



Flood Risk Assessment

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Havant, 32 New Lane

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Prepared for:

Havant Property Investment LLP

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VERSIONS

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1 INTRODUCTION

Pinnacle Consulting Engineers Ltd have been commissioned by Havant Property Investment LLP to carry out a Flood Risk Assessment report (FRA) for a proposed development of a site at 32 New Lane, PO9 2NG. A site location plan is enclosed in Appendix A.

With reference to the indicative flood maps published by the Environment Agency, the site appears to lie in Flood Zone 1. This FRA report has been prepared in accordance with the requirements contained within National Planning Policy Framework (NPPF, Feb 2019, updated June 2019) and the associated Planning Practice Guidance. The guidance refers to the Environment Agency's "standing advice" on flood risk. Based on requirements set by the Environment Agency, a Flood Risk assessment is needed to support the planning application.

This report has been prepared in accordance with (i) National Planning Policy Framework (NPPF), (Department for Communities and Local Government, Feb 2019, updated June 2019) and the accompanying (ii) Planning Practice Guidance (Ministry of Housing, Communities and Local Government, March 2014); and (iii) Partnership for Urban South Hampshire (PUSH) Strategic Flood Risk Assessment (SFRA), 2016 (iv) Other statutory laws and local bylaws and rules.

It is stated in Paragraph 30 of the Flood Risk and Coastal Change chapter within the Planning Practice Guidance that "a site-specific flood risk assessment is carried out by (or on behalf of) a developer to assess the flood risk to and from a development site. Where necessary the assessment should accompany a planning application submitted to the local planning authority. The assessment should demonstrate to the decision-maker how flood risk will be managed now and over the development's lifetime, taking climate change into account, and with regard to the vulnerability of its users".

This report has been prepared to address the requirements of the NPPF and has derived the following data/information from various sources including:

- Information published or explicitly provided by the Environment Agency;
- Information published by the Local Planning Authority, including the SFRA;
- A site specific topographical survey;
- Enquiries made to relevant authorities to understand possible risks of flooding in the area; and
- Specific design works carried out for this report.

2 EXISTING SITE CONDITIONS

2.1 Site description

The proposed development is located at 32 New Lane, Havant, Hampshire, PO9 2NG (National Grid Reference SU 72466 07236). The site is a brownfield site and lies within an Industrial Estate on the east side of New Lane with a total developable area of approximately 6.78ha.

The site is bounded to the north by Havant industrial area, to the east by railway line, to the south by industrial and commercial premises and to the west by New Lane road. A watercourse is located approximately 60m from the site.

Details of the existing development site are enclosed in Appendix A and illustrated in Figure 2.1 below.



Figure 2.1 – Aerial View of the existing development site (approximate site boundary edged red)

2.2 Topography

The development site falls generally from north east to south west direction, with ground levels across the site varying between approximately 16.20m and 13.03m Above Ordnance Datum (AOD).

Details of existing development site levels are enclosed in Appendix B.

2.3 Geological ground conditions

Geological conditions at the site are detailed below and are based on geological maps produced by British Geological Survey (BGS). The focus of an FRA study on geology is on the potential movement of water through Made Ground, Drift Geology and Solid Geology.

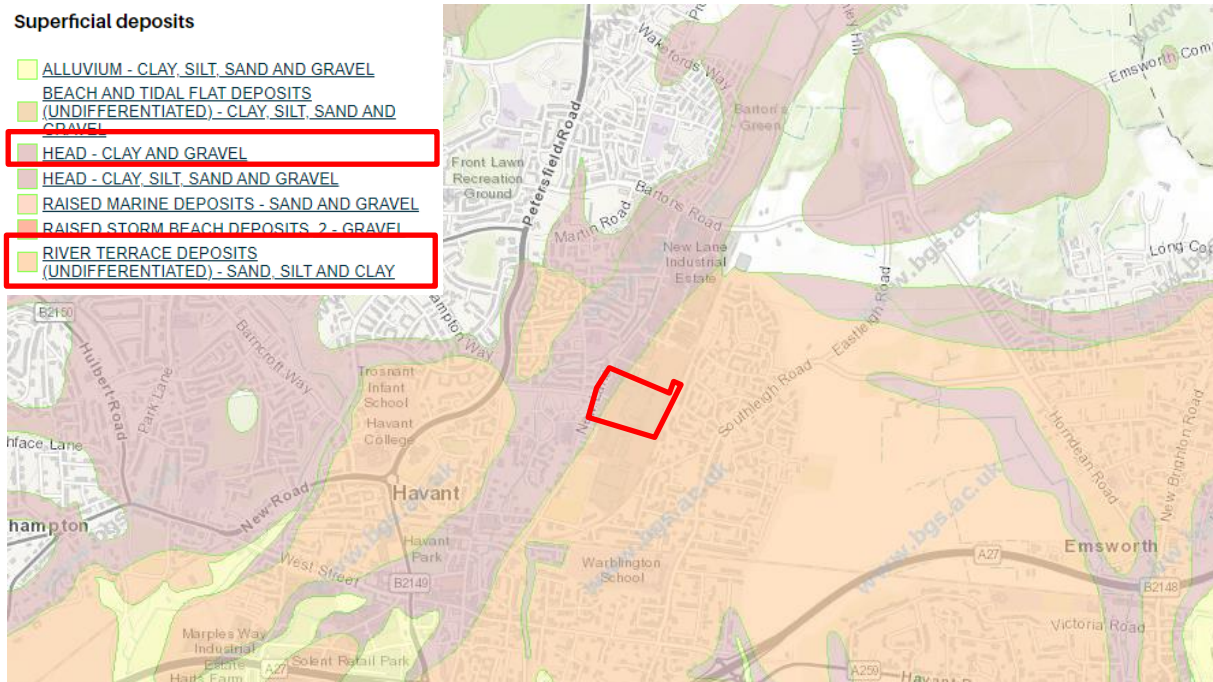


Figure 2.2: British Geological Survey Superficial Geology Extract (approximate site location marked red)

The proposed site is underlain by a superficial deposit of Head (clay and gravel) and River terrace deposits (undifferentiated- sand, silt and clay).

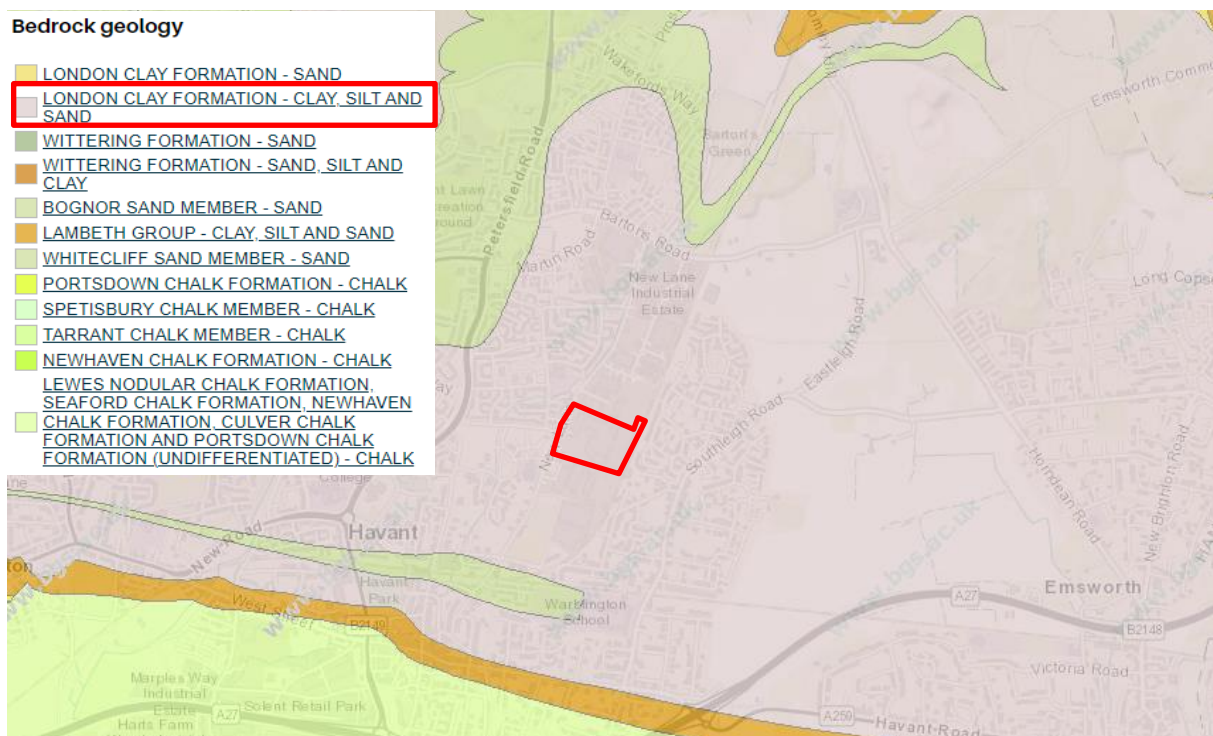


Figure 2.3: British Geological Survey Bedrock Geology Extract (approximate site location edged red)

The proposed site lies within the bedrock zone identified as London Clay Formation – Clay, Silt, and Sand.

