remark
7	2.58	MHF	Finish node, manhole, reference: MH2

PLR:	MH6X	**Upstream Node:**	MH6
Inspection Direction:	Downstream	**Downstream Node:**	MH7
Inspected Length:	21.03 m	**Dia/Height:**	300 mm
Total Length:	21.03 m	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)

No.	m+	Code	Observation
1	0.00	MH	Start node, manhole, reference: MH6
2	0.00	WL	Water level, 5% of the vertical dimension
3	0.70	CC	Crack, circumferential from 2 o'clock to 9 o'clock
4	1.50	CCJ	Crack, circumferential at joint from 2 o'clock to 5 o'clock
5	1.50	CCJ	Crack, circumferential at joint from 6 o'clock to 10 o'clock
6	4.07	CCJ	Crack, circumferential at joint from 2 o'clock to 4 o'clock
7	4.22	CCJ	Crack, circumferential at joint from 8 o'clock to 10 o'clock
8	6.58	CC	Crack, circumferential from 2 o'clock to 5 o'clock
9	10.96	WL	Water level, 15% of the vertical dimension
10	12.79	WL	Water level, 20% of the vertical dimension
11	21.03	MHF	Finish node, manhole, reference: PIPE X

PLR:	PIPE AX	**Upstream Node:**	PIPE A
Inspection Direction:	Upstream	**Downstream Node:**	mh6
Inspected Length:	0.16 m	**Dia/Height:**	300 mm
Total Length:	0.16 m	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)

No.	m+	Code	Observation
1	0.00	MH	Start node, manhole, reference: MH6
2	0.00	WL	Water level, 5% of the vertical dimension
3	0.00	REM	General remark
4	0.08	SC	Size changes, new size(s), 150mm high
5	0.16	SA	Survey abandoned

PLR:	MH7X	**Upstream Node:**	mh7
Inspection Direction:	Downstream	**Downstream Node:**	PIPE X
Inspected Length:	14.16 m	**Dia/Height:**	300 mm
Total Length:	14.16 m	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)

No.	m+	Code	Observation
1	0.00	MH	Start node, manhole, reference: MH7
2	0.00	WL	Water level, 5% of the vertical dimension
3	0.00	RF	Roots, fine
4	10.56	WL	Water level, 20% of the vertical dimension
5	13.11	WL	Water level, 30% of the vertical dimension
6	14.16	SA	Survey abandoned

SurveyEng Ltd
14 Green Mill, Westhoughton
Tel. 0800 772 3040

Section Summary

Project Name	Project Number	Project Date
CCTV117 -MCR Property Group - Gould Street_ Manchester		14/06/2024

PLR:	MH8X	**Upstream Node:**	MH8
Inspection Direction:	Downstream	**Downstream Node:**	PIPE X
Inspected Length:	15.29 m	**Dia/Height:**	300 mm
Total Length:	15.29 m	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)

No.	m+	Code	Observation
1	0.00	MH	Start node, manhole, reference: MH8
2	0.00	WL	Water level, 20% of the vertical dimension
3	0.00	RF	Roots, fine
4	3.72	B	Broken pipe from 4 o'clock to 7 o'clock
5	4.86	WL	Water level, 5% of the vertical dimension
6	4.87	RF	Roots, fine
7	8.83	CC	Crack, circumferential from 1 o'clock to 11 o'clock
8	11.32	CC	Crack, circumferential from 8 o'clock to 10 o'clock
9	13.75	CLJ	Crack, longitudinal at joint at 1 o'clock
10	13.75	CL	Crack, longitudinal at 5 o'clock
11	13.75	CCJ	Crack, circumferential at joint from 6 o'clock to 9 o'clock
12	15.29	MHF	Finish node, manhole, reference: PIPE X

PLR:	MH9X	**Upstream Node:**	MH9
Inspection Direction:	Downstream	**Downstream Node:**	PIPE X
Inspected Length:	0.00 m	**Dia/Height:**	
Total Length:	7.91 m	**Pipe Material:**	

No.	m+	Code	Observation
1	0.00	MH	Start node, manhole, reference: MH9
2	0.00	WL	Water level, 100% of the vertical dimension
3	0.00	REM	General remark
4	0.00	REM	General remark
5	0.00	REM	General remark
6	0.00	SA	Survey abandoned

PLR:	pipeBX	**Upstream Node:**	pipeB
Inspection Direction:	Upstream	**Downstream Node:**	mh6
Inspected Length:	0.98 m	**Dia/Height:**	150 mm
Total Length:	0.98 m	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)

No.	m+	Code	Observation
1	0.40	MH	Start node, manhole, reference: mh6
2	0.40	WL	Water level, 5% of the vertical dimension
3	0.98	SA	Survey abandoned

PLR:	PIPE BX	**Upstream Node:**	PIPE B
Inspection Direction:	Upstream	**Downstream Node:**	MH1
Inspected Length:	2.65 m	**Dia/Height:**	225 mm
Total Length:	2.65 m	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)

No.	m+	Code	Observation
1	0.00	CP	Start node, catchpit, reference: MH1
2	0.00	WL	Water level, 5% of the vertical dimension

SurveyEng Ltd
14 Green Mill, Westhoughton
Tel. 0800 772 3040

Section Summary

Project Name	Project Number	Project Date
CCTV117 -MCR Property Group - Gould Street_ Manchester		14/06/2024

No.	m+	Code	Observation
3	0.40	SC	Size changes, new size(s), 150mm high
4	0.67	JDL	Joint displaced, large
5	0.67	RF	Roots, fine
6	2.02	JDL	Joint displaced, large
7	2.63	DES	Settled deposits, fine, 15% cross-sectional area loss
8	2.65	LU	Line deviates up
9	2.65	SA	Survey abandoned

PLR:	pipe cX	**Upstream Node:**	PIPE C
Inspection Direction:	Upstream	**Downstream Node:**	mh2
Inspected Length:	0.40 m	**Dia/Height:**	150 mm
Total Length:	0.40 m	**Pipe Material:**	Polyvinyl chloride

No.	m+	Code	Observation
1	0.40	MH	Start node, manhole, reference: mh2
2	0.40	WL	Water level, 5% of the vertical dimension
3	0.40	SA	Survey abandoned

PLR:	PIPE BX	**Upstream Node:**	PIPE B
Inspection Direction:	Upstream	**Downstream Node:**	MH5
Inspected Length:	2.73 m	**Dia/Height:**	150 mm
Total Length:	2.73 m	**Pipe Material:**	Polyvinyl chloride

No.	m+	Code	Observation
1	0.42	MH	Start node, manhole, reference: MH5
2	0.42	WL	Water level, 5% of the vertical dimension
3	2.02	LL	Line deviates left
4	2.73	OCF	Finish node, other special chamber, reference: PIPE B

PLR:	pipe cX	**Upstream Node:**	PIPE C
Inspection Direction:	Upstream	**Downstream Node:**	mh6
Inspected Length:	1.53 m	**Dia/Height:**	150 mm
Total Length:	1.53 m	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)

No.	m+	Code	Observation
1	0.40	MH	Start node, manhole, reference: mh6
2	0.40	WL	Water level, 5% of the vertical dimension
3	1.53	REM	General remark

PLR:	pipe bX	**Upstream Node:**	PIPE B
Inspection Direction:	Upstream	**Downstream Node:**	mh2
Inspected Length:	10.66 m	**Dia/Height:**	150 mm
Total Length:	10.66 m	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)

No.	m+	Code	Observation
1	0.40	MH	Start node, manhole, reference: mh2
2	0.40	WL	Water level, 5% of the vertical dimension
3	9.24	RT	Roots, tap
4	10.66	SA	Survey abandoned

SurveyEng Ltd
14 Green Mill, Westhoughton
Tel. 0800 772 3040

Section Summary

Project Name	Project Number	Project Date
CCTV117 -MCR Property Group - Gould Street_ Manchester		14/06/2024

PLR:	PIPE AX	**Upstream Node:**	PIPE A
Inspection Direction:	Upstream	**Downstream Node:**	MH5
Inspected Length:	14.16 m	**Dia/Height:**	150 mm
Total Length:	14.16 m	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)

No.	m+	Code	Observation
1	0.40	MH	Start node, manhole, reference: MH5
2	0.40	WL	Water level, 15% of the vertical dimension
3	13.80	SA	Survey abandoned
4	14.16	SA	Survey abandoned

PLR:	pipe bX	**Upstream Node:**	PIPE B
Inspection Direction:	Upstream	**Downstream Node:**	mh7
Inspected Length:	7.91 m	**Dia/Height:**	150 mm
Total Length:	7.91 m	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)

No.	m+	Code	Observation
1	0.40	MH	Start node, manhole, reference: mh7
2	0.40	WL	Water level, 5% of the vertical dimension
3	1.08	OJL	Open joint, large
4	2.56	OJL	Open joint, large
5	4.18	OJL	Open joint, large
6	5.96	OJL	Open joint, large
7	7.91	MHF	Finish node, manhole, reference: pipe b

PLR:	mh11X	**Upstream Node:**	mh11
Inspection Direction:	Downstream	**Downstream Node:**	PIPE X
Inspected Length:	3.60 m	**Dia/Height:**	225 mm
Total Length:	4.00 m	**Pipe Material:**	Polyvinyl chloride

No.	m+	Code	Observation
1	0.40	MH	Start node, manhole, reference: mh11
2	0.40	WL	Water level, 5% of the vertical dimension
3	2.77	WL	Water level, 15% of the vertical dimension
4	3.36	LD	Line deviates down
5	4.00	BRF	Finish node, major connection without manhole, reference: PIPE X

PLR:	MH10X	**Upstream Node:**	MH10
Inspection Direction:	Downstream	**Downstream Node:**	PIPE X
Inspected Length:	8.47 m	**Dia/Height:**	150 mm
Total Length:	8,047.00 m	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)

No.	m+	Code	Observation
1	0.00	WL	Water level, 5% of the vertical dimension
2	0.00	RF	Roots, fine
3	0.03	CP	Start node, catchpit, reference: MH10
4	1.00	DES	Settled deposits, fine, 40% cross-sectional area loss
5	4.24	OJL	Open joint, large
6	4.24	SR	Sealing ring intruding, intruding but not hanging from 7 o'clock to 1 o'clock
7	8.47	DES	Settled deposits, fine, 100% cross-sectional area loss

SurveyEng Ltd
14 Green Mill, Westhoughton
Tel. 0800 772 3040

Section Summary

Project Name	Project Number	Project Date
CCTV117 -MCR Property Group - Gould Street_ Manchester		14/06/2024

No.	m+	Code	Observation
8	8.47	SA	Survey abandoned

PLR:	MH1X	**Upstream Node:**	MH1
Inspection Direction:	Downstream	**Downstream Node:**	PIPE X
Inspected Length:	1.29 m	**Dia/Height:**	225 mm
Total Length:	1.29 m	**Pipe Material:**	Polyvinyl chloride

No.	m+	Code	Observation
1	0.00	CP	Start node, catchpit, reference: MH1
2	0.00	WL	Water level, 5% of the vertical dimension
3	0.00	LD	Line deviates down, start
4	1.29	LD	Line deviates down, finish
5	1.29	DES	Settled deposits, fine, 50% cross-sectional area loss
6	1.29	SA	Survey abandoned

PLR:	PIPE AX	**Upstream Node:**	PIPE A
Inspection Direction:	Upstream	**Downstream Node:**	MH1
Inspected Length:	19.43 m	**Dia/Height:**	225 mm
Total Length:	19.43 m	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)

No.	m+	Code	Observation
1	0.00	CP	Start node, catchpit, reference: MH1
2	0.00	WL	Water level, 5% of the vertical dimension
3	0.00	RF	Roots, fine
4	0.40	JDL	Joint displaced, large
5	0.40	SC	Size changes, new size(s), 150mm high
6	0.50	LR	Line deviates right
7	1.41	LL	Line deviates left
8	1.43	FM	Fracture, multiple from 3 o'clock to 9 o'clock
9	11.56	JDL	Joint displaced, large
10	11.72	LR	Line deviates right
11	17.57	JDL	Joint displaced, large
12	19.43	DEX	Settled deposits, other, 100% cross-sectional area loss
13	19.43	SA	Survey abandoned

PLR:	MH5X	**Upstream Node:**	MH5
Inspection Direction:	Downstream	**Downstream Node:**	PIPE X
Inspected Length:	16.20 m	**Dia/Height:**	150 mm
Total Length:	16.20 m	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)

No.	m+	Code	Observation
1	0.00	MH	Start node, manhole, reference: MH5
2	0.00	WL	Water level, 5% of the vertical dimension
3	16.20	MHF	Finish node, manhole, reference: PIPE X

PLR:	PIPE CX	**Upstream Node:**	PIPE C
Inspection Direction:	Upstream	**Downstream Node:**	MH5
Inspected Length:	5.87 m	**Dia/Height:**	100 mm
Total Length:	5.87 m	**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)

SurveyEng Ltd
14 Green Mill, Westhoughton
Tel. 0800 772 3040

Section Summary

Project Name	Project Number	Project Date
CCTV117 -MCR Property Group - Gould Street_ Manchester		14/06/2024

No.	m+	Code	Observation
1	0.40	MH	Start node, manhole, reference: MH5
2	0.40	WL	Water level, 5% of the vertical dimension
3	1.23	JDM	Joint displaced, medium
4	3.22	OJL	Open joint, large
5	5.87	XP	Collapsed drain or sewer

SurveyEng Ltd
14 Green Mill, Westhoughton
Tel. 0800 772 3040

Section Inspection - 10/06/2024 - MH2X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
1	1	10/06/24	9:54	01	Not Specified	Not Specified	MH2X

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
Not Specified	Not Specified	Not Specified	Not Specified	Not Specified	1

Town or Village:	Manchester	**Inspection Direction:**	Downstream	**Upstream Node:**	MH2
Road:	Gould Street	**Inspected Length:**	11.42 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	11.42 m	**Downstream Node:**	PIPE X
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	

Use:	Combined	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	300 mm
Flow Control:		**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:		**Lining Material:**	No Lining

Comments:
Recommendations:



Scale: 1:99 Position [m]	Code	Observation	MPEG	Photo	Grade
Depth: m mh2					
0.00	MH	Start node, manhole, reference: MH2	00:00:01	MH2 PIPE X_0-00m_095810.jp	
0.00	WL	Water level, 5% of the vertical dimension	00:00:03		
0.70	LL	Line deviates left	00:00:09		
2.64	CC	Crack, circumferential from 12 o'clock to 4 o'clock	00:00:25	MH2 PIPE X_2-64m_095850.jp	2
2.64	CC	Crack, circumferential from 8 o'clock to 1 o'clock	00:00:28	MH2 PIPE X_2-64m_095859.jp	2
2.83	CL	Crack, longitudinal at 9 o'clock	00:00:32	MH2 PIPE X_2-83m_095910.jp	2
5.05	CC	Crack, circumferential from 1 o'clock to 4 o'clock	00:00:45	MH2 PIPE X_5-05m_095935.jp	2
5.05	CC	Crack, circumferential from 7 o'clock to 11 o'clock	00:00:48	MH2 PIPE X_5-05m_095947.jp	2
7.64	CC	Crack, circumferential from 1 o'clock to 4 o'clock	00:01:13	MH2 PIPE X_7-64m_100022.jp	2
7.64	CC	Crack, circumferential from 7 o'clock to 12 o'clock	00:01:15		2
9.94	CC	Crack, circumferential from 8 o'clock to 4 o'clock	00:01:33	MH2 PIPE X_9-94m_100056.jp	2
11.42	MHF	Finish node, manhole, reference: PIPE X	00:01:47	MH2 PIPE X_11-42m_100115.j	
PIPE X Depth: m					

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	**STR Peak**	**STR Mean**	**STR Total**	**STR Grade**	**SER No. Def**	**SER Peak**	**SER Mean**	**SER Total**	**SER Grade**
8	30.0	7.0	80.0	2.0	0	0.0	0.0	0.0	1.0

SurveyEng Ltd
14 Green Mill, Westhoughton
Tel. 0800 772 3040

Section Pictures - 10/06/2024 - MH2X

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
1	Downstream	MH2X	01	



MH2 PIPE X_0-00m_095810.jpg, 00:00:01, 0.00 m
Start node, manhole, reference: MH2



MH2 PIPE X_2-64m_095850.jpg, 00:00:25, 2.64 m
Crack, circumferential from 12 o'clock to 4 o'clock



MH2 PIPE X_2-64m_095859.jpg, 00:00:28, 2.64 m
Crack, circumferential from 8 o'clock to 1 o'clock



MH2 PIPE X_2-83m_095910.jpg, 00:00:32, 2.83 m
Crack, longitudinal at 9 o'clock

SurveyEng Ltd
14 Green Mill, Westhoughton
Tel. 0800 772 3040

Section Pictures - 10/06/2024 - MH2X

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
1	Downstream	MH2X	01	



MH2 PIPE X_5-05m_095935.jpg, 00:00:45, 5.05 m
Crack, circumferential from 1 o'clock to 4 o'clock



MH2 PIPE X_5-05m_095947.jpg, 00:00:48, 5.05 m
Crack, circumferential from 7 o'clock to 11 o'clock



MH2 PIPE X_7-64m_100022.jpg, 00:01:13, 7.64 m
Crack, circumferential from 1 o'clock to 4 o'clock



MH2 PIPE X_9-94m_100056.jpg, 00:01:33, 9.94 m
Crack, circumferential from 8 o'clock to 4 o'clock

SurveyEng Ltd
14 Green Mill, Westhoughton
Tel. 0800 772 3040

Section Pictures - 10/06/2024 - MH2X

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
1	Downstream	MH2X	01	



MH2 PIPE X_11-42m_100115.jpg, 00:01:47, 11.42 m
Finish node, manhole, reference: PIPE X

SurveyEng Ltd
14 Green Mill, Westhoughton
Tel. 0800 772 3040

Section Inspection - 10/06/2024 - MH3X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
3	3	10/06/24	10:11	01	Not Specified	Not Specified	MH3X

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
Not Specified	Not Specified	Not Specified	Not Specified	Not Specified	1

Town or Village:	Manchester	**Inspection Direction:**	Downstream	**Upstream Node:**	MH3
Road:	Gould Street	**Inspected Length:**	2.58 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	2.58 m	**Downstream Node:**	MH2
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	300 mm
Flow Control:		**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:		**Lining Material:**	No Lining

Comments:
Recommendations:



Scale: 1:50 Position [m]	Code	Observation	MPEG	Photo	Grade
Depth: m MH3					
0.00	CP	Start node, catchpit, reference: MH3	00:00:38	MH3 DS MH2_0-00 m_101236	
0.00	WL	Water level, 5% of the vertical dimension	00:00:42		
0.90	OJL	Open joint, large	00:00:47		1
2.06	FLJ	Fracture, longitudinal at joint at 3 o'clock	00:00:54	MH3 DS MH2_2-06 m_101310	3
2.06	FM	Fracture, multiple from 4 o'clock to 7 o'clock	00:00:57	MH3 DS MH2_2-06 m_101323	4
2.27	REM	General remark: DROPSHAFT	00:01:01	MH3 DS MH2_2-27 m_101344	
mh2 2.58	MHF	Finish node, manhole, reference: MH2	00:01:05	MH3 DS MH2_2-58 m_101353	
Depth: m					

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	**STR Peak**	**STR Mean**	**STR Total**	**STR Grade**	**SER No. Def**	**SER Peak**	**SER Mean**	**SER Total**	**SER Grade**
3	120.0	47.3	122.0	4.0	0	0.0	0.0	0.0	1.0

SurveyEng Ltd
14 Green Mill, Westhoughton
Tel. 0800 772 3040

Section Pictures - 10/06/2024 - MH3X

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
3	Downstream	MH3X	01	



MH3 DS MH2_0-00m_101236.jpg, 00:00:38, 0.00 m
Start node, catchpit, reference: MH3



MH3 DS MH2_2-06m_101310.jpg, 00:00:54, 2.06 m
Fracture, longitudinal at joint at 3 o'clock



MH3 DS MH2_2-06m_101323.jpg, 00:00:57, 2.06 m
Fracture, multiple from 4 o'clock to 7 o'clock



