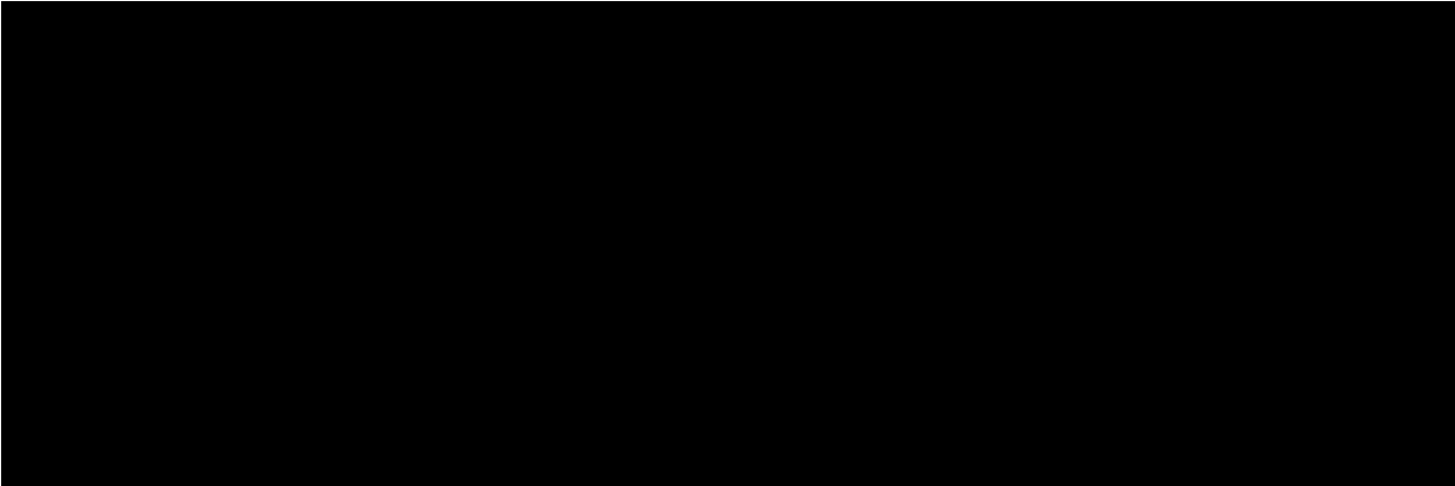




From: Pagham Parish Council [REDACTED]
Sent: 23 May 2018 10:53
To: Planning.Responses; David Easton
Subject: Further comments from Pagham Parish Council - P/134/16/OUT, P/140/16/OUT, P/6/17/OUT, P/25/17/OUT

Dear Sirs

Pagham Parish Council wishes you to consider the attached reports regarding the proposed large scale developments around Pagham numbered

P/134/16/OUT
P/140/16/OUT
P/6/17/OUT
P/25/17/OUT

We shall be submitting additional comments regarding the Landscape Character Assessment reports in due course.

Kind regards

Nicola

Nicola Swann
Clerk & RFO
Pagham Parish Council
[REDACTED]

**A BRIEF REPORT ON THE LAND AND ITS
POTENTIAL FOR HORTICULTURE IN PAGHAM
PARISH AND ITS SURROUNDING AREAS.**

**PREPARED FOR SUBMISSION TO ARUN DISTRICT
COUNCIL**

**BY PETER ATKINS B.Sc. (HORT. LONDON), MIOH
DALLYWOOD CONSULTANCY**

WHY LAND IN PAGHAM MUST BE PROTECTED FROM BUILDING DEVELOPMENT - OF ANY KIND!

CLIMATE:

The Channel coast of UK has the best climate for crop production. It regularly records the highest sunshine hours per week in the summer.

The area of coastline from Brighton to Bournemouth has the best light statistics in terms of intensity and freedom from pollution.

In the 60's and early 70's this coastal strip was designated by both growers and government as the best suited area for glasshouse crop production. Many large glasshouse developments were encouraged here by large government grants in order to exploit this natural benefit and at one time it was responsible for 10% of the salad production in the UK.

The reasons for the reduction in such cropping was the very rapid increase in oil prices in the 70's the heavy subsidy paid to Dutch producers by their government and the entry of Spain into the EEC.

MICRO-CLIMATE

The Manhood peninsula is particularly favourable due to its particular micro-climate created by the mainly South Westerly airflow and the influence of the land masses of The Isle of Wight and the South Downs immediately behind it.

These have a particular influence on lowering rainfall across the area, allowing many more days available to work the land.

The close proximity of the sea has a warming influence on the land and reduces the risk of frosts in the area allowing early production in spring, and later cropping in autumn. Snow although often visible on the Downs in winter rarely affects this lower area for more than an odd day.

The area of Pagham is particularly favoured by its situation on the leeward side of the prevailing wind and the body of tidal water known as Pagham Harbour which itself has a modifying effect on the climate.

SOILS:

The variation in soils across the area is great, as with many areas of alluvium deposition there are areas of sand, gravel, clay and loams.

This results in areas of extremely good land and much not so good. This latter consists of very cold wet clays or dry sands and gravels. Over the generations the good has been sorted from the bad and this latter has been used for development of towns and villages and other none horticultural production.

Much has been used for dairying and cereal production. The best land is now known for its potential and has been brought into production by large scale enterprising farmers able to benefit from the high fertility of these loam soils. Their extreme flexibility and fertility make them very valuable for crop production, however the % that is good is not large either in Pagham or across the whole of the UK

The National Soil Survey which was begun during the 2nd world war has been much refined over the last 70 years and the maps produced covering the whole of UK enable any parcel of land to be identified for its potential productivity.

The two grades most important to horticulture are grades 1 and 2.

Pagham is surrounded on two sides by grade 1 land (see the copy of the land classification map attached at the end)

WATER:

This essential raw material for intensive crop production is available from 2 sources. The springs rising at the base of the Downs which flows through the drainage rifes, and the ground water held in the gravel beds and sands of the sub-soil. The Peninsula was not always above sea level and was part of a pebble beach. There are large gravel deposits beneath the soils which allow excellent drainage of the top soil after heavy rain and aids the workability of these soils.

The water is clean and unaffected by pollutants from industry or households. By the judical use of water storage lagoons water supply is secured and maintained for the whole year.

LAND USE:

The knowledge that the area of Pagham is so good means that the actual fields are in high demand. High rentals per annum are paid for the use of these fields by farmers both local and further afield of the UK.

The full potential of this area is currently being exploited and used to produce crops that will not be produced to the quality and quantity in other parts of the UK.

The area has been an intensive horticultural production area for generations due to the characteristics listed above in this document.

Consequently the population contains a high number of very experienced and skilled workers. Such a source of staff for the horticultural industry is not repeated easily in other areas of the UK.

The largest employers of labour in this part of the county are being put at risk by losing the irreplaceable land. Productive capacity and flexibility means that sources external to the UK will need to be found.

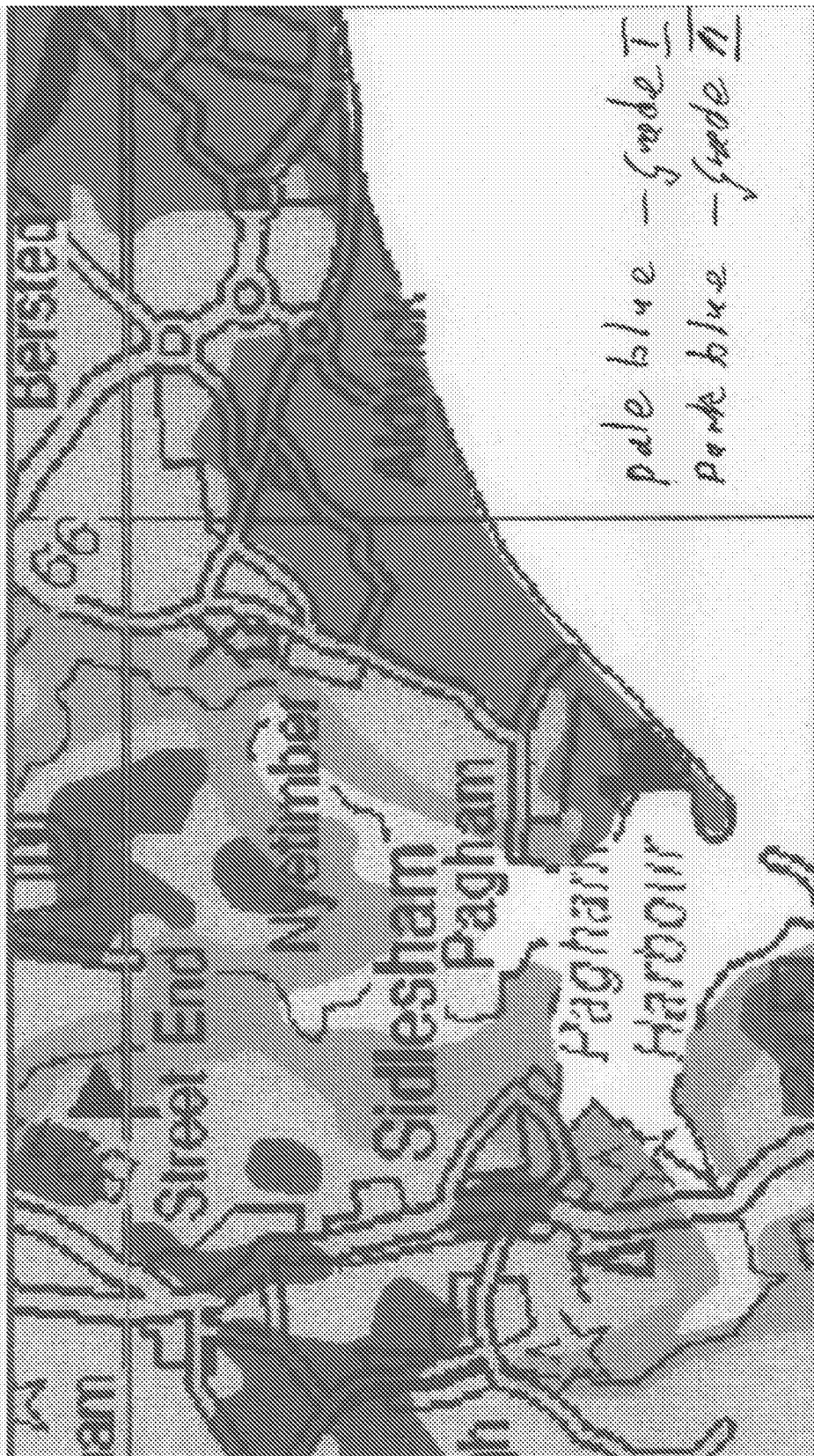
Importation of crops from abroad at a time of increasing world demand is not the best option especially as we leave the present source of much horticultural production namely the EU.

LAND CLASSES – AS DEFINED BY THE AGRICULTURAL LAND SURVEY

Grade 1 - excellent quality agricultural land. Land with no or very minor limitations to agricultural use. A very wide range of agricultural and horticultural crops can be grown and commonly includes top fruit, soft fruit, salad crops and winter harvested vegetables. Yields are high and less variable than on land of lower quality.

Grade 2 - very good quality agricultural land. Land with minor limitations which affect crop yield, cultivations or harvesting. A wide range of agricultural and horticultural crops can usually be grown but on some land in the grade there may be reduced flexibility due to difficulties with the production of the more demanding crops such as winter harvested vegetables and arable root crops. The level of yield is generally high but may be lower or more variable than Grade 1.

Peter Atkins B.Sc(Hort London)01 .02.2018



Why should planners reject the housebuilding applications for land surrounding the west and north sides of Pagham village?

1. Sunshine hours on the south coast are some of the longest in UK across a year. In an average comparison, BR of Eastern Counties Met. Data from Mepal and Bognor Regis Met. Data. 400 hours more are experienced in BR. (33% more)
2. Frost risk is very low in spring and autumn being influenced by the proximity to the sea. Comparing Met data once again the number of days less in BR compared to Mepal is 25/50 a reduction of (50 %).
3. Cooler summer temperatures again (due to seas' local influence), and warmer winter minimum temperatures This compares with Mepal Summer max av.14.1 ° C/14.5 ° C : Winter 8.0 °C/5.7 °C.
4. The rainfall is low due to the physical mass of the Isle of Wight and the near-by Downs hills. The annual rainfall is 725mm /573mm..Fewer days are lost to rain in summer, but the winter rainfall being heavier tops up the ground water.
5. The Downs act as a natural sponge to rainfall and supply water all year round to the coastal plain via springs which feed the ground waters' high water table and in turn feed farm reservoirs for summer cropping.
6. High natural water table assists deep rooted crops and ensures lower volume of water needed for shallow crops.
7. Soil classification is grades 1 and 2 (see soil map appendix.)
8. Historically this area has been an intensive Horticultural producer since Victorian times. So there is a built in skill set within the local population
9. Conclusion:- the above factors allow the land to produce heavy yields of high quality horticultural crops across a very wide range of crops.

10. The land and its environmental factors make this area some of the most versatile and productive in UK. To lose such flexibility is not in the national interest. The National planning policy framework states:

“Local planning authorities should take into account the economic and other benefits of the best and most versatile agricultural land. Where the significant development of agricultural land is demonstrated to be necessary, local planning authorities should seek to use land of poorer quality in preference to that of a higher quality”

11. Planning authorities must know that the protection of best and most versatile land is a long established planning consideration. In this case serious loss to food production is demonstrated by the points above.

12. Development outside of the built up area must always be considered as contrary to the Neighbourhood plan, which seeks to maintain only small extensions into the area outside of the built up boundary where there are small areas of land not used for agriculture.

