

**PROPOSED
RESIDENTIAL DEVELOPMENT
AT
ST MARTIN'S CLOSE
BISHOPSTOKE**

**FLOOD RISK ASSESSMENT
AND
DRAINAGE PROPOSALS
REPORT**

Prepared for

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Flood Risk and Drainage Assessment Report October 23	2
Location plan and topographical details 50	7
Development layout plan 60	8
BGS ID_ 15953878 _ BGS Reference_ SU41NE322	9
BGS ID_ 15953879 _ BGS Reference_ SU41NE323	11
1255489_A3_Wastewater	13
1255489_A3_Clean Water	15

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PROPOSED RESIDENTIAL DEVELOPMENT AT ST MARTIN'S CLOSE, BISHOPSTOKE
FLOOD RISK ASSESSMENT AND DRAINAGE PROPOSALS REPORT

1. INTRODUCTION

- 1.1. Simon Jones-Parry, a chartered civil engineer, prepared this report for Giles Architects to support a full planning planning being made to Eastleigh Borough Council for development of a site at St Martin's Close, Eastleigh. The report addresses flood risk to the site and the means of disposal of sewage and rainwater from the development.
- 1.2. The current use of the site is residential. An existing bungalow, which is the only dwelling on the site, is to be demolished, and two detached dwellings are to be erected.
- 1.3. Plans showing the location of the site with existing topographical details and of the development are appended. The site is entirely located in Flood Zone 1 and has an area of approximately 0.27 hectares.
- 1.4. Neither the area of the site nor the scale of the development proposed leads to the development being classified as "major".
- 1.5. As yet no soil investigation has been undertaken, and therefore options for rainwater disposal are presented. A definitive solution for rainwater disposal will be devised for such drainage prior to demolition and new construction commencing.

2. MAPPED FLOOD RISK AND DRAINAGE ATTRIBUTES OF THE SITE

- 2.1. Mapped flood risk and drainage related attributes of the site are summarised in Table 1, below.

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FLOOD RISK ASSESSMENT AND DRAINAGE PROPOSALS REPORT

<u>Topic</u>	<u>Within the site</u>	<u>On Church Road</u>	<u>On Spring Lane</u>
Fluvial Flood Zone	Flood Zone 1	Flood Zone 1	Flood Zone 1
3.33% AEP Surface Water Hazard Rating	None present	Unclassified	None
1% AEP Surface Water Hazard Rating	None present	Mainly unclassified, locally “danger for some”	Mainly none, locally unclassified
0.1% AEP Surface Water Hazard Rating	None present	Extensively “danger for some”	Mainly unclassified, locally “danger for some” and “danger for most”
Risk of flooding from groundwater	No risk		
Superficial geological deposits	None shown on British Geological Survey mapping		
Bedrock	Whitecliff Sand Member - sand		
Water Supply Source Protection Zone	None present		
Southern Water Surface Water Sewer		Present	Present
Southern Water Foul Sewer		Present	Present
Proximity to SSSI/SAC	Not less than 190 metres		

Table 1 Risk of flooding and drainage related data

2.2. A record of a borehole made at 20 Church Lane, approximately 70 m north of the site, is appended. This record is taken from the British Geological Survey archive.

2.3. A copy of the Southern Water local sewerage and water main record is appended.

GILES ARCHITECTS
PROPOSED RESIDENTIAL DEVELOPMENT AT ST MARTIN'S CLOSE, BISHOPSTOKE
FLOOD RISK ASSESSMENT AND DRAINAGE PROPOSALS REPORT