MH3 DS MH2_2-27m_101344.jpg, 00:01:01, 2.27 m
General remark, DROPSHAFT

SurveyEng Ltd
14 Green Mill, Westhoughton
Tel. 0800 772 3040

Section Pictures - 10/06/2024 - MH3X

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
3	Downstream	MH3X	01	



MH3 DS MH2_2-58m_101353.jpg, 00:01:05, 2.58 m
Finish node, manhole, reference: MH2

SurveyEng Ltd
14 Green Mill, Westhoughton
Tel. 0800 772 3040

Section Inspection - 10/06/2024 - MH6X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
4	4	10/06/24	12:06	01	Not Specified	Not Specified	MH6X

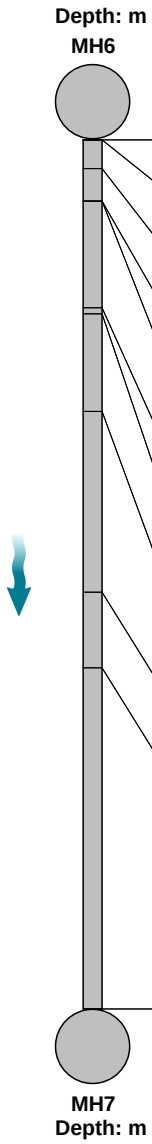
Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
Not Specified	Not Specified	Not Specified	Not Specified	Not Specified	1

Town or Village:	Manchester	**Inspection Direction:**	Downstream	**Upstream Node:**	MH6
Road:	Gould Street	**Inspected Length:**	21.03 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	21.03 m	**Downstream Node:**	MH7
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	300 mm
Flow Control:		**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:		**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:183



Position [m]	Code	Observation	MPEG	Photo	Grade
0.00	MH	Start node, manhole, reference: MH6	00:00:00	MH6 PIPE X_0-00m_ 120733.jp	
0.00	WL	Water level, 5% of the vertical dimension	00:00:03		
0.70	CC	Crack, circumferential from 2 o'clock to 9 o'clock	00:00:16	MH6 PIPE X_0-70m_ 120800.jp	2
1.50	CCJ	Crack, circumferential at joint from 2 o'clock to 5 o'clock	00:00:26	MH6 PIPE X_1-50m_ 120817.jp	2
1.50	CCJ	Crack, circumferential at joint from 6 o'clock to 10 o'clock	00:00:29	MH6 PIPE X_1-50m_ 120846.jp	2
4.07	CCJ	Crack, circumferential at joint from 2 o'clock to 4 o'clock	00:00:50	MH6 PIPE X_4-07m_ 121015.jp	2
4.22	CCJ	Crack, circumferential at joint from 8 o'clock to 10 o'clock	00:00:52	MH6 PIPE X_4-22m_ 121038.jp	2
6.58	CC	Crack, circumferential from 2 o'clock to 5 o'clock	00:01:05	MH6 PIPE X_6-58m_ 121101.jp	2
10.96	WL	Water level, 15% of the vertical dimension	00:02:38	MH6 PIPE X_10-96m _121357.j	
12.79	WL	Water level, 20% of the vertical dimension	00:02:52	MH6 PIPE X_12-79m _121417.j	
21.03	MHF	Finish node, manhole, reference: PIPE X	00:04:07	MH6 PIPE X_21-03m _121537.j	

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	**STR Peak**	**STR Mean**	**STR Total**	**STR Grade**	**SER No. Def**	**SER Peak**	**SER Mean**	**SER Total**	**SER Grade**
6	20.0	2.9	60.0	2.0	0	0.0	0.0	0.0	1.0

SurveyEng Ltd
14 Green Mill, Westhoughton
Tel. 0800 772 3040

Section Pictures - 10/06/2024 - MH6X

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
4	Downstream	MH6X	01	



MH6 PIPE X_0-00m_120733.jpg, 00:00:00, 0.00 m
Start node, manhole, reference: MH6



MH6 PIPE X_0-70m_120800.jpg, 00:00:16, 0.70 m
Crack, circumferential from 2 o'clock to 9 o'clock



MH6 PIPE X_1-50m_120817.jpg, 00:00:26, 1.50 m
Crack, circumferential at joint from 2 o'clock to 5 o'clock



MH6 PIPE X_1-50m_120846.jpg, 00:00:29, 1.50 m
Crack, circumferential at joint from 6 o'clock to 10 o'clock

SurveyEng Ltd
14 Green Mill, Westhoughton
Tel. 0800 772 3040

Section Pictures - 10/06/2024 - MH6X

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
4	Downstream	MH6X	01	



MH6 PIPE X_4-07m_121015.jpg, 00:00:50, 4.07 m
Crack, circumferential at joint from 2 o'clock to 4 o'clock



MH6 PIPE X_4-22m_121038.jpg, 00:00:52, 4.22 m
Crack, circumferential at joint from 8 o'clock to 10 o'clock



MH6 PIPE X_6-58m_121101.jpg, 00:01:05, 6.58 m
Crack, circumferential from 2 o'clock to 5 o'clock



MH6 PIPE X_10-96m_121357.jpg, 00:02:38, 10.96 m
Water level, 15% of the vertical dimension

SurveyEng Ltd
14 Green Mill, Westhoughton
Tel. 0800 772 3040

Section Pictures - 10/06/2024 - MH6X

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
4	Downstream	MH6X	01	



MH6 PIPE X_12-79m_121417.jpg, 00:02:52, 12.79 m
Water level, 20% of the vertical dimension



MH6 PIPE X_21-03m_121537.jpg, 00:04:07, 21.03 m
Finish node, manhole, reference: PIPE X

SurveyEng Ltd
14 Green Mill, Westhoughton
Tel. 0800 772 3040

Section Inspection - 10/06/2024 - PIPE AX

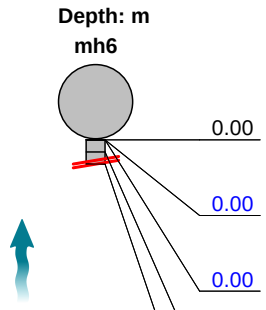
Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
5	5	10/06/24	12:21	01	Not Specified	Not Specified	PIPE AX

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
Not Specified	Not Specified	Not Specified	Not Specified	Not Specified	1

Town or Village:	Manchester	**Inspection Direction:**	Upstream	**Upstream Node:**	PIPE A
Road:	Gould Street	**Inspected Length:**	0.16 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	0.16 m	**Downstream Node:**	MH6
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	

Use:	Foul	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	300 mm
Flow Control:		**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:		**Lining Material:**	No Lining

Comments:
Recommendations:



Scale: 1:50 Position [m]	Code	Observation	MPEG	Photo	Grade
0.00	MH	Start node, manhole, reference: MH6	00:00:00	MH6 PIPE A_0-00m_ 122301.jp	
0.00	WL	Water level, 5% of the vertical dimension	00:00:02		
0.00	REM	General remark: TRAP	00:00:16	MH6 PIPE A_0-00m_ 122330.jp	
0.08	SC	Size changes, new size(s), 150mm high	00:00:22	MH6 PIPE A_0-08m_ 122342.jp	
0.16	SA	Survey abandoned: DUE TO TRAP	00:00:26	MH6 PIPE A_0-16m_ 122357.jp	

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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

SurveyEng Ltd
14 Green Mill, Westhoughton
Tel. 0800 772 3040

Section Pictures - 10/06/2024 - PIPE AX

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
5	Upstream	PIPE AX	01	



MH6 PIPE A_0-00m_122301.jpg, 00:00:00, 0.00 m
Start node, manhole, reference: MH6



MH6 PIPE A_0-00m_122330.jpg, 00:00:16, 0.00 m
General remark, TRAP



MH6 PIPE A_0-08m_122342.jpg, 00:00:22, 0.08 m
Size changes, new size(s), 150mm high



MH6 PIPE A_0-16m_122357.jpg, 00:00:26, 0.16 m
Survey abandoned, DUE TO TRAP

SurveyEng Ltd
14 Green Mill, Westhoughton
Tel. 0800 772 3040

Section Inspection - 10/06/2024 - MH7X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
6	6	10/06/24	12:38	01	Not Specified	Not Specified	MH7X

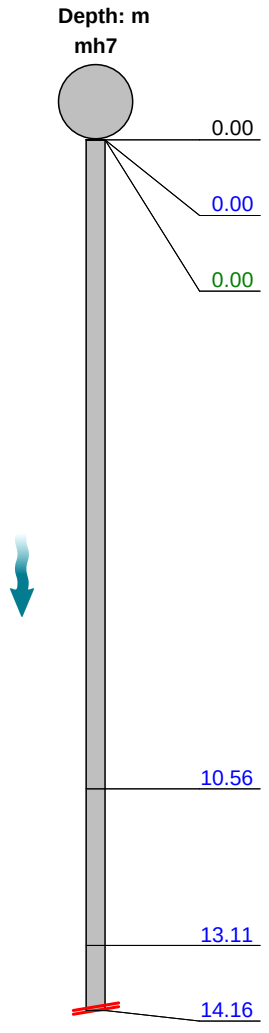
Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
Not Specified	Not Specified	Not Specified	Not Specified	Not Specified	1

Town or Village:	Manchester	**Inspection Direction:**	Downstream	**Upstream Node:**	MH7
Road:	Gould Street	**Inspected Length:**	14.16 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	14.16 m	**Downstream Node:**	PIPE X
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	300 mm
Flow Control:		**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:		**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:123



Position [m]	Code	Observation	MPEG	Photo	Grade
0.00	MH	Start node, manhole, reference: MH7	00:00:00	MH7 PIPE X_0-00m_ 124615.jp	
0.00	WL	Water level, 5% of the vertical dimension	00:00:02		
0.00	RF	Roots, fine	00:00:04	MH7 PIPE X_0-00m_ 124629.jp	2
10.56	WL	Water level, 20% of the vertical dimension	00:00:57	MH7 PIPE X_10-56m _124729.j	
13.11	WL	Water level, 30% of the vertical dimension	00:01:07	MH7 PIPE X_13-11m _124746.j	
14.16	SA	Survey abandoned: DUE TO DEBRIS	00:01:15	MH7 PIPE X_14-16m _124808.j	

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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

SurveyEng Ltd
14 Green Mill, Westhoughton
Tel. 0800 772 3040

Section Pictures - 10/06/2024 - MH7X

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
6	Downstream	MH7X	01	



MH7 PIPE X_0-00m_124615.jpg, 00:00:00, 0.00 m
Start node, manhole, reference: MH7



MH7 PIPE X_0-00m_124629.jpg, 00:00:04, 0.00 m
Roots, fine



MH7 PIPE X_10-56m_124729.jpg, 00:00:57, 10.56 m
Water level, 20% of the vertical dimension



MH7 PIPE X_13-11m_124746.jpg, 00:01:07, 13.11 m
Water level, 30% of the vertical dimension

SurveyEng Ltd
14 Green Mill, Westhoughton
Tel. 0800 772 3040

Section Pictures - 10/06/2024 - MH7X

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
6	Downstream	MH7X	01	



MH7 PIPE X_14-16m_124808.jpg, 00:01:15, 14.16 m
Survey abandoned, DUE TO DEBRIS

SurveyEng Ltd
14 Green Mill, Westhoughton
Tel. 0800 772 3040

Section Inspection - 10/06/2024 - MH8X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
7	7	10/06/24	13:06	01	Not Specified	Not Specified	MH8X

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
Not Specified	Not Specified	Not Specified	Not Specified	Not Specified	1

Town or Village:	Manchester	**Inspection Direction:**	Downstream	**Upstream Node:**	MH8
Road:	Gould Street	**Inspected Length:**	15.29 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	15.29 m	**Downstream Node:**	PIPE X
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	300 mm
Flow Control:		**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:		**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:133



Position [m]	Code	Observation	MPEG	Photo	Grade
0.00	MH	Start node, manhole, reference: MH8	00:00:00	MH8 PIPE X_0-00m_ 130722.jp	
0.00	WL	Water level, 20% of the vertical dimension	00:00:02		
0.00	RF	Roots, fine	00:00:05		2
3.72	B	Broken pipe from 4 o'clock to 7 o'clock	00:00:34	MH8 PIPE X_3-72m_ 130812.jp	4
4.86	WL	Water level, 5% of the vertical dimension	00:00:43	MH8 PIPE X_4-86m_ 130827.jp	
4.87	RF	Roots, fine	00:00:45		2
8.83	CC	Crack, circumferential from 1 o'clock to 11 o'clock	00:01:05	MH8 PIPE X_8-83m_ 130902.jp	2
11.32	CC	Crack, circumferential from 8 o'clock to 10 o'clock	00:01:19	MH8 PIPE X_11-32m _130924.j	2
13.75	CLJ	Crack, longitudinal at joint at 1 o'clock	00:01:31	MH8 PIPE X_13-75m _130946.j	2
13.75	CL	Crack, longitudinal at 5 o'clock	00:01:33		2
13.75	CCJ	Crack, circumferential at joint from 6 o'clock to 9 o'clock	00:01:34	MH8 PIPE X_13-75m _131121.j	2
15.29	MHF	Finish node, manhole, reference: PIPE X	00:01:47	MH8 PIPE X_15-29m _131138.j	

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	**STR Peak**	**STR Mean**	**STR Total**	**STR Grade**	**SER No. Def**	**SER Peak**	**SER Mean**	**SER Total**	**SER Grade**
6	80.0	8.5	130.0	4.0	2	1.0	0.1	2.0	2.0

SurveyEng Ltd
14 Green Mill, Westhoughton
Tel. 0800 772 3040

Section Pictures - 10/06/2024 - MH8X

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
7	Downstream	MH8X	01	



MH8 PIPE X_0-00m_130722.jpg, 00:00:00, 0.00 m
Start node, manhole, reference: MH8



MH8 PIPE X_3-72m_130812.jpg, 00:00:34, 3.72 m
Broken pipe from 4 o'clock to 7 o'clock



MH8 PIPE X_4-86m_130827.jpg, 00:00:43, 4.86 m
Water level, 5% of the vertical dimension



MH8 PIPE X_8-83m_130902.jpg, 00:01:05, 8.83 m
Crack, circumferential from 1 o'clock to 11 o'clock

SurveyEng Ltd
14 Green Mill, Westhoughton
Tel. 0800 772 3040

Section Pictures - 10/06/2024 - MH8X

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
7	Downstream	MH8X	01	



MH8 PIPE X_11-32m_130924.jpg, 00:01:19, 11.32 m
Crack, circumferential from 8 o'clock to 10 o'clock



MH8 PIPE X_13-75m_130946.jpg, 00:01:31, 13.75 m
Crack, longitudinal at joint at 1 o'clock



MH8 PIPE X_13-75m_131121.jpg, 00:01:34, 13.75 m
Crack, circumferential at joint from 6 o'clock to 9 o'clock



MH8 PIPE X_15-29m_131138.jpg, 00:01:47, 15.29 m
Finish node, manhole, reference: PIPE X

SurveyEng Ltd
14 Green Mill, Westhoughton
Tel. 0800 772 3040

Section Inspection - 10/06/2024 - MH9X

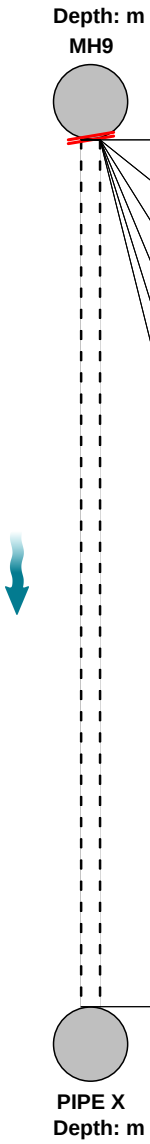
Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
8	8	10/06/24	13:25	01	Not Specified	Not Specified	MH9X

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
Not Specified	Not Specified	Not Specified	Not Specified	Not Specified	1

Town or Village:	Manchester	**Inspection Direction:**	Downstream	**Upstream Node:**	MH9
Road:	Gould Street	**Inspected Length:**	0.00 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	7.91 m	**Downstream Node:**	PIPE X
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	

Use:	Other	**Pipe Shape:**	
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	
Flow Control:		**Pipe Material:**	
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:		**Lining Material:**	No Lining

Comments:
Recommendations:



Scale: 1:69 Position [m]	Code	Observation	MPEG	Photo	Grade
0.00	MH	Start node, manhole, reference: MH9	00:00:00		
0.00	WL	Water level, 100% of the vertical dimension	00:00:01	MH9X_acbb76c4-81b8-4a8a-ad	
0.00	REM	General remark: UPSTREAM LINE SURCHARGED	00:00:59	MH9 PIPE X_7-76m_133114.jp	
0.00	REM	General remark: PAN AND TILT AROUND CHAMBER LOOKING UPSTREAM AND DOWNSTREAM	00:01:01	MH9X_5ce3656f-23b9-4269-a8	
0.00	REM	General remark: DOWNSTREAM LINE SURCHARGED	00:01:31	MH9 PIPE X_7-91m_133203.jp	
0.00	SA	Survey abandoned: DUE TO DEBRIS	00:01:32	MH9X_5858d1e9-09a7-4330-a	
7.91		End of pipe			

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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

SurveyEng Ltd
14 Green Mill, Westhoughton
Tel. 0800 772 3040

Section Pictures - 10/06/2024 - MH9X

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
8	Downstream	MH9X	01	



MH9X_acbb76c4-81b8-4a8a-ad22-5f94dabdd5ed_20240614_082240_320.jpg, 00:00:01, 0.00 m
Water level, 100% of the vertical dimension



MH9 PIPE X_7-76m_133114.jpg, 00:00:59, 0.00 m
General remark, UPSTREAM LINE SURCHARGED



MH9X_5ce3656f-23b9-4269-a87d-117589743e6f_20240614_082247_132.jpg, 00:01:01, 0.00 m
General remark, PAN AND TILT AROUND CHAMBER LOOKING UPSTREAM AND DOWNSTREAM



MH9 PIPE X_7-91m_133203.jpg, 00:01:31, 0.00 m
General remark, DOWNSTREAM LINE SURCHARGED

SurveyEng Ltd
14 Green Mill, Westhoughton
Tel. 0800 772 3040

Section Pictures - 10/06/2024 - MH9X

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
8	Downstream	MH9X	01	



MH9X_5858d1e9-09a7-4330-a211-5c03453d69da_20240614_082250_858.jpg, 00:01:32, 0.00 m
Survey abandoned, DUE TO DEBRIS

SurveyEng Ltd
14 Green Mill, Westhoughton
Tel. 0800 772 3040

Section Inspection - 10/06/2024 - pipeBX

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
9	12	10/06/24	11:18	01	Not Specified	Not Specified	PIPEBX

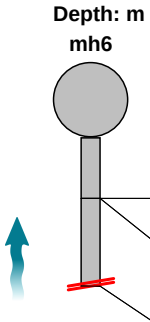
Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
Not Specified	Not Specified	Not Specified	Not Specified	Not Specified	1

Town or Village:	Manchester	**Inspection Direction:**	Upstream	**Upstream Node:**	PIPEB
Road:	Gould Street	**Inspected Length:**	0.98 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	0.98 m	**Downstream Node:**	MH6
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	150 mm
Flow Control:		**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:		**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:50



Position [m]	Code	Observation	MPEG	Photo	Grade
0.40	MH	Start node, manhole, reference: mh6	00:00:01		
0.40	WL	Water level, 5% of the vertical dimension	00:00:02	pipeBX_c89f5230-3160-430d-a	
0.98	SA	Survey abandoned: due to trap	00:00:45	mh6 piped_0-98m_112045.jp	

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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

