



Proposed Glamping Site – Land South of
Wintons Fishery,
Folders Lane, Burgess Hill

Flood Risk Assessment

For

Wintons Lakes Limited

Document Control Sheet

Proposed Glamping Site – Land South of Wintons Fishery,
Folders Lane, Burgess Hill

Wintons Lakes Limited

This document has been issued and amended as follows:

Date	Issue	Prepared by	Approved by
12 th March 2025	DRAFT	Ella Harrop	Matthew Hands

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1.0 Introduction

- 1.1 This report has been prepared by Motion on behalf of Wintons Lakes Limited to provide a Flood Risk Assessment (FRA) in support of a new glamping site on land south of Wintons Fishery, Folders Lane, Burgess Hill.
- 1.2 The site is located approximately 1.2km southeast of the Burgess Hill Railway Station and is within the administrative boundaries of Mid Sussex District Council (MSDC) and West Sussex County Council (WSCC). The site is currently undeveloped greenfield land.
- 1.3 The aim of this FRA is to satisfy the requirements of the Local Planning Authority, the Lead Local Flood Authority (LLFA) and Environment Agency (EA) in relation to the development and flood risk. The specific objectives of this report are to:
 - ▶ Assess the proposed development against the requirements of the National Planning Policy Framework (NPPF).
 - ▶ Assess whether the proposed development has taken appropriate consideration of the risk of flooding from all potential flood sources.
 - ▶ Detail how the proposed development will be safe with respect to flooding during its lifetime and will not increase the risk of flooding to other sites.
- 1.4 This report considers the requirements for carrying out an FRA, as set out in the NPPF, and has been prepared to comply with current EA and Flood Risk policy.

2.0 Existing Site Conditions

- 2.1 The proposed development area is approximately 0.87 hectares (ha) and currently consists of undeveloped land, with a small car parking area consisting of a site access road, an existing parking area for Wintons Fishery, and service tracks surrounding Kingfisher Lake and Heron Lake in the southern portion of the development site. The site is bounded to the east and south by ecological ponds, by the existing Wintons Fishery and 8 residential dwellings to the north and greenfield land to the west.
- 2.2 The nearest watercourse to the site is an existing drainage ditch, which is a tributary of Valebridge Mill Pond and is approximately 25m north of the site and flows in a northerly to easterly direction.
- 2.3 An extract of proposed site layout is shown in Figure 2.1 and can be found in full in **Appendix A**.



Figure 2.1 – Illustrative Masterplan

Topography

- 2.4 The proposed site layout also provides limited topographical context for the development site. The site is defined as largely flat land, with levels generally falling from the pedestrian path to the two fishing lakes outside of the development site boundary - the lowest ground levels are located at Kingfisher Lake and Heron Lake, outside of the development site boundary.

Geology and Groundwater

- 2.5 The British Geological Survey (BGS) online Geoindex Mapping indicates that the site is underlain by Weald Clay Formation consisting primarily of mudstone. The ground also has superficial deposits of alluvium located in the surrounding area.
- 2.6 Borehole records of the surrounding area have been obtained from BGS and can be found in full detail in **Appendix B**. The borehole records obtained support the findings of the BGS mapping.

3.0 Legislative and Policy Framework

Flood and Water Management Act

- 3.1 The Flood and Water Management Act 2010 (FWMA) received Royal Assent on 8th April 2010. The Act was introduced to enforce some of the key proposals set out within UK Government flood and water strategies along with UK Government's response to the Sir Michael Pitt's Review of the summer 2007 floods.
- 3.2 LLFA's including WSCC have a responsibility under the FWMA to develop, maintain, apply, and monitor the application of a strategy for local flood risk in their area. Local flood risk is defined as flood risk arising from surface run-off, groundwater, and ordinary watercourses (i.e. non main rivers). The EA plays a role in managing the watercourses that are designated as 'Main Rivers'.
- 3.3 Relevant to the site, the FWMA will encourage the uptake of sustainable drainage systems (SuDS) by removing the automatic right to connect to sewers and providing for LLFA to adopt SuDS for new developments.
- 3.4 The development proposals will adhere to the Act through the provision of SuDS as a fundamental element of the surface water drainage system. Furthermore, the client is committed to work with the relevant stakeholders, such as the EA and WSCC (the Lead Local Flood Authority), in implementing the requirements of the FWMA where necessary.

National Planning Policy Framework

- 3.5 The NPPF and the online 'planning practice guidance' set out the Government's planning policies for England and how these are expected to be applied. This includes ensuring that flood risk is considered at all stages of the planning process, avoiding inappropriate development in areas at risk of flooding and directing development away from those areas where risks are highest.
- 3.6 A site-specific FRA is required for proposals of 1ha or greater in Flood Zone 1, all proposals for development in Flood Zones 2 and 3, or in an area within Flood Zone 1 that has critical drainage problems (as notified to the local planning authority by the EA). The FRA should identify and assess the risks of all forms of flooding to and from the development and demonstrate how these flood risks will be managed so that the development remains safe throughout its lifetime, taking climate change into account.

The Sequential and Exception Tests

- 3.7 The NPPF Sequential Test classifies proposed development into one of four Flood Zones, detailed in Table 3.1, below:

Flood Zone	Annual Probability of Flooding (%)	Corresponding Annual Chance of Flooding (1 in x)
Flood Zone 1 - Low Probability	Fluvial <0.1% Tidal <0.1%	>1,000 >1,000
Flood Zone 2 - Medium Probability	Fluvial 0.1 – 1.0% Tidal 0.1 – 0.5%	1,000 – 100 1,000 – 200
Flood Zone 3a - High Probability	Fluvial >1.0% Tidal >0.5%	<100 <200
Flood Zone 3b - The Functional Floodplain	Fluvial >5.0%* Tidal >5.0%* *Starting point for consideration. LPAs should identify Functional Floodplain, which should not be defined solely by rigid probability parameters.	<20 <20

Table 3.1 Flood Zones

- 3.8 The NPPF specifies that the suitability of all new development in relation to flood risk should be assessed by applying the Sequential Test to demonstrate that there are no reasonably available sites in areas with a lower probability of flooding that would be appropriate to the type of development proposed. The NPPF provides a summary of the different land use classifications, in the PPG Table 2, and also provides guidance on the compatibility of each land use classification in relation to each of the Flood Zones as summarised in Table 3.2, below.

Flood Zone	Essential Infrastructure	Water Compatible	Highly Vulnerable	More Vulnerable	Less Vulnerable
Zone 1					
Zone 2			Exception test required		
Zone 3a	Exception test required			Exception test required	
Zone 3b	Exception test required				
Key: Development is appropriate Development should not be permitted					

Table 3.2 Flood Risk Vulnerability Classification

Mid Sussex Strategic Flood Risk Assessment

- 3.9 A Strategic Flood Risk Assessment (SFRA) was completed in 2024 for MSDC. The primary objective of the SFRA is to help local authorities identify the areas that are at risk from all forms of flooding and to allocate development away from vulnerable flood areas. The SFRA recognises that development on land outside Flood Zones 2 and 3 should be pursued first.

