2673 – 52 Avenue Road Planning Note

Date 11/06/2024
Rev P2
Job no. 2673
Prepared by NT
Approved by KW

Issue	Date	Reason for Issue	Author
P1	26/03/2024	For information	N Tourliadou
P2	11/06/2024	For information	N Tourliadou

Contents

Introduction

This report has been compiled by Heyne Tillett Steel, in conjunction with the design team, to discharge of planning condition 9 regarding the drainage strategy to the proposed development at 52 Avenue Road (planning ref. 2022/1863/P).

Planning condition 9 states:

"Prior to below ground works, full details of the following should be submitted to the Local Planning Authority and approved in writing:

a. The proposed measures to mitigate flood risk and cope with potential flooding including a suitable positive pump device to protect against sewer flooding.

b. Exceedance flow modelling, that models curb heights and site specific considerations. Lightwells should be shown on the drawing and any raised threshold around the lightwells to prevent water ingress.

The development shall thereafter be completed in full accordance with the approved details and mitigation measures.''

Each part of the planning condition will be addressed through this report, with additional information provided in appendices as required.

Changes to the Drainage Proposals

There are no significant changes to the drainage proposals since the planning application was submitted. The following change has occurred.

Permeable paving build up in the road located in the south of the site has been removed and replaced with a below ground attenuation tank system.

The proposed road levels slope from west to east. The proposed outfall for the road drainage is located in the west side of the site. When we modelled the permeable paving to the proposed levels in the road on Infodrainage software, the permeable paving would not work due to not being able to utilise the full depth of storage available. When working through the modelling of the system we were having to add a tank in to provide the storage volume required to meet the discharge rates (flow rate from the site 4.1l/s). Through this we determined that the most optimal design was to remove the permeable paving and just provide the storage within a tank. This is what is shown on the drawing and updated Infodrainage modelling outputs included on Appendix B.

The proposed attenuation tanks will have a total attenuation volume of 36m3 and will replace 27m3 of the permeable paving attenuation storage that was approved as part of the planning application. The updated SuDS Proforma is included on Appendix E. The proposed discharge rate from this area is 0.6l/s and the flow rate from the site will remain 4.1l/s as per the submitted scheme.

Condition 9

In order to discharge condition 9, the following information is provided.

To address point a), as can been seen in Appendix C, the proposed basement level for the development is protected against sewer flooding through the use of a pumped system. As can be seen on the Proposed Basement Drainage drawings individual foul water pumps are provided for each unit. The pumps utilise a dual pump system to offset the risk of mechanical failure and they have 24-hour emergency storage provided in order to mitigate the risk of power failure.

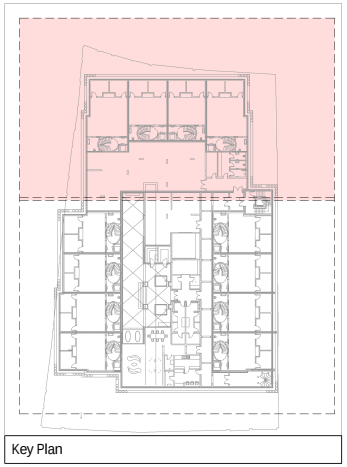
Ground floor level and above are located above the road level the TW public sewer is located under and they are proposed to discharge via a high-level gravity drainage system. Therefore, these areas are not considered to be at risk.

To address point b), as can been seen in Appendix D, the exceedance flows plan shows that the proposed development is safe from flooding.

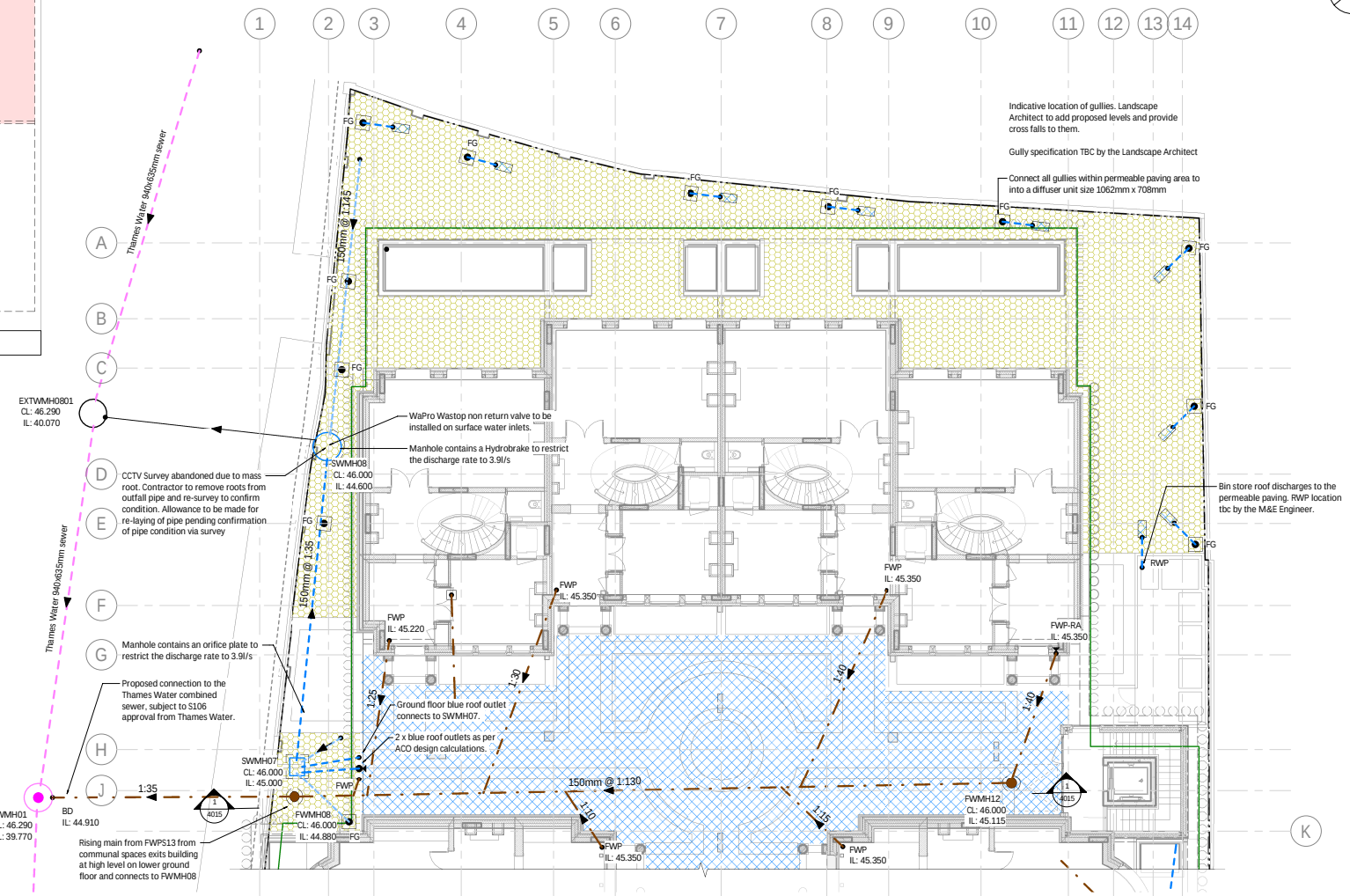
Conclusion

Each element of Condition 9 has been addressed through this report and its appendices.

