Scott White and Hookins

Scott White and Hookins LLP
Harman House
Andover Road
Winchester
Hampshire
SO23 7BS

T +44 (0)1962 844855
info@swh.co.uk

Flood Risk Assessment

Kingsclere Avenue,

Havant

Prepared By: ...[redacted]..... Caroline Baker BSc(Hons) PgCert BREEAM CSH

Approved By: [redacted] Ian Llewellyn MEng CEng MICE MIStrcutE

Structural Engineering

Civil Engineering

CDM Co-ordination

BREEAM Assessors

Traffic and Transport

Flood Risk Assessments

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1.0 Introduction

1.1 Scott White and Hookins have been instructed by Lovell to undertake a flood risk assessment as part of the planning submission for the Kingsclere Avenue development in Havant, Hampshire.

1.2 This report considers the flood risk to the proposed development and the impact that the development will have in relation to flooding of adjacent areas and watercourses. It also considers any limits relating to flooding that are likely to be imposed to allow the development to be undertaken.

1.3 This report is based on information received from the Environment Agency, and the Havant Borough Council and PUSH Strategic Flood Risk Assessment and via a desk top study of the existing conditions on site. Scott White and Hookins cannot accept liability for the accuracy or otherwise of any information derived from third party sources.

1.4 This report is for the private and confidential use of Lovell and its agents and may not be copied in whole or in part without the written permission of Scott White and Hookins.

2.0 Government Policy on Flood Risk and Drainage of Development

2.1 The frequency and severity of river flooding is perceived to have increased in recent years and in an attempt to mitigate the flood risk the Government published Planning Policy Statement Note 25: Development and Flood Risk (PPS25) in December 2006. PPS25 details the importance of the effective management and reduction of flood risk in the land use planning process and attempts to address the issue of climate change. This has since been updated and is set out in The National Planning Policy Framework and the supporting technical guidance.

2.2 Traditionally surface water run off from developments has been conveyed by pipe systems to the nearest watercourse or sewer. This tends to increase the rate and volume of the run off often leading to flooding downstream of the new development. Latest policy promotes the use of sustainable urban drainage systems (SUDS) whereby the control of run off is to be as close to source as possible. This can be achieved by utilizing techniques which mimic the natural drainage processes, the use of direct infiltration for example. The Environment Agency will, in general, seek to restrict the allowable discharge from a new development to that previously expected from the undeveloped land.

2.3 The requirements of the revised Building Regulations which came into force on 1st April 2002 are that adequate provision should be made for dealing with rainwater from the roofs of buildings and certain paved areas providing access to the buildings. Run off from such drainage systems are to be discharged to one of the following systems listed in order of priority:-

- A soakaway or other infiltration system
- A watercourse
- A sewer or drain

2.4 The revised Building Regulations were drafted to reinforce the requirements for SUDS wherever possible.

2.5 The Requirements of a Flood Risk Assessment

2.5.1 A Flood Risk Assessment is required in order to ascertain whether a development will exacerbate the risk of flooding elsewhere in the catchment or is at risk of flooding itself.

3.0 Development Site

3.1 The proposed new development is to be located on Leigh Park in Kingsclere Avenue, in Havant, Hampshire.

3.2 The development area is an existing greenfield site on Kingsclere Avenue in Havant. The site is accessed from Kingsclere Avenue and is bounded by Brockenhurst Avenue and Dunsbury Way. See Appendix 1 for site aerial photographs.

3.3 The nearest watercourse to the site is the Hermitage Stream which is located approximately 350m to the south-east of the site.

3.4 The overall area of the site boundary is approximately 13000 m^2 (1.3 ha). The overall footprint of the proposed dwellings is approximately 2200m^2, with associated vehicular and pedestrian access, and green space and permeable areas.

3.5 The existing site is surrounded by residential properties as well as a school to the south of the site, therefore it is reasonable to assume that access to a public foul water sewer will be available.

3.6 Ground Conditions

3.6.1 The geology of the area is shown on British Geological Survey map which indicates the site is underlain by Bognor Sand Member. A geotechnical investigation has been undertaken by Ridge which confirms the superficial strata of Bognor Sand Member underlain by London Clay formation.

From the site investigation the long term monitoring showed the groundwater level to be at peak of 1.85m bgl.

