NORTH

0 1

KILOMETRES

THIS DRAWING IS TO BE USED ONLY FOR THE PURPOSE OF ISSUE THAT IT WAS ISSUED FOR AND IS SUBJECT TO AMENDMENT

## LEGEND

- London Borough Camden Boundary
- LBC Historic GW Flooding Record
  No. Properties affected
  - 1
  - 6
  - 7
  - 8
- Increased Susceptibility to Elevated Groundwater
- Environment Agency groundwater flood incidents



| Revision Details | By / Check | Check Date | Suffix |
|---|---|---|---|
| | | | |

Purpose of Issue: FINAL

Client: Camden

Project Title: LONDON BOROUGH OF CAMDEN STRATEGIC FLOOD RISK ASSESSMENT

Drawing Title: Increased Susceptibility to Elevated Groundwater

| Drawn | Checked | Approved | Date |
|---|---|---|---|
| CB | JS | MT | 03/07/2014 |

| URS Internal Project No. | Scale at A3 |
|---|---|
| 47070547 | 1: 40,000 |

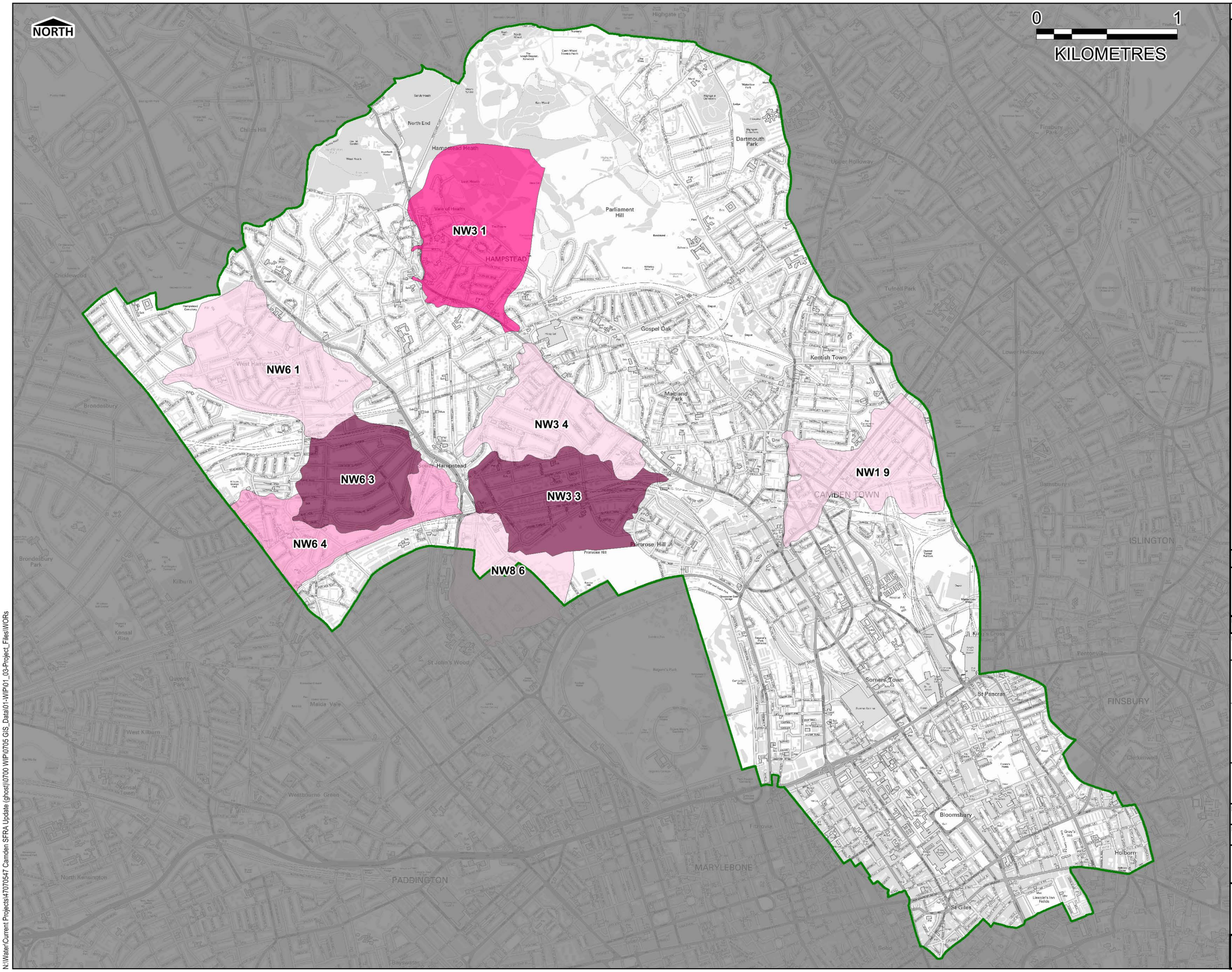


URS Infrastructure & Environment UK Limited
6 - 8 Greencoat Place
London
SW1P 1PL
Telephone +44 (0)207 7985000
Fax +44 (0)207 7985001
www.ursglobal.com

Drawing Number: FIGURE 4e

Rev: Rev 1

N:\Water\Current Projects\47070547 Camden SFRA Update (ghost)\0700 WIP\0705 GIS_Data\01-WIP\01_03-Project_Files\WORs

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**LEGEND**

London Borough Camden Boundary

Internal Sewer Flooding
No. of Properties affected

- 1
- 2
- 4
- 8



| Revision Details | By / Check | Check Date | Suffix |
|---|---|---|---|
| | | | |

Purpose of Issue: FINAL

Client: Camden

Project Title: LONDON BOROUGH OF CAMDEN STRATEGIC FLOOD RISK ASSESSMENT

Drawing Title: DG5 Internal Sewer Flooding

| Drawn | Checked | Approved | Date |
|---|---|---|---|
| CB | JS | MT | 03/07/2014 |

| URS Internal Project No. | Scale at A3 |
|---|---|
| 47070547 | 1:40,000 |



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| Drawing Number | Rev |
|---|---|
| FIGURE 5a | Rev 1 |

N:\Water\Current Projects\47070547 Camden SFRA Update (ghost)\0700 WIP\0705 GIS_Data\01-WIP\01_03-Project_Files\WORs

NORTH

0 1

KILOMETRES

NW3 1

NW3 5

NW6 2

NW6 3

NW6 4

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**LEGEND**

London Borough Camden Boundary

Exterior Sewer Flooding
No. of Properties affected

- 1
- 2
- 4
- 18



| Revision Details | By / Check | Check Date | Suffix |
|---|---|---|---|
| | | | |

Purpose of Issue: FINAL

Client: Camden

Project Title: LONDON BOROUGH OF CAMDEN STRATEGIC FLOOD RISK ASSESSMENT

Drawing Title: DG5 External Sewer Flooding

| Drawn | Checked | Approved | Date |
|---|---|---|---|
| CB | JS | MT | 03/07/2014 |

| URS Internal Project No. | Scale at A3 |
|---|---|
| 47070547 | 1:40,000 |



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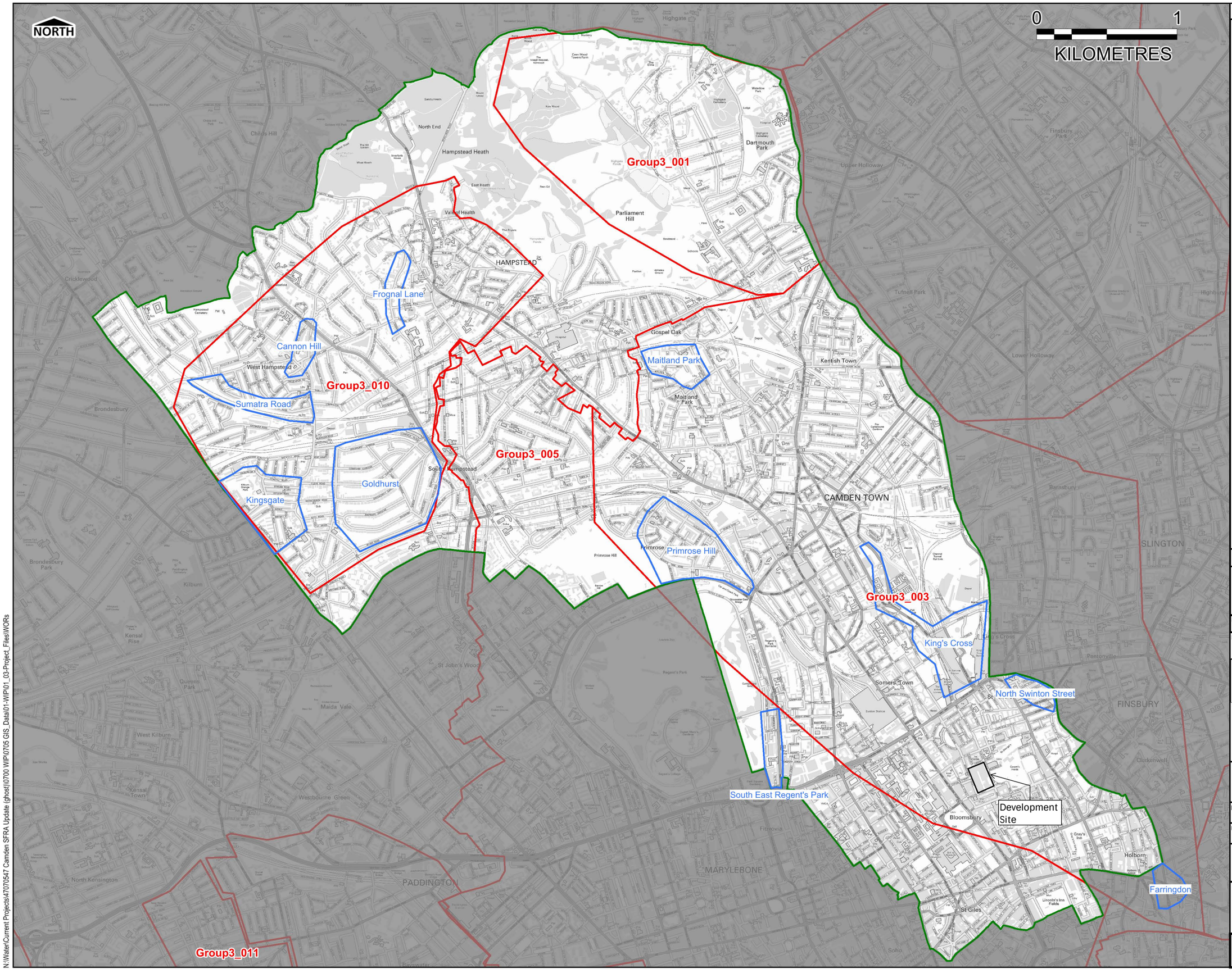
| Drawing Number | Rev |
|---|---|
| FIGURE 5b | Rev 1 |

N:\Water\Current Projects\47070547 Camden SFRA Update (ghost)\0700 WIP\0705 GIS_Data\01-WIP\01_03-Project_Files\WORs




THIS DRAWING IS TO BE USED ONLY FOR THE PURPOSE OF ISSUE THAT IT WAS ISSUED FOR AND IS SUBJECT TO AMENDMENT

**LEGEND**

- London Borough Camden Boundary
- Critical Drainage Area
- Local Flood Risk Zone



| Revision Details | By / Check | Check Date | Suffix |
|---|---|---|---|
| | | | |