These strata are outlined in Table 2.1 below.

Formation	Description
Artificial Ground (Made Ground)	No artificial deposits have been delineated within the site on the BGS site maps. However, given the site is brownfield, the likelihood is that Made Ground will be present.
Superficial Deposits (Drift Deposits)	River Terrace Deposits (Undifferentiated- Sand, Silt and Clay) Superficial Deposits formed up to 3 million years ago in the Quaternary Period. Local environment previously dominated by rivers. These sedimentary deposits are fluvial in origin. They are detrital, ranging from coarse- to fine-grained and form beds and lenses of deposits reflecting the channels, floodplains and levees of a river or estuary (if in a coastal setting). Head- Clay and Gravel. Superficial Deposits formed up to 3 million years ago in the Quaternary Period. Local environment previously dominated by subaerial slopes. These sedimentary deposits are subaerial in origin. They are detrital, comprising coarse- to fine- grained materials, forming down-slope layers and fans of accumulated material.
Bedrock	London Clay formation- Clay, Silt and Sand. Sedimentary Bedrock formed approximately 48 to 56 million years ago in the Palaeogene Period. Local environment previously dominated by deep seas. These sedimentary rocks are marine in origin. They are detrital and comprise coarse to fine grained slurries of debris from the continental shelf flowing into a deep-sea environment, forming distinctively graded beds.

Table 2.1 – Geological Ground Conditions

The focus of an FRA study on soils is to determine drainage characteristics specific for the local composition, in order to produce a definitive solution regarding the use of shallow infiltration SuDS devices. The available soil data is provided in figure 2.4 below with accompanying text.

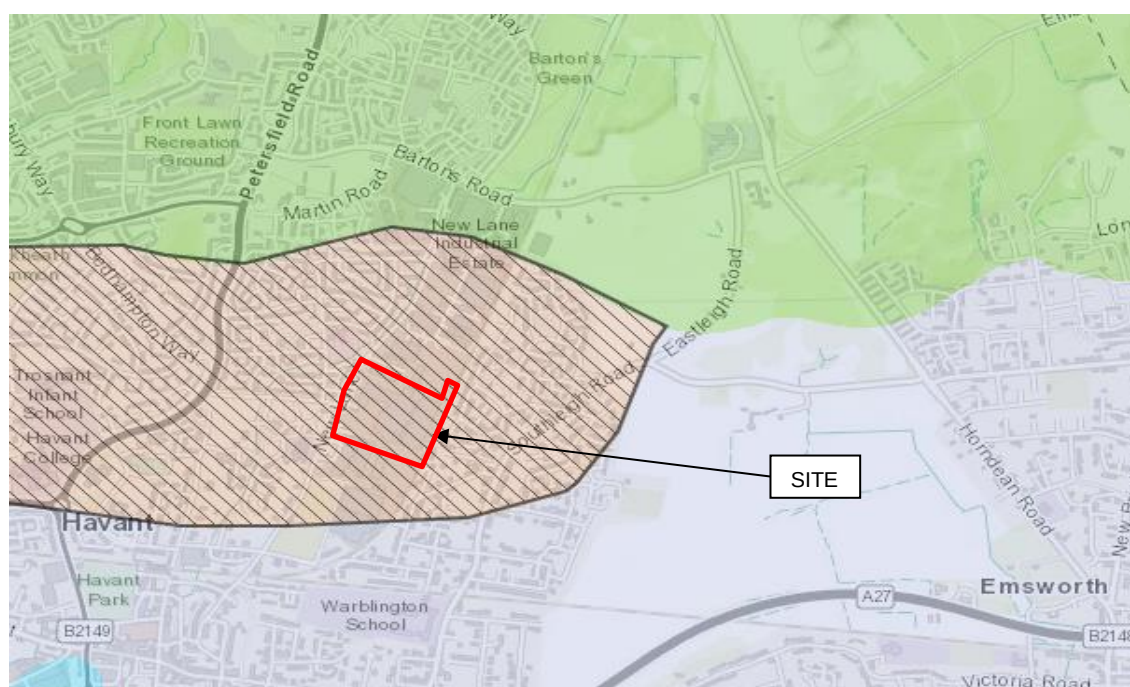


Figure 2.4 – Soilscape Map of the site (approximate site location)

ID	Description
1	Saltmarsh soils
2	Shallow very acid peaty soils over rock
3	Shallow lime-rich soils over chalk or limestone
4	Sand dune soils
5	Freely draining lime-rich loamy soils
6	Freely draining slightly acid loamy soils
7	Freely draining slightly acid but base-rich soils
8	Slightly acid loamy and clayey soils with impeded drainage
9	Lime-rich loamy and clayey soils with impeded drainage
10	Freely draining slightly acid sandy soils
11	Freely draining sandy Breckland soils
12	Freely draining floodplain soils
13	Freely draining acid loamy soils over rock
14	Freely draining very acid sandy and loamy soils
15	Naturally wet very acid sandy and loamy soils
16	Very acid loamy upland soils with a wet peaty surface
17	Slowly permeable seasonally wet acid loamy and clayey soils
18	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils
19	Slowly permeable wet very acid upland soils with a peaty surface
20	Loamy and clayey floodplain soils with naturally high groundwater
21	Loamy and clayey soils of coastal flats with naturally high groundwater
22	Loamy soils with naturally high groundwater
23	Loamy and sandy soils with naturally high groundwater and a peaty surface
24	Restored soils mostly from quarry and opencast spoil
25	Blanket bog peat soils
26	Raised bog peat soils
27	Fen peat soils

Soilscape description: Freely draining slightly acid loamy soils
Texture: Loamy
Coverage: England: 15.5% Wales: 24.4% England & Wales: 16.7%
Drainage: Freely draining
Fertility: Low
Habitats: Neutral and acid pastures and deciduous woodlands; acid communities such as bracken and gorse in the uplands
Landcover: Arable and grassland
Carbon: Low
Drains to: Local groundwater and rivers
Water protection: Groundwater contamination with nitrate; siltation and nutrient enrichment of streams from soil erosion on certain of these soils
General cropping: Suitable for range of spring and autumn sown crops; under grass the soils have a long grazing season. Free drainage reduces the risk of soil damage from grazing animals or farm machinery. Shortage of soil moisture most likely limiting factor on yields, particularly where stony or shallow

2.4 Hydrogeology

The hydrogeological features of the site are depicted in Figures 2.5 to 2.8. A summary and further information is provided in Table 2.2.

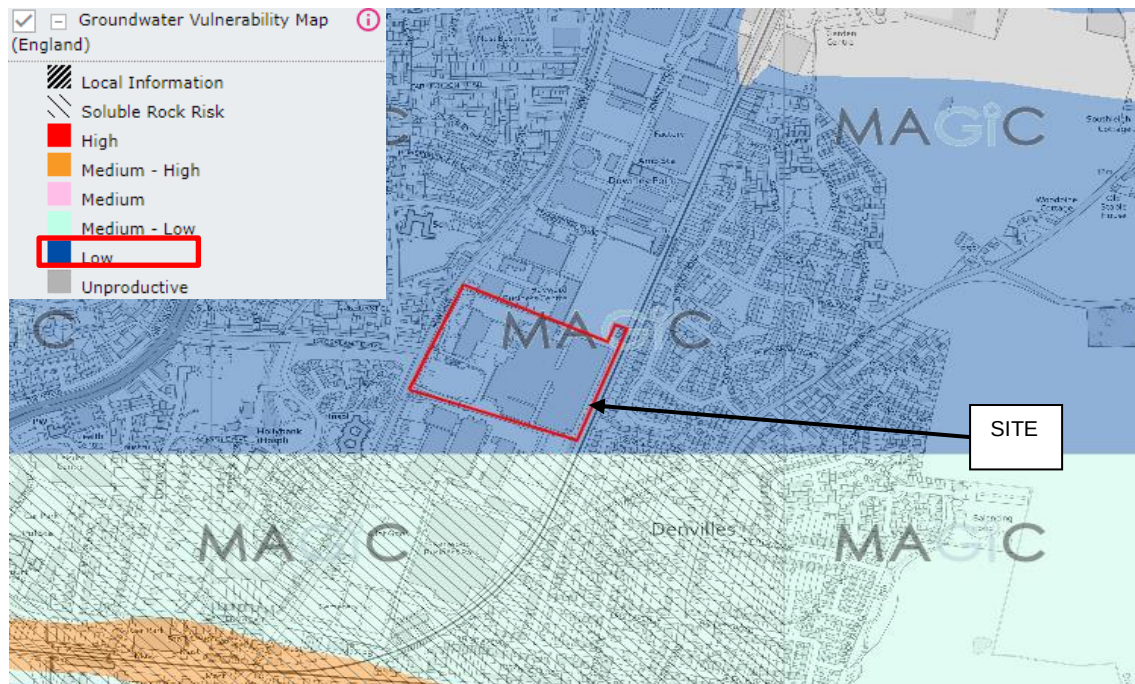


Figure 2.5 – Ground Water Vulnerability Zones (approximate site location marked red).

This map indicates that the site is within 'Low' groundwater vulnerability zone.

