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WASTE RESOURCE MANAGEMENT



GLADMAN DEVELOPMENTS LTD

PROPOSED DEVELOPMENT ON LAND OFF SWANSTREE AVENUE, SITTINGBOURNE

MINERAL RESOURCE ASSESSMENT

SEPTEMBER 2021

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GLADMAN DEVELOPMENTS LTD

PROPOSED DEVELOPMENT ON LAND OFF SWANSTREE AVENUE, SITTINGBOURNE

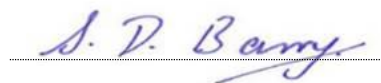
MINERAL RESOURCE ASSESSMENT

SEPTEMBER 2021

APPROVED BY:

Stephen Barry FRICS

Technical Director



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DRAWINGS TITLE

ST18667-001 Superficial geology

EXECUTIVE SUMMARY

This report has been prepared to support a planning application by Gladman Developments Ltd for proposed development on land off Swanstree Avenue, Sittingbourne. The site has been reviewed in relation to the mineral safeguarding policies of Kent County Council's adopted Minerals and Waste Local Plan.

The site comprises approximately 5.7 ha of agricultural land. Published geological maps for the area indicate that the superficial geology on part of the site comprises a head deposit, which is designated as a safeguarded mineral resource, as it may be a source of brickearth. The solid geology comprises the Thanet Formation and the Seaford Chalk Formation, neither of which are a safeguarded mineral resource.

The western part of the site is covered by a safeguarded head deposit, which covers approximately 2.1 ha of the overall site. However, approximately half of the head deposit is indirectly sterilised by the presence of Chilton Manor Farm to the west which would require a 100m buffer zone if the head deposit were to be worked in the absence of the proposed development. A further 0.5ha is indirectly sterilised by residential property beyond Swanstree Avenue to the north.

Consequently, the safeguarded mineral has no economic value as the deposit is too small to be worth working so there is no realistic possibility that the mineral would ever be extracted. The proposed development is therefore compatible with criterion 1 of the mineral safeguarding policy because it has no value and criterion 2 because its extraction would not be commercially viable or practicable.

1 INTRODUCTION

- 1.1 This report has been prepared in accordance with instructions from Gladman Developments Ltd to prepare a Mineral Resource Assessment report in support of a planning application for proposed development on land off Swanstree Avenue, Sittingbourne, approximately 25 km to the west of Canterbury. The site boundary is shown edged red on the attached plan at **Appendix 1**. The site comprises approximately 5.7 ha of agricultural land and the site is bounded by Swanstree Avenue and residential properties to the north, agricultural land to the east and south, and by Highsted Road and residential properties to the west.

2 SITE GEOLOGY

- 2.1 Geologically, a distinction is made between “superficial deposits” and “solid geology”. Superficial deposits such as sand and gravel are found at, or close to, the surface. The solid bedrock beneath the superficial deposits is called the “solid geology”.

Superficial deposits

- 2.2 The British Geological Survey (BGS) online map shows that the western part of the site is covered in a head deposit, as shown on drawing ST18667-001. Head is a mixture of poorly sorted clay and silt. It may contain brickearth which is a superficial periglacial loess that is used in the brickmaking industry. The head deposit has been designated as a safeguarded mineral for brickearth by Kent County Council.
- 2.3 Two soakaway pits and one borehole have been constructed on the safeguarded mineral resource at the locations shown on drawing no. ST18667-001 and the relevant logs are attached at Appendix 3. They show that the thickness of the head deposit is in the range 2.3m to 3.2m with average of 2.7m.
- 2.4 The area of the safeguarded mineral is approximately 2.1 ha. Proposals for mineral extraction normally allow for a 100m buffer zone from residential property. A 100m buffer zone around the large residential property associated with Chilton Manor Farm is shown on drawing no ST18667-001. If commercial mineral extraction were to be

considered in the absence of the proposed development, the buffer zone around that property would sterilise approximately 1 ha of the 2.1 ha of safeguarded mineral. A buffer zone of 100m from the residential properties north of Swanstree Avenue would sterilise an additional area of approximately 0.5 ha.

Solid Geology

- 2.5 The British Geological Survey (BGS) online map indicates that the site is underlain by two separate geological formations, namely the Thanet Formation and the Seaford Chalk Formation. The Thanet Formation comprises sand, silt and clay and is not a safeguarded mineral resource. The Seaford Chalk Formation comprises chalk and is not a safeguarded mineral resource.