Purpose of Issue: FINAL

Client: Camden

Project Title: LONDON BOROUGH OF CAMDEN STRATEGIC FLOOD RISK ASSESSMENT

Drawing Title: Critical Drainage Areas / Local Flood Risk Zones

| Drawn | Checked | Approved | Date |
|---|---|---|---|
| CB/EB | EY | MT | 04/06/2014 |

| URS Internal Project No. | Scale at A3 |
|---|---|
| 47070547 | 1:40,000 |



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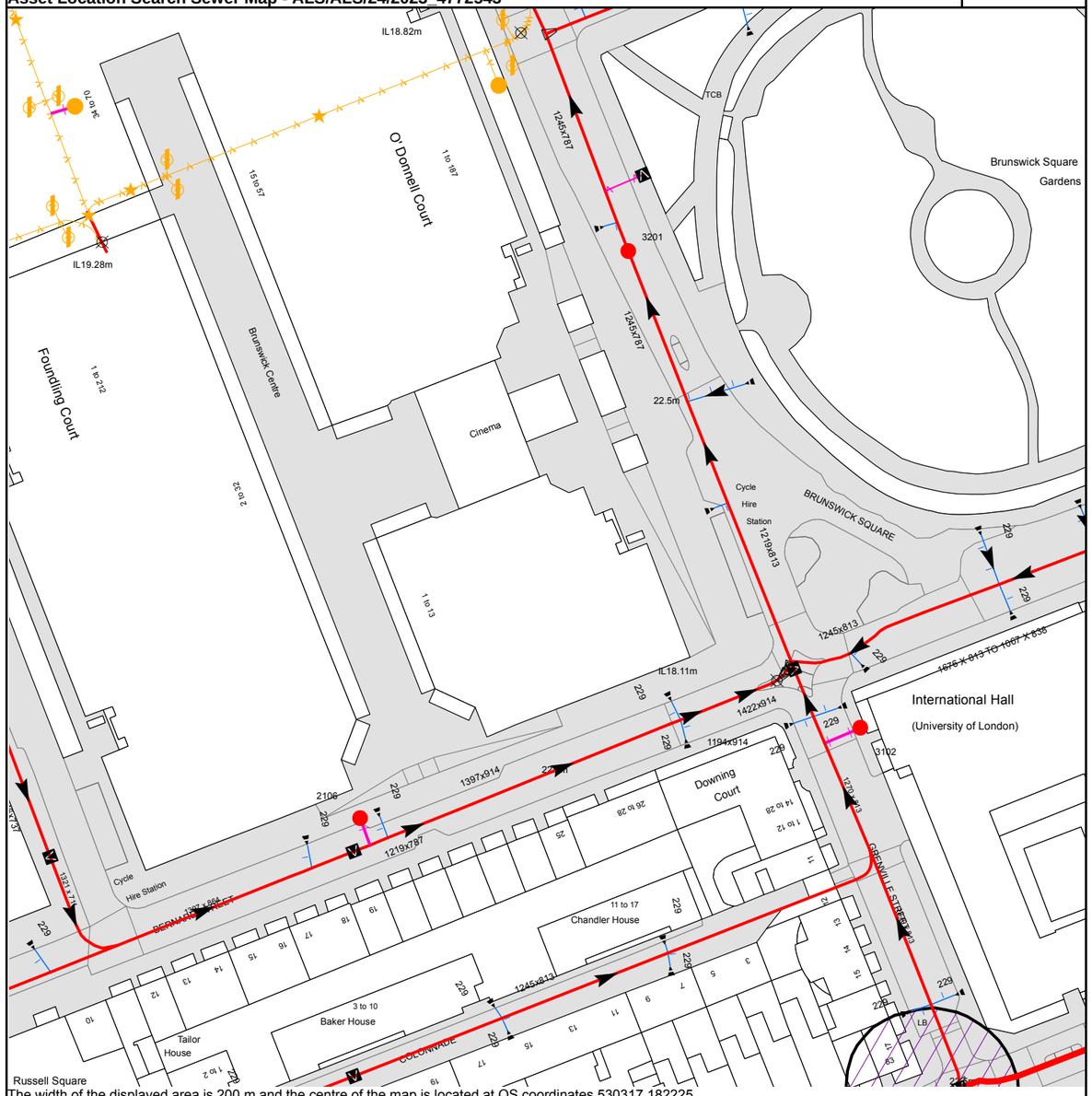
| Drawing Number | Rev |
|---|---|
| FIGURE 6 | Rev 2 |

N:\Water\Current Projects\47070547 Camden SFRA Update (ghost)\0700 WIP\0705 GIS_Data\01-WIP\01_03-Project_Files\WORs

# Appendix C

## Thames Water Asset Map

## Asset Location Search Sewer Map - ALS/ALS/24/2023_4772543




The width of the displayed area is 200 m and the centre of the map is located at OS coordinates 530317,182225

**The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.**

Based on the Ordnance Survey Map (2020) with the Sanction of the controller of H.M. Stationery Office, License no. 100019345 Crown Copyright Reserved.



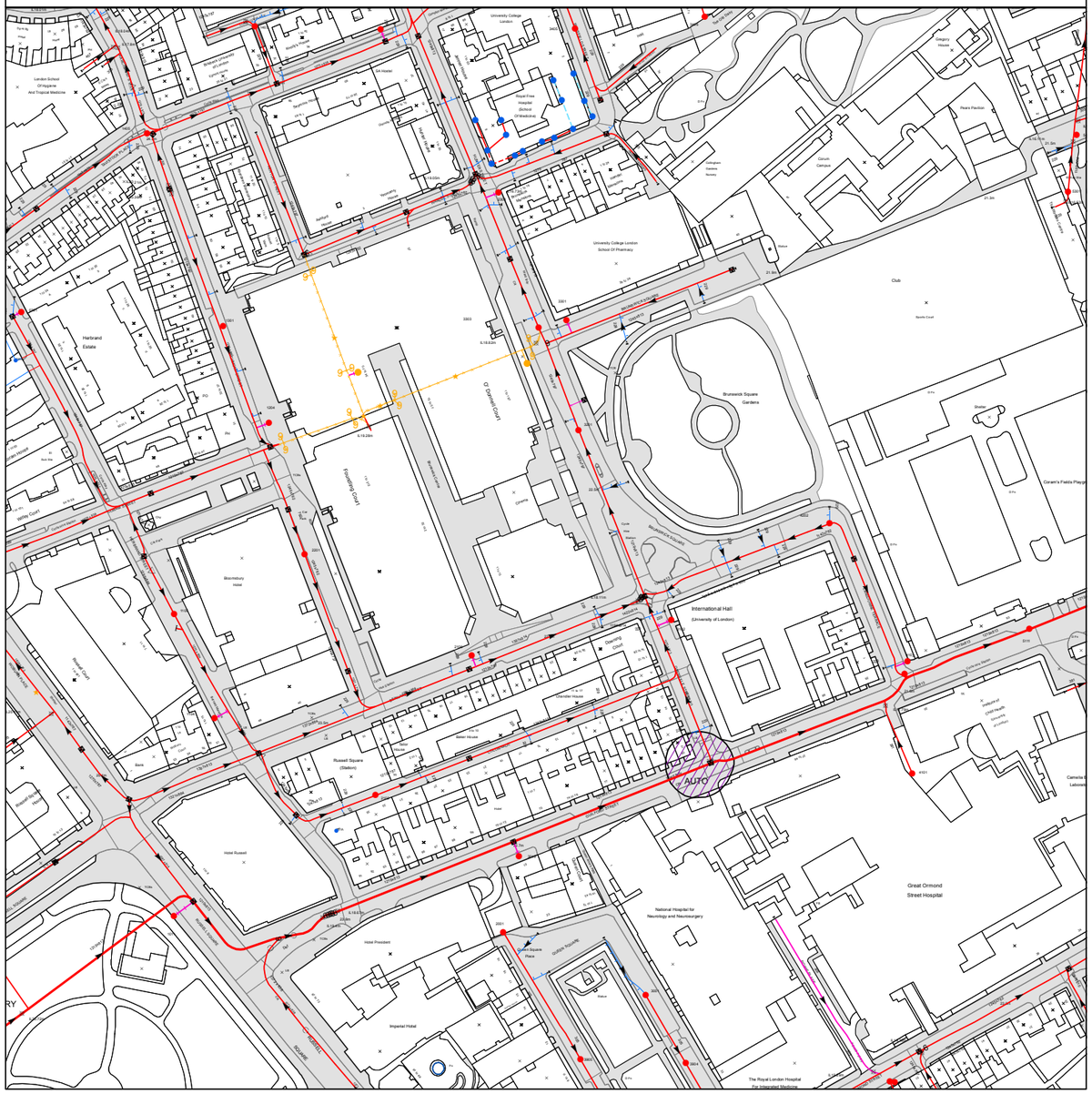
NB. Levels quoted in metres Ordnance Newlyn Datum. The value -9999.00 indicates that no survey information is available

| Manhole Reference | Manhole Cover Level | Manhole Invert Level |
|---|---|---|
| 2106 | n/a | n/a |
| 3102 | n/a | n/a |
| 3201 | n/a | 16.88 |

**The position of the apparatus shown on this plan is given without obligation and warranty, and the accuracy cannot be guaranteed. Service pipes are not shown but their presence should be anticipated. No liability of any kind whatsoever is accepted by Thames Water for any error or omission. The actual position of mains and services must be verified and established on site before any works are undertaken.**

Based on the Ordnance Survey Map with the sanction of the Controller of H.M Stationary Office License Number 10019345

# ALS/ALS/24/2023_4772543




0 10 20 40 60 80 Meters



| | |
|---|---|
| **Scale:** | 1:1791 |
| **Width:** | 500m |
| **Printed By:** | Skrishna1 |
| **Print Date:** | 13/01/2023 |
| **Map Centre:** | 530316,182225 |
| **Grid Reference:** | TQ3082SW |

**Comments:**

# ALS/ALS/24/2023_4772543

NB: Level quoted in metres Ordnance Newlyn Datum. The value -9999.00 indicates no Survey information is available.

| REFERENCE | COVER LEVEL | INVERT LEVEL |
|---|---|---|
| 5401 | 21.34 | |
| 4111 | 21.55 | |
| 4101 | 20.94 | 18.2 |
| 49BE | | |
| 5111 | 20.71 | 17.02 |
| 0301 | | |
| 1405 | | |
| 1204 | | |
| 3905 | 24.35 | 20.49 |
| 2102 | 22.54 | 18.75 |
| 1301 | 23.68 | |
| 2001 | 24.39 | 20.93 |
| 3301 | | |
| 1105 | | |
| 3102 | | |
| 3001 | 24.01 | 20.12 |
| 24DG | | |
| 34CI | | |
| 24DH | | |
| 34DG | | |
| 24DF | | |
| 34DC | | |
| 34DE | | |
| 34DB | | |
| 2303 | | |

| REFERENCE | COVER LEVEL | INVERT LEVEL |
|---|---|---|
| 5301 | | |
| 4103 | | |
| 49BD | | |
| 4202 | 21.97 | 17.91 |
| 3303 | | |
| 3013 | 23.76 | |
| 2106 | | |
| 3405 | 22.37 | 18.19 |
| 3904 | 23.98 | 19.84 |
| 1104 | | |
| 1011 | | |
| 2201 | 23.28 | 19.5 |
| 3406 | 21.09 | 19.56 |
| 2401 | | |
| 3201 | | 16.88 |
| 1403 | 22.33 | 19.94 |
| 34DH | | |
| 34CJ | | |
| 34DF | | |
| 34DA | | |
| 24DE | | |
| 24DD | | |
| 34DI | | |
| 031A | | |
| 201A | | |

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# Asset Location Search - Sewer Key

## Public Sewer Types (Operated and maintained by Thames Water)

**Foul Sewer:** A sewer designed to convey waste water from domestic and industrial sources to a treatment works.

**Surface Water Sewer:** A sewer designed to convey surface water (e.g. rain water from roofs, yards and car parks) to rivers or watercourses.

**Combined Sewer:** A sewer designed to convey both waste water and surface water from domestic and industrial sources to a treatment works.

Storm Sewer

Sludge Sewer

Foul Trunk Sewer

Surface Trunk Sewer

Combined Trunk Sewer

Foul Rising Main

Surface Water Rising Main

Combined Rising Main

Vacuum

Thames Water Proposed

Vent Pipe

Gallery

## Other Sewer Types (Not operated and maintained by Thames Water)

Sewer

Culverted Watercourse

Proposed

Decommissioned Sewer

Content of this drainage network is currently unknown

Ownership of this drainage network is currently unknown

## Sewer Fittings

A feature in a sewer that does not affect the flow in the pipe. Example: a vent is a fitting as the function of a vent is to release excess gas.