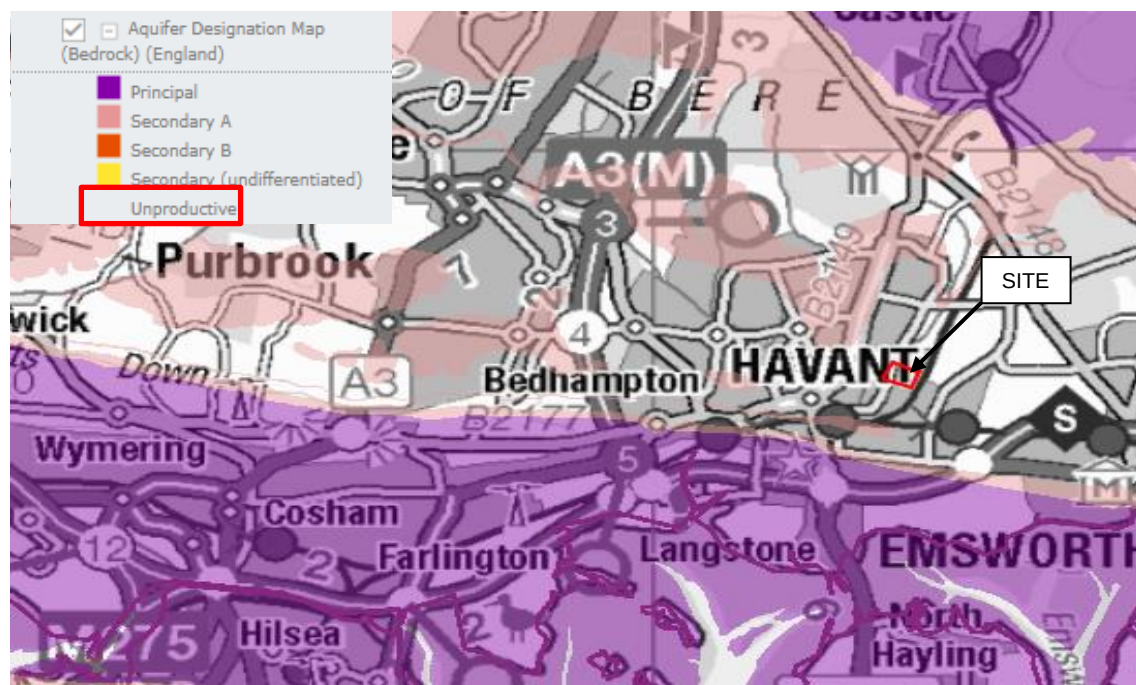


Figure 2.6 – Aquifer Designation Map (Bedrock) (approximate site location marked red)

This map indicates that the site is not within any defined Bedrock Aquifer Designation Zone.

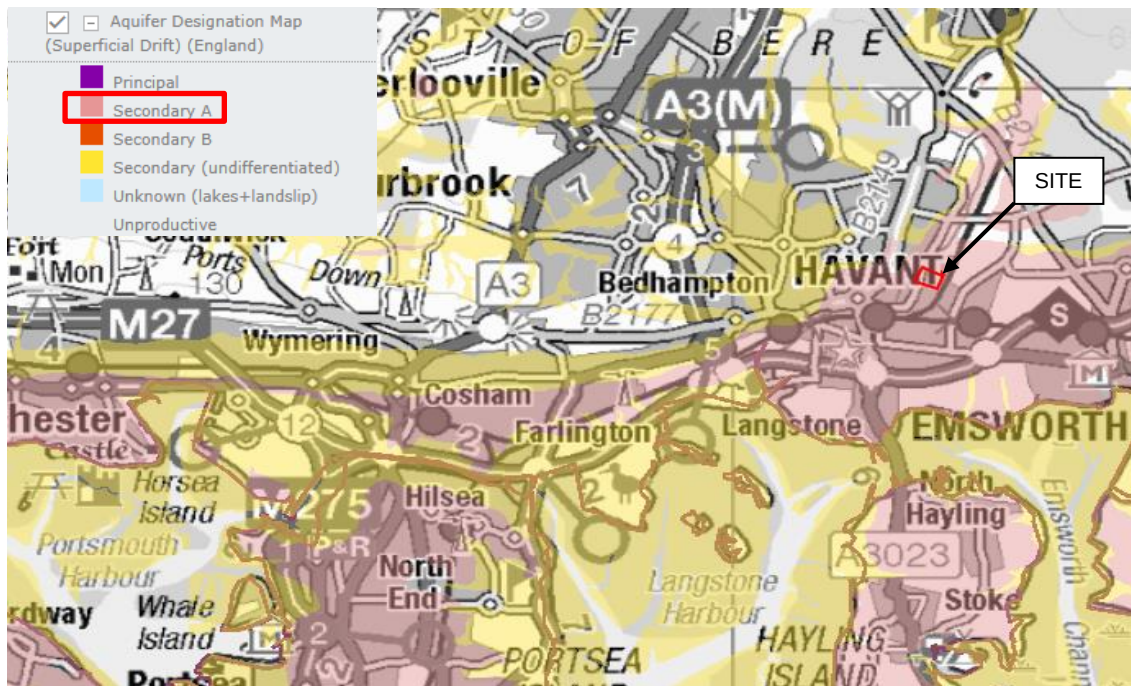


Figure 2.7 – Aquifer Designation Map (Superficial drift) (approximate site location marked red)

This map indicates that the site is within 'Secondary A' Superficial Aquifer Designation zone.

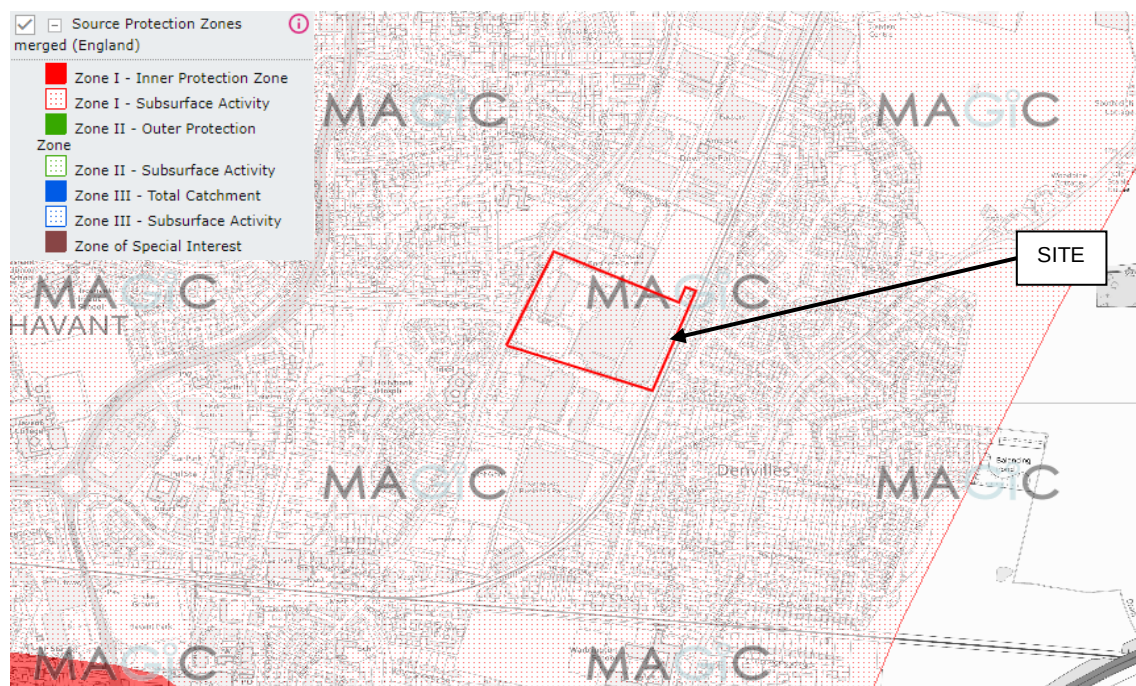


Figure 2.8 – Ground Water Source Protection Zone (approximate site location marked red)

This map indicates that the site is within 'Zone 1- Subsurface Activity' Ground Water Source Protection Zone. Therefore, discharging the surface water runoff into the ground via infiltration from the proposed development is not recommended as there is a risk of groundwater contamination.

Map Dataset	Designation	Comment
Groundwater Vulnerability Zone	Low	This category classifies the underlying groundwater in terms of vulnerability from activities carried out on the surface. Figure 2.5 identifies that the site is within 'Low' Groundwater Vulnerability Zone which consists of areas that provide the greatest protection to groundwater from pollution. They are likely to be characterised by low leaching soils and/or the presence of low permeability superficial deposits.
Aquifer Maps: Bedrock Deposits Designation	Unproductive	This category identifies the type of aquifer present in solid permeable formations. According to available records depicted in Figure 2.6 the proposed site does not fall within any aquifer designation zone.
Aquifer Maps: Superficial Deposits Designation	Secondary A	This category identifies the type of aquifer present in the permeable unconsolidated (loose) deposits. Figure 2.7 indicates that the proposed site falls within 'Secondary A' aquifer designation zone which consists of permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers.
Ground Water Source Protection Zone	Zone 1- Subsurface Activity	This category identifies zones at risk from contamination from any activities that might cause pollution in the area. The closer the activity the greater the risk. According to available records depicted in Figure 2.8 the proposed site falls within 'Zone 1- Subsurface Activity' Ground Water Source Protection Zone which extends Zone 1 where the aquifer is confined and may be impacted by deep drilling activities.