4.0 Development Proposals

4.1 The proposed development involves the construction of 38 dwellings comprised of 30 houses and 8 flats, with associated car parking and public open space. See Appendix 3 for the proposed site plans.

4.2 The existing site proposed for the new development is a greenfield site. The proposed development will involve the construction of 38 new residential dwellings with some soft landscaping and parking areas within the overall site boundary. The development will therefore result in an increase to the overall impermeable area on site.

4.3 With reference to National Planning Policy Framework (NPPF): Table 2, as residential buildings used for dwellings, the flood risk vulnerability classification will be 'More Vulnerable'.

5.0 Flood risks and Drainage Strategy

5.1 River Catchment and Flooding

5.1.1 Based on the Environment Agency flood map the site is located in Flood Zone 1 which indicates this area has an annual probability of river flooding of less than 1 in 1000 (<0.1%). See Appendix 2 for Environment Agency flood map.

5.1.2 With reference to Section 4 and NPPF: Table 3, a development classified as 'More Vulnerable' within Flood Zone 1 is deemed appropriate. As the site is located in Flood Zone 1 this also satisfies the requirements of the Sequential Test.

5.1.3 The SFRA identifies that a significant proportion of the borough can be considered to be at risk of fluvial or coastal flooding due to its proximity to the coastline in addition to the rivers that run through the borough. These are however identified as being within Flood Zones 2 and 3.

5.1.4 The SFRA identifies the Hermitage Stream, located within nearby proximity to the development site, to be a secondary source of flooding within the borough and includes the area of Leigh Park as being at risk of flooding. However, whilst there have been some incidents of historic flooding recorded in the SFRA, none have been recorded within the vicinity of the development site including the nearby school. This is also supported by the EA maps shown in Appendix 2 which illustrate that the site is situated outside of the flood risk area, and it is therefore considered unlikely to be affected by river flooding.

5.2 Overland flow

5.2.1 The existing site has been visually assessed for overland flows. Due to the nature and topography of the existing site and building, although not calculated, the depth of potential flow across the site is thought likely to be very small, and the general velocity over the ground will be minor.

5.2.2 Due to the geological foundation of the site being sand, this would be considered suitable for infiltration and therefore it is proposed that surface water can be dealt with on site with soakaways and infiltrated into the ground. The CIRIA SUDs manual recommends infiltration devices are installed a minimum of 1m above the groundwater level. The long term groundwater monitoring level of 1.85m bgl may prevent the use of traditional deep soakaways however the use of shallow devices such as permeable paving or swales would be considered appropriate. Final details should be developed during detailed design and based on a soakage test conducted to BRE Digest 365.

5.2.3 Based on the extent of the works and proposed SUDs system, we would therefore conclude the site areas are at low risk of flooding due to overland flow as surface water will be dealt with at source, thus replicating the existing greenfield situation. The SFRA also does not identify any instances of surface water flooding within the vicinity of the works, and therefore it is not deemed to be at risk of this type of flooding.

5.3 Local flooding of surface water sewer

As discussed above, it is proposed that the new development will utilise infiltration SUDs where ever possible on site. Depending on the outcome of site infiltration tests it may be necessary to discharge some proportion of surface water to the public sewer. If so the development will incorporate attenuation tanks with a flow control device to limit the discharge to 5l/s/ha as greenfield run-off rate.

5.3.1 The SFRA identifies that the site is located in an area of low risk of sewer flooding, and it is not deemed to be at risk of this type of flooding.

5.4 Groundwater flooding

5.4.1 The SFRA states that Havant is considered to be an area susceptible to groundwater flooding. The SFRA also illustrates instances of groundwater flooding events occurring in the north of the borough; however these are not within the vicinity of the site. It is therefore concluded that the site is at low risk of groundwater flooding.

6.0 Summary

6.1 Based on the Environment Agency map the proposed development lies in Flood Zone 1 which is outside a flood risk area and is considered to not be at risk from nearby watercourses.

6.2 With reference to section 5.1.2, the proposed development is considered appropriate for Flood Zone 1.

6.3 It is considered that the proposed development will result in an increase to the overall impermeable area to that of the existing site. However since the development area is located in Flood Zone 1, and also due to the sand geology of the site it is anticipated that surface water can be dealt with on site, the proposed development is therefore not deemed to be at risk of surface water flooding.