Appendix A-Approved Road Below Ground Drainage Strategy



Key Plan



For continuation refer to 2673-HTS-ZZ-B1-DR-C-4012

100mm @ A1 (50mm @ A3)

1 This drawing is to be read in conjunction with all relevant architects, engineers and specialists drawings and specifications.

2 Do not scale from this drawing in either paper or digital form. Use written dimensions only. To check drawing has been printed to the intended scale the above bar should be 100mm

3 For ground floor drainage general notes refer to drg. no. 2673-HTS-ZZ-00-DR-C-4010

Drainage Key

- Proposed SW drain run
- Proposed SW Perforated drain run
- Proposed CW drain run
- Proposed FW drain run
- Existing Public Sewer
- RWP — Proposed / Existing Rain Water Pipe
- FWP — Proposed / Existing Foul Waste Point
- CD — Proposed / Existing Cavity Drain Point
- RWP-RA / FWP-RA — Rain Water / Foul Water pipe with above ground rodding access
- FG — Proposed / Existing Gulley
- RE — Proposed / Existing Rodding Eye
- Proposed SW Manhole
- Proposed FW Manhole
- Proposed CW Manhole
- Proposed Public Sewer Manhole
- Existing Public Sewer Manhole
- Permeable Paving
- Ground Floor Level Blue Roof
- Diffuser unit with inlet and pipe
- Site Boundary
- Basement Extent

Rev	Date	By	Eng	Amendment
T1	21.06.23	KD	NT	Stage 4 issue
P2	28.04.23	LS	NT	Draft Stage 4 issue
P1	01.03.23	CDU	NT	Stage 3 issue

HEYNE TILLETT STEEL

STRUCTURAL & CIVIL ENGINEERS

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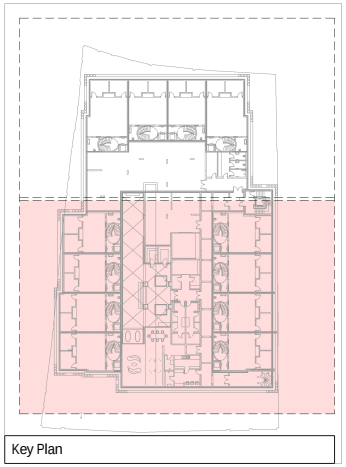
Job Name
52-54 Avenue Road
NW8 6HP

Drawing Title
Proposed Ground Floor Drainage Sheet 1

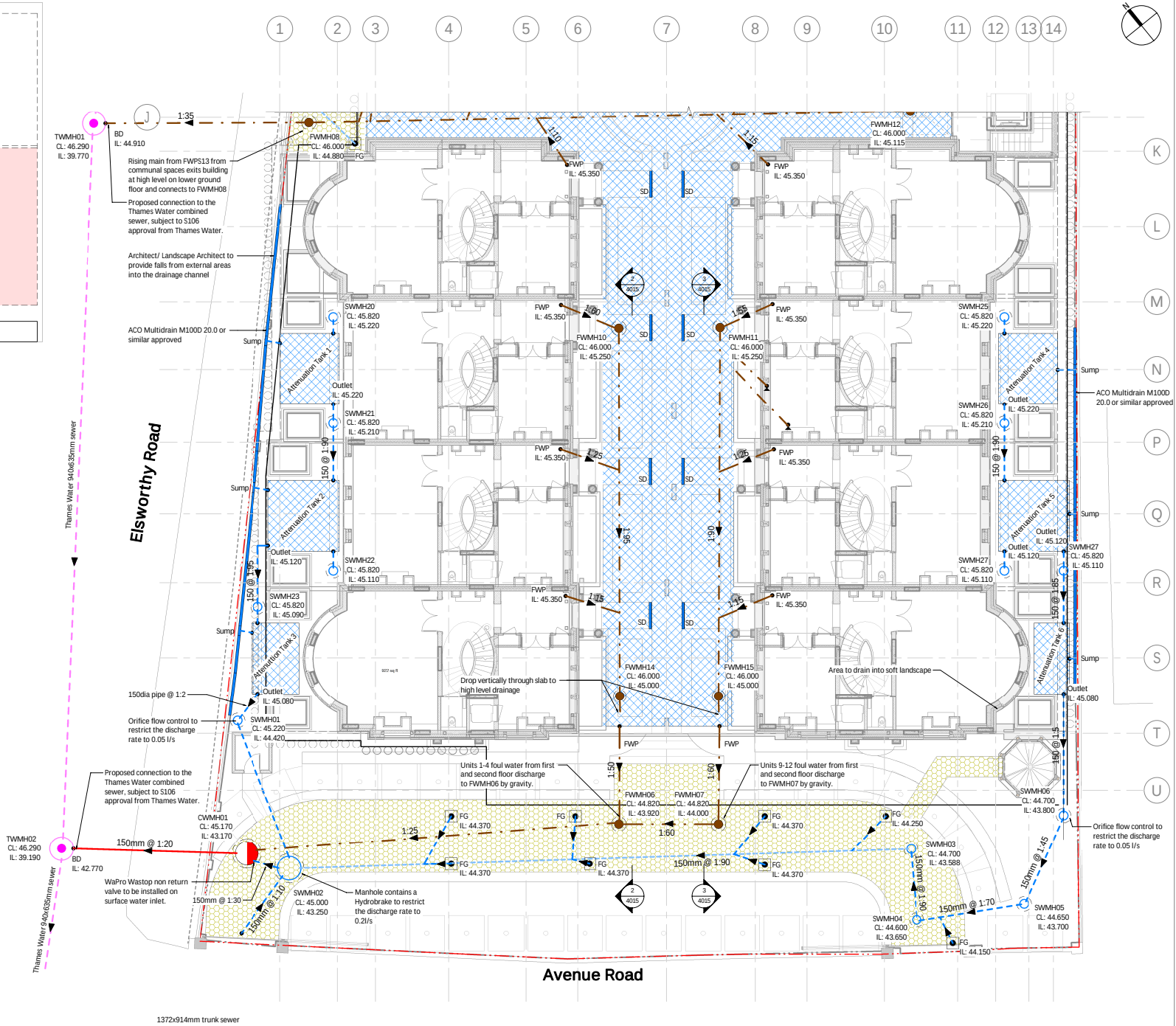
Purpose of Issue Tender | Scale at A1 As indicated

Drg No 2673-HTS-ZZ-00-DR-C-4011

HTS Job No 2673 | Suitability | Rev T1



Key Plan



100mm @ A1 (50mm @ A3)

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3 For ground floor drainage general notes refer to drg. no. 2673-HTS-ZZ-00-DR-C-4010

Drainage Key

- Proposed SW drain run
- Proposed SW Perforated drain run
- Proposed CW drain run
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- RWP — Proposed / Existing Rain Water Pipe
- FWP — Proposed / Existing Foul Waste Point
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- FG — Proposed / Existing Gulley
- RE — Proposed / Existing Rodding Eye
- Proposed SW Manhole
- Proposed FW Manhole
- Proposed CW Manhole
- Proposed Public Sewer Manhole
- Existing Public Sewer Manhole
- Permeable Paving
- Ground Floor Level Blue Roof
- Diffuser unit with inlet and pipe
- Site Boundary
- Basement Extent