Lead Local Flood Authority

- 3.10 As of April 2015, the LLFA became a statutory consultee on all major planning applications. The LLFA is required to assess planning applications in respect of surface water drainage and sustainable drainage systems. WSCC is the LLFA for Burgess Hill and wider West Sussex areas.

Environment Agency Flood Map

- 3.11 The EA Online Mapping suggests that the site is wholly located within Flood Zone 1 (less than 1 in 1000 annual probability of flooding from rivers or the sea). However, the EA Flood Map also indicates that the site is subject to surface water flooding. The EA flood map can be found in full in **Appendix D**.
- 3.12 In accordance with the NPPF, a residential development is classed as a 'More Vulnerable' land use and as such the proposed development is appropriately located within in Flood Zone 1.

4.0 Flood Risk

- 4.1 In this section a number of potential sources of flooding have been considered and the probability of any likely impacts assessed.

Flooding from Rivers and the Sea

- 4.2 The EA product 4 advice suggests that the site is located in Flood Zone 1 (less than 1-in-1000 annual probability of flooding from rivers or the sea).
- 4.3 The nearest watercourse to the site is an unnamed ditch (a tributary of the River Adur), which flows in a northerly to easterly direction to the northwest of the site.
- 4.4 **The site is therefore considered to be at very low risk of flooding from Rivers and Sea.**

Groundwater Flooding

- 4.5 Groundwater Flooding occurs when water originating in aquifers reaches the surface, typically as a result of high groundwater levels caused by prolonged rainfall. It has been identified using public data provided by the BGS that the site is underlain by Weald Clay formation with superficial deposits of Alluvium.
- 4.6 Weald Clay is known to be hydraulically unproductive strata and, therefore, the risks of groundwater emergence from this type of strata are very low. Furthermore, the SFRA has no records of the site being affected by groundwater flooding.
- 4.7 **The site is therefore considered to be at very low risk of flooding from groundwater.**

Surface Water Flooding

- 4.8 Flooding from overland flow occurs when intense rainfall is unable to infiltrate into the ground or enter drainage systems, resulting in localised flooding in low spots that provide no means of outfall.
- 4.9 Surface water flood modelling has been undertaken by Ardent to determine the risk of surface water flooding the site, following the construction of the proposed development. Refer to **Appendix E** for further information regarding the surface water flooding of the site post-completion.
- 4.10 The modelled outputs within the surface water flood modelling indicate that predicted flooding for the 30-year storm are largely contained within the existing ditches along the site boundary, with some ponding occurring along the northern site boundary and within the north-eastern part of the site.
- 4.11 Additionally, the predicted flooding for the 100-year storm event, including a 40% increase for climate change, details some deeper ponding up to 150mm south of the existing building located north of the residential development. The predicted flood hazard to the proposed development is low, and safe access and egress is available for all units on site.
- 4.12 **The site is therefore considered to be at low risk of flooding from surface water.**

Flooding from Infrastructure Failures

- 4.13 In order to control and convey surface water runoff from impermeable surfaces, underground surface water sewers or combined sewers (foul and surface water) are often utilised in urban areas. Pipes, culverts, etc. have a finite capacity and, therefore, pose a risk of flooding due to the risk of siltation, blockage, or collapse.
- 4.14 Southern Water records show an existing 150mm diameter foul sewer running along Folders Lane, approximately 335m north of the proposed development, which flows in an easterly direction. The distance of the foul sewer from the main development area means that flooding by infrastructure failure is highly unlikely. Refer to **Appendix F** for further information regarding the Southern Water sewer network.
- 4.15 **The site is therefore considered to be at low risk of flooding from infrastructure failure.**

Flooding from Artificial Sources

- 4.16 The EA provides a map showing the maximum potential flood extent, in the event that all reservoirs with a capacity of greater than 25,000m³ were to fail and release the water they hold. The map shows that the site would not experience flooding in this scenario, as there are no significant artificial waterbodies identified within close proximity of the site.
- 4.17 **The site is therefore considered to be at very low risk of flooding from artificial sources.**

5.0 Summary and Conclusions

- 5.1 This Report has been prepared by Motion on behalf of Wintons Lakes Limited to prepare and provide a Flood Risk Assessment (FRA) in support of a new development on land south of Wintons Fisheries, Folders Lane, Burgess Hill.
- 5.2 The proposed development area is approximately 0.87 hectares (ha) and currently consists of undeveloped land, with a small car parking area consisting of dirt track within the north-eastern corner of the proposed development site boundary. The site is bounded to the east and south by ecological ponds, by the existing Wintons Fishery and 8 residential dwellings to the north and greenfield land to the west.
- 5.3 The nearest watercourse to the site is an existing drainage ditch, which is a tributary of Valebridge Mill Pond and is approximately 25m north of the site and flows in a northerly to easterly direction.
- 5.4 The British Geological Survey (BGS) online Geoindex Mapping indicates that the site is underlain by Weald Clay Formation consisting primarily of mudstone. The ground also has superficial deposits of alluvium located in the surrounding area.
- 5.5 The modelled outputs within the surface water flood modelling indicate that predicted flooding for the 30-year storm are largely contained within the existing ditches along the site boundary, with some ponding occurring along the southern site boundary and within the north-eastern part of the site.
- 5.6 This report confirms that the risk of flooding within the proposed development is low, therefore fulfilling the requirements of the PPG and NPPF.

Appendix A

Proposed Site Layout



Access Plan scale 1:500

- KEY**
- 1. Existing entrance off public road per approved planning ref. DM/21/3311
 - 2. Existing shared access per approved planning ref. DM/21/3311
 - 3. Existing Wintons Fishery access - surface improved where required
 - 4. Existing parking / turning to be utilised
 - 5. Existing Wintons Fishery buildings
 - 6. Existing footbridges utilised with new / improved footpaths to glamping units
 - 7. Dwellings under construction per approved planning ref. DM/21/3311

NOTES

All glamping units to be located in clearings between existing trees - no proposed removals. Units mounted above ground level on ground screws suitable for use in tree RPA's.

OWNERSHIP BOUNDARY
AREA = 10.4 ha.