SurveyEng Ltd
14 Green Mill, Westhoughton
Tel. 0800 772 3040

Section Pictures - 10/06/2024 - pipeBX

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
9	Upstream	PIPEBX	01	



pipeBX_c89f5230-3160-430d-a516-a3a36ea4a238_20240614_082255_515.jpg, 00:00:02, 0.40 m
Water level, 5% of the vertical dimension



mh6 pipe d_0-98m_112045.jpg, 00:00:45, 0.98 m
Survey abandoned, due to trap

SurveyEng Ltd
14 Green Mill, Westhoughton
Tel. 0800 772 3040

Section Inspection - 10/06/2024 - PIPE BX

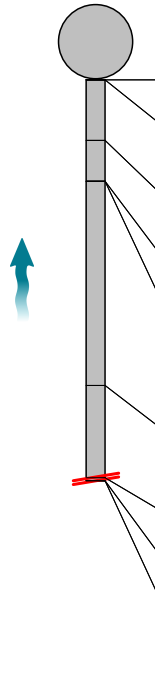
Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
10	3	10/06/24	8:02	01	Not Specified	Not Specified	PIPE BX

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
Not Specified	Not Specified	Not Specified	Not Specified	Not Specified	1

Town or Village:	Manchester	**Inspection Direction:**	Upstream	**Upstream Node:**	PIPE B
Road:	Gould Street	**Inspected Length:**	2.65 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	2.65 m	**Downstream Node:**	MH1
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	225 mm
Flow Control:		**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:		**Lining Material:**	No Lining

Comments:
Recommendations:



Scale: 1:50 Position [m]	Code	Observation	MPEG	Photo	Grade
0.00	CP	Start node, catchpit, reference: MH1	00:00:01	MH1 PIPE B_0-00m_ 080334.jp	
0.00	WL	Water level, 5% of the vertical dimension	00:00:03		
0.40	SC	Size changes, new size(s), 150mm high	00:00:08		
0.67	JDL	Joint displaced, large	00:00:11	MH1 PIPE B_0-67m_ 080359.jp	1
0.67	RF	Roots, fine	00:00:16		2
2.02	JDL	Joint displaced, large	00:00:31	MH1 PIPE B_2-02m_ 080427.jp	1
2.63	DES	Settled deposits, fine, 15% cross-sectional area loss	00:00:36	MH1 PIPE B_2-63m_ 080440.jp	3
2.65	LU	Line deviates up	00:00:49	MH1 PIPE B_2-65m_ 080458.jp	
2.65	SA	Survey abandoned: DUE TO LU	00:00:53	MH1 PIPE B_2-65m_ 080639.jp	

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	**STR Peak**	**STR Mean**	**STR Total**	**STR Grade**	**SER No. Def**	**SER Peak**	**SER Mean**	**SER Total**	**SER Grade**
2	2.0	1.5	4.0	1.0	2	2.0	1.1	3.0	3.0

SurveyEng Ltd
14 Green Mill, Westhoughton
Tel. 0800 772 3040

Section Pictures - 10/06/2024 - PIPE BX

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
10	Upstream	PIPE BX	01	



MH1 PIPE B_0-00m_080334.jpg, 00:00:01, 0.00 m
Start node, catchpit, reference: MH1



MH1 PIPE B_0-67m_080359.jpg, 00:00:11, 0.67 m
Joint displaced, large



MH1 PIPE B_2-02m_080427.jpg, 00:00:31, 2.02 m
Joint displaced, large



MH1 PIPE B_2-63m_080440.jpg, 00:00:36, 2.63 m
Settled deposits, fine, 15% cross-sectional area loss

SurveyEng Ltd
14 Green Mill, Westhoughton
Tel. 0800 772 3040

Section Pictures - 10/06/2024 - PIPE BX

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
10	Upstream	PIPE BX	01	



MH1 PIPE B_2-65m_080458.jpg, 00:00:49, 2.65 m
Line deviates up



MH1 PIPE B_2-65m_080639.jpg, 00:00:53, 2.65 m
Survey abandoned, DUE TO LU

SurveyEng Ltd
14 Green Mill, Westhoughton
Tel. 0800 772 3040

Section Inspection - 10/06/2024 - pipe cX

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
11	5	10/06/24	8:30	01	Not Specified	Not Specified	PIPE CX

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
Not Specified	Not Specified	Not Specified	Not Specified	Not Specified	1

Town or Village:	Manchester	**Inspection Direction:**	Upstream	**Upstream Node:**	PIPE C
Road:	Gould Street	**Inspected Length:**	0.40 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	0.40 m	**Downstream Node:**	MH2
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	150 mm
Flow Control:		**Pipe Material:**	Polyvinyl chloride
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:		**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:50	Position [m]	Code	Observation	MPEG	Photo	Grade
Depth: m mh2						
	0.40	MH	Start node, manhole, reference: mh2	00:00:00	pipe cX_8ba9448a-c7d4-	
	0.40	WL	Water level, 5% of the vertical dimension	00:00:00		
	0.40	SA	Survey abandoned: needs to be cleaned	00:00:23	mh2 pipe c_0-40m_084256.jp	

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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

SurveyEng Ltd
14 Green Mill, Westhoughton
Tel. 0800 772 3040

Section Pictures - 10/06/2024 - pipe cX

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
11	Upstream	PIPE CX	01	



pipe
cX_8ba9448a-c7d4-44c6-86ad-66e3a5a80af9_20240614_082312_072.jpg, 00:00:00, 0.40 m
Start node, manhole, reference: mh2



mh2 pipe c_0-40m_084256.jpg, 00:00:23, 0.40 m
Survey abandoned, needs to be cleaned

SurveyEng Ltd
14 Green Mill, Westhoughton
Tel. 0800 772 3040

Section Inspection - 10/06/2024 - PIPE BX

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
12	8	10/06/24	10:56	01	Not Specified	Not Specified	PIPE BX

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
Not Specified	Not Specified	Not Specified	Not Specified	Not Specified	1

Town or Village:	Manchester	**Inspection Direction:**	Upstream	**Upstream Node:**	PIPE B
Road:	Gould Street	**Inspected Length:**	2.73 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	2.73 m	**Downstream Node:**	MH5
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	150 mm
Flow Control:		**Pipe Material:**	Polyvinyl chloride
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:		**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:50



Position [m]	Code	Observation	MPEG	Photo	Grade
0.42	MH	Start node, manhole, reference: MH5	00:00:00	PIPE BX_36b86397-6080-	
0.42	WL	Water level, 5% of the vertical dimension	00:00:02		
2.02	LL	Line deviates left	00:00:22		
2.73	OCF	Finish node, other special chamber, reference: PIPE B: OLD RODDING EYE	00:00:34	MH5 PIPE B_2-73m_105836.jp	

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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

SurveyEng Ltd
14 Green Mill, Westhoughton
Tel. 0800 772 3040

Section Pictures - 10/06/2024 - PIPE BX

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
12	Upstream	PIPE BX	01	



PIPE
BX_36b86397-6080-4612-9d28-a141ecaf6c33_20240614_082307_977.jpg, 00:00:00, 0.42 m
Start node, manhole, reference: MH5



MH5 PIPE B_2-73m_105836.jpg, 00:00:34, 2.73 m
Finish node, other special chamber, reference: PIPE B, OLD RODDING EYE

SurveyEng Ltd
14 Green Mill, Westhoughton
Tel. 0800 772 3040

Section Inspection - 10/06/2024 - pipe cX

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
13	11	10/06/24	11:14	01	Not Specified	Not Specified	PIPE CX

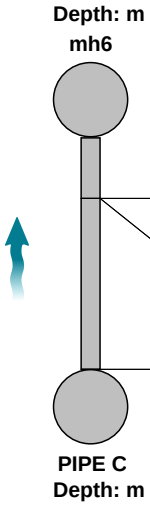
Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
Not Specified	Not Specified	Not Specified	Not Specified	Not Specified	1

Town or Village:	Manchester	**Inspection Direction:**	Upstream	**Upstream Node:**	PIPE C
Road:	Gould Street	**Inspected Length:**	1.53 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	1.53 m	**Downstream Node:**	MH6
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	150 mm
Flow Control:		**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:		**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:50



Position [m]	Code	Observation	MPEG	Photo	Grade
0.40	MH	Start node, manhole, reference: mh6	00:00:01	pipe cX_0a4b5f66-894f-49	
0.40	WL	Water level, 5% of the vertical dimension	00:00:01		
1.53	REM	General remark: overflow pipe	00:00:12	pipe cX_52cdf6dd-6dca-4	

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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

SurveyEng Ltd
14 Green Mill, Westhoughton
Tel. 0800 772 3040

Section Pictures - 10/06/2024 - pipe cX

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
13	Upstream	PIPE CX	01	



pipe
cX_0a4b5f66-894f-49cc-b65c-26098ddc5657_20240614_082317_792.jpg, 00:00:01, 0.40 m
Start node, manhole, reference: mh6



pipe
cX_52cdf6dd-6dca-4c18-b959-a7dae21560c8_20240614_082325_882.jpg, 00:00:12, 1.53 m
General remark, overflow pipe

SurveyEng Ltd
14 Green Mill, Westhoughton
Tel. 0800 772 3040

Section Inspection - 10/06/2024 - pipe bX

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
14	4	10/06/24	8:24	01	Not Specified	Not Specified	PIPE BX

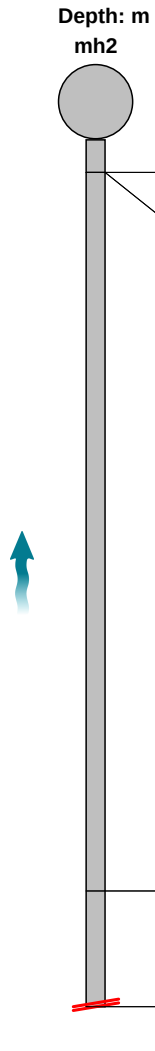
Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
Not Specified	Not Specified	Not Specified	Not Specified	Not Specified	1

Town or Village:	Manchester	**Inspection Direction:**	Upstream	**Upstream Node:**	PIPE B
Road:	Gould Street	**Inspected Length:**	10.66 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	10.66 m	**Downstream Node:**	MH2
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	150 mm
Flow Control:		**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:		**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:93



Position [m]	Code	Observation	MPEG	Photo	Grade
0.40	MH	Start node, manhole, reference: mh2	00:00:00	pipe bX_4a090 e2a-0a4a-	
0.40	WL	Water level, 5% of the vertical dimension	00:00:01		
9.24	RT	Roots, tap	00:01:06		4
10.66	SA	Survey abandoned: roots and silt	00:01:52	mh2 pipe b_10-66m _082937.j	

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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	0.5	5.0	4.0

SurveyEng Ltd
14 Green Mill, Westhoughton
Tel. 0800 772 3040

Section Pictures - 10/06/2024 - pipe bX

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
14	Upstream	PIPE BX	01	



pipe
bX_4a090e2a-0a4a-40e2-9edc-c520c4067ad5_20240614_082333_087.jpg, 00:00:00, 0.40 m
Start node, manhole, reference: mh2



mh2 pipe b_10-66m_082937.jpg, 00:01:52, 10.66 m
Survey abandoned, roots and silt

SurveyEng Ltd
14 Green Mill, Westhoughton
Tel. 0800 772 3040

Section Inspection - 10/06/2024 - PIPE AX

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
16	7	10/06/24	10:47	01	Not Specified	Not Specified	PIPE AX

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
Not Specified	Not Specified	Not Specified	Not Specified	Not Specified	1

Town or Village:	Manchester	**Inspection Direction:**	Upstream	**Upstream Node:**	PIPE A
Road:	Gould Street	**Inspected Length:**	14.16 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	14.16 m	**Downstream Node:**	MH5
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	150 mm
Flow Control:		**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:		**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:123



Position [m]	Code	Observation	MPEG	Photo	Grade
0.40	MH	Start node, manhole, reference: MH5	00:00:01		
0.40	WL	Water level, 15% of the vertical dimension	00:00:02		
13.80	SA	Survey abandoned: LINE CAPPED	00:03:51	MH5 PIPE A_13-80m _105312.j	
14.16	SA	Survey abandoned: LINE CAPPED OR COLLAPSED	00:04:58	MH5 PIPE A_14-16m _105541.j	

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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

SurveyEng Ltd
14 Green Mill, Westhoughton
Tel. 0800 772 3040

Section Pictures - 10/06/2024 - PIPE AX

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
16	Upstream	PIPE AX	01	



MH5 PIPE A_13-80m_105312.jpg, 00:03:51, 13.80 m
Survey abandoned, LINE CAPPED



MH5 PIPE A_14-16m_105541.jpg, 00:04:58, 14.16 m
Survey abandoned, LINE CAPPED OR COLLAPSED

SurveyEng Ltd
14 Green Mill, Westhoughton
Tel. 0800 772 3040

Section Inspection - 10/06/2024 - pipe bX

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
17	13	10/06/24	11:36	01	Not Specified	Not Specified	PIPE BX

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
Not Specified	Not Specified	Not Specified	Not Specified	Not Specified	1

Town or Village:	Manchester	**Inspection Direction:**	Upstream	**Upstream Node:**	PIPE B
Road:	Gould Street	**Inspected Length:**	7.91 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	7.91 m	**Downstream Node:**	MH7
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	150 mm
Flow Control:		**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:		**Lining Material:**	No Lining

Comments:
Recommendations:



Scale: 1:69 Position [m]	Code	Observation	MPEG	Photo	Grade
Depth: m mh7					
0.40	MH	Start node, manhole, reference: mh7	00:00:00		
0.40	WL	Water level, 5% of the vertical dimension	00:00:00		
1.08	OJL	Open joint, large	00:00:13		1
2.56	OJL	Open joint, large	00:01:37	mh7 pipe b_2-56m_ 113943.jp	1
4.18	OJL	Open joint, large	00:01:51	mh7 pipe b_4-18m_ 114003.jp	1
5.96	OJL	Open joint, large	00:01:59	mh7 pipe b_5-96m_ 114016.jp	1
7.91	MHF	Finish node, manhole, reference: pipe b	00:02:20	mh7 pipe b_7-91m_ 114043.jp	
PIPE B Depth: m					

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	**STR Peak**	**STR Mean**	**STR Total**	**STR Grade**	**SER No. Def**	**SER Peak**	**SER Mean**	**SER Total**	**SER Grade**
4	2.0	1.0	8.0	1.0	0	0.0	0.0	0.0	1.0

SurveyEng Ltd
14 Green Mill, Westhoughton
Tel. 0800 772 3040

Section Pictures - 10/06/2024 - pipe bX

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
17	Upstream	PIPE BX	01	



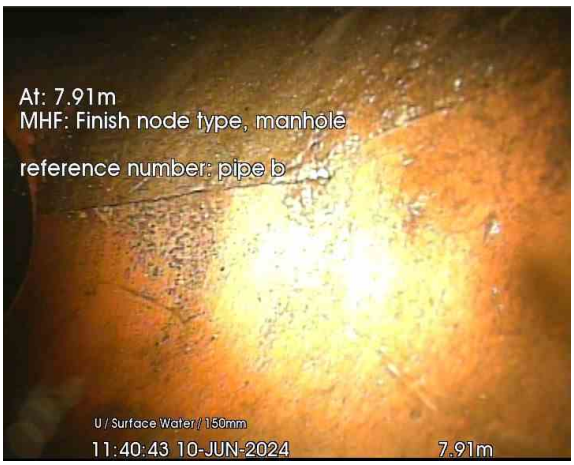
mh7 pipe b_2-56m_113943.jpg, 00:01:37, 2.56 m
Open joint, large



mh7 pipe b_4-18m_114003.jpg, 00:01:51, 4.18 m
Open joint, large



mh7 pipe b_5-96m_114016.jpg, 00:01:59, 5.96 m
Open joint, large



mh7 pipe b_7-91m_114043.jpg, 00:02:20, 7.91 m
Finish node, manhole, reference: pipe b

SurveyEng Ltd
14 Green Mill, Westhoughton
Tel. 0800 772 3040

Section Inspection - 10/06/2024 - mh11X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
18	15	10/06/24	13:22	01	Not Specified	Not Specified	MH11X

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
Not Specified	Not Specified	Not Specified	Not Specified	Not Specified	1

Town or Village:	Manchester	**Inspection Direction:**	Downstream	**Upstream Node:**	MH11
Road:	Gould Street	**Inspected Length:**	3.60 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	4.00 m	**Downstream Node:**	PIPE X
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	225 mm
Flow Control:		**Pipe Material:**	Polyvinyl chloride
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:		**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:50	Position [m]	Code	Observation	MPEG	Photo	Grade
Depth: m mh11						
	0.40	MH	Start node, manhole, reference: mh11	00:00:00	mh11X_ff3f01f0-5c1f-492e-b31b	
	0.40	WL	Water level, 5% of the vertical dimension	00:00:01	mh11X_7fb6e40f-cf06-4a5c-98	
	2.77	WL	Water level, 15% of the vertical dimension	00:00:14		
	3.36	LD	Line deviates down	00:01:02	mh11 pipe x_3-36m_132558.jp	
	4.00	BRF	Finish node, major connection without manhole, reference: PIPE X: ENTERS LINE BLIND	00:02:07		
PIPE X Depth: m						

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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

SurveyEng Ltd
14 Green Mill, Westhoughton
Tel. 0800 772 3040

Section Pictures - 10/06/2024 - mh11X

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
18	Downstream	MH11X	01	



mh11X_ff3f01f0-5c1f-492e-b31b-67a65b53287e_20240614_082347_299.jpg, 00:00:00, 0.40 m
Start node, manhole, reference: mh11



mh11X_7fb6e40f-cf06-4a5c-9886-2456d3167830_20240614_082350_545.jpg, 00:00:01, 0.40 m
Water level, 5% of the vertical dimension



mh11 pipe x_3-36m_132558.jpg, 00:01:02, 3.36 m
Line deviates down

SurveyEng Ltd
14 Green Mill, Westhoughton
Tel. 0800 772 3040

Section Inspection - 10/06/2024 - MH10X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
19	14	10/06/24	12:49	01	Not Specified	Not Specified	MH10X

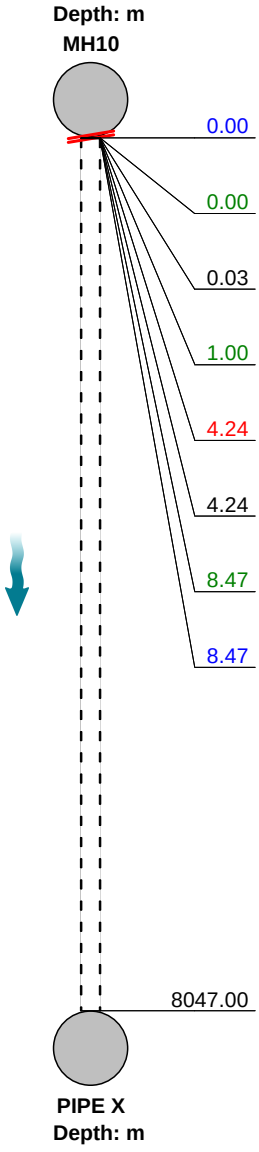
Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
Not Specified	Not Specified	Not Specified	Not Specified	Not Specified	1

Town or Village:	Manchester	**Inspection Direction:**	Downstream	**Upstream Node:**	MH10
Road:	Gould Street	**Inspected Length:**	8.47 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	8,047.00 m	**Downstream Node:**	PIPE X
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	150 mm
Flow Control:		**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:		**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:69671



Position [m]	Code	Observation	MPEG	Photo	Grade
0.00	WL	Water level, 5% of the vertical dimension	00:00:09	MH10X_43aae5c0-e9a3-4d6f-a	
0.00	RF	Roots, fine	00:00:09	MH10X_64b8da35-7ac7-4bb8-	2
0.03	CP	Start node, catchpit, reference: MH10	00:00:09		
1.00	DES	Settled deposits, fine, 40% cross-sectional area loss	00:00:14	MH10X_deed8ce7-1e2f-408d-8	4
4.24	OJL	Open joint, large	00:00:24	MH10X_811e186d-c305-4633-	1
4.24	SR	Sealing ring intruding, intruding but not hanging from 7 o'clock to 1 o'clock	00:00:24		2
8.47	DES	Settled deposits, fine, 100% cross-sectional area loss	00:00:36		5
8.47	SA	Survey abandoned: DUE TO DEBRIS	00:00:36	MH10X_b8433338-ccd3-410a-	
8047.00		End of pipe			