6.4 Final detail for the proposals should be developed during the detailed design period, and agreed with the Environment Agency and statutory authorities.

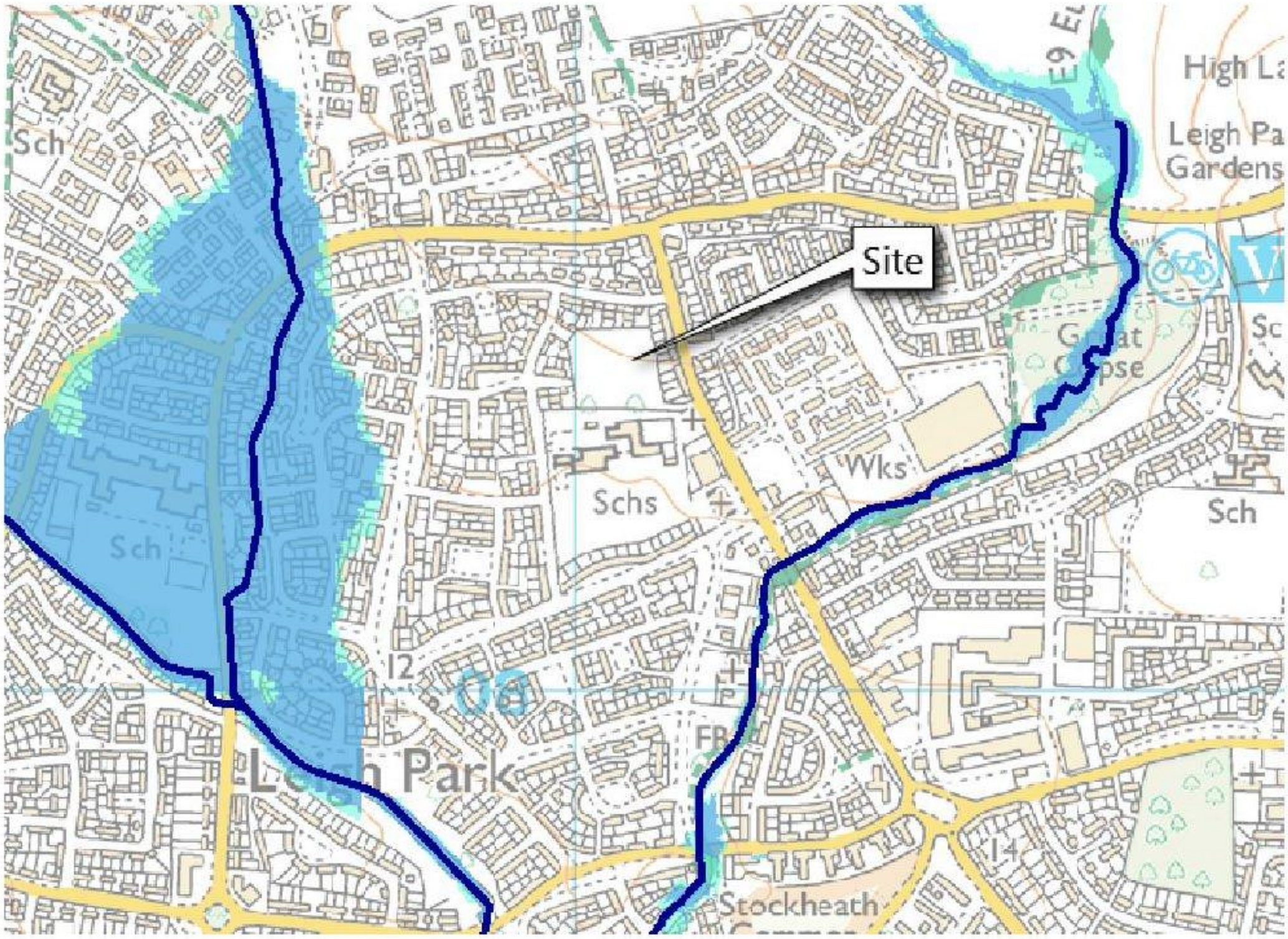
6.5 Infiltration tests in accordance with BRE Digest 365 should be carried out on site to finalise design of soakaways at detailed design stage.

