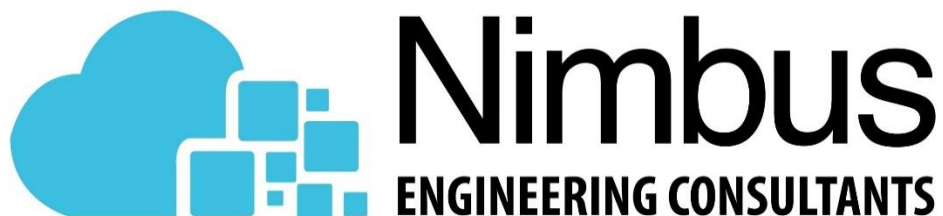


15 Woodside Road, Northwood, HA6 3QE
Nimbus Engineering Consultants Ltd
Basement Impact Assessment & SuDS Report
March 2026

BASEMENT IMPACT ASSESSMENT & SUDS REPORT
FOR 15 WOODSIDE ROAD, NORTHWOOD, HA6 3QE

DOCUMENT NO: C3717-R1-REV-B

PREPARED BY



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APPENDICES

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APPENDIX C – SURFACE WATER RUN OFF CALCULATIONS

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1. SITE DETAILS

Site Name	15 Woodside Road
Site Address	15 Woodside Road, Northwood, HA6 3QE
Purpose of Development	Residential
Existing Land Use	Brownfield
County	Greater London
Country	England
Local Planning Authority	London Borough of Hillingdon

1.1 Development Proposals

A set of drawings showing the existing and proposed site layouts and floor plans are included in Appendix A. These show that the proposals involve a basement and ground floor extension.

1.2 Geology of The Area

According to the British Geological Survey, the superficial deposits at the site are unknown.

The bedrock at the area is of the London Clay Formation, shown in Figure 1, below.

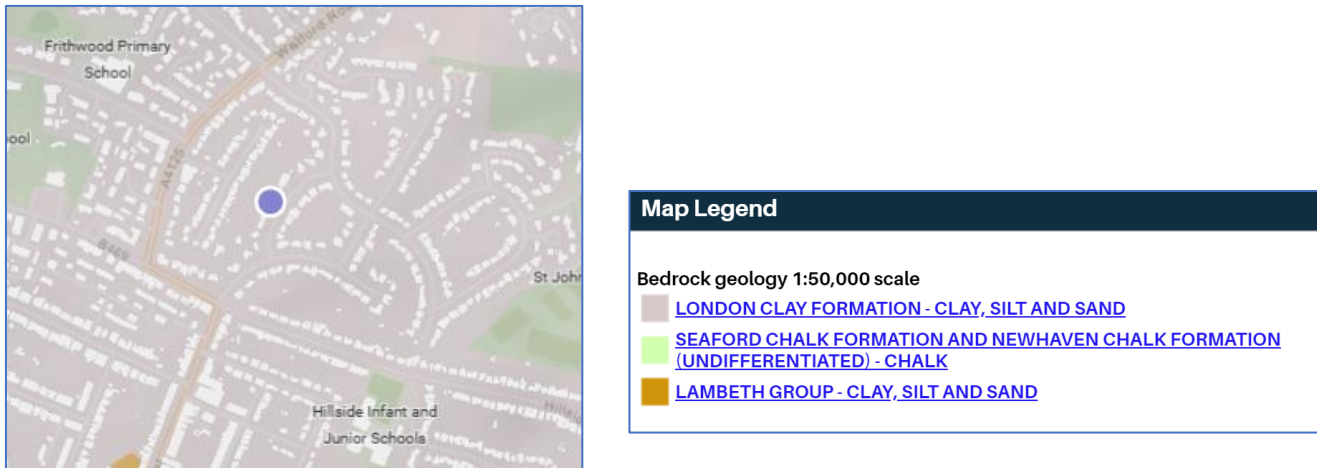


Figure 1 - Bedrock at the site. (Source: British Geological Society Website (contains British Geological Survey materials © NERC2026)).

Historic boreholes within the vicinity of the site were consulted in order to determine groundwater levels within the vicinity of the site. The location of these boreholes can be found in figure 2 below, and these boreholes can be found in Appendix B.

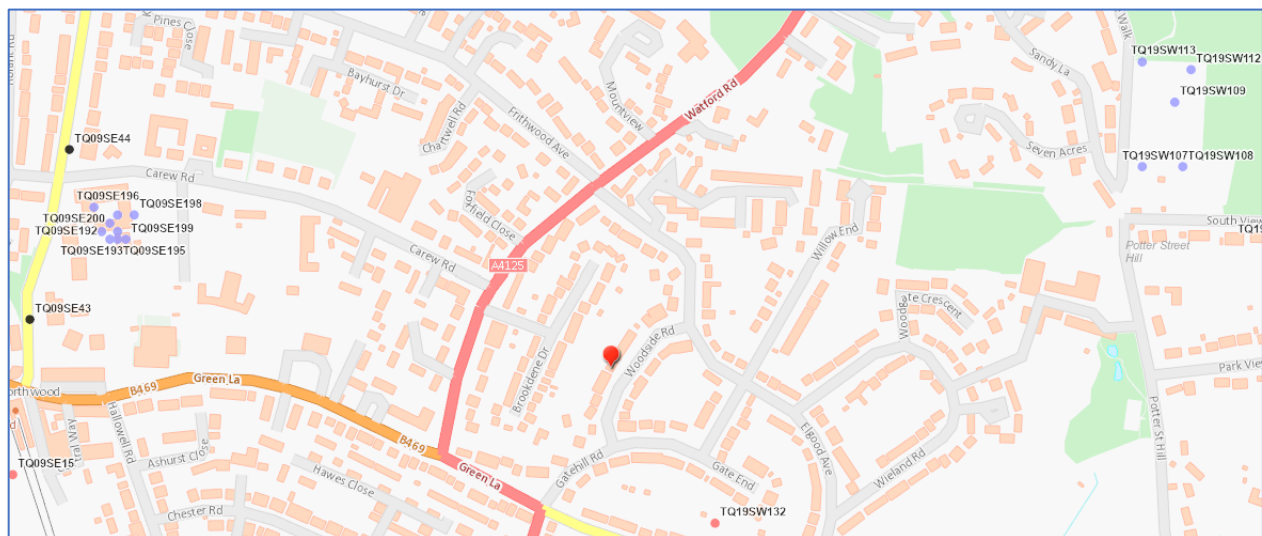


Figure 2 - Historic Boreholes at the site. (Source: British Geological Society Website (Contains_British Geological Survey materials © URKI [2026]. Base mapping is provided by ESRI))

The results of these historic boreholes show that although groundwater was encountered in some of these boreholes, it is below the proposed basement level and the Groundwater vulnerability MAGIC maps from DEFRA shown below, also show the site to be in an area of unproductive strata.

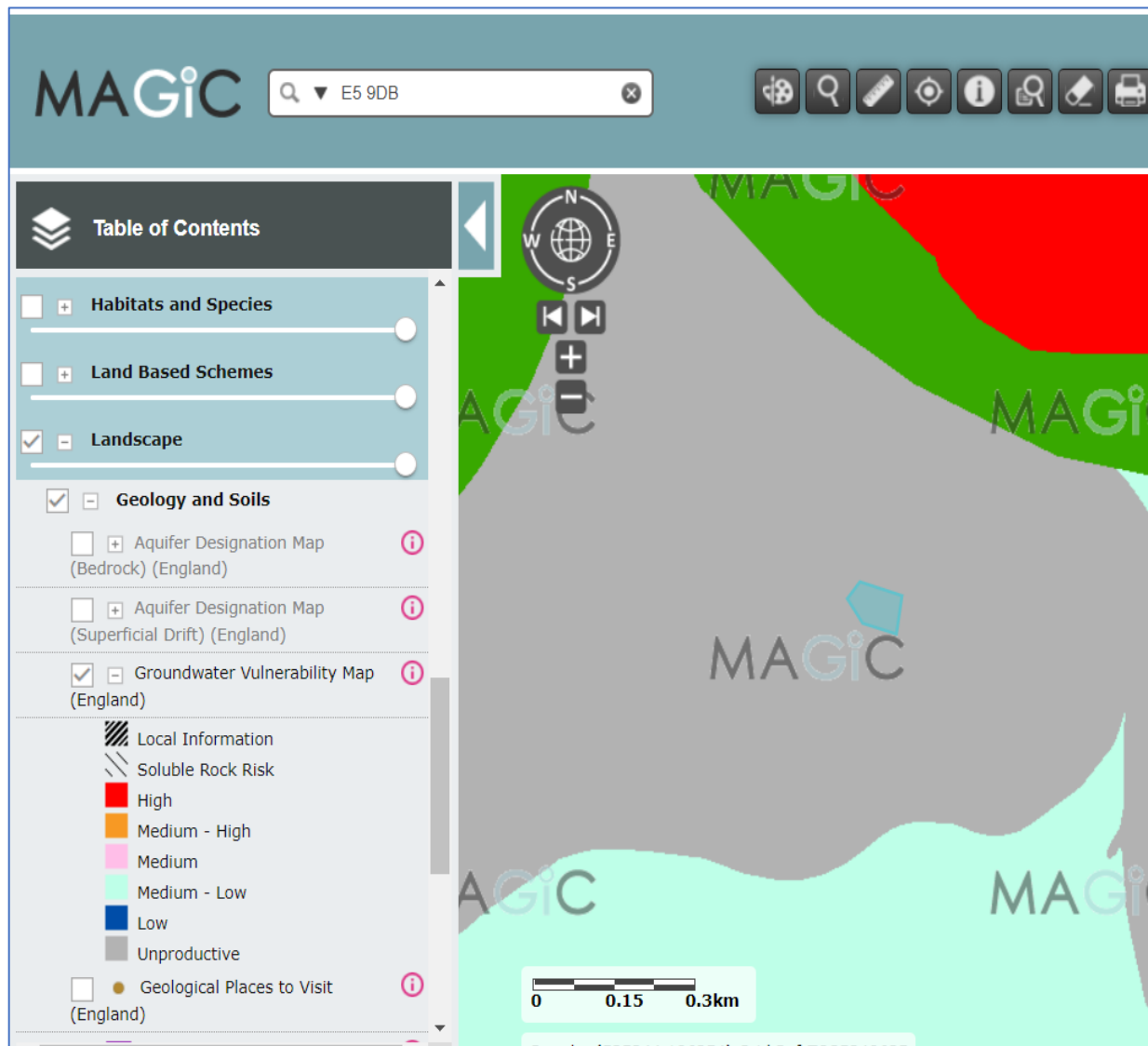


Figure 3 – Groundwater Vulnerability Map – Magic Maps (DEFRA)

2. FLOOD RISK ASSESSMENT

The possible causes of flooding set out in NPPF's technical guidance are considered in this section in relation to the flood risk to the site itself and the effects of the development of the site on flood risk elsewhere.

2.1 Fluvial or Tidal Flooding

The Environment Agency's Flood Map for Planning (Rivers and Sea), shown below, indicates the site is in Flood Zone 1, and not at risk of flooding from rivers or the sea.

The site is also not at risk of tidal flooding, this can also be confirmed by the Environment Agency's Flood map, below.



Figure 4 – Environment Agency Flood Map (from Rivers and the Sea) for the proposed development

2.2 Flooding from Land (Overland Flow)

The proposed development site is at a low risk of surface water flooding, this can be confirmed by the Environment Agency's Flood maps shown below and overleaf. However upon inspection of the topographical survey, this is seen to be caused by ponding in natural low lying areas of the site. The West London's SFRA Surface Water mapping also confirms this by stating the area is at low risk of flooding of depths of up to 200mm.

Additionally, this area of potential flood risk is seen to be rectified by the already installed drainage gullies and grading of the existing hardstanding, as can be seen in the plans provided within Appendix A. This will not be affected by the proposals, and will remain in effect.