Table 2.2 – Summary of Hydrogeological conditions

2.5 Existing surface water management

The drainage survey enclosed in Appendix C delineates all observed surface water and foul networks within the site. The surface water runoff from the existing site discharges off site via 4 different connections into the public surface water sewer located in New Lane. Similarly, the existing foul water network is shown to discharge into the public foul water sewer in New Lane.

The existing surface water runoff is collected using an assortment of various devices including road gullies, rainwater downpipes and channels. Moreover, two surface water attenuation tanks can be observed within the existing drainage networks. One of the existing surface water networks utilises a pump chamber to convey the surface water runoff from the site. Moreover, it is of note that no existing Sustainable Drainage Systems (SUDS) have been identified within the site, indicating the site discharges freely to the public sewer network.

3 PROPOSED DEVELOPMENT

The proposed development proposes to redevelop the site and use it as a storage and distribution facility, where parcels are delivered via small vans to customers in the local area. The proposal includes a centrally located warehouse building and a decked storage area which will house the fleet of commercial vehicles overnight while drivers are not on deliveries.

The proposed development plans are enclosed in Appendix D.

4 PROBABILITY OF FLOODING

The NPPF identifies six potential sources of flooding:-

- Flooding from rivers (fluvial flooding);
- Flooding from the sea (tidal flooding);
- Flooding from land;
- Flooding from sewers;
- Flooding from groundwater; and
- Flooding from reservoirs, canals, and other artificial sources.

These are considered below.

4.1 Flooding from rivers (fluvial flooding) & sea (tidal flooding)

The assessment of flood risk in this report is based on the definitions in Table 1 of the Flood Risk and Coastal Change, Planning Practice Guidance, which recognises the following Flood Zones:

- Flood Zone 1 - little or no risk, with annual probability of flooding from rivers and the sea of less than 0.1% (1 in 1000-year)
- Flood Zone 2 - low to medium risk, with annual probability of flooding between 0.1% and 1.0% from rivers and between 0.1% and 0.5% from the sea
- Flood Zone 3a - high risk of flooding with an annual probability of flooding of 1.0% or greater from rivers, and 0.5% or greater from the sea.
- Flood Zone 3b – the ‘Functional Floodplain’ with an annual probability of flooding of 5% or greater.

An extract from the Environment Agency’s online flood map published on their website is shown in Figure 4.1 below, with Flood Zone 3a & 3b denoted by dark blue hatch and Flood Zone 2 a light blue. The site is located within a Flood Zone 1 ‘Low Probability’ area and therefore lies outside an area at risk of fluvial/tidal flooding.

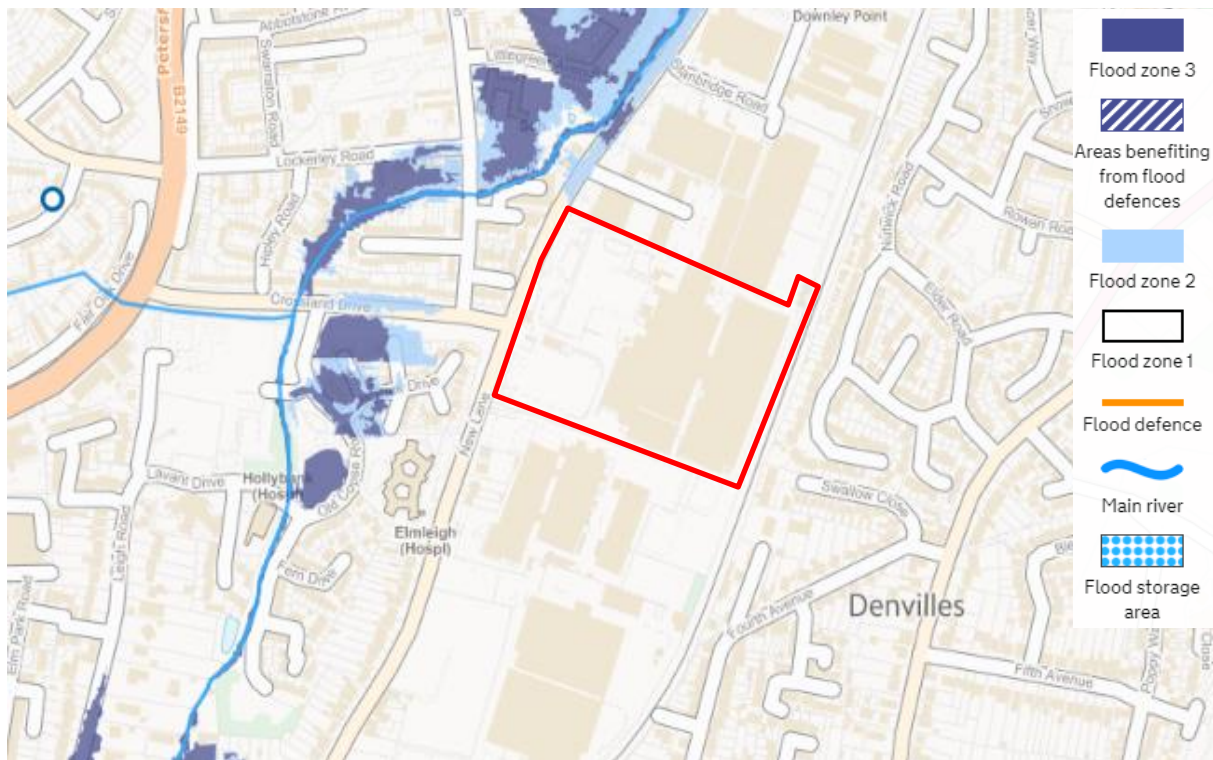


Figure 4.1 – Environment Agency Online Flood Map Extract (Approximate site location outlined red)

Figure 4.1 above identifies the site being within a Flood Zone 1 area.

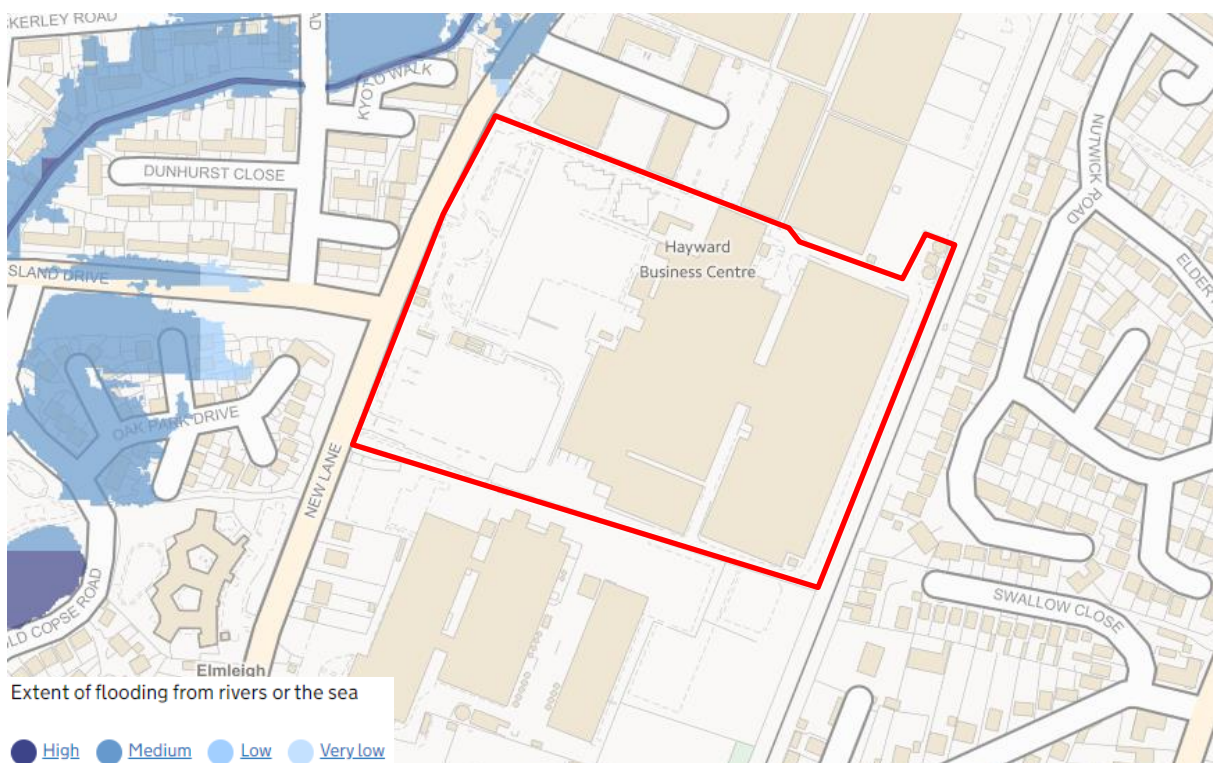


Figure 4.2 – EA Flood Risk from Rivers and Sea Water Map Extract (Approximate Site Extents Edged Red)

Figure 4.2 above identifies the site as being within an area at no risk of flooding from rivers and seas.