Air Valve

Meter

Dam Chase

Vent

Fitting

## Operational Controls

A feature in a sewer that changes or diverts the flow in the sewer. Example: A hydrobrake limits the flow passing downstream.

Ancillary

Drop Pipe

Control Valve

Weir

## End Items

End symbols appear at the start or end of a sewer pipe. Examples: an Undefined End at the start of a sewer indicates that Thames Water has no knowledge of the position of the sewer upstream of that symbol. Outfall on a surface water sewer indicates that the pipe discharges into a stream or river.

Inlet

Outfall

Undefined End

## Other Symbols

Symbols used on maps which do not fall under other general categories.

Change of Characteristic Indicator

Public / Private Pumping Station

Invert Level

Summit

## Areas

Lines denoting areas of underground surveys, etc.

Agreement

Chamber

Operational Site

## Ducts or Crossings

Casement

Ducts may contain high voltage cables. Please check with Thames Water.

Conduit Bridge

Subway

Tunnel

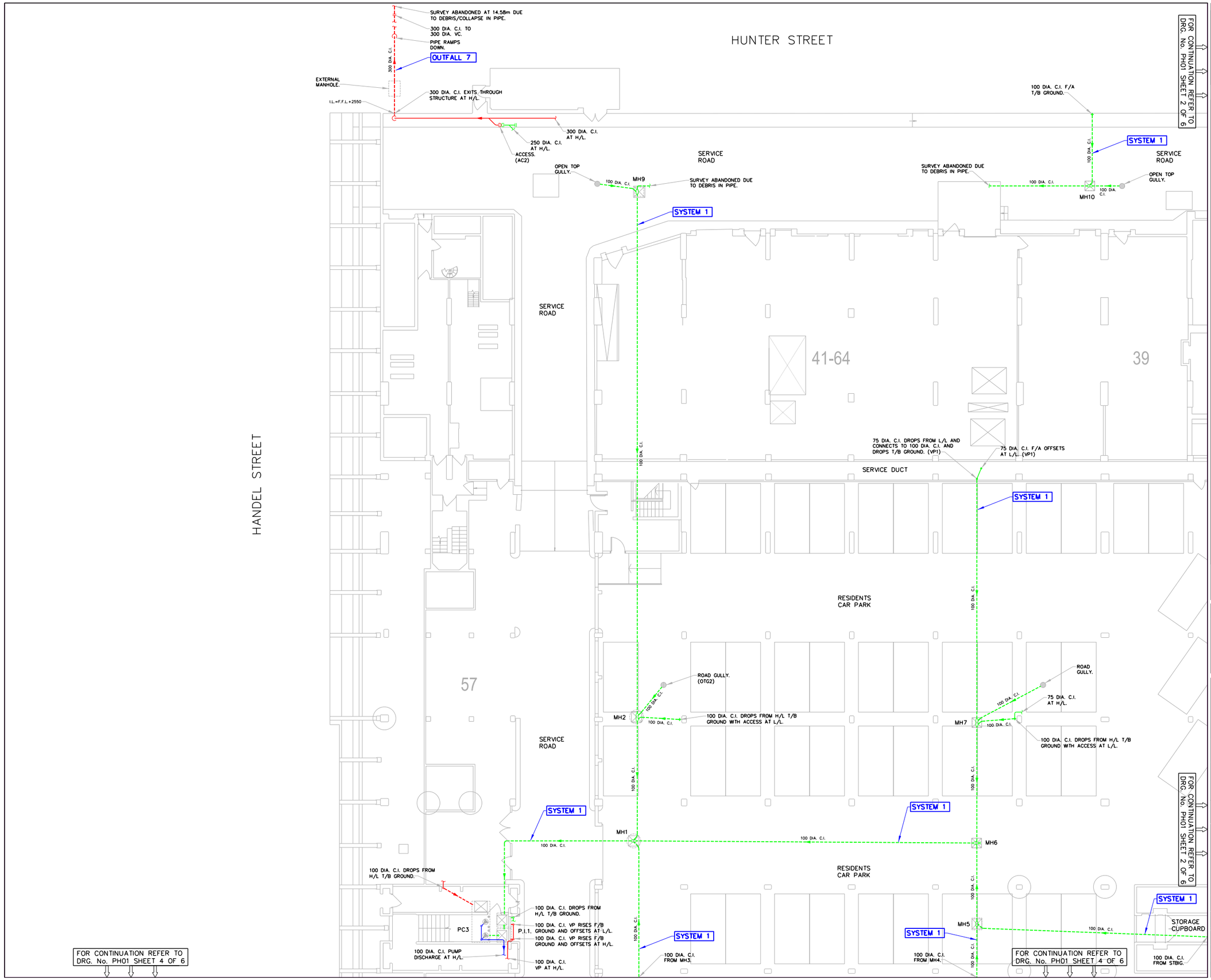
**Notes:**

1) All levels associated with the plans are to Ordnance Datum Newlyn.
2) All measurements on the plan are metric.
3) Arrows (on gravity fed sewers) or flecks (on rising mains) indicate the direction of flow.
4) Most private pipes are not shown on our plans, as in the past, this information has not been recorded.
5) 'na' or '0' on a manhole indicates that data is unavailable.
6) The text appearing alongside a sewer line indicates the internal diameter of the pipe in millimeters. Text next to a manhole indicates the manhole reference number and should not be taken as a measurement.

If you are unsure about any text or symbology, please contact Property Searches on 0800 009 4540.

# Appendix D

## CCTV Drainage Survey Drawing




NOTES:

1. THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH THE SPAFLOW LTD REPORT DATED MARCH 2023.

LEGEND:

- BELOW GROUND (SURFACE WATER)
- BELOW GROUND (FOUL WATER)
- BELOW GROUND (PUMP DISCHARGE)
- ABOVE GROUND (SURFACE WATER)
- ABOVE GROUND (FOUL WATER)
- ABOVE GROUND (PUMP DISCHARGE)

| | | | |
|---|---|---|---|
| FH | FIRE HYDRANT | WVP | WASTE VENT PIPE |
| IV | ISOLATION VALVE | VP | VENT PIPE |
| WMT | WATER METER | SS | STUB STACK |
| GMT | GAS METER | G | GULLY |
| WM | RISING WATER MAIN | RG | ROAD GULLY |
| GM | RISING GAS MAIN | OTG | OPEN TOP GULLY |
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| WHB | WASH HAND BASIN | Cu | COPPER |
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| UR | URINAL | GMS | GALVANISED MILD STEEL |
| DF | DRINKING FOUNTAIN | ABS | ACRYLONITRILE BUTADIENE STYRENE |
| RE | RODDING EYE | BS | BLACK STEEL |
| CE | CLEANING EYE | F.A. | FROM ABOVE |
| RED. | REDUNDANT | T.A. | TO ABOVE |
| H/L | HIGH LEVEL | F.B. | FROM BELOW |
| M/L | MID LEVEL | T.B. | TO BELOW |
| L/L | LOW LEVEL | | |
| WP | WASTE PIPE | | |
| WVP | WASTE VENT PIPE | | |
| RWP | RAINWATER PIPE | | |
| SP | SOIL PIPE | | |
| SVP | SOIL VENT PIPE | | |

| REV. | DATE | DESCRIPTION | BY | APP. |
|---|---|---|---|---|
| | | | | |


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Website: www.spaflow.co.uk

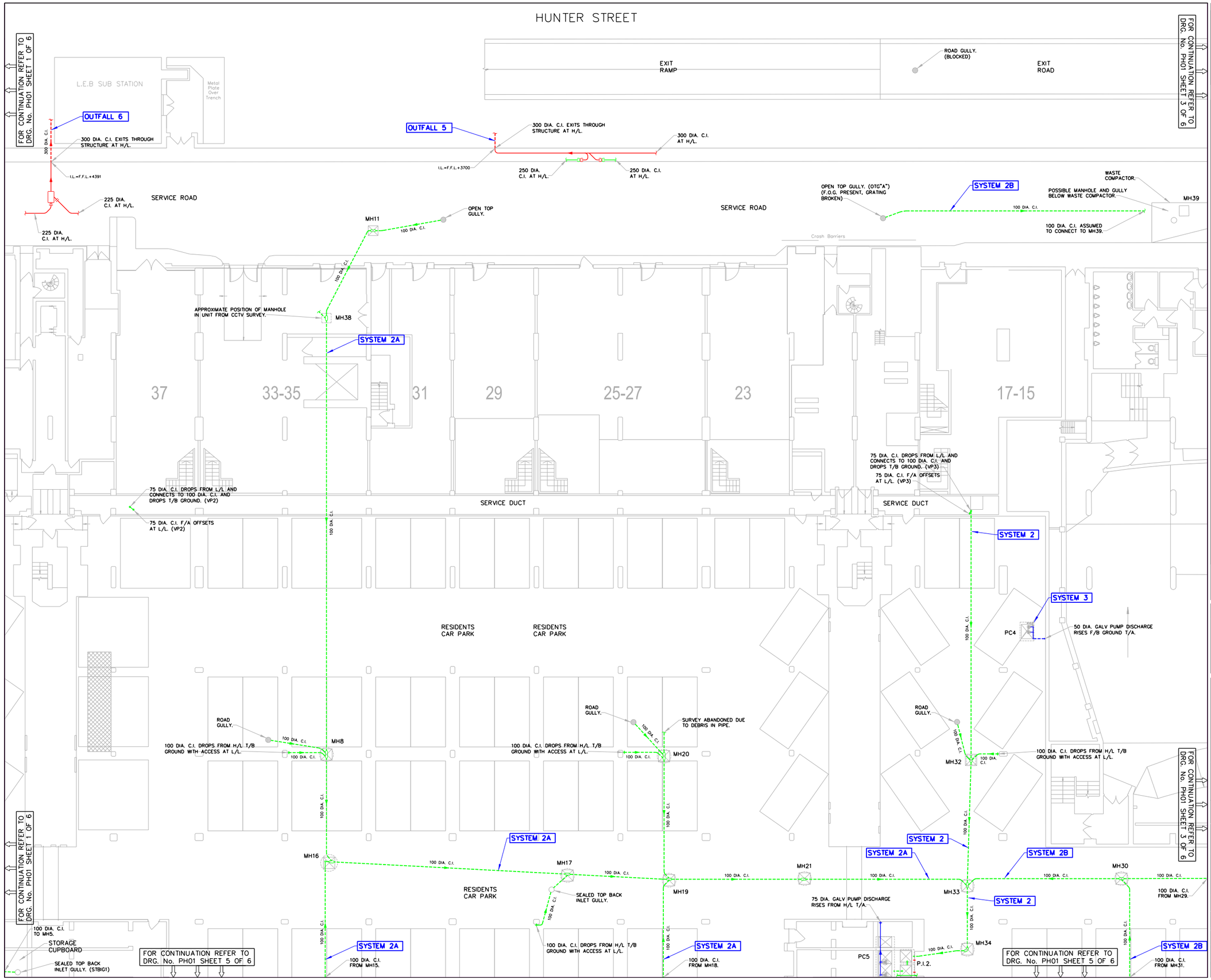



CLIENT:
HEYNE TILLETT STEEL
16 CHART STREET
LONDON
N1 6DD

PROJECT:
BRUNSWICK CENTRE
LONDON

TITLE:
RECORD OF TRACING, MAPPING AND CCTV SURVEY OF DRAINAGE.
LOWER BASEMENT SHEET 1 OF 6

| PROJECT REF: | | REV: |
|---|---|---|
| DRAWN: SWW | DATE: FEB 22 | SCALES: NTS |
| CHECKED: JWH | APPROVED: DWH | |
| CLIENT DRG. No: | CAD Q.A.: | PLOT SIZE: |
| MICROFILM REF: | SHEET: | DRG. No: PH01 |

