

BRIGHT PLAN CIVILS

Surface Water Drainage Design Summary and Calculations

Project name:	Land off Burndell Road, Yapton
Project number:	D1906
Client:	Driftstone Developments Ltd
Prepared by and date:	Dan Lytton, 4 th March 2021
Site address:	Land off Burndell Road, Yapton, West Sussex BN18 0GB
Local Authority:	Arun District Council
Lead Local Flood Authority:	West Sussex County Council
Site area:	13,443m ² (1.34Ha)
Geology:	WS1 – Soft to firm CLAY up to 2.00m below ground level, becoming very silty/fine sandy with gravel of flint and chalk (below 2.30m bgl). Band of very fine sandy SILT (4.40m to 4.60m bgl). RIVER TERRACE DEPOSITS. WS2 – CLAY up to 2.00m bgl (RTD), SAND to 2.80m bgl (RTD), SILT of CHALK from 2.80m bgl to 5.00m bgl (LEWES NODULAR CHALK FORMATION). WS3 – Soft to firm CLAY up to 2.00m (RTD), SAND to 3.80m bgl (RTD) and sandy, gravelly CLAY to 4.00m bgl (RTD). WS4 – Silty, sandy CLAY to 2.00m bgl (RTD), very silty very clayey SAND to 2.50m bgl (RTD), GRAVEL to 3.10m bgl (RTD), SILT of CHALK to 4.00m bgl (LEWES NODULAR CHALK FORMATION). WS5 – Silty, sandy CLAY to 2.00m bgl (RTD), Very loose very silty very clayey SAND to 3.50m bgl (RTD), SAND to 4.00m bgl (RTD). WS6 – Silty, sandy CLAY to 2.00m bgl (RTD), Very loose very silty very clayey SAND to 3.80m bgl (RTD), SILT of CHALK to 4.00m bgl (LEWES NODULAR CHALK FORMATION).
Greenfield run-off rate (Qbar):	4.02l/s
Groundwater depth:	Investigation from November 2019 to March 2020, peaking at: WS1 - 0.50m bgl WS2 – 1.20m bgl WS3 – 0.45m bgl WS4 – 0.46m bgl WS5 – 0.29m bgl WS6 – 0.55m bgl
Soil infiltration rate:	Infiltration not deemed suitable given the presence of high groundwater.
Nearby watercourse:	Ordinary watercourse located on the north-western/western boundary, as well as to the south-east of site access
Nearby surface water sewer:	No
Proposed method of disposal and reason:	To existing watercourse due to the presence of high groundwater
Design storms considered:	1:100 year

Climate change:	40%
Urban creep:	10%
Proposed catchment area:	4,908m ² (excludes free-draining gravel area @ 859m ²)
Proposed discharge Rate:	4.00l/s
Flow control method	Induced vortex e.g. Hydrobrake
Volume of storage provided and method:	76m³ cellular tank (200m², 400mm deep, 95% voids) 225m³ permeable paving (1,561m², 450mm sub-base, 32% voids)
Offsite works:	Existing ditch downstream of proposed discharge points to be cleared to ensure both are free flowing, without obstructions. Riparian ownership responsibilities to be undertaken to ensure long-term effectiveness.

Foul Water Drainage Design Summary

Number of properties:	23 residential dwellings
Point of discharge:	Existing foul water manhole (7701) located in Burndell Road
Method of discharge:	Pumped
Rate of discharge:	3.5l/s (minimum self-cleansing velocity, subject to confirmation from pump specialist)
24hr emergency storage:	19.8m ³ (at 150l per person, per day)
Off-site works:	Connection to existing sewer in Burndell Road subject to S106 approval from Southern Water.

Flood Risk Summary

Flood zone:	Flood Zone 1 (Figure 1)
Flood risk from rivers/the sea:	'Very Low' (Figure 2)
Flood risk from surface water:	'Very Low' to 'Medium' (Figure 3)
Anticipated depths of surface water flooding:	'Medium' Risk scenario: Below 300mm (Figure 4) 'Low Risk' scenario: Below 300mm to 300-900mm (Figure 5)
Flood risk from reservoirs:	None (Figure 6)
Flood risk from groundwater;	High– peaking at 0.29m below ground level
Flood risk from sewers:	TBC
Other:	Site is located within the 'Lidsey Foul Water Treatment Catchment Area'