4.2 Flooding from land (surface water)

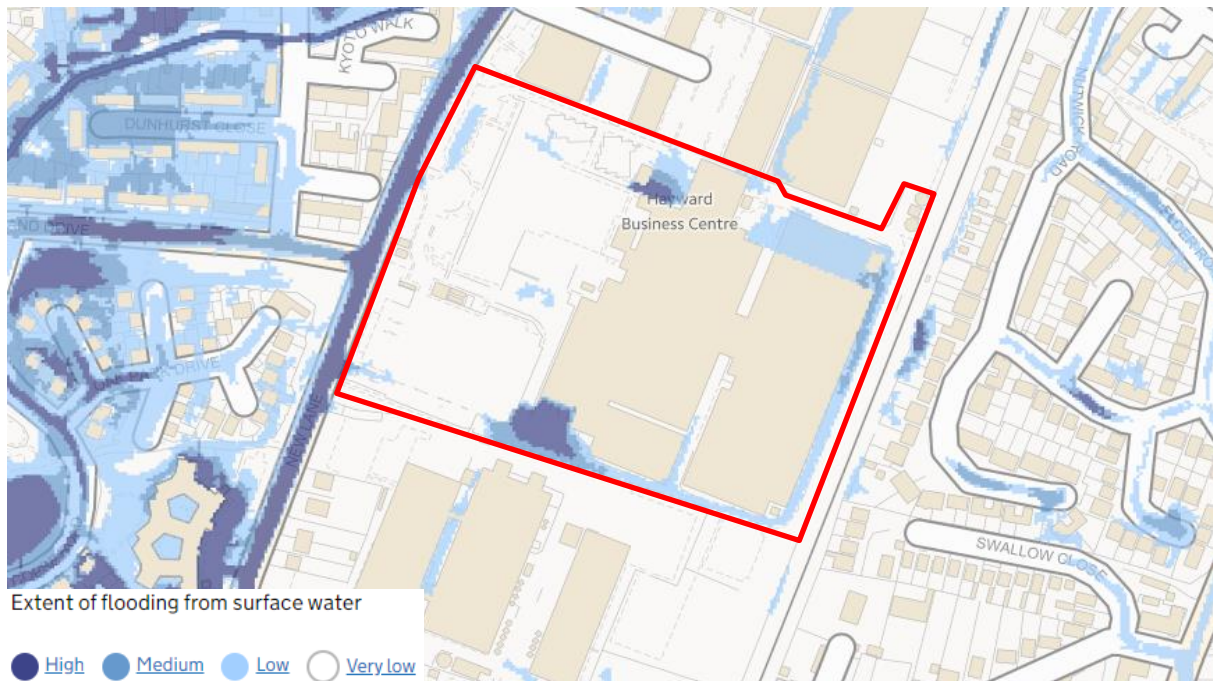


Figure 4.3 – EA Flood Risk from Surface Water Map Extract (Approximate Site Extents Edged Red)

Figure 4.3 above shows that the risk of flooding from surface water vary within the site. The site has a high-medium risk of flooding in the existing hard standing areas in the north and the south of the site, medium risk in the east just outside the existing building and low risk generally around the existing building and over some areas in the west.

4.3 Flooding from groundwater

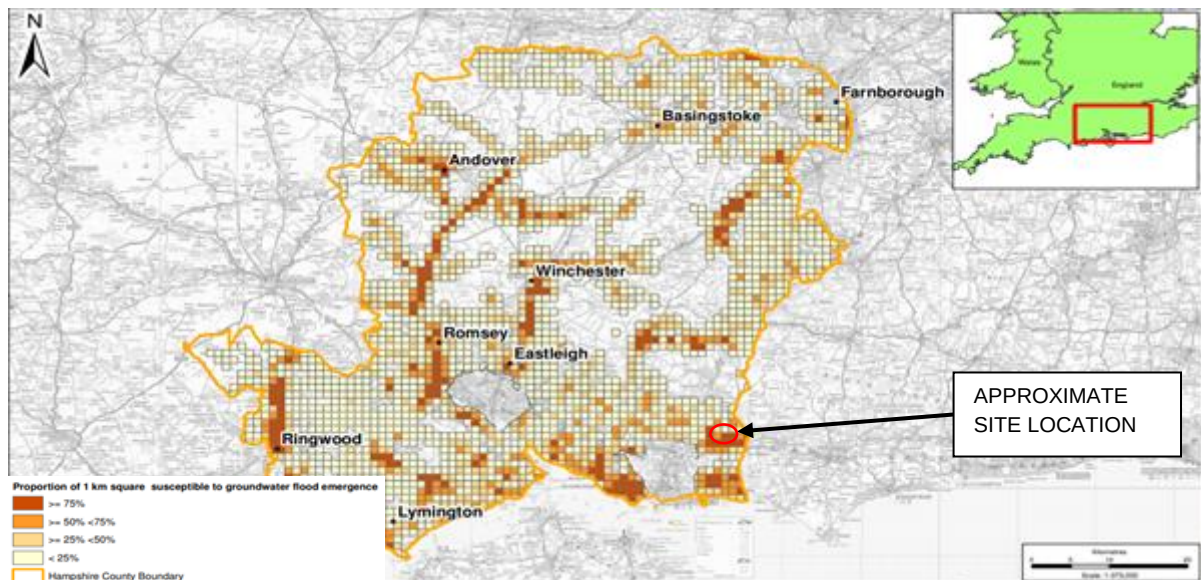


Figure 4.4 –Areas Susceptible to Ground Water Flooding Mapping adapted from Hampshire Ground Water Management Plan. (Approximate Site shown in Red)

Due to a history of ground water flooding in Hampshire, Ground Water Management Plan (GWMP) was created in collaboration with other stakeholders in the county to identify areas at risk of ground water flooding and provide plans to mitigate the risks. The Areas Susceptible to Ground Water Flooding mapping provided in the Ground Water Management Plan GWMP (attached as Figure 4.4) indicates

that there is a possibility of groundwater flooding within the vicinity of the proposed site. It is recommended that a site-specific ground monitoring test should be undertaken to quantify any potential risks.

4.4 Flooding from reservoirs, canals, and other artificial sources

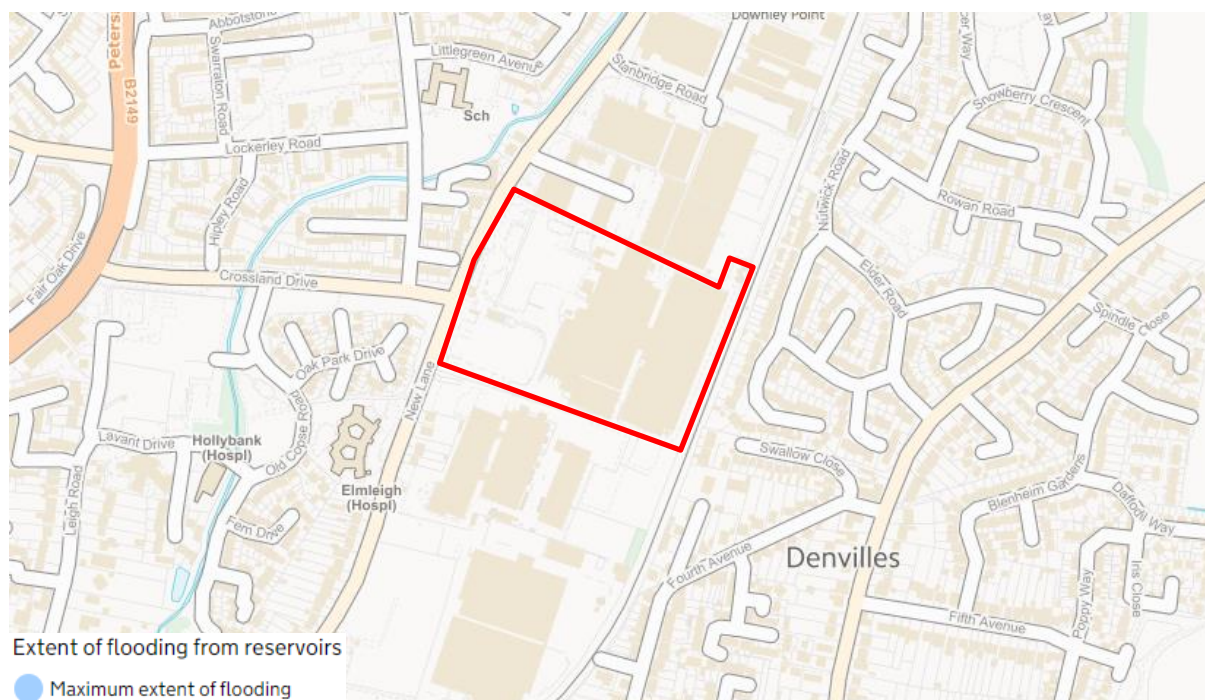


Figure 4.5 – EA Flood Risk from Reservoirs Map Extract (Approximate Site Extents Edged Red)

Figure 4.5 above identifies the site and the surrounding area as not being at risk of flooding from reservoirs.

