

Flood Risk Assessment Arun Retail Park Bognor Regis

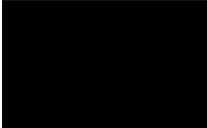
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1 Introduction

1.1 Background

ENVIRON UK Limited (ENVIRON) was commissioned by Orchard Street Investment Management LLP, to provide a Flood Risk Assessment (FRA) for a proposed minor extension to an existing retail unit within the Arun Retail Park, Bognor Regis at Land Ranger Grid Reference SU940007 ('the Site'). The Site includes the existing retail unit and the area for the proposed extension (an existing service yard) to the south of the retail unit but does not include the wider Retail Park.

1.2 Site Location

As presented in Figure 1.1, the Site is located towards the north of Bognor Regis, in the south of Arun Retail Park. The Site is bounded to the north by other retail units within the Retail Park, to the east and south by the A29, Shripney Road and to the west by an electricity sub-station beyond which is a holiday park. The holiday park is bordered by Aldingbourne Rife.

1.3 Proposed Development

The proposals seek a change of use for Unit D1 and D2 from *Sui Generis* to Class A1. Furthermore, the application seeks to construct a new ground floor extension to Unit D2, which together with proposed elevation works will increase the unit's ground floor gross external area by approximately 200 m² (Figure 1.2). Additionally, planning permission is sought to install a new retail mezzanine to Unit D2. An extension of 47.7 m² Gross External Area (GEA) of additional on-trading mezzanine floorspace within Unit D1 is also proposed as part of the wider planning application. The change of use would ensure that the Site remains in a 'less vulnerable' category in accordance with the National Planning Policy Framework¹ (NPPF).

1.4 Requirement for a Flood Risk Assessment

Flood risk is primarily regulated through planning policy. Key requirements with respect to flooding are outlined in the NPPF which was published in March 2012. This replaces and builds on the requirements of Planning Policy Statement 25: Development and Flood Risk (PPS25)².

The NPPF requires that an FRA should be submitted with planning applications for all sites over one ha in area and all smaller sites within Flood Zones 2 and 3 to determine the risks of flooding at a development site (from all sources including rivers, the sea, sewers and groundwater). The Site is located within Flood Zone 3.

The primary resource for reviewing fluvial and tidal flood risks is via Environment Agency (EA) indicative floodplain maps. These classify risks as follows:

- Flood Zone 1 (Low Probability): annual probability of flooding less than 1 in 1,000 (<0.1%);

¹ Department for Communities and Local Government (March 2012) National Planning Policy Framework.

² Department for Communities and Local Government (Revised March 2010) Planning Policy Statement 25: Development and Flood Risk.

- Flood Zone 2 (Medium Probability): annual probability of flooding more than 1 in 1,000 (0.1%) but less than 1 in 100 (1%) for fluvial flooding or 1 in 200 (0.5%) for tidal flooding; and
- Flood Zone 3 (High Probability): annual probability of flooding more than 1 in 100 (1%) for fluvial flooding or 1 in 200 (0.5%) for tidal flooding.

Local policies on flooding are also available for review. These are principally communicated via Strategic Flood Risk Assessment (SFRA) reports.

1.5 Consultation

The EA has been consulted regarding the extent of available information on flood risk at the Site and their views were also sought on the likely mechanisms of flooding and potential development control responses. To date, no response has been received. The assessment contained herein is therefore based on previous consultations undertaken with the EA for a separate site in Bognor Regis which is considered to be subject to similar flood risks.

A Strategic Flood Risk Assessment (SFRA) was completed for Arun District Council by Capita Symonds in February 2008. The primary purpose of the SFRA is to determine and describe flood risk across the district, identifying areas at risk of flooding from all sources present in the study area.

2 Baseline Environmental Conditions

2.1 Topography and Land Use

No site-specific information is available for the Site. A review of ground topography provided in the SFRA (Map T2), although broad-scale in nature, suggests that there is no significant discrepancy in ground elevations and that the Site is relatively flat.

2.2 Hydrology and Flooding

2.2.1 Surface Water Features

Aldingbourne Rife flows in a north west to south east direction approximately 130 m to the south west of the Site. Aldingbourne Rife ultimately flows into the English Channel a further 1.5 km downstream via various culverted sections. At the shoreline, the Aldingbourne Rife discharges via a flapped outfall and pumping station. The SFRA reports that flows are normally conveyed under the sea defence wall and across the foreshore by two independent gravity outfall structures. However, when tidal conditions and river flows dictate, flow is pumped over the sea wall using three pumps and siphons to discharge into a stilling bay on the upper foreshore.