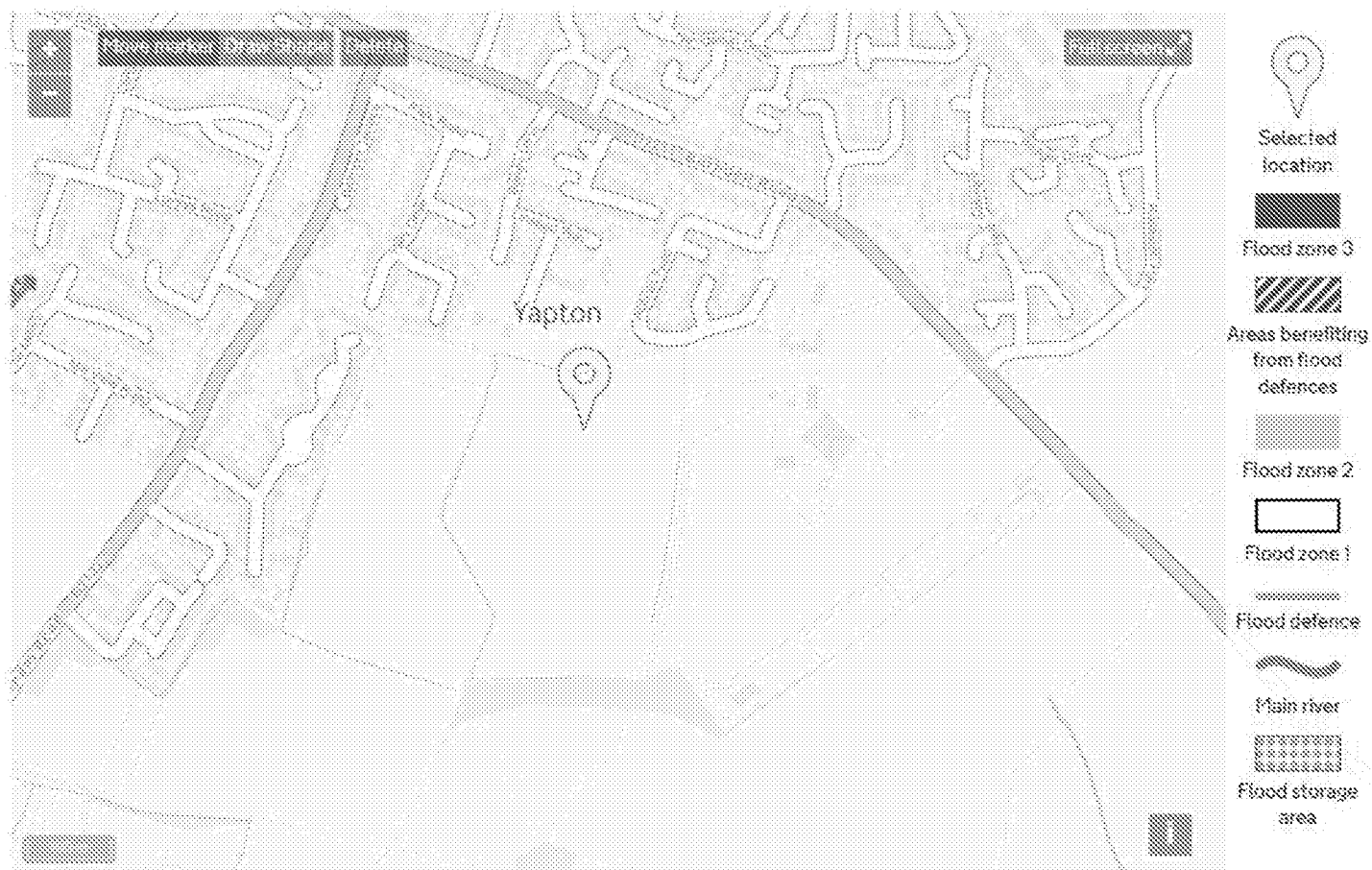


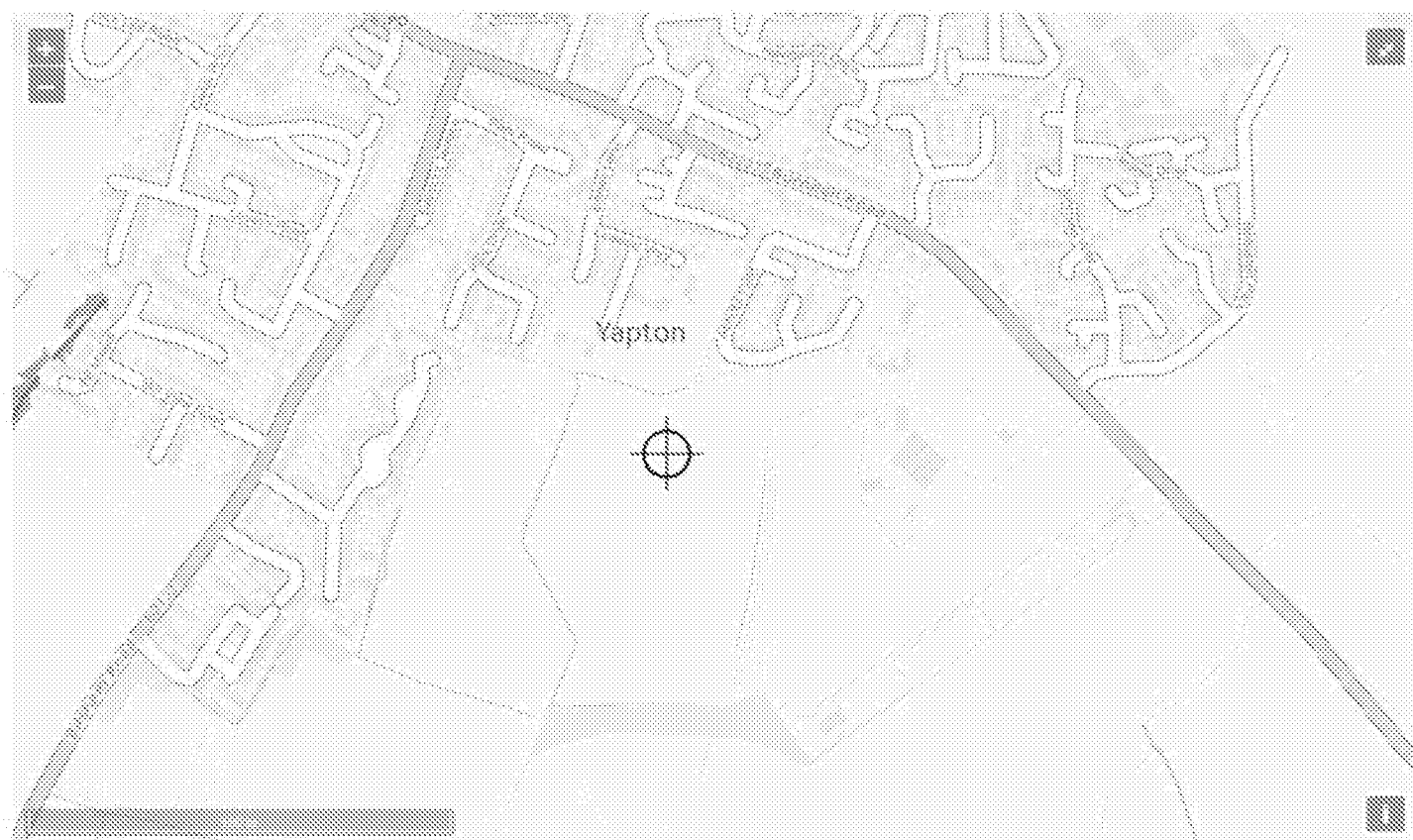
Figure 1 – Flood Maps for Planning

Flood risk

Extent of flooding

Location

Enter a place or postcode



Extent of flooding from rivers or the sea

High
 Medium
 Low
 Very low

 Location you selected

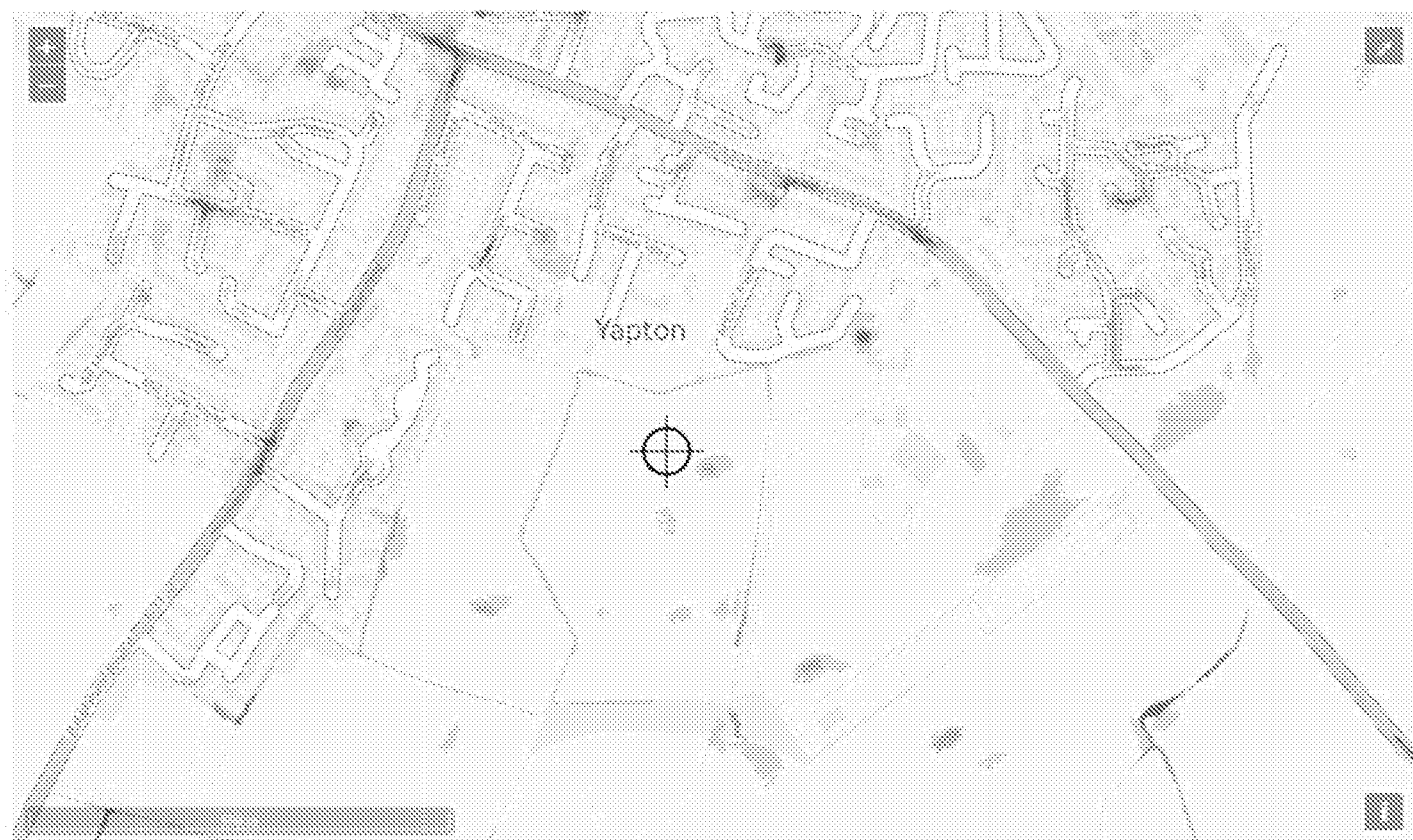
Figure 2 – Long-Term Flood Risk Map; Rivers or the Sea