4.5 Impact of Climate Change on Rainfall intensity

The EA recommends an allowance of 20- 40% to be made to account for the increase in rainfall intensity, as shown in Table 4.1 below. Hence, an allowance of 20% will be used with a 40% sensitivity test.

Applies across all of England	Total potential change anticipated for the '2020s' (2015 to 2039)	Total potential change anticipated for the '2050s' (2040 to 2069)	Total potential change anticipated for the '2080s' (2070 to 2115)
Upper End	10%	20%	40%
Central	5%	10%	20%

Table 4-1: Peak rainfall intensity allowance in small and urban catchments

(Table 2 - <https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances>)

5 POLICY STATUS FOR PROPOSED DEVELOPMENT

5.1 Vulnerability classification

The proposed development complies with the following principles:

- The proposed development lies within Flood Zone 1;
- The proposed development is classified as 'less vulnerable' in accordance with Table 2 of the Flood Risk and Coastal Change, Planning Practice Guidance (reproduced as Table 5.1 below).

Essential Infrastructure	Essential transport infrastructure (including mass evacuation routes) which has to cross the area at risk Essential utility infrastructure which has to be located in a flood risk area for operational reasons, including electricity generating power stations and grid and primary substations; and water treatment works that need to remain operational in times of flood Wind Turbines
Highly Vulnerable	Police stations, Ambulance stations, Fire stations, Command Centres and telecommunications installations required to be operational during flooding Emergency dispersal points Basement dwellings Caravans, mobile homes and park homes intended for permanent residential use Installations requiring hazardous substances consent
More Vulnerable	Hospitals Residential institutions such as residential care homes, children's homes, social services homes, prisons and hostels Buildings used for dwelling houses; student halls of residence, drinking establishments, nightclubs and hotels. Non-residential uses for health services, nurseries and educational establishments Landfill and sites used for waste management facilities for hazardous waste. Sites used for holiday or short-let caravans and camping, subject to a specific warning and evacuation plan.
Less Vulnerable	Police, ambulance and fire stations which are not required to be operational during flooding. Buildings used for shops; financial, professional and other services, restaurants and cafes, hot food takeaways, offices, general industry, storage and distribution, non-residential institutions not included in "more vulnerable", and assembly and leisure. Land and buildings used for agriculture and forestry. Waste treatment (except landfill and hazardous waste facilities). Minerals working and processing (except for sand and gravel working). Water treatment plants and sewage treatment plants (if adequate pollution control measures are in place). Sewage treatment works (if adequate measures to control pollution and manage sewage during flood events are in place).
Water-compatible Development	Flood control infrastructure. Water transmission infrastructure, pumping stations. Sewage transmission infrastructure and pumping stations. Sand and gravel workings. Docks, marinas, wharves Navigation facilities.

	MOD defence installations. Ship building, repairing and dismantling, dockside fish processing and refrigeration and compatible activities requiring a waterside location. Water-based recreation (excluding sleeping accommodation). Lifeguard and coastguard stations. Amenity open space, nature conservation and biodiversity, outdoor sports and recreation and essential facilities such as changing rooms. Essential ancillary sleeping or residential accommodation for staff required by uses in this category, subject to a specific warning and evacuation plan.
Notes 1 - This classification is based partly on Defra/Environment Agency research on Flood Risks to People (FD2321/TR2)21 and also on the need of some uses to keep functioning during flooding. 2 - Buildings that combine a mixture of uses should be placed into the higher of the relevant classes of flood risk sensitivity. Developments that allow uses to be distributed over the site may fall within several classes of flood risk sensitivity. 3 - The impact of a flood on the particular uses identified within this flood risk vulnerability classification will vary within each vulnerability class. Therefore, the flood risk management infrastructure and other risk mitigation measures needed to ensure the development is safe may differ between uses within a particular vulnerability classification.	

Table 5.1 – Flood Risk Vulnerability Classification

Vulnerability Classification		Essential Infrastructure	Water-compatible	Highly Vulnerable	More Vulnerable	Less Vulnerable
Flood Zone	Zone 1	✓	✓	✓	✓	✓
	Zone 2	✓	✓	Exception Test	✓	✓
	Zone 3a	Exception Test	✓	✗	Exception Test	✓
	Zone 3b	Exception Test	✓	✗	✗	✗
Key ✓ Development is appropriate ✗ Development should not be permitted						

Table 5.2 – Flood Risk Vulnerability and Flood Zone ‘Compatibility’

The proposed development is appropriate in accordance with Table 3 of the Flood Risk and Coastal Change, Planning Practice Guidance, reproduced in Table 5.2 above.

5.2 Sequential Test & Exception Test

The NPPF requires that all development is sequential tested to steer new development to areas at the lowest probability of flooding (Flood Zone 1). The Sequential Test would normally be completed by the Local Planning Authority (LPA) to inform the preparation of the Local Development Framework (LDF), where one exists. However, where this process has not yet been completed the onus for the provision of evidence demonstrating successful application of the Sequential Test falls to the developer, or

promoter of the site. The NPPF also requires the layout of a site to be sequentially tested to locate the most vulnerable land uses in the areas at lowest risk of flooding.

The NPPF Planning Practice Guidance acknowledges that in some circumstances it may not be possible to locate development in areas of low or appropriate (considering development vulnerability) flood risk or that there may be other valid reasons for a development to take place within the floodplain. In these circumstances, it is necessary to apply the Exception Test to clearly demonstrate that the benefits for development of a site outweigh the flood risks to the development and its occupants. Table 3 of the Flood Risk and Coastal Change, Planning Practice Guidance (reproduced in Table 5.2 above) indicates when the Exception Test is required.

The proposed development site falls entirely into Flood Zone 1, meaning the Sequential Test is deemed to be passed and the Exception Test is not required.

5.3 Local Policy

The Local Plan (Core Strategy) was adopted by the Havant Borough Council in March 2011. An extract of the flood risk management policy is included below.

Policy CS15 Flood and Coastal Erosion Risk

Development in areas at risk of flooding now and in the future as identified on the latest Environment Agency flood risk maps and Strategic Flood Risk Assessment climate change maps will only be permitted where:

- 1. It meets the sequential and exception test (where required) in relation to PPS25.*
- 2. The site is located in a low hazard area as defined in the Strategic Flood Risk Assessment.*
- 3. A site-specific flood risk assessment demonstrates that the development will be safe, including the access, without increasing flood risk elsewhere, and, where possible, will reduce flood risk overall.*
- 4. The scheme incorporates flood protection, flood resilience and resistance measures appropriate to the character and biodiversity of the area and the specific requirements of the site.*
- 5. Appropriate flood warning and evacuation plans are in place.*
- 6. New site drainage systems are designed taking account of events which exceed the normal design standard.*

All development will be required to ensure that there is no net increase in surface water run off. Priority should be given to incorporating Sustainable Drainage Systems (SuDS) to manage surface water drainage, unless it is proven that SuDS are not appropriate. Where SuDS are provided arrangements must be put in place for their whole life management and maintenance.

The council will work with partners to implement the Coastal Policy Zones in the North Solent Shoreline Management Plan to ensure that development avoids areas at risk from coastal erosion and coastal flooding and that areas required to offset coastal squeeze and prevent habitat fragmentation, to allow species to adapt to climate change, are identified and protected from development.

A pre- submission version of the Havant Borough Local Plan with changes was published in September 2020 and is expected to be submitted to the Secretary of State after consultation. Extracts of all relevant drainage and flood risk management policies are included below.

Policy E19 Managing flood risk in new development

Planning permission will only be granted where:

- a. *The proposal meets the sequential and exception tests as set out in the NPPF and relevant local guidance;*
- b. *The development will be safe over its lifetime without increasing flood risk elsewhere;*
- c. *Any proposed flood protection, resilience and resistance measures address the specific requirements of the site, and are appropriate to the character and biodiversity of the area;*
- d. *Opportunities have been explored to reduce flood risk;*
- e. *Where necessary, appropriate flood warning and evacuation plans are in place; and*
- f. *Where necessary, a contribution has been made towards any identified flood alleviation scheme(s).*

Policy E20 Drainage infrastructure in new development

Planning permission will only be granted where:

- a. *Run-off rates have been reduced to below the pre-development rate, or, if this is not possible, there is no net increase in surface water run-off compared with the pre-development rate;*
- b. *Drainage systems meet the drainage needs of the development in full over the lifetime of the development and do not increase flood risk elsewhere;*
- c. *The drainage strategy incorporates SuDS, unless there is clear evidence that this would be inappropriate;*
- d. *Arrangements have been made between the applicant and the service provider for the timely delivery of sewerage network reinforcement; and*
- e. *Any existing sewerage infrastructure is taken into account in site layout, to safeguard future access for maintenance and upsizing purposes.*

5.4 Public Safety Issues

Given the relatively very low-low risk of flooding across the development area, it is not deemed appropriate to develop a flood evacuation plan. However, the building occupiers should still subscribe to the EAs free flood warning service and in the event of a flood, people must evacuate to higher ground and follow guidance from the emergency services.