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	**STR Peak**	**STR Mean**	**STR Total**	**STR Grade**	**SER No. Def**	**SER Peak**	**SER Mean**	**SER Total**	**SER Grade**
1	2.0	0.0	2.0	1.0	4	10.0	0.0	17.0	5.0

SurveyEng Ltd
14 Green Mill, Westhoughton
Tel. 0800 772 3040

Section Pictures - 10/06/2024 - MH10X

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
19	Downstream	MH10X	01	



MH10X_43aae5c0-e9a3-4d6f-a6bc-68f604ba5d22_20240614_082358_325.jpg, 00:00:09, 0.00 m
Water level, 5% of the vertical dimension



MH10X_64b8da35-7ac7-4bb8-808d-a1c86eba8bd6_20240614_080926_073.jpg, 00:00:09, 0.00 m
Roots, fine



MH10X_deed8ce7-1e2f-408d-815c-0f212a085a83_20240614_080955_028.jpg, 00:00:14, 1.00 m
Settled deposits, fine, 40% cross-sectional area loss



MH10X_811e186d-c305-4633-b173-402e61955640_20240614_082401_717.jpg, 00:00:24, 4.24 m
Open joint, large

SurveyEng Ltd
14 Green Mill, Westhoughton
Tel. 0800 772 3040

Section Pictures - 10/06/2024 - MH10X

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
19	Downstream	MH10X	01	



MH10X_b8433338-ccd3-410a-9078-8a1da6b6900a_20240614_081108_390.jpg, 00:00:36, 8.47 m
Survey abandoned, DUE TO DEBRIS

SurveyEng Ltd
14 Green Mill, Westhoughton
Tel. 0800 772 3040

Section Inspection - 10/06/2024 - MH1X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
20	1	10/06/24	7:37	01	Not Specified	Not Specified	MH1X

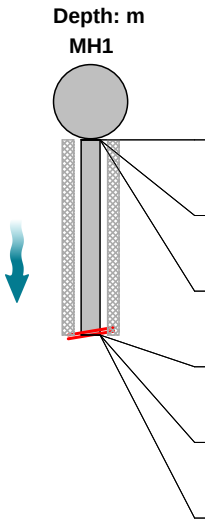
Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
Not Specified	Not Specified	Not Specified	Not Specified	Not Specified	1

Town or Village:	Manchester	**Inspection Direction:**	Downstream	**Upstream Node:**	MH1
Road:	Gould Street	**Inspected Length:**	1.29 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	1.29 m	**Downstream Node:**	PIPE X
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	225 mm
Flow Control:		**Pipe Material:**	Polyvinyl chloride
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:		**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:50



Position [m]		Code	Observation	MPEG	Photo	Grade
0.00		CP	Start node, catchpit, reference: MH1	00:00:27	MH1 PIPE X_0-00m_ 074010.jp	
0.00		WL	Water level, 5% of the vertical dimension	00:00:29		
0.00	S01	LD	Line deviates down, start	00:00:36	MH1 PIPE X_0-00m_ 074032.jp	
1.29	F01	LD	Line deviates down, finish	00:01:01		
1.29		DES	Settled deposits, fine, 50% cross-sectional area loss: AT BOTTOM OF LD	00:01:05	MH1 PIPE X_1-29m_ 074133.jp	4
1.29		SA	Survey abandoned: DUE TO DEBRIS	00:01:14	MH1 PIPE X_1-29m_ 074155.jp	

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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	3.9	5.0	4.0

SurveyEng Ltd
14 Green Mill, Westhoughton
Tel. 0800 772 3040

Section Pictures - 10/06/2024 - MH1X

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
20	Downstream	MH1X	01	



MH1 PIPE X_0-00m_074010.jpg, 00:00:27, 0.00 m
Start node, catchpit, reference: MH1



MH1 PIPE X_0-00m_074032.jpg, 00:00:36, 0.00 m
Line deviates down, start



MH1 PIPE X_1-29m_074133.jpg, 00:01:05, 1.29 m
Settled deposits, fine, 50% cross-sectional area loss, AT BOTTOM OF LD



MH1 PIPE X_1-29m_074155.jpg, 00:01:14, 1.29 m
Survey abandoned, DUE TO DEBRIS

SurveyEng Ltd
14 Green Mill, Westhoughton
Tel. 0800 772 3040

Section Inspection - 10/06/2024 - PIPE AX

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
21	2	10/06/24	7:43	01	Not Specified	Not Specified	PIPE AX

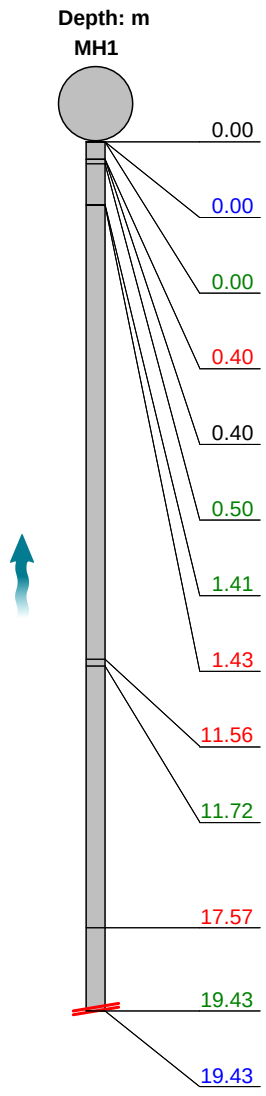
Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
Not Specified	Not Specified	Not Specified	Not Specified	Not Specified	1

Town or Village:	Manchester	**Inspection Direction:**	Upstream	**Upstream Node:**	PIPE A
Road:	Gould Street	**Inspected Length:**	19.43 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	19.43 m	**Downstream Node:**	MH1
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	225 mm
Flow Control:		**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:		**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:169



Position [m]	Code	Observation	MPEG	Photo	Grade
0.00	CP	Start node, catchpit, reference: MH1	00:00:11	MH1 PIPE A_0-00m_ 075349.jp	
0.00	WL	Water level, 5% of the vertical dimension	00:00:13		
0.00	RF	Roots, fine	00:00:13	MH1 PIPE A_0-00m_ 075401.jp	2
0.40	JDL	Joint displaced, large	00:00:18		1
0.40	SC	Size changes, new size(s), 150mm high	00:00:19	MH1 PIPE A_0-40m_ 075417.jp	
0.50	LR	Line deviates right	00:00:23		
1.41	LL	Line deviates left	00:00:30		
1.43	FM	Fracture, multiple from 3 o'clock to 9 o'clock	00:00:30	MH1 PIPE A_1-43m_ 075450.jp	4
11.56	JDL	Joint displaced, large	00:01:05	MH1 PIPE A_11-56m _075533.j	1
11.72	LR	Line deviates right	00:01:07		
17.57	JDL	Joint displaced, large	00:01:27	MH1 PIPE A_17-57m _075603.j	1
19.43	DEX	Settled deposits, other, 100% cross-sectional area loss: STONES	00:01:46	MH1 PIPE A_19-43m _075635.j	5
19.43	SA	Survey abandoned: DUE TO DEBRIS	00:01:49	MH1 PIPE A_19-43m _075646.j	

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	**STR Peak**	**STR Mean**	**STR Total**	**STR Grade**	**SER No. Def**	**SER Peak**	**SER Mean**	**SER Total**	**SER Grade**
4	80.0	4.4	86.0	4.0	2	10.0	0.6	11.0	5.0

SurveyEng Ltd
14 Green Mill, Westhoughton
Tel. 0800 772 3040

Section Pictures - 10/06/2024 - PIPE AX

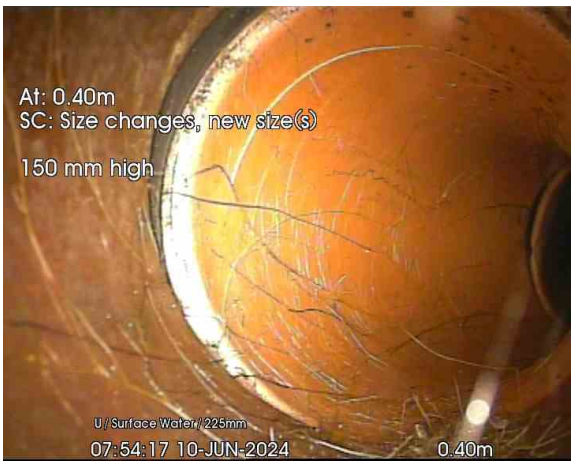
Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
21	Upstream	PIPE AX	01	



MH1 PIPE A_0-00m_075349.jpg, 00:00:11, 0.00 m
Start node, catchpit, reference: MH1



MH1 PIPE A_0-00m_075401.jpg, 00:00:13, 0.00 m
Roots, fine



MH1 PIPE A_0-40m_075417.jpg, 00:00:19, 0.40 m
Size changes, new size(s), 150mm high



MH1 PIPE A_1-43m_075450.jpg, 00:00:30, 1.43 m
Fracture, multiple from 3 o'clock to 9 o'clock

SurveyEng Ltd
14 Green Mill, Westhoughton
Tel. 0800 772 3040

Section Pictures - 10/06/2024 - PIPE AX

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
21	Upstream	PIPE AX	01	



MH1 PIPE A_11-56m_075533.jpg, 00:01:05, 11.56 m
Joint displaced, large



MH1 PIPE A_17-57m_075603.jpg, 00:01:27, 17.57 m
Joint displaced, large



MH1 PIPE A_19-43m_075635.jpg, 00:01:46, 19.43 m
Settled deposits, other, 100% cross-sectional area loss, STONES



MH1 PIPE A_19-43m_075646.jpg, 00:01:49, 19.43 m
Survey abandoned, DUE TO DEBRIS

SurveyEng Ltd
14 Green Mill, Westhoughton
Tel. 0800 772 3040

Section Inspection - 10/06/2024 - MH5X

Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
22	6	10/06/24	10:41	01	Not Specified	Not Specified	MH5X

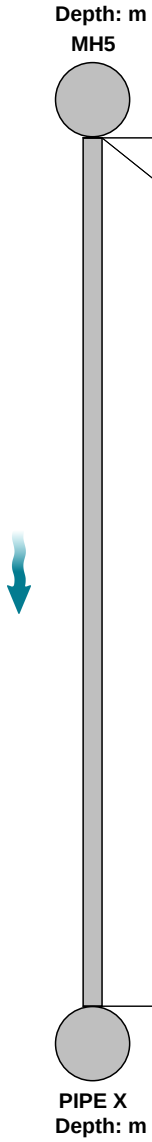
Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
Not Specified	Not Specified	Not Specified	Not Specified	Not Specified	1

Town or Village:	Manchester	**Inspection Direction:**	Downstream	**Upstream Node:**	MH5
Road:	Gould Street	**Inspected Length:**	16.20 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	16.20 m	**Downstream Node:**	PIPE X
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	

Use:	Foul	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	150 mm
Flow Control:		**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:		**Lining Material:**	No Lining

Comments:
Recommendations:

Scale: 1:141



Position [m]	Code	Observation	MPEG	Photo	Grade
0.00	MH	Start node, manhole, reference: MH5	00:00:01	MH5 PIPE X_0-00m_ 104402.jp	
0.00	WL	Water level, 5% of the vertical dimension	00:00:03		
16.20	MHF	Finish node, manhole, reference: PIPE X	00:01:41	MH5 PIPE X_16-20m _104553.j	

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
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

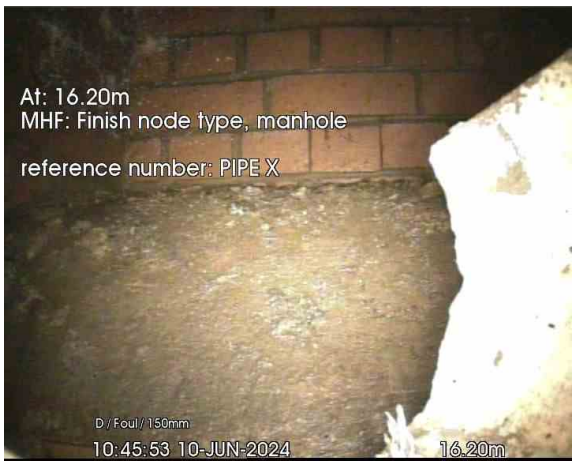
SurveyEng Ltd
14 Green Mill, Westhoughton
Tel. 0800 772 3040

Section Pictures - 10/06/2024 - MH5X

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
22	Downstream	MH5X	01	



MH5 PIPE X_0-00m_104402.jpg, 00:00:01, 0.00 m
Start node, manhole, reference: MH5



MH5 PIPE X_16-20m_104553.jpg, 00:01:41, 16.20 m
Finish node, manhole, reference: PIPE X

SurveyEng Ltd
14 Green Mill, Westhoughton
Tel. 0800 772 3040

Section Inspection - 10/06/2024 - PIPE CX

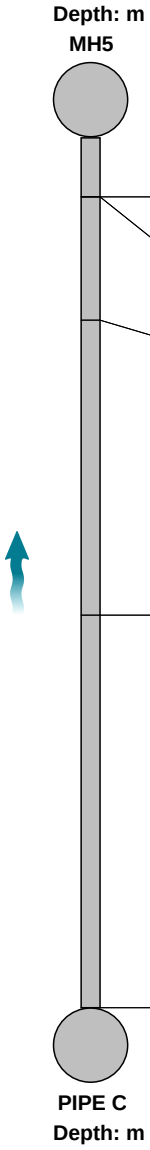
Item No.	Insp. No.	Date	Time	Client`s Job Ref	Weather	Pre Cleaned	PLR
23	9	10/06/24	10:59	01	Not Specified	Not Specified	PIPE CX

Operator	Vehicle	Camera	Preset Length	Legal Status	Alternative ID
Not Specified	Not Specified	Not Specified	Not Specified	Not Specified	1

Town or Village:	Manchester	**Inspection Direction:**	Upstream	**Upstream Node:**	PIPE C
Road:	Gould Street	**Inspected Length:**	5.87 m	**Upstream Pipe Depth:**	
Location:		**Total Length:**	5.87 m	**Downstream Node:**	MH5
Surface Type:		**Joint Length:**		**Downstream Pipe Depth:**	

Use:	Surface water	**Pipe Shape:**	Circular
Type of Pipe:	Gravity drain/sewer	**Dia/Height:**	100 mm
Flow Control:		**Pipe Material:**	Vitrified clay pipe (i.e. all clayware)
Year Constructed:	Not Specified	**Lining Type:**	No Lining
Inspection Purpose:		**Lining Material:**	No Lining

Comments:
Recommendations:



Scale: 1:51 Position [m]	Code	Observation	MPEG	Photo	Grade
0.40	MH	Start node, manhole, reference: MH5	00:00:00		
0.40	WL	Water level, 5% of the vertical dimension	00:00:01		
1.23	JDM	Joint displaced, medium	00:00:14	MH5 PIPE C_1-23m_ 110127.jp	1
3.22	OJL	Open joint, large	00:00:38	MH5 PIPE C_3-22m_ 110206.jp	1
5.87	XP	Collapsed drain or sewer: LINE COLLAPSED	00:01:02	MH5 PIPE C_5-87m_ 110246.jp	5

Construction Features					Miscellaneous Features				
Structural Defects					Service & Operational Observations				
STR No. Def	**STR Peak**	**STR Mean**	**STR Total**	**STR Grade**	**SER No. Def**	**SER Peak**	**SER Mean**	**SER Total**	**SER Grade**
3	165.0	28.6	168.0	5.0	0	0.0	0.0	0.0	1.0

SurveyEng Ltd
14 Green Mill, Westhoughton
Tel. 0800 772 3040

Section Pictures - 10/06/2024 - PIPE CX

Item No.	Inspection Direction	PLR	Client`s Job Ref	Contractor`s Job Ref
23	Upstream	PIPE CX	01	



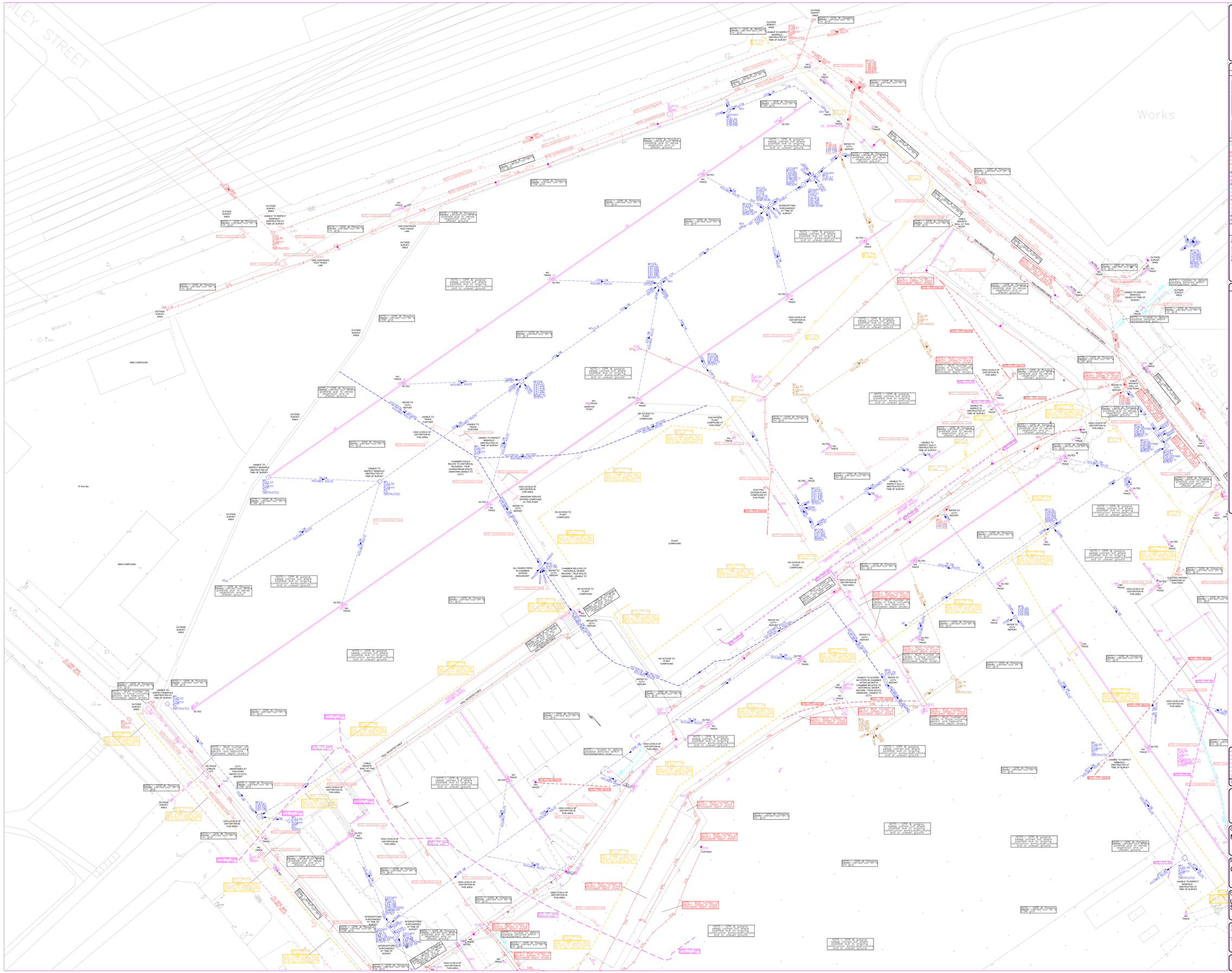
MH5 PIPE C_1-23m_110127.jpg, 00:00:14, 1.23 m
Joint displaced, medium