AGRICULTURAL LAND CLASSIFICATION
Desktop Study

Pagham Parish Council

Pagham



Soil Environment Services Ltd
March 2018

Our Ref: SES/PPC/P/#1

Date: 28th March 2018

Client:

The Clerk to the Council
Pagham Parish Council
Pagham Village Hall
Pagham
Bognor Regis
West Sussex
PO21 4NJ

AGRICULTURAL LAND CLASSIFICATION
Desktop Study

Pagham

A report prepared on behalf of ***Soil Environment Services*** by:



Rebecca Jordan BSc (Hons) MEnv
Environmental Consultant

Approved by:



Dr Robin S Davies BSc PhD MISOilSci
Managing Director

This report has been prepared by Soil Environment Services with all reasonable skill, care and diligence, within the terms of The Contract with The Client. The report is the property of The Client who can assign this report to any third party who will then be afforded the same assurances as detailed within the terms of the original Contract with The Client.

Soil Environment Services

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DRAWINGS

ALC/1 ALC grade

APPENDIX A Climatological data for agricultural land classification

INFORMATION SOURCES

1. INTRODUCTION

A desktop Agricultural Land Classification Study (ALC)^{1,2} has been carried out on approximately 192 ha of land previously mapped as Grade 2 (MAFF (1983) 1: 250 000 map⁶) located at Pagham (Drawing ALC/1). The site is centred on OS Grid Ref. 489015, 98974.

Agricultural land is classified into the following grades according to the 1988 guidelines¹ and the 1996 draft guidelines²:

Grade	Description
1	Excellent quality agricultural land with no or very minor limitations to agricultural use.
2	Very good quality agricultural land with minor limitations which affect crop yield, cultivation or harvesting.
3a	Good quality agricultural land capable of producing moderate to high yields of a narrow range of arable crops or moderate yields of a wider range of crops.
3b	Moderate quality agricultural land capable of producing moderate yields of a narrow range of crops or lower yields of a wider range of crops.
4	Poor quality agricultural land with severe limitations which significantly restrict the range of crops and/or level of yields.
5	Very poor quality agricultural land with very severe limitations which restrict use to permanent pasture or rough grazing, except for occasional pioneer forage crops.

Previously mapped soil types have been used in accordance with the current guidelines to classify the land into one or more of the above grades.

2. METHODOLOGY

The classification is based on a desktop investigation to examine previously mapped soil types and to note the drift and solid geology. This included consultation from:

Soil Survey of England and Wales 1:250 000

British Geological Survey 1:50 000 solid and drift map.

Soils and Their Use in Eastern England. Soil Survey of England and Wales, Harpenden (1984).

Climatological data⁴ was used to determine the overriding site limitation and for interaction with soil parameters (Appendix A). The above information was cross referenced with geological surveys⁸, previous soil surveys and the national 1:250 000 series ALC survey⁷ relevant for this site to substantiate the findings. The ALC grade was then determined for this site and for the current study, and is detailed on Drawing ALC/1.

Other factors used for ALC grading, but which give no limitation at this site, are not discussed.

3. BASELINE CONDITIONS

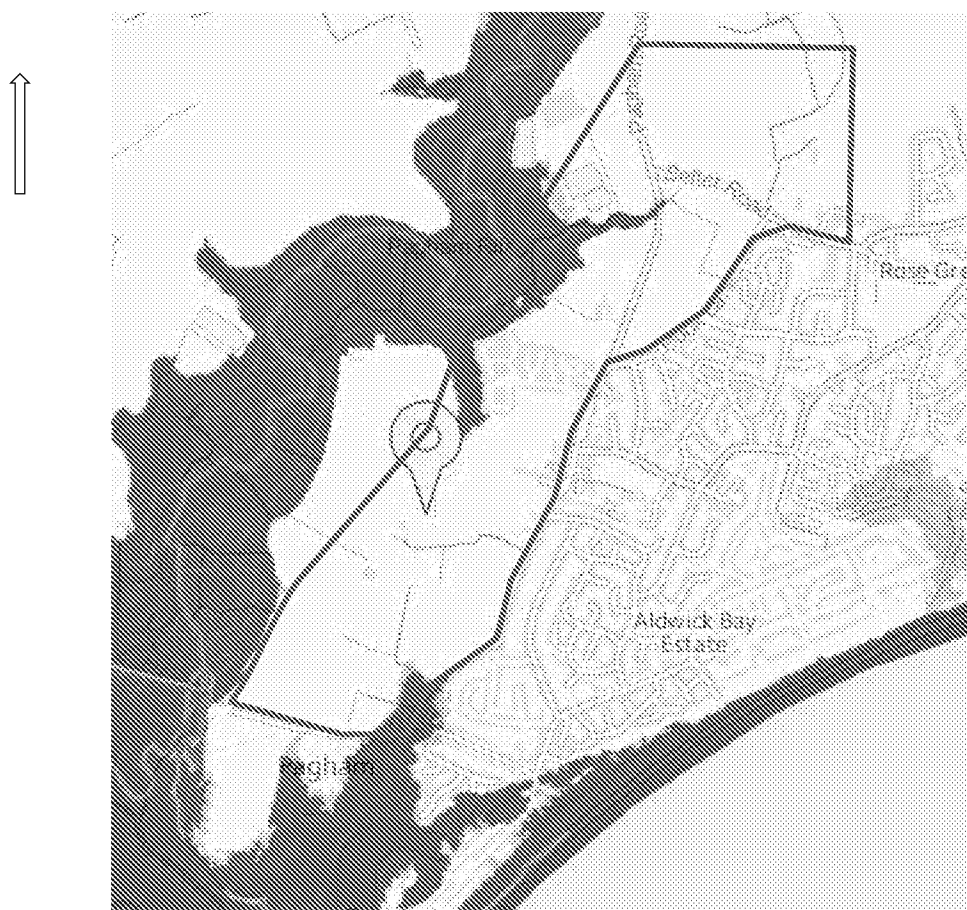
3.1. Climate and flooding

The climatological data (Table 1a) indicates average temperature, average rainfall and an average number of field capacity days for the region.

Table 1a Climatological information⁴		
Factor	Units	Value
Altitude AOD	m	6
Accumulated temperature	day°C (Jan-June)	1545.1
Average Annual Rainfall	mm	735.4
Field Capacity Days	days	148.9
Moisture Deficit Wheat	mm	121.5
Moisture Deficit Potatoes	mm	118.6

The site is assessed to have areas mapped as having a high flood risk (Functional Floodplain) which would affect the overall ALC grade⁷ in these areas.

Environment Agency Risk of Flooding from Rivers and Sea Map (1: 6667 scale, 2017)



For the purpose of this report, the terms used by the Environment Agency to quantify flood risk have been changed to match terms used by MAFF. This is to allow an agricultural classification grade to be determined for the site based on flood risk. The classifications have been found to correspond as follows:

- | | |
|--|--------------------------|
| - Environment Agency Zone 3a High Probability | - MAFF Frequent |
| - Environment Agency Zone 3b Functional Floodplain | - MAFF Frequent |
| - Environment Agency Zone 2 Medium Probability | - MAFF Occasional |
| - Environment Agency Zone 1 Low Probability | - MAFF Rare to Very Rare |

The total site area affected by the Zone 3a High Probability flooding is approximately 11.3 ha.

Table 1b. ALC Grade according to flood risk**WINTER Mid November to mid March**

ALC Grade	Frequency	Duration	Approx. Area affected (m ²)
1	rare	short	
2	rare	medium	
2	occasional	short	
3a	rare	long	
3a	occasional	medium	
3a	frequent	short	
3b	occasional	long	
3b	frequent	medium	113000
4	frequent	long	

SUMMER Mid March to mid November

ALC Grade	Frequency	Duration	Approx. Area affected (m ²)
1	very rare	short	NA
2	rare	short	NA
3a	very rare	medium or long	NA
3a	rare	medium	NA
3a	occasional	short	NA
3b	rare	long	NA
3b	occasional	medium	NA
4	occasional	long	NA
4	frequent	short or medium	NA
5	frequent	long	NA

MAFF Frequency definitions

very rare	< 1 in 15 y
rare	1 in 10 - 14 y
occasional	1 in 3 - 9 y
frequent	> 1 in 3 y

Duration definitions

short	< 48 hrs
medium	1 to 4 days
long	> 4 days

3.2. Soils, geology and topography

3.2.1. Soils

The site has previously been mapped as having soils of the *Park Gate association*^{4,5}. These soils are identified to be silty clay loam to depth.

Two previous agricultural land classifications have been undertaken on parts of the site, as part of the Arun District Local Plan, with the land mapped as Grades 2, 3a and 3b (May 1994 and March 1997, Reading Resource Planning Team).

3.2.2. Geology⁸

Superficial Geology

Majority of the site

1:50 000 scale superficial deposits description: *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 (U).*

North west of the site

1:50 000 scale superficial deposits description: *Raised Marine Deposits - Clay, Silt, Sand And Gravel. Superficial Deposits formed up to 3 million years ago in the Quaternary Period. Local environment previously dominated by shallow seas (U).*

1:50 000 scale superficial deposits description: *Raised Beach Deposits, 1 - Sand And Gravel. Superficial Deposits formed up to 3 million years ago in the Quaternary Period. Local environment previously dominated by shorelines (U).*

Bedrock Geology

1:50 000 scale bedrock geology description: *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.*

3.2.3. Topography

The gradient present on the site is not severe enough to limit the ALC Grade.

4. FIELDWORK RESULTS

4.1. Descriptions of soil types

The soils across the site have been mapped as silty clay loams to depth. A summary of the features of the soil type are listed in Table 2 (as described in Soils and Their Use in South East England. Soil Survey of England and Wales, Harpenden 1984).

Table 2. Soil Type descriptions			
Profile	Soil types		
Description	Type 1	Type 2	Type 3
Horizon 1 (topsoil)	0-20 cm Brown (10YR 5/3) stoneless slightly calcareous silty clay loam, common fine ochreous mottles.		
Horizon 2 (subsoil 1)	20-35 cm Brownish grey (2.5Y 6/2) stoneless silty clay loam, many fine ochreous mottles; weak medium subangular blocky structure.		
Horizon 3 (subsoil 2)	35-60 cm Brown (10YR 5/3) stoneless silty clay loam, many medium ochreous mottles; medium subangular blocky structure.		
Horizon 4 (subsoil 3)	60-100 cm Brown (7.5YR 5/4) stoneless silty clay loam, very many coarse grey mottles; moderate coarse subangular blocky structure.		
Notes:			

4.2. Wetness class assessment

A wetness class assessment was conducted for the soil types (Table 3).

Table 3. Wetness Class Assessment				
Soil Type	Feature Assessed	Parameters	Findings	WC
1	Site conditions	Undisturbed/ disturbed	Undisturbed	II
		FCD	148.9	
	Potential Slowly Permeable Layer (SPL)	Horizon depth (cm)	60	
		Texture	ZCL	
		Structure	MCSAB	
		Biopores > 0.5 mm (%)	<0.5	
		Evidence of wetness	Grey Mottles	
	Potential Gleyed Horizon	Matrix colour	Pale and brownish – 10YR 5/3	
		Ped faces colour	Pale and brownish – 10YR 5/3	
		Mottles	Ochreous – 7.5YR	
		Depth to gleying (cm)	0-20	
	Figure reference in ALC guidelines – Table 13			
Key ZCL – Silty Clay Loam MCSAB – Moderate Coarse Subangular Blocky FCD – Field Capacity Days				
Notes:				

5. AGRICULTURAL LAND CLASSIFICATION

5.1. National 1:250 000 map grading

Grading on the MAFF (1983) 1: 250 000 map⁶ indicated **ALC Grade 2** across the site.

5.2. Current grading

This study has resulted in an Agricultural Land Classification of the following grades (Drawing ALC/2):

Table 4. ALC gradings and limitations		
Grade	Area (ha)	Limitation
1		
2		
3a	143.6	Type 1 soils - droughtiness
3b	11.3	High Probability flood risk
4		
5		
Non-agricultural land	37.1	Roads and buildings

5.2.1. Limitations

Type 1 soils – Droughtiness

The combination of profile soil textures and climatic factors results in ALC Grade 3a for Type 1 soils.

Flooding

Some areas of the site are in a High Probability (Functional Floodplain) flood risk area which limits these areas to ALC Grade 3b.