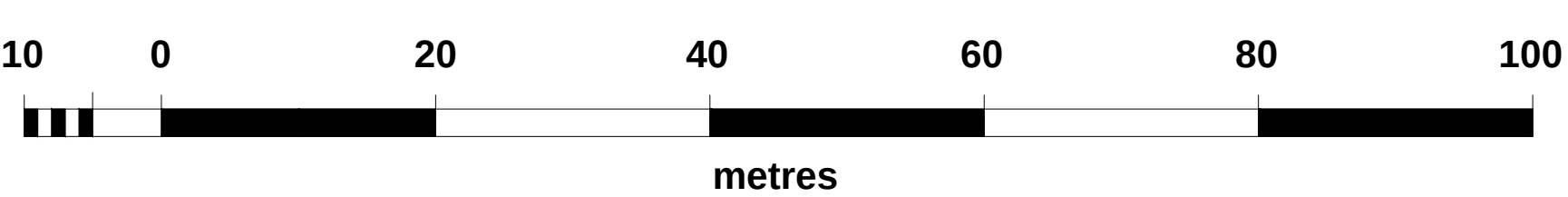
SITE BOUNDARY
SITE AREA = 9,540 m2



Proposed Layout Plan

SHARED ACCESS

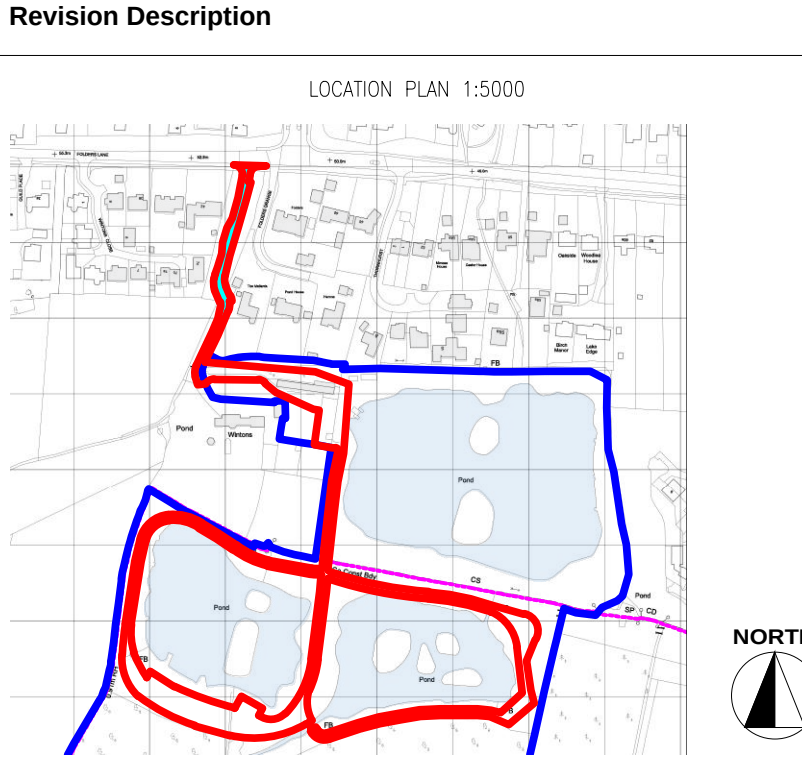
COUNCIL BOUNDARY



W: WWW.GLAMPITECT.CO.UK
E: CONTACT@GLAMPITECT.CO.UK
T: 0131 202 9002

KEY TO SYMBOLS			
	TIMBER CABIN WITH EXTERNAL DECKING		EXISTING TREE (per planning app TCP/DM/21/3311)
	EXISTING TREE (not surveyed)		NEW NATIVE TREE
	NEW NATIVE SHRUBBERY (indicative)		PROPOSED ENHANCED GRASSLAND/WILDFLOWERS
	NEW 'NO DIG' PERMEABLE FOOTPATH		EXISTING TARMAC / CONCRETE

Date	Description	Rev	By



Project:
Proposed Glamping Site - For Paula Church
Wintons Fishery, Wintons Farm, Folders Lane,
Burgess Hill, West Sussex, RH15 0DR

Drawing Title:
PROPOSED LAYOUT PLAN

Drawing Number:
220725-01-02

Revision: -
Date: 28.02.2024
Scale: 1:500 @ A1
Drawn By: XD
CAD Dwg File: -
Checked By: -

Issue Status:
Full Planning Application

Appendix B

BGS Borehole Records

Contract No. F. 3342

BOREHOLE LOG

TQ 31 NW/13

Location Burgess Hill Railway

Approx. Location

Sheet 1 of 1

Client Port Sussex C.C.

Chainage 31.25 m

Method of Boring Percussion

532 610 F.

Ground Level 49.75 m A.G.D.

Diameter of Borehole 204 mm

118 680 N

Date 27-30/4/76

Description of Strata	Legend	Depth Below G.L. (m)	O.D. Level (m)	Sampling and Coring	"N"
TOPSOIL		0.20	49.55	0.25	
Firm, light grey with buff mottling, silty CLAY with occasional rootlets. (completely weathered Weald Clay)				1.40	
Stiff, ochre with grey mottling very silty CLAY. (completely to highly weathered Weald Clay).		1.85	47.90	2.50	
Very stiff, dark blue grey, silty CLAY with mudstone horizons up to 45 mm thick. (highly to moderately weathered Weald Clay).		4.50	45.25	4.60	
				5.50-6.00	
				6.20	133
				8.00	137
				9.40	179

Type of Sample

Remarks (Observations of Ground Water etc.)

Water added to assist boring.

 Is S.P.T. ☐ Undisturbed

 Ic. C.P.T. ☒ Vane

 O Jar ☒ Water

 Bulk ☒ Piezometer

Dale & Son Engineering Limited

Contract No. E.3342
 Location Surpass Hill Railway
 Client West Sussex C.C.
 Method of Boring Percussion
 Diameter of Borehole 204 mm

BOREHOLE LOG

Approx. Location
S32 590 E
118 655 N

TQ31NW/13

Sheet 1 of 1
 Chainage 0.95
 Ground Level 40.90 m.A.O.D.
 Date 30/4 4/5/76

Description of Strata	Legend	Depth below G.L. (m)	O.D. Level (m)	Sampling and Coring	"N"
TOPSOIL		0.30	49.60	0.35	
Firm ochre and grey mottled, silty CLAY. (completely weathered Weald Clay)				1.40	
				2.30	
Very stiff ochre with grey mottling very silty CLAY. (completely to highly weathered Weald Clay).		2.75	47.15	3.60	46
		4.80	45.10	4.80-5.30	
Very stiff, dark blue grey, silty CLAY with mudstone horizons. (highly to moderately weathered Weald Clay).				5.30	116
				7.00-7.40	
				7.70	45
				8.30-9.00	
				9.40	105
		9.85	40.05		

Type of Sample

Remarks (Observations of Ground Water etc.)

Water added to assist boring.