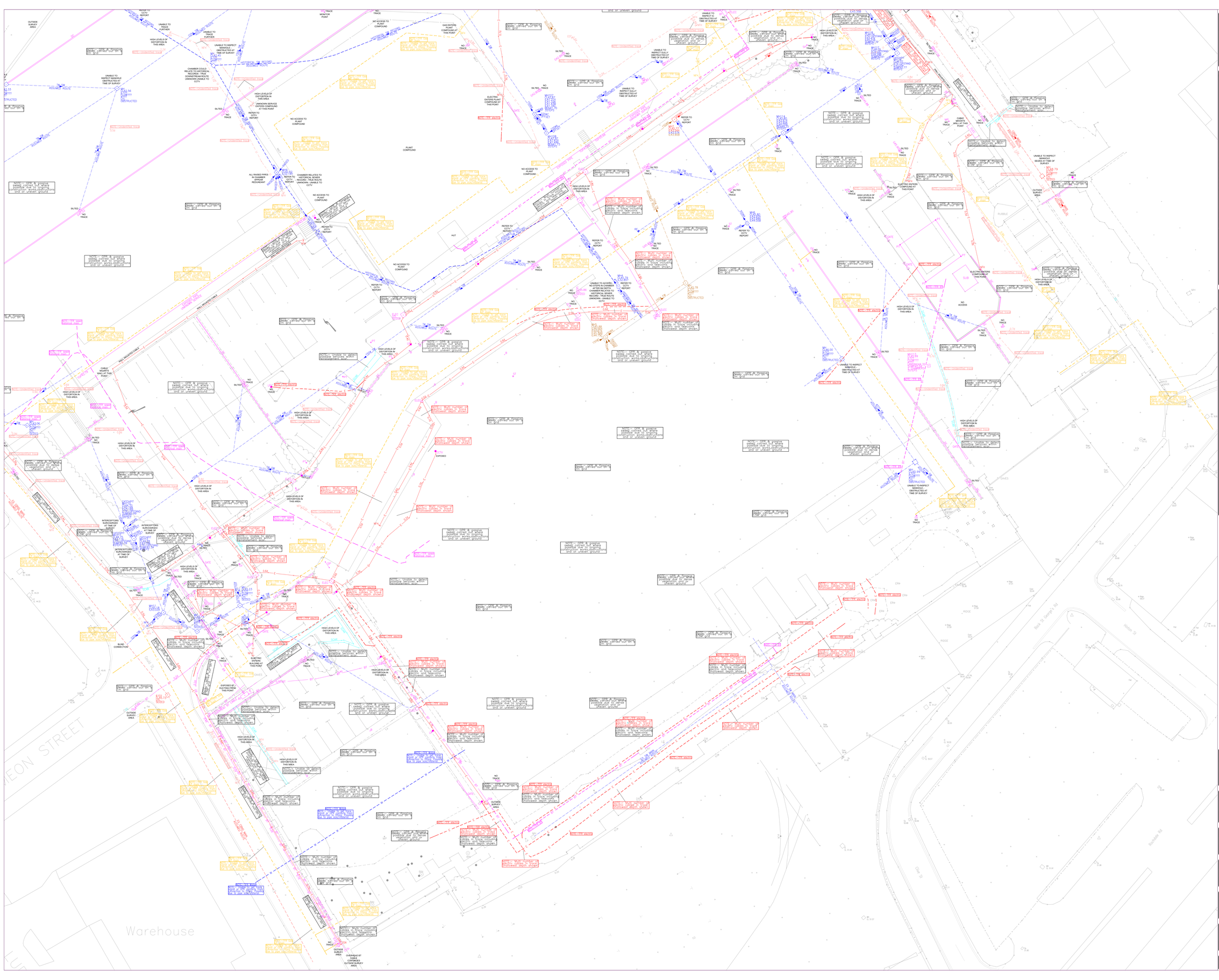


MH5 PIPE C_3-22m_110206.jpg, 00:00:38, 3.22 m
Open joint, large



MH5 PIPE C_5-87m_110246.jpg, 00:01:02, 5.87 m
Collapsed drain or sewer, LINE COLLAPSED


GOULD STREET
Bloom St
MEB COMPOUND
OUTSIDE SURVEY AREA
UNABLE TO INSPECT MANHOLE - OBSTRUCTED AT TIME OF SURVEY
UNK CONTINUES PAST FENCE LINE
NOTE: ORB & purpose based, colour, cut, where possible due to ongoing construction works/continuous grid or uneven ground
UNABLE TO INSPECT MANHOLE - OBSTRUCTED AT TIME OF SURVEY
UNABLE TO INSPECT MANHOLE SEIZED AT TIME OF SURVEY
UNABLE TO INSPECT MANHOLE - OBSTRUCTED AT TIME OF SURVEY
UNABLE TO INSPECT DULY OBSTRUCTED AT TIME OF SURVEY
UNABLE TO INSPECT MANHOLE -



N

W E

S

SURVEY ORIENTATED TO OS GRID (OSGB36-15)

SURVEY LEGEND

UTILITY ABBREVIATIONS

ASSUMED INVERT	
BOLLARD	
BOUNDARY MARKER	
CABLE MARKER POST	
CABLE VENT	
CATCH PIT	
CHAMBER	
CONCRETE CROWN	
CONCRETE	
COVER	
DIAMETER	
DRAIN	
DROP KERB	
EARTH ROD	
FIRE HYDRANT	
FLAG POLE	
FLOOR	
GREENHOUSE	
GATE POST	
GAS VALVE	
INSPECTION COVER	
JUNCTION BOX	
JAPANESE KNOT WEED	
KERB OUTLET	
LAMP HOLE	
LAMP POST/LIGHT COLUMN	
MANHOLE	
MONITOR POINT	
NAME PLATE	
OVERHANG CABLES	
POST BOX	
PARKING METER	
POST	
ELECTRICITY PYLON	
RODDING EYE	
ROAD SIGN	
RAIN WATER PIPE	
STOP TAP	
SERVICE MARKER	
SIGN POST	
STOP VALVE / SLUICE VALVE	
SOIL VENT PIPE	
TRAFFIC LIGHT	
TELEPHONE BOX	
TELEPHONE MAST	
TELEGRAPH POLE	
TACTILE PAVING SLABS	
VENT PIPE	
WATER METER	
WASH OUT	
UNABLE TO LIFT	
UNABLE TO SURVEY	

UTILITY LEGEND

CABLE TELEVISION	CATV
CROSSING CABLES	
ELECTRIC CABLE	E
FIBRE OPTIC CABLE	FO
FOUL WATER SEWER	
FUEL PIPE	
GAS PIPE	
GPR	GPR
HEATING PIPE	H
OVERHEAD TELECOM	BT
OIL PIPE	O
REINSTATEMENT SCAR	
STORM WATER SEWER	
TELECOMMUNICATIONS	BT
TRAFFIC SIGNAL CABLE	TS
UNIDENTIFIED CABLE	UC
UNIDENTIFIED PIPE	UP
UNIDENTIFIED TRACE	U
WATER PIPE	W
CABLE DUCT	DUCT
VODAPHONE	V

TAKEN FROM STATUTORY AUTHORITY PLANS

CATV	
ELECTRIC	
SEWER FW	
STORM WATER SEWER	
MAINS GAS	
TELECOMMUNICATIONS	
WATER PIPE	

SURVEY ANNOTATIONS

AV	AIR VALVE
B	BOLLARD
BS	BUS STOP
BT	BRITISH TELECOM IC
CPS	CONCRETE PAVING SLABS
CP	CATCH PIT
DR	DRAIN
EB	ELECTRIC CONTROL BOX
EL	ELECTRICAL IC
EP	ELECTRICITY POLE
ER	EARTH ROD
FH	FIRE HYDRANT
FP	FLAG POLE
FL	FLOOR
GH	GREENHOUSE
GP	GATE POST
GV	GAS VALVE
IC	INSPECTION COVER
JB	JUNCTION BOX
JKW	JAPANESE KNOT WEED
KO	KERB OUTLET
LH	LAMP HOLE
LP	LAMP POST/LIGHT COLUMN
MH	MANHOLE
MP	MONITOR POINT
NP	NAME PLATE
OHC	OVERHEAD CABLES
PB	POST BOX
PM	PARKING METER
PST	POST
PYL	ELECTRICITY PYLON
RE	RODDING EYE
RS	ROAD SIGN
RWP	RAIN WATER PIPE
ST	STOP TAP
SM	SERVICE MARKER
SP	SIGN POST
SV	STOP VALVE / SLUICE VALVE
SVP	SOIL VENT PIPE
TB	TELEPHONE BOX
TL	TRAFFIC LIGHTS
TM	TELEPHONE MAST
TP	TELEGRAPH POLE
TPS	TACTILE PAVING SLABS
VP	VENT PIPE
WM	WATER METER
WO	WASH OUT
UTL	UNABLE TO LIFT
UTS	UNABLE TO SURVEY

STATUTORY RECORDS PROVIDED

TYPE	COMMENTS	TYPE	COMMENTS
SEWER	PARTIAL	CABLE TV	NO
WATER MAIN	PARTIAL	ELECTRICITY	PARTIAL
GAS MAIN	PARTIAL	BL PIPELINES	PARTIAL
BT	PARTIAL	OTHER	NO

UNDERGROUND UTILITIES SERVICES DISCLAIMER

We have endeavoured to locate existing utilities using records provided as a guide. In the instance of blocked sewers or untraceable utilities details may have been taken from Utility Record Drawings, which can occasionally be of poor quality. Consequently we cannot guarantee accuracy of information taken from such records. These are shown on the drawing as a dashed line.

Unless indicated, no allowance has been made for sub-surface entry into manholes, other chambers or confined spaces below ground level. Therefore any details relating to depths, sizes etc, are taken from the surface and as such will be approximate.

We have endeavoured to supply you with the most accurate data possible by using methods and equipment that are at the forefront of our industry. We have taken great care in the detection of pipework and buried features, but as with all methods of detecting underground or buried utilities the information provided is based on results obtained from electromagnetic techniques, and as such may be liable to distortion or errors beyond the reasonable control of the operator or his instruments.

It should be noted that certain types of services, such as plastic or concrete pipes or conduits where there is no direct access to the pipe are not traceable by conventional electrodetection methods; for the location of these services, either records drawings should be sought or an alternative means of obtaining the information used.

Depths of services should always be checked by way of trail holes where possible, depths are only approximate as ground conditions / saturation levels can affect the readings we receive from the instrumentation.

It is the responsibility of the user under Health & Safety Guidelines (HSG47) to confirm the accuracy of information provided prior to any excavation of the services shown.

© SurveyEng Limited 2024
Reproduction in whole or in part by any means is prohibited without the prior permission of SurveyEng Limited.

DESCRIPTION	REV	DATE	DRWN	APPR
	-	-	-	-

SurveyEng Ltd
Land Surveyors & Engineers
14 GREEN MILL
WESTHOUGHTON
BOLTON
LANCS
BL5 3GE
TEL/FAX: 0800 772 3040
MOB: 07850085953
info@surveyeng.co.uk

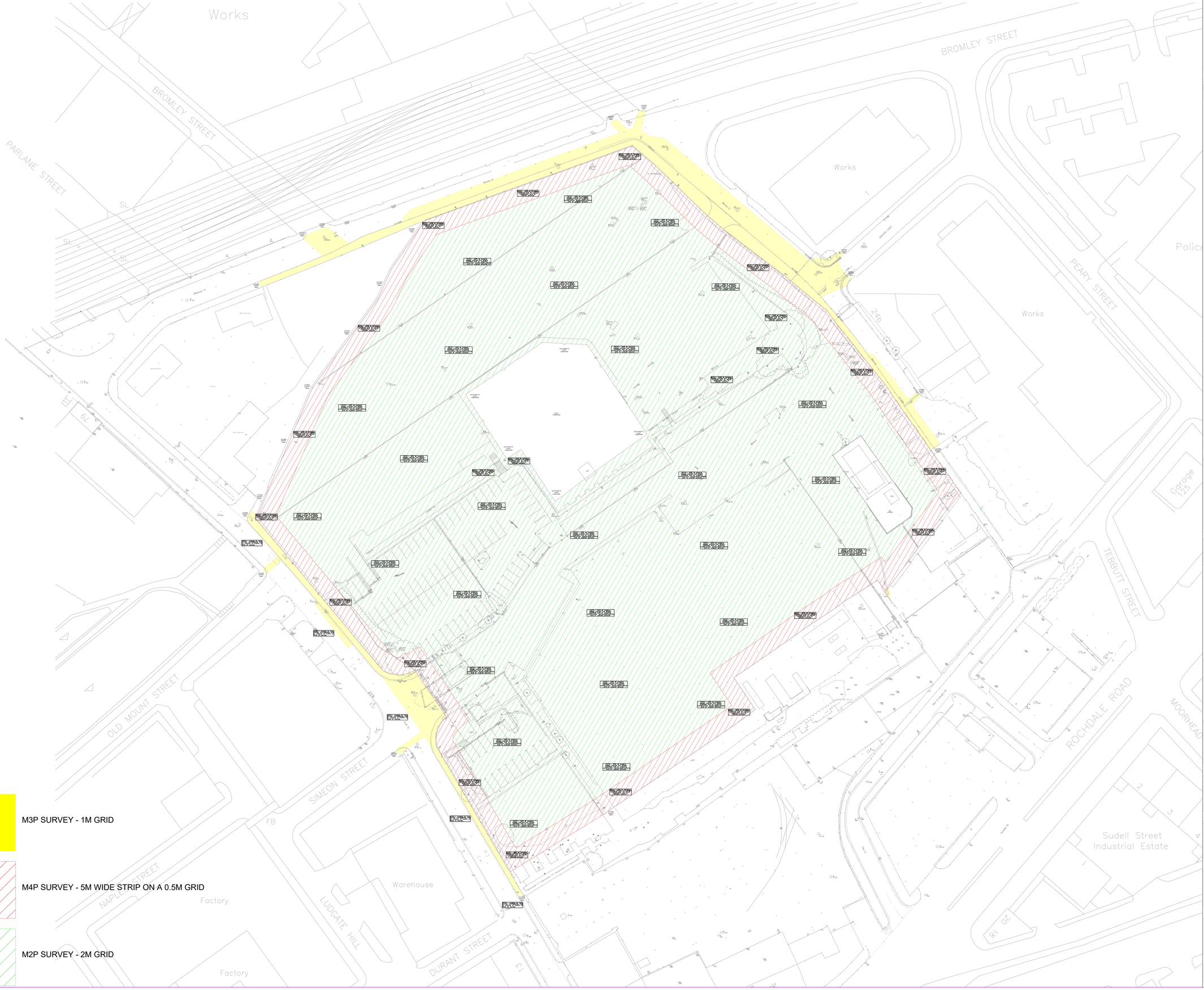
CLIENT
MCR PROPERTY GROUP

PROJECT TITLE
GOULD STREET, MANCHESTER

DRAWING DETAIL
UTILITY SURVEY PAS128 TYPE B
SHEET 2 OF 3

PROJECT ENGINEER	CT/PF	DATE	13.08.2024
DRAWN	BM	SCALE	1:200@A0

DRAWING NUMBER	REVISION
MCR.US.01	-



M3P SURVEY - 1M GRID

M4P SURVEY - 5M WIDE STRIP ON A 0.5M GRID

M2P SURVEY - 2M GRID

N

W E

S

SURVEY ORIENTATED TO OS GRID (OSGB36-15)

SURVEY LEGEND

FEATURES

- TOP OF BANK
- BOTTOM OF BANK
- SURVEY STATION
- TREE
- HEDGE
- TREE CANOPY
- BUSHES
- VEGETATION

BOUNDARY ANNOTATIONS

- BARB WIRE FENCE — BW.F
- CHAIN LINK FENCE — C/L.F
- CONC POST AND PANEL — CP&P.F
- CONC POST TIMB PANEL — CP&TP.F
- ELECTRIC FENCE — EL.F
- HERAS FENCE — HER.F
- IRON RAIL FENCE — IR.F
- KNEE RAIL FENCE — KR.F
- MISCELLANEOUS FENCE — MISC.F
- POST AND WIRE FENCE — P&W.F
- RANCH STYLE FENCE — RS.F
- SECURITY FENCE — SEC.F
- TIMBER FENCE — T.F
- BRICK WALL — B.W
- BLOCK WALL — BL.W
- CONCRETE WALL — C.W
- GABIEN WALL — G.W
- MISCELLANEOUS WALL — MISC.W
- RETAINING WALL — R.W
- RETAINING LOG WALL — RL.W
- STONE WALL — S.W

LEVEL PREFIX ANNOTATIONS

ASL	ARCH SPRING LEVEL
BL	BED LEVEL
BD	BACK DROP
CL	COVER LEVEL
DH	TOP OF DOOR
DTC	DEPTH TO CROWN
FFL	FINISHED FLOOR LEVEL
IL	INVERT LEVEL
PL	PARAPET LEVEL
RL	ROOF/RIDGE LEVEL
SL	SOFFIT LEVEL
TOF	TOP OF FENCE
TOP	TOP OF PIPE
TOW	TOP OF WALL
TRH	TREE HEIGHT
THR	THRESHOLD LEVEL
WL	WATER LEVEL
WS	WINDOW SILL
WSF	WINDOW SOFFIT

SURVEY ANNOTATIONS

AV	AIR VALVE
B	BOLLARD
BS	BUS STOP
BT	BRITISH TELECOM IC
CPS	CONCRETE PAVING SLABS
CP	CATCH PIT
DR	DRAIN
EB	ELECTRIC CONTROL BOX
EL	ELECTRICAL IC
EP	ELECTRICITY POLE
ER	EARTH ROD
FH	FIRE HYDRANT
FP	FLAG POLE
G	GULLY
GH	GREENHOUSE
GP	GATE POST
GV	GAS VALVE
IC	INSPECTION COVER
JB	JUNCTION BOX
JKW	JAPANESE KNOT WEED
KO	KERB OUTLET
LH	LAMP HOLE
LP	LAMP POST/LIGHT COLUMN
MH	MANHOLE
MP	MONITOR POINT
NP	NAME PLATE
OHC	OVERHEAD CABLES
PB	POST BOX
PM	PARKING METER
PS	POST
PYL	ELECTRICITY PYLON
RE	RODDING EYE
RS	ROAD SIGN
RWP	RAIN WATER PIPE
ST	STOP TAP
SM	SERVICE MARKER
SP	SIGN POST
SV	STOP VALVE / SLUICE VALVE
SVP	SOIL VENT PIPE
TB	TELEPHONE BOX
TL	TRAFFIC LIGHTS
TM	TELEPHONE MAST
TP	TELEGRAPH POLE
TPS	TACTILE PAVING SLABS
VP	VENT PIPE
WM	WATER METER
WO	WASH OUT
UTL	UNABLE TO LIFT
UTS	UNABLE TO SURVEY

GEOTECHNICAL INFORMATION

- TRIAL HOLE / PIT — TH
- BORE HOLE — BH
- WINDOW SAMPLE — WS
- MONITORING POINT — MP
- PROBE HOLE — PH

DISCLAIMER:

ONLY MANHOLES AND SERVICES SHOWN WERE VISIBLE AT THE TIME OF SURVEY.

MAN ENTRY TO SEWERS HAS NOT BEEN UNDERTAKEN, DEPTHS, PIPESIZES ETC ARE MEASURED FROM GROUND LEVEL.

DRAINAGE INFORMATION MUST BE CHECKED AND VERIFIED PRIOR TO ANY WORK COMMENCING.

BOUNDARIES SHOWN ARE PHYSICAL AND MAY NOT REPRESENT LEGALLY CONVEYED OWNERSHIP.

TREE SPREADS ARE SYMBOLIC ONLY AND ARE REPRESENTATIVE OF THE AVERAGE SPREAD, THE TREE CANOPY LAYER DENOTES THE TREES EXTREMITY.

SURVEY NOTES

ALL LEVELS ARE RELATED TO O.S DATUM (OSGB36-15)
ESTABLISHED AT SE1 USING THE LEICA SMARTNET GPS NETWORK

© SurveyEng Limited 2024
Reproduction in whole or in part by any means is prohibited without the prior permission of SurveyEng Limited.