DRAWING ALC/1

ALC Grade

ALC Grade

-  Grade 3a
-  Grade 3b
-  Non Agricultural

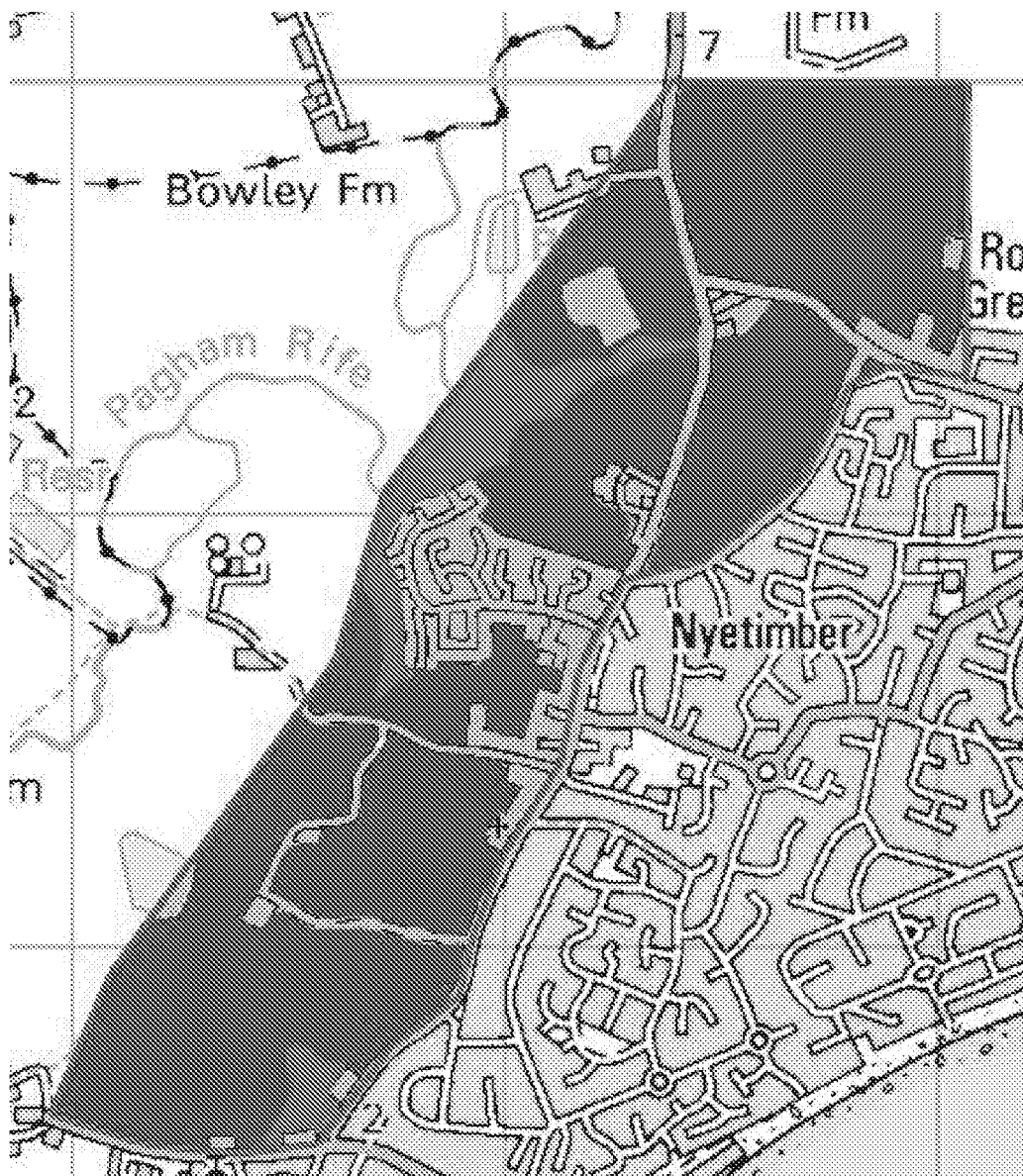
Soil Environment Services

Drawing Title: ALC grade

Drawing No.: ALC/1

Scale: 1: 20457

Date: 24/03/2018



APPENDIX A

Climatological data for ***Agricultural Land Classification***

Agricultural Land Classification

- Met. Information & droughtiness

Data and adjustment calculations from: The Met. Office, *Climatological Data for Agricultural Land Classification* 1989.

Input data in box cells only, results in shaded cells.

Site name	Pagham
Site altitude =	6 m
Site GR	4890 989

Meteorological information for surrounding national grid reference points

	Easting	Northing	ALT	AAR	LR AAR	ATO	MDMWHT	MDMPOT	FCD
NW	4850	1000	5	740	0.6	1547	122	119	150
NE	4900	1000	4	740	0.5	1547	121	118	150
SW	4850	950	2	707	0	1552	125	123	142
SE	4900	950	0	704	0	1553	125	123	142

Altitude adjustment of surrounding meteorological information with respect to site.

Adjusted surrounding points

	AAR	ATO	FCD
NW	740.6	1545.9	150.1
NE	741.0	1544.7	150.1
SW	707.0	1547.4	142.0
SE	704.0	1546.2	142.0

Site adjusted meteorological information

	1 Dsg	2 Wg	Wp
NW	41.48494	0.000581	0.096150
NE	14.86607	0.004525	0.748750
SW	55.86591	0.000320	0.053019
SE	40.26164	0.000617	0.102081
Sum		0.006043	

Site	AAR	ATO	FCD
	735.4	1545.1	148.9

ALC according to climate

Grade **1**

Soil wetness class (drained)

Type 1 **II**
Type 2
Type 3

ALC according to wetness/climate/
texture

Type 1 **2**
Type 2
Type 3

Soil moisture deficit of surrounding points

	Cw	Cp	Adjusted	
NW	-0.4104	-0.5472	124.5896	122.45
NE	-0.275	-0.3636	120.7248	117.64
SW	-0.145	-0.191	121.8554	118.81
SE	-0.6156	-0.8208	124.3844	122.18

Site results for soil moisture deficit

MDMW	MDMPOT
121.5	118.6

Adjustment data for stone type and content

	Soil Type 1			Soil Type 2			Soil Type 3		
	Top	Sub1	Sub2	Top	Sub1	Sub2	Top	Sub1	Sub2
% volume	0	0	0	na	na	na	na	na	na
TAv for stone type	1	1	1	na	na	na	na	na	na
EAv for stone type	0.5	0.5	0.5	na	na	na	na	na	na
	Sub 3			Sub 3			Sub 3		
% volume	0	na	na	na	na	na	na	na	na
TAv for stone type	1	na	na	na	na	na	na	na	na
EAv for stone type	0.5	na	na	na	na	na	na	na	na

Droughtiness (moisture balance) determination for each soil type and restored profile

Moisture availability data for each texture from MAFF ALC Guidelines 1988

Moisture Balance (MB) = AP - MD for wheat and potatoes (adjusted for stones)

Horizon		Type 1		Type 2		Type 3			
		texture	water	texture	water	texture	water		
TAvt - Topsoil water available (mm)		ZCL	19.00	0	0.00	0	0.00		
LTt - Topsoil thickness (cm)		0	20.00	0	0.00	0	0.00		
TAvs - Subsoil total available	1	ZCL	17.00	0	0.00	0	0.00		
	2	ZCL	17.00	0	0.00	0	0.00		
	3	ZCL	17.00	0	0.00	0	0.00		
EAvs -	1	ZCL	10.00	0	0.00	0	0.00		
Subsoil (SS) easily available	2	ZCL	10.00	0	0.00	0	0.00		
	3	ZCL	10.00	0	0.00	0	0.00		
LT50 -	1	ZCL	15.00	0	0.00	0	0.00		
Thickness ss layers to 50cm	2	ZCL	15.00	0	0.00	0	0.00		
	3	ZCL	0.00	0	0.00	0	0.00		
LT120 -	1	ZCL	0.00	0	0.00	0	0.00		
Thickness ss layers 50 to 120cm	2	ZCL	10.00	0	0.00	0	0.00		
	3	ZCL	40.00	0	0.00	0	0.00		
LT0 -	1	ZCL	15.00	0	0.00	0	0.00		
Thickness ss layers to 70cm	2	ZCL	25.00	0	0.00	0	0.00		
	3	ZCL	5.00	0	0.00	0	0.00		
Total profile thickness for soil type cm		0	100		0	0	0		

SOIL Droughtiness (moisture balance) results

Type 1

Grade

Results

AP wheat = 139.0
 Moisture balance wheat = 17.5 2
 AP potatoes = 106.0
 Moisture balance potatoes = 12.6 3a

AP wheat =
 Moisture balance wheat =
 AP potatoes =
 Moisture balance potatoes =

Notes

ALC Grade	Moisture Balance Limits	
	wheat	potatoes
1	30	10
2	5	-10
3a	-20	-30
3b	-50	-55
4	< -50	< -55

INFORMATION SOURCES

1. ***Agricultural Land Classification of England and Wales***. Guidance and criteria for grading the quality of agricultural land. MAFF. 1988.
2. ***Agricultural Land Classification of England and Wales***. Guidance and criteria for grading the quality of agricultural land. Second Revision MAFF. DRAFT May 1996.
3. ***Soil Survey Field Handbook***. Technical Monograph No.5. Soil Survey of England and Wales.1976.
4. ***Soil Map of England and Wales: 1:250 000***. Soil Survey of England and Wales, Harpenden.
5. ***Soils and Their Use in South East England***. Soil Survey of England and Wales, Harpenden.
6. ***Agricultural Land Classification Map*** 1:250 000. MAFF 1983.
7. ***Risk of Flooding from Rivers and Sea: 1:15 000***. Environment Agency
8. ***Geology of Britain Viewer***. Reproduced with the permission of the British Geological Survey ©NERC. All rights Reserved
9. ***Objector Site 7: Land North of Seftor Road, Rose Green, Bognor Regis; Arun District Local Plan Review***. Agricultural Land Classification ALC Map and Report, March 1997.
10. ***Site 20: Land between Pagham Road and Hook Lane, Bognor Regis; Arun District Local Plan***. Agricultural Land Classification ALC Map and Report, May 1994.

Pagham Parish Council – Objections to Applications P/134/16/OUT, P/140/16/OUT, P/6/17/OUT & P/25/17/OUT

Pagham Parish Council strongly objects to the above-mentioned development applications because of the transport related issues noted below, which clearly demonstrate the non-sustainability of these proposed major developments

Transport Related Issues

Large scale development of these sites, which are some of the most distant and difficult to access from the major transport routes such as the A27 and A259, would be unsustainable and lead to major delays to traffic on both the local and strategic road networks for the following reasons:

1. Outbound commuting is already identified in the Arun Local Plan as a significant issue in the area (*“Arun experiences high levels of out-commuting partly because employment opportunities are limited within the District. About one third of residents in employment commute elsewhere to work.”*). Hence building over 1200 houses in an area which has very few local employment opportunities can only lead to very large increases in numbers of people travelling to work in the major employment centres (Chichester, Portsmouth and Worthing) and beyond.
2. Access routes to the A27 are already very congested, both the Whyke Roundabout and the Lower Bognor Road roundabout are already officially categorised by Highways England as operating ‘over capacity’. A range of proposals from H.E. for major developments to try to ease congestion on the A27 had to be withdrawn, largely because of opposition from residents living to the south of Chichester who recognised that the plans would worsen the traffic situation for them and do little to improve through traffic.
3. Major congestion along the A27 Chichester Bypass is an established fact, with slow, stationary and queuing traffic affecting many of the sections during the major parts of the working day. The data supplied by H.E. suggests that it is the roundabouts that are the major cause of congestion and their expert has stated that *“... the current congestion/delay along the bypass is caused by the junctions in that they have insufficient capacity to cope with the link flows entering and leaving them.”* Therefore we have on record a professional expert stating that the roundabouts between the Fishbourne junction and Portfield roundabout cannot cope with existing levels of traffic. It goes without saying that adding additional traffic onto this section of the road network will further worsen the problem. In other words the road network between the said roundabouts is a valid reason to refuse all these proposed developments in Pagham.
4. The Arun Transport Study Stage 3 (Final Report) (part of Arun’s Local Plan submission) claims to have addressed the impact of the significant volumes of additional traffic from three of these major developments by relying on mitigations to the Whyke Roundabout and the Bognor Road Roundabout - which it is claimed will make the current level of congestion at these roundabouts ‘**no worse**’ than at present. Paragraph K of Policy H SP2 within the Local Plan requires that developments must *“address the off-site capacity requirements, that relate to that particular allocation identified in the Arun Transport Assessment and the local highway network”*.
5. Highways England have agreed that they are happy with the mitigations proposed to the Whyke and Bognor Road roundabouts – as long as developers make substantial financial contributions to this work. However, for these mitigations to be effective there **MUST** be the capacity on the link roads to accept the increased volumes of traffic leaving these roundabouts. In the case of the Whyke roundabout in particular, this is absolutely not the case – at the vast majority of times in the working day the eastbound carriageway between the Whyke and Stockbridge roundabout is solid with queuing traffic – this completely

- negates the improvements suggested at these roundabouts designed to increase the rate of flow at that roundabout. There are NO planned or funded mitigations to the Stockbridge Roundabout at this point in time, so changes to Whyke will be totally ineffective.
6. Furthermore H.E. have been unable to provide a link to details of the crucial traffic modelling covering the impact of the additional vehicles from these sites on the entire A27 Chichester Bypass from the Portfield Roundabout to the Fishbourne Roundabout. Highways England should have carried out this analysis themselves! Instead they just state that that “Systra, consultants for Arun District Council, have modelled the entire length of the A27 Chichester Bypass and the section of the A27 running through Arun District as part of their Saturn modelling work supporting Arun’s Local plan ...”. It is understood that this modelling work was sponsored by both Arun District Council (who do not in any case have responsibility for most of this section of the A27) in support of their proposed strategic allocations, and by some of the developers themselves. It cannot therefore be accepted as impartial, factual evidence. It needs to be reworked entirely by a combination of H.E. and Chichester District Council – who are the real stakeholders and will suffer most from the inevitable increased congestion.
 7. These applications all rely on proposed major enhancements to the key road junctions on this stretch of the strategic road network (A27 Chichester Bypass). However, our traffic consultant has advised that, even if funding would be offered by the developers, realistically it would be at least 7-10 years before all these junctions could be improved. Investigation work, planning, consultation, detailed design, liaising with external infrastructure companies such as utility companies, securing funding, and construction will all take considerable time. Pagham Parish Council would therefore insist that absolutely NO further major developments can be allowed to begin in Pagham until these key junctions between Fishbourne and Portfield have been improved and the expected improvements in traffic flow have been validated.
 8. With regard to local roads Policy T SP1 (Transport and Development) of the Arun Local Plan states that development should only be supported which “*Is designed to reduce the need to travel by car ...*” and also “*contributes towards new road schemes which improve north-south links between Bognor Regis and Littlehampton and the A27.*” The conclusion of the independent transport study commissioned by Pagham Parish Council was that there aren’t any viable options for essential improvements to the wider local road network, such as the B2166 and B2145 used to access the strategic network, to support the proposed development sites. It concluded that the cost of upgrading these routes would be far in excess of any funds that might be provided by developers, or indeed available from other sources. Indeed no significant improvements to these roads have been proposed as part of these applications with the exception of some changes to the dangerous junction of the Lower Bognor Road and Pagham Road which it is accepted cannot in reality be delivered as the necessary land is privately owned.
 9. The independent traffic analysis commissioned by Pagham Parish Council from a specialist transport consultancy (2020 Consultancy) confirmed that there is significant congestion on these local roads during rush hours, when it can sometimes take 45 minutes to reach the A27 (normally an 8 minute journey). It also identified that only 40% of the peak hour traffic attempting to reach Chichester and the A27 along local roads comes from Pagham village itself, the majority originating from Aldwick and Bognor town direction. The impact of the additional volumes of traffic will therefore have a significant negative effect on traffic from the wider Bognor Regis area, not just from Pagham itself.
 10. The existing population of Pagham is under 6,000 people so these major developments if approved will result in an increase of 50% or more of the current number of residents. As there is no station in Pagham it is certain that the majority of new residents would travel by car. The actual impact on traffic congestion would be even greater than this increase

suggests as a very high proportion of current residents (over 50% in some wards) are retired and do not normally commute to work or travel on local roads during rush hours.