3 MINERAL SAFEGUARDING POLICY

- 3.1 The relevant mineral planning policies are contained in the Kent Minerals and Waste Local Plan, which was adopted in September 2020 and is due for review by 2030. The Minerals and Waste Local Plan sets out the strategy and planning policies for mineral extraction, importation and recycling, and the waste management of all waste streams that are generated in Kent.
- 3.2 “Policy DM 7– Safeguarding Mineral Resources”, which is attached in full at **Appendix 2**, states that planning permission will only be granted for non-mineral development that is incompatible with mineral safeguarding, where it is demonstrated that either:
1. the mineral is not of economic value or does not exist; or
 2. that extraction of the mineral would not be viable or practicable; or
 3. the mineral can be extracted satisfactorily, having regard to Policy DM9, prior to the non-minerals development taking place without adversely affecting the viability or deliverability of the non-minerals development; or
 4. the incompatible development is of a temporary nature that can be completed and the site returned to a condition that does not prevent mineral extraction within the timescale that the mineral is likely to be needed; or

5. material considerations indicate that the need for the development overrides the presumption for mineral sterilisation such that the sterilisation of the mineral can be permitted following the exploration of opportunities for prior extraction; or
6. it constitutes development that is exempt from mineral safeguarding policy, namely householder applications, infill development of a minor nature in existing built up areas, advertisement applications, reserved matters applications, minor extensions and changes of use of buildings, minor works, non-material amendments to current planning permissions; or
7. it constitutes development on a site allocated in the adopted development plan where consideration of the above factors (1-6) concluded that mineral resources will not be needlessly sterilised.

Compliance with adopted safeguarding policy

Criterion 1

- 3.3 The safeguarded mineral on the proposed development site is brickearth, which can be found within the head deposit. Brickearth is a compacted silt/clay which was deposited during the Quaternary period and is used in the brick making industry in Kent.
- 3.4 The western part of the site is covered by a mineral safeguarding area which is approximately 2.1 ha in extent. However, approximately 1 ha of the safeguarded mineral has already been indirectly sterilised by the 100m buffer zone around Chilton Manor Farm which would be applied if mineral extraction were to be considered in the absence of the proposed housing development, and 0.5 ha of additional sterilisation in respect of Swanstree Avenue. That would leave 0.5 ha of unconstrained safeguarded mineral. Taking into account the cost of preparing a mineral planning application, the haulage costs to a remote brickworks, and that it has to meet exacting chemical specifications, it is highly unlikely that a head deposit with an unconstrained area of 1 ha or less would be considered worthwhile to extract. It is therefore reasonable to conclude that, in the absence of the proposed development, the head

deposit on this site is not of economic value. The site therefore meets the requirements of criterion 1 of Policy DM 7 to be acceptable development in a mineral safeguarding area.

Criterion 2

- 3.5 Criterion 2 relates to cases where extraction of the mineral would not be viable or practicable. The viability of mineral extraction is unavoidably linked to the quantity of mineral concerned because mineral extraction incurs fixed costs as well as variable costs, so small quantities of mineral are disproportionately more expensive to work as the fixed costs are borne by fewer tonnes. The quantity of unconstrained mineral in the safeguarding area is insignificant in the context of mineral extraction and is too small for extraction to be viable. The site therefore meets the requirements of criterion 2 of Policy DM 7 to be acceptable in a mineral safeguarding area.

4 CONCLUSION

- 4.1 Part of the proposed development is in a mineral safeguarding area for brickearth extending to 2.1 ha in area. However, approximately 70% of the safeguarded mineral resource has already been indirectly sterilised by the residential properties at Chilton Manor Farm and Swanstree Avenue. As a consequence of that, the unconstrained area of safeguarded mineral is approximately 0.5 ha which is much too small to be viable for extraction. The mineral is therefore of no value as there is no realistic prospect that it would ever be worked in the absence of the proposed housing development. The site therefore meets the requirements of criterion 1 and criterion 2 of the mineral safeguarding Policy DM 7, so the proposed development site meets the criteria to be acceptable in a Mineral Safeguarding Area.