DESCRIPTION	REV	DATE	DRWN	APPR

SurveyEng Ltd
Land Surveyors & Engineers
14 GREEN MILL
WESTHOUGHTON
BOLTON
LANCS
BL5 3GE
TEL/FAX: 0800 772 3040
MOB: 07850069993
info@surveyeng.co.uk

CLIENT
MCR PROPERTY GROUP

PROJECT TITLE
GOULD STREET, MANCHESTER

DRAWING DETAIL
UTILITY SURVEY PAS128 TYPE B
SHEET 3 OF 3

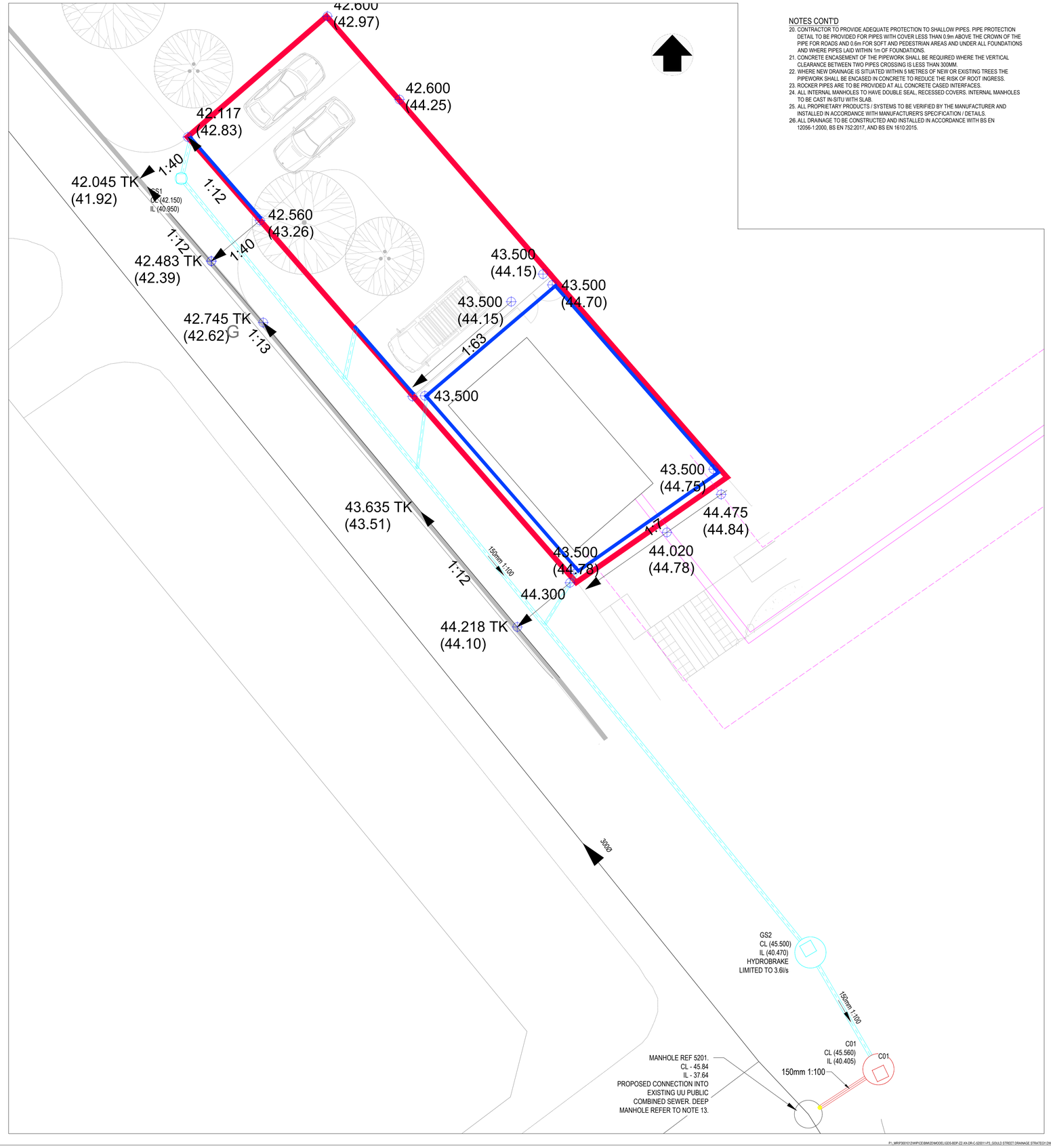
PROJECT ENGINEER	CT/PF	DATE	13.08.2024
DRAWN	BM	SCALE	1:500@A1

DRAWING NUMBER	REVISION
MCR.US.01	-

Appendix D – Drainage Layouts and Overland Flow Routes

PROP SW & FW MANHOLE SCHEDULE

NAME	LOCATION	COVER LEVEL INVERT LEVEL SUMP DEPTH	DEPTH	TYPE SIZE	INCOMING PIPE DIA	INCOMING PIPE IL	OUTGOING PIPE DIA	OUTGOING PIPE IL
GS1	E= 384583.1952 N= 399223.2855	42.150 40.950 0.000	1.200	Type D Circular 450 mm	150	40.950	150	40.950
GS2	E= 384613.5061 N= 399186.0065	45.500 40.470 0.000	3.000	Type B 1200 mm	150	40.470	150	40.470
C01	E= 384616.7858 N= 399180.3804	45.560 40.405 0.000	3.000	Type B 1200 mm	150	40.405	150	41.838



LEGEND

- SITE BOUNDARY LINE
- EXISTING COMBINED WATER DRAINAGE
- PROPOSED SURFACE WATER DRAIN / MANHOLE
- PROPOSED CHANNEL DRAIN
- PROPOSED FOUL WATER DRAIN / MANHOLE
- PROPOSED COMBINED WATER DRAIN / MANHOLE

NOTES CONT'D

20. CONTRACTOR TO PROVIDE ADEQUATE PROTECTION TO SHALLOW PIPES. PIPE PROTECTION DETAIL TO BE PROVIDED FOR PIPES WITH COVER LESS THAN 0.9m ABOVE THE CROWN OF THE PIPE FOR ROADS AND 0.6m FOR SOFT AND PEDESTRIAN AREAS AND UNDER ALL FOUNDATIONS AND WHERE PIPES LAID WITHIN 1m OF FOUNDATIONS.
21. CONCRETE ENCASEMENT OF THE PIPEWORK SHALL BE REQUIRED WHERE THE VERTICAL CLEARANCE BETWEEN TWO PIPES CROSSING IS LESS THAN 300MM.
22. WHERE NEW DRAINAGE IS SITUATED WITHIN 5 METRES OF NEW OR EXISTING TREES THE PIPEWORK SHALL BE ENCASED IN CONCRETE TO REDUCE THE RISK OF ROOT INGRESS.
23. ROCKER PIPES ARE TO BE PROVIDED AT ALL CONCRETE CASED INTERFACES.
24. ALL INTERNAL MANHOLES TO HAVE DOUBLE SEAL, RECESSED COVERS. INTERNAL MANHOLES TO BE CAST IN-SITU WITH SLAB.
25. ALL PROPRIETARY PRODUCTS / SYSTEMS TO BE VERIFIED BY THE MANUFACTURER AND INSTALLED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATION / DETAILS.
26. ALL DRAINAGE TO BE CONSTRUCTED AND INSTALLED IN ACCORDANCE WITH BS EN 12056-1:2000, BS EN 752:2017, AND BS EN 1610:2015.

BUILDING DESIGN PARTNERSHIP SHALL HAVE NO RESPONSIBILITY FOR ANY USE MADE OF THIS DOCUMENT OTHER THAN FOR THAT WHICH IT WAS PREPARED AND ISSUED.

ALL DIMENSIONS SHOULD BE CHECKED ON SITE.

DO NOT SCALE FROM THIS DRAWING.

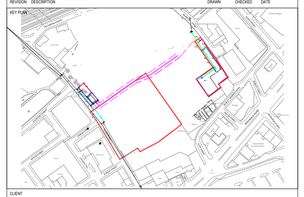
ANY DRAWING ERRORS OR DIVERGENCES SHOULD BE BROUGHT TO THE ATTENTION OF BUILDING DESIGN PARTNERSHIP AT THE ADDRESS SHOWN BELOW.

NOTES

1. ALL DIMENSIONS ARE IN METRES UNLESS STATED OTHERWISE.
2. THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT ARCHITECTURAL AND ENGINEERING DETAILS, DRAWINGS AND SPECIFICATIONS.
3. ANY DISCREPANCIES SHOULD BE REPORTED TO THE ARCHITECT AND/OR ENGINEER IMMEDIATELY SO THAT CLARIFICATION CAN BE SOUGHT PRIOR TO THE COMMENCEMENT OF WORK.
4. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH:
   4.1 TYPICAL DRAINAGE DETAILS
5. ALL BUILDING DRAINAGE WORKS SHALL BE CARRIED OUT IN ACCORDANCE WITH BS EN:752 DRAINAGE AND SEWER SYSTEMS OUTSIDE BUILDINGS, THE CURRENT BUILDING REGULATIONS, THE LOCAL AUTHORITY BUILDING CONTROL SPECIFICATIONS AND REQUIREMENTS AND THE CIVIL ENGINEERING SPECIFICATION FOR THE WATER INDUSTRY 7TH EDITION, PUBLISHED BY THE UK WATER INDUSTRY RESEARCH LTD. (CESWI).
6. EXISTING DRAINAGE , MANHOLE POSITIONS & LEVELS ARE BASED ON UNITED UTILITIES SEWER RECORDS AND A CCTV SURVEY UNDERTAKEN BY GUN IN JUNE 2020.
7. TOPOGRAPHICAL INFORMATION PROVIDED WITHIN THIS DRAWING IS AN INDICATION OF EXISTING LEVELS ACROSS SITE.
8. BEFORE STARTING ANY WORKS, CONTRACTOR TO CHECK INVERT LEVELS AND POSITIONS OF EXISTING DRAINS, SEWERS, INSPECTION CHAMBERS AND MANHOLES AGAINST INFORMATION SHOWN ON THIS DRAWING, ENGINEER TO BE INFORMED IF FOUND DIFFERENT TO NOTED.
9. ALL DRAIN POINTS AND MANHOLE LOCATIONS / INVERT LEVELS / DIMENSIONS ARE TO BE CONFIRMED. SUBJECT TO DESIGN DEVELOPMENT.
10. IT IS NOT ANTICIPATED THAT ANY OF THE NEW DRAINAGE NETWORK WILL BE OFFERED FOR ADOPTION TO UNITED UTILITIES. ANY DRAINAGE BEING OFFERED FOR ADOPTION WOULD REQUIRE SUBMISSION OF A SECTION 104 APPLICATION AND IS SUBJECT TO APPROVAL FROM UNITED UTILITIES.
11. LOCATION OF RAINWATER DOWNPIPES AND SVPS HAVE NOT BEEN CONFIRMED. FOUL WATER AND SURFACE WATER CONNECTIONS FROM THE BUILDING ARE SHOWN FOR INFORMATION ONLY TO INDICATE THE DIRECTION OF FLOW TO THE MAIN DRAINAGE RUNS.
12. DISCHARGE RATE TO BE RESTRICTED TO A RATE OF 3.6 L/S.
13. DEEP MANHOLE/SEWER IN EXCESS OF 8m. SITE SPECIFIC HEALTH AND SAFETY MEASURES WILL BE REQUIRED TO PROVIDE A CONNECTION/CONSTRUCT A NEW MANHOLE AT THIS DEPTH.
14. DESIGN SUBJECT TO CHANGE FOLLOWING APPROVAL PROCESS WITH LOCAL AUTHORITIES AND WATER COMPANY.
15. THE CONTRACTOR SHALL:
    15.1. VERIFY EXISTING UTILITIES BEFORE STARTING WORKS.
    15.2. VERIFY THE DIMENSIONS SHOWN ON THE DRAWINGS BEFORE FABRICATION, SETTING OUT OR EXCAVATION OF THE WORK, AND SHALL BE HELD RESPONSIBLE FOR ANY ERRORS OR INACCURACIES RESULTING FROM FAILURE TO DO SO.
    15.3. CHECK AND VERIFY THE LOCATION AND LEVELS ALL EXISTING DRAINS, SEWERS, INSPECTION CHAMBERS AND MANHOLES AGAINST DRAWINGS AND REPORT ANY DISCREPANCIES TO THE ENGINEER.
16. THE PROPOSED BUILDING OUTLINE SHOWN ON THIS DRAWING ARE FOR INFORMATION ONLY. REFER TO ARCHITECTS PLANS FOR PRECISE LOCATION SETTING OUT INFORMATION AND DETAILS.
17. FOR SETTING OUT DIMENSIONS OF SSS, SVP'S, RWPS, FLOOR GULLY & OTHER DRAINAGE 'POP UP' LOCATIONS, REFER TO ARCHITECTS OR MECHANICAL & ELECTRICAL ENGINEERS DRAWINGS.
18. ALL DROP POINTS TAKEN 250mm BELOW UNDERSIDE OF SLAB TO INVERT, UNLESS OTHERWISE NOTED. ALL DRAINAGE PIPEWORK SHOWN SHALL BE 100mm DIAMETER FOR FOUL AND 100mm FOR SURFACE WATER UNLESS NOTED OTHERWISE. ALL DRAINAGE PIPEWORK SHALL BE LAID SOFFIT TO SOFFIT UNLESS OTHERWISE STATED. ALL STACK CONNECTIONS TO BELOW THE SLAB AND RAINWATER PIPES TO HAVE RODDABLE ACCESS ABOVE SLAB.
19. ALL UNDERSLAB DRAINAGE SHALL BE LAID AT GRADIENTS OF 1:40 MIN. FOR FOUL PIPEWORK AND 1:80 MIN. FOR SURFACE WATER UNLESS NOTED OTHERWISE. ALL UNDERSLAB DRAINAGE SHALL BE CLEAR OF FOUNDATIONS UNLESS SHOWN OTHERWISE. USE OF SHORT/ LONG RADIUS BENDS IS ACCEPTABLE PROVIDED THEY ARE KEPT TO A MINIMUM AND USED WHERE UNAVOIDABLE.

REVISION	DESCRIPTION	DRAWN	CHECKED	DATE
P03	DISCHARGE RATE REVISED	EOD	DN	09/12/25
P02	LEVELS ADDED	AS	DN	25/11/25
P01	FOR INFORMATION	AS	DN	05/03/25

KEY PLAN



CLIENT

MCR PROPERTY GROUP

BDP.

11 Ducie Street
PO BOX 85
Picadilly Basin
Manchester
M60 3JA
United Kingdom

T +44 [0]161 828 2200
www.bdp.com

PROJECT TITLE

GOULD STREET DEVELOPMENT

BDP JOB NUMBER	ISO 27001 CLASSIFICATION
P3001012	COMMERCIAL IN CONFIDENCE

DRAWING TITLE

THE GAS WORKS - GAS COMPOUND ENABLING WORKS GOULD STREET SURFACE WATER DRAINAGE

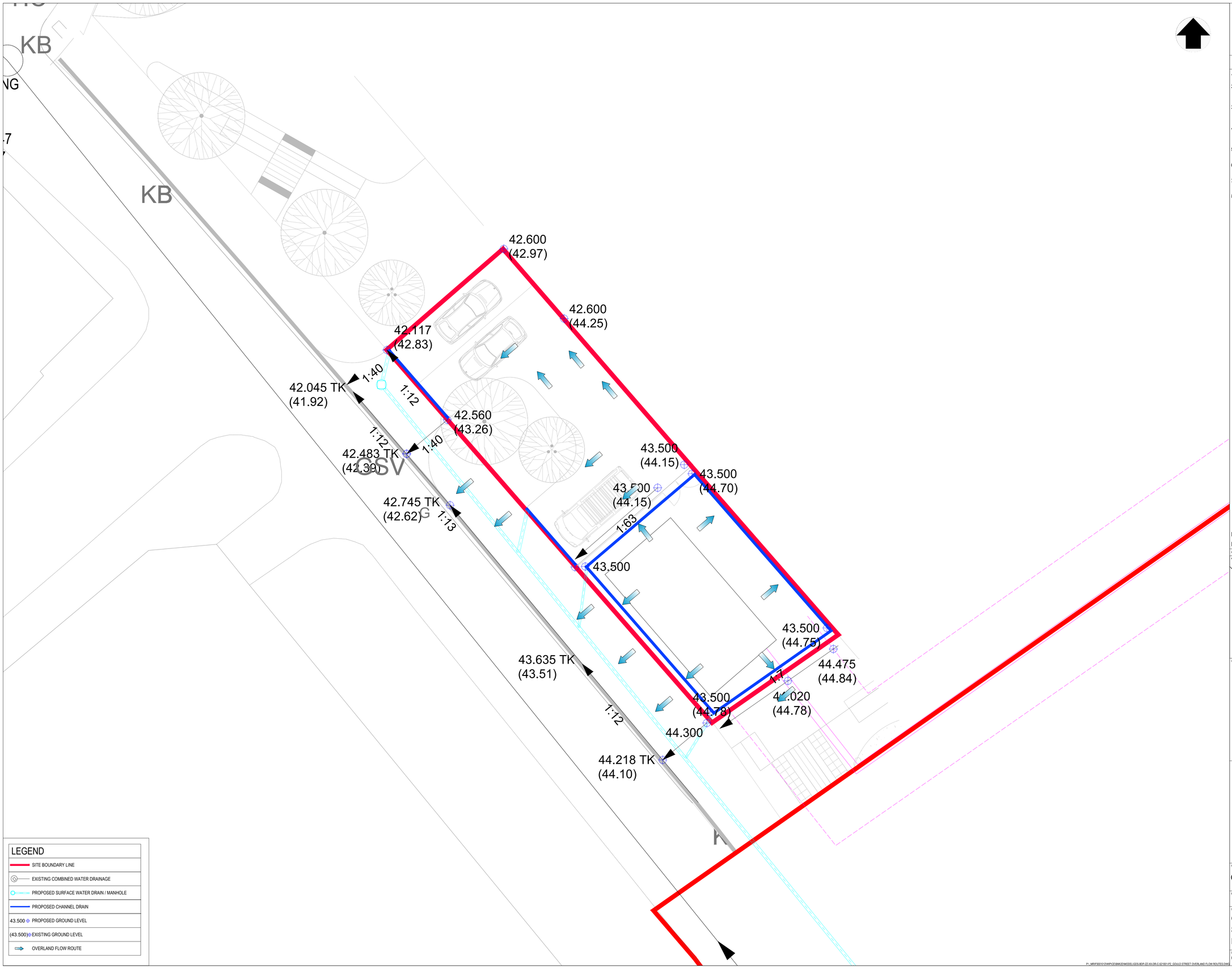
SCALE: 1:100 @ A1

DATE: 05/03/25

DRAWING No.: GDS-BDP-ZZ-XX-DR-C-520011

REVISION: P03

P:\...\BIM\P3001012\WIP\CE\BIM\ZZ\MODEL\GDS-BDP-ZZ-XX-DR-C-520011-P3_GOULD STREET DRAINAGE STRATEGY.DWG



LEGEND

- SITE BOUNDARY LINE
- EXISTING COMBINED WATER DRAINAGE
- PROPOSED SURFACE WATER DRAIN / MANHOLE
- PROPOSED CHANNEL DRAIN
- 43.500 PROPOSED GROUND LEVEL
- (43.500) EXISTING GROUND LEVEL
- OVERLAND FLOW ROUTE

BUILDING DESIGN PARTNERSHIP SHALL HAVE NO RESPONSIBILITY FOR ANY USE MADE OF THIS DOCUMENT OTHER THAN FOR THAT WHICH IT WAS PREPARED AND ISSUED.

ALL DIMENSIONS SHOULD BE CHECKED ON SITE.

DO NOT SCALE FROM THIS DRAWING.

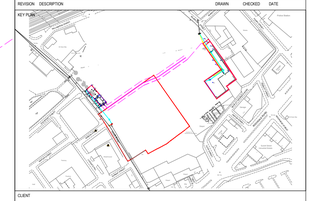
ANY DRAWING ERRORS OR DIVERGENCES SHOULD BE BROUGHT TO THE ATTENTION OF BUILDING DESIGN PARTNERSHIP AT THE ADDRESS SHOWN BELOW.