11. Pagham Road is the single access from Pagham and surrounds towards Chichester to the strategic road network. It is a winding, undulating country lane, originally intended to serve a series of small rural farmsteads, and is already heavily used by large numbers of HGV articulated lorries serving the various major agricultural organisations along Pagham Road, including Barfoots of Botley who grow, process and deliver fresh produce direct to major supermarket chains. This business is heavily industrialised, with a massive processing, packing and chilling facility, generating around 12 HGV vehicle movements per hour which will increase significantly when their new larger plant comes into operation later this year. This mix of private cars, HGVs cyclists and pedestrians on this narrow winding road (without footpaths or cycle lanes) is sure to lead to further serious and fatal accidents – there has already been one tragic fatal accident in the last 6 months.
12. The proposed adjoining development of 2,500 houses in West Berstead (SD3) would also very significantly further increase the number of vehicles attempting to reach the A27 via local roads around Pagham, resulting in major congestion on major routes out of Bognor including those leading to the Whyke and Bognor Road roundabouts.

Batbox Ltd

Unit 2A Chanctonfold

Horsham Road

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West Sussex BN44 3AA



Phase 2 Bat Survey Report (Walked Transect Bat Activity Survey)

Site: Proposed Building Land
North of Sefter Road
Pagham
West Sussex

Client Pagham Parish Council
The Village Hall
Pagham Road
Pagham
Bognor Regis
W Sussex PO21 4NJ

Surveyors: D P King MEECW (NE Sc. Bat Lic. No. 2015-16001-CLS-CLS)
S L Wright (NE Sc. Bat Lic. No. 2016-24340-CLS-CLS)

Survey Date: 22nd April 2018

Report Date: 26th April 2018

Bat Emergence Check/Bat Detector Survey - Proposed Building Land, North of Sefter Road, Pagham, West Sussex - OS Grid Ref: SZ89917 99569

Executive Summary

Two surveyors from Batbox Ltd Bat Surveys returned to a site, north of Sefter Road, Pagham, West Sussex on 22nd April 2018, to carry out a dusk emergence check/bat activity survey. This followed their initial daytime assessment of the site, undertaken on 9th February, 2017. The surveys have been undertaken on behalf of Pagham Parish Council, who are concerned that a proposed housing development on the land would have a significant negative impact on bats and other wildlife.

Prior to the initial site daytime assessment, the surveyors reviewed the findings of ecological surveys (particularly in relation to bats), carried out previously on the site by ecologists from Aspect Ecology. Their ecologists undertook a desk study, building inspections and tree assessments in May 2016, following bat activity surveys which took place in 2014. During the 2014 activity surveys, bats of at least four species were recorded. In their assessment of the activity survey results, the site was described as of moderate value to foraging and commuting bats, at the local level. See Aspect Ecology Report.*

In February 2017, at the request of the Parish Council, Batbox Ltd surveyors checked two structures on the site and also undertook a walk-over of the site boundary. Some bat roosting/hibernating potential was noted in a timber scout hut and a WW2 'pill-box'. Commuting and foraging habitat was noted around the site margins.

Following the February survey, Batbox Ltd bat consultants concluded that there was some justification in the Pagham Parish Council view that some features of this site offer good wildlife habitat, which appears to be in short supply locally. The site is surrounded by large, open arable fields, with limited connectivity and by built-up residential areas. Features of note are the area of semi-improved grassland, bordered by tree-lines, hedgerows, drainage ditches and scrub and the WW2 pill-box. Batbox consultants recommended that further ecological surveys should be carried out to update information on bat activity on the site and that consideration should be given to opportunities for protecting the more significant wildlife habitat features from development.

The latest bat activity survey was undertaken early in the season, on a mild night which followed a spell of unseasonably warm weather. The survey comprised a daytime walkover on 21st April, followed by walked transects of the site on the evening of 22nd April.

Six bat species were recorded. Unsurprisingly, the greatest level of activity was from the two most common pipistrelle species (*Pipistrellus pipistrellus* and *Pipistrellus pygmaeus*) and it is likely that both species have maternity roosts very close to the site. The surveyors also recorded small numbers of passes from other species, including a single pass from a barbastelle (*barbastella barbastellus*) – a very rare bat with enhanced legal protection.

It is therefore concluded that bat activity on this site is relatively high, at least early in the bat activity season. Bats of six species were recorded, suggesting that this area is of local importance to bats, especially given its position surrounded by large arable fields and built up areas. It is recommended that further activity surveys are carried out, throughout the active season and that steps are taken to establish the relative abundance of bats and suitable bat habitat in the surrounding area. This would allow a better assessment of the importance of the site and the likely impact of the proposed development on the local bat population.

1. Introduction & Background

- 1.1 Two surveyors from Batbox Ltd Bat Surveys returned to a site, north of Sefter Road, Pagham, West Sussex on the evenings of 21st and 22nd April 2018, to carry out a dusk emergence check/bat activity survey. This followed an initial daytime assessment of the site, undertaken on 9th February, 2017.
- 1.2 The surveyors were acting on behalf of Pagham Parish Council, who are concerned that a proposed large-scale housing development on this land would have a significant negative impact on bats and other wildlife, recorded previously on the site.
- 1.3 Both surveyors hold Natural England Scientific Bat Licences. For surveyors' licence details, see report cover. Recommendations from the Bat Conservation Trust's 'Bat Surveys for Professional Ecologists: Good Practice Guidelines' (3rd edn)* were followed for the course of this survey.
- 1.4 The following background information is copied from the Batbox Ltd initial report, dated February 2017 with information taken from the Aspect Ecology survey report** *Aspect Ecology report – 'Ecological Appraisal', Project No. ECO-3697 'Land North of Sefter Road, Pagham, Bognor Regis' dated 07/12/2016*
 - 1.4.1 *Taylor Wimpey UK are proposing to build 250 new homes on the site, which consists of a large arable field, bordered by hedges, trees and drainage ditches and a smaller area of semi-improved grassland, also bordered by a tree-line, hedges, scrub and drainage ditches. It is understood that one bungalow and a timber scout hut, as well as a World War II 'pill-box' are to be demolished.*
 - 1.4.2 *An ecological survey of the site was carried out by ecologists from Aspect Ecology, on behalf of house developers, Taylor Wimpey UK Ltd, in 2014. Their desktop study included a Sussex Biodiversity Records Centre search for bat records from the area. Although no records of bats on or immediately adjacent to the site had been submitted, there were records of serotine (*Eptesicus serotinus*) brown long-eared bat (*Plecotus auritus*), grey long-eared bat (*Plecotus austriacus*) 45kHz pipistrelle (*Pipistrellus pipistrellus*) and 55kHz pipistrelle (*Pipistrellus pygmaeus*) within 3km of the site. A maternity roost of unidentified species (most likely pipistrellus) was recorded in 2012, approximately 450 to the south of the site boundary. Grey long-eared bats, two records of which were returned from sites within the 2km grid search area, are amongst the rarest bats in the UK. Aspect Ecology undertook a daytime survey of the site, as well as bat activity surveys. Their 2014 activity surveys were followed by an extended Phase 1 survey in May 2016. However, no bat activity surveys have been undertaken since 2014. The 2016 Aspect Ecology survey included a daytime search for evidence of bat use, of the bungalow (No. 80 Rose Green Road, Pagham) which is to be demolished if the proposed development goes ahead. The surveyors reported that the bat roosting potential of the bungalow and the timber scout hut, which will also be demolished, was negligible. Trees on the site were also assessed as having a negligible potential for bat roosting. It appears that the World War II pill-box was not checked for evidence of, or potential for bat use, during the Aspect Ecology bat surveys.*
 - 1.4.3 *The Parish Council is concerned that the destruction of some features on this site would represent a significant loss of wildlife habitat for the village, which is largely surrounded by large, open, arable fields of little wildlife value and areas of already dense housing. Although it is understood that the developers propose to minimise impacts on wildlife and create some new habitat, the Parish Council is concerned that the assessments carried out, to date, do not adequately address the impact of the potential loss of existing features. Features offering good habitat for wildlife include the pill-box, as well as the tree-lines, drainage ditches and hedgerows, which provide good connectivity for bats and other wildlife. Also of some considerable wildlife value is the area of semi-improved grassland and scrub, sheltered by tree-lines and hedgerows.*

- 1.4.4 As well as the large number of bat passes recorded over the site in 2014, Aspect Ecology ecologists also reported finding a small population of common lizard (*Lacerta Zootoca vivipara*), a moderate population of slow-worm (*Anguis fragilis*) and a number of farmland birds, such as bullfinch (*Pyrrhula pyrrhula*) and yellow-hammer (*Emberiza citrinella*).
- 1.4.5 Bat species recorded by Aspect Ecology surveyors in 2014 included large numbers of passes from common pipistrelle (*Pipistrellus pipistrellus*) and soprano pipistrelle (*Pipistrellus pygmaeus*), significant numbers of passes from noctule (*Nyctalus noctula*) as well as unidentified “big bats” and small numbers of passes from the rarer Nathusius’ pipistrelle (*Pipistrellus nathusii*). Over the Aspect Ecology survey period, bats were recorded commuting/foraging along the tree-line at the north of the site, along the tree-line at the west of the semi-improved grassland, close to the WWII pill-box and close to the scout hut.
- 1.4.6 The Parish Council is also concerned that no mention was made of any inspections of a 2nd World War pill-box on the site, which is proposed for demolition under the development plans. Aside from historical concerns, this type of structure can be used by hibernating bats. Accessible underground features such as this can be invaluable to local bats, particularly when situated on a sheltered tree-line/hedgerow and alongside a small water-way.
- 1.4.7 During the February 2017 daytime survey, Batbox Ltd surveyors checked the exterior of the scout hut for evidence of bat use, such as bat droppings on walls and on the ground below possible roost entrances, where accessible, although it should be noted that droppings left on the exterior of buildings, from summer roosting, are likely to have been washed away by wind and rain, by winter months. Binoculars were used to check features at higher levels. Potential bat roosting places and access points were noted and the surrounding habitat was assessed for the likelihood of bat activity.
- 1.4.8 A search of the World War II pill-box was carried out, using a torch to check crevices, etc. The potential for bat roosting and/or hibernating was noted.
- 1.4.9 A brief assessment was also made of trees and hedgerows surrounding the site and of the bungalow to be demolished under the terms of the proposal.
- 1.5 The results of the February 2017 Batbox Ltd bat survey were reported as follows:
- 1.5.1 *The Scout Hut (B1 on the Aspect Ecology report plans)*
The interior of the scout hut was not accessed during this survey. This timber structure was described as having a ‘negligible’ potential for roosting bats during the Aspect Ecology survey. However, Batbox Ltd surveyors noted a small number of features which might be used by roosting bats, including gaps under the gable end fascias and holes in the timber cladding, leading to cavities between construction materials. Although the potential for bat use might still be described as low, it is considered possible that bats will roost in the structure at some times during the year and it is advised that a bat emergence check should be carried out at an appropriate time, when bats become active.
- 1.5.2 *The World War II ‘Pill-box’*
This structure is in a sunken position close to the drainage ditch and is surrounded by small trees and scrub. Although attempts have been made to secure the entrance, fences have been damaged or moved and it is clearly subject to some disturbance. Bats have been discovered hibernating in pill-boxes, such as this one, which is in an ideal location for bat use. With some minor modifications (such as the fitting of a security door with bat access point and refuges for bats), this building could be enhanced for bat use. No bats were seen during this search, but it is considered possible that bats may be using the structure at some times during the winter months. It is recommended that this structure is protected and that appropriate advice is sought from bat specialists on enhancement measures.
- 1.5.3 *Trees and Hedgerows*
Trees, hedgerows and scrub on the site offer little bat roosting potential. However, the previous survey demonstrated that local bats, of several species, make extensive use of the linear features for

commuting and foraging. With the surrounding area comprising very large, arable fields - possibly subject to extensive pesticide use - and by areas of fairly dense housing, the western most part of this site is likely to provide a valuable foraging resource for local bats, as well as birds and reptiles. Because the previous bat activity surveys were undertaken several years ago, it is recommended that these surveys are repeated and updated.