APPENDICES

Appendix 1: Site Location Plan



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Rev	Date	By	Revision notes
*	*	*	*

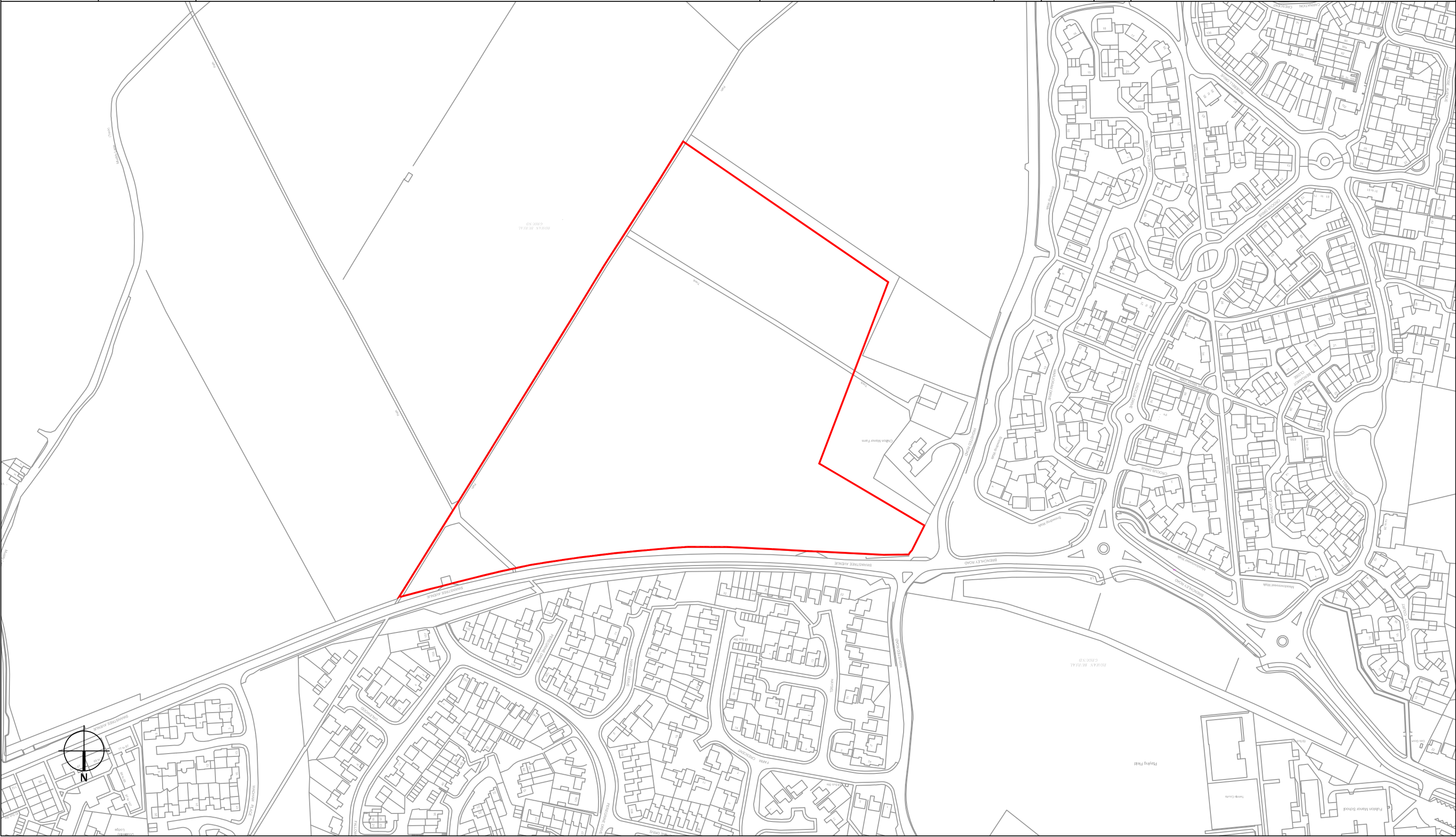
Application Boundary Plan

Sittingbourne, Swanstree Avenue

Drawing

21-104

Drawn by	Issue date	Title checked by	Title checked date	Highways checked by	Highways checked date	Topo checked by	Topo checked date
Jornes	1st Feb 2021	CHECKED BY	CHECKED DATE	CHECKED BY	CHECKED DATE	CHECKED BY	CHECKED DATE