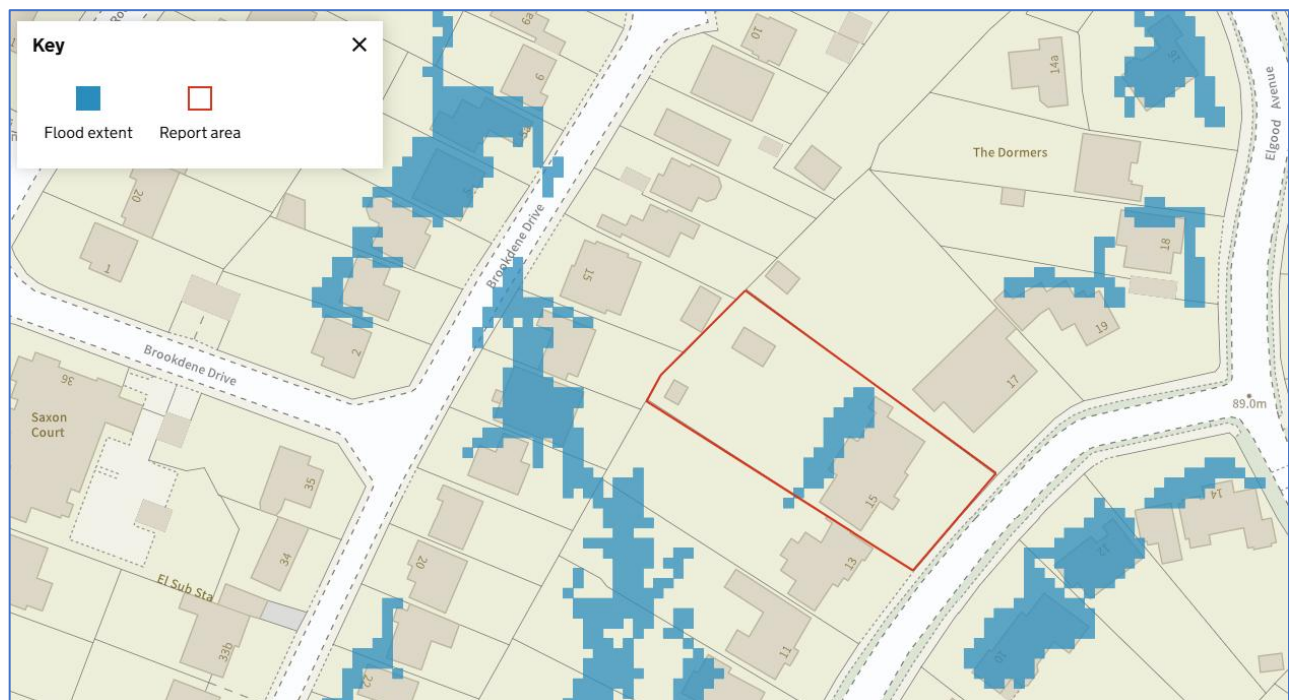


Figure 5 – Environment Agency Flood Map (1:1000 surface water event) for the proposed development.



Figure 6 – Environment Agency Flood Map (1:100 surface water event) for the proposed development.

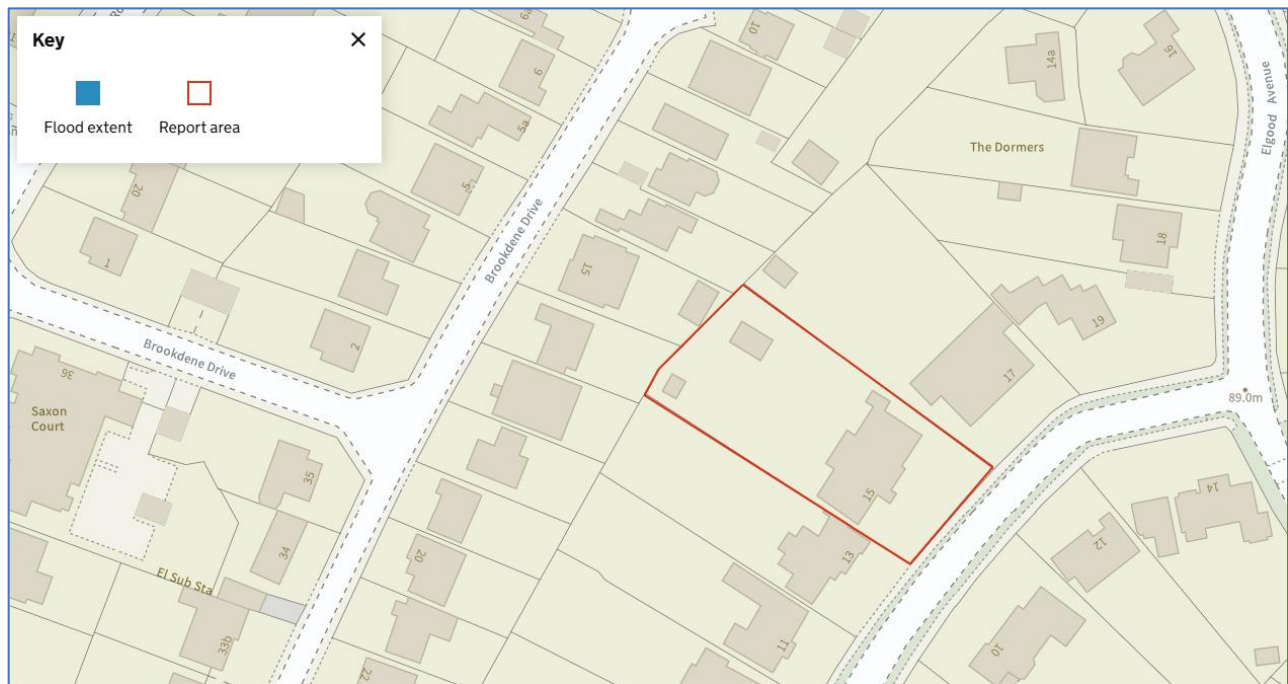


Figure 7 – Environment Agency Flood Map (1:30 surface water event) for the proposed development.

2.3 Flooding from Groundwater

We have consulted historic boreholes at the site and have also consulted the DEFRA Magic Maps and both show that the groundwater is very low at this site and there is no risk of groundwater flooding.

Furthermore, we have consulted the West London, Strategic Flood Risk Assessment's Groundwater flooding map, as shown in Figure 9 overleaf, and this shows the proposed development site to be in an area not at risk of groundwater flooding.

However the client will undertake long term groundwater monitoring to ensure that they are aware of any over pumping that may be required during the construction process.

The client will also provide a waterproofing membrane to ensure that any perched water has been dealt with and therefore the basement will be waterproof and will be designed as a watertight element. It should be noted that as the groundwater levels will be well below the basement level, that the basement structure will not be adversely affected, and other than the waterproofing membrane, no other mitigation measures are required. As it is likely that the soils at likely foundation/basement depth will deteriorate rapidly in the prolonged presence of water, although there will be no groundwater ingress, other than the unlikely possibility of perched water, a waterproof membrane such as delta membrane or equivalent has been proposed.

Consequently, a blinding layer of lean-mix concrete will be applied to all excavations if continuous working cannot be achieved. Fixtures and fittings for the basement will be located to ensure that if any flood water does enter the building, the impact of floodwater on the property will be minimal.

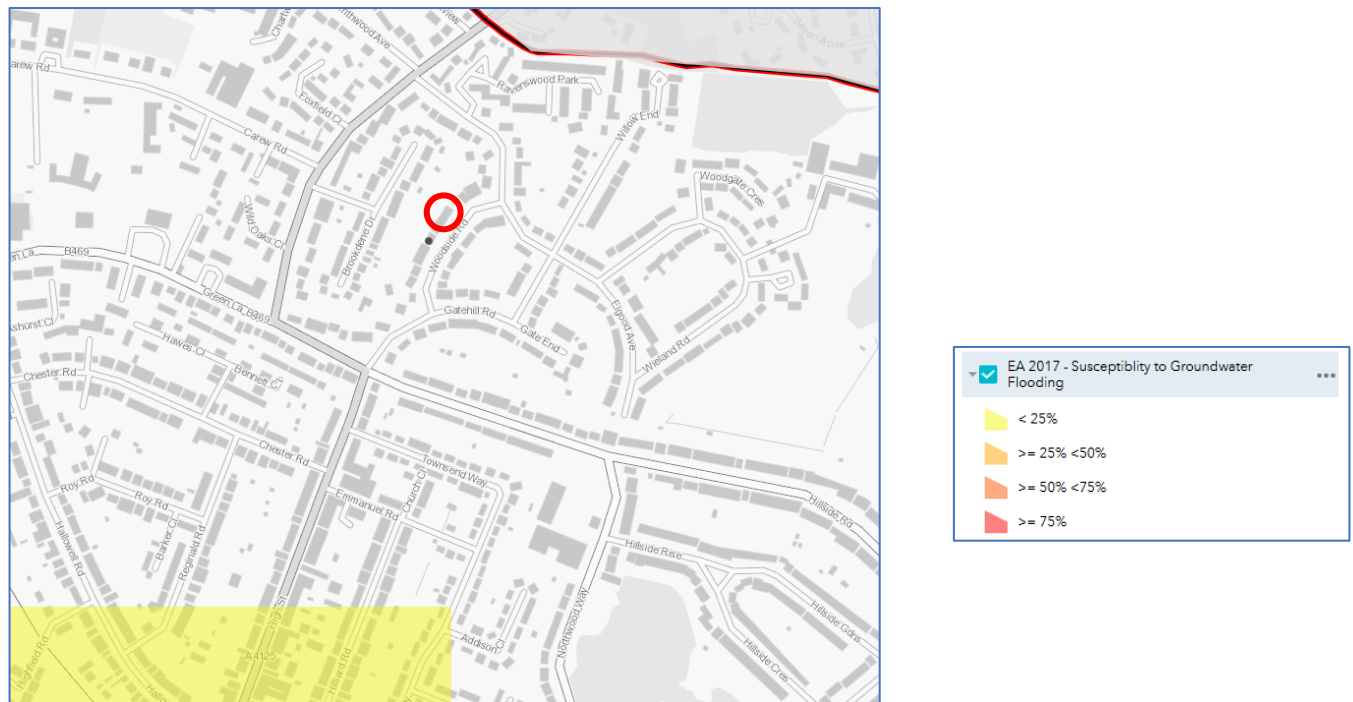


Figure 8 – Groundwater Flood Risk Map – Extracted from the from West London Strategic Flood Risk Assessment

2.4 Flooding from Sewers

There has been no history of sewer flooding at the site, or in the vicinity, this is confirmed by the SFRA report.

2.5 Flooding from Reservoirs, Canals, or Other Artificial Sources

The Environment Agency's Flood map below, shows the site not to be at risk of reservoir flooding.

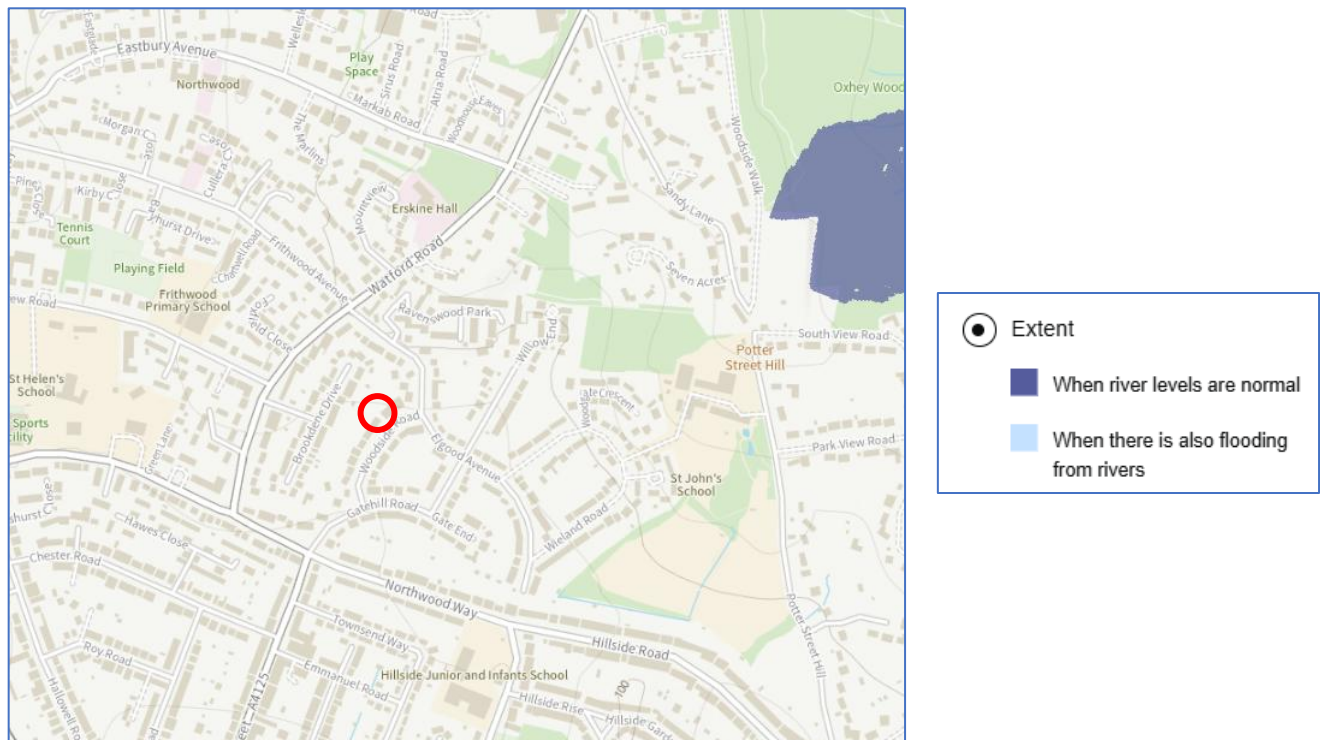


Figure 9 – Environment Agency Flood Map (from reservoirs) for the proposed development

3. SUSTAINABLE URBAN DRAINAGE SYSTEMS

Surface water arising from a developed site should, as far as is practicable, be managed in a sustainable manner to mimic the surface water flows arising from the site prior to the proposed development, while reducing the flood risk to the site itself and elsewhere, taking climate change into account.