1.5.4 The Bungalow (B2 on Aspect Ecology report plans)

This building was searched, internally and externally, for evidence of bat use in 2016, by Aspect Ecology ecologists, who found no evidence of bat use and stated that 'it is considered that this building offers no more than very minor potential for use as an occasional summer night roost by a low number of bats'. However, no bat emergence check has been carried out during the surveys and it is recommended that an emergence check is undertaken, at an appropriate time of the year, if this building is to be demolished under the development.

1.5.5 Overall Conclusions (Feb 2017)

In conclusion, Batbox Ltd bat consultants are in broad agreement with Pagham Parish Council that some features of this site offer good wildlife habitat, which is in short supply in the local area. Features of note are the area of semi-improved grassland, bordered by tree-lines, hedgerows, drainage ditches and scrub and the sheltered World War II pill-box, which offers bat hibernation potential. We would recommend that further ecological surveys are undertaken, during the summer months, to update information on bat activity on the site and that consideration is given to opportunities to protect the most significant wildlife habitat areas.

2. Dusk Emergence Check/Bat Detector Survey – Methodology

2.1 On the evening of 21st April 2018, surveyors from Batbox Ltd re-visited the site to establish suitable positions to watch for any emerging bats and to decide upon a route for walked transects.

2.2 The surveyors returned to the site on the evening of 22nd April. At dusk, bats' emergence time, the two surveyors were positioned as follows:

Surveyor 1: On the field junction close to the WW2 pill-box – D P King

Surveyor 2: To the west of the timber scout hut – S L Wright

The surveyors then patrolled the site boundaries, as shown on the attached plan.

2.2 The surveyors used Batbox Griffin time-expansion recorders to record bat echolocation calls and to identify any bats heard to species level, where possible. Recordings were made for later computer analysis with BatScan software. Prior to bats' emergence time, the surveyors used bat detectors to listen for pre-emergence 'chatter', sometimes heard from bat colonies before they leave their roosts.

2.3 The activity survey was undertaken on a dry, relatively calm and clear evening, following a warm and sunny day. The preceding week had been unseasonably warm, but temperatures had dropped following heavy rain on the night of the 21st. The temperature was 14°C at the start of the survey period. Although somewhat early in the season, conditions were considered to be suitable for bat activity.

2.4 The evening emergence check/bat detector survey started at 19:45. Sunset was at 20:08.

3. Evening Emergence Check and Bat Detector Survey – Results

- 3.1 Six bat species were recorded during this walked transect survey. The greatest level of activity was from pipistrelles, which were recorded throughout the survey period, foraging and commuting along tree-lines. The earliest pipistrelles recorded by Surveyor 2 were in the parking area near to the scout hut, where constant activity was heard. The bats started to arrive at this part of the site at around half an hour after sunset, seemingly from roosts nearby – possibly just to the south east of the site. These were both 45kHz pipistrelles and 55kHz pipistrelles. At the same time, Surveyor 1 recorded both 45kHz and 55kHz pipistrelles foraging along the open field boundaries. Pipistrelles were also very active, a short time later in the survey period, in the sheltered north west section of the ‘scout’ field. Surveyor 1 also recorded small numbers of passes from the following species: Nathusius’ pipistrelle, serotine (*Eptesicus serotinus*), long-eared bat (*Plecotus* sp.) and barbastelle (*Barbastella barbastellus*) – a very rare bat with added legal protection. These were recorded along the northern boundary of the open field. An unidentified bat, probably a long-eared bat, was seen but not recorded, close to the small stream beside the WW2 pill-box. Long-eared bats have very quiet echolocation calls and may be under-recorded during bat detector surveys.
- 3.2 Bats recorded are shown in the table below: (Note, where bat activity is continuous and considered most likely to be from the same individual bats, not all passes are recorded.)

Surveyor	Time	Species	Activity
Surveyor 1	20:39 - 20:49	55kHz pipistrelle (<i>Pipistrellus pygmaeus</i>)	Along south side of open field
Surveyor 1	20:45 – 20:56	45kHz pipistrelle (<i>Pipistrellus pipistrellus</i>)	Regular passes - Foraging along boundary behind industrial estate
Surveyor 1	21:01 – 21:02	45kHz pipistrelle	Several bats flying together along north boundary of open field
Surveyor 1	21:03	45kHz & 55kHz pipistrelle	5 x 45kHz & 55kHz pipistrelles foraging together over flood in SE field corner
Surveyor 1	21:06	45kHz pipistrelle	Foraging near gardens of houses on E side of field
Surveyor 1	21:08	55kHz pipistrelle	Social calls, E side of open field
Surveyor 1	21:08 – 21:11	45kHz & 55kHz pipistrelles	At N E corner of open field
Surveyor 1	21:10	Nathusius’ pipistrelle (<i>Pipistrellus nathusii</i>) with 45kHz & 55kHz pipistrelle	At N E corner of open field
Surveyor 1	21:14	Possible Nathusius pipistrelle	Along N side boundary of open field

Surveyor 1	21:16 – 21:21	45kHz pipistrelle	Along N side boundary of open field
Surveyor 1	21:22	Serotine (<i>Eptesicus serotinus</i>)	Distant pass, N side boundary of open field
Surveyor 1	21:23	Long-eared bat (<i>Plecotus sp.</i>) with 45kHz pipistrelle	Toward NE of N boundary of open field
Surveyor 1	21:24	Barbastelle (<i>Barbastella barbastellus</i>)	Toward NE of N boundary of open field
Surveyor 1	21:25	45kHz pipistrelle	2 x bats at NW of open field
Surveyor 1	21:25 – 21:31	45kHz pipistrelle & 55kHz	Passes on w side of 'scout' field
Surveyor 1	21:34	45kHz pipistrelle	Pass near scout hut
Surveyor 2	20:38 – 20:47	55kHz pipistrelle	V. regular passes – 5+ bats commuting and foraging around parking area near scout hut & site entrance
Surveyor 2	20:42	45kHz pipistrelle	Fairly regular passes, bat commuting and foraging around parking area near scout hunt & site entrance
Surveyor 2	20:48 – 20:59	45kHz pipistrelle	Occasional passes along east side of 'scout' field & regular passes in sheltered area at N of 'scout' field
Surveyor 2	21:02 – 21:06	45kHz & 55kHz pipistrelle	Flying around parking area
Surveyor 2	21:02	Probably long-eared bat	Seen, not recording near to WW2 pill-box
Surveyor 2	21:05 – 21:24	45kHz & 55kHz pipistrelle	Regular passes in clearing at N of 'scout' field

3.3 Bats Recorded during this Survey:

- 45kHz (or common) pipistrelle (*Pipistrellus pipistrellus*) is considered to be common and widespread in the UK.
- 55kHz (or soprano) pipistrelle (*Pipistrellus pygmaeus*) is also considered to be common and widespread in the UK. Pipistrelles are often found roosting in buildings, but may also roost in trees.

- Nathusius' pipistrelle (*Pipistrellus nathusii*) is infrequently encountered and was considered to be a vagrant species in the UK until recent years. It is now known to be a frequent migrant and sometimes resident.
- Long-eared bat (*Plecotus sp.*) The brown long-eared bat (*Plecotus auritus*) is considered to be common and widespread in the UK. The grey long-eared bat (*Plecotus austriacus*) is very rare and largely confined to the south coast of Britain. As yet, it is not possible to distinguish brown long-eared bats from grey long-eared bats by echolocation calls.
- Serotine (*Eptesicus serotinus*) This large bat roosts almost exclusively in buildings. Although relatively common in the south of England, the species is not considered to be widespread throughout the UK.
- Barbastelle (*Barbastella barbastellus*) is a rare woodland bat, It is included in Annex II (and IV) of the EU Habitats and Species Directive, and hence requires special measures for conservation including designation of Special Areas for Conservation.

4. Survey Constraints

- 4.1 This survey was carried out somewhat early in bats' active season. However, the emergence survey was undertaken in suitable weather conditions for bat activity, after a period of rising temperatures.
- 4.2 Only this single bat activity survey has been carried out on the site since the Aspect Ecology surveys in 2014.

5. Conclusions and Recommendations

- 5.1 Six bat species were recorded. Unsurprisingly, greatest activity was from the two most common pipistrelle species (*Pipistrellus pipistrellus* and *Pipistrellus pygmaeus*), which were recorded throughout the survey period, foraging and commuting along tree-lines. These bats started to arrive at the site at around half an hour after sunset, seemingly from roosts nearby. With significant numbers of individuals of both species, it is considered very likely that breeding colonies of each are gathering at their maternity roosts, very close to this site and that this site provides an invaluable foraging area for them. Maternity roosts are most likely to be at the south of the site, where larger aggregations of bats were recorded, early in the survey period.
- 5.2 Also recorded were small numbers of passes from the following species: Nathusius' pipistrelle, serotine (*Eptesicus serotinus*), long-eared bat (*Plecotus sp.*) and barbastelle (*barbastella barbastellus*) – a very rare woodland species. These bat passes were recorded towards the N W of the site and may have been foraging/commuting along the small, tree-lined stream which passes through the site.
- 5.3 It is therefore concluded that bat activity on this site is relatively high, at least at this early stage in the season. Bats of six species were recorded, with almost constant activity from fairly significant numbers of both the two common pipistrelle species. Although only a single dusk bat activity has been undertaken by Batbox Ltd, bats of four other species were identified foraging and commuting around the site during the evening, implying that this area is of local importance to bats, especially given its position surrounded by large arable fields and built up areas.

- 5.4 It is recommended that further activity surveys are undertaken to establish the level of use by bats throughout the active season. Although pipistrelles do not avoid lit areas and can be found feeding around street lamps, both long-eared bats and barbastelles are considered to be light-averse and therefore more sensitive to development.
- 5.5 Because barbastelles are very rare and have been the subject of radio-tracking studies in the south east of England, it is also recommended that a further desk study is carried out in order to establish whether the individual recorded, on this site, was using a known commuting route between roosts and foraging areas.
- 5.6 Comparison studies could also be undertaken, to ascertain the relative abundance of bats and suitable bat habitat in the surrounding area. This would allow a better assessment of the importance of the site and the likely impact of the proposed development on the local bat population. Consideration can then be given to opportunities to protect the more significant wildlife habitat features from development.

* Collins, J. (ed.) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn). The Bat Conservation Trust, London. ISBN-13 978-1-872745-96-1

** *Aspect Ecology report – ‘Ecological Appraisal’, Project No. ECO-3697 ‘Land North of Sefter Road, Pagham, Bognor Regis’ dated 07/12/2016*



Map of Proposed Site

Route of surveyor 1  Route of surveyor 2  Start point Svyr. 1  Start point Svyr. 2 

- ★ 45kHz & 55kHz pipistrelles (*Pipistrellus pipistrellus* & *Pipistrellus pygmaeus*) – (large stars, peak activity)
- ☆ Long-eared bat (*Plecotus* sp.)
- ✧ Barbastelle (*Barbastella barbastellus*)
- ☆ Serotine (*Eptesicus serotinus*)
- ☆ Nathusius pipistrelle (*Pipistrellus nathusii*)

Land North of Sefter Road, Pagham, West Sussex – Photographs



The timber scout hut and parking area (SW of site)



The small stream crossing the site



The open field and distant boundary to north



The entrance to the WW2 pill-box

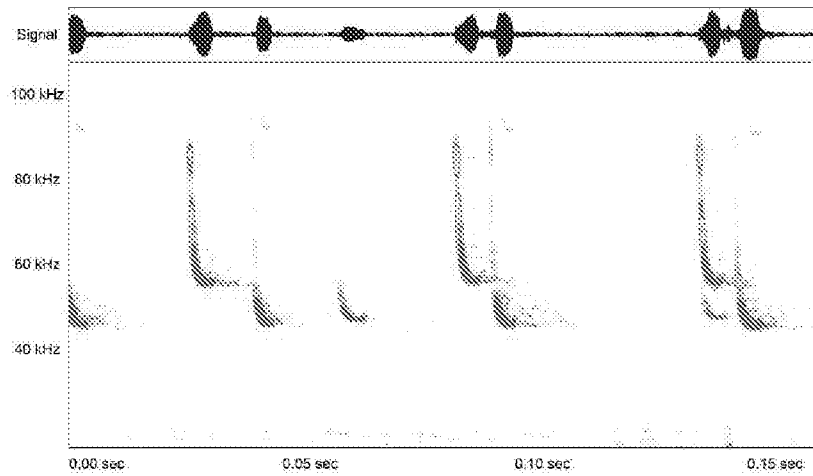


The sheltered area at north of the 'scout' field

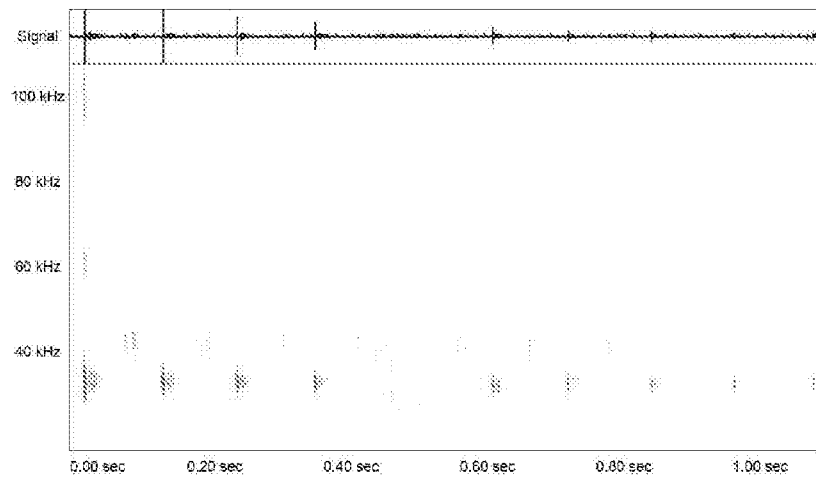


Trees & the semi-improved grassland in the scout field

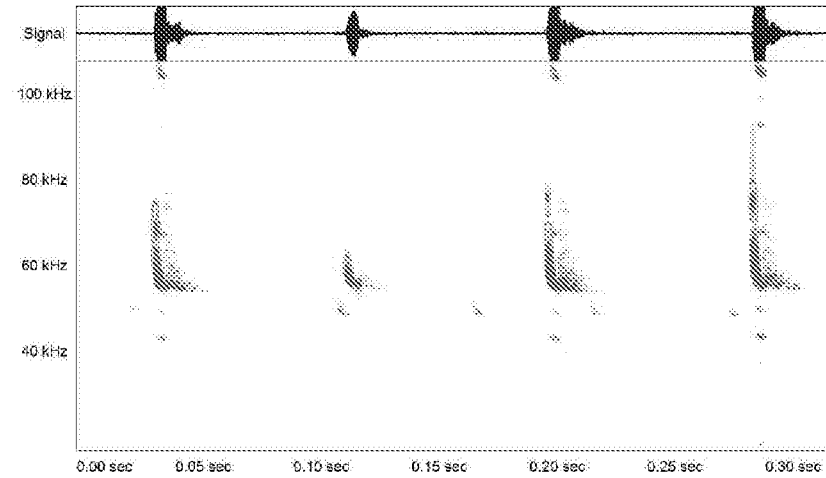
Land North of Sefter Road, Pagham, West Sussex – April 2018 – Bat Sonagrams