Flood risk

Extent of flooding

Location

Enter a place or postcode



Extent of flooding from surface water

High
 Medium
 Low
 Very low

+
 Location you selected

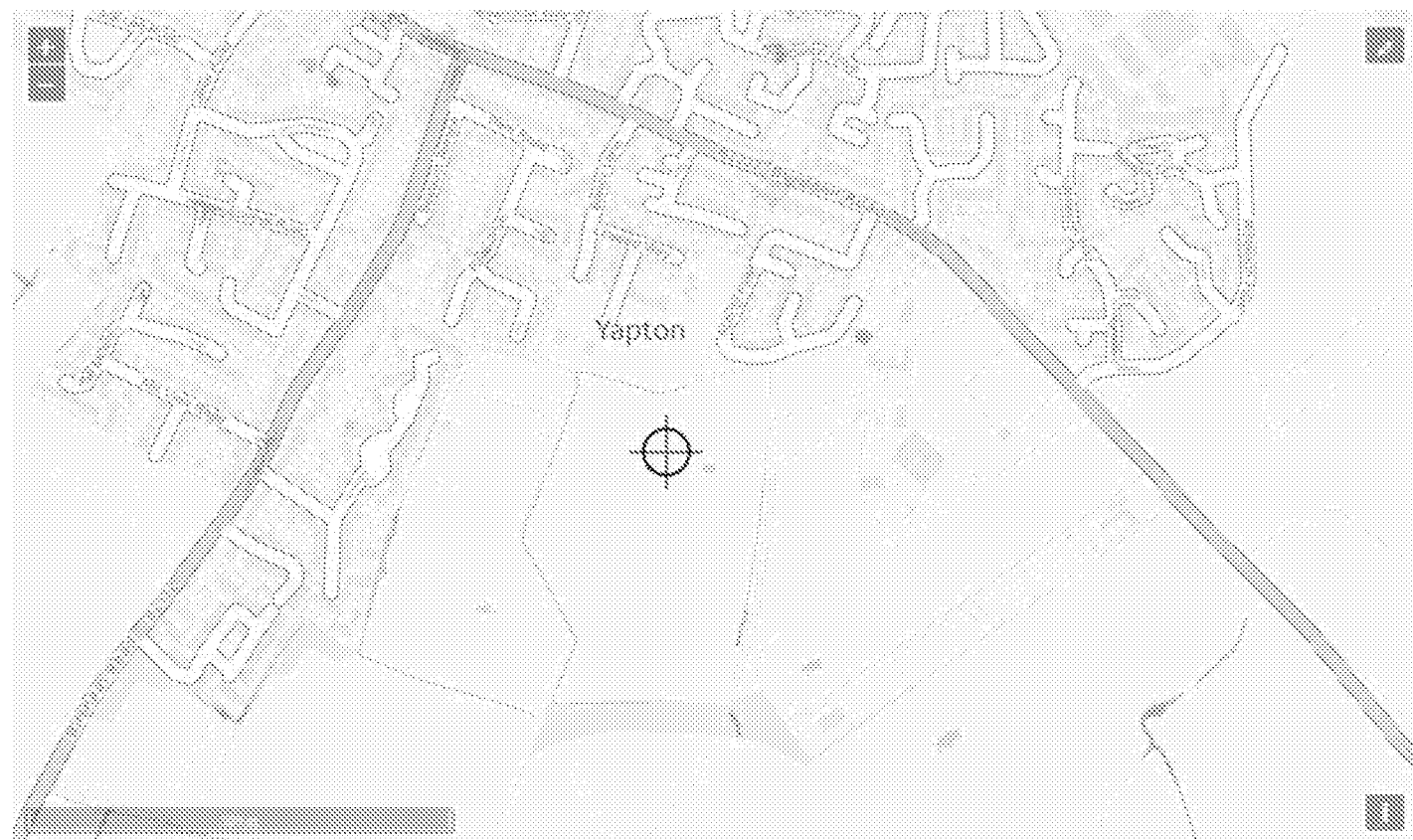
Figure 3 – Long-Term Flood Risk Map; Surface Water

Flood risk

Medium risk: depth

Location

Enter a place or postcode



Surface water flood risk: water depth in a medium risk scenario

Flood depth (millimetres)

Over 900mm
 300 to 900mm
 Below 300mm
 Location you selected

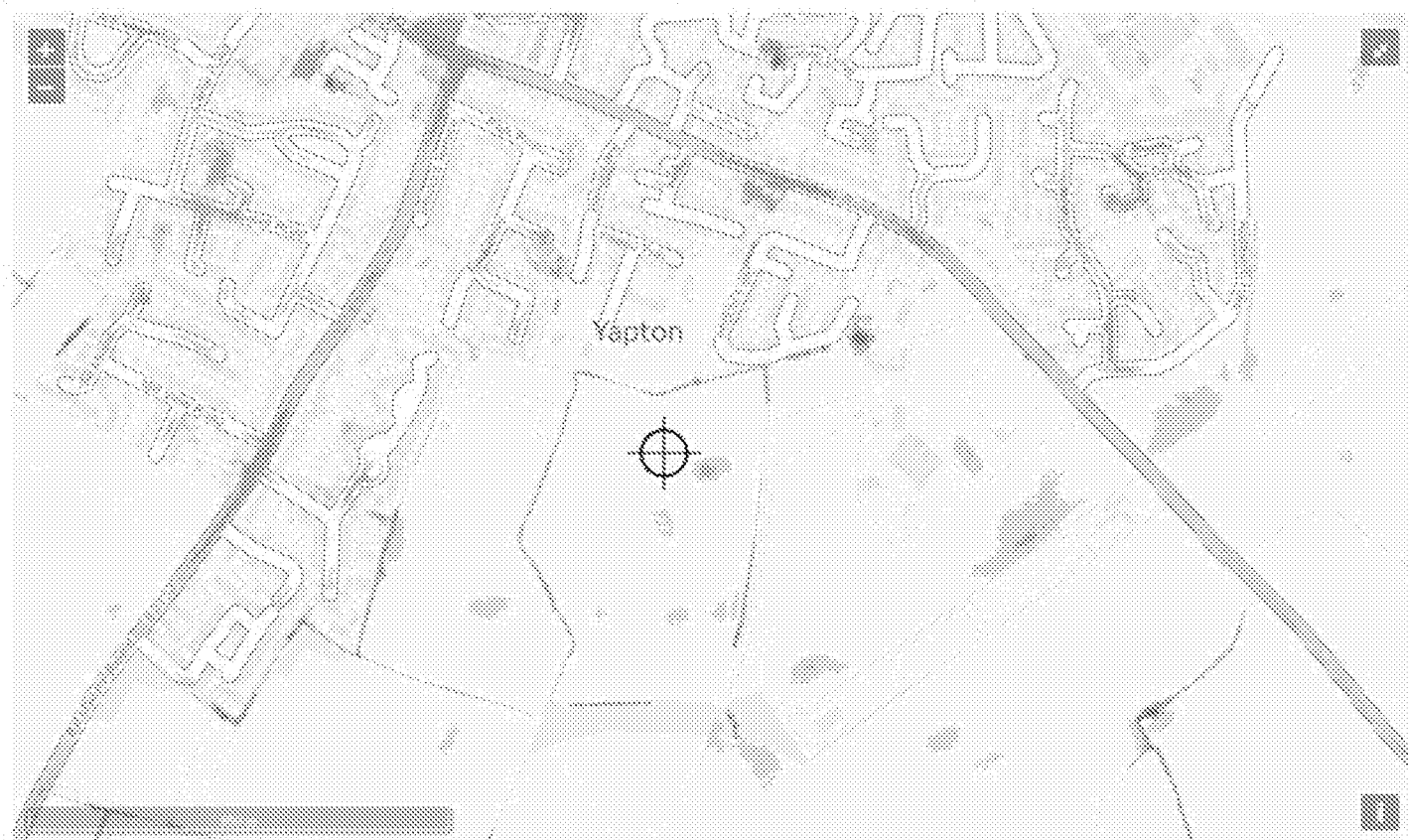
Figure 4 – Long-Term Flood Risk Map; Surface Water – Medium Risk