Reducing the rate of surface water discharge from urban sites is one of the most effective ways of reducing and managing flood risk.

Traditional piped surface water systems work by removing surface water from our developments as quickly as possible, however this can cause various adverse impacts:

- Increased downstream flooding, and sudden rises in flow rates and water levels in local water courses.
- Reduction in groundwater levels and dry weather flows in watercourses.
- Reduce amenity and adversely affect biodiversity due to the surface water runoff containing contaminants such as oil, organic matter and toxic materials

SuDS are defined as a sequence of management principles and control structures designed to drain surface water in a more sustainable fashion than conventional piped drainage techniques. SuDS should utilise the natural landscape of an area which as well as slowing down the rate of runoff provides a number of environmental, ecological and social benefits.

These include:

- Protection and enhancement of water quality. As well as providing on-site attenuation, SuDS treat the water, resulting in an improved quality of water leaving the site. This is achieved when the water passes through fine soils and the roots of specially selected plants. Pollutants washed off the hard landscaping by rainfall will be safely removed before the water reaches the natural receiving water course.
- A sympathetic approach to the environmental setting by providing opportunities to create habitats for flora and fauna in urban watercourses and open spaces.
- Meeting the amenity and social needs of the local community and residents in the creation of attractive green spaces.

The various types of SuDS include:

Permeable paving	
Soakaways;	
Swales and basins;	
Bioretention/ rain gardens;	
Green roofs and rainwater re-use;	

Preferably a combination of these techniques should be used as part of the surface water management train, and it is important for all stakeholders, such as developers, architects, landscape architects and engineers to work in order to determine a feasible solution.

The SuDS management train is shown below, and this has been followed when proposing the proposed Sustainable Urban Drainage Systems for this site.

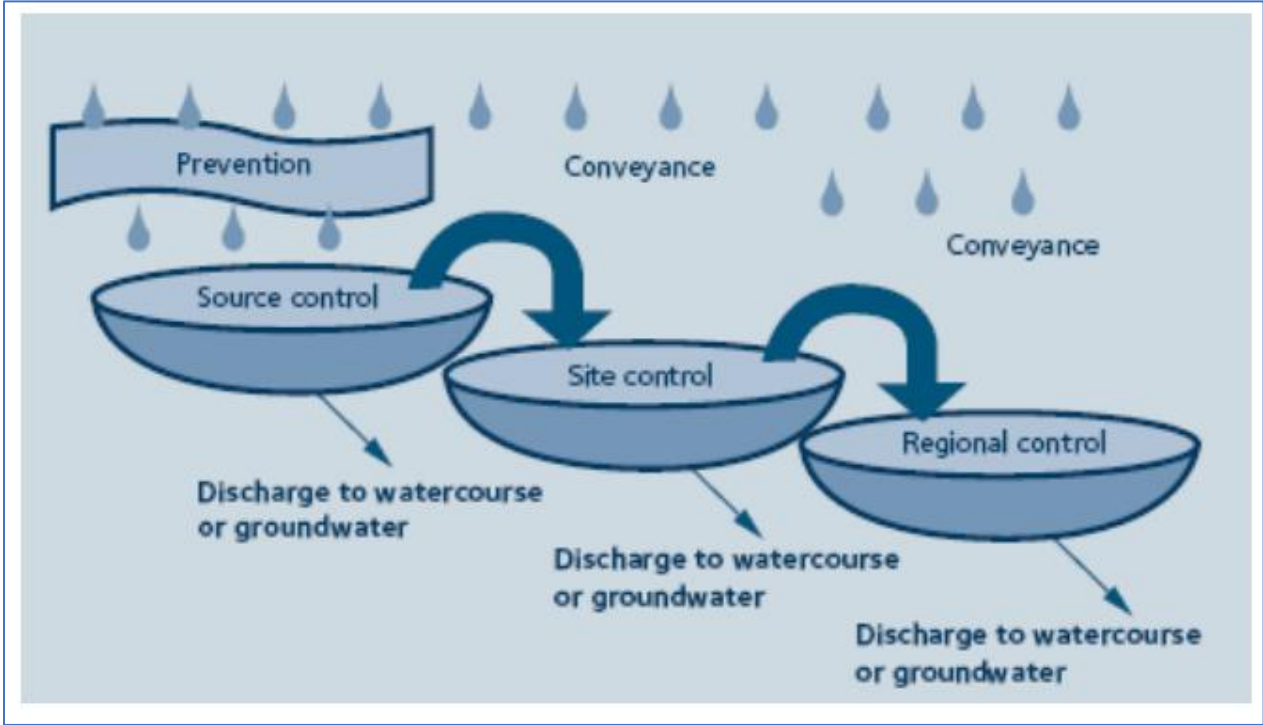


Figure 10 – SuDS Management Train

4. PROPOSED SOLUTION

The total site area is 1721m², and the existing impermeable areas at the site equate to 895m² consisting of the existing dwelling and landscaped areas. Following the proposed development, the impermeable areas at the site will have increased to 897m², prior to any mitigation by SuDS, with the proposed extension and basement extents totalling only 69m², however the basement extents are underneath an existing hardstanding surface, therefore we do not require any SuDS mitigation for this, and our client will provide one rainwater harvesting tank at the dwelling.

Pre and post development surface water run off calculations prior to the inclusion of SuDS have been provided in Appendix B.

The underlying geology consists of clay, therefore soakaways are not feasible, however there are surface water sewers in the vicinity of the site, as per the asset plans provided in Appendix C.

This proposed SuDS solution is proportionate to the nature and scale of the development.

5. TIMESCALE AND MAINTENANCE OF WORKS

All drainage works shall be completed prior to first occupation and there shall be no adoption of any of the drainage works within the site, the residents will be responsible to oversee the long-term maintenance of the drains. The following outline maintenance strategy sets out recommended timescales for maintenance of the proposed drainage works, in line with CIRIA SuDS Design Guide:

- Regular inspection will comprise the inspection and cleaning of catchment, gutters, filters and tanks to reduce the likelihood of contamination, this is recommended to be carried out every 3 to 6 months.

Maintenance schedule	Required action	Typical Frequency
Regular maintenance	Inspection of the tank for debris and sediment build-up, inlets/outlets/withdraw devices, overflow areas, pumps, filters	Annually (and following poor performance)
	Cleaning of tank, inlets, outlets, gutters. Withdrawal devices and roof drain filters of silts and other debris	Annually (and following poor performance)
Occasional maintenance	Cleaning and/ or replacement of any filters	Three monthly (or as required)
Remedial actions	Repair of overflow erosion damage or damage to tank	As required
	Pump repairs	As required

Table 2: Operation and maintenance requirement for RWH systems.

6. SUMMARY AND CONCLUSIONS

The site is at a very low risk from flooding from groundwater, tidal, fluvial, sewer and reservoir flooding. There is also a low risk of surface water flooding, towards the rear of the existing dwelling, however this is caused by surface water ponding in naturally low lying areas.

The groundwater levels are well below the proposed basement level; however the basement will still be designed as a watertight element in the unlikely event that there is any groundwater ingress from perched water.

The proposals will not impact on any known flood flow route or flood storage area.

A SuDS solution which follows the SuDS hierarchy has been proposed which includes a rainwater harvesting tank, and no other SuDS are required as the basement will be extended underneath an existing hardstanding area.

15 Woodside Road, Northwood, HA6 3QE
Nimbus Engineering Consultants Ltd
Basement Impact Assessment & SuDS Report
March 2026

APPENDIX A – DRAWINGS



Amendments/Notes

Rev.	Detail	By	Date
A	Amendments as per client's email dated 09.12.25	MS	12.12.2025
B	Amendments as per meeting on 7th Jan 2026	MS	07.01.2026
C	Basement size reduced	MS	25.02.2026

PLANNING ISSUE

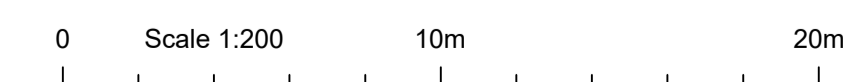
All dimensions and levels to be checked on site by contractor prior to preparation of shop drawings and commencement of work on site.
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 This drawing is to be read in conjunction with all relevant consultants and/or specialist's drawings/documents and any discrepancies or variations are to be notified to the Architect before the affected work commences.
 All works on site are to be carried out fully in accordance with current CDM regulations and recommendations, current Building Regulations, British Standards and Codes of Practice as appropriate.

Project
 15 WOODSIDE ROAD
 GATEHILL ESTATE
 NORTHWOOD
 HA6 3QE

Drawing
 PROPOSED
 SITE PLAN
 --

SEABROOK ARCHITECTS
 CHARTERED ARCHITECTS
 Unit17, Chiltern Court, Ashridge Road,
 Chesham, Bucks HP5 1PX
 Tel: 01494 778918 e-mail:gsp@gsparchitects.co.uk

Drawn By	MS	Date	NOV 2025
Checked By	Checked by	Date	Checked date
Approved By	Approved	Scale	1:200@A1
Drawing No.	5123 - PL(A) 100	Rev.	C



Amendments/Notes

Rev.	Detail	By	Date
A	Amendments as per client's email dated 09.12.25	MS	12.12.2025
B	Amendments as per meeting on 7th Jan 2026	MS	07.01.2026
C	Amendments as per emails dated 08th Jan 2026	MS	09.01.2026
D	Bifolding doors to rear extension	MS	12.01.2026
E	Basement size reduced	MS	25.02.2026