The West Sussex Rifes are a group of smaller watercourses that rise in or just south of the South Downs in the western extent of West Sussex. They include the Aldingbourne Rife draining the Manhood Peninsula. The chalk geology of the South Downs has a significant influence on the behaviour of the watercourses leading to strongly groundwater-influenced flow patterns. Downstream of the Downs, the topography flattens and geology is less permeable. This, combined with their discharge outlets being blocked during high tides, means that the area is relatively poorly drained. In some areas, water levels are managed through small earth embankments and pumping. These activities have limited impact during large flood events. Relatively shallow depths of flooding can affect large areas and can last for a significant amount of time. Adjacent to the Site, the channel of Aldingbourne Rife is generally around 5 m wide and characterised by channel conveyance improvements and straightening.

2.2.2 Flood Zone Classification

According to the EA indicative flood map, the Site is located within an area designated as Flood Zone 3 – high probability. Flood Zone 3 is split into two sub-categories:

- Flood Zone 3a: land with a >1% (1 in 100) or greater annual probability of fluvial flooding; and
- Flood Zone 3b: land with a flooding probability of 1 in 20 (5%) or greater in any one year. Land within this zone is defined by PPS25 as comprising land where water has to flow or be stored in times of flood (the 'functional floodplain').

The SFRA confirms that the Site is not located within Flood Zone 3b although small areas immediately surrounding the Rifes may be. These are unlikely to present a serious concern with respect to the Site in terms of flood risk and redevelopment.

The SFRA breaks down the flood risk classification further by delineating risks from fluvial and tidal sources. The Site is outside Flood Zone 3a with respect to fluvial flood risk and is shown to be within Flood Zone 1 – Low Probability from these sources.

The Site is, however, shown to be almost entirely within Flood Zone 3a due to tidal flood risk and this is understood to be the reason for the EA classification. However, flood zone classification ignores flood defences which are present at the coastline as described in Section 2.2.4.

2.2.3 Historic Flooding

The SFRA presents records of historical flooding. There are no records of the Site having experienced fluvial, tidal, sewer, pluvial or groundwater flooding.

2.2.4 Flood Defences

There are no existing formal flood defences in place to directly protect the Site. The Site is at low risk of fluvial flooding from Aldingbourne Rife.

The coast to the south of Bognor Regis is covered by the River Arun to Pagham Flood and Coastal Erosion Risk Management (FCERM) strategy and the Beachy Head to Selsey Bill Shoreline Management Plan (SMP). Both the FCERM and SMP are in place to provide a management plan for future coastal defences over the next 100 years.

Bognor Regis is protected by a combination of beach nourishment and sea walls plus the Aldingbourne flapped outfall which, in combination, protect the land behind up to a Standard of Protection (SoP) of 1 in 200 years. The management strategy is to “hold the line” i.e. sustain the current level of flood risk into the future responding to potential increases in risk from urban development, land use change and climate change. To this end, the FCERM proposes beach nourishment on an average 10 year cycle which should mean that a similar SoP is provided over the next 100 years following final agreement of the FCERM and secured funding. The Site should therefore be protected from tidal flooding with a 200 year return period including allowances for climate change. Map A1-T in the SFRA shows the Site to be outside the area at risk of tidal flooding once defences are taken into consideration.

Arun District Council has suggested that the principal risk to the flood defences would be from a breach of the Aldingbourne Rife at the Butlins holiday complex (approximately 1 km to the south of the Site). This flapped outfall and pumping station are maintained by the EA. A Breach Assessment was undertaken in 2005 for the Aldingbourne Rife and is reported in the SFRA. The mapping suggests that the Site would be inundated in the event of a breach but no details of the depth or hazards of flood water in such an event are provided. It should be noted that the likelihood of a breach of the flood defences is very low.

2.2.5 Site Drainage

The existing Site is entirely covered with hardstanding. There will be no change to the impermeable nature of the development area as a result of the proposals. There is not considered to be any change to the risk of flooding from surface water (pluvial) sources. The SFRA presents a rating of medium to high risk for flooding from the land (pluvial flooding). However, the Site is within an urban setting serviced by underground sewers and is more likely to be at risk from sewer flooding. The Site is not shown in the SFRA records to have experienced sewer flooding in the past.