- Is S.P.T. ☐ Undisturbed
 Is C.P.T. ☒ Vane
☐ Jar ☒ Water
☒ Bulk ☒ Piezometer

Contract No. P.3342
 Location Wingless Hill Railway
 Client West Sussex C.C.
 Method of Boring Percussion
 Diameter of Borehole 204 mm

BOREHOLE LOG

10 31 NW 13
 Sheet 2 of 2
 Chainage 31.25
 Ground Level 49.75 m. A.O.D.

Description of Strata	Legend	Depth Below G.L. (m)	O.D. Level (m)	Sampling and Coring	"N"
Very stiff, dark blue grey, silty CLAY, with mudstone horizons up to 45 mm thick. (highly to moderately weathered Weald Clay).		11.45	38.30	11.00	177

Type of Sample

Is S.P.T. ☐ Undisturbed
 Ic. C.P.T. ☒ Vane
 O Jar ☒ Water
 Bulk ☒ Piezometer

Remarks (Observations of Ground Water etc.)

Water added to assist boring.

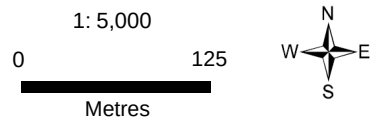
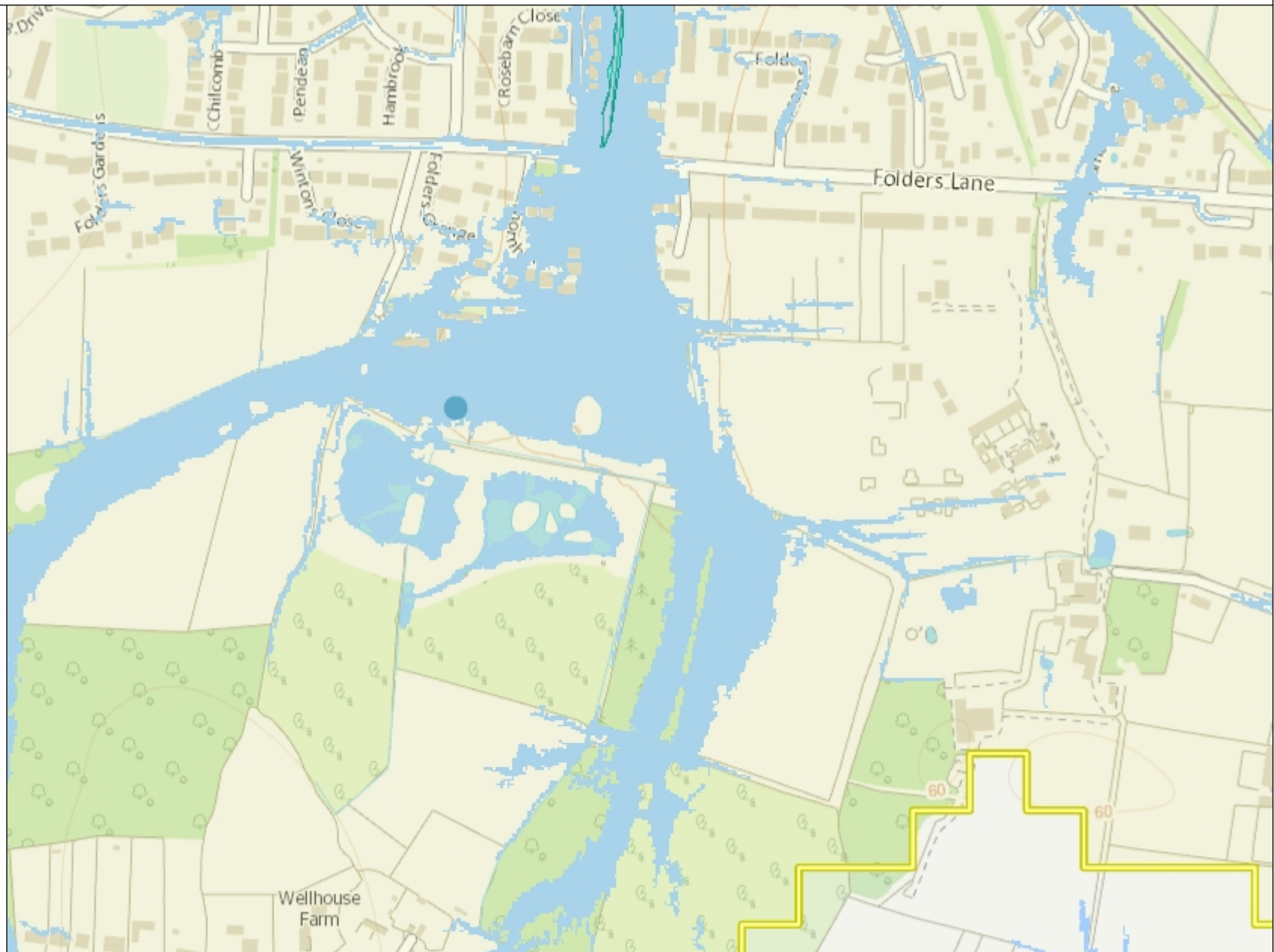
Appendix C

EA Flood Map

28/04/2021 - Land South of Winton, Folders Lane, Burgess Hill RH15 0DR

Legend

- Defences
- Flood Storage Areas
- Areas benefiting from flood defence
- Flood Zone 3
- Flood Zone 2
- Flood Extent 1 in 1000
- FCRM Partnership & Strategic Over



Appendix D

Ardent Hydraulic Modelling Note

HYDRAULIC MODELLING NOTE

Prepared on behalf of James Cullens



Date : **January 2025**

Project : **Folders Lane, Burgess Hill-Updated Layout**

Project Ref : **2101412**

Report Ref : **2101412-01A**

Report Title : **Hydraulic Modelling Note**

DOCUMENT CONTROL

REV	ISSUE PURPOSE	AUTHOR	CHECKED	APPROVED	DATE
-	Draft	GA	BC	DRAFT	December 2024
	Final	GA	BC	BC	December 2024
A	Final	GA	BC	BC	January 2025

DISTRIBUTION

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1.0 INTRODUCTION

Ardent Consulting Engineers (hereafter referred to as Ardent) has undertake a hydraulic modelling exercise for a Site at Folders Lane, Burgess Hill in July 2021.

The Environment Agency's surface water flood mapping indicate that part of the site is located within high risk of flooding from surface water (1 in 30 year probability of flooding). The maps on the EA website are at a national level and give a large range of depths to cover the various risk probabilities. Therefore, in order to quantifying the surface water flood depths on site an overland surface water model would have to be built to assess site specific flood depths and flow routes. This would quantify surface water flood risk and depths for the various flood events.

The purpose of this work is to describe the modelling undertaken and assess flood risk to the site of interest.

Although the model was originally built for the residential development at Folders Lane, this report shows the flood risk outputs to the Glamping Site to the south, as shown in **Figure 1** below.