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| | | | |
|---|---|---|---|
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LOWER BASEMENT SHEET 2 OF 6

| | | |
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| CHECKED: JWH | APPROVED: DWH | |
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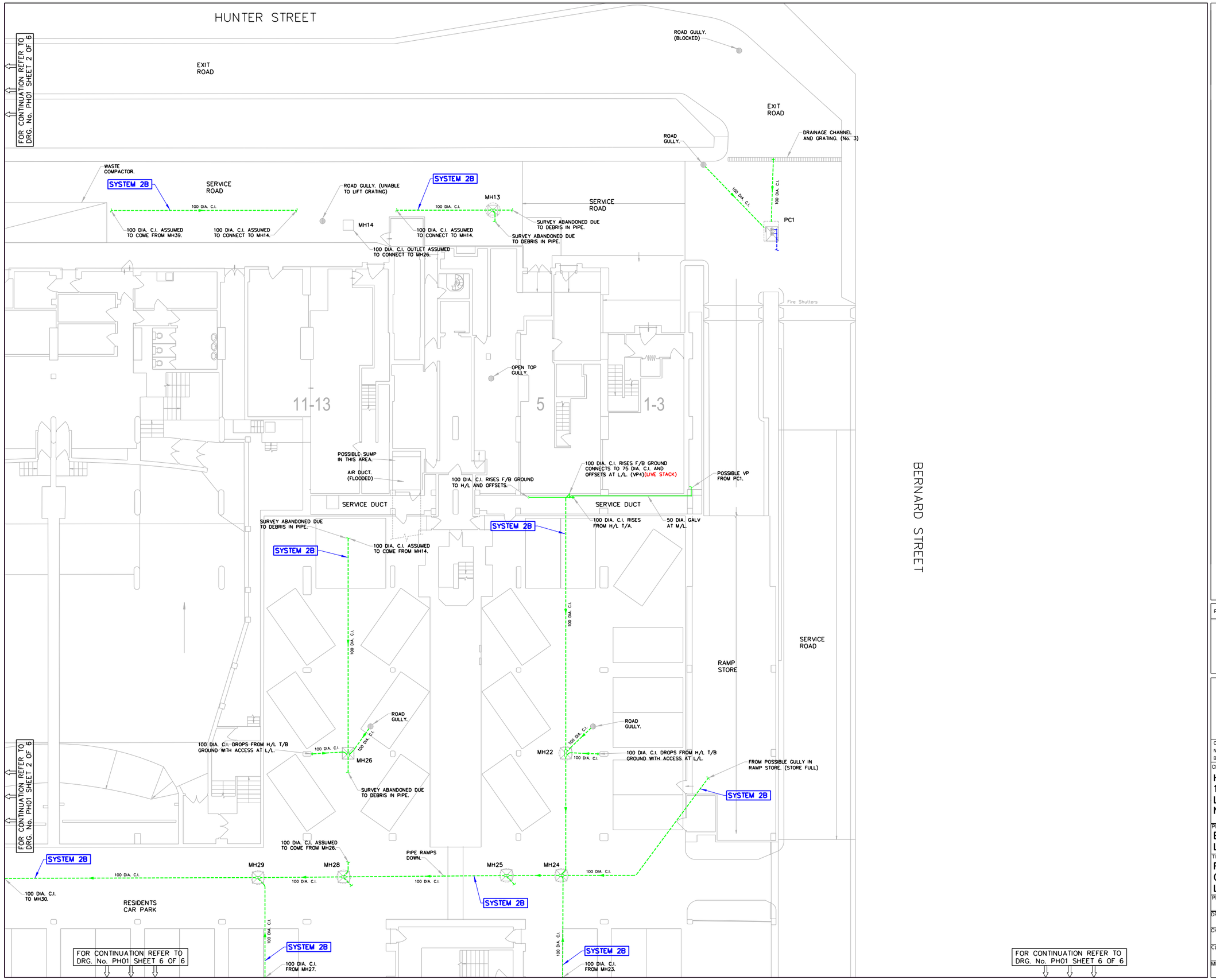


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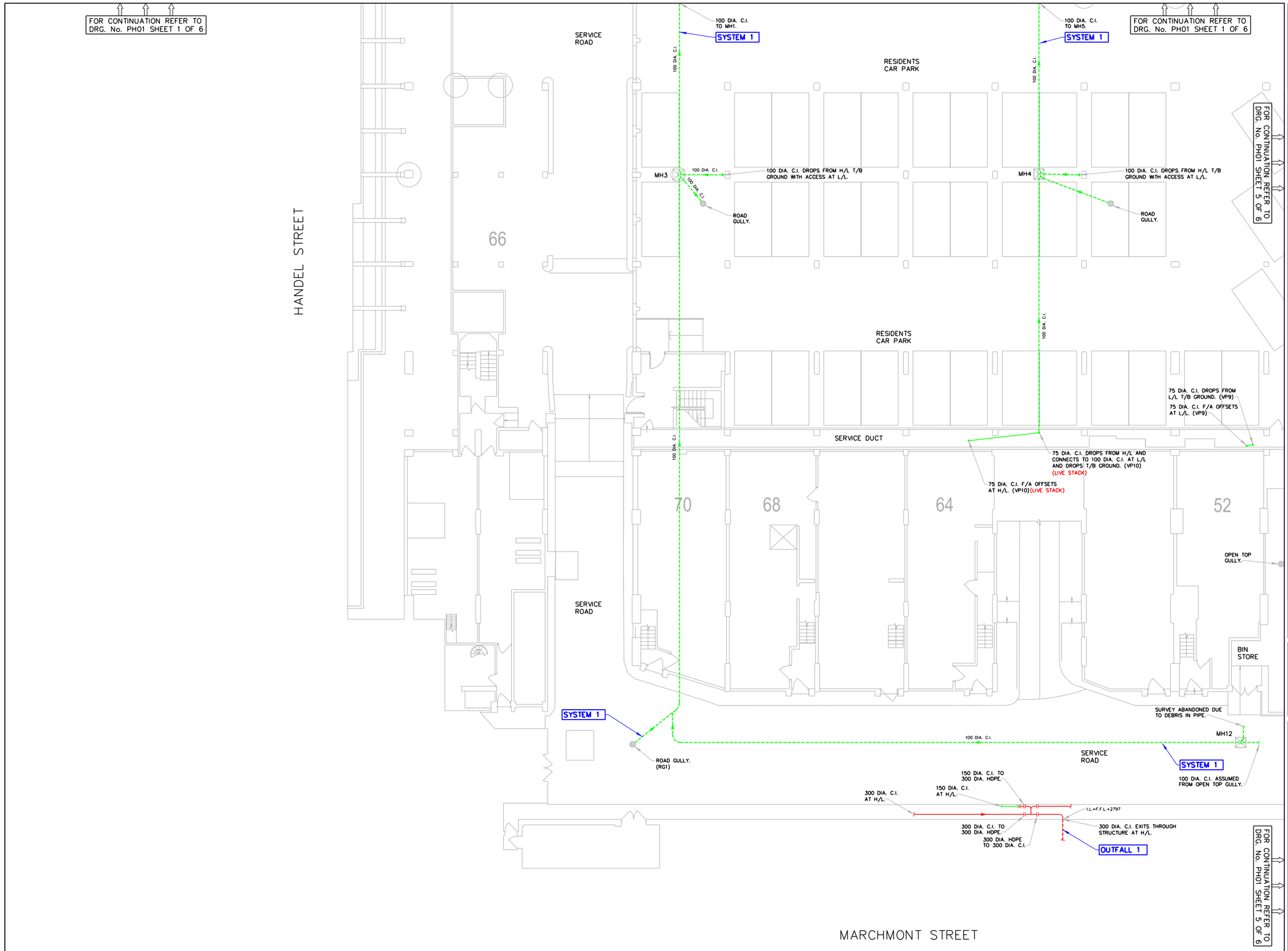


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- BELOW GROUND (PUMP DISCHARGE)
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| | | | |
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Watmough House
The Parade
Meopham
Kent DA13 0JL
Tel: 01474 814 700
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Email: spaflow@aol.com
Website: www.spaflow.co.uk




CLIENT:
HEYNE TILLETT STEEL
16 CHART STREET
LONDON
N1 6DD

PROJECT:
BRUNSWICK CENTRE
LONDON

TITLE:
RECORD OF TRACING, MAPPING AND CCTV SURVEY OF DRAINAGE.
LOWER BASEMENT SHEET 4 OF 6

| PROJECT REF: | | REV: |
|---|---|---|
| DRAWN: SWW | DATE: FEB 22 | SCALES: NTS |
| CHECKED: JWH | APPROVED: DWH | |
| CLIENT DRG. No: | CAD Q.A.: | PLOT SIZE: |
| MICROFILM REF: | SHEET: | DRG. No: PH01 |

FOR CONTINUATION REFER TO DRG. No. PH01 SHEET 2 OF 6

FOR CONTINUATION REFER TO DRG. No. PH01 SHEET 4 OF 6

FOR CONTINUATION REFER TO DRG. No. PH01 SHEET 6 OF 6

100 DIA. C.I. TO MH16.

100 DIA. C.I. TO MH19.

100 DIA. C.I. TO MH30.

SYSTEM 2A

SYSTEM 2B

RESIDENTS CAR PARK

100 DIA. C.I.

100 DIA. C.I. DROPS FROM H/L T/B GROUND WITH ACCESS AT L/L.

MH15

MH18

MH31

ROAD GULLY.

150 DIA. C.I.

SURVEY ABANDONED DUE TO DEBRIS IN PIPE.

20

RESIDENTS CAR PARK

SERVICE DUCT

75 DIA. C.I. F/A DROPS T/B GROUND AND OFFSETS TO RUN ACROSS FLOOR VOID. (VP7)

VOID AREA.

75 TO 100 DIA. C.I..

75 DIA. C.I. F/A DROPS AND CONNECTS TO 100 DIA. C.I. AT L/L AND DROPS T/B GROUND. (VP8)

VENT DUCT

38

28

26-24

20

18

46

22

Lift

225 DIA. C.I. AT H/L.

OPEN TOP GULLY.

300 DIA. C.I. AT H/L.

I.L.=F.F.L.+4471

OUTFALL 2

SERVICE ROAD

100 DIA. C.I. AT H/L.

150 DIA. C.I. AT H/L.

ACCESS CHAMBER. (AC1)

150 TO 225 DIA. C.I.

I.L.=F.F.L.+4472

OUTFALL 3

MH36

100 DIA. C.I. FROM MH35.

MARCHMONT STREET

NOTES:

1. THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH THE SPAFLOW LTD REPORT DATED MARCH 2023.

LEGEND:

- BELOW GROUND (SURFACE WATER)
- BELOW GROUND (FOUL WATER)
- BELOW GROUND (PUMP DISCHARGE)
- ABOVE GROUND (SURFACE WATER)
- ABOVE GROUND (FOUL WATER)
- ABOVE GROUND (PUMP DISCHARGE)

| | | | |
|---|---|---|---|
| FH | FIRE HYDRANT | WVP | WASTE VENT PIPE |
| IV | ISOLATION VALVE | VP | VENT PIPE |
| WMT | WATER METER | SS | STUB STACK |
| GMT | GAS METER | G | GULLY |
| WM | RISING WATER MAIN | RG | ROAD GULLY |
| GM | RISING GAS MAIN | OTG | OPEN TOP GULLY |
| GT | GREASE TRAP | OTBIG | SEALED TOP BACK INLET GULLY |
| CBP | CABLE PIT | STG | SEALED TOP GULLY |
| CP | CATCHPIT | STBIG | SEALED TOP BACK INLET GULLY |
| MH | MANHOLE | C.I. | CAST IRON |
| WHB | WASH HAND BASIN | Cu | COPPER |
| SK | SINK | V.C. | VITRIFIED CLAY |
| CS | CLEANERS SINK | UPVC | UNPLASTICISED POLYVINYL CHLORIDE |
| WC | WATER CLOSET | PF | PITCH FIBRE |
| UR | URINAL | GMS | GALVANISED MILD STEEL |
| DF | DRINKING FOUNTAIN | ABS | ACRYLONITRILE BUTADIENE STYRENE |
| RE | RODDING EYE | BS | BLACK STEEL |
| CE | CLEANING EYE | F.A. | FROM ABOVE |
| RED. | REDUNDANT | T.A. | TO ABOVE |
| H/L | HIGH LEVEL | F.B. | FROM BELOW |
| M/L | MID LEVEL | T.B. | TO BELOW |
| L/L | LOW LEVEL | | |
| WP | WASTE PIPE | | |
| WVP | WASTE VENT PIPE | | |
| RWP | RAINWATER PIPE | | |
| SP | SOIL PIPE | | |
| SVP | SOIL VENT PIPE | | |

| REV. | DATE | DESCRIPTION | BY | APP. |
|---|---|---|---|---|
| | | | | |


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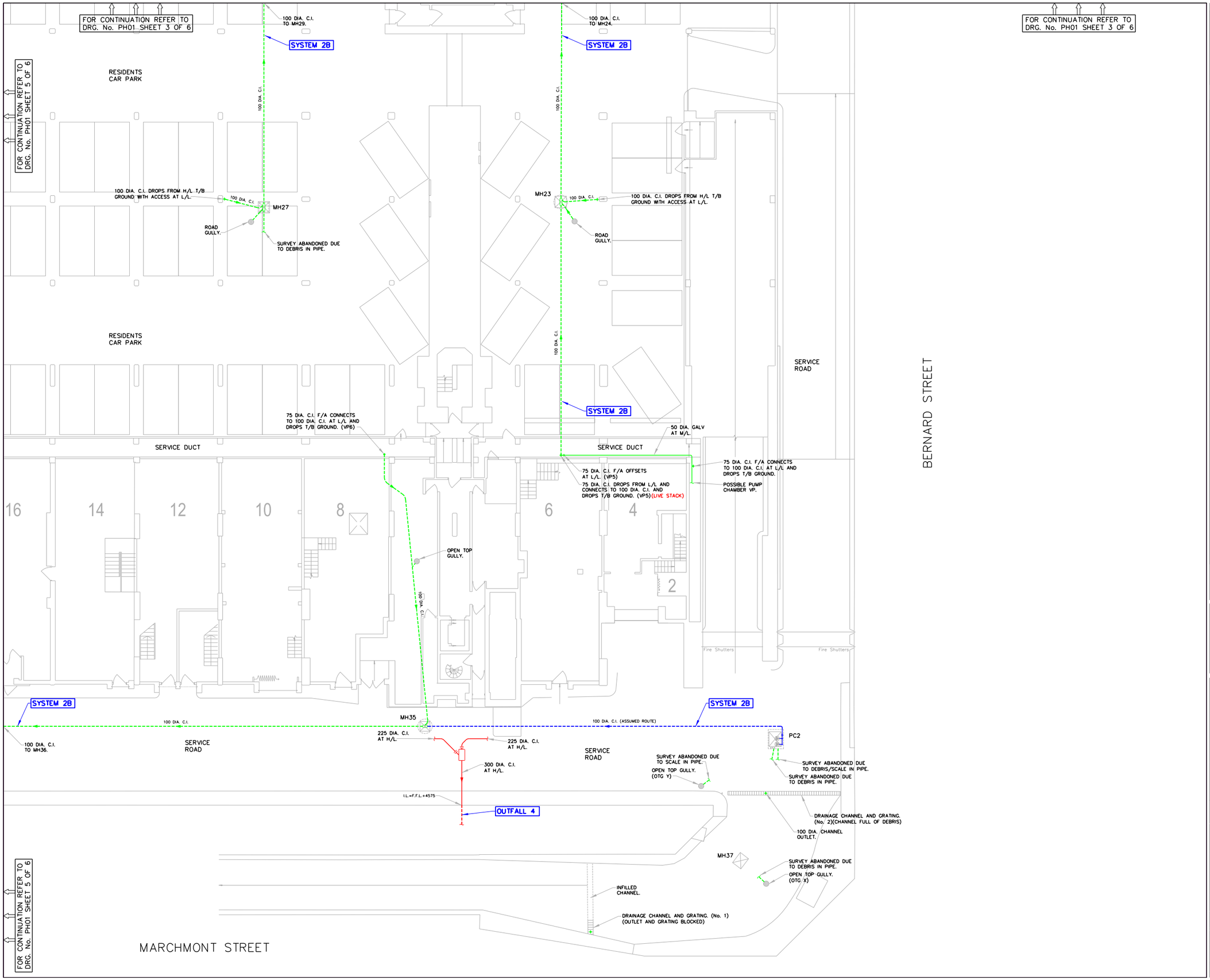
PROJECT:
BRUNSWICK CENTRE
LONDON

TITLE:
RECORD OF TRACING, MAPPING AND CCTV SURVEY OF DRAINAGE.
LOWER BASEMENT SHEET 5 OF 6

| | | |
|---|---|---|
| PROJECT REF: | | REV: |
| DRAWN: SWW | DATE: FEB 22 | SCALES: NTS |
| CHECKED: JWH | APPROVED: DWH | |
| CLIENT DRG. No: | CAD Q.A.: | PLOT SIZE: |
| MICROFILM REF: | SHEET: | DRG. No: PH01 |




NOTES:

1. THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH THE SPAFLOW LTD REPORT DATED MARCH 2023.

LEGEND:

- BELOW GROUND (SURFACE WATER)
- BELOW GROUND (FOUL WATER)
- BELOW GROUND (PUMP DISCHARGE)
- ABOVE GROUND (SURFACE WATER)
- ABOVE GROUND (FOUL WATER)
- ABOVE GROUND (PUMP DISCHARGE)

| | | | |
|---|---|---|---|
| FH | FIRE HYDRANT | WVP | WASTE VENT PIPE |
| IV | ISOLATION VALVE | VP | VENT PIPE |
| WMT | WATER METER | SS | STUB STACK |
| GMT | GAS METER | G | GULLY |
| WM | RISING WATER MAIN | RG | ROAD GULLY |
| GM | RISING GAS MAIN | OTG | OPEN TOP GULLY |
| GT | GREASE TRAP | OTBIG | SEALED TOP BACK INLET GULLY |
| CBP | CABLE PIT | STG | SEALED TOP GULLY |
| CP | CATCHPIT | STBIG | SEALED TOP BACK INLET GULLY |
| MH | MANHOLE | C.I. | CAST IRON |
| WHB | WASH HAND BASIN | Cu | COPPER |
| SK | SINK | V.C. | VITRIFIED CLAY |
| CS | CLEANERS SINK | UPVC | UNPLASTICISED POLYVINYL CHLORIDE |
| WC | WATER CLOSET | PF | PITCH FIBRE |
| UR | URINAL | GMS | GALVANISED MILD STEEL |
| DF | DRINKING FOUNTAIN | ABS | ACRYLONITRILE BUTADIENE STYRENE |
| RE | RODDING EYE | BS | BLACK STEEL |
| CE | CLEANING EYE | F.A. | FROM ABOVE |
| RED. | REDUNDANT | T.A. | TO ABOVE |
| H/L | HIGH LEVEL | F.B. | FROM BELOW |
| M/L | MID LEVEL | T.B. | TO BELOW |
| L/L | LOW LEVEL | | |
| WP | WASTE PIPE | | |
| WVP | WASTE VENT PIPE | | |
| RWP | RAINWATER PIPE | | |
| SP | SOIL PIPE | | |
| SVP | SOIL VENT PIPE | | |

| REV. | DATE | DESCRIPTION | BY | APP. |
|---|---|---|---|---|
| | | | | |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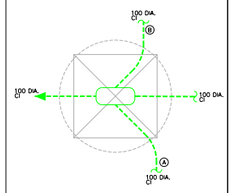
PROJECT:
BRUNSWICK CENTRE
LONDON

TITLE:
RECORD OF TRACING, MAPPING AND CCTV SURVEY OF DRAINAGE.
LOWER BASEMENT SHEET 6 OF 6

| | | |
|---|---|---|
| PROJECT REF: | | REV: |
| DRAWN: SWW | DATE: FEB 22 | SCALES: NTS |
| CHECKED: JWH | APPROVED: DWH | |
| CLIENT DRG. No: | CAD Q.A.: | PLOT SIZE: |
| MICROFILM REF: | SHEET: | DRG. No: PH01 |

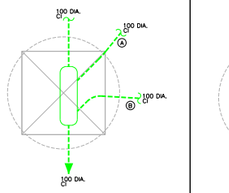
## MH1

| | |
|---|---|
| C/S | 680 x 680 GALV MS INFILL |
| C/O | 605 x 605 |
| CH/S | 915 DIA. |
| INLET | 1715 |
| OUTLET | 1725 |
| CONST | CONCRETE RING |
| COND | REASONABLE |
| SEAL | SINGLE |
| NOTES | 8 No. STUDS, NUTS AND WASHERS REQUIRED NEW GASKET REQUIRED. NEW PLATE REQUIRED. |



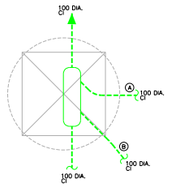

## MH2

| | |
|---|---|
| C/S | 680 x 680 GALV MS INFILL |
| C/O | 605 x 605 |
| CH/S | 915 DIA. |
| INLET | 1600 TO DEBRIS |
| OUTLET | 1630 TO DEBRIS |
| CONST | CONCRETE RING |
| COND | REASONABLE |
| SEAL | SINGLE |
| NOTES | 8 No. STUDS, NUTS AND WASHERS REQUIRED NEW GASKET REQUIRED. NEW PLATE REQUIRED. |



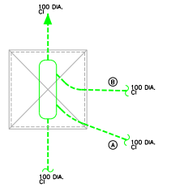

## MH3

| | |
|---|---|
| C/S | 680 x 680 GALV MS INFILL |
| C/O | 605 x 605 |
| CH/S | 915 DIA. |
| INLET | 1560 TO DEBRIS |
| OUTLET | 1570 TO DEBRIS |
| CONST | CONCRETE RING |
| COND | REASONABLE |
| SEAL | SINGLE |
| NOTES | 8 No. STUDS, NUTS AND WASHERS REQUIRED NEW GASKET REQUIRED. DEBRIS IN CHAMBER. COVER AND FRAME SLOPING. |



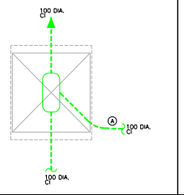

## MH4

| | |
|---|---|
| C/S | 645 x 635 C.I. INFILL |
| C/O | 595 x 595 |
| CH/S | 610 x 600 |
| INLET | 715 TO DEBRIS |
| OUTLET | 715 TO DEBRIS |
| CONST | CONCRETE |
| COND | REASONABLE |
| SEAL | SINGLE |
| NOTES | 8 No. STUDS, NUTS AND WASHERS REQUIRED NEW GASKET REQUIRED. NEW PLATE REQUIRED. |



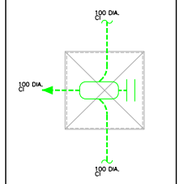

## MH5

| | |
|---|---|
| C/S | 645 x 635 C.I. INFILL |
| C/O | 595 x 595 |
| CH/S | 770 x 660 |
| INLET | 960 TO DEBRIS |
| OUTLET | 975 TO DEBRIS |
| CONST | CONCRETE |
| COND | REASONABLE |
| SEAL | SINGLE |
| NOTES | 6 No. STUDS, NUTS AND WASHERS REQUIRED NEW GASKET REQUIRED. NEW PLATE REQUIRED. DEBRIS IN CHAMBER. |



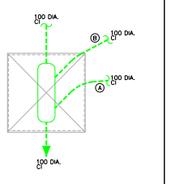

## MH6

| | |
|---|---|
| C/S | 645 x 635 C.I. INFILL |
| C/O | 595 x 595 |
| CH/S | 620 x 620 |
| INLET | 1020 |
| OUTLET | 1030 |
| CONST | CONCRETE |
| COND | REASONABLE |
| SEAL | SINGLE |
| NOTES | 4 No. STUDS, NUTS AND WASHERS REQUIRED NEW GASKET REQUIRED. |