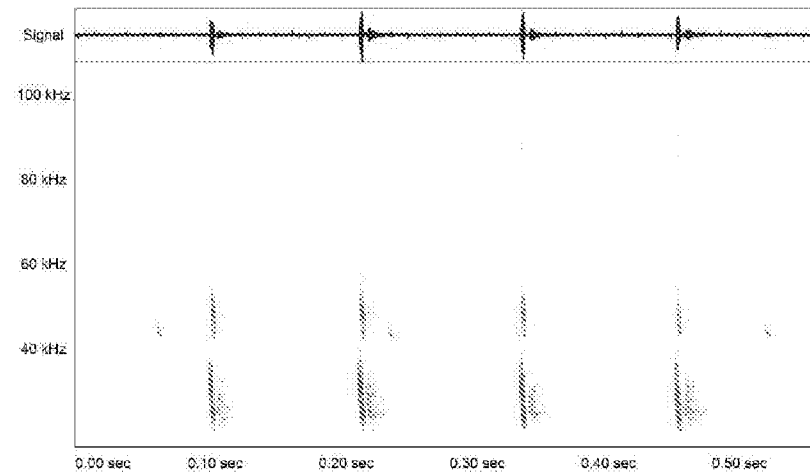
2 x 45kHz pipistrelle (*Pip. pipistrellus*) & 1 x 55kHz pipistrelle (*Pip. pygmaeus*)



Barbastelle (*Barbastella barbastellus*)



45kHz pipistrelle, 55kHz pipistrelle & Nathusius' pipistrelle (*Pip. nathusii*)



45kHz pipistrelle & long-eared bat (*Plecotus* sp.)

Review of housing site P_140_16_OUT Summer Lane

09 April 2018

LANDSCAPE EVIDENCE BASE

ON BEHALF OF PAGHAM PARISH COUNCIL.



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LANDSCAPE COMMENTS

1. Introduction

The Terra Firma Consultancy have been instructed by Pagham Parish Council in April 2018 to prepare a critique and assessment of the landscape evidence given in the Landscape Visual Impact Assessments and Masterplan / Landscape Framework Strategies submitted by the applicant relating to one of four housing allocation sites situated along the northern edge of the settlement of Pagham, West Sussex.

2. Purpose of comments

This Statement is a technical report in support of Pagham Parish Council's Representations.

A statement has been prepared for each site basis and should not be viewed as a comparison or cumulative impact exercise.

The Statement concludes with an opinion on the implications for landscape character.

This statement sets out:

1. Introduction
2. Purpose of comments
3. Documents reviewed
4. A review of Landscape Character and context
5. Relevant LCA and LCT. Special qualities and sensitivities.
6. Site observations
 - Key landscape features – indicators of character, condition and value
 - Other considerations
7. Development Proposals
 - Landscape Capacity (Landscape Condition, value and sensitivity)
8. Impacts arising from development
 - LVIA Methodology
 - Implications for landscape attributes and views
9. Comment on masterplan design, mitigation proposals and extent of development
 - Predicted effects
 - Layout
 - Views
 - Mitigation
10. Summary / Conclusion

3. Documents reviewed

Outline submission

Tree removal plan by Boskytrees Ltd.

Drawings by Davis Landscape Architects

- Illustrative masterplan DLA.1731.L003.05 rev D
- Development Framework Plan DLA.1731.L003.02
- Landscape Framework Plan DLA.1731.L003.06

Landscape and Visual Impact Assessment prepared by Davis Landscape Architects (2006)

Reference publications

Landscape character assessments of West Sussex and Strategy for the West Sussex Landscape (2003), West Sussex County Council,

Sussex Historic Landscape Characterisation (HLC), August 2010

Arun Landscape Study (2006) by Hankinson Duckett Associates (2006) and Landscape Character and Capacity and LCT figures.

Arun District Council landscape Character Plan (2006)

Arun District Adopted Local Plan (2003-11)

Emerging Arun Local Plan 2011-2031

SPG: Open Space and Recreation Standards, Arun District Council

Draft Pagham neighbourhood Plan (2014-2029)

Pagham Village Design Statement (PVDS), November 2007

Arun Green Infrastructure Study (AGIS)

Green Infrastructure Study and maps by parish (June and Nov 2012) by Arun DC, Arun District Council

Open Space sport and recreation study by PMP March 2009.

Other relevant documents

Provisional Regional Agricultural Land Classification map (AL007) by Natural England and TIN049 Technical Note.

RSPB Pagham Harbour Local Nature Reserve Management Plan (2013-2018)

Sussex Black Poplars Partnership, Sussex Wildlife Trust

4. A review of Landscape character and context

National, County and District level landscape character assessments relevant to this site are given below:

	Publication	Application P_140_16_OUT Summer Lane
National	National Character Assessment by Natural England	• NCA 126 South Coast Plain.
County	Landscape character assessment of West Sussex, and Strategy for the West Sussex Landscape (2003), West Sussex County Council	• SC2 Manhood Peninsula, SC4 Pagham Harbour

District	Arun Landscape Study – Landscape Character types (LCT)	Majority of the site identified as L1b (large - scale open arable) with central section of L2 (medium small scale arable)
County	Sussex Historic Landscape Characterisation (HLC), August 2010	- HLC Type: Informal fieldscape; regular piecemeal enclosure; medieval. Common and found extensively across Sussex. Characterised by regular or semi-regular shaped fields with wavy and or straight boundaries, creating a regular field pattern, but not obviously planned. The boundaries are generally formed of hedgerows rather than woody shaws. - Adjacent to HLC Type: Settlement; expansion-other; ribbon development. Occasional. Extends along routeways from core settlements, this form is often very regular comprising terraced, semi-detached or detached properties, which may be integral to planned estates.
District	Arun Landscape Study – Sensitivity, Landscape Value	- Landscape Structural Zone Analysis Zone 1. LCA 3 Pagham Lower Coastal Plain Landscape Sensitivity = Moderate Landscape Value = Moderate.
District	Arun Landscape Study – Landscape Character Area (LCA) and its Landscape Capacity (based on sensitivity and landscape value)	<i>LCA 3 Pagham Lower Coastal Plain - landscape capacity is medium. Pagham Lower Coastal Plain (LCA 3). Large scale arable landscape, some containment along settlement edge, ecological and heritage interest, adjacent to Pagham Harbour and floodplain</i> This is a landscape character area with capacity for limited development, in some areas, having regard for the setting and form of existing settlement and the character and sensitivity of adjacent landscape character areas.
Local	Green Infrastructure network for Pagham Parish. Arun DC	- Green Infrastructure corridor (GIC) – A. Within a Strategic Gap and West Bognor Regis GI Corridor - Adjacent to 'Existing Open Space'. - No key GI assets present but within range of key GI assets 157 and 184 with function to conserve and enhancing biodiversity and historic character - Relative tranquillity moderate to high. - Agricultural land classification Grade 2 very good

5. Relevant LCA and LCT – Key Characteristics and sensitivities

i. County Level: Landscape Character appraisals

Reference documents: Landscape character assessment of West Sussex, and Strategy for the West Sussex Landscape (2003), West Sussex County Council.

Two LCA's are applicable to the site.

SC2 Manhood Peninsula

Description

This Character Area lies in the south west of the county, to the south of Chichester, between the harbours of Chichester and Pagham. A large part of this area has been reclaimed from the sea, and remains below the current high spring tide level. It is mainly flat open landscape, dominated by highly productive large arable fields and modern farm buildings and characterised by a decline in tree and hedgerow cover and loss of grassland habitats. Habitation is predominantly in scattered small traditional settlements and larger suburban villages.

Key landscape characteristics and sensitivities

- Mainly low-lying flat landform with pockets of small enclosed pasture fields and horse paddocks.
- Narrow, right-angled or winding lanes.
- Few trees or hedgerows, partly as a result of Dutch Elm Disease from the 1970s and the Great Storm in 1987 and high value agricultural land, although where they do exist, they form prominent features.
- Large scale arable farming with large, often hedgeless fields.
- Extensive farms with both traditional and modern farm buildings and silos.
- Scattered vernacular villages with mixed building materials, often flint, brick, half timber and stone, often with sprawling modern fringes.
- Rife and ditch systems with associated unimproved grassland and edged by reed beds.
- Busy roads. Remnant semi-natural broadleaved woodlands form pockets of high nature conservation importance.
- Remnants of floodplain woodland and stands of planted black poplar.
- Low-lying, seasonally flooded pasture, adjacent to Pagham Harbour, is important for wintering waders and wildfowl such as Black-tailed Godwit, Curlew and Brent Geese.

Key visual characteristics and sensitivities

- Expansion and development on urban and village edges.

Key Landscape issues

- Close proximity to internationally important landscapes of Pagham Harbour Local Nature Reserve (LNR).
- Ingress of salt laden winds inland.
- Active recreational and seasonal visitor pressure impacting on access to the coast.
- Traffic generation resulting in erosion of rural lanes and loss of tranquillity.
- New housing development associated with the expansion of Bognor Regis.
- Changes in drainage patterns.
- Climate change may increase the risk of storm surges and storminess with associated flooding, and consequent impacts on inter-tidal habitats, increasing pressure for possibly insensitive coastal defences.

Guidelines for Development

- **Create a new large scale tree and hedgerow framework which complements the open, intensively farmed landscape, whilst maintaining significant views.**
- Conserve and enhance the character and setting of the villages.
- Promote sympathetic design of new road schemes.
- Formulate a management plan for urban edges to enhance the distinction between the urban and rural landscape.
- Promote the planting of trees and scrub within and around caravan parks and holiday camps to reduce their visual impact.
- Substantially extend woodland and hedgerow cover around village fringes to screen unsightly elements.
- Restrict extensive areas of tree planting to poorer quality agricultural land.
- Conserve and manage existing tree groups and individuals.
- Maintain and link existing remnant hedgerows and tree lines to re-establish coherent field boundaries and wildlife corridors, strengthening the wider network.
- Establish new vegetation features by the planting of hedgerows and hedge trees along roadsides, especially those approaching settlements, and tree clumps in field corners.
- Enhance the visual prominence of rifes through the establishment of water side vegetation features.
- Encourage and promote land management schemes to increase grassland areas.
- Plant tree and shrub species that are tolerant of close proximity to the coast and salt laden winds.
- Enhance the landscape and conservation value of rifes through the reprofiling of banks, and encourage more diverse flora by lengthening clearance cycles.
- Maintain, restore and enhance floodplain woodland and associated species, including native black poplar, where appropriate.

SC4 Pagham Harbour

Description

These Character Areas lie in the south west of the county to the south and south west of Chichester. The internationally and nationally important areas of Pagham harbours are distinctive for their enclosed expanses of marine water, tidal mudflat, shingle, marsh, wetland scrub and small creeks. Views into Pagham Harbour are dominated by vast tidal mudflats and fringing marsh vegetation enclosed to the south by open shingle banks. Large parts of these areas have been reclaimed from the sea, and remain below the current high spring tide level. Whilst traffic and recreational activities reduce tranquillity in some parts, there are also significant areas of Pagham Harbours which have a tranquil character and retain a sense of remoteness.

Key landscape characteristics and sensitivities

- Enclosed natural harbours of marine water, tidal mudflats and saltmarsh with small inlets and creeks.
- Contrast with the surrounding open agricultural land.
- Noise of birds, waves and masts
- Attractive harbourside settlements and early medieval flint churches such as at Pagham.
- Landscapes of great wildlife importance.
- Both Chichester and Pagham Harbours are designated as wetlands of international importance under the Ramsar Convention as they attract large flocks of wading birds and wildfowl.
- Pagham Harbour and areas within Chichester Harbour (Nutborne Marshes, Pilsey Island and Eames Farm) are Local Nature Reserves and so managed for their wildlife importance.
- Sea inlets which form the natural harbours of Chichester and Pagham are particularly important for their Roman and earlier prehistoric remains, from a time when sea level may have been up to 6 metres lower than at present.
- Early medieval flint churches at Pagham.
-

Key visual characteristics and sensitivities

- Increasing noise due to traffic and recreational activity eroding tranquillity.
- Relationship of views between the harbours and surrounding hinterland.