Rev	Date	By	Eng	Amendment
T1	21.06.23	KD	NT	Stage 4 issue
P2	28.04.23	LS	NT	Draft Stage 4 issue
P1	01.03.23	CDU	NT	Stage 3 issue

HEYNE TILLETT STEEL

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Job Name
52-54 Avenue Road
NW8 6HP

Drawing Title
Proposed Ground Floor Drainage Sheet 2

Purpose of Issue Tender

Scale at A1 As indicated

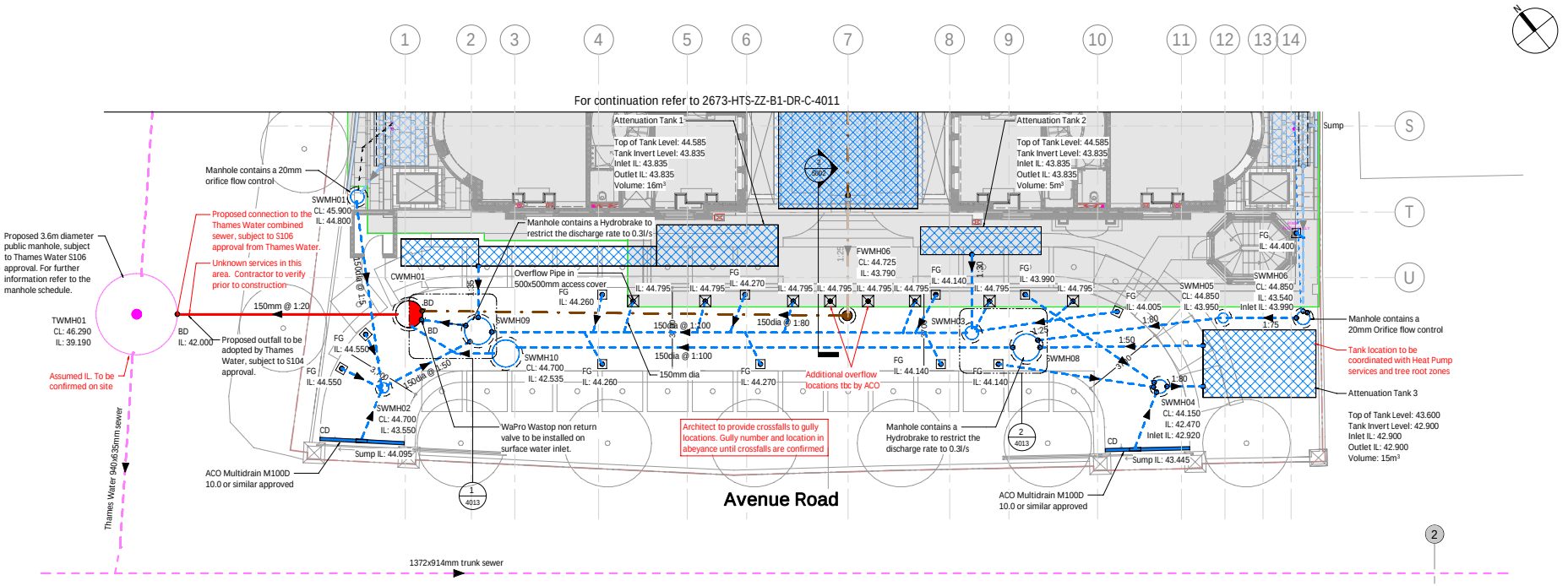
Drg No 2673-HTS-ZZ-00-DR-C-4012

HTS Job No 2673

Suitability

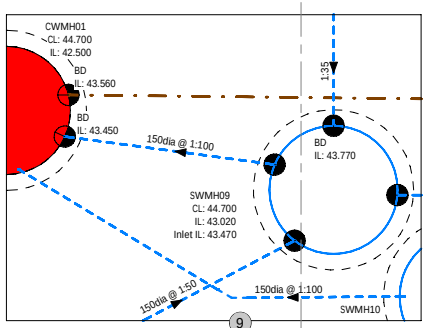
Rev T1

Appendix B- Updated Road Below Ground Drainage Strategy



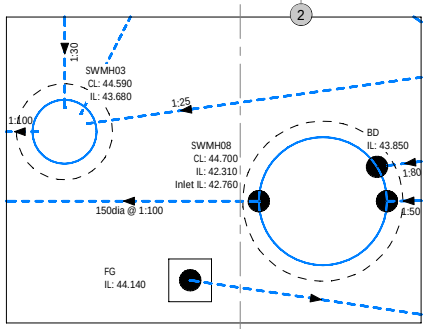
Proposed GF Phase 1 - Drainage

1 : 100



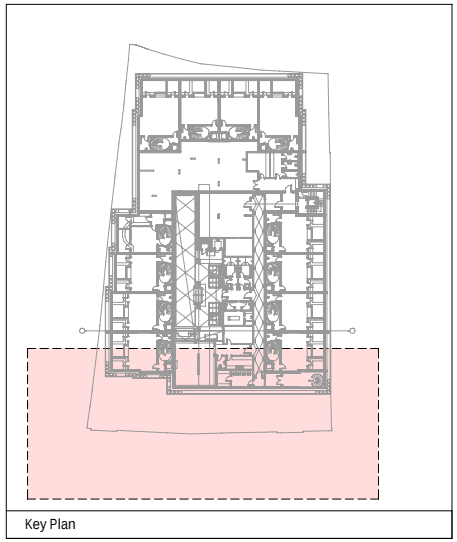
Detail 1

1 : 25



Detail 2

1 : 25



Key Plan

Proposed Manhole Schedule

Ref:	Cover Level	MH Depth to Invert	Invert Level	MH SSL	MH Type	MH internal Dia	MH Cover Size	MH Cover Type	MH Cover Class	Comments
CWMH01	44.700	2200	42.500	42.425	PCC Chamber	1200	600x600	Recessed, Double Sealed and Bolted Down	D400	
FWMH06	44.725	935	43.790	43.715	PPIC	450	450x450	Recessed, Double Sealed and Bolted Down	D400	
SWMH01	45.900	1100	44.800	44.725	PPIC	600	450x450	Recessed	B125	Manhole contains a 20mm orifice plate by Polypipe or similar approved
SWMH02	44.700	1150	43.550	43.475	PPIC	450	450x450	Recessed	D400	
SWMH03	44.590	910	43.680	43.605	PPIC	600	600x600	Recessed	D400	
SWMH04	44.150	1680	42.470	42.395	PPIC	600	450x450	Recessed	D400	
SWMH05	44.850	900	43.950	43.875	PPIC	450	450x450	Recessed	B125	
SWMH06	44.850	1310	43.540	43.465	PPIC	600	450x450	Recessed	B125	Manhole contains a 20mm orifice plate by Polypipe or similar approved
SWMH08	44.700	2390	42.310	42.235	PPIC	1200	600x600	Recessed	D400	Hydrobrake flow control chamber, design head:1.90m, discharge rate 0.3l/s. Hydrobrake reference: SHE-0021-3000-1900-3000. Sump depth 205mm
SWMH09	44.700	1680	43.020	42.945	PPIC	1200	1200x675	Recessed	D400	Hydrobrake flow control chamber, design head: 1.135m, discharge rate 0.3l/s. Hydrobrake reference: SHE-0024-3000-1135-3000. Sump depth 210mm
SWMH10	44.700	2165	42.535	42.460	PPIC	1200	600x600	Recessed	D400	

100mm @ A1 (50mm @ A3)

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3 For ground floor drainage general notes refer to drg. no. 2673-HTS-ZZ-ZZ-DR-C-0001

4 This drawing has been based on the following external inputs:
- Architect: DOMVS London
- Drawing title: 208-1103P17 Ground Floor Plan
- Date issued: 19.03.2024

5 Proposed ground levels shown for information only, not for construction.

6 Landscape Architect to confirm kerb type and specification.

7 Landscape Architect to confirm proposed external works levels. Gullies and drainage channel outlets shown indicatively, to be located at low points.