3. FLOOD RISK TO DEVELOPMENT – DISCUSSION

- 3.1. Published maps of risk of flooding risk show that that there is neither fluvial nor surface water risk of flooding to the site. Some surface water flooding of Church Road and to a lesser degree of Spring Lane is predicted in response to extreme rainfall.
- 3.2. Subject to a check being made on the site of any special risk of flooding, satisfactory protection of the new dwellings from flooding can be guaranteed by setting the ground floors at least 150 mm above adjacent external finished ground levels and implementing a surface water drainage scheme meeting normal standards.
- 3.3. Short duration flooding resulting from very extreme rainfall event could temporarily adversely affect pedestrian access to and egress from the proposed dwellings via Church Road and Spring Lane. Mapping of the flooding is not precise and it is anticipated that the flooding will be mainly confined to the carriageway, and the footways can be used safely if appropriate care is taken by pedestrians. Vehicular access to and egress from the site would remain safe. This risk of flooding is too low to be a material consideration when determining the planning application.
- 3.4. Climate change predicted to occur in the lifetime of the development, nominally set at 100 years, would not cause the site to be subject to fluvial, groundwater or surface water flooding, but could increase the frequency of surface water flooding to the highways by which the site is accessed.

4. DISPOSAL OF RAINWATER

- 4.1. Building Regulations Approved Document Part H 2015 sets a hierarchy for rainwater disposal that is first collection for non potable use on site, second disposal to groundwater, third disposal to watercourse and last disposal to sewer.
- 4.2. Realistically the amount of rainwater to be disposed of exceeds the amount that can be consumed by non potable uses, leaving a surplus to be disposed of by other means.

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PROPOSED RESIDENTIAL DEVELOPMENT AT ST MARTIN'S CLOSE, BISHOPSTOKE
FLOOD RISK ASSESSMENT AND DRAINAGE PROPOSALS REPORT

- 4.3. The evidence of the nearby borehole log and British Geological Survey mapping is that ground conditions and the depth of the water table under the site will be suitable to enable the use of economical traditional or crate soakaways, trench soakaways and shallow drainage blankets. It is planned to use such means of rainwater disposal. Soil investigation will be done following the grant of planning consent. It will confirm parameters enabling the design and construction of infiltration based rainwater disposal meeting national and local standards.
- 4.4. If soil investigation and drainage design shows that the use of infiltration to dispose of surplus rainwater would result in uneconomical or unsustainable drainage works, the fall back option of making a restricted rate discharge to the surface water sewers located under Church Road and/or Spring Lane to dispose of surplus rainwater will be utilised.
- 4.5. Implementation of rainwater disposal systems meeting local and national policy and codes of practice on the site will ensure that the development does not exacerbate flood risk to third parties.

5. DISPOSAL OF SEWAGE

- 5.1. Sewage generated by the development will be disposed of to the Southern Water foul sewers in Church Road and/or Spring Lane. These sewers discharge to the Chickenhall Waste Water Treatment Works, the treated effluent from which is discharged to the River Itchen. As such the development will be subject to current nitrate and phosphate neutrality policies relating to the River Itchen and the Solent unless those policies are revoked by national government.
- 5.2. Compliance with nitrate and phosphate neutrality policies is dealt with elsewhere in the planning application documentation.