Flood risk

Low risk: depth

Location

Enter a place or postcode



Surface water flood risk: water depth in a low risk scenario

Flood depth (millimetres)

 Over 900mm
  300 to 900mm
  Below 300mm
  Location you selected

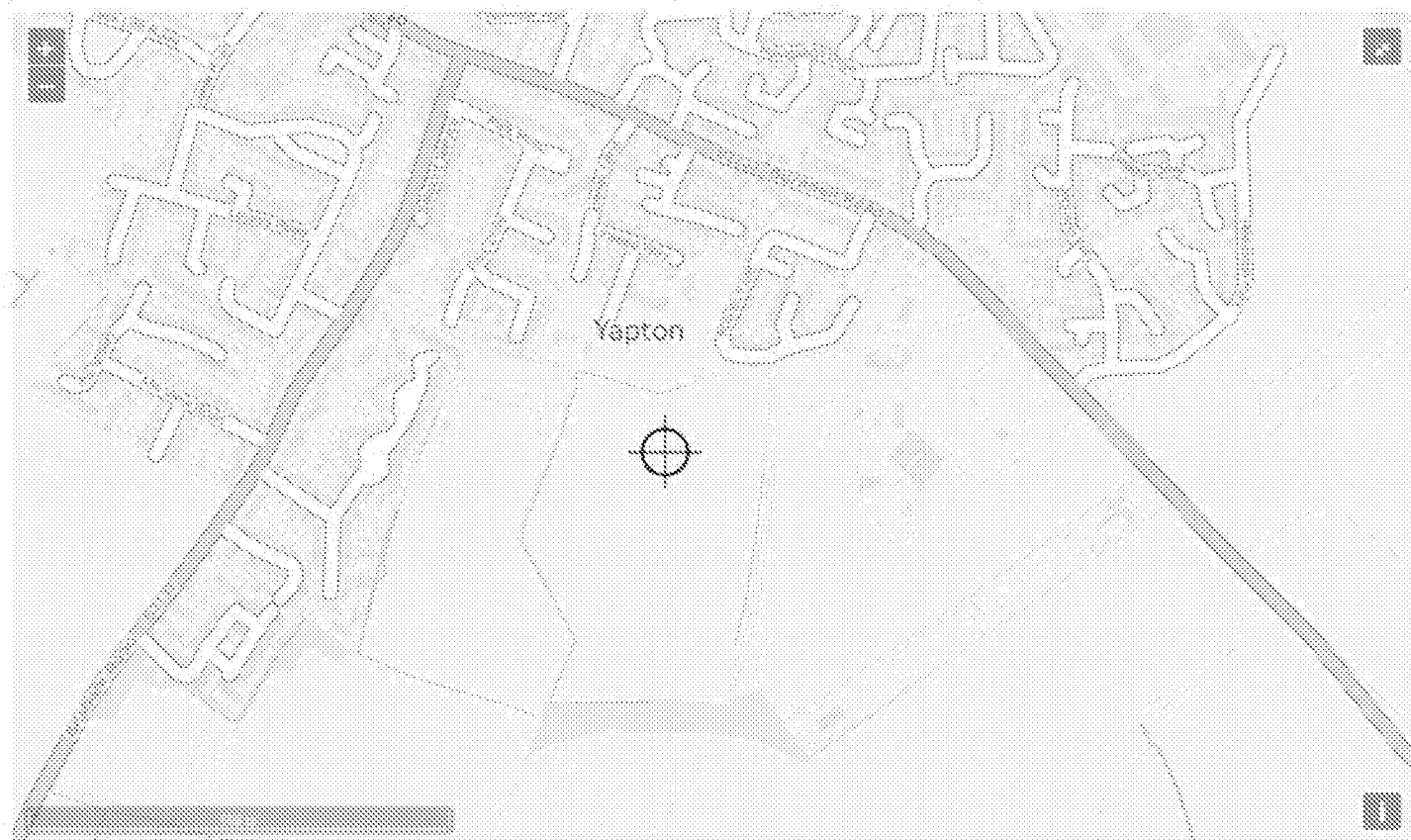
Figure 5 – Long-Term Flood Risk Map; Surface Water – Low Risk

Flood risk

Extent of flooding

Location

Enter a place or postcode



Extent of flooding from reservoirs

● Maximum extent of flooding ● Location you selected

Figure 6 – Long-Term Flood Risk Map; Surface Water – Reservoirs



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4. Any information given regarding existing underground services is given in good faith after consultation with the relevant authority, however accuracy is not certain.

-SITE LOCATION LEGEND-

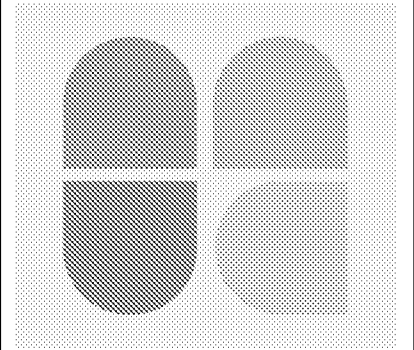
Site Boundary - 13,443 m² (1.34 Ha.)
Site Grid Reference: SU 98540 02689