2.2.6 Groundwater

There are no records of groundwater flooding at the Site or in the near vicinity, the topography is relatively flat and no basements are proposed. The risk of groundwater flooding is considered to be low.

3 Flood Risk Assessment

3.1 Flood Mechanisms

The principal flood risk to the Site would be from a failure of the tidal flood defences at the point where the Aldingbourne Rife meets the English Channel. Flood defences with an appropriate SoP are present along the shoreline at Bognor Regis but the SFRA recommends further consideration of the residual risk of defence breach when assessing site-specific flood risk. The Site is not predicted to be at high risk of fluvial, sewer, pluvial or groundwater flooding.

3.2 Suitability for Redevelopment

Development in the context of flood risk is regulated through the planning process via the NPPF. The NPPF provides a classification of types of development according to their vulnerability. Retail, office and light industrial development is considered 'less vulnerable' to flooding. The proposals would not change the vulnerability of the development and would not therefore increase the level of risk in the local area.

The NPPF also states that 'less vulnerable' development is appropriate within Flood Zone 3a but that 'more vulnerable' development will be subject to both the Sequential Test and the Exception Test. Given the small scale of the proposals, the fact that the Site is defended from flooding with an SoP of 1 in 200 years and that the proposals will not increase the vulnerability of the development, it is considered to be appropriate development in this location.

3.3 Floodplain Storage

The increased footprint of the units on-site will not lead to an increase in floodplain uptake. The Site is not predicted to flood in the event of either a tidal or fluvial event. Although there is a residual risk of the Site flooding due to a potential breach of the defences, this is very unlikely to occur and the nature of the risk would be tidal. Floodplain uptake at this Site is unlikely to increase the flood risk elsewhere in the event of such a residual risk event.

4 Conclusions

ENVIRON was commissioned by Orchard Street Investment Management LLP, to provide a Flood Risk Assessment for a proposed minor extension to an existing retail unit within the Arun Retail Park, Bognor Regis. The Site includes the existing retail unit and the area for the proposed extension (an existing service yard) to the south of the retail unit but does not include the wider Retail Park. The FRA has principally involved a review of publicly-available information such as the Environment Agency Indicative Flood Map and the Arun District Council Strategic Flood Risk Assessment (SFRA). The key conclusions are as follows:

- The Site is located in Flood Zone 3 but this is considered to be due to the fact that EA Flood Maps do not take account of the presence of flood defences. The SFRA shows that the Site is at low risk of flooding from fluvial sources associated with the Aldingbourne Rife (approximately 150 m to the south west of the Site) and is protected to a 1 in 200 year Standard of Protection from tidal flooding by defences at the coast in Bognor Regis.
- There is no recorded history of flooding at the Site from any source including fluvial, tidal, groundwater, sewers or surface runoff. The risk of land (pluvial) and groundwater flooding is reported in the SFRA to be medium to high. However, the Site is in an urban setting and is therefore more likely to be at risk of sewer flooding. The Site is not shown in the SFRA records to have experienced sewer flooding in the past.
- The existing Site is entirely covered with hardstanding. There will be no change to the impermeable nature of the development area as a result of the proposals.
- The proposals would not change the vulnerability of the development and would not therefore increase the level of risk in the local area. The NPPF states that 'less vulnerable' development is appropriate within Flood Zone 3a. Given the small scale of the proposals, the fact that the Site is defended from flooding and that the proposals will not increase the vulnerability of the development, it is considered to be appropriate development in this location.
- The approximate 200 m² increased footprint of the units on-site will not lead to an increase in floodplain uptake. The Site is not predicted to flood in the event of either a tidal or fluvial event. Although there is a residual risk of the Site flooding due to a potential breach of the defences, this is very unlikely to occur and the nature of the risk would be tidal. Floodplain uptake at this Site is unlikely to increase the flood risk elsewhere in the event of such a residual risk event.