5.5 Safe Access/Egress

As the proposed site lies in Flood Zone 1 and there is only very low-low risk of pluvial (surface water) flooding around the access of the site, safe access/ egress will be retained during a flood event.

5.6 Surface water management strategy

The existing finishes across the site is largely comprised of impermeable area with landscaping and vegetations around the existing site perimeter. As the proposed development will comprise of more permeable areas than the existing site, the surface water runoff from the development is expected to decrease.

The method of discharging surface water off site will be established following the SuDS hierarchy as provided in the Building Regulations (H3) and the surface water runoff will be managed with SuDS devices to reduce the peak runoff. Refer to the Drainage Strategy report prepared by Pinnacle Consulting Engineers for the surface water runoff management from the development.

5.7 Flood Risk Elsewhere

The surface water run-off generated by the site impermeable area will be managed within the site. No loss of flood storage or obstruction to flood flow is anticipated as all the proposed buildings are located in Flood Zone 1 and the surface water run-off generated by the site impermeable area will be managed within the site. Thus, the proposed development will not increase the risk of flooding to other sites.

6 CONCLUSION

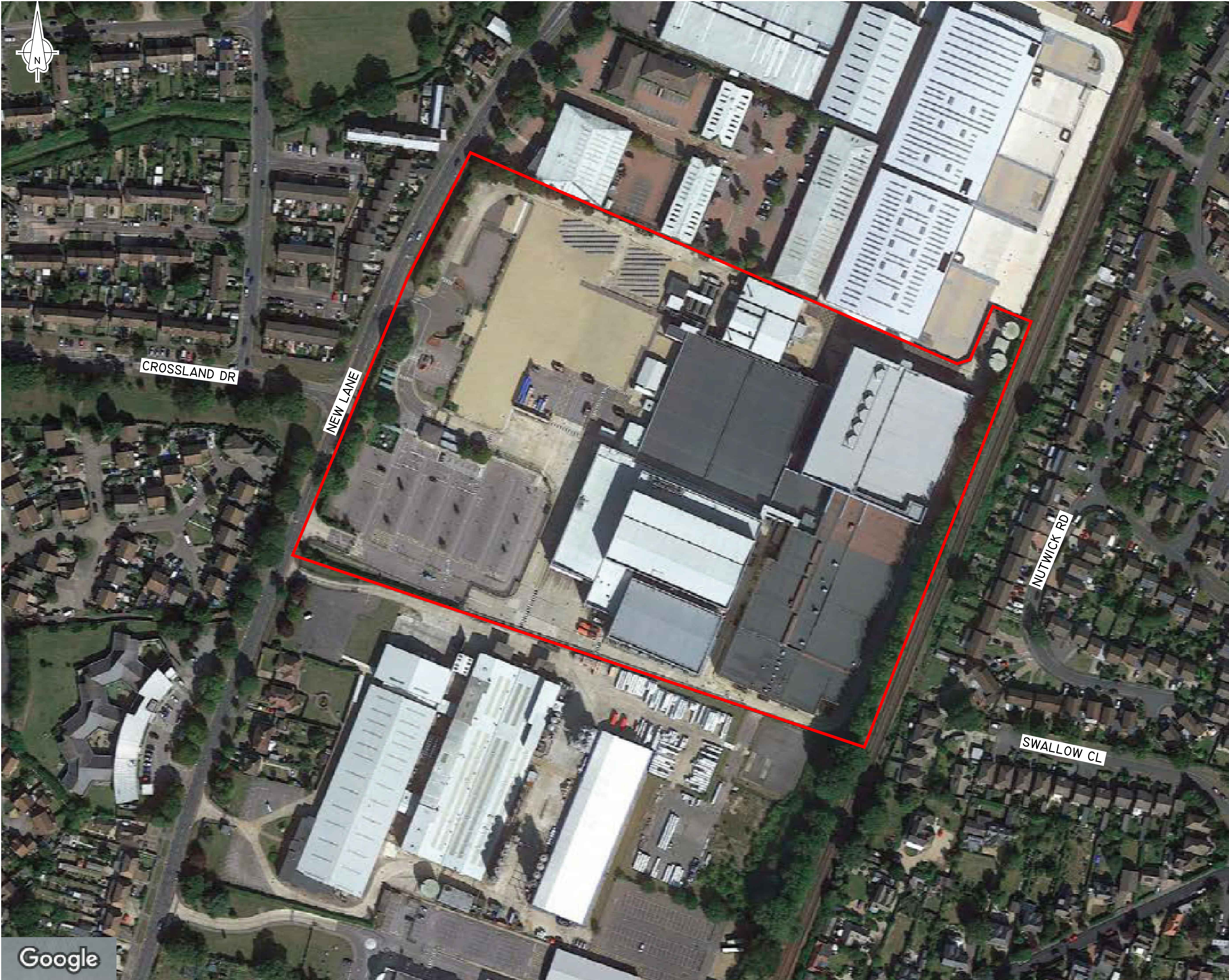
This report has been prepared in accordance with the National Planning Policy Framework and associated Technical Guidance. Following the completion of this assessment, the following conclusions and recommendations can be drawn for the proposed scheme:

- The proposed development is located at 32 New Lane, Havant, Hampshire, PO9 2NG (National Grid Reference SU 72466 07236). The site is a brownfield site and lies within an Industrial Estate on the east side of New Lane with a total developable area of approximately 6.78ha.
- The development site falls generally from north east to south west direction, with ground levels across the site varying between approximately 16.20m and 13.03m Above Ordinance Datum (AOD).
- The proposed site is underlain by a superficial deposit of Head (clay and gravel) and River terrace deposits (undifferentiated- sand, silt and clay).
- The proposed site lies within the bedrock zone identified as London Clay Formation – Clay, Silt, and Sand.
- The Soilscape map of the site indicates “freely draining slightly acid loamy soil”.
- The site is within a ‘Low’ groundwater vulnerability zone and ‘Unproductive’ Bedrock Aquifer Designation Zone, ‘Secondary A’ Superficial Aquifer Designation zone and ‘Zone 1- Subsurface Activity’ Ground Water Source Protection Zone.
- The drainage survey enclosed in Appendix C delineates all observed surface water and foul networks within the site. The surface water runoff from the existing site discharges off site via 4 different connections into the public surface water sewer located in New Lane. Similarly, the existing foul water network is shown to discharge into the public foul water sewer in New Lane. It is of note that no existing Sustainable Drainage Systems (SUDS) have been identified within the site, indicating the site discharges freely to the public sewer network.
- The proposed development proposes to redevelop the site and use it as a storage and distribution facility, where parcels are delivered via small vans to customers in the local area. The proposal includes a centrally located warehouse building and a decked storage area which will house the fleet of commercial vehicles overnight while drivers are not on deliveries.
- The site is located within Flood Zone 1 (an area of low probability of flooding as defined by the Environment Agency) and in accordance with National Planning Policy Framework all development types are deemed appropriate, meaning completion of the Exception Test is not required.
- The site is at no risk of flooding from rivers or the sea.
- The risk of flooding from surface water vary within the site. The site has a high-medium risk of flooding in the existing hard standing areas in the north and the south of the site, medium risk in the east just outside the existing building and low risk generally around the existing building and in some areas in the west.
- The Areas Susceptible to Ground Water Flooding mapping provided in the Ground Water Management Plan GWMP indicates that there is a possibility of groundwater flooding within the

vicinity of the proposed site. It is recommended that a site-specific ground monitoring test should be undertaken to quantify any potential risks.

- The site and the surrounding area as not being at risk of flooding from reservoirs, canals, or any artificial sources.
- Given the relatively very low-low risk of flooding across the development area, it is not deemed appropriate to develop a flood evacuation plan. However, the building occupiers should still subscribe to the EAs free flood warning service and in the event of a flood, people must evacuate to higher ground and follow guidance from the emergency services.
- Safe access/ egress will be retained during a flood event since there is only low- very low risk of pluvial (surface water) flooding around the access of the site.
- The method of discharging surface water off site will be established following the SuDS hierarchy as provided in the Building Regulations (H3) and the surface water runoff will be managed with SuDS devices to reduce the peak runoff. Refer to the Drainage Strategy report prepared by Pinnacle Consulting Engineers for the surface water runoff management from the development.
- No loss of flood storage or obstruction to flood flow is anticipated as all the proposed buildings are located in Flood Zone 1 and the surface water run-off generated by the site impermeable area will be managed within the site. Thus, the proposed development will not increase the risk of flooding to other sites.

Appendix A – Site Location Plan



CROSSLAND DR

NEW LANE

NUTWICK RD

SWALLOW CL

GENERAL NOTES

1. DO NOT SCALE THIS DRAWING. WORK ONLY TO FIGURED DIMENSIONS.
2. FOR ALL RELEVANT NOTES, REFER TO STRUCTURAL AND CIVIL ENGINEERING PERFORMANCE SPECIFICATION.
3. ANY DISCREPANCIES ARE TO BE REPORTED TO PINNACLE CONSULTING ENGINEERS IMMEDIATELY.
4. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT ENGINEERS, ARCHITECTS AND SUB-CONTRACTORS DRAWINGS AND DETAILS.