Key Landscape issues

- Seasonal and weekend visitor pressure.
- Traffic generation resulting in erosion of rural lanes and loss of tranquillity.
- Climate change may increase the risk of storm surges and storminess with associated flooding and consequent impacts on inter-tidal habitats, increasing pressure for possibly insensitive coastal defences.

Guidelines for Development

- Conserve existing area of tranquil character.
- Maintain key views and vistas around the harbours.
- Conserve and manage the diverse existing natural landscape features, including mudflats, salt marsh, sand dunes, shingle banks, woodland, rifees and ditches.
- Conserve and enhance the character and setting of the villages.
- Restrict visitor access to sensitive areas.
- Maintain existing hedgerows and strengthen the wider network through hedgerow restoration.
- Maintain, restore and enhance floodplain woodland and associated species, including native black poplar, where appropriate.

ii. District Level: Landscape Character appraisals

Reference documents: Arun Landscape Study, Technical Appendices Table A: Landscape Character Assessment Hierarchy, Table B: Local Landscape Character Types

LOCAL LANDSCAPE CHARACTER AREA: No. 3 Pagham Lower Coastal Plain
County Landscape Character Area: B1 Chichester & Pagham Harbours & the Manhood Peninsula B. Coastal Harbours and Peninsulas B1. Chichester and Pagham Harbours and the Manhood Peninsula
Wider Context • Enclosed natural harbours of marine water, tidal mudflats and saltmarsh with small inlets and creeks • Predominantly open arable peninsulas with patterns of large fields • Pockets of small, enclosed pasture fields and horse paddocks • Occasional views from the land of the water, or of yacht masts • Noise of birds, waves, wind and masts • Distinctive historic landscape features include oyster beds, earthworks, old sea defences, quays, boatyards and remnant parkland. • Rich range of habitats at the harbour edges including mudflats, saltmarsh, grazing marsh, reedbeds, sand dunes, shingle banks • Wind-shaped trees and scrub • Attractive harbourside settlements and early medieval flint churches such as Bosham and Pagham • Linear villages on the Manhood Peninsula • Narrow, right-angled, or winding lanes
Description Arable Fields Abuts Pagham Rife landscape to the west and Pagham Harbour to the south
Key landscape characteristics and sensitivities Mixture of small, medium and large scale rural arable fields. Minor roads at the perimeter, tracks within. Boundaries vegetated with hedgerows to a varying degree.
Key visual characteristics and sensitivities None given
Key settlement characteristics and sensitivities Scattered farm buildings and dwellings with associated paddocks.
Landscape Sensitivity MODERATE for reasons below: • Inherent Landscape Qualities (intactness and condition): Boundary features, ecological interest to the south and west. • Contribution to distinctive settlement setting: Agricultural fields abuts intermittent hard urban edge. • Inconsistency with existing settlement form / pattern: Adjacent to flood plain mainly off coastal plateau. • Contribution to rurality of surrounding landscape: Limited intervisibility with settlement boundary features at edge of town. • Contribution to separation between settlements: No intervisibility with Chichester.

iii. Local Level Landscape Character appraisals

Reference documents: Arun Landscape Study, Table C: Local Landscape Character Areas – Summary Description. Site specific and local level given based on the WSCC SC9.

GROUP L: COASTAL PLAIN Subtype L1b (large- scale open arable) of LCT L1 Large-scale arable farmland
Description Large arable fields (cereals, oil seed rape etc.) Intensive arable farmland
Key landscape characteristics and sensitivities Relatively large fields across relatively flat or very gently undulating landform Field boundaries tend to be drainage ditches and/or fences Weak/remnant hedgerow structure in places, with few mature trees
Key visual characteristics and sensitivities Long views to downs to north
Key settlement characteristics and sensitivities None given

GROUP L: COASTAL PLAIN LCT L14 Paddock
Description Grazing for horses
Key landscape characteristics and sensitivities Fields sub-divided using temporary fencing (e.g. post and white tape)
Key visual characteristics and sensitivities Stable buildings and feed/water troughs
Key settlement characteristics and sensitivities None given

GROUP L: COASTAL PLAIN LCT L2 Medium small scale arable
Description Intensive arable farmland
Key landscape characteristics and sensitivities Medium-small fields across relatively flat or gently undulating landform Field boundaries include ditches, fencing, hedges
Key visual characteristics and sensitivities Greater sense of enclosure as compared with large-scale arable farmland (L1)
Key settlement characteristics and sensitivities None given

6. Site Observations

The proposed site 23 Ha site occupies land to the south of Summer Lane & West of Pagham Road Pagham.

The site contains many features that contribute to the landscape defined in the NCA 126 South Coast Plain, SC2 Manhood Peninsula, SC4 Pagham harbour and local landscape character area: no. 3 Pagham Lower Coastal Plain landscape character assessments.

While the national, broad scale assessment of the NCA 126 South Coast Plain gives a good indication of the wider character its relevance is limited. For smaller sites that involve developments of the nature proposed it is more instructive to consider the specific attributes that define the landscape character at a more localised level.

This site are highly representative of the county and local landscape character areas, of SC2 and No. 3 Pagham coastal plain. There is a high degree of intervisibility with the adjacent LCA SC4 Pagham harbour with the landmark early medieval flint church at Pagham.

From within the site and surrounding footpaths a minimum of 4 different views of Chichester cathedral spire, set against the South Downs backdrop has been noted.

iv. Key Landscape features - indicators of character, condition and value

The following key characteristics of landscape character have been noted on the site, and against which the landscape and visual effects should have been judged.

The key attributes are:

Land use

- Very large scale, open agricultural fields employed for crop production (cereals, oil seed rape etc.) Intensive arable farmland.

Field pattern

- Predominantly open arable peninsulas with patterns of large fields
- Large scale arable farming with large, often hedgeless fields.
- Mixture of small, medium and large scale rural arable fields.
- Pockets of small, enclosed Medium-small pasture fields and horse paddocks surround Barton's Church Farmhouse, contributing to the character of the site's western edge.

Soils

- Grade 2 (very good) agricultural land.
- Heavy clay prone to waterlogging
- Geology across the area is typically alluvium and tidal flats deposits.

Topography and drainage

- Generally flat, low-lying landform between 4-5m AOD. Relatively large fields across relatively flat or very gently undulating landform
- Rife and ditch systems with associated unimproved grassland and edged by reed beds.
- A number of drainage channels are also present crossing the site. The network of narrow drainage ditches divide individual fields form an integral part of the field and wider drainage system linked to Pagham Harbour.
- The small network of wet ditches present in the western part of the site are of low ecological value at the local level.

Boundary treatments

- A network of narrow drainage ditches divide large-scale, open agricultural fields.
- Field boundaries tend to be drainage ditches and/or fences
- Hedgerows of varying condition and intactness

Trees and vegetation

- Few trees or hedgerows and high value agricultural land. Where trees exist, they form prominent features.

- Weak/remnant hedgerow structure in places, with pockets of Wind-shaped trees and scrub.
- Stands of planted (rare) black poplar unique to this landscape are absent.
- The site is largely devoid of vegetation with mature tree / scrub buffer with hedge and ditch forming the sites eastern edge running parallel to Pagham Road. This scrubby and mature tree belt includes a wide range of species that are indicative of the locality prone to waterlogged, clay conditions and salt laden winds.
- The Arboricultural Tree Survey indicates the majority of the mature field trees (remnant of historic field pattern) around the perimeter of the site , predominantly along Pagham Road verge are typically Category A and therefore of high quality. Lines of highly visible and distinctive grade A Poplar stands (G16) associated with the farmstead of Church Barton Farmhouse these stands of trees form part of the agricultural landscape character.

Views

- Long and panoramic views of the South Downs hills to the north.
- Mid-range views across open fields towards the wooded, countryside character of the Pagham harbour hinterland.

Historic landscape and Settlement pattern

- Linear villages on the Manhood Peninsula
- Scattered farm buildings and dwellings with associated paddocks.
- The Sussex HLC indicates the field pattern is of Informal fieldscape; regular piecemeal enclosure; medieval. Common and found extensively across Sussex. Characterised by regular or semi-regular shaped fields with wavy and or straight boundaries, creating a regular field pattern, but not obviously planned. The boundaries are generally formed of hedgerows rather than woody shaws. From the size (age) and species of trees indicated by the Arboricultural Tree survey and seen during fieldwork it is highly likely that this boundary vegetation including the individual, mature field trees are a historic landscape feature. To maintain the landscape character intact the protection of such trees along the boundary to Pagham Road will be important
- Adjacent to HLC Type: Settlement; expansion-other; ribbon development. Occasional. Extends along routeways from core settlements, this form is often very regular comprising terraced, semi-detached or detached properties, which may be integral to planned estates.

Listed buildings and cultural heritage

- The site is devoid of buildings however a number of listed buildings (Little Welbourne (grade II property and the spire and the early medieval flint church at Pagham a Grade I Listed building of the parish, united reform church of St Thomas A Becket are in close proximity and contribute to the intervisibility and sense of place. None of the listed buildings are located within or immediately adjacent to the site, however the impact of development on their setting relating to views to and from footpaths in the surrounding area, although limited, should be considered.
- The site does not contribute to the landscape setting of Scheduled monuments or Registered Parks and Gardens.
- A summary of the Cultural Heritage Desk-Based Assessment indicates the site is thought to have a potential effect on the rural setting of two listed buildings on Church lane to the south of the site.
- Planning response from Historic England identifies “*views of the church tower within the rural setting from part of FP101 would be affected*” and development would be from the churchyard and Church Lane. And notes “*The aspect is open to the north west wit views to open farmland*”.

Biodiversity

- Habitats identified across the site include arable, native and riparian hedgerows and trees, semi-Improved Grassland, scrub and developing Woodland and drainage channels. All of which contribute the landscape value of the site and the surrounding landscape character.

Perceptual / experiential aspects

- Views of landmark buildings
- The importance of views and opportunities to appreciate the landscape including the South Downs hills and wide open skies on the horizon.

Tranquillity

- Relative tranquillity mapping by CPRE is moderate to high.
- Crossing farmland the noise of birds, waves, wind and masts adds to the sense of remoteness and countryside setting.

Access - Public Rights of Way and adopted footpaths

- A number of footpaths cross and boarder the site. A well-used footpath along on Summer Lane FP100 links to the wider Pagham hinterland. The footpath crossing the site FP101 leads to Pagham harbour north wall.
- These footpaths and Church lane offer easy access for walkers and local residents to appreciate the countryside around Pagham harbour, and views towards the South Downs Hills, Chichester Cathedral and distinctive houses fronting Pagham Road.

Access – Roads / tracks

- Typically narrow, right-angled or winding lanes linked to minor roads at the perimeter, tracks within.
- Rural, open and set below banks

Landscape issues and threats to landscape character

- Expansion and development on urban and village edges.
- Increasing noise due to traffic and recreational activity eroding tranquillity.
- Conserve and enhance the character and setting of the villages.
- The need to restrict visitor access to sensitive areas.

Landscape opportunities

- The need to maintain existing hedgerows and strengthen the wider network through hedgerow restoration.
- To maintain, restore and enhance floodplain woodland and associated species, including native black poplar, where appropriate.

v. Other considerations

Influence of adjacent / sensitive landscape character areas (Pagham Harbour Local Nature Reserve)

- The site falls within the zone of influence of Pagham Harbour which is designated as a SSSI, Local Nature Reserve (LNR), Special Protection Area (SPA) and Ramsar site.
- The site does not fall within the reserve boundary, however the boundary of the reserve (compartments 6.10 and 6.13) and boundaries of Pagham Harbour SPA, SSSI and Ramsar are in close proximity to the site within a short walking distance.

- The reserve is assessable on foot from the footpath that borders the site and linked to the historic settlement and area surrounding St. Thomas A'Beckett Church to the south.
- There is a high level of intervisibility between the site and the wooded/ agricultural hinterland of surrounding Pagham harbour.

7. Development proposals

Land South of Summer Lane & West of Pagham Road Pagham:

Outline application for access only - mixed use development comprising of up to 400 dwellings, a care home with up to 70 beds, a Local Centre comprising up to 2000sqm of A1/A2/A3/D1/sui generis floorspace, provision of land for a 1FE primary school (with sufficient space to ensure that it is expandable to 2FE), provision of land for a scout hut, safeguarding of land to help link the site to the Pagham Harbour Cycle Route & other community uses including public open space & allotments with some matters reserved. This application is a Departure from the Development Plan

The Storeys Parameter Plan indicates residential building heights ranging from a core of 1-2.5 storey surrounded by 1-2 storey buildings, with buildings in the village centre up to 3 storey.

i. Landscape Capacity

Definition:

'Landscape capacity is defined as the extent to which a particular area or type of landscape is able to accommodate change without significant effects on character; or overall change in landscape type¹. It reflects the inherent sensitivity of the landscape itself and its sensitivity to the development in question; and the value attached to the landscape, or to specific elements within it'. Arun Landscape Study.