PLANNING ISSUE

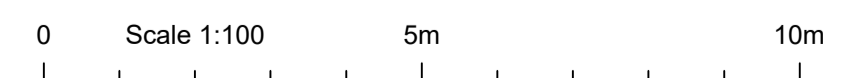
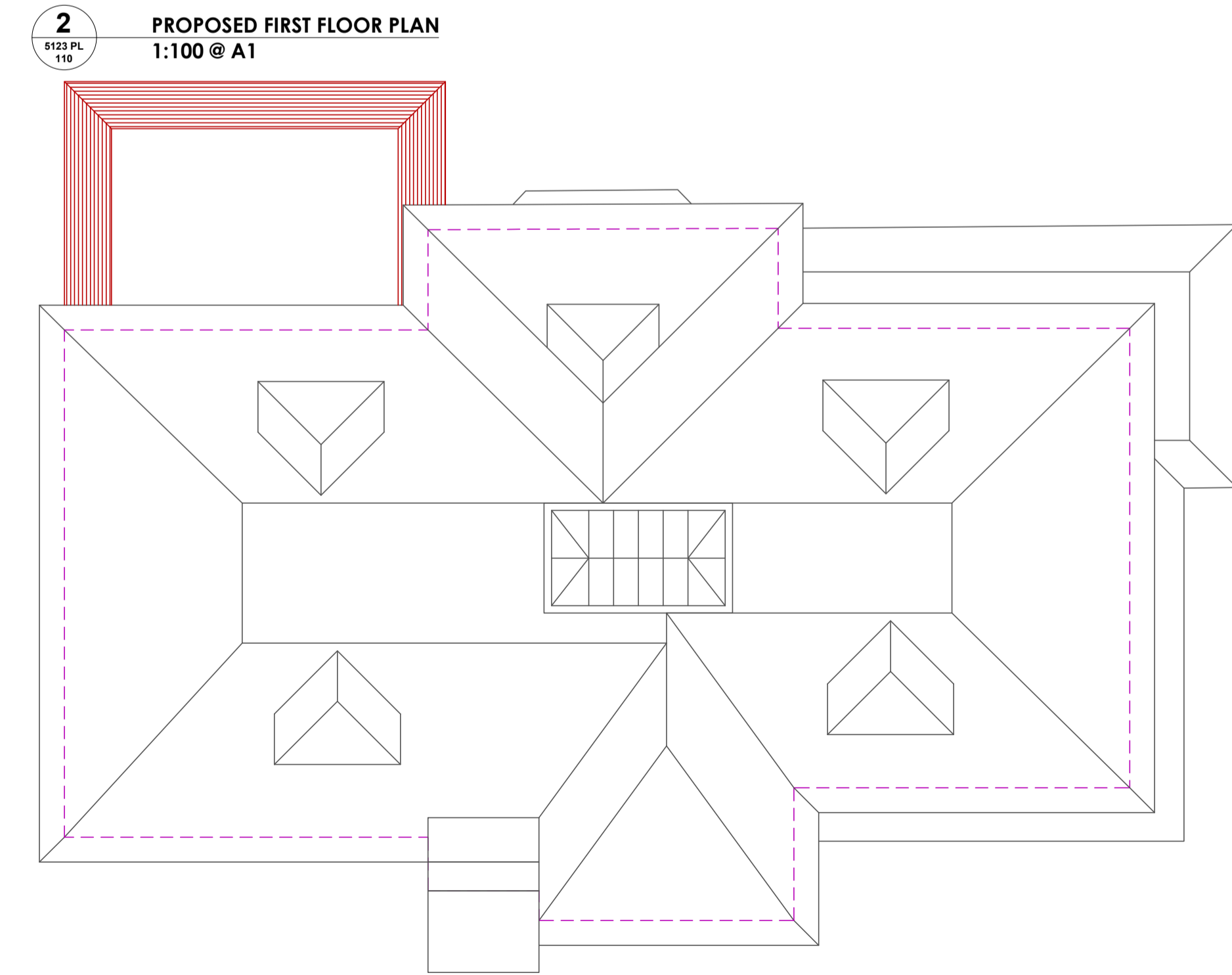
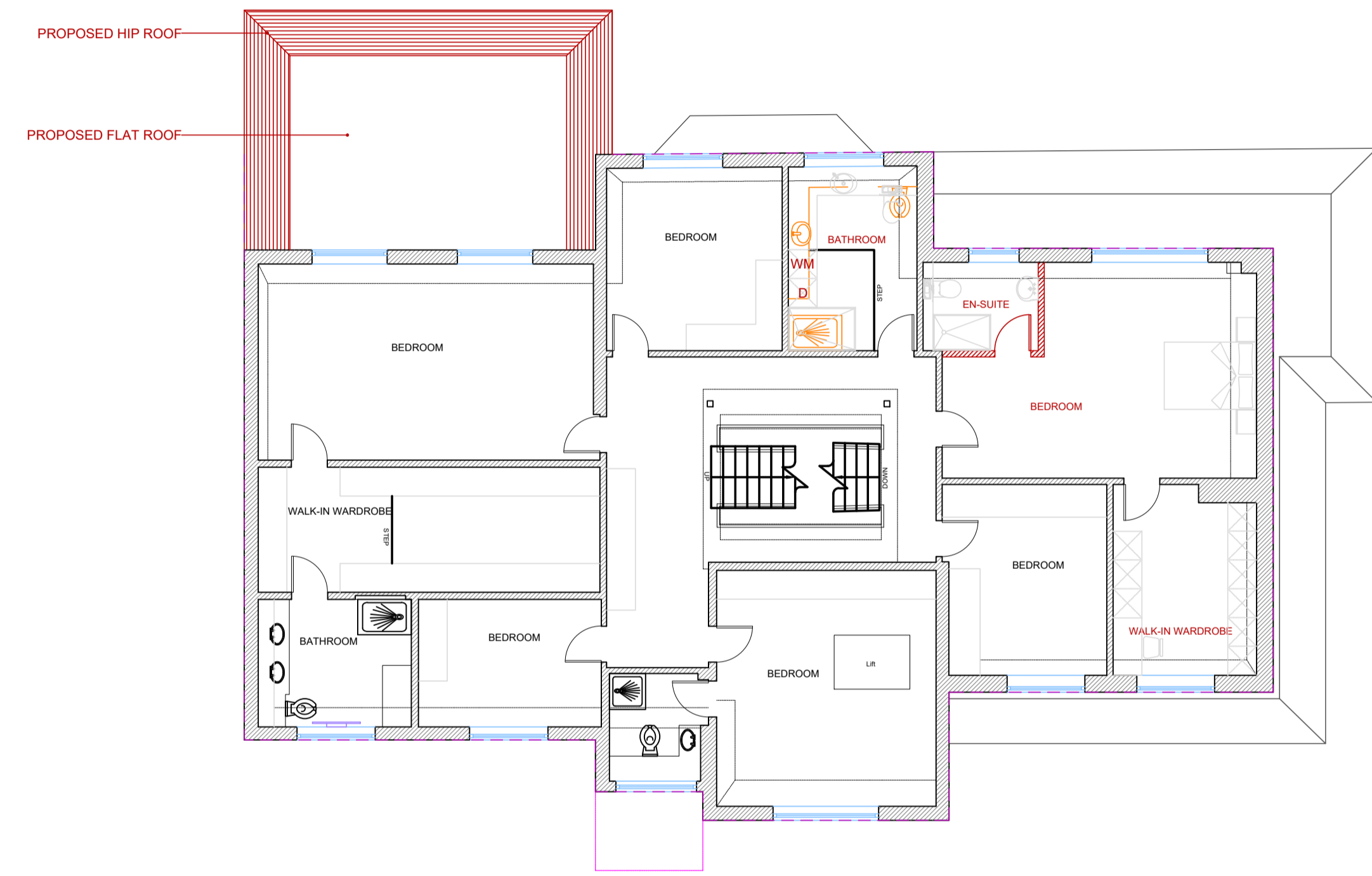
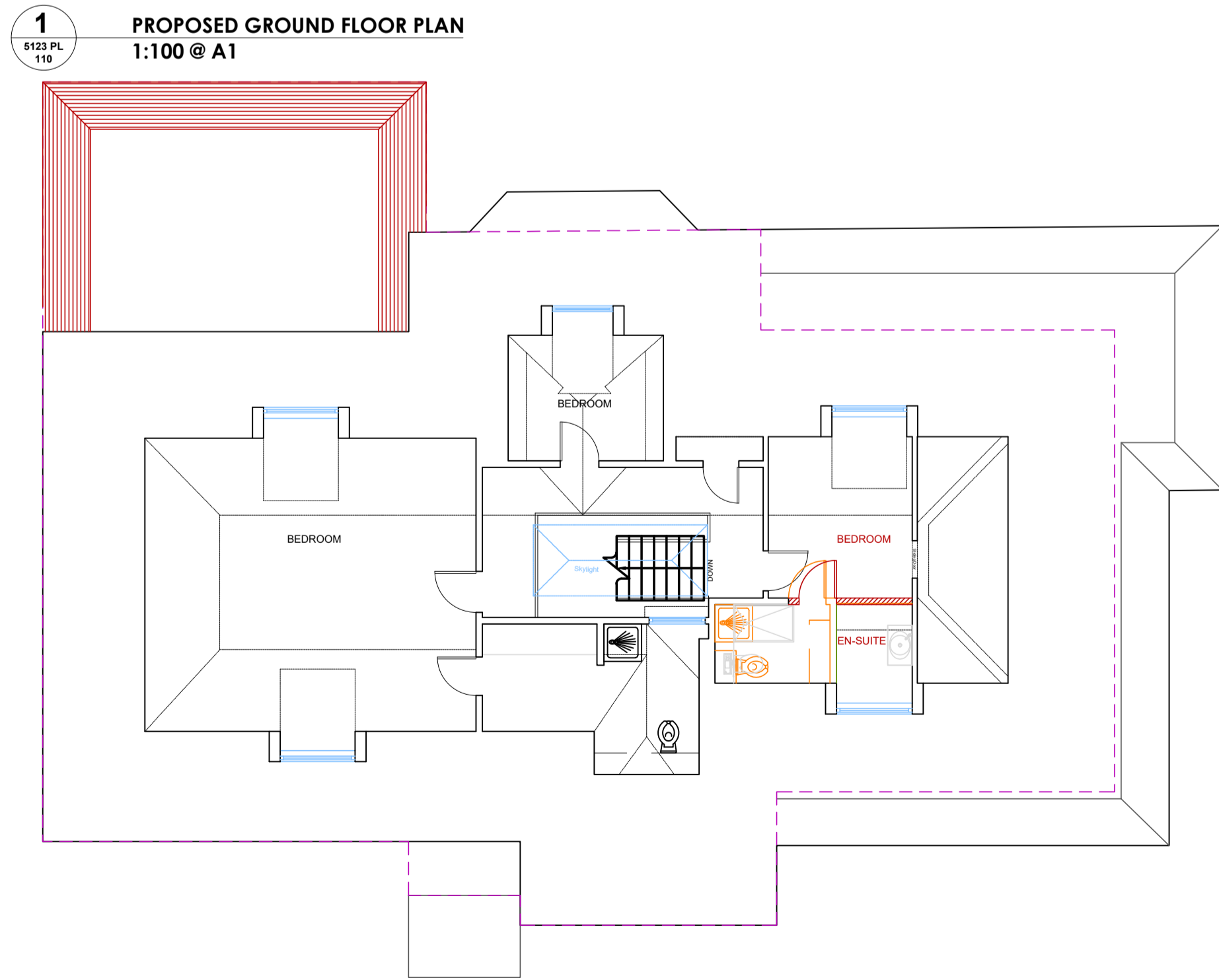
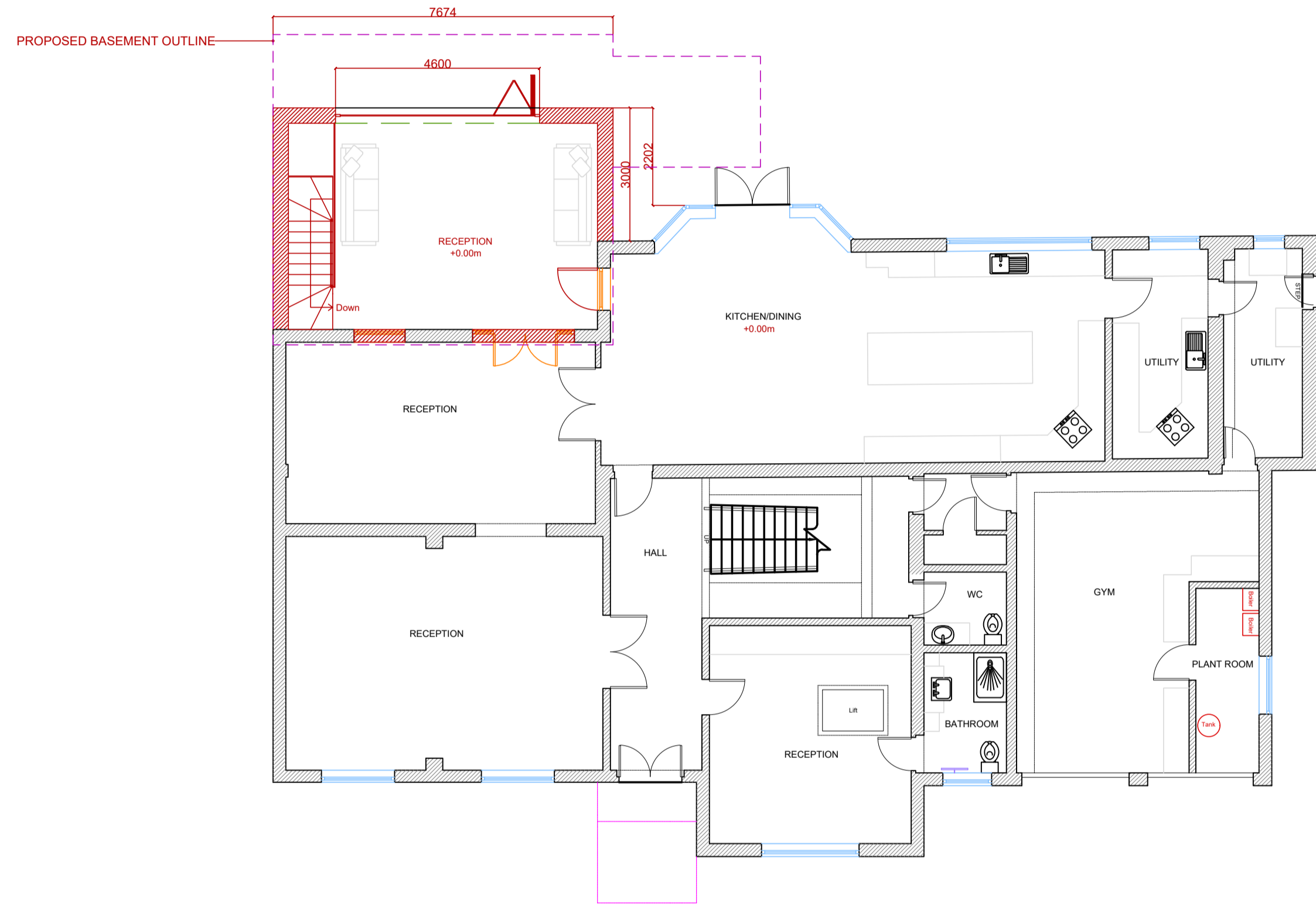
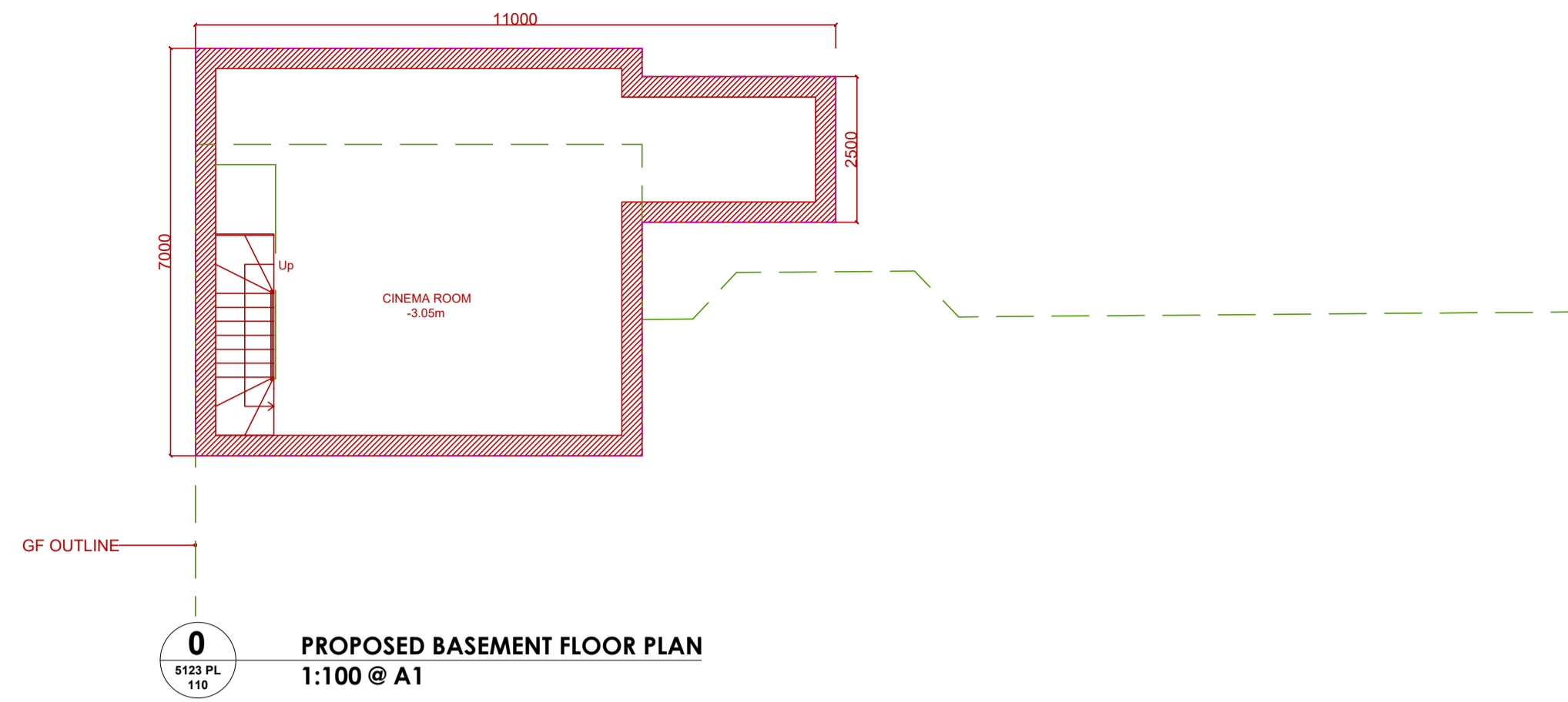
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Project
**15 WOODSIDE ROAD
 GATEHILL ESTATE
 NORTHWOOD
 HA6 3QE**