0 50MM ON A1 DWG. 50

P03	UPDATED SITE BOUNDARY	SC	SG	09.02.21
P02	UPDATED GOOGLE MAP	IL	SG	22.01.21
P01	FOR INFORMATION	SC	SG	12.01.21
REV	DESCRIPTION	BY	CHK	DATE

CLIENT
HAVANT PROPERTY
INVESTMENT LLP

PROJECT
HAVANT
32 NEW LANE

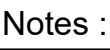
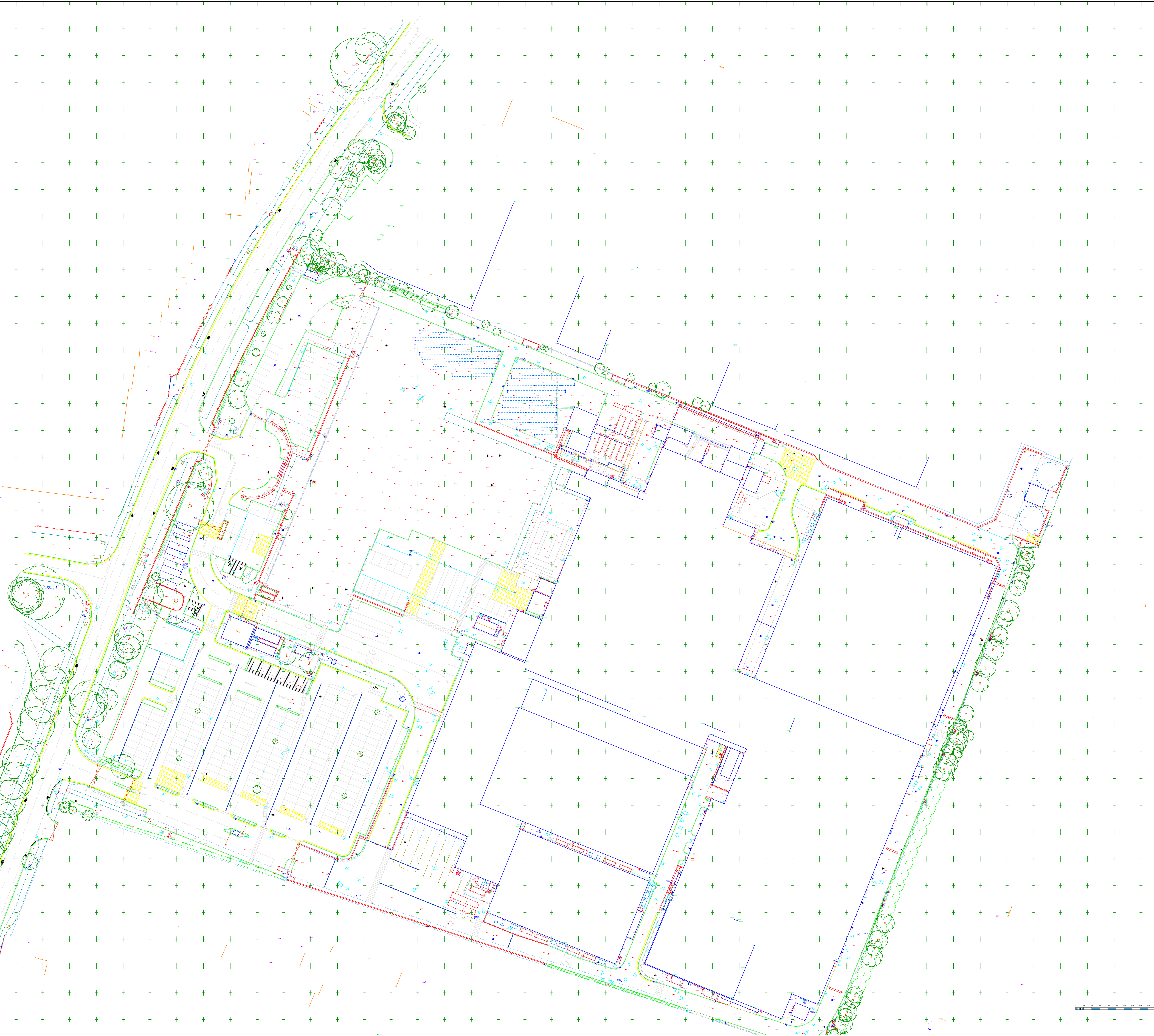
DRAWING TITLE
SITE LOCATION PLAN

PINNACLE
CONSULTING ENGINEERS

ALCHEMY,
BESSEMER ROAD,
WELWYN GARDEN CITY,
HERTS
AL7 1HE. TELEPHONE: 01707 527 630
NORWICH LONDON DUBLIN THE HAGUE

DRAWING STATUS			
FOR INFORMATION			
SCALE @ A1	DATE	DRAWN BY	CHECKED
NTS	JAN' 21	SC	SG
DRG NO.	REVISION		
C200810-PIN-XX-XX-DR-C-201	P03		

Appendix B – Topographical Survey



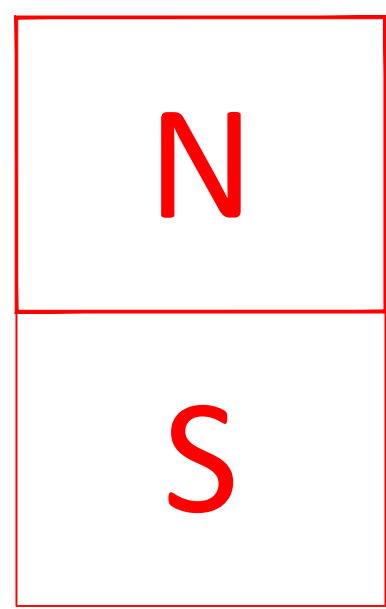
Station	Easting	Northing	Level
ST1	972456.000	107182.700	15.337
ST6	972429.776	107174.773	15.337
ST7	972430.000	107174.000	15.337
ST8	972430.000	107174.000	15.337
ST9	972440.100	107180.100	15.470
ST10	972458.823	107182.823	15.503
ST11	972458.823	107182.823	15.503
ST12	972457.812	107181.812	15.514
ST13	972457.812	107181.812	15.514
ST14	972457.812	107181.812	15.514
ST15	972457.812	107181.812	15.514
ST16	972457.812	107181.812	15.514
ST17	972457.812	107181.812	15.514
ST18	972459.561	107185.704	15.568
ST19	972459.561	107185.704	15.568
ST20	972459.561	107185.704	15.568
ST21	972459.561	107185.704	15.568
ST22	972459.561	107185.704	15.568
ST23	972459.561	107185.704	15.568
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ST30	972459.561	107185.704	15.568
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ST76	972459.561	107185.704	15.568
ST77	972459.561	107185.704	15.568
ST78	972459.561	107185.704	15.568
ST79	972459.561	107185.704	15.568
ST80	972459.561	107185.704	15.568

All Stations are marked with a MAG Survey Nail or Hilli Nail.

[illegible]

FENCES/WALLS/DIVISIONS				
/W	Barbed Wire Fence	FTR	Trellis Fence	S/F Safety Fence
/B	Chain Barrier	H/R	Hand Rail	S/R Steel Railings
/C	Close Boarded Fence	I/R	Iron Rail Fence	W/M Wire Mesh Fence
/J	Corrugated Iron Fence	P/F	Picket Fence	BW Brick Wall
/L	Chain Link Fence	P/L	Palisade Fence	CW Concrete Wall
/P	Post and Rail Fence	P/R	Post and Rail Fence	DSW Dry Stone Wall
PB	Panel / Board Fence	P/W	Post and Wire Fence	R/W Retaining Wall
				SW Stone Wall

SB	Asbestos	FRL	Flat Roof Level	SC4	Suspended Ceiling Height
AV	Air Vent	GRL	Glazed Roof Light	SO4	U/S Soffit Height
L	Cell Level	HL	Head Level	SOIL	Soil Pipe
H	Ceiling Height	PART	Partitioning	SWP	Sewer Vent Pipe
HM	Chimney Stack Height	PL	Parapet Level	THL	Threshold Level
D	Down Head	RL	Ridge Level	U/S	Underneath Of Beam
P	Down Pipe	RWC	Rain Water Channel	WH	Water Heater
L	Eave Level	RWP	Rain Water Pipe	WP	Waste Pipe
F	First Floor	SA	Spring Of Arch	WST	Water Storage Tank



Rev.	Comments	By	Chkd	Date
-	-	-	-	-



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Bath: 01225 314370 - London: 02039 066892

32 New Lane,
Havant, Hampshire, PO29 2NG.

File Name:
SB5421-TOPO

Drawing Title :
Topographical Survey Of New Lane
Sheet (SITE NORTH)

Client:
Kingsbridge Estates

Date
26/01/2021

Scale
A0 @ 1:500

Drawn by: SB-RI	Checked by: SB - RI	Project Code: SB5421-TOPO	Revision: ---
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Grid Orientation: North GPS	Site Level Datum OS GPS
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All dimensions are to be checked on site where applicable. This drawing must not be scaled, and only written dimensions should be respected.

Tree species and sizes on this drawing are not guaranteed, and if critical should be verified by an arboriculturist. Tree spreads are average about the bole, and heights are approximate at the time of the survey.



Appendix C – Existing Drainage Layout