Figures

Figure 1.1: Site Location

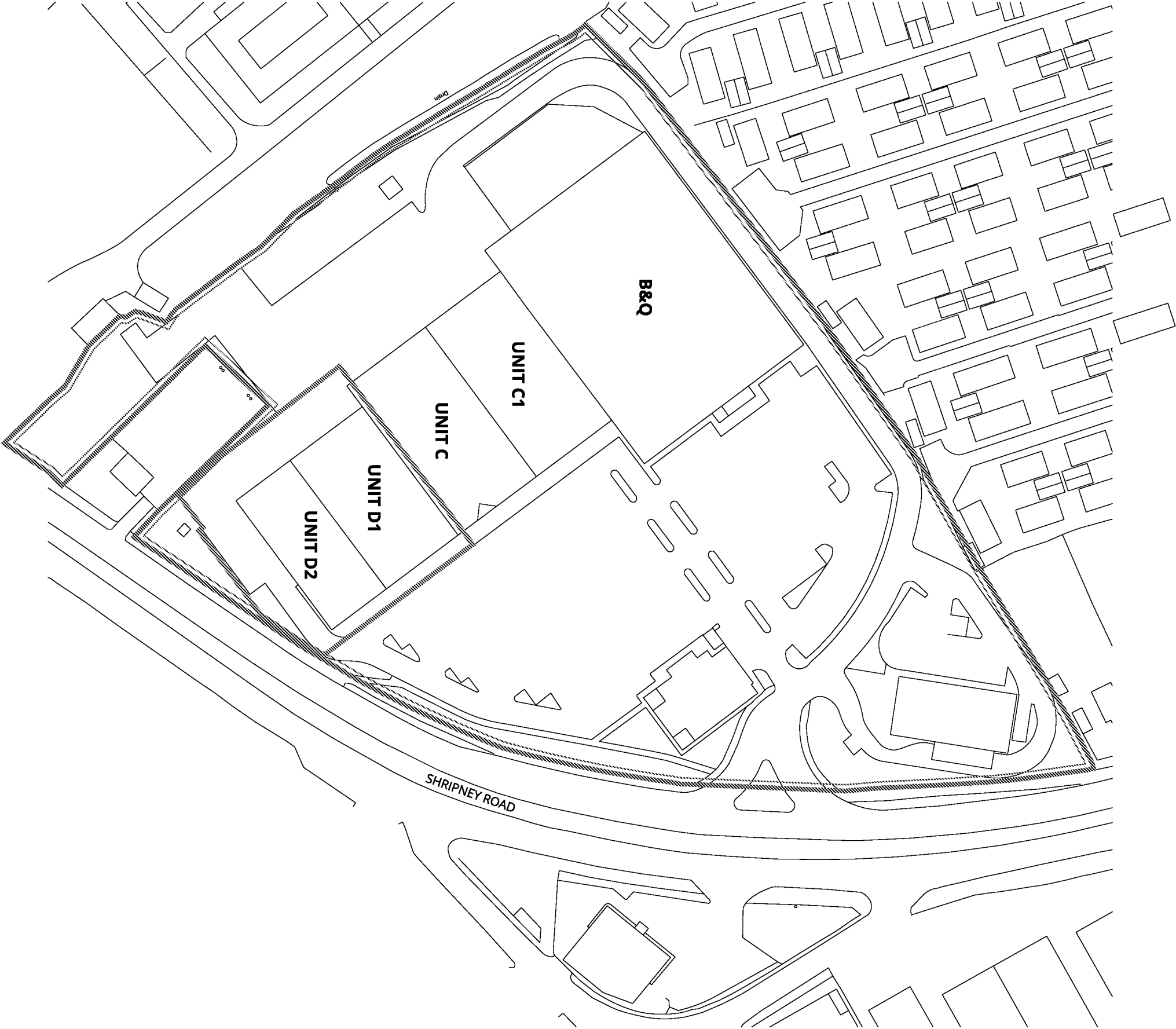
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For information only DO NOT SCALE

SITE ADDRESS:
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LEGEND:	
	APPLICATION BOUNDARIES
	LAND WITHIN
	APPLICANTS OWNERSHIP



DRAFT

Revision	Description	Date
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Client
BBC PENSION
TRUST LIMITED

Project
ARUN RETAIL PARK
BOGNOR REGIS
UNITS D1 & D2

Drawing
SITE LOCATION PLAN

Scale	1:1250 @ A3	Drawn	DH
Date	AUG 2013		
Project No. Drawing No.	URB AR [08] 00 01	Revision	D00