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FLOOD RISK ASSESSMENT AND DRAINAGE PROPOSALS REPORT

6. CONCLUSIONS

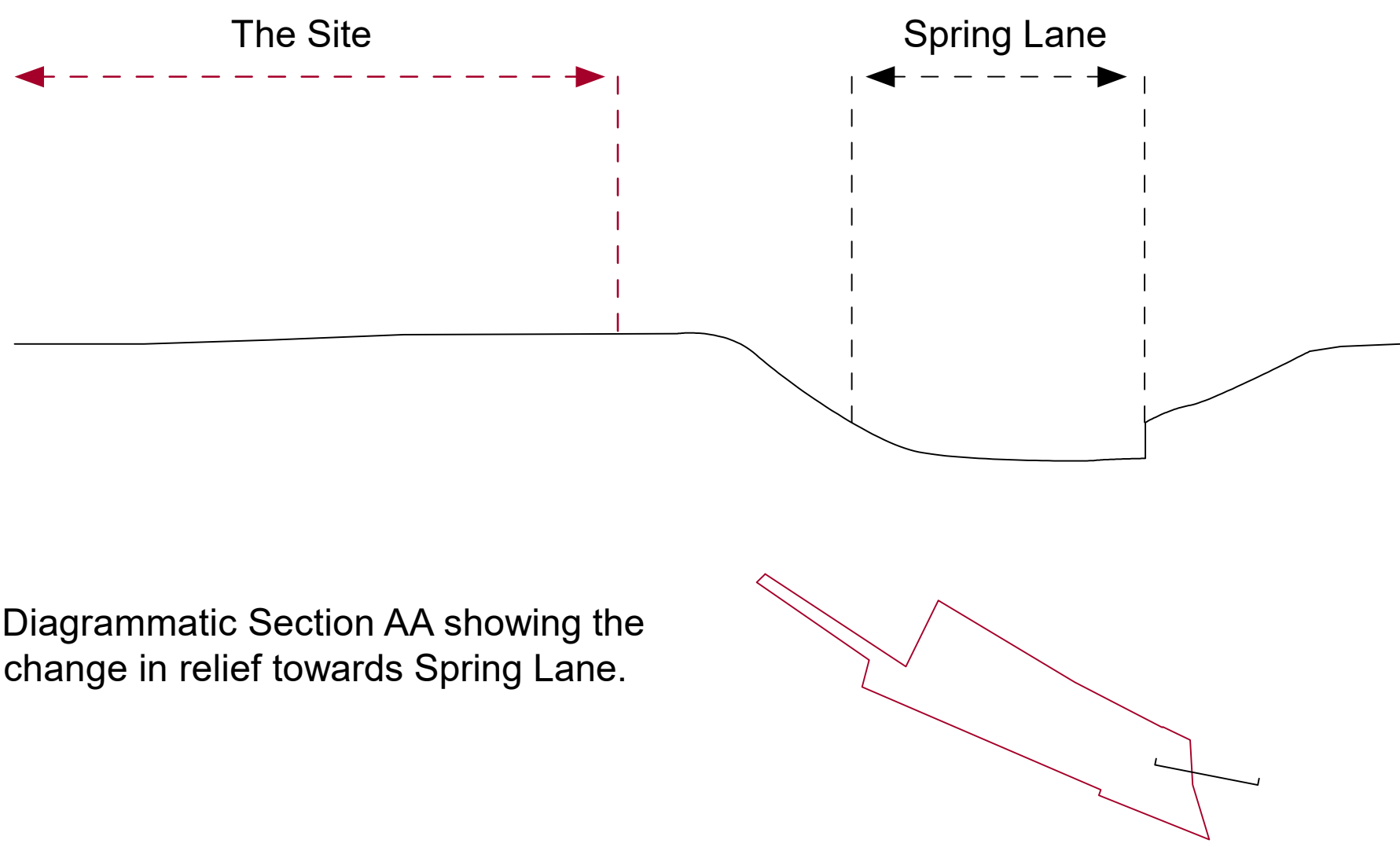
- 6.1. Flood risk to the development is satisfactory.
- 6.2. Satisfactory drainage of the development can be achieved, resulting in assurance that development as proposed will not cause exacerbation of flood risk to third parties.
- 6.3. Details of drainage design and drainage implementation can be regulated either by setting planning conditions, or by relying on the control exerted by Building Regulations, which are a guarantee that satisfactory drainage performance will be achieved.

05 The Existing Site

5.7 Existing Topo Survey

A topography survey was undertaken on the site in order to gain a detailed understanding of the existing site conditions and levels.

The site is uniform in elevation until it reaches the bank along Spring Lane to the east, where the topography falls away towards the road.



Diagrammatic Section AA showing the change in relief towards Spring Lane.