Appendix 2: Policy DM7 Safeguarding Mineral Resources

Policy DM 7

Safeguarding Mineral Resources

Planning permission will only be granted for non-mineral development that is incompatible with minerals safeguarding,⁽¹⁰⁶⁾ where it is demonstrated that either:

1. the mineral is not of economic value or does not exist; or
2. that extraction of the mineral would not be viable or practicable; or
3. the mineral can be extracted satisfactorily, having regard to Policy DM9, prior to the non-minerals development taking place without adversely affecting the viability or deliverability of the non-minerals development; or
4. the incompatible development is of a temporary nature that can be completed and the site returned to a condition that does not prevent mineral extraction within the timescale that the mineral is likely to be needed; or
5. material considerations indicate that the need for the development overrides the presumption for mineral safeguarding such that sterilisation of the mineral can be permitted following the exploration of opportunities for prior extraction; or
6. it constitutes development that is exempt from mineral safeguarding policy, namely householder applications, infill development of a minor nature in existing built up areas, advertisement applications, reserved matters applications, minor extensions and changes of use of buildings, minor works, non-material amendments to current planning permissions; or
7. it constitutes development on a site allocated in the adopted development plan where consideration of the above factors (1-6) concluded that mineral resources will not be needlessly sterilised.

Further guidance on the application of this policy is included in a Supplementary Planning Document.

7.6 Policy DM 8: Safeguarding Minerals Management, Transportation, Production & Waste Management Facilities

7.6.1 It is essential to the delivery of this Plan's minerals and waste strategy that existing facilities⁽¹⁰⁷⁾ used for the management of minerals (including wharves and rail depots) and waste are safeguarded for the future, in order to enable them to continue to be used to produce and transport the minerals needed by society and manage its waste.

106 In this context 'mineral safeguarding' should be taken to mean safeguarding certain minerals identified within a Mineral Safeguarding Area shown in the policies maps in Chapter 9 and allocations in the Minerals Sites Plan.

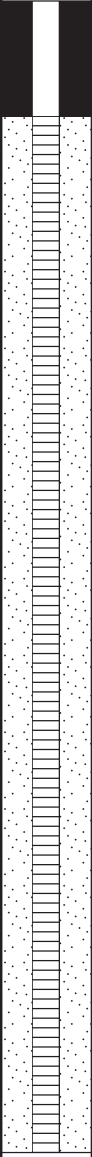






107 'Existing facilities' are taken as those have permanent planning permission for minerals and waste uses.

Appendix 3: Site investigation logs



Enzygo Ltd
Tel: 01454 269237
Fax: 01454 269760
Web: www.enzygo.com

Site Sittingbourne				BH1
Job No SHF.1132.260	Dates Start 26-07-21 Finish 26-07-21	Ground Level (m)	Co-Ordinates	
Client Gladman Developments				Sheet 1 of 1

Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
					0.30			Brown sandy TOPSOIL. Sand is fine to coarse	0
								Very soft brown slightly silty sandy CLAY. Sand is fine to medium. [Head]	1
		1.20	SPT	N=6					2
		2.00	SPT	N=6					3
		3.00	SPT	N=4					4
					3.50			Medium dense grey and brown silty fine to medium SAND. [Head]	5
		4.00	SPT	N=13					6
					4.50			White Structureless CHALK composed of slightly sandy silty, angular to subrounded GRAVEL. Clasts are very weak and weak, low to medium density, with occasional black specks. Cream matrix. Occasional subangular to subrounded, fine to coarse gravels of flint. (Dc) [Seaford Chalk Formation]	7
		5.00	SPT	N=10					8
		6.50	SPT	N=17					9
		8.00	SPT	N=11					10
		9.50	SPT	N=25					11
					10.00			Borehole completed at 10.00m.	12
					{10.50}				13

General Remarks				
1. Hand excavated inspection pit from ground level to 1.20m begl. 2. Densities and soil consistencies are based on insitu tests. 3. No visual or olfactory evidence of contamination observed. 4. Groundwater was not encountered. 5. SPT - Standard Penetration Test; N - Number of blows. 6. Install details: 50mm plain pipe concrete flush cover from 0.00m begl to 0.10m begl; Bentonite seal between 0.10m begl to 1.00m begl; 50mm slotted pipe with gravel between 1.00m begl to 10.00m begl.				