Figure 1: The Site

2.0 MODEL METHODOLOGY

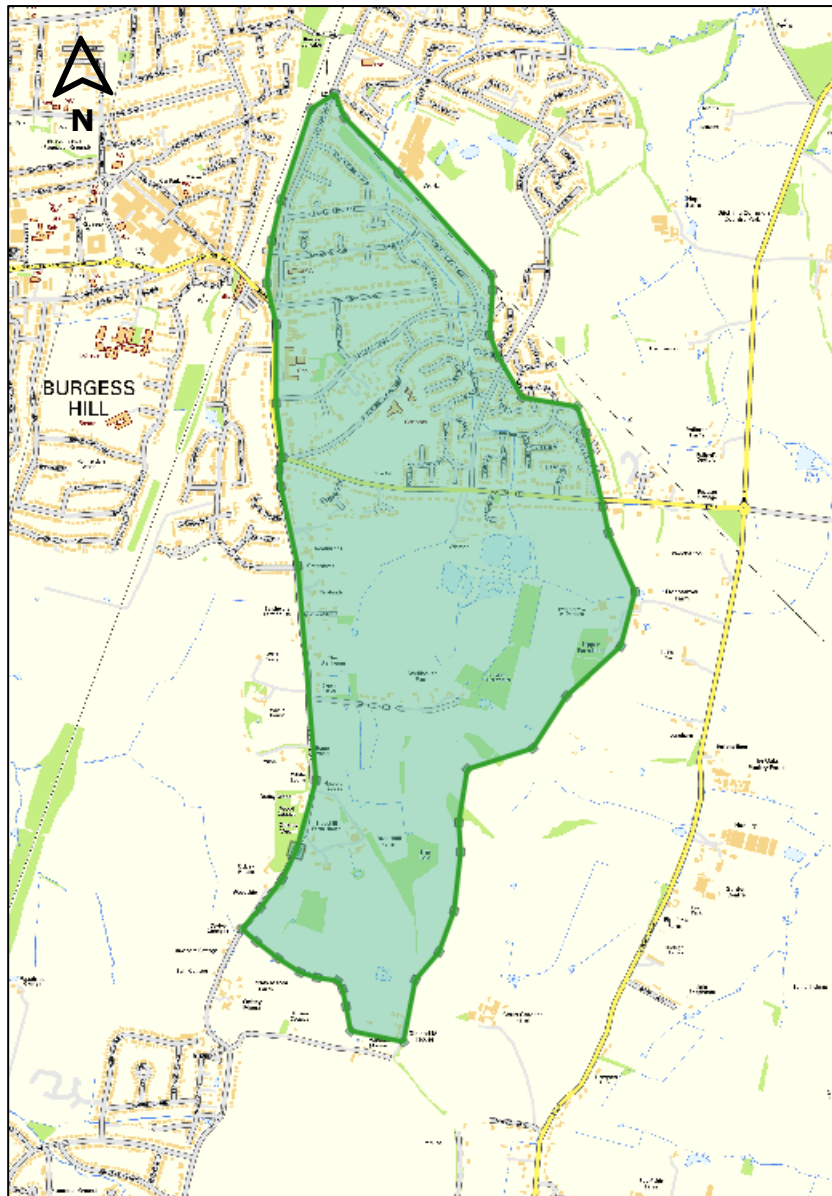
2.1 *Model Software*

The hydraulic model has been run using TUFLOW GPU build 2020-10-AA-iSP-w64. The model has been run on the 64 bit version of this build to take advantage of the faster simulation times.

2.2 *Model Extent*

The proposed model extent was identified using LiDAR data to ensure that the entire flowpath towards the Site is captured. High ground levels were used as a downstream model boundary to avoid glasswalling. **Figure 2** below shows the model extent.

The northern part of the study area is largely urban whereas the southern part – where the Site of interest is located) is rural. The total area of the catchment to be modelled is approximately 2.2 ha.

**Figure 2:** Model Extent

2.3 ***Model Topography***

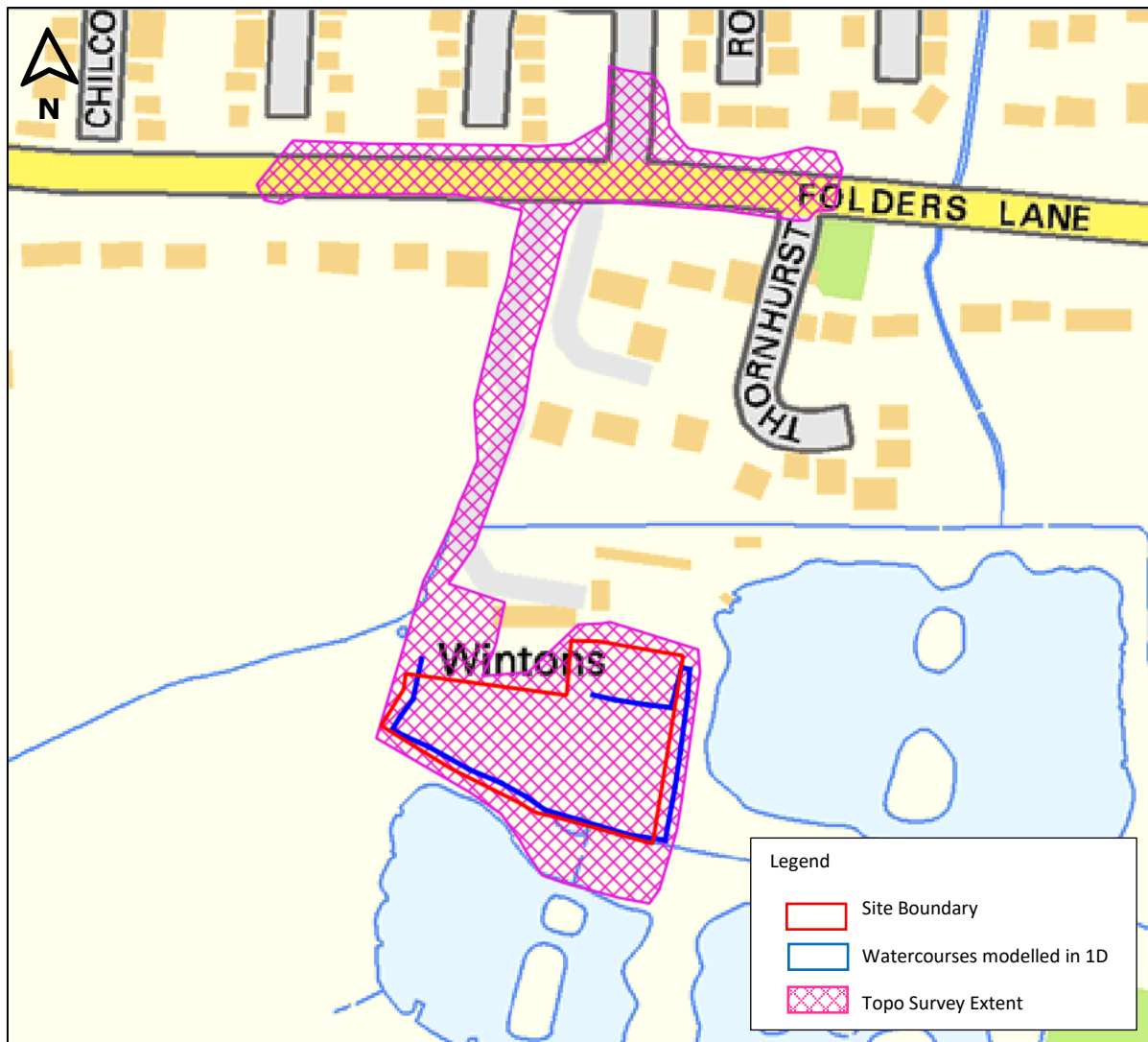
The model grid size has been set to 3m. The TUFLOW Quadtree feature was used within close proximity to the site to lower the grid size to 1m. The model grid size ensures that the roads, buildings and drainage features are appropriately represented in the TUFLOW model.