PLANNING

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Rev	Amendments	Date
-	-	-



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Drawing Status **PLANNING**

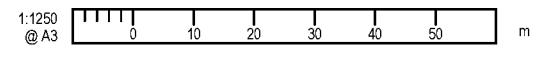
Client **Driftstone Developments Ltd**

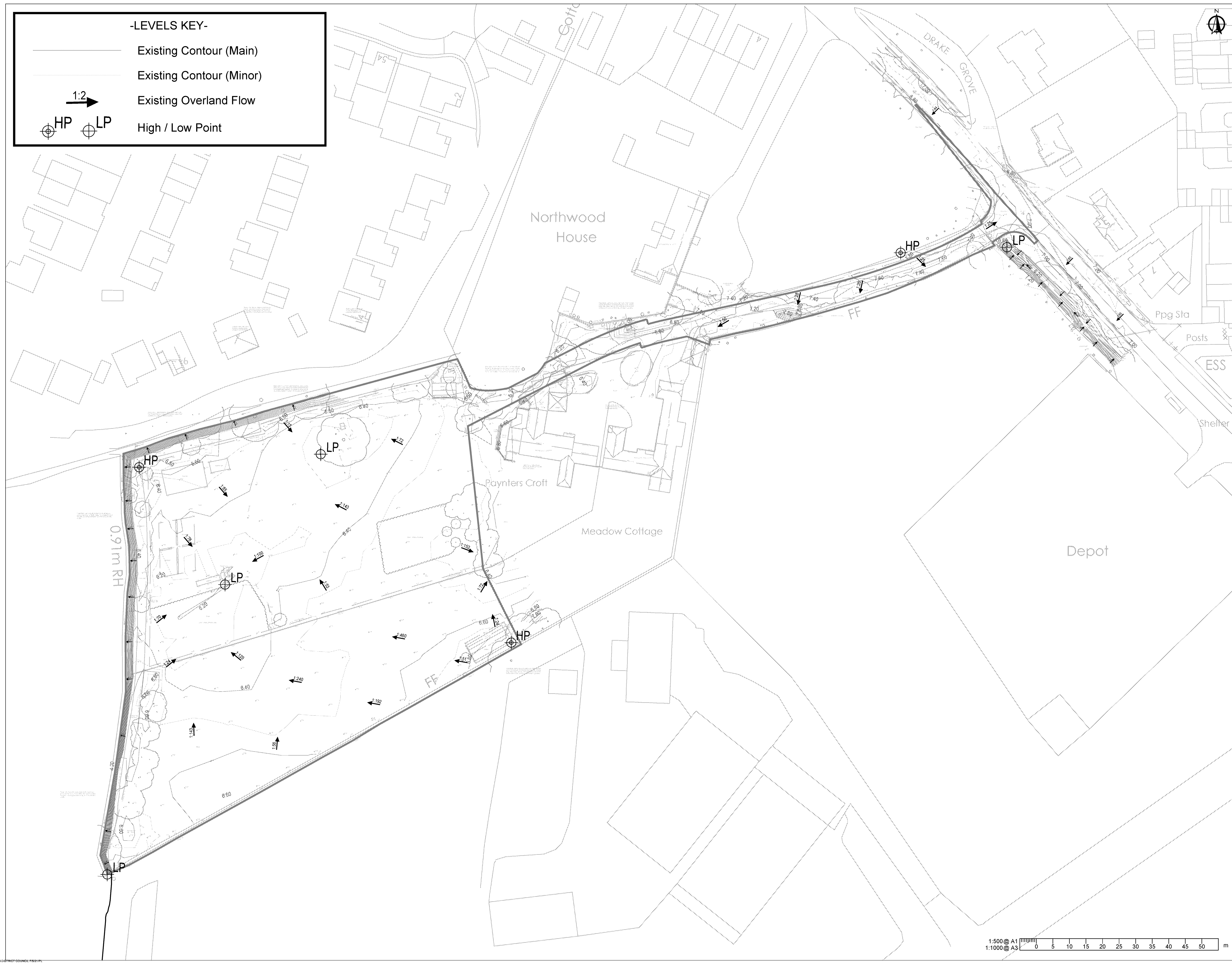
Project **Site Location Plan**

Drawing Title **Land off Burndell Road,
Yapton, West Sussex BN18 0GB**

Scale 1:1250	Date Oct 2020	Drawn By DJL	Checked By MJA
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Drawing No. D1906-100	Rev. -
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- LEVELS KEY-**
- Existing Contour (Main)
 - Existing Contour (Minor)
 - Existing Overland Flow
 - High / Low Point

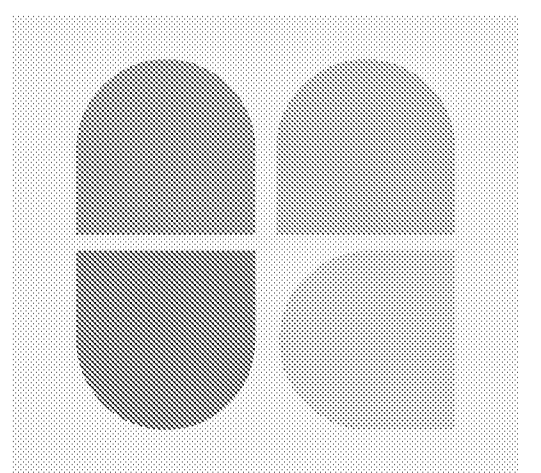


- NOTES**
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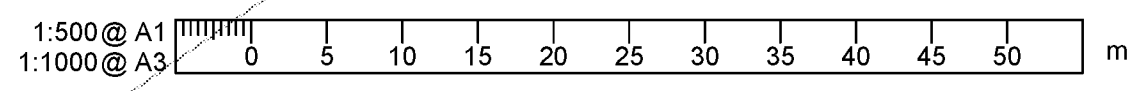
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Original Issue	28/10/2020
Rev	Amendments
	Date



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Drawing Status		PLANNING	
Client Driftstone Developments Ltd			
Project Land off Burndell Road Yapton, West Sussex BN18 0GB			
Drawing Title Existing Topographical Survey & Flow Routes			
Scale 1:500	Date Oct 2020	Drawn By DJL	Checked By MJA
Drawing No. D1906-200			Rev. -