NOTES

1. ALL DIMENSIONS ARE IN METRES UNLESS STATED OTHERWISE.
2. THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT ARCHITECTURAL AND ENGINEERING DETAILS, DRAWINGS AND SPECIFICATIONS.
3. ANY DISCREPANCIES SHOULD BE REPORTED TO THE ARCHITECT AND/OR ENGINEER IMMEDIATELY SO THAT CLARIFICATION CAN BE SOUGHT PRIOR TO THE COMMENCEMENT OF WORK.
4. EXISTING DRAINAGE , MANHOLE POSITIONS & LEVELS ARE BASED ON UNITED UTILITIES SEWER RECORDS AND A CCTV SURVEY UNDERTAKEN BY GUN IN JUNE 2020.
5. TOPOGRAPHICAL INFORMATION PROVIDED WITHIN THIS DRAWING IS AN INDICATION OF EXISTING LEVELS ACROSS SITE.
6. ALL DRAIN POINTS AND MANHOLE LOCATIONS / INVERT LEVELS / DIMENSIONS ARE TO BE CONFIRMED, SUBJECT TO DESIGN DEVELOPMENT.
7. DESIGN SUBJECT TO CHANGE FOLLOWING APPROVAL PROCESS WITH LOCAL AUTHORITIES AND WATER COMPANY.
8. SURFACE WATER DRAINAGE NETWORK HAS BEEN DESIGNED TO ATTENUATE RUNOFF UP TO THE 1 IN 100 YEAR PLUS 45% CLIMATE CHANGE EVENT WITH NO FLOODING. OVERLAND FLOOD ROUTES ARE BASED ON AN EXCEEDANCE OF THE DESIGNED DRAINAGE NETWORK.

REVISION	DESCRIPTION	DRAWN	CHECKED	DATE
P02	DRAINAGE UPDATED	EOD	DN	09/12/25
P01	FOR INFORMATION	AB	EH	09/04/24

KEY PLAN



CLIENT

MCR PROPERTY GROUP

BDP.

11 Ducie Street
PO BOX 85
Picadilly Basin
Manchester
M60 3JA
United Kingdom

T +44 [0]161 828 2200
www.bdp.com

PROJECT TITLE

GOULD STREET DEVELOPMENT

BDP JOB NUMBER	RESTRICTION CLASSIFICATION
P3001012	COMMERCIAL IN CONFIDENCE

DRAWING TITLE	SCALE
GOULD STREET COMPOUND SURFACE WATER FLOOD ROUTE PLAN	1:100 @ A1
	DATE 20/03/24
DRAWING NO. GDS-BDP-ZZ-XX-DR-C-521001	REVISION P02

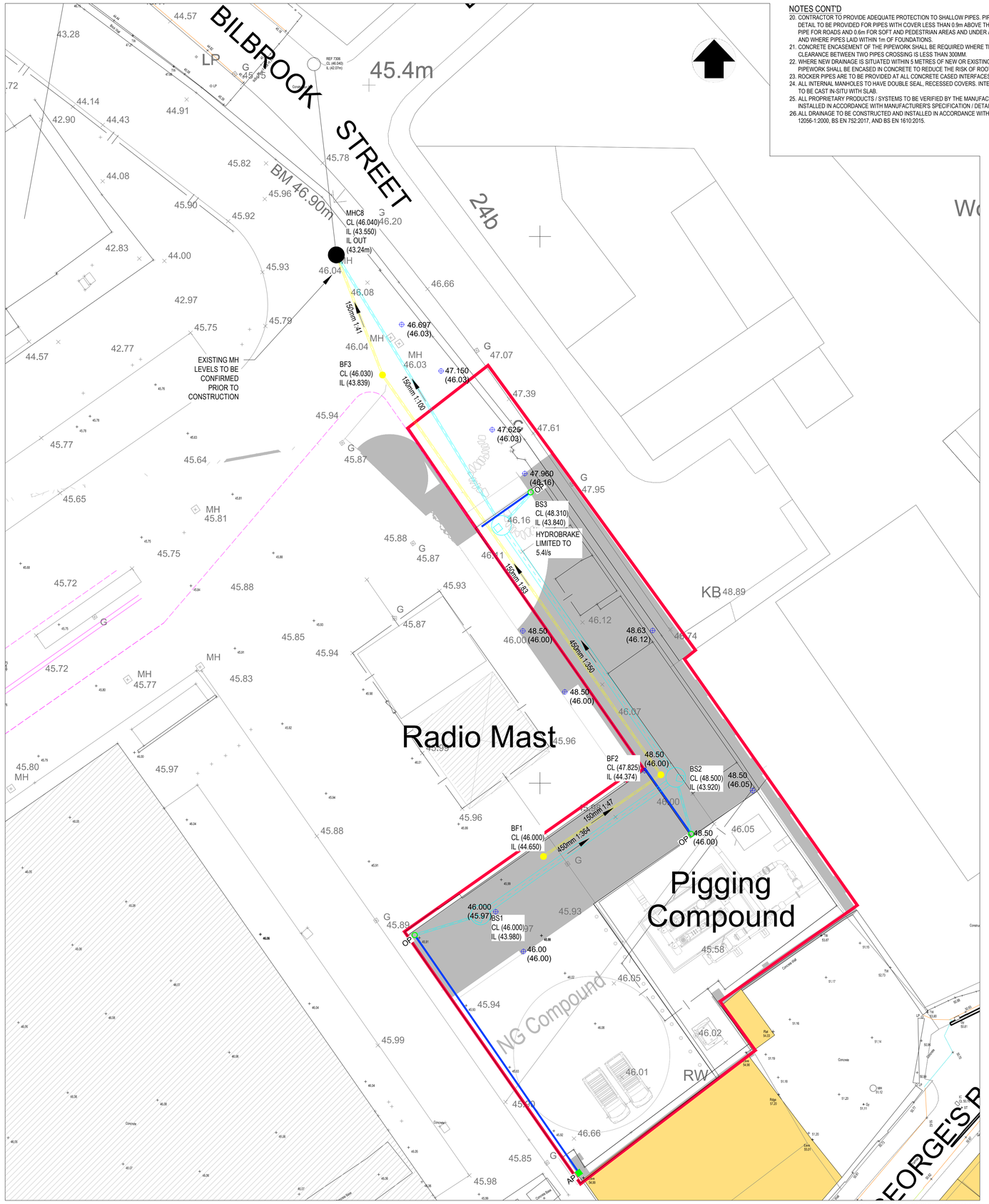
P:_MRP\3001012\WIP\CE\BIM\2DMODEL\GDS-BDP-ZZ-XX-DR-C-521001-P2_GOULD STREET OVERLAND FLOW ROUTES.DWG

PROP SW £ FW NETWORK 1 MANHOLE SCHEDULE

NAME	LOCATION	COVER LEVEL INVERT LEVEL SUMP DEPTH	DEPTH	TYPE SIZE	INCOMING PIPE DIA	INCOMING PIPE IL	OUTGOING PIPE DIA	OUTGOING PIPE IL	COVER SIZE
BS1	E= 384744.2716 N= 399237.8515	46.000 43.980 0.000	2.020	Type B 1500 mm	150		450	43.980	600 x 600
BS2	E= 384762.1361 N= 399250.4352	48.500 43.920 0.000	3.000	Type B 1500 mm	450	43.920			600 x 600
BS3	E= 384746.1804 N= 399273.4731	48.310 43.840 0.000	3.000	Type B 1500 mm	450 150	43.840 44.140	150	43.840	600 x 600
BF1	E= 384750.0287 N= 399243.2013	46.000 44.650 0.000	1.350	Type D Circular 450 mm			150	44.650	300 x 300
BF2	E= 384760.7718 N= 399250.6745	47.825 44.374 0.000	3.000	Type D Circular 450 mm	150	44.374	150	45.374	300 x 300
BF3	E= 384735.3015 N= 399287.2411	46.030 44.839 0.000	1.191	Type D Circular 450 mm	150	43.839	150	43.839	300 x 300
MHC8	E= 384731.0743 N= 399298.2265	46.040 43.550 0.000	2.490	Type B 1200 mm	150 150	43.550 43.550	EX	43.240	600 x 600

LEGEND

- SITE BOUNDARY LINE
- EXISTING COMBINED WATER DRAINAGE
- PROPOSED SURFACE WATER DRAIN / MANHOLE
- PROPOSED CHANNEL DRAIN
- PROPOSED FOUL WATER DRAIN / MANHOLE
- PROPOSED COMBINED WATER DRAIN / MANHOLE



NOTES CONT'D

20. CONTRACTOR TO PROVIDE ADEQUATE PROTECTION TO SHALLOW PIPES. PIPE PROTECTION DETAIL TO BE PROVIDED FOR PIPES WITH COVER LESS THAN 0.9m ABOVE THE CROWN OF THE PIPE FOR ROADS AND 0.6m FOR SOFT AND PEDESTRIAN AREAS AND UNDER ALL FOUNDATIONS AND WHERE PIPES LAID WITHIN 1m OF FOUNDATIONS.
21. CONCRETE ENCASEMENT OF THE PIPEWORK SHALL BE REQUIRED WHERE THE VERTICAL CLEARANCE BETWEEN TWO PIPES CROSSING IS LESS THAN 300MM.
22. WHERE NEW DRAINAGE IS SITUATED WITHIN 5 METRES OF NEW OR EXISTING TREES THE PIPEWORK SHALL BE ENCASED IN CONCRETE TO REDUCE THE RISK OF ROOT INGRESS.
23. ROCKER PIPES ARE TO BE PROVIDED AT ALL CONCRETE CASED INTERFACES.
24. ALL INTERNAL MANHOLES TO HAVE DOUBLE SEAL, RECESSED COVERS. INTERNAL MANHOLES TO BE CAST IN-SITU WITH SLAB.
25. ALL PROPRIETARY PRODUCTS / SYSTEMS TO BE VERIFIED BY THE MANUFACTURER AND INSTALLED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATION / DETAILS.
26. ALL DRAINAGE TO BE CONSTRUCTED AND INSTALLED IN ACCORDANCE WITH BS EN 12056-1:2000, BS EN 752:2017, AND BS EN 1610:2015.

BUILDING DESIGN PARTNERSHIP SHALL HAVE NO RESPONSIBILITY FOR ANY USE MADE OF THIS DOCUMENT OTHER THAN FOR THAT WHICH IT WAS PREPARED AND ISSUED.

ALL DIMENSIONS SHOULD BE CHECKED ON SITE.

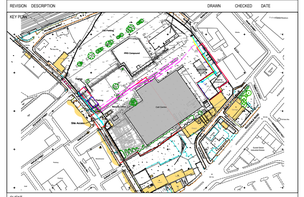
DO NOT SCALE FROM THIS DRAWING.

ANY DRAWING ERRORS OR DIVERGENCES SHOULD BE BROUGHT TO THE ATTENTION OF BUILDING DESIGN PARTNERSHIP AT THE ADDRESS SHOWN BELOW.

NOTES

1. ALL DIMENSIONS ARE IN METRES UNLESS STATED OTHERWISE.
2. THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT ARCHITECTURAL AND ENGINEERING DETAILS, DRAWINGS AND SPECIFICATIONS.
3. ANY DISCREPANCIES SHOULD BE REPORTED TO THE ARCHITECT AND/OR ENGINEER IMMEDIATELY SO THAT CLARIFICATION CAN BE SOUGHT PRIOR TO THE COMMENCEMENT OF WORK.
4. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH:
   4.1 TYPICAL DRAINAGE DETAILS
5. ALL BUILDING DRAINAGE WORKS SHALL BE CARRIED OUT IN ACCORDANCE WITH BS EN:752 DRAINAGE AND SEWER SYSTEMS OUTSIDE BUILDINGS, THE CURRENT BUILDING REGULATIONS, THE LOCAL AUTHORITY BUILDING CONTROL SPECIFICATIONS AND REQUIREMENTS AND THE CIVIL ENGINEERING SPECIFICATION FOR THE WATER INDUSTRY 7TH EDITION, PUBLISHED BY THE UK WATER INDUSTRY RESEARCH LTD. (CESWI).
6. EXISTING DRAINAGE , MANHOLE POSITIONS & LEVELS ARE BASED ON UNITED UTILITIES SEWER RECORDS AND A CCTV SURVEY UNDERTAKEN BY GUN IN JUNE 2020.
7. TOPOGRAPHICAL INFORMATION PROVIDED WITHIN THIS DRAWING IS AN INDICATION OF EXISTING LEVELS ACROSS SITE.
8. BEFORE STARTING ANY WORKS, CONTRACTOR TO CHECK INVERT LEVELS AND POSITIONS OF EXISTING DRAINS, SEWERS, INSPECTION CHAMBERS AND MANHOLES AGAINST INFORMATION SHOWN ON THIS DRAWING, ENGINEER TO BE INFORMED IF FOUND DIFFERENT TO NOTED.
9. ALL DRAIN POINTS AND MANHOLE LOCATIONS / INVERT LEVELS / DIMENSIONS ARE TO BE CONFIRMED, SUBJECT TO DESIGN DEVELOPMENT.
10. IT IS NOT ANTICIPATED THAT ANY OF THE NEW DRAINAGE NETWORK WILL BE OFFERED FOR ADOPTION TO UNITED UTILITIES. ANY DRAINAGE BEING OFFERED FOR ADOPTION WOULD REQUIRE SUBMISSION OF A SECTION 104 APPLICATION AND IS SUBJECT TO APPROVAL FROM UNITED UTILITIES.
11. LOCATION OF RAINWATER DOWNPIPES AND SVPS HAVE NOT BEEN CONFIRMED. FOUL WATER AND SURFACE WATER CONNECTIONS FROM THE BUILDING ARE SHOWN FOR INFORMATION ONLY TO INDICATE THE DIRECTION OF FLOW TO THE MAIN DRAINAGE RUNS.
12. DESIGN SUBJECT TO CHANGE FOLLOWING APPROVAL PROCESS WITH LOCAL AUTHORITIES AND WATER COMPANY.
13. THE CONTRACTOR SHALL:
    13.1. VERIFY EXISTING UTILITIES BEFORE STARTING WORKS.
    13.2. VERIFY THE DIMENSIONS SHOWN ON THE DRAWINGS BEFORE FABRICATION, SETTING OUT OR EXCAVATION OF THE WORK, AND SHALL BE HELD RESPONSIBLE FOR ANY ERRORS OR INACCURACIES RESULTING FROM FAILURE TO DO SO.
    13.3. CHECK AND VERIFY THE LOCATION AND LEVELS ALL EXISTING DRAINS, SEWERS, INSPECTION CHAMBERS AND MANHOLES AGAINST DRAWINGS AND REPORT ANY DISCREPANCIES TO THE ENGINEER.
14. THE PROPOSED BUILDING OUTLINE SHOWN ON THIS DRAWING ARE FOR INFORMATION ONLY. REFER TO ARCHITECTS PLANS FOR PRECISE LOCATION SETTING OUT INFORMATION AND DETAILS.
15. FOR SETTING OUT DIMENSIONS OF SSS, SVP'S, RWP'S, FLOOR GULLY & OTHER DRAINAGE POP UP' LOCATIONS, REFER TO ARCHITECTS OR MECHANICAL & ELECTRICAL ENGINEERS DRAWINGS.
16. ALL UNDERSLAB DRAINAGE SHALL BE LAID AT GRADIENTS OF 1:40 MIN. FOR FOUL PIPEWORK AND 1:80 MIN. FOR SURFACE WATER UNLESS NOTED OTHERWISE. ALL UNDERSLAB DRAINAGE SHALL BE CLEAR OF FOUNDATIONS UNLESS SHOWN OTHERWISE. USE OF SHORT/ LONG RADIUS BENDS IS ACCEPTABLE PROVIDED THEY ARE KEPT TO A MINIMUM AND USED WHERE UNAVOIDABLE.

REVISION	DESCRIPTION	DRAWN	CHECKED	DATE
P04	FLOW CONTROL REVISED	EOD	DN	09/12/25
P03	LEVELS ADDED	AS	DN	25/11/25
P02	UPDATED TO PROVIDE STORAGE	AS	DN	17/09/25
P01	FOR INFORMATION	AS	DN	05/03/25



CLIENT

MCR PROPERTY GROUP

BDP.

11 Ducie Street
PO BOX 85
Picadilly Basin
Manchester
M60 3JA
United Kingdom

T +44 [0]161 828 2200
www.bdp.com

PROJECT TITLE

GOULD STREET DEVELOPMENT

BDP JOB NUMBER	REGTRD CLASSIFICATION
P3001012	COMMERCIAL IN CONFIDENCE

DRAWING TITLE

THE GAS WORKS - GAS COMPOUND
ENABLING WORKS BILBROOK
STREET SURFACE WATER DRAINAGE

SCALE: 1:100 @ A1

DATE: 05/03/25

DRAWING No.: GDS-BDP-ZZ-XX-DR-C-520012

REVISION: P04

P:\ MIR7350\S1\21WIP\CE\BIM\ZDMODEL\GDS-BDP-ZZ-XX-DR-C-520012-P4_BILLBROOK STREET DRAINAGE STRATEGY.DWG



BUILDING DESIGN PARTNERSHIP SHALL HAVE NO RESPONSIBILITY FOR ANY USE MADE OF THIS DOCUMENT OTHER THAN FOR THAT WHICH IT WAS PREPARED AND ISSUED.

ALL DIMENSIONS SHOULD BE CHECKED ON SITE.

DO NOT SCALE FROM THIS DRAWING.

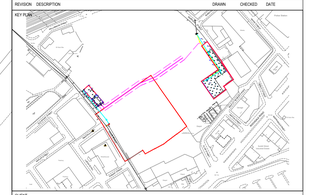
ANY DRAWING ERRORS OR DIVERGENCES SHOULD BE BROUGHT TO THE ATTENTION OF BUILDING DESIGN PARTNERSHIP AT THE ADDRESS SHOWN BELOW.

NOTES

1. ALL DIMENSIONS ARE IN METRES UNLESS STATED OTHERWISE.
2. THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT ARCHITECTURAL AND ENGINEERING DETAILS, DRAWINGS AND SPECIFICATIONS.
3. ANY DISCREPANCIES SHOULD BE REPORTED TO THE ARCHITECT AND/OR ENGINEER IMMEDIATELY SO THAT CLARIFICATION CAN BE SOUGHT PRIOR TO THE COMMENCEMENT OF WORK.
4. EXISTING DRAINAGE , MANHOLE POSITIONS & LEVELS ARE BASED ON UNITED UTILITIES SEWER RECORDS AND A CCTV SURVEY UNDERTAKEN BY GUN IN JUNE 2020.
5. TOPOGRAPHICAL INFORMATION PROVIDED WITHIN THIS DRAWING IS AN INDICATION OF EXISTING LEVELS ACROSS SITE.
6. ALL DRAIN POINTS AND MANHOLE LOCATIONS / INVERT LEVELS / DIMENSIONS ARE TO BE CONFIRMED, SUBJECT TO DESIGN DEVELOPMENT.
7. DESIGN SUBJECT TO CHANGE FOLLOWING APPROVAL PROCESS WITH LOCAL AUTHORITIES AND WATER COMPANY.
8. SURFACE WATER DRAINAGE NETWORK HAS BEEN DESIGNED TO ATTENUATE RUNOFF UP TO THE 1 IN 100 YEAR PLUS 45% CLIMATE CHANGE EVENT WITH MINOR FLOODING. OVERLAND FLOOD ROUTES ARE BASED ON AN EXCEEDANCE OF THE DESIGNED DRAINAGE NETWORK.

REVISION	DESCRIPTION	DRAWN	CHECKED	DATE
P01	FOR INFORMATION	EOD	DN	09/12/25

KEY PLAN



CLIENT

MCR PROPERTY GROUP

BDP.

11 Ducie Street
PO BOX 85
Picadilly Basin
Manchester
M60 3JA
United Kingdom

T +44 [0]161 828 2200
www.bdp.com

PROJECT TITLE

GOULD STREET DEVELOPMENT

BDP JOB NUMBER	ISO 27001 CLASSIFICATION
P3001012	COMMERCIAL IN CONFIDENCE

DRAWING TITLE	SCALE
BILBROOK COMPOUND SURFACE WATER FLOOD ROUTE PLAN	1:200 @ A1
	DATE: DEC 2025
DRAWING No.: GDS-BDP-ZZ-XX-DR-C-521002	REVISION: P01

P:\...\MBP3001012\WIP\CIE\BIM\ZM\MODEL\GDS-BDP-ZZ-XX-DR-C-521002-P1_BILBROOK STREET OVERLAND FLOW ROUTES.DWG

Appendix E – Hydraulic Calculations

Calculation Sheet.