Drawing
**PROPOSED
 FLOOR PLANS**
 --

**SEABROOK
 ARCHITECTS**
 CHARTERED ARCHITECTS
 Unit17, Chiltem Court, Ashridge Road,
 Chesham, Bucks HP5 1PX
 Tel: 01494 778918 e-mail:gsp@gsparchitects.co.uk

Drawn By	MS	Date	NOV 2025
Checked By	Checked by	Date	Checked date
Approved By	Approved	Scale	1:100@A1
Drawing No.	5123 - PL(A) 110	Rev.	E



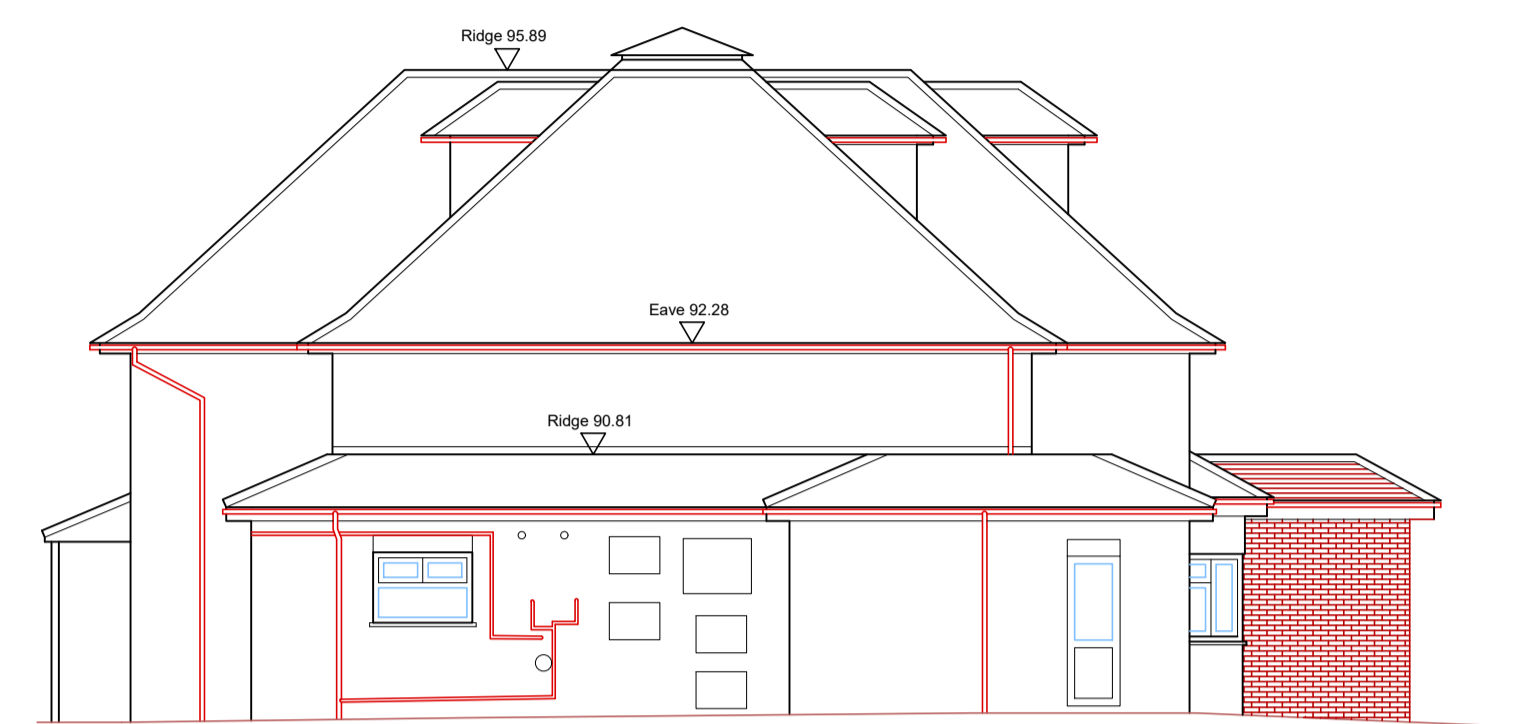
Amendments/Notes

Rev.	Detail	By	Date
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B	Amendments as per meeting on 7th Jan 2026	MS	07.01.2026
C	Amendments as per emails dated 09th Jan 2026	MS	09.01.2026
D	Bifolding doors to rear extension	MS	12.01.2026
E	Basement size reduced	MS	25.02.2026