8 Connections for Phase 2 drainage works to be temporary capped off for future connection .

9 Drainage design is assumed to be planning compliant as the same discharge rate is achieved. However, planning consultant to confirm the omission of permeable paving and introduction of a tank prior to construction.

10 Attenuation tank arrangement subject to tank specialist confirmation

Drainage Key

- Proposed SW drain run
- Proposed CW drain run
- Proposed FW drain run
- Existing Public Sewer
- RM-FW Assumed FW rising main (route to M+E Eng. details)
- RM-SW Assumed SW rising main (route to M+E Eng. details)
- RWP / FWP Proposed / Existing Rain Water Pipe / Proposed / Existing Foul Waste Point
- RWP-RA / FWP-RA Rain Water / Foul Water pipe with above ground rodding access
- FG Proposed / Existing Gulley
- Blue Roof Outlet Access Chamber
- RE Proposed / Existing Rodding Eye
- Proposed SW Manhole
- Proposed FW Manhole
- Proposed CW Manhole
- Proposed Public Sewer Manhole
- Below ground attenuation tank
- Phase 2 works Drainage and basement extent
- Channel Drain
- Site Boundary

Rev	Date	By	Eng	Amendment
C2	06.06.24	VD	NT	Construction Issue
C1	22.03.24	VD	NT	Construction Issue

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Job Name
52-54 Avenue Road
NW8 6HP

Drawing Title
Proposed Phase 1 Drainage Layout - Access Road

Purpose of Issue **Construction** Scale at A1 **As indicated**

Drg No 2673-HTS-ZZ-00-DR-C-4013

Rev C2

Project:	Date: 26/02/2024		
	Designed by: nTourliadou	Checked by:	Approved By:
Report Details: Type: Manhole Schedule Storm Phase: Phase	Company Address:		

Name	Cover Level (m) Invert Level (m)	Manhole Size (m)	Connection Details				Type
Coordinates (m)	Depth (m)		Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type
			Outgoing Connections				Cover
SWMH06	44.850 43.800	Diameter / Length: 0.600	{1} Pipe (9)	Pipe	43.800	Diam/Width:100	Manhole
E:30.115 N:-6.008	1.050		{a} Pipe (1)	Pipe	43.800	Diam/Width:100	Not Applicable
SWMH01	45.900 44.420	Diameter / Length: 0.600	{1} Pipe (10)	Pipe	44.420	Diam/Width:150	Manhole
E:-11.719 N:-1.145	1.480		{a} Pipe	Pipe	44.420	Diam/Width:100	Not Applicable
SWMH09	44.700 43.350	Diameter / Length: 1.095	{1} Pipe (3) {2} Pipe (2) {3} Pipe (15)	Pipe Pipe Pipe	43.350 43.350 43.350	Diam/Width:100 Diam/Width:150 Diam/Width:150	Manhole
E:-6.466 N:-6.982	1.350		{a} Pipe (12)	Pipe	43.350	Diam/Width:150	Not Applicable
SWMH03	44.590 43.600	Diameter / Length: 0.600	{1} Pipe (4)	Pipe	43.600	Diam/Width:100	Manhole
E:16.278 N:-7.149	0.990		{a} Pipe (2)	Pipe	43.600	Diam/Width:150	Not Applicable
SWMH02	44.700 43.550	Diameter / Length: 0.600	{1} Pipe	Pipe	43.550	Diam/Width:100	Manhole
E:-10.351 N:-10.327	1.150		{a} Pipe (15)	Pipe	43.550	Diam/Width:150	Not Applicable

Project:	Date: 26/02/2024		
	Designed by: nTourliadou	Checked by:	Approved By:
Report Details: Type: Manhole Schedule Storm Phase: Phase	Company Address:		

Name	Cover Level (m) Invert Level (m)	Manhole Size (m)	Connection Details				Type
Coordinates (m)	Depth (m)		Incoming Connections	Connection Type	Connection Invert (m)	Connection Size (mm)	Junction Type
			Outgoing Connections				Cover
SWMH10	44.700 42.650	Diameter / Length: 1.200	{1} Pipe (7)	Pipe	42.650	Diam/Width:150	Manhole
E:-4.663 N:-8.123	2.050		{a} Pipe (14)	Pipe	42.650	Diam/Width:150	Not Applicable
SWMH08	44.700 42.850	Diameter / Length: 1.095	{1} Pipe (6) {2} Pipe (13)	Pipe Pipe	42.850 42.850	Diam/Width:150 Diam/Width:100	Manhole
E:20.883 N:-8.576	1.850		{a} Pipe (7)	Pipe	42.850	Diam/Width:150	Not Applicable
SWMH07	44.150 43.150	Diameter / Length: 0.600					Manhole
E:23.106 N:-10.529	1.000		{a} Pipe (11)	Pipe	43.150	Diam/Width:150	Not Applicable
CWMH01	44.700 42.550	Diameter / Length: 1.200	{1} Pipe (12) {2} Pipe (14)	Pipe Pipe	42.550 42.550	Diam/Width:150 Diam/Width:150	Manhole
E:-10.072 N:-6.928	2.150						Not Applicable
SWMH05	44.850 43.750	Diameter / Length: 0.600	{1} Pipe (1)	Pipe	43.750	Diam/Width:100	Manhole
E:27.293 N:-6.036	1.100		{a} Pipe (13)	Pipe	43.750	Diam/Width:100	Not Applicable

Project:	Date: 26/02/2024		
	Designed by: nTourliadou	Checked by:	Approved By:
Report Details: Type: Inflow Summary Storm Phase: Phase	Company Address:		

Inflow Label	Connected To	Flow (L/s)	Runoff Method	Area (ha)	Percentage Impervious (%)	Urban Creep (%)	Adjusted Percentage Impervious (%)	Area Analysed (ha)
Catchment Area East	Cellular Storage		Time of Concentration	0.013	100	0	100	0.013
Catchment Area West	Cellular Storage (1)		Time of Concentration	0.013	100	0	100	0.013
Road	SWMH09		Time of Concentration	0.008	100	0	100	0.008
Road 1	SWMH08		Time of Concentration	0.005	100	0	100	0.005
Road 2	SWMH03		Time of Concentration	0.001	100	0	100	0.001
Road 3	SWMH09		Time of Concentration	0.004	100	0	100	0.004
TOTAL		**0.0**		**0.044**				**0.044**

Project:	Date: 26/02/2024		
	Designed by: nTourliadou	Checked by:	Approved By:
Report Title: Rainfall Analysis Criteria	Company Address:		