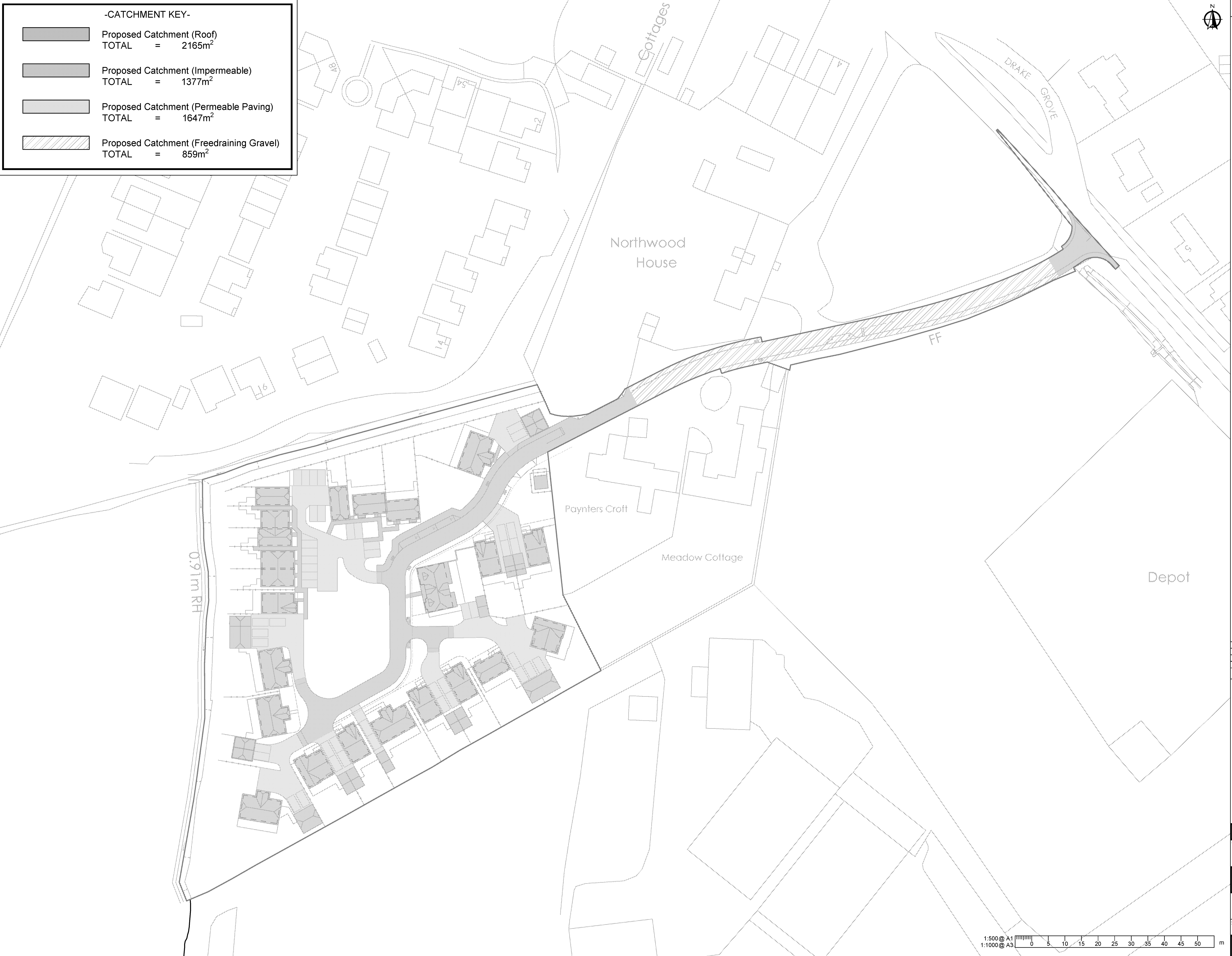


Proposed Catchment (Roof)
TOTAL = 2165m²

Proposed Catchment (Impermeable)
TOTAL = 1377m²

Proposed Catchment (Permeable Paving)
TOTAL = 1647m²

Proposed Catchment (Freedraining Gravel)
TOTAL = 859m²



NOTES

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C	Revised Issue	04/03/2021
B	Revised Issue	14/01/2021
A	Revised Issue	05/11/2020
-	Original Issue	28/10/2020

Rev	Amendments	Date

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Drawing Status

PLANNING

Client

Driftstone Developments Ltd

Project

Land off Burndell Road
Yapton, West Sussex BN18 0GB

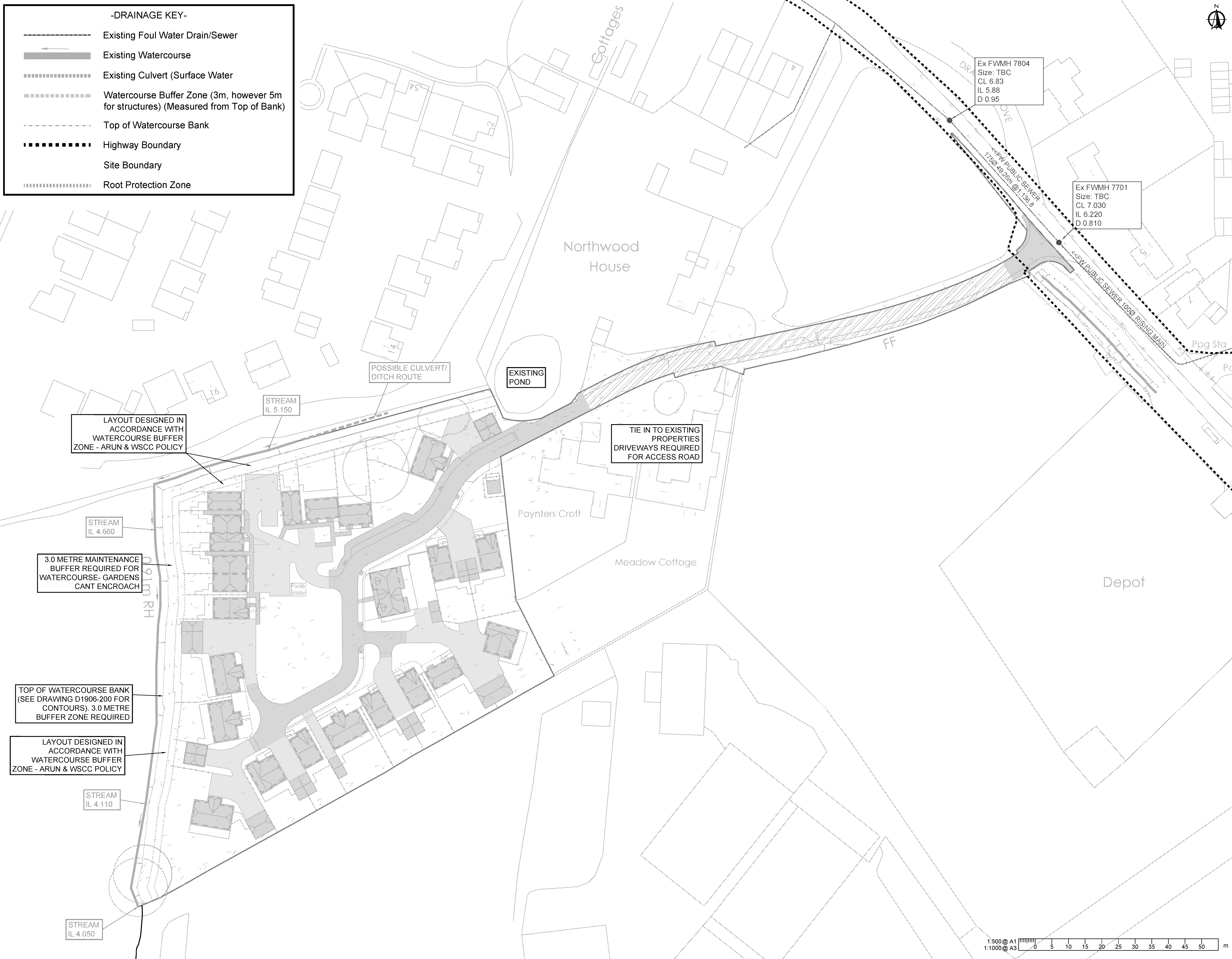
Drawing Title

Impermeable Areas

Scale	Date	Drawn By	Checked By
1:500	Mar 2021	DJL	MJA

Drawing No.	Rev.
D1906-300	C

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Drawing Status		PLANNING	
Client		Driftstone Developments Ltd	
Project		Land off Burndell Road Yapton, West Sussex BN18 0GB	
Drawing Title		Existing Constraints Appraisal	
Scale	Date	Drawn By	Checked By
1:500	Mar 2021	DJL	MJA
Drawing No.			Rev.
D1906-400			C

-LEVELS KEY-

- +16.650 Proposed Spot Level
- FFL 1000 Proposed Finished Floor Level
- Overland Flow Arrow
- LP Ultimate Low Point

-DRAINAGE KEY-

- Existing Surface Water Drain/Sewer
- Proposed Surface Water Drain/Sewer
- Ordinary Watercourse
- Permeable Pavement (infiltration or Tanked)
- Existing Foul Water Drain/Sewer
- Foul Water (Private Drain/Public Sewer)
- Proposed FW Manhole
- Ordinary Watercourse 3m & 5m Buffers
- 450sq Storm Road Gully (Single/Double)
- Root Protection Zone (Refer to Arb Report)

EXISTING DRAINAGE ON SITE UNKNOWN.

THE CONTRACTOR IS RESPONSIBLE FOR DEALING WITH THE EXISTING DRAINAGE INFRASTRUCTURE AND REPORTING CONNECTIVITY & CONDITION TO ENGINEER.

BUILDING FOUNDATION & MAIN SERVICE CORRIDOR 'LINE & LEVEL' SHALL BE DESIGNED TO SUIT THE DRAINAGE STRATEGY.