Groundwater	Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)
All dimensions in metres Scale 1:65.625				
				Logged By NR

10 ENZYGO WS LOG GINT STD AGS 3.1 ENZYGO.GPJ SHF.1132.260 - SITTINGBOURNE.GPJ 29/7/21



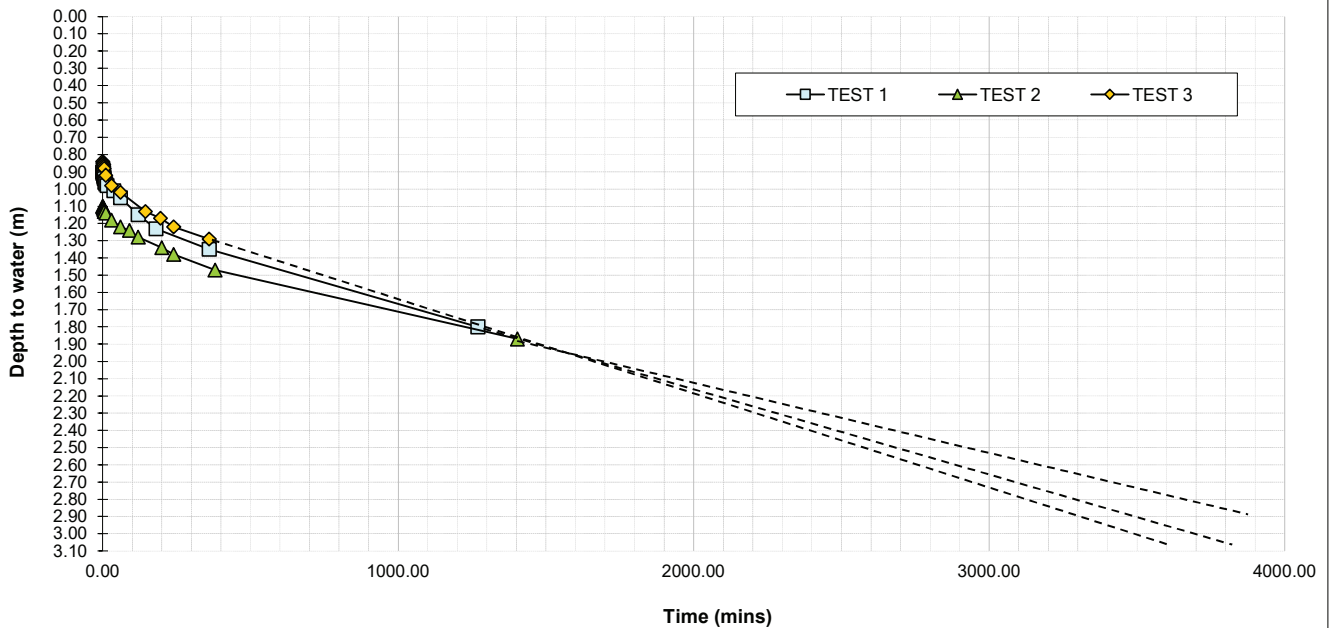
Site..... Swanstree Avenue, Sittin
Job Number..... SHF.1132.260
Date of Test..... 28/07/2021

Trial Pit Number..... SA1
Length..... 2.20 m
Width..... 0.60 m
Depth..... 3.10 m
Groundwater Level..... Dry m

SOIL INFILTRATION RATE TEST
See B.R.E. Digest 365, 1991, Soakaway Design.