One meter resolution LiDAR data was used to define the topography of the study area. The ground profile in the current model was checked to ensure that the topography of the area is well represented and that structures are defined. The definition of any basements was checked that they are in the correct locations and covering the right area.

The topographical survey undertaken by Maltby Surveys Ltd in February 2021 for the residential site was also included in the model. This was done to make sure that the ground surface within the residential Site is represented accurately.

The watercourse running along the residential site's southern, eastern and western boundary, for which a survey was available, were modelled in 1D for a more accurate representation.

The 1d modelled watercourses and the extent of the topographical survey of the residential site are shown in the **Figure 3** below.

**Figure 3:** Topographical Survey Coverage

2.4 **Model Boundaries**

2.4.1 Inflows

The Flood Estimation Handbook web page was used to identify the catchment descriptors for the area of interest. The total rainfall for the catchment was determined using the ReFH2 Method. Hyetographs were produced for summer and winter profiles for five storm durations in order to identify the Critical Storm Duration (refer to **Section 2.4.3** below for more details). Following the critical duration assessment, four hyetographs were

produced for the following return periods: 1 in 30, 1 in 100, 1 in 100 plus climate change, and 1 in 1000 year.

The rainfall was applied across the full model extent and represents total rainfall for the catchment.

2.4.2 Outflows

At a number of locations along the model boundary, where small watercourses are culverted under the railway line, HQ (flow versus stage) boundaries have been applied to ensure that there is no glass walling. The relationship has been defined by interrogating the ground surface slope (LiDAR) and applying a gradient to the relevant TUFLOW layer.

2.4.3 Critical Storm Duration

The critical duration has been determined using the baseline hydraulic model (1 in 100yr event). A range of storm durations were defined using Flood Modeller Pro. Three storm durations were run through the model: 1.25, 3.25, 5.5 and 8.5 hours. The maximum flood depth and extent of surface water flooding for the three durations were compared against each other to determine the critical storm duration. This comparison showed that the critical duration was the 1.25 hour duration for a summer profile.

2.5 *Drainage Network*

The drainage network will not be explicitly modelled as part of this assessment. The capacity of the network was instead represented by a loss applied to the model. The value of the loss applied in the model was 6.5 mm/hr for impermeable land uses.

3.0 Overland Flow

3.1 Structures

Structures that influence the flooding mechanisms within the model extent have been included in the model. The Underpass at Folders Lane was included in the model using a 2d_zsh layer to allow flows under the road.

3.2 Roads

All roads (identified using OS MasterMap) were dropped by 125mm (in line with the EA Flood Risk from Surface Water¹) such that flow is preferentially routed down the roads. This method assumes that the road level is not picked up in the LiDAR.

3.3 Manning's Roughness

The spatial assignment of roughness values has been defined using OS MasterMap. The values that were assigned to the different areas are defined below.

¹ Environment Agency (2012). *Guidance on surface water flood mapping for Lead Local Flooding Authorities*, Report version 2.0. Bristol: Environment Agency.

Table 1: Manning's Roughness values

Feature Code	Descriptive Group	Comment	Manning's Roughness
10021	Building		0.015 for depths less than 0.030 0.500 for depths greater than 0.030
10053	General Surface	Residential yards	0.04
10054	General Surface	Steps	0.025
10056	General Surface	Grass, parkland	0.03
10057	General Surface	Manmade	0.02
10062	Building	Glasshouse	0.015 for depths less than 0.030 0.500 for depths greater than 0.030
10076	Land; Heritage And Antiquities		0.5
10089	Water	Inland	0.035
10111	Natural Environment (Coniferous/Non-coniferous Trees)	Heavy woodland and forest	0.1
10119	Roads Tracks And Paths	Steps, manmade	0.02
10123	Roads Tracks And Paths	Tarmac or dirt tracks, manmade	0.025
10167	Rail	Manmade	0.05
10172	Roads Tracks And Paths	Tarmac	0.02
10183	Roads Tracks And Paths (Roadside)	Pavement	0.02
10185	Structure	Roadside structure	0.03
10187	Structure	Generally on top of buildings	0.5
10203	Water	Foreshore	0.04
10210	Water	Tidal water	0.035
10217	Land (unclassified)	Industrial Yards, Car parks	0.035

3.4 Infiltration

Infiltration of rainfall into the ground has been applied in the model using the Green-Ampt method so that infiltration losses are applied to permeable surfaces based on the underlying soil textural class. TUFLOW uses the hydraulic properties (hydraulic

conductivity, suction and porosity) corresponding to each textural class, as well as the initial moisture content, to vary the rate of infiltration over time.

The entirety of the model extent is assumed to be unsaturated at the start of the simulation.

A 2d_soil layer was created to represent the soils present in the study area based on the Soilscales Viewer from Cranfield University's National Soil Resources Institute (NSRI), supported by Defra. Polygons have been digitised to represent the soil type in the study area (shown **Figure 4**). This polygon was then allocated a unique code according to textural class. The soil textural classes and corresponding TUFLOW codes, as defined in the TUFLOW manual, are shown below.

An impermeable layer has been defined in the model, which included roads and buildings. A Soil Type number of '99' has been applied to this layer and a value of NONE has been applied. This mean no water is infiltrated on the road and buildings.