07 Design Proposal

7.2 Proposed Site Plan

Proposed Site Plan

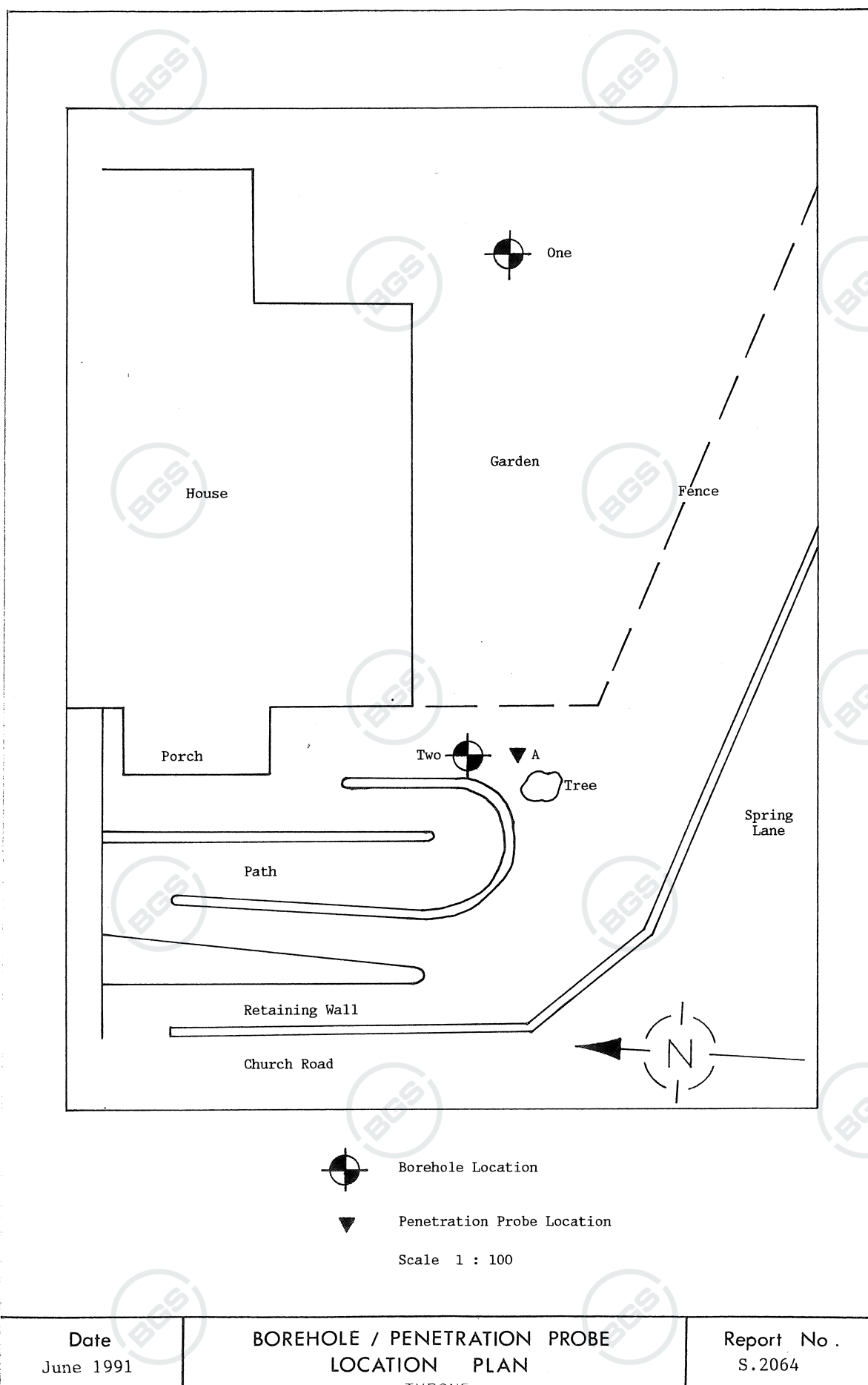