Runoff Type	Dynamic
Output Interval (mins)	5
Time Step	Default
Urban Creep	Apply Global Value
Urban Creep Global Value (%)	0
Junction Flood Risk Margin (mm)	300
Perform No Discharge Analysis	☐

Rainfall

FEH

Type: FEH

Site Location	GB 527015 183853 TQ 27015 83853
Rainfall Version	2013
Data Type	Point
Summer	☑
Winter	☑

Return Period

Return Period (years)	Increase Rainfall (%)
100.0	40.000

Storm Durations

Duration (mins)	Run Time (mins)
15	30
30	60
60	120
120	240
240	480
360	720
480	960
960	1920
1440	2880

Project:	Date: 26/02/2024		
	Designed by: nTourliadou	Checked by:	Approved By:
Report Details: Type: Inflows Summary Storm Phase: Phase	Company Address:		

Critical Storm Per Item: Rank By: Max. Inflow

Inflow	Storm Event	Inflow Area (ha)	Max. Inflow (L/s)	Total Inflow Volume (m^3)
Road	FEH: 100 years: +40 %: 15 mins: Summer	0.01	8.6	3.725
Catchment Area West	FEH: 100 years: +40 %: 15 mins: Summer	0.01	13.9	6.042
Catchment Area East	FEH: 100 years: +40 %: 15 mins: Summer	0.01	13.3	5.775
Road 2	FEH: 100 years: +40 %: 15 mins: Summer	0.00	1.5	0.641
Road 1	FEH: 100 years: +40 %: 15 mins: Summer	0.00	4.8	2.068
Road 3	FEH: 100 years: +40 %: 15 mins: Summer	0.00	4.5	1.963

Project:	Date: 26/02/2024		
	Designed by: nTourliadou	Checked by:	Approved By:
Report Details: Type: Junctions Summary Storm Phase: Phase	Company Address:		

Critical Storm Per Item: Rank By: Max. Depth

Junction	Storm Event	Cover Level (m)	Invert Level (m)	Max. Level (m)	Max. Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Status
SWMH06	FEH: 100 years: +40 %: 960 mins: Winter	44.850	43.800	44.097	0.297	0.4	0.084	0.000	0.4	18.591	Surcharged
SWMH01	FEH: 100 years: +40 %: 960 mins: Winter	45.900	44.420	44.571	0.151	0.4	0.043	0.000	0.4	19.469	Surcharged
SWMH09	FEH: 100 years: +40 %: 960 mins: Winter	44.700	43.350	44.571	1.221	1.1	1.150	0.000	0.3	47.283	Flood Risk
SWMH03	FEH: 100 years: +40 %: 960 mins: Winter	44.590	43.600	44.571	0.971	0.2	0.275	0.000	0.1	6.169	Flood Risk
SWMH02	FEH: 100 years: +40 %: 960 mins: Winter	44.700	43.550	44.571	1.021	0.4	0.289	0.000	0.4	18.780	Flood Risk
SWMH10	FEH: 100 years: +40 %: 960 mins: Winter	44.700	42.650	42.661	0.011	0.2	0.013	0.000	0.2	19.032	OK
SWMH08	FEH: 100 years: +40 %: 960 mins: Winter	44.700	42.850	44.096	1.246	0.7	1.174	0.000	0.2	30.618	Surcharged
SWMH07	FEH: 100 years: +40 %: 960 mins: Winter	44.150	43.150	44.096	0.946	0.1	0.268	0.000	0.1	0.948	Flood Risk
CWMH01	FEH: 100 years: +40 %: 960 mins: Winter	44.700	42.550	42.558	0.008	0.6	0.000	0.000	0.6	48.773	OK
SWMH05	FEH: 100 years: +40 %: 960 mins: Winter	44.850	43.750	44.096	0.346	0.4	0.098	0.000	0.4	18.589	Surcharged

Project:	Date: 26/02/2024		
	Designed by: nTourliadou	Checked by:	Approved By:
Report Details: Type: Stormwater Controls Summary Storm Phase: Phase	Company Address:		

Critical Storm Per Item: Rank By: Max. Avg. Depth

Stormwater Control	Storm Event	Max. US Level (m)	Max. DS Level (m)	Max. US Depth (m)	Max. DS Depth (m)	Max. Inflow (L/s)	Max. Resident Volume (m³)	Max. Flooded Volume (m³)	Total Lost Volume (m³)	Max. Outflow (L/s)	Total Discharge Volume (m³)	Half Drain Down Time (mins)	Percentage Available (%)
Cellular Storage (1)	FEH: 100 years: +40 %: 240 mins: Summer	45.746	45.746	0.376	0.376	3.9	10.714	0.000	0.000	0.5	10.503	231	7.151
Cellular Storage	FEH: 100 years: +40 %: 240 mins: Summer	45.727	45.727	0.357	0.357	3.7	10.178	0.000	0.000	0.5	10.193	225	11.799
Tank 4	FEH: 100 years: +40 %: 960 mins: Winter	44.096	44.096	1.196	1.196	0.5	10.452	0.000	0.000	0.2	7.030		6.888
Tank 1	FEH: 100 years: +40 %: 960 mins: Winter	44.571	44.571	0.736	0.736	0.7	14.894	0.000	0.000	0.2	8.713		3.544
Tank 1 (1)	FEH: 100 years: +40 %: 960 mins: Winter	44.571	44.571	0.736	0.736	0.2	3.496	0.000	0.000	0.0	2.045		8.654

Status
OK
OK
OK
OK
OK

Project:	Date: 26/02/2024		
	Designed by: nTourliadou	Checked by:	Approved By:
Report Details: Type: Connections Summary Storm Phase: Phase	Company Address:		

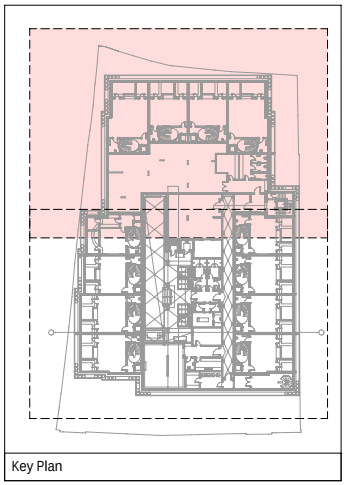
Critical Storm Per Item: Rank By: Max. Flow