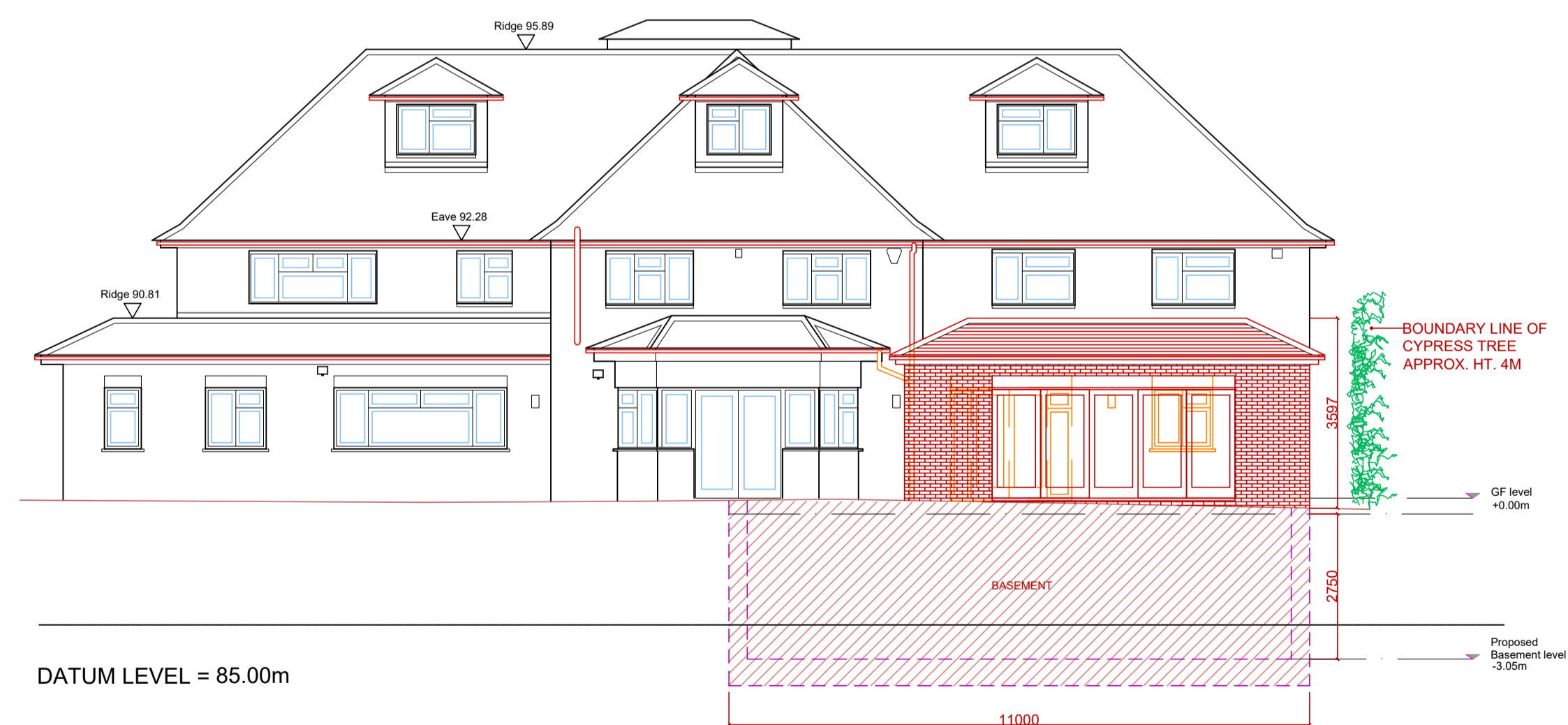
DATUM LEVEL = 85.00m

1 PROPOSED FRONT ELEVATION
1:100 @ A1



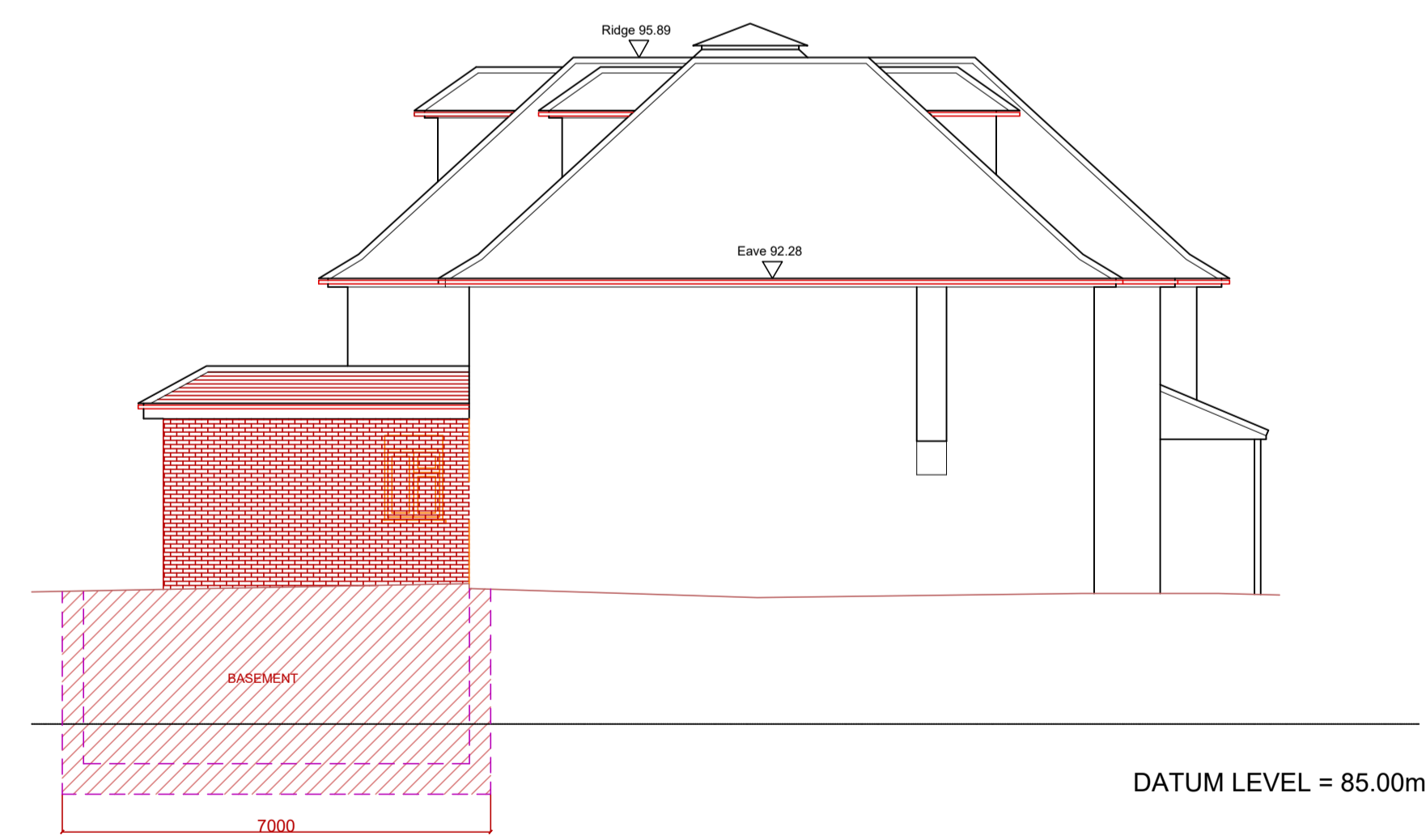
DATUM LEVEL = 85.00m

2 PROPOSED FLANK ELEVATION
1:100 @ A1



DATUM LEVEL = 85.00m

3 PROPOSED REAR ELEVATION
1:100 @ A1



DATUM LEVEL = 85.00m

4 PROPOSED FLANK ELEVATION (RESTRICTED VIEW)
1:100 @ A1

PLANNING ISSUE

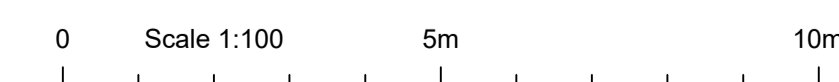
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Project
15 WOODSIDE ROAD
GATEHILL ESTATE
NORTHWOOD
HA6 3QE

Drawing
PROPOSED
ELEVATIONS
--

SEABROOK ARCHITECTS
CHARTERED ARCHITECTS
Unit17, Chiltem Court, Ashridge Road,
Chesham, Bucks HP5 1PX
Tel: 01494 778918 e-mail:gsp@gsparchitects.co.uk

Drawn By	MS	Date	NOV 2025
Checked By	Checked by	Date	Checked date
Approved By	Approved	Scale	1:100@A1
Drawing No.	5123 - PL(A) 120	Rev.	E



APPENDIX B – HISTORIC BOREHOLES



NGRC
BOREHOLE RECORDS
ADJUSTMENT FORM

QUARTER SHEET TQ 19 SW

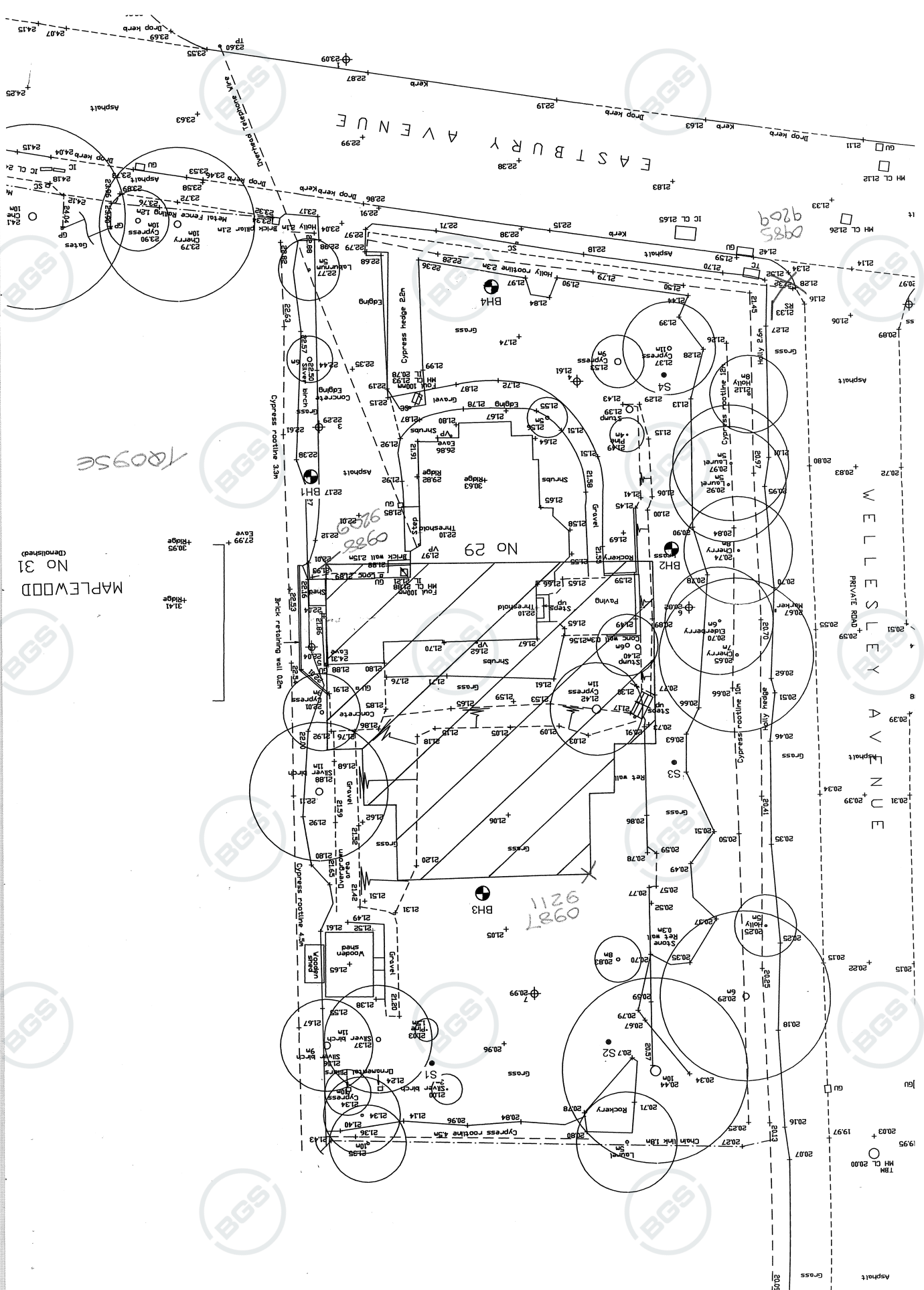
BH REGISTRATION NUMBER 101 - 119

RECORDS ENTERED AND HELD BY WALLINGFORD

BH REGISTRATION NUMBER(S)



IGES Talisman House, 11 Talisman Square, KENILWORTH, CV8 1JB. e-mail: info@iges.co.uk Tel: 01926 851113 Fax: 01926 851394		Job No. 7542	Site : 29 EASTBURY AVENUE, NORTHWOOD		BOREHOLE LOG	
Method Endrive Rig System.		Date 02/08/02 - 02/08/02	Drilling Crew Premier Sampling	Logged By MB	BH 4 Sheet 1 of 1 Scale 1:50	
Dia (mm) 100	Coord		Ground Level m. 21.90			
Date & Casing Depth	Depth m.	Sample Type	Water Level	SPT N or Cu	M/C %	Depth m.
02/08/02	0.50	D				0.20 0.40 1.45
						Topsoil. Firm orange brown mottled brown slightly gravelly CLAY. Gravel is fine to coarse flint. WEATHERED LONDON CLAY. Firm becoming stiff brown occasionally mottled orange brown CLAY. LONDON CLAY.
Remarks		GROUNDWATER				
1/ Groundwater was not encountered.		Struck	Cased	20 mins	Sealed	Remarks





ENVIRONMENT AGENCY

Form WR - 38	Ref: <i>ellesselle, gate end, northwood.doc</i>	Agency No.
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BOREHOLE RECORD

Accession No. *46477*
A. SITE DETAILS
THAMES EA

256

TQ19/74
TQ19SW/132

Borehole drilled for:	Mr Lawson		
Location:	Ellesselle, Gate End, Northwood, Middlesex		
N.G.R.:	TQ 101 913		
Ground Level (if known):	SURFACE		
Drilling Company:	W.B. & A.D. MORGAN LTD., PRESTEIGNE, POWYS. LD8 2UF		
Date of Drilling:	Commenced:	<i>7/6/07</i>	Completed:
			<i>20/6/07</i>

B. CONSTRUCTION DETAILS

Borehole datum (if not ground level) GROUNDLEVEL
(Point from which all measurements of depth are taken e.g. flange, edge of chamber, etc.)