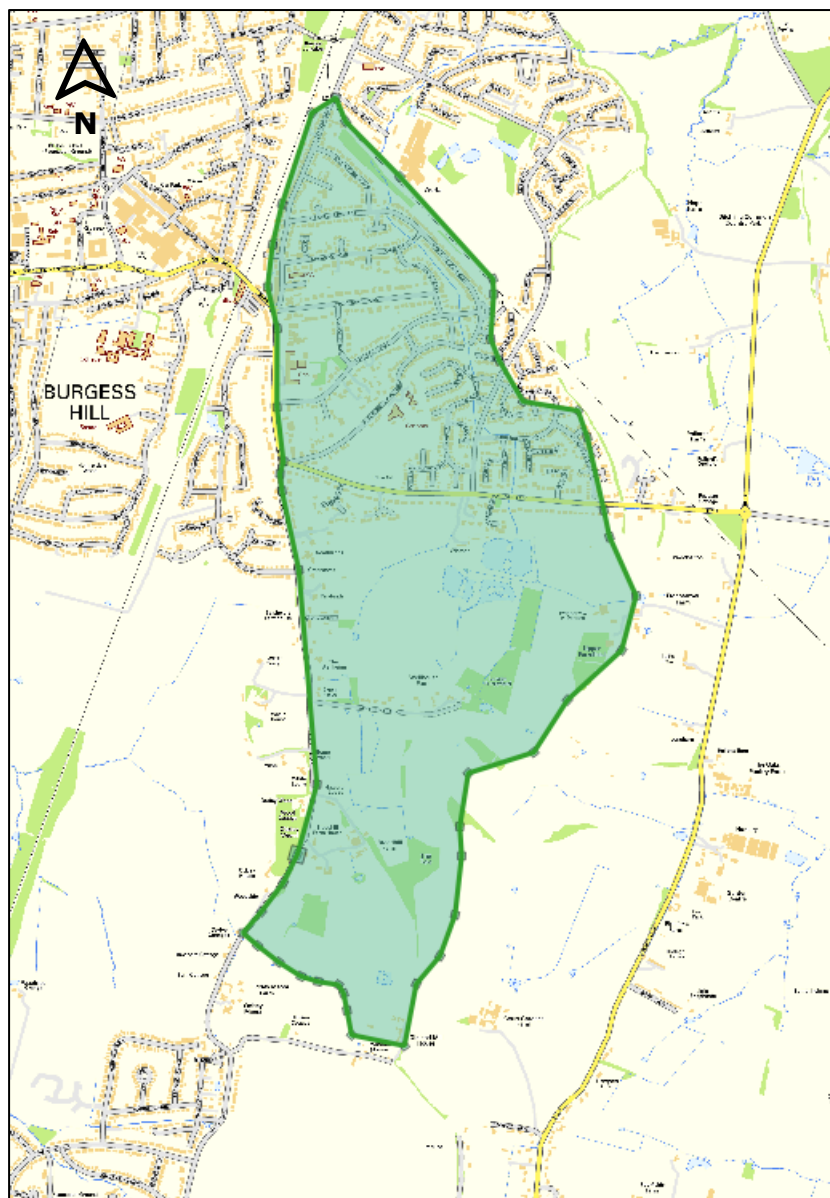


Figure 4: Soil Type Polygon

Table 2: Soil Type Description and Values

Soil Type Number	Description	TUFLOW Definition
1	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	CLAY LOAM

3.5 **Model Simulation**

The model naming convention adopted is detailed below:

FLN_~s~_~e~_XXX

FLN: Folders Lane.

~s~: Scenario

~e~: Rainfall Event Probability & Critical Storm Duration

XXX: Version number

3.6 **Timestep**

The model was simulated with a 1.5 second time step in the 2D domain (TUFLOW). The chosen time step was deemed suitable for the model grid size and has been shown to produce stable model results.

3.7 **Verification**

The model was validated using the EA Surface Water maps. The model correlates well with the Flood Risk from Surface Water map.

4.0 SUMMARY OF RESULTS

The model has been run for the 1 in 30, 1 in 100, 1 in 100 + 40% CC and 1 in 1000 year events.

Predicted flood depths for the 1 in 100 year+40% climate change outline are shown in **Figure 5** below. A cut-off depth of 100mm has been used for the representation of the results. Predicted flood depths for the 30yr event are largely contained within the existing drains. Predicted flood depths for the 100yr +40% CC event are generally very low. Some deeper ponding, up to 150mm is shown south of the existing building located north of the residential development.