Appendix 1

Photograph 1:

Aerial View of Site Boundary

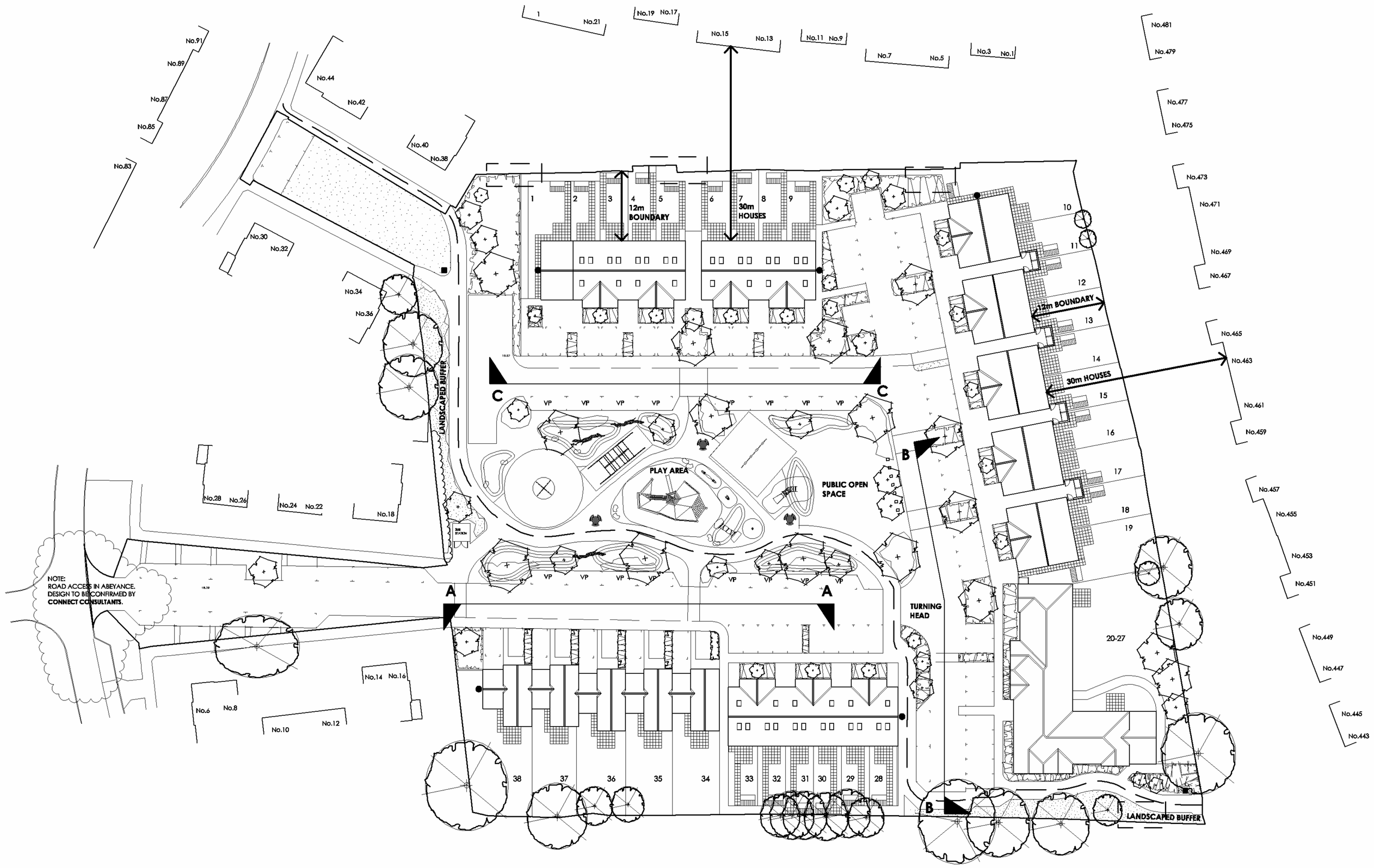
Appendix 2



Environment Agency Preliminary Flood Map taken from website

Appendix 3

Proposed Site Plan



KEY

NEW TREES
INDICATIVE LOCATION OF PROPOSED LARGE OR SEMI-MATURE SPECIMEN TREES - MOSTLY NATIVE SPECIES

EXISTING TREES
MOSTLY LOCATED ON THE PERIMETER AND TO BE RETAINED. A NUMBER OF BIRD NEST BOXES TO BE LOCATED IN SELECTED TREES.