Borehole drilled diameter.....

315	mm from	Surface	to	43	m/depth
200	mm from	43	to	75	m/depth
	mm from		to		m/depth

Casing material: u.P.V.C diameter 103 mm from Surface to 75 m/depth
and type (e.g. plain steel, plastic slotted)

Plain	diameter	103	mm from	Surface	to	45	m/depth
Slotted	diameter	103	mm from	45	to	63	m/depth
Plain	diameter	103	mm from	63	to	69	m/depth
Slotted	diameter	103	mm from	69	to	75	m/depth

Grouting details: Pressure grout 43m to surface

Water struck at: 54 m (depth below datum - mbd)

Rest water level on completion: 44 m (depth below datum - mbd)

Estimated blowout yield: 360 Gallons per hour

C. STRATA LOG

Description of Strata	Thickness (m)	Depth (m)
Red brick	1	1
Consolidated brown clay with cobbles	9	10
Consolidated grey clay	16	26
Brown clay with yellow/green sands	7	33
Soft brown/yellow/green sands	3	36
Hard black/brown flint	4	40
Medium white chalk & flints	35	75

Other Comments (e.g. gas encountered, saline water intercepted, etc.)		Lined borehole due to flint bands	
Gravel Pack Quantity:	None	Temp Steel Casing: Depth and Diameter	2m x 340mm
Cement:	2,000kg		
Rig & Crew:	Halco V666, D. Morris, J. Scott		

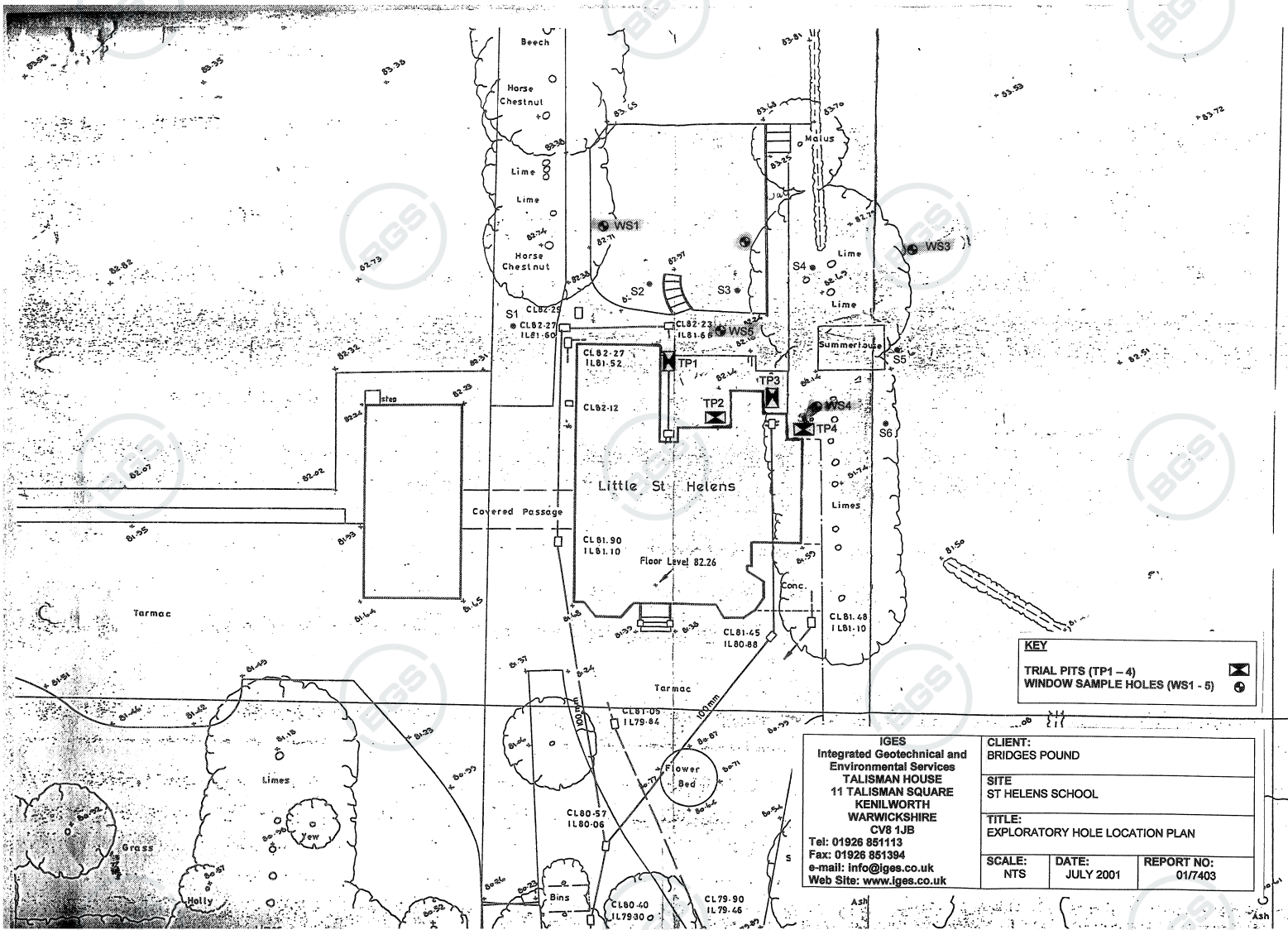


IGES		Talisman House, 11 Talisman Square, KENILWORTH, CV8 1JB. e-mail: info@iges.co.uk Tel: 01926 851113 Fax: 01926 851394		Job No. 7403	Site : St Helen's School, Northwood. Client : St Helen's School. Engineer : Bridges Pound Limited.		BOREHOLE LOG BH WS4				
Method Endrive Rig System.		Date 25/07/01 - 25/07/01		Drilling Crew Premier Sampling.		Logged By DMB		Scale 1:50			
Dia (mm) 82MM		Coord		Ground Level m. 82.00							
Date & Casing Depth	Depth m.	Sample Type	Water Level	SPT N or Cu	M/C %	Depth m.	Description of Strata	Legend			
1.00	0.20	J	DRY			0.30	Dense black rough tarmac and hardcore comprised of fine to coarse angular gravel sized fragments of clinker, brick, limestone and tarmac with some large roots. MADE GROUND.	[Pattern]			
1.00	0.50	P	DRY	75				[Pattern]			
1.00	0.70	P	DRY	70				[Pattern]			
1.00	0.90	P	DRY	80			Firm to stiff light brown mottled grey slightly sandy slightly gravelly CLAY. Gravel fraction comprises fine to medium sub angular to rounded flint, quartz and mudstone. Includes many roots, rootlets and some relic rotting root traces. HEAD.	[Pattern]			
1.00	1.00 - 1.45	SJ	DRY	10N				[Pattern]			
1.00	1.50	P	DRY	170		1.50	Roots seen to 1.50m.	[Pattern]			
1.00	1.65	J	DRY				Firm becoming stiff light brown mottled grey CLAY. Weathered LONDON CLAY.	[Pattern]			
1.00	1.70	P	DRY	175				[Pattern]			
1.00	1.90	P	DRY	125				[Pattern]			
1.00	2.00 - 2.45	SJ	DRY	9N				[Pattern]			
1.00	2.50	P	DRY	125				[Pattern]			
1.00	2.70	P	DRY	150				[Pattern]			
1.00	2.90	P	DRY	140				[Pattern]			
1.00	3.00 - 3.45	SJ	DRY	12N			From 3.00m occasional fine to coarse sand sized selenite crystals noted.	[Pattern]			
1.00	3.50	P	DRY	200				[Pattern]			
1.00	3.70	P	DRY	150				[Pattern]			
1.00	3.90	P	DRY	200				[Pattern]			
1.00	4.00 - 4.45	SJ	DRY	18N				[Pattern]			
25/07/01						4.45		[Pattern]			
Remarks							GROUNDWATER				
1/ Borehole was dry. 2/ Borehole was monitored for gas. 3/ Borehole backfilled with arisings.							Struck	Cased	20 mins	Sealed	Remarks



IGES		Talisman House, 11 Talisman Square, KENILWORTH, CV8 1JB.		Job No. 7403	Site : St Helen's School, Northwood. Client : St Helen's School.		BOREHOLE LOG	
e-mail: info@iges.co.uk Tel: 01926 851113 Fax: 01926 851394					Engineer : Bridges Pound Limited.		BH WS4	
Method Endrive Rig System.		Date 25/07/01 - 25/07/01		Drilling Crew Premier Sampling.		Logged By DMB		Scale 1:50
Dia (mm) 82MM		Coord		Ground Level m. 82.00				
Date & Casing Depth	Depth m.	Sample Type	Water Level	SPT N or Cu	M/C %	Depth m.	Description of Strata	Legend
1.00	0.20	J	DRY			0.30	Dense black rough tarmac and hardcore comprised of fine to coarse angular gravel sized fragments of clinker, brick, limestone and tarmac with some large roots. MADE GROUND.	[Pattern]
1.00	0.50	P	DRY	75				[Pattern]
1.00	0.70	P	DRY	70				[Pattern]
1.00	0.90	P	DRY	80			Firm to stiff light brown mottled grey slightly sandy slightly gravelly CLAY. Gravel fraction comprises fine to medium sub angular to rounded flint, quartz and mudstone.	[Pattern]
1.00	1.00 - 1.45	SJ	DRY	10N			Includes many roots, rootlets and some relic rotting root traces. HEAD.	[Pattern]
1.00	1.50	P	DRY	170		1.50	Roots seen to 1.50m.	[Pattern]
1.00	1.65	J	DRY				Firm becoming stiff light brown mottled grey CLAY. Weathered LONDON CLAY.	[Pattern]
1.00	1.70	P	DRY	175				[Pattern]
1.00	1.90	P	DRY	125				[Pattern]
1.00	2.00 - 2.45	SJ	DRY	9N				[Pattern]
1.00	2.50	P	DRY	125				[Pattern]
1.00	2.70	P	DRY	150				[Pattern]
1.00	2.90	P	DRY	140				[Pattern]
1.00	3.00 - 3.45	SJ	DRY	12N			From 3.00m occasional fine to coarse sand sized selenite crystals noted.	[Pattern]
1.00	3.50	P	DRY	200				[Pattern]
1.00	3.70	P	DRY	150				[Pattern]
1.00	3.90	P	DRY	200				[Pattern]
1.00	4.00 - 4.45	SJ	DRY	18N				[Pattern]
25/07/01						4.45		[Pattern]

Remarks	GROUNDWATER				
	Struck	Cased	20 mins	Sealed	Remarks
1/ Borehole was dry. 2/ Borehole was monitored for gas. 3/ Borehole backfilled with arisings.					