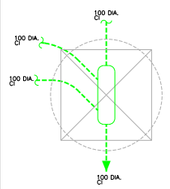
## MH7

| | |
|---|---|
| C/S | 645 x 635 C.I. INFILL |
| C/O | 595 x 595 |
| CH/S | 620 x 620 |
| INLET | 890 TO DEBRIS |
| OUTLET | 895 TO DEBRIS |
| CONST | CONCRETE |
| COND | REASONABLE |
| SEAL | SINGLE |
| NOTES | 8 No. STUDS, NUTS AND WASHERS REQUIRED NEW GASKET REQUIRED. |



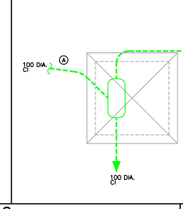

## MH8

| | |
|---|---|
| C/S | 740 x 740 GALV MS INFILL |
| C/O | 610 x 610 |
| CH/S | 910 DIA. |
| INLET | 1290 |
| OUTLET | 1300 |
| CONST | CONCRETE RING |
| COND | REASONABLE |
| SEAL | SINGLE |
| NOTES | 8 No. STUDS, NUTS AND WASHERS REQUIRED NEW GASKET REQUIRED. DEBRIS/OIL IN CHAMBER. |



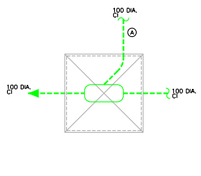
## MH9

| | |
|---|---|
| C/S | 740 x 740 C.I. INFILL |
| C/O | 600 x 600 |
| CH/S | 600 x 600 |
| INLET | 750 TO DEBRIS |
| OUTLET | 750 |
| CONST | CONCRETE |
| COND | REASONABLE |
| SEAL | SINGLE |
| NOTES | 6 No. STUDS, NUTS AND WASHERS REQUIRED. NEW GASKET REQUIRED. NEW PLATE REQUIRED. |



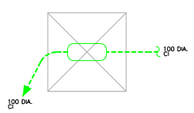

## MH10

| | |
|---|---|
| C/S | 740 x 740 C.I. INFILL |
| C/O | 590 x 590 |
| CH/S | 610 x 610 |
| INLET | 480 |
| OUTLET | 490 |
| CONST | CONCRETE |
| COND | REASONABLE |
| SEAL | SINGLE |
| NOTES | 6 No. STUDS, NUTS AND WASHERS REQUIRED. NEW GASKET REQUIRED. NEW PLATE REQUIRED. |



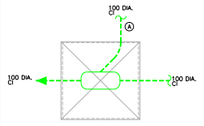

## MH11

| | |
|---|---|
| C/S | 645 x 645 C.I. INFILL |
| C/O | 605 x 605 |
| CH/S | 645 x 645 |
| INLET | 380 TO DEBRIS |
| OUTLET | 380 TO DEBRIS |
| CONST | CONCRETE |
| COND | REASONABLE |
| SEAL | SINGLE |
| NOTES | 4 No. STUDS, NUTS AND WASHERS REQUIRED. NEW GASKET REQUIRED. NEW PLATE REQUIRED. DEBRIS IN CHAMBER. |



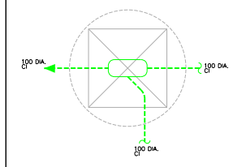
## MH12

| | |
|---|---|
| C/S | 645 x 635 C.I. INFILL |
| C/O | 590 x 590 |
| CH/S | 620 x 620 |
| INLET | 350 TO DEBRIS |
| OUTLET | 350 TO DEBRIS |
| CONST | CONCRETE |
| COND | REASONABLE |
| SEAL | SINGLE |
| NOTES | 6 No. STUDS, NUTS AND WASHERS REQUIRED NEW GASKET REQUIRED. NEW PLATE REQUIRED. |




## MH13

| | |
|---|---|
| C/S | 640 x 640 C.I. INFILL |
| C/O | 600 DIA. |
| CH/S | 950 DIA. |
| INLET | 350 TO DEBRIS |
| OUTLET | 350 TO DEBRIS |
| CONST | CONCRETE RING |
| COND | UNKNOWN |
| SEAL | SINGLE |
| NOTES | CHAMBER SURCHARGED/FLOODED. |

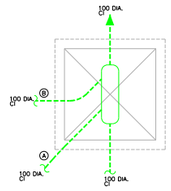


## MH14

| | |
|---|---|
| C/S | " |
| C/O | " |
| CH/S | " |
| INLET | " |
| OUTLET | " |
| CONST | " |
| COND | " |
| SEAL | " |
| NOTES | UNABLE TO LIFT COVER. |

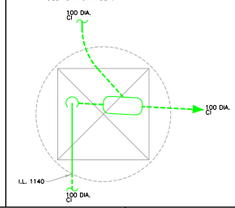
## MH15

| | |
|---|---|
| C/S | 745 x 745 GALV MS INFILL |
| C/O | 610 x 610 |
| CH/S | 900 x 900 |
| INLET | 735 |
| OUTLET | 750 |
| CONST | CONCRETE |
| COND | REASONABLE |
| SEAL | SINGLE |
| NOTES | 8 No. STUDS, NUTS AND WASHERS REQUIRED NEW GASKET REQUIRED. NEW PLATE REQUIRED. DEBRIS IN CHAMBER. |



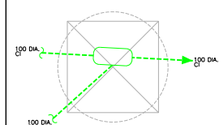

## MH16

| | |
|---|---|
| C/S | 745 x 745 GALV MS INFILL |
| C/O | 610 x 610 |
| CH/S | 1100 DIA. |
| INLET | 1660 TO DEBRIS |
| OUTLET | 1700 TO DEBRIS |
| CONST | CONCRETE RING |
| COND | REASONABLE |
| SEAL | SINGLE |
| NOTES | 6 No. STUDS, NUTS AND WASHERS REQUIRED NEW GASKET REQUIRED. NEW PLATE REQUIRED. DEBRIS IN CHAMBER. |



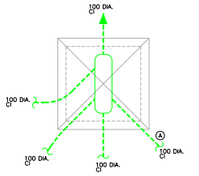

## MH17

| | |
|---|---|
| C/S | 745 x 745 GALV MS INFILL |
| C/O | 610 x 610 |
| CH/S | 900 DIA. |
| INLET | 1705 TO DEBRIS |
| OUTLET | 1725 TO DEBRIS |
| CONST | CONCRETE RING |
| COND | REASONABLE |
| SEAL | SINGLE |
| NOTES | 6 No. STUDS, NUTS AND WASHERS REQUIRED NEW GASKET REQUIRED. NEW PLATE REQUIRED. DEBRIS IN CHAMBER. |



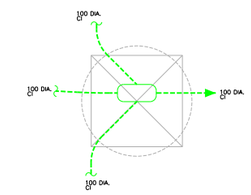
## MH18

| | |
|---|---|
| C/S | 745 x 745 GALV MS INFILL |
| C/O | 610 x 610 |
| CH/S | 610 x 610 |
| INLET | 670 TO DEBRIS |
| OUTLET | 700 TO DEBRIS |
| CONST | CONCRETE |
| COND | REASONABLE |
| SEAL | SINGLE |
| NOTES | - |



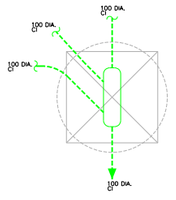

## MH19

| | |
|---|---|
| C/S | 745 x 745 GALV MS INFILL |
| C/O | 610 x 610 |
| CH/S | 900 DIA. |
| INLET | 2190 TO DEBRIS |
| OUTLET | 2200 TO DEBRIS |
| CONST | CONCRETE RING |
| COND | REASONABLE |
| SEAL | SINGLE |
| NOTES | 6 No. STUDS, NUTS AND WASHERS REQUIRED NEW GASKET REQUIRED. NEW PLATE REQUIRED. DEBRIS IN CHAMBER. |



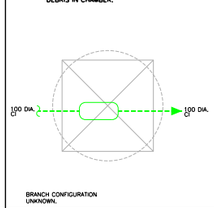
## MH20

| | |
|---|---|
| C/S | 745 x 745 GALV MS INFILL |
| C/O | 610 x 610 |
| CH/S | 900 DIA. |
| INLET | 1160 |
| OUTLET | 1200 |
| CONST | CONCRETE RING |
| COND | REASONABLE |
| SEAL | SINGLE |
| NOTES | 8 No. STUDS, NUTS AND WASHERS REQUIRED. NEW GASKET REQUIRED. NEW PLATE REQUIRED. |



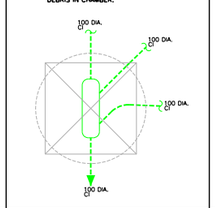
## MH21

| | |
|---|---|
| C/S | 745 x 745 GALV MS INFILL |
| C/O | 610 x 610 |
| CH/S | 900 DIA. |
| INLET | 2280 TO DEBRIS |
| OUTLET | 2290 TO DEBRIS |
| CONST | CONCRETE RING |
| COND | REASONABLE |
| SEAL | SINGLE |
| NOTES | 8 No. STUDS, NUTS AND WASHERS REQUIRED. NEW GASKET REQUIRED. NEW PLATE REQUIRED. DEBRIS IN CHAMBER. |



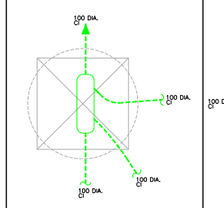

## MH22

| | |
|---|---|
| C/S | 745 x 745 GALV MS INFILL |
| C/O | 610 x 610 |
| CH/S | 900 DIA. |
| INLET | 695 |
| OUTLET | 720 |
| CONST | CONCRETE RING |
| COND | REASONABLE |
| SEAL | SINGLE |
| NOTES | 8 No. STUDS, NUTS AND WASHERS REQUIRED. NEW GASKET REQUIRED. NEW PLATE REQUIRED. DEBRIS IN CHAMBER. |



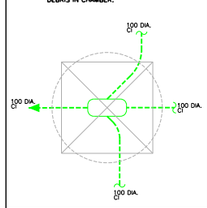
## MH23

| | |
|---|---|
| C/S | 745 x 745 GALV MS INFILL |
| C/O | 610 x 610 |
| CH/S | 900 DIA. |
| INLET | 720 |
| OUTLET | 730 |
| CONST | CONCRETE RING |
| COND | REASONABLE |
| SEAL | SINGLE |
| NOTES | 8 No. STUDS, NUTS AND WASHERS REQUIRED. NEW GASKET REQUIRED. DEBRIS IN CHAMBER. |



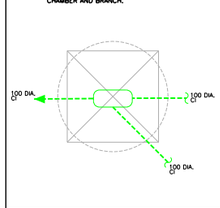
## MH24

| | |
|---|---|
| C/S | 745 x 745 GALV MS INFILL |
| C/O | 610 x 610 |
| CH/S | 900 DIA. |
| INLET | 1480 |
| OUTLET | 1500 |
| CONST | CONCRETE RING |
| COND | REASONABLE |
| SEAL | SINGLE |
| NOTES | 6 No. STUDS, NUTS AND WASHERS REQUIRED. NEW GASKET REQUIRED. NEW PLATE REQUIRED. DEBRIS IN CHAMBER. |



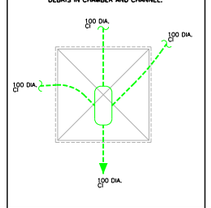
## MH25

| | |
|---|---|
| C/S | 745 x 745 GALV MS INFILL |
| C/O | 610 x 610 |
| CH/S | 900 DIA. |
| INLET | 1530 |
| OUTLET | 1540 |
| CONST | CONCRETE RING |
| COND | REASONABLE |
| SEAL | SINGLE |
| NOTES | 4 No. STUDS, NUTS AND WASHERS REQUIRED. NEW GASKET REQUIRED. DEBRIS/GREASE IN CHAMBER AND BRANCH. |



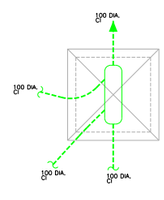
## MH26

| | |
|---|---|
| C/S | 745 x 745 GALV MS INFILL |
| C/O | 610 x 610 |
| CH/S | 780 x 780 |
| INLET | 1900 TO DEBRIS |
| OUTLET | 1900 TO DEBRIS |
| CONST | CONCRETE |
| COND | REASONABLE |
| SEAL | SINGLE |
| NOTES | 6 No. STUDS, NUTS AND WASHERS REQUIRED. NEW GASKET REQUIRED. NEW PLATE REQUIRED. DEBRIS IN CHAMBER AND CHANNEL. |