Connection	Storm Event	Connection Type	From	To	Upstream Cover Level (m)	Max. US Water Level (m)	Max. Flow Depth (m)	Discharge Volume (m³)	Max. Velocity (m/s)	Flow / Capacity	Max. Flow (L/s)	Status
Pipe (10)	FEH: 100 years: +40 %: 240 mins: Summer	Pipe	Cellular Storage (1)	SWMH01	45.900	45.746	0.018	10.493	0.8	0.01	0.5	Surcharged
Pipe (9)	FEH: 100 years: +40 %: 240 mins: Summer	Pipe	Cellular Storage	SWMH06	45.900	45.727	0.015	10.182	0.7	0.03	0.5	Surcharged
Pipe	FEH: 100 years: +40 %: 240 mins: Summer	Pipe	SWMH01	SWMH02	45.900	44.447	0.100	10.460	0.5	0.03	0.5	OK
Pipe (6)	FEH: 100 years: +40 %: 960 mins: Winter	Pipe	Tank 4	SWMH08	44.850	44.096	0.150	0.000	0.0	0.01	0.2	Surcharged
Pipe (3)	FEH: 100 years: +40 %: 960 mins: Winter	Pipe	Tank 1	SWMH09	44.850	44.571	0.100	0.000	0.0	0.01	0.2	Surcharged
Pipe (11)	FEH: 100 years: +40 %: 960 mins: Summer	Pipe	SWMH07	Tank 4	44.150	44.094	0.150	0.000	0.0	0	0.1	Flood Risk
Pipe (12)	FEH: 100 years: +40 %: 960 mins: Winter	Pipe	SWMH09	CWMH01	44.700	44.571	0.007	29.741	1.0	0	0.3	Flood Risk
Pipe (1)	FEH: 100 years: +40 %: 240 mins: Summer	Pipe	SWMH06	SWMH05	44.850	43.818	0.014	10.165	0.7	0.06	0.5	OK
Pipe (13)	FEH: 100 years: +40 %: 240 mins: Summer	Pipe	SWMH05	SWMH08	44.850	43.760	0.100	10.156	0.1	0.02	0.5	OK
Pipe (7)	FEH: 100 years: +40 %: 960 mins: Winter	Pipe	SWMH08	SWMH10	44.700	44.096	0.012	19.049	0.3	0.02	0.2	Surcharged
Pipe (14)	FEH: 100 years: +40 %: 960 mins: Winter	Pipe	SWMH10	CWMH01	44.700	42.661	0.010	19.032	0.5	0.01	0.2	OK
Pipe (15)	FEH: 100 years: +40 %: 15 mins: Summer	Pipe	SWMH02	SWMH09	44.700	44.054	0.150	0.000	0.0	0.02	0.8	Surcharged
Pipe (4)	FEH: 100 years: +40 %: 15 mins: Summer	Pipe	Tank 1 (1)	SWMH03	44.850	44.032	0.100	0.000	0.2	0.12	1.7	Surcharged
Pipe (2)	FEH: 100 years: +40 %: 15 mins: Summer	Pipe	SWMH03	SWMH09	44.590	44.027	0.150	0.032	0.1	0.13	2.5	Surcharged

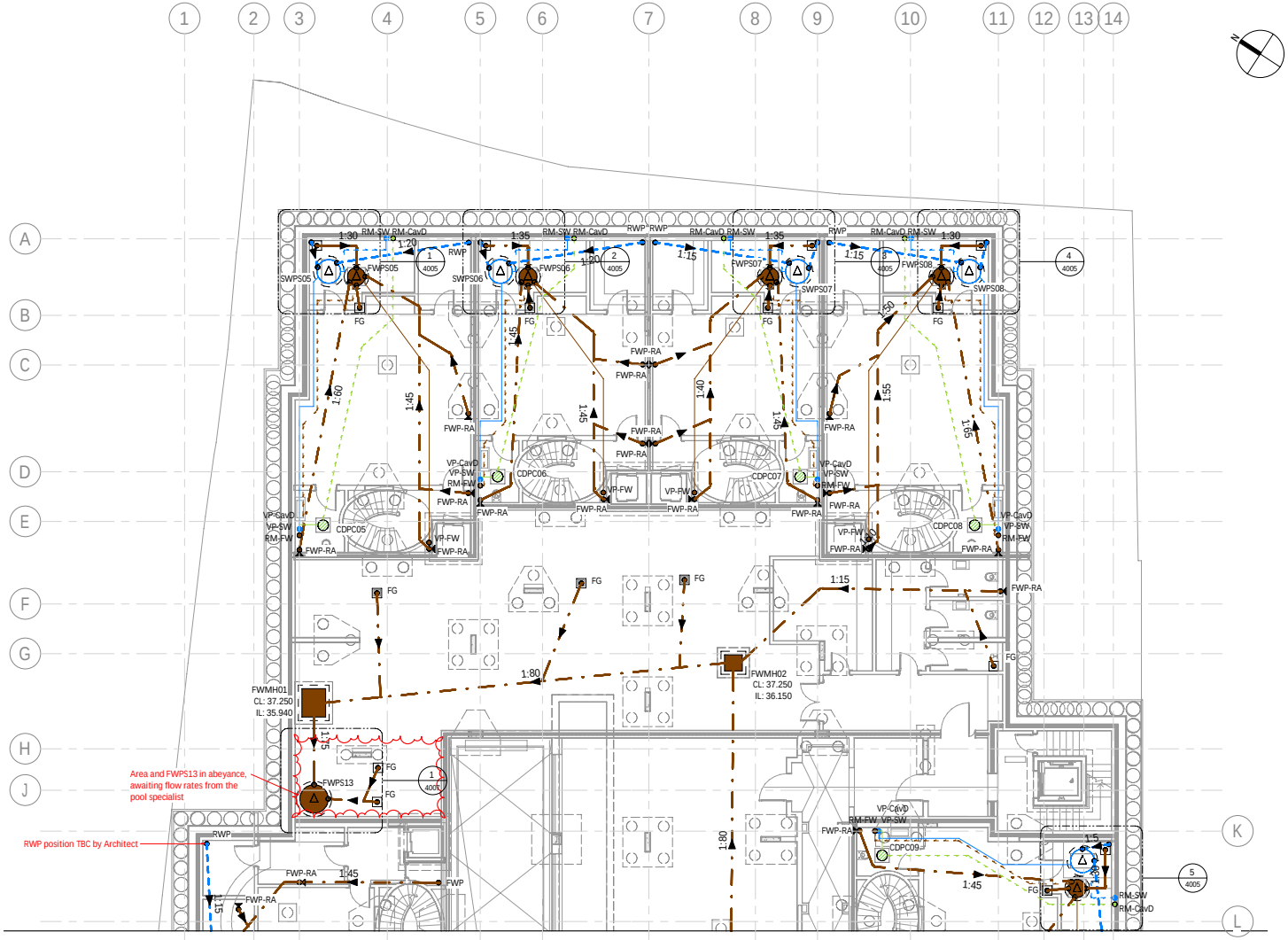
Appendix C-Proposed Basement Plans

Drainage Key

- Proposed FW drain run
- VP-FW — Assumed FW pump vent pipe (route to M+E Eng. details)
- RM-FW — Assumed FW rising main (route to M+E Eng. details)
- Proposed SW drain run
- VP-SW — Assumed SW pump vent pipe (route to M+E Eng. details)
- RM-SW — Assumed SW rising main (route to M+E Eng. details)
- VP-CavD — Assumed SW pump vent pipe (route to M+E Eng. details)
- RM-CavD — Assumed SW rising main (route to M+E Eng. details)
- RWP — Proposed / Existing Rain Water Pipe
- FWP — Proposed / Existing Foul Waste Point
- CD — Proposed / Existing Cavity Drain Point
- RWP-RA / FWP-RA — Rain Water / Foul Water pipe with above ground rodding access
- FG — Proposed / Existing Gulley
- RE — Proposed / Existing Rodding Eye
- Proposed FW Manhole
- Proposed SW Manhole
- Pumping Chamber
- Proposed Cavity Drain Manhole
- Site Boundary



Key Plan



For continuation refer to 2673-HTS-ZZ-B1-DR-C-4002

Proposed Basement Floor - Drainage

1 : 100

Pumping Strategy Notes

All foul water drainage from ground floor, lower ground floor and basement to discharge via a pumped system.