BDP.

Gasworks, Manchester	P3001012	EOD	09/12/25
Project Title	*Project Number*	*By*	*Date*

Brownfield Rates

Element	*Reference*	*Check*	*Date*

Modified Rational Method

Q = 2.78iA

Q = Discharge rate
i= rainfall intensity
A = Area (ha)

Bilbrook Street Compound

Site Area = 782m2

Brownfield Rate = 2.78 x 50 x 0.078
= 10.8 l/s

50% betterment on existing rates =10.8/2
=5.4 l/s

Gould Street Compound

Site Area = 256m2

Brownfield Rate = 2.78 x 50 x 0.026
= 3.6 l/s

Due to small existing discharge rate, proposed discharge rate to be restricted to maximum 3.6l/s to reduce risk of blockages associated with small orifice diameters.

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for Storm

Pipe Sizes STANDARD Manhole Sizes STANDARD

FSR Rainfall Model - England and Wales

Return Period (years)	2	Foul Sewage (l/s/ha)	0.000	Maximum Backdrop Height (m)	1.500
M5-60 (mm)	18.000	Volumetric Runoff Coeff.	0.750	Min Design Depth for Optimisation (m)	1.200
Ratio R	0.358	PIMP (%)	100	Min Vel for Auto Design only (m/s)	1.00
Maximum Rainfall (mm/hr)	50	Add Flow / Climate Change (%)	0	Min Slope for Optimisation (1:X)	500
Maximum Time of Concentration (mins)	30	Minimum Backdrop Height (m)	0.200		

Designed with Level Soffits

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)	HYD SECT	DIA (mm)	Section Type	Auto Design
1.000	48.047	0.480	100.1	0.022	5.00	0.0	0.600	o	150	Pipe/Conduit	
1.001	6.512	0.065	100.2	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	
1.002	4.013	0.040	100.3	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	

Network Results Table

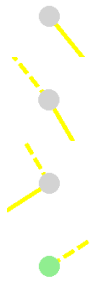
PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
1.000	50.00	5.80	40.950	0.022	0.0	0.0	0.0	1.00	17.7	3.0
1.001	50.00	5.91	40.470	0.022	0.0	0.0	0.0	1.00	17.7	3.0
1.002	50.00	5.97	40.405	0.022	0.0	0.0	0.0	1.00	17.7	3.0

©1982-2020 Innovyze

Manhole Schedules for Storm

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam.,L*W (mm)	Pipe Out PN	Pipe Out Invert Level (m)	Pipe Out Diameter (mm)	Pipes In PN	Pipes In Invert Level (m)	Pipes In Diameter (mm)	Backdrop (mm)
GS1	42.150	1.200	Open Manhole	450	1.000	40.950	150				
GS2	45.500	5.030	Open Manhole	1200	1.001	40.470	150	1.000	40.470	150	
C01	45.560	5.155	Open Manhole	1200	1.002	40.405	150	1.001	40.405	150	
REF 5201	45.840	5.475	Open Manhole	0		OUTFALL		1.002	40.365	150	

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
GS1	384583.195	399223.285	384583.195	399223.285	Required	
GS2	384613.506	399186.006	384613.506	399186.006	Required	
C01	384616.785	399180.380	384616.785	399180.380	Required	
REF 5201	384613.406	399178.216			No Entry	



Free Flowing Outfall Details for Storm

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
1.002	REF 5201	45.840	40.365	37.640	0	0

Simulation Criteria for Storm

Volumetric Runoff Coeff	0.750	Manhole Headloss Coeff (Global)	0.500	Inlet Coeffiecient	0.800
Areal Reduction Factor	1.000	Foul Sewage per hectare (l/s)	0.000	Flow per Person per Day (l/per/day)	0.000
Hot Start (mins)	0	Additional Flow - % of Total Flow	0.000	Run Time (mins)	60
Hot Start Level (mm)	0	MADD Factor * 10m³/ha Storage	2.000	Output Interval (mins)	1

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

Synthetic Rainfall Details

Rainfall Model	FSR	M5-60 (mm)	18.000	Cv (Summer)	0.750
Return Period (years)	2	Ratio R	0.358	Cv (Winter)	0.840
Region	England and Wales	Profile Type	Summer	Storm Duration (mins)	30

©1982-2020 Innovyze

Online Controls for Storm

Hydro-Brake® Optimum Manhole: GS2, DS/PN: 1.001, Volume (m³): 6.5

Unit Reference	MD-SHE-0081-3600-1600-3600	Sump Available	Yes
Design Head (m)	1.600	Diameter (mm)	81
Design Flow (l/s)	3.6	Invert Level (m)	40.470
Flush-Flo™	Calculated	Minimum Outlet Pipe Diameter (mm)	100
Objective	Minimise upstream storage	Suggested Manhole Diameter (mm)	1200
Application	Surface		

Control Points	Head (m)	Flow (l/s)	Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.600	3.6	Kick-Flo®	0.729	2.5
Flush-Flo™	0.356	3.1	Mean Flow over Head Range	-	2.9

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)	Depth (m)	Flow (l/s)
0.100	2.4	0.600	2.9	1.600	3.6	2.600	4.5	5.000	6.1	7.500	7.4
0.200	3.0	0.800	2.6	1.800	3.8	3.000	4.8	5.500	6.4	8.000	7.6
0.300	3.1	1.000	2.9	2.000	4.0	3.500	5.2	6.000	6.7	8.500	7.9
0.400	3.1	1.200	3.1	2.200	4.2	4.000	5.5	6.500	6.9	9.000	8.1
0.500	3.1	1.400	3.4	2.400	4.3	4.500	5.8	7.000	7.2	9.500	8.3

©1982-2020 Innovyze

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

Simulation Criteria

Areal Reduction Factor 1.000 Manhole Headloss Coeff (Global) 0.500 MADD Factor * 10m³/ha Storage 2.000
Hot Start (mins) 0 Foul Sewage per hectare (l/s) 0.000 Inlet Coeffiecient 0.800
Hot Start Level (mm) 0 Additional Flow - % of Total Flow 0.000 Flow per Person per Day (l/per/day) 0.000

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

Synthetic Rainfall Details

Rainfall Model FSR M5-60 (mm) 18.000 Cv (Summer) 0.750
Region England and Wales Ratio R 0.358 Cv (Winter) 0.840

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

Profile(s) Summer and Winter
Duration(s) (mins) 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440
Return Period(s) (years) 1, 30, 100
Climate Change (%) 0, 0, 45

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)
1.000	GS1	15 Winter	1	+0%	100/15 Summer				40.989	-0.111	0.000	0.15			2.6
1.001	GS2	15 Winter	1	+0%	30/15 Summer				40.572	-0.048	0.000	0.16			2.4
1.002	C01	15 Winter	1	+0%					40.450	-0.105	0.000	0.19			2.4

PN	US/MH Name	Status	Level Exceeded
1.000	GS1	OK	
1.001	GS2	OK	
1.002	C01	OK	

©1982-2020 Innovyze

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

Simulation Criteria

Areal Reduction Factor 1.000 Manhole Headloss Coeff (Global) 0.500 MADD Factor * 10m³/ha Storage 2.000
Hot Start (mins) 0 Foul Sewage per hectare (l/s) 0.000 Inlet Coeffiecient 0.800
Hot Start Level (mm) 0 Additional Flow - % of Total Flow 0.000 Flow per Person per Day (l/per/day) 0.000

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

Synthetic Rainfall Details

Rainfall Model FSR M5-60 (mm) 18.000 Cv (Summer) 0.750
Region England and Wales Ratio R 0.358 Cv (Winter) 0.840

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

Profile(s) Summer and Winter
Duration(s) (mins) 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440
Return Period(s) (years) 1, 30, 100
Climate Change (%) 0, 0, 45

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)
1.000	GS1	15 Winter	30	+0%	100/15 Summer				41.014	-0.086	0.000	0.36			6.3
1.001	GS2	15 Winter	30	+0%	30/15 Summer				40.893	0.273	0.000	0.21			3.1
1.002	C01	15 Winter	30	+0%					40.455	-0.100	0.000	0.25			3.1

PN	US/MH Name	Status	Level Exceeded
1.000	GS1	OK	
1.001	GS2	SURCHARGED	
1.002	C01	OK	

©1982-2020 Innovyze

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

Simulation Criteria

Areal Reduction Factor 1.000 Manhole Headloss Coeff (Global) 0.500 MADD Factor * 10m³/ha Storage 2.000
Hot Start (mins) 0 Foul Sewage per hectare (l/s) 0.000 Inlet Coeffiecient 0.800
Hot Start Level (mm) 0 Additional Flow - % of Total Flow 0.000 Flow per Person per Day (l/per/day) 0.000

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

Synthetic Rainfall Details

Rainfall Model FSR M5-60 (mm) 18.000 Cv (Summer) 0.750
Region England and Wales Ratio R 0.358 Cv (Winter) 0.840

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

Profile(s) Summer and Winter
Duration(s) (mins) 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440
Return Period(s) (years) 1, 30, 100
Climate Change (%) 0, 0, 45

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)
1.000	GS1	30 Winter	100	+45%	100/15 Summer				42.106	1.006	0.000	0.50			8.6
1.001	GS2	30 Winter	100	+45%	30/15 Summer				42.075	1.455	0.000	0.24			3.6
1.002	C01	30 Winter	100	+45%					40.460	-0.095	0.000	0.29			3.6

PN	US/MH Name	Status	Level Exceeded
1.000	GS1	FLOOD RISK	
1.001	GS2	SURCHARGED	
1.002	C01	OK	

©1982-2020 Innovyze

STORM SEWER DESIGN by the Modified Rational Method

Design Criteria for Storm

Pipe Sizes STANDARD Manhole Sizes STANDARD

FSR Rainfall Model - England and Wales

Return Period (years)	2	Foul Sewage (l/s/ha)	0.000	Maximum Backdrop Height (m)	1.500
M5-60 (mm)	18.000	Volumetric Runoff Coeff.	0.750	Min Design Depth for Optimisation (m)	1.200
Ratio R	0.358	PIMP (%)	100	Min Vel for Auto Design only (m/s)	1.00
Maximum Rainfall (mm/hr)	50	Add Flow / Climate Change (%)	0	Min Slope for Optimisation (1:X)	500
Maximum Time of Concentration (mins)	30	Minimum Backdrop Height (m)	0.200		

Designed with Level Soffits

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)	HYD SECT	DIA (mm)	Section Type	Auto Design
1.000	21.852	0.060	364.2	0.052	5.00	0.0	0.600	o	450	Pipe/Conduit	
1.001	28.024	0.080	350.3	0.026	0.00	0.0	0.600	o	450	Pipe/Conduit	
1.002	28.998	0.290	100.0	0.000	0.00	0.0	0.600	o	150	Pipe/Conduit	

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	5.34	43.980	0.052	0.0	0.0	0.0	1.06	168.5	7.0
1.001	50.00	5.78	43.920	0.078	0.0	0.0	0.0	1.08	171.8	10.6
1.002	50.00	6.26	43.840	0.078	0.0	0.0	0.0	1.00	17.8	10.6

©1982-2020 Innovyze

Manhole Schedules for Storm

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam.,L*W (mm)	Pipe Out PN	Pipe Out Invert Level (m)	Pipe Out Diameter (mm)	Pipes In PN	Pipes In Invert Level (m)	Pipes In Diameter (mm)	Backdrop (mm)
BS1	46.000	2.020	Open Manhole	1500	1.000	43.980	450				
BS2	48.500	4.580	Open Manhole	1500	1.001	43.920	450	1.000	43.920	450	
BS3	48.310	4.470	Open Manhole	1500	1.002	43.840	150	1.001	43.840	450	
MH8	46.040	2.490	Open Manhole	1200		OUTFALL		1.002	43.550	150	

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
BS1	384744.271	399237.851	384744.271	399237.851	Required	
BS2	384762.136	399250.435	384762.136	399250.435	Required	
BS3	384746.180	399273.473	384746.180	399273.473	Required	
MH8	384731.074	399298.226			No Entry	



Free Flowing Outfall Details for Storm

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D,L (mm)	W (mm)
1.002	MH8	46.040	43.550	0.000	1200	0

Simulation Criteria for Storm

Volumetric Runoff Coeff	0.750	Manhole Headloss Coeff (Global)	0.500	Inlet Coeffiecient	0.800
Areal Reduction Factor	1.000	Foul Sewage per hectare (l/s)	0.000	Flow per Person per Day (l/per/day)	0.000
Hot Start (mins)	0	Additional Flow - % of Total Flow	0.000	Run Time (mins)	60
Hot Start Level (mm)	0	MADD Factor * 10m³/ha Storage	2.000	Output Interval (mins)	1

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

Synthetic Rainfall Details

Rainfall Model	FSR	M5-60 (mm)	18.000	Cv (Summer)	0.750
Return Period (years)	2	Ratio R	0.358	Cv (Winter)	0.840
Region	England and Wales	Profile Type	Summer	Storm Duration (mins)	30

©1982-2020 Innovyze

Online Controls for Storm

Hydro-Brake® Optimum Manhole: BS3, DS/PN: 1.002, Volume (m³): 12.1

Unit Reference	MD-SHE-0093-5400-2200-5400	Sump Available	Yes
Design Head (m)	2.200	Diameter (mm)	93
Design Flow (l/s)	5.4	Invert Level (m)	43.840
Flush-Flo™	Calculated	Minimum Outlet Pipe Diameter (mm)	150
Objective	Minimise upstream storage	Suggested Manhole Diameter (mm)	1200
Application	Surface		

Control Points	Head (m)	Flow (l/s)	Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	2.200	5.4	Kick-Flo®	0.834	3.4
Flush-Flo™	0.409	4.3	Mean Flow over Head Range	-	4.2

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)	Depth (m)	Flow (l/s)
0.100	3.0	0.600	4.2	1.600	4.7	2.600	5.8	5.000	7.9	7.500	9.6
0.200	4.0	0.800	3.6	1.800	4.9	3.000	6.2	5.500	8.3	8.000	9.9
0.300	4.2	1.000	3.7	2.000	5.2	3.500	6.7	6.000	8.7	8.500	10.2
0.400	4.3	1.200	4.1	2.200	5.4	4.000	7.1	6.500	9.0	9.000	10.5
0.500	4.3	1.400	4.4	2.400	5.6	4.500	7.6	7.000	9.3	9.500	10.8

©1982-2020 Innovyze

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

Simulation Criteria

Areal Reduction Factor 1.000 Manhole Headloss Coeff (Global) 0.500 MADD Factor * 10m³/ha Storage 2.000
Hot Start (mins) 0 Foul Sewage per hectare (l/s) 0.000 Inlet Coeffiecient 0.800
Hot Start Level (mm) 0 Additional Flow - % of Total Flow 0.000 Flow per Person per Day (l/per/day) 0.000

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

Synthetic Rainfall Details

Rainfall Model FSR M5-60 (mm) 18.000 Cv (Summer) 0.750
Region England and Wales Ratio R 0.358 Cv (Winter) 0.840

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

Profile(s) Summer and Winter
Duration(s) (mins) 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440
Return Period(s) (years) 1, 5, 30, 100
Climate Change (%) 0, 0, 40, 45

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)
1.000	BS1	15 Winter	1	+0%	30/15 Winter	100/60 Winter			44.052	-0.378	0.000	0.04			6.0
1.001	BS2	15 Winter	1	+0%	30/15 Summer				44.034	-0.336	0.000	0.05			7.8
1.002	BS3	15 Winter	1	+0%	1/15 Summer				44.031	0.041	0.000	0.23			3.9

PN	US/MH Name	Status	Level Exceeded
1.000	BS1	OK	1
1.001	BS2	OK	
1.002	BS3	SURCHARGED	

©1982-2020 Innovyze

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

Simulation Criteria

Areal Reduction Factor 1.000 Manhole Headloss Coeff (Global) 0.500 MADD Factor * 10m³/ha Storage 2.000
Hot Start (mins) 0 Foul Sewage per hectare (l/s) 0.000 Inlet Coeffiecient 0.800
Hot Start Level (mm) 0 Additional Flow - % of Total Flow 0.000 Flow per Person per Day (l/per/day) 0.000

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

Synthetic Rainfall Details

Rainfall Model FSR M5-60 (mm) 18.000 Cv (Summer) 0.750
Region England and Wales Ratio R 0.358 Cv (Winter) 0.840

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

Profile(s) Summer and Winter
Duration(s) (mins) 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440
Return Period(s) (years) 1, 5, 30, 100
Climate Change (%) 0, 0, 40, 45

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)
1.000	BS1	30 Winter	5	+0%	30/15 Winter	100/60 Winter			44.137	-0.293	0.000	0.06			7.8
1.001	BS2	30 Winter	5	+0%	30/15 Summer				44.136	-0.234	0.000	0.06			9.0
1.002	BS3	30 Winter	5	+0%	1/15 Summer				44.134	0.144	0.000	0.25			4.2

PN	US/MH Name	Status	Level Exceeded
1.000	BS1	OK	1
1.001	BS2	OK	
1.002	BS3	SURCHARGED	

©1982-2020 Innovyze

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

Simulation Criteria

Areal Reduction Factor 1.000 Manhole Headloss Coeff (Global) 0.500 MADD Factor * 10m³/ha Storage 2.000
Hot Start (mins) 0 Foul Sewage per hectare (l/s) 0.000 Inlet Coeffiecient 0.800
Hot Start Level (mm) 0 Additional Flow - % of Total Flow 0.000 Flow per Person per Day (l/per/day) 0.000

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

Synthetic Rainfall Details

Rainfall Model FSR M5-60 (mm) 18.000 Cv (Summer) 0.750
Region England and Wales Ratio R 0.358 Cv (Winter) 0.840

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

Profile(s) Summer and Winter
Duration(s) (mins) 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440
Return Period(s) (years) 1, 5, 30, 100
Climate Change (%) 0, 0, 40, 45

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)
1.000	BS1	60 Winter	30	+40%	30/15 Winter	100/60 Winter			45.016	0.586	0.000	0.07			10.2
1.001	BS2	60 Winter	30	+40%	30/15 Summer				45.015	0.645	0.000	0.07			10.4
1.002	BS3	60 Winter	30	+40%	1/15 Summer				45.013	1.023	0.000	0.25			4.3

PN	US/MH Name	Status	Level Exceeded
1.000	BS1	SURCHARGED	1
1.001	BS2	SURCHARGED	
1.002	BS3	SURCHARGED	

©1982-2020 Innovyze

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

Simulation Criteria

Areal Reduction Factor 1.000 Manhole Headloss Coeff (Global) 0.500 MADD Factor * 10m³/ha Storage 2.000
Hot Start (mins) 0 Foul Sewage per hectare (l/s) 0.000 Inlet Coeffiecient 0.800
Hot Start Level (mm) 0 Additional Flow - % of Total Flow 0.000 Flow per Person per Day (l/per/day) 0.000

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

Synthetic Rainfall Details

Rainfall Model FSR M5-60 (mm) 18.000 Cv (Summer) 0.750
Region England and Wales Ratio R 0.358 Cv (Winter) 0.840

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

Profile(s) Summer and Winter
Duration(s) (mins) 15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440
Return Period(s) (years) 1, 5, 30, 100
Climate Change (%) 0, 0, 40, 45

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m³)	Flow / Cap.	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)
1.000	BS1	60 Winter	100	+45%	30/15 Winter	100/60 Winter			46.002	1.572	2.588	0.23			31.3
1.001	BS2	60 Winter	100	+45%	30/15 Summer				46.082	1.712	0.000	0.11			16.7
1.002	BS3	60 Winter	100	+45%	1/15 Summer				46.114	2.124	0.000	0.31			5.3

PN	US/MH Name	Status	Level Exceeded
1.000	BS1	FLOOD	1
1.001	BS2	SURCHARGED	
1.002	BS3	SURCHARGED	

©1982-2020 Innovyze