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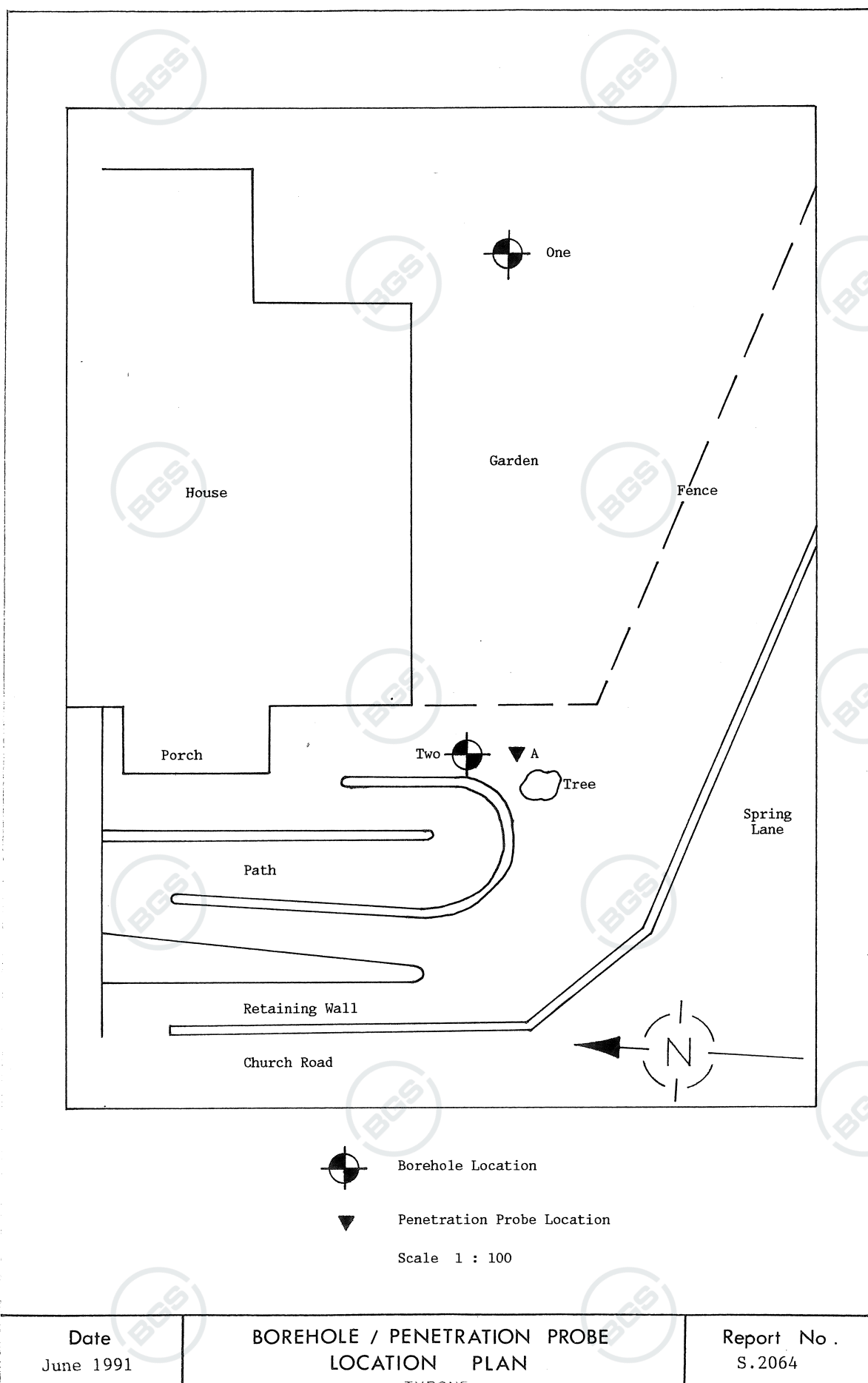