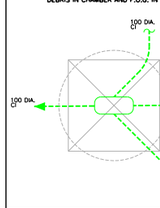
## MH27

| | |
|---|---|
| C/S | 745 x 745 GALV MS INFILL |
| C/O | 610 x 610 |
| CH/S | 610 x 610 |
| INLET | 590 TO DEBRIS |
| OUTLET | 590 TO DEBRIS |
| CONST | BRICK |
| COND | REASONABLE |
| SEAL | SINGLE |
| NOTES | 8 No. STUDS, NUTS AND WASHERS REQUIRED. NEW GASKET REQUIRED. NEW PLATE REQUIRED. |



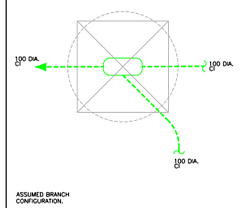
## MH28

| | |
|---|---|
| C/S | 745 x 745 GALV MS INFILL |
| C/O | 610 x 610 |
| CH/S | 900 DIA. |
| INLET | 1935 |
| OUTLET | 1940 |
| CONST | CONCRETE RING |
| COND | REASONABLE |
| SEAL | SINGLE |
| NOTES | 6 No. STUDS, NUTS AND WASHERS REQUIRED. NEW GASKET REQUIRED. NEW PLATE REQUIRED. DEBRIS IN CHAMBER AND F.O.G. IN CHANNEL. |



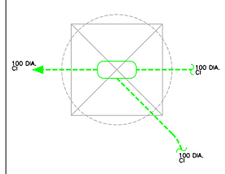
## MH29

| | |
|---|---|
| C/S | 745 x 745 GALV MS INFILL |
| C/O | 610 x 610 |
| CH/S | - |
| INLET | - |
| OUTLET | - |
| CONST | - |
| COND | - |
| SEAL | - |
| NOTES | UNABLE TO LIFT COVER WITHOUT DAMAGE DUE TO TEMPORARY INFILL TO COVER. |



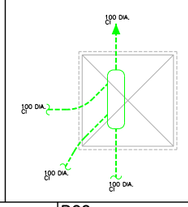

## MH30

| | |
|---|---|
| C/S | 745 x 745 GALV MS INFILL |
| C/O | 610 x 610 |
| CH/S | 900 DIA. |
| INLET | 2280 |
| OUTLET | 2280 TO DEBRIS |
| CONST | CONCRETE RING |
| COND | REASONABLE |
| SEAL | SINGLE |
| NOTES | 8 No. STUDS, NUTS AND WASHERS REQUIRED. NEW GASKET REQUIRED. NEW PLATE REQUIRED. DEBRIS IN CHANNEL AND CHAMBER. |



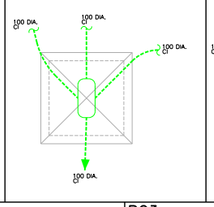
## MH31

| | |
|---|---|
| C/S | 745 x 745 GALV MS INFILL |
| C/O | 610 x 610 |
| CH/S | 800 x 800 |
| INLET | 1780 |
| OUTLET | 1790 |
| CONST | CONCRETE |
| COND | REASONABLE |
| SEAL | SINGLE |
| NOTES | 8 No. STUDS, NUTS AND WASHERS REQUIRED. NEW GASKET REQUIRED. NEW PLATE REQUIRED. |



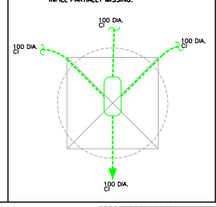
## MH32

| | |
|---|---|
| C/S | 745 x 745 GALV MS INFILL |
| C/O | 610 x 610 |
| CH/S | 610 x 610 |
| INLET | 690 |
| OUTLET | 720 |
| CONST | CONCRETE |
| COND | REASONABLE |
| SEAL | SINGLE |
| NOTES | 6 No. STUDS, NUTS AND WASHERS REQUIRED. NEW GASKET REQUIRED. NEW PLATE REQUIRED. DEBRIS IN CHAMBER. |



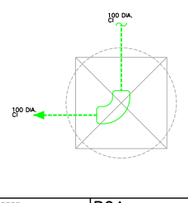
## MH33

| | |
|---|---|
| C/S | 745 x 745 GALV MS INFILL |
| C/O | 610 x 610 |
| CH/S | 900 DIA. |
| INLET | 2355 TO DEBRIS |
| OUTLET | 2355 TO DEBRIS |
| CONST | CONCRETE RING |
| COND | REASONABLE |
| SEAL | SINGLE |
| NOTES | 6 No. STUDS, NUTS AND WASHERS REQUIRED. NEW GASKET REQUIRED. NEW PLATE REQUIRED. DEBRIS IN CHANNEL AND CHAMBER. COVER INFILL PARTIALLY MISSING. |



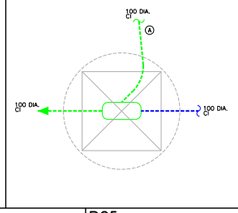
## MH34

| | |
|---|---|
| C/S | 745 x 745 GALV MS INFILL |
| C/O | 610 x 610 |
| CH/S | 900 DIA. |
| INLET | 2360 |
| OUTLET | 2365 |
| CONST | CONCRETE RING |
| COND | REASONABLE |
| SEAL | SINGLE |
| NOTES | 8 No. STUDS, NUTS AND WASHERS REQUIRED. NEW GASKET REQUIRED. NEW PLATE REQUIRED. DEBRIS IN CHANNEL AND CHAMBER. |



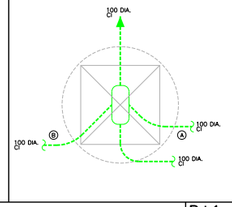
## MH35

| | |
|---|---|
| C/S | 645 x 645 C.I. INFILL |
| C/O | 600 x 600 |
| CH/S | 950 DIA. |
| INLET | 1035 |
| OUTLET | 1050 |
| CONST | CONCRETE RING |
| COND | REASONABLE |
| SEAL | SINGLE |
| NOTES | 6 No. STUDS, NUTS AND WASHERS REQUIRED NEW GASKET REQUIRED. NEW PLATE REQUIRED. |



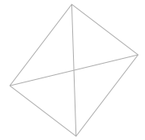

## MH36

| | |
|---|---|
| C/S | 645 x 645 C.I. INFILL |
| C/O | 600 x 600 |
| CH/S | 950 DIA. |
| INLET | 1300 TO DEBRIS |
| OUTLET | 1300 TO DEBRIS |
| CONST | CONCRETE RING |
| COND | REASONABLE |
| SEAL | SINGLE |
| NOTES | 6 No. STUDS, NUTS AND WASHERS REQUIRED NEW GASKET REQUIRED. NEW PLATE REQUIRED. |



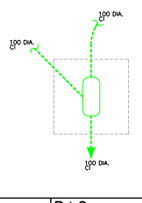

## MH37

| | |
|---|---|
| C/S | 835 x 680 C.I. INFILL |
| C/O | - |
| CH/S | - |
| INLET | - |
| OUTLET | - |
| CONST | - |
| COND | - |
| SEAL | - |
| NOTES | UNABLE TO LIFT COVER WITHOUT DAMAGE. |



## MH38

| | |
|---|---|
| C/S | - |
| C/O | - |
| CH/S | - |
| INLET | - |
| OUTLET | - |
| CONST | - |
| COND | - |
| SEAL | - |
| NOTES | NO ACCESS TO MANHOLE. |

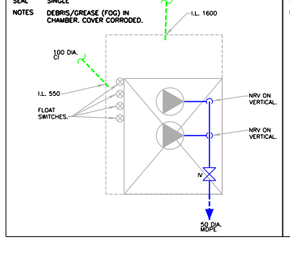


## MH39

| | |
|---|---|
| C/S | - |
| C/O | - |
| CH/S | - |
| INLET | - |
| OUTLET | - |
| CONST | - |
| COND | - |
| SEAL | - |
| NOTES | NO ACCESS TO MANHOLE, BELOW WASTE COMPACTOR. |

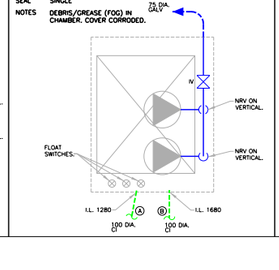
## PC1

| | |
|---|---|
| C/S | 945 x 800 MS CHQ PLATE |
| C/O | 890 x 700 |
| CH/S | 1300 x 950 |
| DEPTH | 2170 |
| SILT | 150mm |
| CONST | CONCRETE SECTION |
| COND | REASONABLE |
| SEAL | SINGLE |
| NOTES | DEBRIS/GREASE (FOG) IN CHAMBER. COVER CORRODED. |



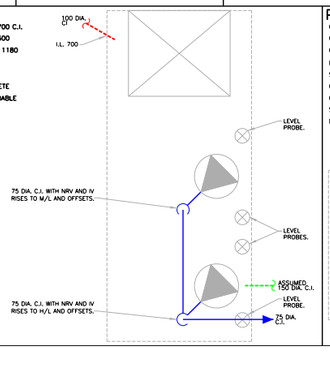

## PC2

| | |
|---|---|
| C/S | 960 x 800 MS CHQ PLATE |
| C/O | 865 x 700 |
| CH/S | 1265 x 1000 |
| DEPTH | 2150 |
| SILT | 200mm |
| CONST | CONCRETE |
| COND | REASONABLE |
| SEAL | SINGLE |
| NOTES | DEBRIS/GREASE (FOG) IN CHAMBER. COVER CORRODED. |




## PC3

| | |
|---|---|
| C/S | 830 x 700 C.I. |
| C/O | 760 x 600 |
| CH/S | 2700 x 1180 |
| DEPTH | 3430 |
| SILT | - |
| CONST | CONCRETE |
| COND | REASONABLE |
| SEAL | SINGLE |
| NOTES | - |




## PC4

| | |
|---|---|
| C/S | 935 x 750 MS CHQ PLATE |
| C/O | 875 x 700 |
| CH/S | 1220 x 910 |
| DEPTH | 5420 |
| SILT | - |
| CONST | CONCRETE |
| COND | REASONABLE |
| SEAL | SINGLE |
| NOTES | PUMPS TURNED OFF. |




## PC5

| | |
|---|---|
| C/S | 830 x 700 C.I. |
| C/O | 760 x 600 |
| CH/S | APPROX. 3000 x 1200 |
| DEPTH | 3130 |
| SILT | 60mm APPROX. |
| CONST | CONCRETE |
| COND | REASONABLE |
| SEAL | SINGLE |
| NOTES | - |




## P.I.1.

| | |
|---|---|
| C/S | 650 x 650 C.I. (x2) |
| C/O | 605 x 605 (x2) |
| CONST | CONCRETE |
| COND | REASONABLE |
| SEAL | SINGLE |
| NOTES | - |




## P.I.2.

| | |
|---|---|
| C/S | 735 x 735 GALV MS INFILL (x2) |
| C/O | 610 x 610 (x2) |
| CONST | CONCRETE |
| COND | REASONABLE |
| SEAL | SINGLE |
| NOTES | DEBRIS/GREASE IN CHAMBER. |




NOTES:

1. THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH THE SPAFLOW LTD REPORT DATED MARCH 2023.

LEGEND:

- BELOW GROUND (SURFACE WATER)
- BELOW GROUND (FOUL WATER)
- BELOW GROUND (PUMP DISCHARGE)
- ABOVE GROUND (SURFACE WATER)
- ABOVE GROUND (FOUL WATER)
- ABOVE GROUND (PUMP DISCHARGE)

| | |
|---|---|
| FH | FIRE HYDRANT |
| IV | ISOLATION VALVE |
| WMT | WATER METER |
| GMT | GAS METER |
| WM | RISING WATER MAIN |
| GM | RISING GAS MAIN |
| GT | GREASE TRAP |
| CBP | CABLE PIT |
| CP | CATCHPIT |
| MH | MANHOLE |
| WHB | WASH HAND BASIN |
| SK | SINK |
| CS | CLEANERS SINK |
| WC | WATER CLOSET |
| UR | URINAL |
| DF | DRINKING FOUNTAIN |
| RE | RODDING EYE |
| CE | CLEANING EYE |
| RED. | REDUNDANT |
| H/L | HIGH LEVEL |
| M/L | MID LEVEL |
| L/L | LOW LEVEL |
| WP | WASTE PIPE |
| WVP | WASTE VENT PIPE |
| RWP | RAINWATER PIPE |
| SP | SOIL PIPE |
| SVP | SOIL VENT PIPE |
| WVP | WASTE VENT PIPE |
| VP | VENT PIPE |
| SS | STUB STACK |
| G | GULLY |
| RG | ROAD GULLY |
| OTG | OPEN TOP GULLY |
| OTBIG | SEALED TOP BACK INLET GULLY |
| STG | SEALED TOP GULLY |
| STBIG | SEALED TOP BACK INLET GULLY |
| C.I. | CAST IRON |
| Cu | COPPER |
| V.C. | VITRIFIED CLAY |
| UPVC | UNPLASTICISED POLYVINYL CHLORIDE |
| PF | PITCH FIBRE |
| GMS | GALVANISED MILD STEEL |
| ABS | ACRYLONITRILE BUTADIENE STYRENE |
| BS | BLACK STEEL |
| F.A. | FROM ABOVE |
| T.A. | TO ABOVE |
| F.B. | FROM BELOW |
| T.B. | TO BELOW |

| REV. | DATE | DESCRIPTION | BY | APP. |
|---|---|---|---|---|
| | | | | |


SPAFLOW

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CLIENT:
HEYNE TILLETT STEEL
16 CHART STREET
LONDON
N1 6DD

PROJECT:
BRUNSWICK CENTRE
LONDON

TITLE:
RECORD OF TRACING, MAPPING AND CCTV SURVEY OF DRAINAGE.
MANHOLE SCHEDULE

| | | |
|---|---|---|
| PROJECT REF: | | REV: |
| DRAWN: SWW | DATE: FEB 22 | SCALES: NTS |
| CHECKED: JWH | APPROVED: DWH | |
| CLIENT DRG. No: | CAD Q.A.: | PLOT SIZE: |
| MICROFILM REF: | SHEET: | DRG. No: PH02 |

# Appendix E

## Thames Water Pre-Planning Enquiry

**Ms Jessie Britnell Craven – Heyne Tillett Steel**
**16 Chart Street**
**LONDON**
**N1 6DD**

Wastewater pre-planning
Our ref DS6104937

31 May 2023

## Pre-planning enquiry: Confirmation of sufficient capacity (foul water)

**Site address:** **Brunswick Centre Hub, Brunswick Square, London WC1N 1BS**

Dear Ms Britnell Craven,

Thank you for providing information on your development of a 207-room hotel on basement car park site with proposed foul water discharge pumped at 16.7 l/s (total, peak) to the Marchmont Street and Hunter Street combined water sewers.

We have completed the assessment of the foul water flows based on the information submitted in your application with the purpose of identifying sewerage capacity within the existing Thames Water sewer network.

### Foul Water

If your proposals progress in line with the details you've provided, we're pleased to confirm that there will be sufficient sewerage capacity in the nearby foul water sewer network to serve your development.

This confirmation is valid for 12 months or for the life of any planning approval that this information is used to support, up to a maximum of three years.

You'll need to keep us informed of any changes to your design – for example, an increase in the number/density of units. Such changes could mean that there is no longer sufficient capacity.

### Surface Water

In accordance with the Building Act 2000 Clause H3.3, positive connection of surface water to a public sewer will only be consented when it can be demonstrated that the hierarchy of disposal methods have been examined and proven to be impracticable.

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

### What happens next?

Please make sure to submit your sewer connection application, giving us at least 21 days' notice of the date you wish to make your new connection(s).





If you have any queries, please give me a call on 07747 644 979 (9am to 5pm, Monday to Friday) or email developer.services@thameswater.co.uk.

Yours sincerely,

**Nicholas Short** BSc (Hons)
*Connection Delivery Engineer*
Waste Connections Thames Valley & Home Counties
**Service Delivery**



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# Appendix F

## Drainage Inspection and Maintenance Strategy

Job Number: 2911
Name: Brunswick Centre
Date: 28/06/2023

# Drainage Inspection and Maintenance Strategy

This document has been prepared to support the inspection and maintenance of the proposed below ground drainage for the subterranean hotel at the lower ground floor level at the Brunswick Centre. The drainage network comprises of foul water drainage systems:

- Foul water network from below ground basement level will be pumped to high-level and routed towards the existing outfalls.

The following Drainage measures are proposed within the development:

- **General Drainage:**

| Maintenance Period | Maintenance Task | Frequency |
|---|---|---|
| Regular maintenance | Inspect and identify areas that are not operating correctly. If required, take remedial action. | Monthly |
| | Inspect surface structures and covers removing obstructions and silt as necessary. | Monthly or as required |
| | Check there is no physical damage. | |
| | Remove overgrown vegetation 1m min. around structures and keep hard aprons free from silt and debris. | |
| Occasional Maintenance | Remove sediment from pre-treatment structures (e.g. gullies, channels silt traps). | Six-monthly or as required |
| | Remove cover and inspect inside, ensuring water is flowing freely and that the exit route for water is unobstructed. | Annually or as required |
| | Remove debris and silt. | |
| | Undertake inspection after leaf fall in autumn. | |
| 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 or after large storms. |

- **Inlets, Outlets and Inspection Chambers:**

| Maintenance Period | Maintenance Task | Frequency |
|---|---|---|
| Regular Maintenance | Inspect surface structures and covers removing obstructions and silt as necessary. | Monthly or as required |
| | Check there is no physical damage. Remove overgrown vegetation 1m min. around structures and keep hard aprons free from silt and debris. | |
| | Remove cover and inspect inside, 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 off baskets and chambers to avoid mower damage. | As necessary |
| Remedial Work | Unpack stone in basket features and unblock or repair and repack stone as design detail as necessary. | As required |
| | Repair physical damage is necessary. | |

- **Storage Tank:**

| Maintenance Period | Maintenance Task | Frequency |
|---|---|---|
| Regular maintenance | Inspect and identify any areas that are not operating correctly. If required, take remedial action. | Monthly for three months, then every six months. |
| Remedial Actions | Repair/rehabilitation of inlets, outlets, overflows and vents. | As required |
| Monitoring | Inspect/check all inlets, outlets, vents and overflows to ensure that they are in good condition and operating as designed. | Annually or after large storms. |

- **Pump Installations:**

| Maintenance Period | Maintenance Task | Frequency |
|---|---|---|
| Regular Maintenance | Visual inspection of the unit. Rise and inspection of the pump. Seal chamber oil check. Level control equipment cleaned and tested. Inspection and test of Control Panel functionality. Motor Insulation tested and recorded. | Annually or as agreed with manufacturer to maintain efficient and reliable system in operation |
| Remedial Action | Repair / rehabilitation of inlets, outlets, vents and other components. | As required or stated by manufacturer |

# Appendix G

## Water Reuse Feasibility Study

# SDS Water Reuse Feasibility Survey Report

**Brunswick Centre – Premier Inn Hub**

**PSH Consulting – David Jenkins**

Further to the site visit carried out on Thursday 20th April 2023 at the Brunswick Centre, SDS have compiled the following report on the feasibility of Water Reuse systems for the proposed Premier Inn Hub development at the site, in particular Rainwater and Greywater Harvesting systems.

## Rainwater Harvesting

When walking the service road of the centre, it became clear that the rain/surface water collection was wide ranging and appeared to gather various point of collection together into more centralised pipework which then ran to the discharge points for site. It was also apparent that the surface water outlet is a combined outlet with the foul water also. The systems combine shortly being the discharge points from site.

For a RWH system to be utilised within the new hotel development, the existing rainwater collection would require an interception to be made prior to the combining with the foul water and for the rainwater to be diverted to a collection tank within the allocated plant area for the development. It would need to be established as to whether this could be done via gravity, with also a pumped overflow from the RWH tank to send water back to the existing drainage discharge point in times of peak flow.

Ultimately it was established that RWH was not the optimal solution for this site, due to the nature of the collection as mentioned above. With the lack of any existing drainage layouts, and with the pipework seen within the service road, it is almost impossible to be sure of what exactly is going to be collected into the system. It would be more than likely that any water collected would consist of roof runoff, public area/hardstanding runoff and car park/highway runoff. This would mean it would be extremely difficult to ensure sufficient filtration was provided within any RWH plant and also make it difficult to ensure a consistent water quality supply to non-potable usage within the hotel development. It should also be noted that any such RWH system would be reliant on a sufficient cleaning and ongoing maintenance of the existing surface water network which would directly link the operation of the hotel to the wider centre.

## Greywater Harvesting

For greywater harvesting, obviously there is not anything currently on site for the hotel development to survey. Therefore, we would look at designing a system from scratch in order to collect greywater from the shower runoff from the new hotel rooms and to supply back non-potable water to flush the WCs within the rooms.

In terms of impact on the current centre, a greywater system would require some plant space withing the new development space, and the overflow would require a connection to the foul water drainage. However aside from this the system would be fully encompassed within the hotel section of the development and therefore not reliant on any of the wider centre for operation and maintenance.

See below some indicative design calculations for a system to serve the proposed hotel development.

## Greywater Indictive Design

### Yield

| | |
|---|---|
| Indicative Occupancy | - 200 Bed Hotel @ ~80% Single person/room occupancy = 160 |
| Total WCs | - 200 |
| Showers | - 200 |

*BS8525 provides guidance for the sizing of systems in a residential setting and is thus not appropriate for this proposal, the following assumptions have therefore been used.*

| | |
|---|---|
| Ave No of showers per day | - 1.5 |
| Ave shower flowrate | - 9 lpm |
| Ave shower duration | - 5 mins(45l per shower) |
| Yield from Showers | **- 12,000l** |

**Total yield = 10,800 litres per day**

### Demand

| | |
|---|---|
| No of WC usages per day | - 9 flushes x 160 rooms (9 Flushes based on Hotel Data) |
| Average WC flush volume | - 4.5 litres (Assumed Dual Flush WC's) |
| WC Demand | **- 6,480l** |

**Total WC demand: 6,480 litres per day**

### Indicative Greywater Plant

Based on the above indicative design, a Greywater system for the 200-bed hotel development would consist of…

- 6.5m3 GRP Greywater Collection Tank (Collecting from ~150 Rooms) – 2.5m x 2.5m x 2.0m High
- SDS DU1 Greywater Treatment Plant – 1.8m x 1.5m x 1.7m High
- 3.25m3 GRP Treated Water Tank with Mains water top up – 1.5m x 1.5m x 2.0m High
- Suitable Booster Pump set to supply water to WC's – 1.2m x 1.2m x 2.0m High

### Ongoing Operation and Maintenance

As mentioned before, a greywater system would be fully contained within the hotel development, therefore only the overflow/drain connections would link the system to the wider centre building. This means that maintenance can be carried out by the hotel on the system. A simple maintenance contract with biannual visits would be suitable for a system of this size. SDS would be able to provide this service, should a system be installed.


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**Conclusion**

In summary, both types of water reuse system would in principle be feasible for the proposed hotel development. However, the rainwater harvesting system has an unknown in the sense of water quality due to the lack of existing drainage information and knowledge of how the rainwater is collected from various parts of the building. Also, the system would rely on the cleaning, operation, and maintenance of the collection mechanism of the wider building which could directly impact the non-potable water quality within the hotel. A greywater system appears to be both the most feasible and optimal solution for the proposed development. There is a good balance between yield and demand which means that the majority of WC flushing can be provided from the greywater system. There is also the scope to design the system and plant space required within the design of the project.

Therefore our recommendation would be to explore the design of a greywater system within the hotel development in order to meet the requirements of planning.


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