GRP pumps are to be provided for each individual unit. 24hr storage is required for each pump (approximately 0.90m³ based on 6 people per unit), the proposed discharge rate for each pump is 2.01l/s, based on 16.2 DU as issued on 16/01/24 by Integration.

Foul water to be pumped to ground floor above ground drainage system before connection to the ground floor below ground drainage and discharging by gravity to the existing outfall to the Thames Water sewer. Refer to 2673-HTS-ZZ-00-DR-C-4011 &2673-HTS-ZZ-00-DR-C-4012 for indicative locations of high level outfalls.

Foul water from residence lounge and plant to be pumped to high level before connection to the above ground drainage and discharging by gravity to the existing outfall to the Thames Water sewer. The proposed discharge rate for FWPS13 is 2.67l/s. Building Control to confirm if 24hr storage is required. Further information required to confirm the pool back wash flow rates.

Rising main, cable duct and vent pipe routing above slab level by the M&E engineer for each pump.

All foul water drainage from first and second floor and above to discharge by gravity to the sewer beneath Elsworthy Road sewer as shown on 2673-HTS-ZZ-00-DR-C-4011 & 2673-HTS-ZZ-00-DR-C-4012

Surface water pumping stations to serve the lightwells from Lower ground floor.

100mm @ A1 (50mm @ A3)

1 This drawing is to be read in conjunction with all relevant architects, engineers and specialists drawings and specifications.

2 Do not scale from this drawing in either paper or digital form. Use written dimensions only. To check drawing has been printed to the intended scale the above bar should be 100mm

3 All drainage to be 100mm diameter unless otherwise noted.

4 All drop points shown are indicative only, to be set out by others.

5 Proposed manhole and pump locations to be confirmed by the Architect.

6 All gullies in Mechanical Plants to include waterless traps

7 This drawing has been based on the following external inputs:
- Architect: DOMVS London
  Drawing title: 208-2001P4 Proposed Basement BWIC
  Date issued: 20.02.2024
- M+E Engineer: Integration
  Drawing title: 723-INT-XX-B1-DR-P-3200 T1 HEALTH SERVICES Drainage Services Layout Basement
  Date issued: 27.07.2023

8 Cavity drainage shown for information only. Design of cavity drainage system and specification of cavity drainage pumps is by others.

9 All Drop Points to have IL: 36.650 unless noted otherwise.

10 Rising mains to have long radius bends.

11 Long radius bends to be provided on gravity drainage as required.

12 Cable duct location for all pumps TBC by the Architect and M&E Engineer

Rev	Date	By	Eng	Amendment
C1	23.02.24	VD	NT	Construction Issue
T1	21.06.23	KD	NT	Stage 4 issue
P2	28.04.23	LS	NT	Draft Stage 4 issue
P1	01.03.23	CDU	NT	Stage 3 issue

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Job Name
52-54 Avenue Road
NW8 6HP

Drawing Title
Proposed Basement Drainage Sheet 1

Purpose of Issue Construction | Scale at A1 As indicated

Drg No 2673-HTS-ZZ-B1-DR-C-4001

HTS Job No 2673 | Suitability | Rev C1

Drainage Key

- Proposed FW drain run
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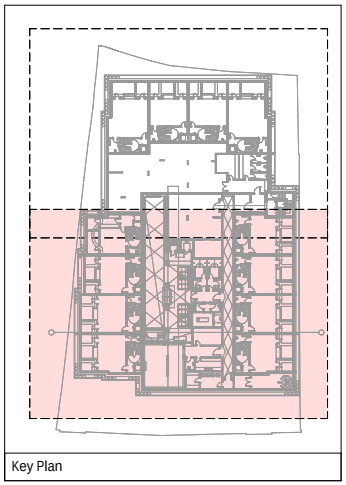
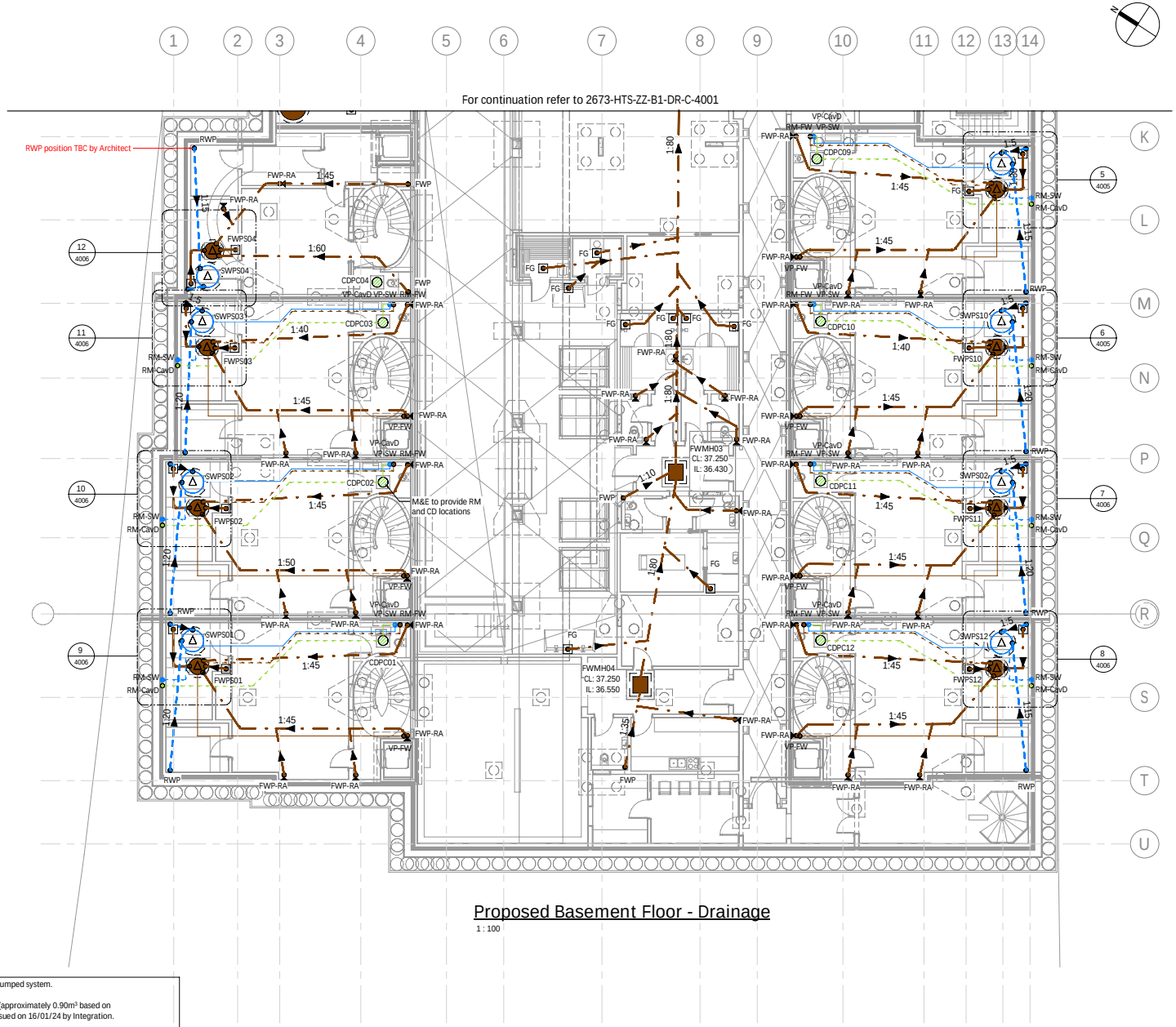


Key Plan



Proposed Basement Floor - Drainage

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Foul water from residence lounge and plant to be pumped to high level before connection to the above ground drainage and discharging by gravity to the existing outfall to the Thames Water sewer. The proposed discharge rate for FWPS13 is 2.67l/s. Building Control to confirm if 24hr storage is required. Further information required to confirm the pool back wash flow rates.