Remarks -	TEST 1		TEST 2		TEST 3	
	Time(min)	Depth to Water (m)	Time(min)	Depth to Water (m)	Time(min)	Depth to Water (m)
0.00 - 0.40	0.00	0.90	0.00	1.10	0.00	0.84
Brown silty sandy TOPSOIL. Sand is fine to coarse.	1.00	0.91	1.00	1.10	1.00	0.85
0.40 - 2.10	2.00	0.91	2.00	1.11	2.00	0.85
Firm brown silty slightly sandy CLAY. Sand is fine. [Head]	3.00	0.92	3.00	1.11	3.00	0.86
2.10 - 2.70	4.00	0.93	4.00	1.12	4.00	0.87
Brown silty SAND & GRAVEL. Gravel is angular to subrounded, fine to coarse flint. Sand is fine to coarse. [Head]	5.00	0.94	5.00	1.13	5.00	0.88
2.70 - 3.10	7.00	0.96	10.00	1.14	10.00	0.92
Grey silty fine to medium SAND.	10.00	0.97	30.00	1.18	30.00	0.98
Stable side walls.	15.00	0.98	60.00	1.22	60.00	1.02
	37.00	1.01	90.00	1.24	145.00	1.13
	60.00	1.05	120.00	1.28	195.00	1.17
	120.00	1.15	200.00	1.34	240.00	1.22
	180.00	1.23	240.00	1.38	360.00	1.29
	360.00	1.35	380.00	1.47		
	1270.00	1.80	1403.00	1.87		
			0.00	0.00		
Effective Storage Depth m	2.20		2.00		2.26	
75% Effective Storage Depth m	1.65		1.50		1.70	
(i.e. depth below GL) m	1.45		1.60		1.41	
25% Effective Storage Depth m	0.55		0.50		0.57	
(i.e. depth below GL) m	2.55		2.60		2.54	
Effective Storage Depth 75%-25% m	1.10		1.00		1.13	
Time to fall to 75% effective depth mins	550.00		700.00		600.00	
Time to fall to 25% effective depth mins	2800.00		3150.00		2650.00	
V (75%-25%) m3	1.45		1.32		1.49	
a (50%) m2	7.48		6.92		7.65	
t (75%-25%) mins	2250.00		2450.00		2050.00	
SOIL INFILTRATION RATE m/s	1.44E-06		1.30E-06		1.59E-06	

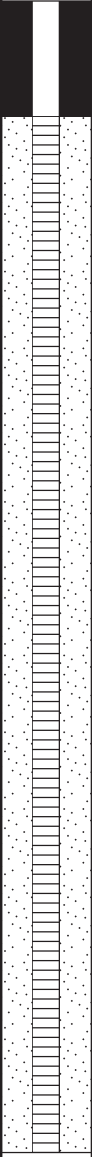






DESIGN SOIL INFILTRATION RATE, f **1.30E-06** m/s





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Site Sittingbourne				BH2
Job No SHF.1132.260	Dates Start 27-07-21 Finish 27-07-21	Ground Level (m)	Co-Ordinates	
Client Gladman Developments				Sheet 1 of 1

Well	Water Levels	Samples & In Situ Testing			Depth (m)	Level (mAD)	Legend	Stratum Description	
		Depth (m)	No/Type	Results					
					0.80			Brown sandy TOPSOIL. Sand is fine to coarse	0
								Soft brown slightly silty sandy CLAY. Sand is fine to medium. [Head]	1
		1.50	SPT	N=20	1.50			Medium dense brown silty SAND and GRAVEL. Gravel is angular to subrounded, fine to coarse flint. Sand is fine to coarse. [Head]	2
					2.50				
		3.00	SPT	N=10				Medium dense grey and brown silty fine to medium SAND. [Head]	3
									4
		4.50	SPT	N=14					5
									6
		6.50	SPT	N=15					7
									8
		8.00	SPT	N=12					9
					9.20				
		9.50	SPT	N=8				White Structureless CHALK composed of slightly sandy silty, angular to subrounded GRAVEL. Clasts are very weak and weak, low to medium density, with occasional black specks. Cream matrix. Occasional subangular to subrounded, fine to coarse gravels of flint. (Dc) [Seaford Chalk Formation]	10
					10.00				
					{10.50}			Borehole completed at 10.00m.	

General Remarks

1. Hand excavated inspection pit from ground level to 1.20m begl.
2. Densities and soil consistencies are based on insitu tests.
3. No visual or olfactory evidence of contamination observed.
4. Groundwater was not encountered.
5. SPT - Standard Penetration Test; N - Number of blows.
6. Install details: 50mm plain pipe concrete flush cover from 0.00m begl to 0.10m begl; Bentonite seal between 0.10m begl to 1.00m begl; 50mm slotted pipe with gravel between 1.00m begl to 10.00m begl.

Groundwater	Date	Strike Depth (m)	Casing Depth (m)	Depth After Observation (m)
All dimensions in metres Scale 1:65.625				
				Logged By NR

DRAWINGS



GLADMAN DEVELOPMENTS	ST18667-001	1:2,500 @ A4	20/09/2021
LAND OFF SWANSTREE AVENUE, SITTINGBOURNE	BVC	SDB	SDB
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