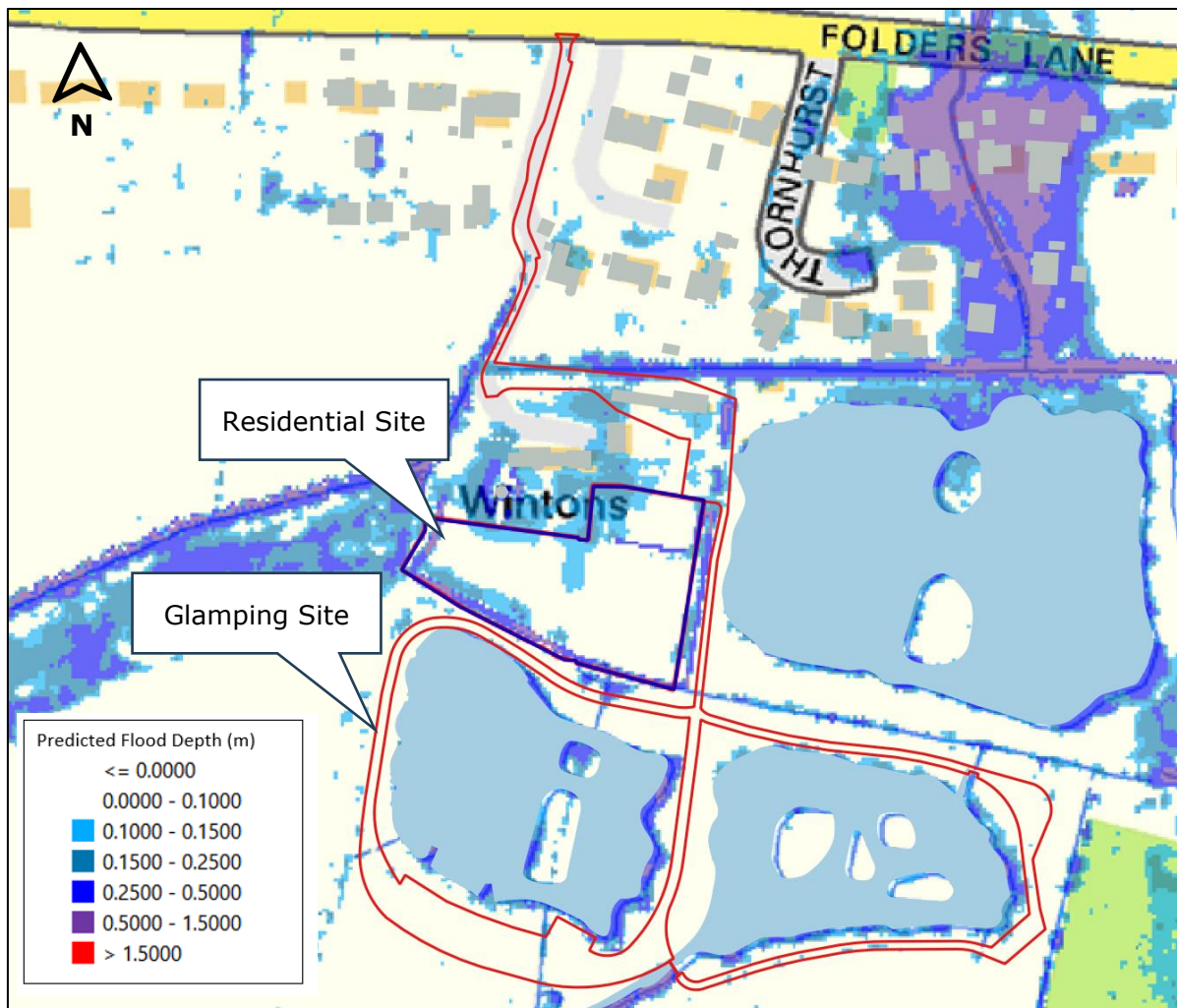


Figure 5: Predicted flood Depths (100yr + 40% CC Event)

Predicted flood hazard is very low and safe access and egress is available.

5.0 CONCLUSIONS AND RECOMMENDATIONS

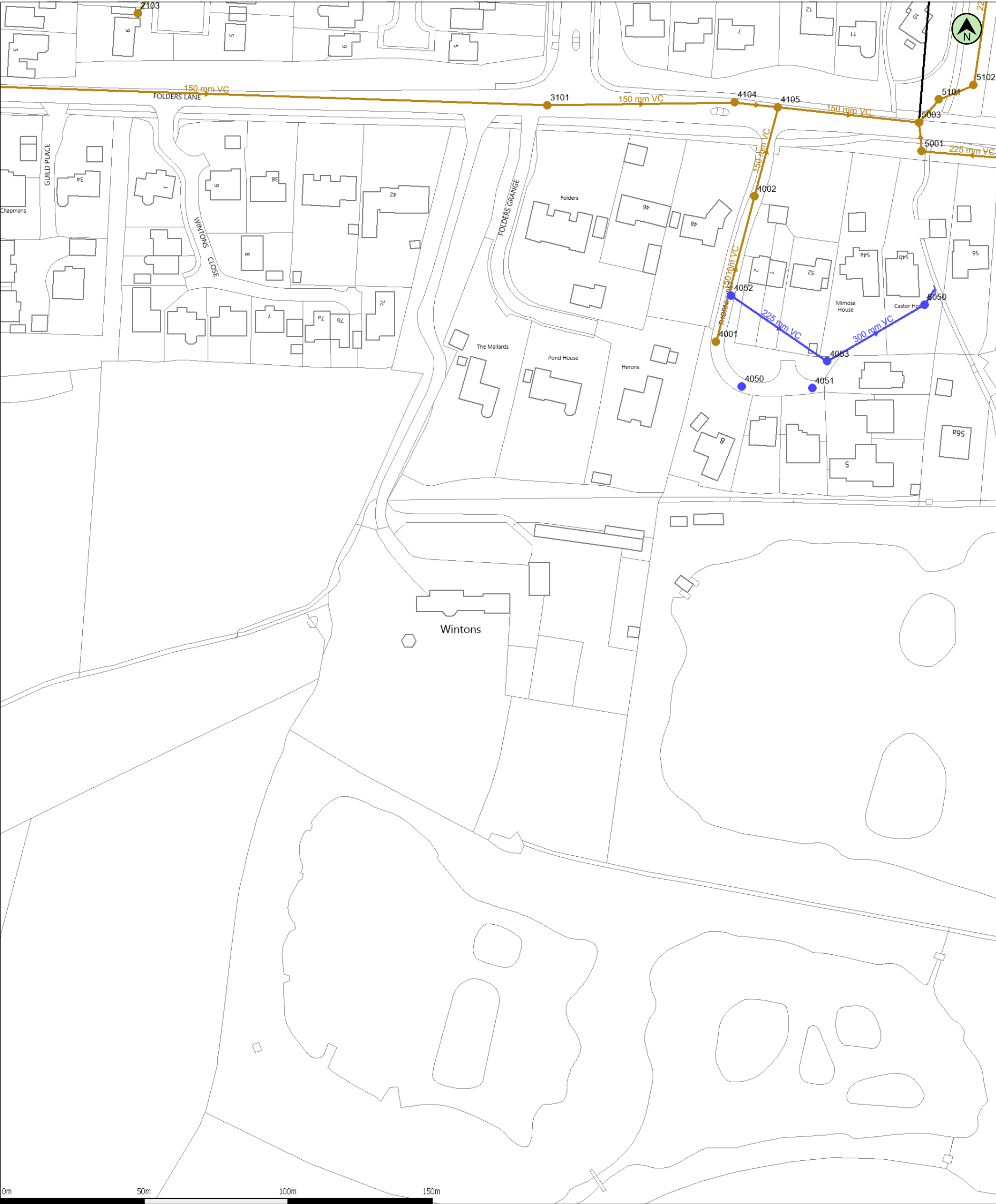
Ardent Consulting Engineers has undertaken a hydraulic modelling exercise for a residential Site at Folders Lane, Burgess Hill in July 2021. The same model was used to assess surface water flood risk to the Glamping site to the south.

In order to quantifying the surface water flood depths an overland surface water model would have been built. The hydraulic model has been run using TUFLOW GPU build 2020-10-AA-iSP-w64. The model has been run for the 1 in 30, 1 in 100, 1 in 100 + 40% CC and 1 in 1000 year events.

The modelled outputs indicated that predicted flood depths for the 30yr event are largely contained within the existing drains. Predicted flood depths for the 100yr +40% CC event are generally very low. Some deeper ponding, up to 150mm is shown south of the existing building located north of the residential development. Predicted flood hazard is low and safe access and egress is available for all units on Site.

Appendix E

Southern Water Asset Location Plan



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Data updated: 15/03/21

Scale: 1:1250
Map Centre: 532372,117932

Date: 23/03/21
Our Ref: 527059 - 1

Wastewater Plan A3
Powered by digdat

mhands@motion.co.uk

Land south of Winton



The positions of pipes shown on this plan are believed to be correct, but Southern Water Services Ltd accept no responsibility in the event of inaccuracy. The actual positions should be determined on site. This plan is produced by Southern Water Services Ltd (c) Crown copyright and database rights 2021 Ordnance Survey 100031673 .This map is to be used for the purposes of viewing the location of Southern Water plant only. Any other uses of the map data or further copies is not permitted.

WARNING: BAC pipes are constructed of Bonded Asbestos Cement.

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