Refer to Architects drawings for further information on plot internal detailing, service points and threshold drainage details. Architect to finalise all drainage connection points & threshold drainage requirements

-SURFACE WATER STRATEGY-

- Surface water disposal should be managed in view of the SuDS hierarchy:
 - Infiltration
 - Watercourse
 - Public Surface Water Sewer(s)
- Site-specific geotechnical investigation found high groundwater across the site, limiting the use of infiltration features or deep SuDS. It is however proposed for existing driveway to remain as free-draining gravel structure given the higher levels and soakage rates of ~10%.
- It is proposed to use permeable paving on the driveways and minor roads, however given restrictions with high groundwater it is considered that this will need to be tanked. The proposed drainage system will discharge into a 200sqm, 0.4m deep geocellular tank, with a controlled discharge rate of 4.0lit/s to the watercourse. The tank will also need to be lined, however the invert level has been set above maximum recorded groundwater levels.
- The drainage strategy has been designed for up to a 1-in-100 year storm event, with the allowance of 40% for climate change and 10% urban creep.
- Finished floor levels are to be set above existing ground levels, to limit risk of internal flooding from surface water or drainage exceedance event. Site level raising will also allow SuDS to be above groundwater levels.
- It is proposed that adjacent to the highway, where the entrance road falls away from the rest of the site, the runoff is captured by road gullies and oversized pipes, and discharged to the highway ditch with an Orifice Chamber designed to limit runoff and attenuate within the system.

-FOUL WATER STRATEGY-

- Foul water disposal should adhere to the following hierarchy:
 - Public Sewer
 - Private Treatment Plant
 - Septic Tank and Drainage Field
 - Cesspool
- The proposed development will discharge into the existing public foul sewer.
- It is proposed to discharge this to the public foul sewer on Burndell Road, however a foul pump and rising main will be required to connect into the Southern Water foul main.
- Indicative design is shown for the foul pump, to be confirmed.

-FOUL SYSTEM DESIGN-

PROPOSED FW DRAIN NETWORK

Estimated foul invert levels are based on a minimum pipe slope of 1:135 and 150mm diameter proposed foul drains across the network, to demonstrate connectivity, slopes and capacity to be refined where possible at detailed design to ensure cost efficient design.



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Rev	Amendments	Date
D	Revised Issue	04/03/2021
C	Revised Issue	14/01/2021
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A	Revised Issue	06/11/2020
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Drawing Status: **PLANNING**

Client: **Driftstone Developments Ltd**

Project: **Land off Burndell Road, Yapton, West Sussex BN18 0GB**

Drawing Title: **Surface & Foul Water Drainage Strategy**

Scale	Date	Drawn By	Checked By
1:500	Mar 2021	DJL	MJA

Drawing No.: **D1906-500**

Rev.: **D**



Design Settings

Rainfall Methodology	FSR	Maximum Time of Concentration (mins)	30.00
Return Period (years)	30	Maximum Rainfall (mm/hr)	250.0
Additional Flow (%)	10	Minimum Velocity (m/s)	0.75
FSR Region	England and Wales	Connection Type	Level Soffits
M5-60 (mm)	20.000	Minimum Backdrop Height (m)	0.200
Ratio-R	0.400	Preferred Cover Depth (m)	0.450
CV	0.750	Include Intermediate Ground	✓
Time of Entry (mins)	5.00	Enforce best practice design rules	✓

Nodes

Name	Area (ha)	T of E (mins)	Cover Level (m)	Diameter (mm)	Easting (m)	Northing (m)	Depth (m)
21	0.007	5.00	6.900	1200	498726.619	102799.187	0.429
20	0.007	5.00	6.990	1200	498735.559	102789.111	0.550
19			7.050	1200	498729.272	102787.568	0.647
18			6.900	1200	498730.114	102784.023	0.518
17	0.079	5.00	6.900	1200	498528.947	102674.440	0.865
16	0.039	5.00	6.900	1200	498493.064	102658.300	0.739
15	0.049	5.00	6.900	1200	498492.289	102640.407	0.731
14	0.041	5.00	6.850	1200	498500.307	102650.583	0.724
13	0.025	5.00	6.800	1350	498520.578	102661.992	0.752
12	0.052	5.00	6.850	1200	498515.150	102692.137	0.765
11	0.030	5.00	6.870	1200	498554.095	102706.541	0.664
10	0.025	5.00	6.890	1200	498556.805	102734.038	0.620
9	0.009	5.00	6.850	1200	498577.949	102735.811	0.538
8	0.014	5.00	6.840	1200	498559.429	102726.126	0.598
7	0.014	5.00	6.820	1200	498548.605	102711.511	0.639
6	0.028	5.00	6.800	1350	498520.418	102692.218	0.733
5			6.775	1500	498520.616	102674.342	0.768
4	0.022	5.00	6.750	1500	498505.311	102674.231	0.794
3			6.750	1500	498497.521	102688.951	0.850
2			6.750	1500	498497.541	102691.615	0.859
1			6.700	1500	498489.262	102726.316	0.928

Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
1.007	2	1	35.675	0.600	5.891	5.772	0.119	300.0	225	8.59	102.4
1.006	3	2	2.664	0.600	5.900	5.891	0.009	300.0	225	7.80	107.2
1.005	4	3	16.654	0.600	5.956	5.900	0.056	300.0	225	7.74	107.5
1.004	5	4	15.305	0.600	6.007	5.956	0.051	300.0	225	7.37	110.0
7.000	17	5	8.332	0.600	6.035	6.007	0.028	300.0	225	5.19	127.5

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)
1.007	0.750	29.8	130.4	0.634	0.703	0.427	0.0
1.006	0.750	29.8	136.4	0.625	0.634	0.427	0.0
1.005	0.750	29.8	136.9	0.569	0.625	0.427	0.0
1.004	0.750	29.8	132.8	0.543	0.569	0.405	0.0
7.000	0.750	29.8	30.0	0.640	0.543	0.079	0.0



Links

Name	US Node	DS Node	Length (m)	ks (mm) / n	US IL (m)	DS IL (m)	Fall (m)	Slope (1:X)	Dia (mm)	T of C (mins)	Rain (mm/hr)
5.002	13	5	12.350	0.600	6.048	6.007	0.041	300.0	225	6.08	119.5
1.003	6	5	17.877	0.600	6.067	6.007	0.060	300.0	225	7.03	112.3
4.000	12	6	5.269	0.600	6.085	6.067	0.018	300.0	225	5.12	128.2
1.002	7	6	34.157	0.600	6.181	6.067	0.114	300.0	225	6.63	115.2
3.000	11	7	7.405	0.600	6.206	6.181	0.025	300.0	225	5.16	127.7
1.001	8	7	18.187	0.600	6.242	6.181	0.061	300.0	225	5.87	121.3
2.000	10	8	8.336	0.600	6.270	6.242	0.028	300.0	225	5.19	127.5
1.000	9	8	20.900	0.600	6.312	6.242	0.070	300.0	225	5.46	124.9
5.001	14	13	23.261	0.600	6.126	6.048	0.078	300.0	225	5.81	121.8
6.000	16	14	10.584	0.600	6.161	6.126	0.035	300.0	225	5.24	127.0
5.000	15	14	12.955	0.600	6.169	6.126	0.043	300.0	225	5.29	126.5
8.001	19	18	3.644	0.600	6.403	6.382	0.021	175.0	150	5.34	126.0
8.000	21	19	11.918	0.600	6.471	6.403	0.068	175.0	150	5.26	126.8
9.000	20	19	6.474	0.600	6.440	6.403	0.037	175.0	150	5.14	127.9