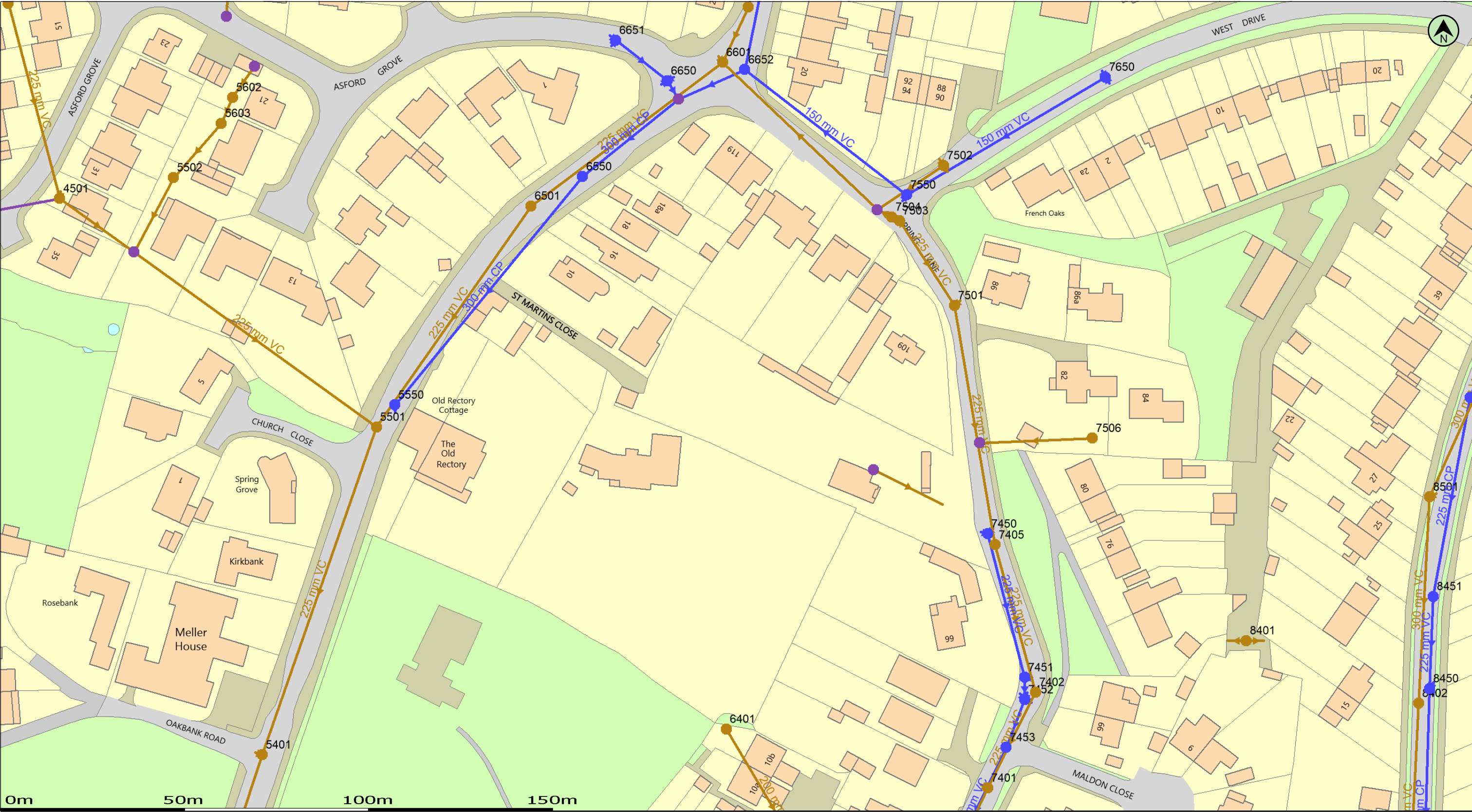
LOCATION: 20 Church Road, Bishopstoke				BOREHOLE No: One			
				DATE OF BORING: 26-28.06.1991			
Description of Strata	Strata Change			Samples		SPT CPT N-Value	Water Level -m
	Legend	Depth -m	O.D. Level -m	Depth -m	Type		
TOPSOIL - Grass over dark brown SILT.							
WHITECLIFF SANDS				0.50	U100	(17)	
Firm, light orange brown mottled light brown silty CLAY with occasional rootlets and a trace of fine gravel.		1.00		1.00	J		
- occasional small crystals.				1.50	U100	(28)	
- with sand pockets.		2.00		1.80	J		
				2.00	J		
Dense, light orange brown mottled light grey very silty fine medium SAND with occasional dark grey rounded flint gravel.		2.50		2.50	U100	(65)	
		3.00		3.00	J	37	
Dense, black very sandy fine medium rounded GRAVEL.		4.00		4.00	J	50	
Dense, light brown grey fine medium SAND.		5.00		5.00	J	60	
		6.00		6.00	J	75*	
- occasional black rounded gravel.		7.00		7.00	J	65	
- occasional clay lenses.		7.65		7.65	B		
		8.00		8.00	J	43	
		9.00					
		10.00					DRY
BOREHOLE DIAMETER: 200mm to 1.70m, then 150mm				GROUND LEVEL:			
LINING TUBES : 150mm to 8.00m				PIEZOMETER :			
CHISELLING :				- Water Strike			
REMARKS : Borehole drilled from existing ground level				- Water (Standing Level)			
				W - Water Sample			
				B/J - Bulk/Jar Sample			
				SPT - Standard Penetration Test			
				CPT - Cone Penetration Test			
				* - extrapolated value			
				(U) - Undisturbed sample			
				no. of blows shown in brackets			
DATE	BOREHOLE LOG					REPORT No.	
June 1991						S.2064	