In relation to this study:

- *A medium, low or negligible rating for landscape capacity indicates that development would have a significant and detrimental effect on the character of the landscape as a whole and, or, on the setting to existing settlement or outstanding assets within the District.*
- *A rating of Medium/High or High/Medium identifies a landscape character area with the capacity for limited development, in some areas, having regard for the setting and form of existing settlement and the character and sensitivity of adjacent landscape character areas.*
- *High or very high capacity identifies landscape character areas of low sensitivity and low landscape value which, from a landscape perspective, could accommodate significant allocations of development, subject to the same caveats set out above for landscape character areas with High/Medium capacity.*

The Arun Landscape Study and capacity rating indicates the

'LCA 3 Pagham Lower Coastal Plain - landscape capacity is medium. Pagham Lower Coastal Plain (LCA 3). Large scale arable landscape, some containment along settlement edge, ecological and heritage interest, adjacent to Pagham Harbour and floodplain'. Development

should have due regard for the setting and form of existing settlement and the character and sensitivity of adjacent landscape character areas.

This is a landscape character area with capacity for limited development, in some areas, having regard for the setting and form of existing settlement and the character and sensitivity of adjacent landscape character areas.

ii. Landscape Condition, Value and Sensitivity

The Arun Landscape Study describes this Landscape Character Area (LCA) and moderate sensitivity and moderate landscape value.

The LVIA considers the landscape condition is moderate / low, the landscape condition as Moderate and sensitivity as Slight-Moderate. The LCT is considered to have moderate scenic quality.

Fieldwork supports this opinion with mature features e.g. trees and other representative attributes of the landscape character present. Overall the sensitivity of the landscape is moderate.

8. Impacts arising from Development

Based on a review of the development reports, illustrative masterplans, frameworks and Landscape Visual Impact Assessment (LVIA), our thoughts and comments are as follows:

iii. Strategic Implications

- a) Maintaining 'open' farmland, a characteristic attribute of the Strategic gap - Development would undermine the physical and visual separation of settlements.
- b) Alteration to the Undeveloped Coastline – The development would result in the loss of an area of undeveloped coastline
- c) Impact on Listed buildings and setting – Historic England has identified *'there may be potential views of the proposals from the churchyard, from listed buildings along Church Lane, Pagham Road and from those in Nyetimber. In addition changes to the general landscape and settlement character in the vicinity of the church or other heritage assets may also have the potential to affect their setting as a result of increase in traffic, noise and lighting'*.
- d) The coastline provides feeding grounds for internationally protected populations of waders and wildfowl. Arable fields provide vital feeding grounds and any subsequent loss of fields and grazing, particular within SSSI influence zones would be detrimental and considered in the consideration of landscape value.
- e) NCA 126 (SE03) identifies the need for development to *'reduce the amount of nutrients entering the harbour of Pagham; and that new development should seek to incorporate the best possible waste reduction measures including Sustainable Drainage Systems*

(SuDs)'. Two eco-system services dominate; that of regulating water quality, diffuse pollution which has the potential if not dealt with on site through filtration and SuDs measures to affect the internationally protected Pagham harbour, and the need for provide on-site flood storage capacity.

The development framework indicates areas of attenuation however it should be noted that the magnitude of effects cannot be entirely or accurately determined until further detail on the extent and treatment applied to hard surfacing, roads and paths can be determined.

- f) Within this NCA the proportion of grade 2 agricultural land is 25%, second only to urban use. Grade 2 and good quality soils are found predominantly to the east of Chichester harbour and is a contributing factor in the character of this farmed landscape. The sites productive nature contributing to the sensitivity and value of the wider landscape character should be recognised. Any loss of this valuable resource should be avoided. To facilitate the development on the scale indicated the wholesale stripping and storage of topsoil and re-profiling of the levels across the site is inevitable. The provision of sports and recreational facilities being a prime example. Both operations have the potential to completely alter and damage (if not handled correctly) the natural soil resource, landform and drainage that is a key characteristic of this landscape.
- g) The tranquillity of this landscape is a notable key characteristic. Tranquillity mapping indicates moderate to high level. The moderate to high levels of tranquillity reinforce the sense of remoteness away from the settlement edge and busy road. Away from the settlement edge the sound of birdsong and waves adds to the appreciation of this open, coastal character. The influx of a new population and the generated vehicle movements created by any development on the site would greatly alter the perception of the countryside, the tranquillity and add pressure on the footpath network and roads leading to Pagham harbour.

Developing the site would greatly harm this important characteristic, a highly notable attribute identified within the national down to local landscape character appraisals.

- h) The masterplan indicates two new vehicle access points required into of Pagham Road. This will remove sections of the high quality vegetation and screening to accommodate visibility, signage and highway requirements

9. Comment on Masterplan design, mitigation proposals and extent of development

Development of this nature and type on sites with a high to medium capacity to accommodate development will naturally rely heavily on the quality of design to integration of development into the landscape without causing extensive loss of key landscape characteristic features and view corridors. The relationship between new development proposals and existing settlement patterns is especially important to consider, ideally demonstrating a landscape-led in approach and through appropriate mitigation measures how and adverse effects can be addressed.

The outline Illustrative masterplan, Development and Landscape Framework Plans appear to be based on principles of green Infrastructure, guiding the overall layout.

i. Layout - Comment on quality of design and layout

Relevant to landscape character the outline proposals indicate:

- The Development Framework identifies the perimeter of the site as a Green Infrastructure corridor. Allocating this land for recreation, LEAPs, Laps, extensive coverage of tree structure and screen planting, cycle and footpath connections and SuD's attenuation.
- Either side of Footpath 101 (that cross through the middle of the site) to the south lies residential and to the north primary school, sports and playing fields. Beyond, a new village centre next to Pagham Village Hall and open space. An ANOG and further residential development culminates in a landscape buffer provided along Summer Lane. In the southern area of the site land is given over to Scout hut with open space and public allotments.

Layout – Green Infrastructure (GI)

Internally the layout includes fingers of green space and footpath routes circulating the site linked to the wider rights of way network. The existing drainage ditches appear to be retained and accommodated in the general arrangement, being incorporated into the GI systems and linked to SuD's features.

Layout – Concerns

Overall the layout is likely to provide a distinctive urban settlement on the edge of Pagham. However the density and massing has little connection to the existing edge of Pagham.

As described below the key long and mid-distance views, the existing vegetation, the character of Pagham Lane and rural setting of Pagham Historic core and the amenity of the footpath network and experiential qualities of this landscape will all be adversely affected by development.

- Fieldwork has identified high levels of visibility and a variety of views exist. The majority of views are from footpath 101 that crosses through the middle of the site. From here there are wide panoramic views in all directions and towards significant landmarks e.g. The South Downs, Chichester cathedral and St. Thomas A Beckett Church, Pagham. The positioning of the development height / massing model does not take any of these view corridors into account. All will be removed and the amenity of the footpath 101 significantly adversely effected.
- From Summer Lane, residents would have a clear view of the whole site across open fields and of vegetation and buildings at Church Barton House. Users of the public opens space and play area next to the village hall would also incur a direct view of new houses.

ii. Layout - Protecting features of Landscape character

- a) The green buffer running parallel to Pagham Road would likely protect the existing mature vegetation and drainage ditch.
- b) The preservation of soil resource - The ALC indicates Grade 2 (very good) productive soils. Quality topsoil is a valuable resource and a key feature of this landscape character. This characteristic attribute would be permanently lost as a result.
- c) The character of Summer Lane is that of a narrow single track lane passing through residential properties forming a low-density edge to the settlement. An attractive route and well-used by walkers and residents. The increase in traffic (linked to other proposed developments) and the landscape treatment e.g. hedges and trees along this edge would be entirely out of character. The open, exposed aspect with long views out across open farmland would be lost. With the potential for highway improvements this rural, quiet lane skirting the field pattern and amenity of the footpath enjoyed by walkers, a further attribute of the LCA SC2 manhood peninsular would be permanently altered.
- d) No information is provided on the species of trees and plants. Domestic and inappropriate planting introducing alien species into close proximity of SSI, SPA has the potential to significantly damage and alter the biodiversity, habitat and perception of landscape character. Inappropriate forms of planting across the development would be a major concern.
- e) The siting and the final treatment of the Local Equipped area of play (LEAP) within areas of open space and near boundaries containing existing vegetation can be damaging.

Overall, the masterplan principles would in places protect a number of landscape features e.g. mature vegetation contributing to the residential character of Pagham Road, the existing drainage network. However this has to be weighed against the permanent loss of productive grade 2 soils, alterations to natural levels, the introduction of built form, hard surfacing, infrastructure and recreational sports facilities, lighting and other aspects with development at this scale entails. It would not be unreasonable to find a significant adverse effect on an otherwise tranquil, rural, exposed and expansive farmland setting.

iii. Protecting Views

From the south:

The site is highly visible from the surrounding landscape and Pagham harbour character Area, and conversely there is a high degree of intervisibility between the historic settlement core and site. Glimpsed views of the site noted from Pagham Churchyard and Church Lane, particular at the end where visitors park and walk into Pagham Nature Reserve. This attractive, panoramic view across open fields gives a sense of visual and physical separation between the historic core and Pagham itself.

Development proposed in the southern area of the site compromise of a new Scout hut and public allotments. This close proximity of activity to the historic core of Pagham is likely to give rise to a number of adverse visual effects. The introduction of allotment sheds and horticultural paraphernalia into the rural setting and view would need to be re-considered. The same applied to the scout hut which by nature would increase visitors into the historic core. Activities and the indicative tree planting would remove the open aspect and potential affect the setting of the listed building.

From the north:

From summer lane, residents have a clear view of the whole site across open fields and of vegetation and buildings at Church Barton house.

From internally:

Panoramic views from this footpath give the walker an immediate impression of crossing countryside on the edge of Pagham. Long distant views and exposure to the elements and sounds of the coastal plain are heard. Overall the walker gains a visceral experience and immediate understanding of the SC2 landscape. The presence of poplar trees dominate an otherwise horizontal, layered landscape.

The principle of developing this site would entirely remove this experience and have a severe impact on a person's understanding the local and wider landscape character.

The three views of Chichester cathedral and South Downs seen from footpath 101 traveling towards Pagham Harbour would be obscured by new buildings and structural planting. The masterplan layout should be amended to first identify and then adjust the GI layout accordingly.

From the east:

The appreciation of views from footpath and houses facing Pagham Road, framed by the mature tree cover would be lost, obscured by the proposed new village centre new buildings and structural planting

iv. Layout – appropriate mitigation proposals?

It would be hard to see how the GI and boundaries of the development within such an open, exposed landscape that contains so very few trees could be appropriately designed and integrated, without intensifying and introducing sub-urban elements into a flat, open and countryside setting. Apart from the highly visible stand of trees surrounding Church Barton House the use of trees and planting as a visual mitigation measure to the extent indicated in the LVIA and masterplan would lead to a further erosion of the local and wider character of the SC2 peninsular.

The potential adverse effects arising from highway and residential lighting on the wider landscape character and bat feeding routes (typically hedge lines) during the day and night would need to be considered. This is a rural, and unspoilt landscape (SC4) and woodland close to Pagham Harbour. The extent to which lighting associated with sports facilities, village centres and internal roads applied on this scale would be a concern and likely to have some form of adverse effect on the wider adjacent character.

10. Summary / Conclusion

i. Landscape character

Impacts on Site landscape Character

The LVIA concludes the

- *'Development by its very nature, will represent a complete change of character from an open agricultural field to a new village settlement boundary. Whilst this would be viewed as a Major/Moderate adverse significance, careful design and landscape led approach would positively benefit key features and characteristics on the site' - a positive impact on the quality and condition.*
- *"The key landscape features within the site will be retained as part of the proposals"*

- *'The development would not have a significant adverse impact upon the experience of the wider landscape. Its impacts are limited to the immediate locality'.*

From a landscape perspective, it would not be possible to accommodate this type and scale of development given the landscape constraints and impact in key views. The exposed, open character of the site offers little by way of assistance with integrating the new settlement without causing the major/moderate adverse and significant landscape effect given.

The use of inappropriate vegetation, the increasing in tree cover to mitigate and screen would completely change the Pagham edge character, extending suburban elements associated with residential development out into open countryside to the detriment of Pagham.

Fieldwork identifies that some, but not all of the defining characteristics of the site and LCA will be retained. It is our opinion that the wider landscape character of NCA126, SD2 and SD4 and L1b would still be compromised and not remain fully intact.

ii. Visual

The LVIA concludes the visual impacts area very limited and localised. Views from Footpath 101 will permanently change due to the proximity of the built environment. The change to a well landscape transitional street scene will create an attractive high quality frontage.

Key views towards the South Downs and the adjacent landscape from FP 101 will be obscured by development and filtering vegetation. The rural outlook, opportunity to experience and appreciate the wider Landscape character areas of SC2 and SC4 (and NCA 126) will be severely compromised.

iii. Overall conclusion

It is our opinion that a high proportion of the relevant key characteristics of the landscape character would not be protected by the proposed masterplan and density of development.

The proposed development layout would have a direct, adverse and significant landscape impact on the site and on all of the key landscape characteristics that contribute to the landscape character. The masterplan does not reflect the development considerations outlined in the SC2 Manhood Peninsular, that of

'Create a new large scale tree and hedgerow framework which complements the open, intensively farmed landscape, whilst maintaining significant views'.

The wider landscape character is highly unlikely to remain intact with significant levels of loss of key characteristic attributes e.g. quality soils, productive agricultural land, long distant and panoramic views of the South Downs and towards local landmark buildings, the experiential qualities alteration to drainage and field pattern, and potentially alter the rural setting of listed buildings.

In landscape terms, the proposals are unlikely to meet the requirements of landscape related planning policy and draft policy LAN DM1 Protection of landscape character.