PLANNING

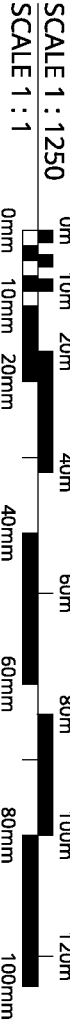
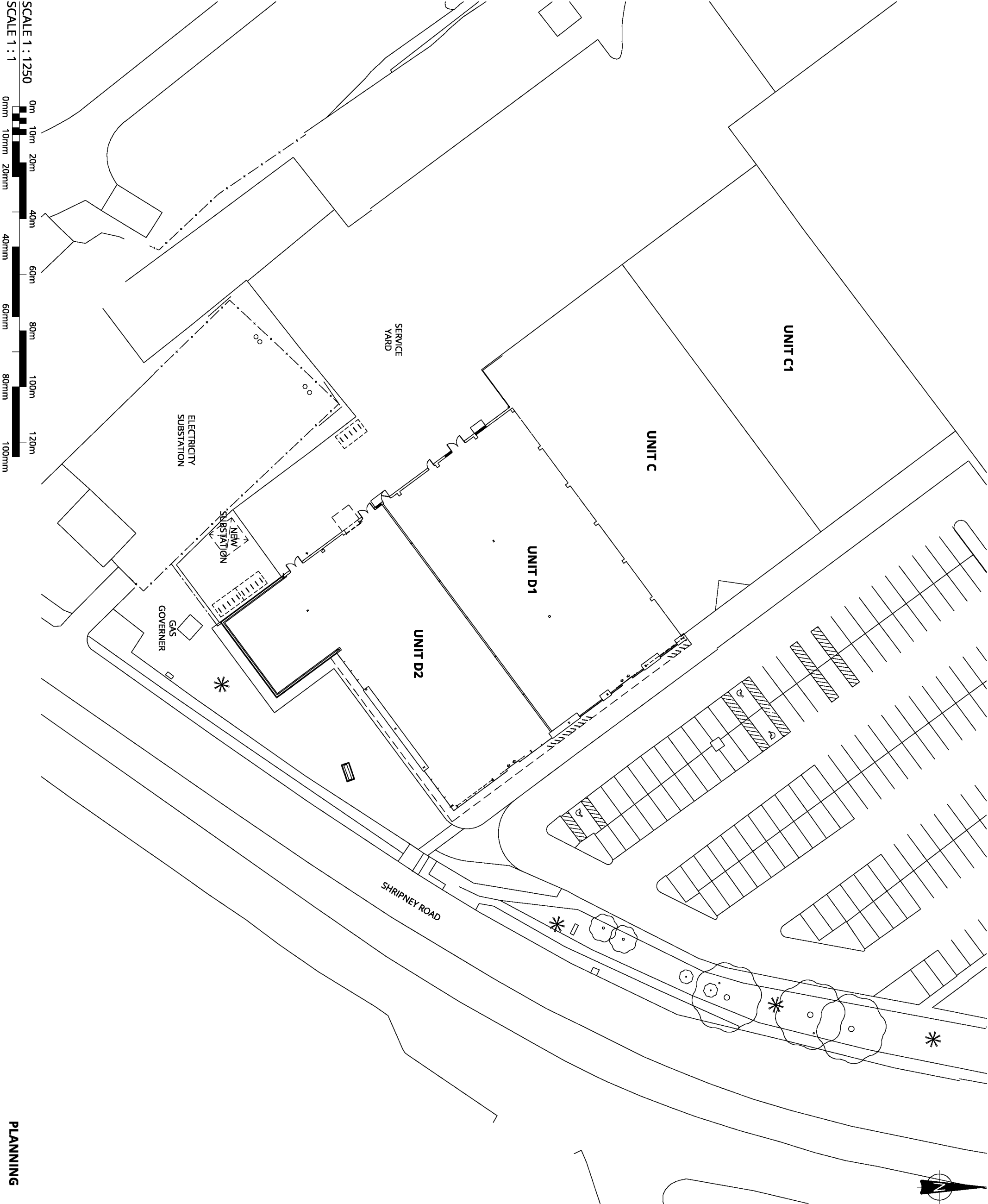


Figure 1.2: Proposed Development Layout

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Revision	Description	Date
1	Urban Edge Architecture / Masterplanning / Dec 1971	

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Project
**ARUN RETAIL PARK
BOGNOR REGIS
UNITS D1 & D2**

Drawing
**SITE BLOCK PLAN
AS PROPOSED**

Scale	1:500 @ A3	Drawn	DH
Date	AUG 2013		
Project No.	URB AR [08] 00 03	Revision	D00