LOCATION: 20 Church Road, Bishopstoke		BOREHOLE No: Two					
		DATE OF BORING: 26-27.06.1991					
Description of Strata	Strata Change			Samples		SPT CPT N-Value	Water Level -m
	Legend	Depth -m	O.D. Level -m	Depth -m	Type		
TOPSOIL Dark brown sandy SILT with roots.							
WHITECLIFF SANDS Firm to stiff, becoming stiff with depth, light brown and orange silty CLAY with occasional gravel and roots to 3.00m.							
		1.00		1.00	J/U38	(65)	
		2.00		2.00	J/U38	(65)	
- sandy.							
No recovery : probably gravelly SAND.		3.00		3.00	B		
		4.00					
		5.00					
BOREHOLE DIAMETER: 75mm							
GROUND LEVEL:							
LINING TUBES :							
PIEZOMETER :							
CHISELLING :							
REMARKS : Borehole drilled from existing ground level							
- Water Strike - Water (Standing Level) - Water Sample - Bulk/Jar Sample - Standard Penetration Test - Cone Penetration Test - extrapolated value - Undisturbed sample - no. of blows shown in brackets							
DATE June 1991	BOREHOLE LOG					REPORT No. S.2064	





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Date: 22/08/23

Scale: 1:1000

Map Centre: 446664,119527

Data updated: 05/05/23

Our Ref: 1255489 - 2

Wastewater Plan A3

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WARNING: BAC pipes are constructed of Bonded Asbestos Cement.

WARNING: Unknown (UNK) materials may include Bonded Asbestos Cement.

Foul Gravity Sewer	Combined Gravity Sewer	Culverted Water Course or Treated Effluent	Surface Water Gravity Sewer
Rising Main, Vacuum or Syphon	Combined Outfall	Foul Outfall	Surface Water Outfall
Surface Water Inlet	Combined Pumping Station	Surface Water Pumping Station	Foul Pumping Station
Water Treatment Works	Section 104 Area	Building Over Agreement Area	Foul Manhole
Combined Manhole	Surface Water Manhole	Side Entry Manhole, Decarction Chamber, Dummy Manhole or Surface Water Soakaway	

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St Martins





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Date: 22/08/23

Scale: 1:1000

Map Centre: 446664,119527

Data updated: 05/05/23

Our Ref: 1255489 - 1

Clean Water Plan A3

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Water Main	Proposed Main	Trunk Main	Non-potable Main	Abandoned Main
Water Hydrant	Water Meter	Water Valve		

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