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Surface water pumping stations to serve the lightwells from Lower ground floor.

100mm @ A1 (50mm @ A3)

1 This drawing is to be read in conjunction with all relevant architects, engineers and specialists drawings and specifications.

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7 This drawing has been based on the following external inputs:
- Architect: DOMVS London
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- M+E Engineer: Integration
  Drawing title: 723-INT-XX-B1-DR-P-3200 T1 HEALTH SERVICES Drainage Services Layout Basement
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Rev	Date	By	Eng	Amendment
C1	23.02.24	VD	NT	Construction Issue
T1	21.06.23	KD	NT	Stage 4 issue
P2	28.04.23	LS	NT	Draft Stage 4 issue
P1	01.03.23	CDU	NT	Stage 3 issue

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Job Name
52-54 Avenue Road
NW8 6HP

Drawing Title
Proposed Basement Drainage Sheet 2

Purpose of Issue: Construction | Scale at A1: As indicated

Drg No: 2673-HTS-ZZ-B1-DR-C-4002

HTS Job No: 2673 | Suitability | Rev: C1

Appendix D-Exceedance Flows Plan

100mm @ A1 (50mm @ A3)

NOTES

1. This Drawing is to be read in conjunction with all relevant Architect's Engineer's and specialists' drawings and specifications.
2. Do not scale from this drawing in either paper or digital form. Use written dimensions only. To check drawing has been printed to the intended scale the above bar should be 100mm long @A1 or 50mm long @ A3.
3. This drawing has been based on the following external inputs:
   - 3.1. Topographic Survey by Terrain Surveys recieved 09.02.2023 (Drawing Number TS21-451-1-3D)
   - 3.2. Landscape Architect Layout by DOMVS London recieved 04.08.2023 (Drawing Number 208-1001P5 PROPOSED SITE PLAN)
4. All proposed lightwells have a 150mm raised threshold to prevent water ingress.
5. All kerbs have an 150mm up stand

KEY

- Exeedance Flow Route
- Minor Contours
- Major Contours
- Proposed Light Well

Rev	Date	By	Eng	Amendments
P3	11.10.23	CH	CR	Preliminary Issue
P2	14.09.23	CDU	NT	Preliminary Issue
P1	09.08.23	CDU	NT	Preliminary Issue

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Job Name
Avenue Road
52-54, NW8 6HP

Drawing Title
Proposed Exceedance Flows Plan

Purpose of Issue **Preliminary** Scale at A1 **1:200**

Drg No. **2673-HTS-ZZ-XX-DR-C-1010**

HTS Job No **2673** Rev **P3**

Appendix E-SuDS Proforma

Camden

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LoDEG

1. Project & Site Details

Project / Site Name (including sub-catchment / stage / phase where appropriate)	52 Avenue Road, NW8 6HS
Address & post code	52 Avenue Road, NW8 6HS
OS Grid ref. (Easting, Northing)	E 527014
	N 183854
LPA reference (if applicable)	
Brief description of proposed work	The proposed development consists of the demolition of the existing plots and the construction of 12 new townhouses with a communal Health and Wellness Spa
Total site Area	3000 m^2
Total existing impervious area	424.1 m^2
Total proposed impervious area	3000 m^2
Is the site in a surface water flood risk catchment (ref. local Surface Water Management Plan)?	Yes: CDA Group3_005
Existing drainage connection type and location	Combined outfalls to combined sewers under Elsworthy Road.
Designer Name	N Tourliadou
Designer Position	Civil Engineer
Designer Company	Heyne Tillet Steel

2. Proposed Discharge Arrangements

2a. Infiltration Feasibility

Superficial geology classification	Sands & gravels
Bedrock geology classification	Clay
Site infiltration rate	N/A m/s
Depth to groundwater level	N/A m below ground level
Is infiltration feasible?	No

2b. Drainage Hierarchy

	Feasible (Y/N)	*Proposed (Y/N)*
1 store rainwater for later use	Y	Y
2 use infiltration techniques, such as porous surfaces in non-clay areas	N	N
3 attenuate rainwater in ponds or open water features for gradual release	Y	Y
4 attenuate rainwater by storing in tanks or sealed water features for gradual release	N	N
5 discharge rainwater direct to a watercourse	N	N
6 discharge rainwater to a surface water sewer/drain	N	N
7 discharge rainwater to the combined sewer.	Y	Y

2c. Proposed Discharge Details

Proposed discharge location	TW sewer in Elsworthy Road
Has the owner/regulator of the discharge location been consulted?	Pre-planning enquiry has been submitted and accepted

Camden

GREATERLONDONAUTHORITY

LoDEG

3. Drainage Strategy

3a. Discharge Rates & Required Storage

	Greenfield (GF) runoff rate (l/s)	*Existing discharge rate (l/s)*	*Required storage for GF rate (m^3)*	*Proposed discharge rate (l/s)*
Qbar	1.3			
1 in 1	1.1	4.8	75	0.9
1 in 30	2.9	15	145	2.1
1 in 100	4.1	20	205	3.2
1 in 100 + CC			310	4.1
Climate change allowance used		40%		

3b. Principal Method of Flow Control	Blue Roofs, Permeable Paving

3c. Proposed SuDS Measures

	Catchment area (m^2)	*Plan area (m^2)*	*Storage vol. (m^3)*
Rainwater harvesting	0		0
Infiltration systems	0		0
Green roofs	0	0	0
Blue roofs	1448	1098	111
Filter strips	0	0	0
Filter drains	0	0	0
Bioretention / tree pits	0	0	0
Pervious pavements	1320	1205	180
Swales	0	0	0
Basins/ponds	0	0	0
Attenuation tanks	180		36
Total	**2948**	**2303**	**327**

4. Supporting Information

4a. Discharge & Drainage Strategy	*Page/section of drainage report*
Infiltration feasibility (2a) – geotechnical factual and interpretive reports, including infiltration results	Section 3.5
Drainage hierarchy (2b)	Section 5.1
Proposed discharge details (2c) – utility plans, correspondence / approval from owner/regulator of discharge location	Section 5.1
Discharge rates & storage (3a) – detailed hydrologic and hydraulic calculations	Section 5.1, Appendix C
Proposed SuDS measures & specifications (3b)	Section 5.1
4b. Other Supporting Details	*Page/section of drainage report*
Detailed Development Layout	Image 14
Detailed drainage design drawings, including exceedance flow routes	Image 14
Detailed landscaping plans	
Maintenance strategy	Appendix E
Demonstration of how the proposed SuDS measures improve:	
a) water quality of the runoff?	Section 5.1
b) biodiversity?	Section 5.1
c) amenity?	Section 5.1