PEDESTRIAN ROUTE
PRINCIPLE PEDESTRIAN AND CYCLE ROUTE ENABLING CONTINUED PUBLIC ACCESS THROUGH THE SITE

DISTANCES
PRINCIPLE DISTANCES TO BOUNDARY OR NEIGHBOURING DWELLINGS.

BAT BOXES
SUGGESTED LOCATION OF A NUMBER OF BAT BOXES TO BE INTEGRATED INTO THE GABLE WALLS OF HOUSES.

KEY ECOLOGY ZONES
AREAS WHERE REPTILES WERE DETECTED AND NEED TO BE PROTECTED.

ECOLOGY BUFFER
EXISTING SHRUBS AND BRAMBLE TO BE RETAINED AND ENHANCED IN KEY LOCATIONS TO SUPPORT BIRDS AND TO PROMOTE BIO DIVERSITY.

NEW HEDGE
NEW BORDER LOW LEVEL HEDGING

PLANTED AREAS
NEW AREAS OF LOW/MID HIGH SHRUBS AND VARIOUS NATIVE PLANTING AS SUGGESTED IN ECOLOGY REPORT BY ECOSUPPORT LTD

LOCAL PLAY
POSSIBLE AREA TO BE USED AS PUBLIC LOCAL PLAY. DESIGN AND EQUIPMENT BY OTHERS

PRIVATE GREEN AREAS
PRIVATE GARDEN AREAS/ SEMI PRIVATE AREAS (IN FRONT OF UNITS)

PUBLIC GREEN/OPEN SPACE
EXISTING AND NEW AREA OF OPEN SPACE. LARGER OPEN AREAS TO INCLUDE WILDFLOWER TURF WITH A MIXTURE OF SHORT GROWING AND SHADE TOLERANT VARIETIES

PEDESTRIAN AREAS
PAVEMENTS AND SEMI PRIVATE FOOTPATHS. ASSUME BLOCK PAVING AND LARGER FORMAT SLABS IN CONTRASTING COLOURS DEPENDING ON AREAS

ROAD
ASSUME A MIXTURE OF TARMAC AND BLOCK PAVING IN CONTRASTING COLOURS TO DELINIATE DIFFERENT AREAS ON SITE. PERMEABLE SURFACES

CAR PARKING
PARKING BAYS AND DROP OFF ZONE
VP- VISITOR PARKING

TIMBER BOLLARDS
FITTED FOR VERGE PROTECTION

EXISTING HEDGE

DOG WASTE BIN LOCATION

ACCOMMODATION SCHEDULE

HOUSE TYPE 1 - 3 BEDROOM, 5 PERSON HOUSE
UNITS: 10-19

HOUSE TYPE 2 - 3 BEDROOM, 6 PERSON HOUSE
UNITS: 2-9, 28-33

HOUSE TYPE 3 - 4 BEDROOM, 7 PERSON HOUSE
UNITS: 1, 34-38

FLATS - 2 BEDROOM, 4 PERSON FLAT
UNITS: 20 - 27

A1

KINGSCLERE AVENUE, LEIGH PARK

SK1 - 07.04.16 - DRAWING ISSUED FOR FINAL DRAFT ISSUE FOR COMMENT - AC

N

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SCALE BAR = 10mm INTERVALS AT TRUE SCALE

PRELIMINARY ISSUE

POPE PRIESTLEY ARCHITECTS
ARCHITECTURE | TOWN PLANNING | URBAN DESIGN
UNIT 15, VICARAGE FARM BUSINESS PARK, WINCHESTER ROAD, FAIR OAK, HAMPSHIRE SO50 7HD T: +44 (0)23 80336708 E: info@popepriestley.co.uk

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PROPOSED HOUSING DEVELOPMENT
KINGSCLERE AVENUE
LEIGH PARK
HAVANT

SITE LAYOUT

SCALE @ A1	DATE	AUTHOR	CHECK	DRAWING NO.	REVISION
1: 400	16.02.16	HG	SW	PP1308-101-01	SK1