APPENDIX C – SURFACE WATER RUN OFF CALCULATIONS



Nimbus Engineering Consultants Ltd

www.nimbusengineering.co.uk

Kemp House,
152 City Road,
London, EC1V 2NX
Mob:0772 339 3155
email: info@nimbusengineering.co.uk

Job No.	C3717	
Sheet no.	1	
Date	04/02/26	
By	Checked	Reviewed
M.HAM		

MasterDrain
HY 10.01

Project **15 Woodside Road, Northwood, HA6 3QE**
 Title **Pre & Post Development SW Runoff Calcs Prior to SuDS**

Data:-

Hydrology (FSR):-

Location = NORTHWOOD

Long reference = 510190

M5-60 (mm) = 20.4

r = 0.43

Hyd. area = 6

Hydrograph = Winter

WRAP = 4

Grid reference = TQ1090

SAAR (mm/yr) = 695

Soil = 0.47

Hyd. zone = 8

Area = England & Wales

Site values used in design:-

Total site area = 0.1721 ha

Pre-dev area drained = 0.0895 ha

Imperm runoff factor = 100%

Climate change factor = 45%

Post-dev area drained = 0.0897 ha

Perm runoff factor = 20%

Pre-development

Area to soakaways = 0.0000 ha

Perv. area to SUDS = 0.0000 ha

Area to other SUDS = 0.0000 ha

Pre-dev flow to drain = 0.00 l/s

Post-development

Area to soakaways = 0.0000 ha

Perv. area to SUDS = 0.0000 ha

Area to other SUDS = 0.0000 ha

Post-dev flow to drain = 0.00 l/s

Calculations:-

Revised Post-dev Imperm. area = 0.090 ha

Equiv. Post-dev Imperm. area = 0.090 ha

Equiv. Post-dev Perm. area = 0.016 ha

Total Pre-dev equiv. area ha = 0.106 ha

Total Post-dev equiv. area ha = 0.106 ha

100 yr 6 hour mean intensity = 10.30mm/hr

Results:-

Pre-dev peakflow runoff (l/s) (m³/s)

R.P.	15	30	60	120	240	360	480	600	Max	CCF	Final	R.P.
1	24.0	15.7	9.9	5.9	3.6	2.7	2.2	1.8	24.0	N/A	24.0	1
30	58.6	37.7	23.1	13.8	8.1	5.8	4.7	3.9	58.6	N/A	58.6	30
100	76.1	49.4	30.4	18.1	10.5	7.6	6.0	5.0	76.1	N/A	76.1	100

Post-dev peakflow runoff (l/s)

R.P.	15	30	60	120	240	360	480	600	Max	CCF	Final	R.P.
1	24.0	15.8	9.9	5.9	3.6	2.7	2.2	1.8	24.0	45	34.9	1
30	58.7	37.7	23.2	13.8	8.1	5.9	4.7	3.9	58.7	45	85.1	30
100	76.3	49.4	30.5	18.2	10.5	7.6	6.0	5.0	76.3	45	110.6	100

100 year 6 hour (x Climate Change Factor) storm gives:-

Pre-dev runoff volume m³ = 65.5m³

Post-dev rainfall volume = 95.1m³

Post-dev volume m³ (excess above SUDS) = 95.1m³

100 yr 6 hour mean intensity = 10.30mm/hr

Pre-dev volume to drain at 0 l/s = 0.0 m³

Post-dev volume to drain at 0 l/s = 0.0 m³

Post-dev storage volume = 95.1m³

Post-dev 5mm imperm volume = 4.5 m³

Post-dev 5mm perm volume = 4.1 m³

Q_{BAR(rural)} = 0.824 l/s or 4.788 l/s/ha or 0.001 cumecs - from IoH 124.

The rainfall rates are calculated using the location specific values above in accordance with the Wallingford procedure.



Nimbus Engineering Consultants Ltd

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Job No.	C3717	
Sheet no.	2	
Date	04/02/26	
By	Checked	Reviewed
M.HAM		

MasterDrain
HY 10.01

Project	15 Woodside Road, Northwood, HA6 3QE
Title	Pre & Post Development SW Runoff Calcs Prior to SuDS

Data summary.

Use the data below for the SUR1 form

Site areas:-

Total site area	=	0.1721 ha	;1721.0 m ²	[3A]
Pre-development impermeable area	=	0.0895 ha		[3B]
Pre-development permeable area	=	0.0826 ha		
Post-development impermeable area	=	0.0897 ha		[3C]
Post-development permeable area	=	0.0824 ha		

Peak runoff:-

Pre-development 1 year storm (15min)	=	24.0 l/s	[6A]
Pre-development 100 year storm (15min)	=	76.1 l/s	[6C]
Post-development 1 year storm (15min)	=	24.0 l/s	[6B]
Post-development 100 year storm (15min)	=	76.26 l/s	[6D]

Greenfield runoff:-

$$Q_{BAR(rural)} = 0.824 \text{ l/s} \text{ or } 4.788 \text{ l/s/ha} \text{ or } 0.001 \text{ cumecs} - \text{ from IoH 124.}$$

Climate change factor:-

$$CCF = 45\%$$

Volumes:-

Pre-development 100 yr/6hr storm	[12A]=	95.0m ³
Post-development 100 yr/6hr storm (add. volume with no SUDS)	[12B]=	95.1m ³
Post-development 100 yr/6hr storm (add. volume with SUDS)	=	95.1m ³
Post-development add. predicted volume (No SUDS)	[12C]	= 0.1m ³

You may also require

- Data relating to the infiltration test calculations (if applicable)
- Evidence to show runoff reduction (if applicable)
- Information on calculation methods (if applicable see next sheet)

Note

Numbers in square brackets relate to the
Nov. 2010 v1.1 / issued 11/02/10 copy of SUR1



MasterDrain
HY 10.01

Nimbus Engineering Consultants Ltd

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Job No. C3717		
Sheet no. 3		
Date 04/02/26		
By M.HAM	Checked	Reviewed

Project **15 Woodside Road, Northwood, HA6 3QE**

Title **Pre & Post Development SW Runoff Calcs Prior to SuDS**

Definitions and methods

Hydrology

The hydrological constants are derived from the Wallingford maps. They are used to calculate location specific rainfall figures.

Site values and factors

Areas of the site should be entered in hectares (10000 m²). If the Pre-development site is a green field, this box is blank.

Climate Change Factor is initially set at 20% - this may be changed as required.

Greenfield runoff is calculated using the method described in loH 124.

Runoff factors

The impermeable runoff factor is initially set at 98%

The permeable runoff factor is initially set at 20%

Note: the CCF and the runoff factors may be changed by the user to suit the development

The areas draining to soakaways and other SUDS are entered in the appropriate box (in hectares)

Calculations

The post-development area is reduced by subtracting the areas that drain to soakaways or other SUDS, to give a revised figure.

All areas are then multiplied by the appropriate runoff factor to give an equivalent area with 100% runoff.

These are then summated.

This gives a total pre-development equivalent area, and a similar figure for the post-development area.

The 'Post-dev volume to drain (no SUDS)' gives the total runoff to drain if no SUDS were used.

Results

The pre- and post-development areas are subjected to 1,30 and 100 year return period storms with a duration of 15 to 600 minutes.

The Revised Post-dev Imperm. area is the area (in ha) that is not going to SUDS x impervious runoff factor.

The runoff rates are calculated for the chosen hydrograph (Summer or Winter) as l/s. Figures in red indicate m³/s

The peak value is measured, multiplied by the CCF and the total maximum rate is shown.

The pre- and post-development volumes for a 100 year / 6 hour storm are calculated from the area under the hydrograph curve.

Post-dev volume (i.e. excess above SUDS) is that volume produced by the drained area that does not go to SUDS.

Qbar(rural) is calculated in accordance with the procedure laid down in loH 124

APPENDIX D – LOCAL WATER AUTHORITY ASSET PLANS



Nimbus Engineering Consultants Limited
CAPITAL OFFICE LTD, GROUND FLO
LONDON
EC1V 2NX

Search address supplied 15
Woodside Road
Northwood
HA6 3QE

Your reference C3717

Our reference ALS/ALS Standard/2026_5282735

Search date 4 February 2026

Keeping you up-to-date

Notification of price changes

We're changing our report prices from 4th June 2025. The price will increase by 3.5% based on Retail Price Index (RPI).

Find our new prices on our website thameswater.co.uk/property-searches

Any Questions? We're happy to talk through the changes with you – give our Property Searches team a call on 0800 009 4540 .



Thames Water Utilities Ltd
Property Searches,
Clearwater Court, Vastern Road, Reading RG1 8DB



property.searches@thameswater.co.uk
thameswater.co.uk/propertysearches



0800 009 4540

Search address supplied: 15, Woodside Road, Northwood, HA6 3QE

Dear Sir / Madam

An Asset Location Search is recommended when undertaking a site development. It is essential to obtain information on the size and location of clean water and sewerage assets to safeguard against expensive damage and allow cost-effective service design.

The following records were searched in compiling this report: - the map of public sewers & the map of waterworks. Thames Water Utilities Ltd (TWUL) holds all of these.

This search provides maps showing the position and size of Thames Water assets close to the proposed development and also manhole cover and invert levels, where available.

Please note that none of the charges made for this report relate to the provision of Ordnance Survey mapping information. The replies contained in this letter are given following inspection of the public service records available to this company. No responsibility can be accepted for any error or omission in the replies.

You should be aware that the information contained on these plans is current only on the day that the plans are issued. The plans should only be used for the duration of the work that is being carried out at the present time. Under no circumstances should this data be copied or transmitted to parties other than those for whom the current work is being carried out.

Thames Water do update these service plans on a regular basis and failure to observe the above conditions could lead to damage arising to new or diverted services at a later date.

Contact Us

If you have any further queries regarding this enquiry please feel free to contact a member of the team on 0800 009 4540, or use the contact details below:

Thames Water Utilities Ltd
Property Searches
Clearwater Court
Vastern Road
Reading
RG1 8DB

Email: property.searches@thameswater.co.uk

Web: thameswater.co.uk/propertysearches

Waste Water Services

Please provide a copy extract from the public sewer map.

Enclosed is a map showing the approximate lines of our sewers. Our plans do not show sewer connections from individual properties or any sewers not owned by Thames Water unless specifically annotated otherwise. Records such as "private" pipework are in some cases available from the Building Control Department of the relevant Local Authority. Where the Local Authority does not hold such plans it might be advisable to consult the property deeds for the site or contact neighbouring landowners. The public sewer map relates only to sewerage apparatus of Thames Water Utilities Ltd, it does not disclose details of cables and or communications equipment that may be running through or around such apparatus. The sewer level information contained in this response represents all of the level data available in our existing records. Should you require any further Information, please refer to the relevant section within the 'Further Contacts' page found later in this document.

For your guidance:

- The Company is not generally responsible for rivers, watercourses, ponds, culverts or highway drains. If any of these are shown on the copy extract they are shown for information only.
- Any private sewers or lateral drains which are indicated on the extract of the public sewer map as being subject to an agreement under Section 104 of the Water Industry Act 1991 are not an 'as constructed' record. It is recommended these details be checked with the developer.

Clean Water Services

Please provide a copy extract from the public water main map.

With regard to the fresh water supply, this site falls within the boundary of another water company. For more information, please redirect your enquiry to the following address:

Affinity Water Ltd
Tamblin Way

Asset Location Search



Property Searches

Hatfield
AL10 9EZ
Tel: 0845 7823333

For your guidance:

- Assets other than vested water mains may be shown on the plan, for information only.
- If an extract of the public water main record is enclosed, this will show known public water mains in the vicinity of the property. It should be possible to estimate the likely length and route of any private water supply pipe connecting the property to the public water network.

Further contacts:

Waste Water queries

Should you require verification of the invert levels of public sewers, by site measurement, you will need to approach the relevant Thames Water Area Network Office for permission to lift the appropriate covers. This permission will usually involve you completing a TWOSA form. You can do this by emailing customer.feedback@thameswater.co.uk with the email subject header 'Enquiry – TWOSA', along with details of the request.

If you have any questions regarding sewer connections, budget estimates, diversions or building over issues please direct them to our service desk which can be contacted by writing to:

Developer Services (Waste Water)
Thames Water
Clearwater Court
Vastern Road
Reading
RG1 8DB

Tel: 0800 009 3921
Email: developer.services@thameswater.co.uk

Clean Water queries

Should you require any advice concerning clean water connections, please contact:

Developer Services (Clean Water)
Thames Water
Clearwater Court
Vastern Road
Reading
RG1 8DB

Tel: 0800 009 3921
Email: developer.services@thameswater.co.uk

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
851E	n/a	n/a
0503	86.7	84.14
0607	94.59	91.9
0502	88.69	85.78
0505	88.91	87.47
951E	n/a	n/a
951F	n/a	n/a
951I	n/a	n/a
951H	n/a	n/a
951G	n/a	n/a
9503	89.4	88
9502	89.66	88.56
051B	n/a	n/a
9501	91.09	90.24
051A	n/a	n/a
061C	n/a	n/a
061B	n/a	n/a
9601	91.98	91.04
061G	n/a	n/a
061A	n/a	n/a
0608	93.74	91.99
061I	n/a	n/a
061J	n/a	n/a
061H	n/a	n/a
9401	82.75	79.81
9450	83.19	81.47
9402	85.75	82.68
9451	85.75	83.81
951A	n/a	n/a
951B	n/a	n/a
951C	n/a	n/a
8505	88.14	86.23
951D	n/a	n/a
0501	88.03	85.1
0504	88.03	86.58

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.



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

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.

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
 - Conduit Bridge
 - Subway
 - Tunnel
- Ducts may contain high voltage cables. Please check with Thames Water.

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.