Name	Vel (m/s)	Cap (l/s)	Flow (l/s)	US Depth (m)	DS Depth (m)	Σ Area (ha)	Σ Add Inflow (l/s)
5.002	0.750	29.8	54.9	0.527	0.543	0.154	0.0
1.003	0.750	29.8	57.6	0.508	0.543	0.172	0.0
4.000	0.750	29.8	19.9	0.540	0.508	0.052	0.0
1.002	0.750	29.8	31.6	0.414	0.508	0.092	0.0
3.000	0.750	29.8	11.4	0.439	0.414	0.030	0.0
1.001	0.750	29.8	17.4	0.373	0.414	0.048	0.0
2.000	0.750	29.8	9.5	0.395	0.373	0.025	0.0
1.000	0.750	29.8	3.4	0.313	0.373	0.009	0.0
5.001	0.750	29.8	46.9	0.499	0.527	0.129	0.0
6.000	0.750	29.8	14.8	0.514	0.499	0.039	0.0
5.000	0.750	29.8	18.5	0.506	0.499	0.049	0.0
8.001	0.756	13.4	5.3	0.497	0.368	0.014	0.0
8.000	0.756	13.4	2.6	0.279	0.497	0.007	0.0
9.000	0.756	13.4	2.7	0.400	0.497	0.007	0.0

Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.007	35.675	300.0	225	Circular	6.750	5.891	0.634	6.700	5.772	0.703
1.006	2.664	300.0	225	Circular	6.750	5.900	0.625	6.750	5.891	0.634
1.005	16.654	300.0	225	Circular	6.750	5.956	0.569	6.750	5.900	0.625
1.004	15.305	300.0	225	Circular	6.775	6.007	0.543	6.750	5.956	0.569
7.000	8.332	300.0	225	Circular	6.900	6.035	0.640	6.775	6.007	0.543
5.002	12.350	300.0	225	Circular	6.800	6.048	0.527	6.775	6.007	0.543

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.007	2	1500	Manhole	Adoptable	1	1500	Manhole	Adoptable
1.006	3	1500	Manhole	Adoptable	2	1500	Manhole	Adoptable
1.005	4	1500	Manhole	Adoptable	3	1500	Manhole	Adoptable
1.004	5	1500	Manhole	Adoptable	4	1500	Manhole	Adoptable
7.000	17	1200	Manhole	Adoptable	5	1500	Manhole	Adoptable
5.002	13	1350	Manhole	Adoptable	5	1500	Manhole	Adoptable



Pipeline Schedule

Link	Length (m)	Slope (1:X)	Dia (mm)	Link Type	US CL (m)	US IL (m)	US Depth (m)	DS CL (m)	DS IL (m)	DS Depth (m)
1.003	17.877	300.0	225	Circular	6.800	6.067	0.508	6.775	6.007	0.543
4.000	5.269	300.0	225	Circular	6.850	6.085	0.540	6.800	6.067	0.508
1.002	34.157	300.0	225	Circular	6.820	6.181	0.414	6.800	6.067	0.508
3.000	7.405	300.0	225	Circular	6.870	6.206	0.439	6.820	6.181	0.414
1.001	18.187	300.0	225	Circular	6.840	6.242	0.373	6.820	6.181	0.414
2.000	8.336	300.0	225	Circular	6.890	6.270	0.395	6.840	6.242	0.373
1.000	20.900	300.0	225	Circular	6.850	6.312	0.313	6.840	6.242	0.373
5.001	23.261	300.0	225	Circular	6.850	6.126	0.499	6.800	6.048	0.527
6.000	10.584	300.0	225	Circular	6.900	6.161	0.514	6.850	6.126	0.499
5.000	12.955	300.0	225	Circular	6.900	6.169	0.506	6.850	6.126	0.499
8.001	3.644	175.0	150	Circular	7.050	6.403	0.497	6.900	6.382	0.368
8.000	11.918	175.0	150	Circular	6.900	6.471	0.279	7.050	6.403	0.497
9.000	6.474	175.0	150	Circular	6.990	6.440	0.400	7.050	6.403	0.497

Link	US Node	Dia (mm)	Node Type	MH Type	DS Node	Dia (mm)	Node Type	MH Type
1.003	6	1350	Manhole	Adoptable	5	1500	Manhole	Adoptable
4.000	12	1200	Manhole	Adoptable	6	1350	Manhole	Adoptable
1.002	7	1200	Manhole	Adoptable	6	1350	Manhole	Adoptable
3.000	11	1200	Manhole	Adoptable	7	1200	Manhole	Adoptable
1.001	8	1200	Manhole	Adoptable	7	1200	Manhole	Adoptable
2.000	10	1200	Manhole	Adoptable	8	1200	Manhole	Adoptable
1.000	9	1200	Manhole	Adoptable	8	1200	Manhole	Adoptable
5.001	14	1200	Manhole	Adoptable	13	1350	Manhole	Adoptable
6.000	16	1200	Manhole	Adoptable	14	1200	Manhole	Adoptable
5.000	15	1200	Manhole	Adoptable	14	1200	Manhole	Adoptable
8.001	19	1200	Manhole	Adoptable	18	1200	Manhole	Adoptable
8.000	21	1200	Manhole	Adoptable	19	1200	Manhole	Adoptable
9.000	20	1200	Manhole	Adoptable	19	1200	Manhole	Adoptable

Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
21	498726.619	102799.187	6.900	0.429	1200		0	8.000	6.471 150
20	498735.559	102789.111	6.990	0.550	1200		0	9.000	6.440 150
19	498729.272	102787.568	7.050	0.647	1200		1 2 0	9.000 8.000 8.001	6.403 6.403 6.403 150
18	498730.114	102784.023	6.900	0.518	1200		1	8.001	6.382 150



Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)	
17	498528.947	102674.440	6.900	0.865	1200					
						0	7.000	6.035	225	
16	498493.064	102658.300	6.900	0.739	1200					
						0	6.000	6.161	225	
15	498492.289	102640.407	6.900	0.731	1200					
						0	5.000	6.169	225	
14	498500.307	102650.583	6.850	0.724	1200		1	6.000	6.126	225
						2	5.000	6.126	225	
						0	5.001	6.126	225	
13	498520.578	102661.992	6.800	0.752	1350		1	5.001	6.048	225
						0	5.002	6.048	225	
12	498515.150	102692.137	6.850	0.765	1200					
						0	4.000	6.085	225	
11	498554.095	102706.541	6.870	0.664	1200					
						0	3.000	6.206	225	
10	498556.805	102734.038	6.890	0.620	1200					
						0	2.000	6.270	225	
9	498577.949	102735.811	6.850	0.538	1200					
						0	1.000	6.312	225	
8	498559.429	102726.126	6.840	0.598	1200		1	2.000	6.242	225
						2	1.000	6.242	225	
						0	1.001	6.242	225	
7	498548.605	102711.511	6.820	0.639	1200		1	3.000	6.181	225
						2	1.001	6.181	225	
						0	1.002	6.181	225	
6	498520.418	102692.218	6.800	0.733	1350		1	4.000	6.067	225
						2	1.002	6.067	225	
						0	1.003	6.067	225	
5	498520.616	102674.342	6.775	0.768	1500		1	7.000	6.007	225
						2	5.002	6.007	225	
						3	1.003	6.007	225	
						0	1.004	6.007	225	



Manhole Schedule

Node	Easting (m)	Northing (m)	CL (m)	Depth (m)	Dia (mm)	Connections	Link	IL (m)	Dia (mm)
4	498505.311	102674.231	6.750	0.794	1500		1	1.004	5.956 225
3	498497.521	102688.951	6.750	0.850	1500		1	1.005	5.956 225
2	498497.541	102691.615	6.750	0.859	1500		1	1.006	5.900 225
1	498489.262	102726.316	6.700	0.928	1500		1	1.007	5.891 225

Simulation Settings

Rainfall Methodology	FSR	Analysis Speed	Normal
FSR Region	England and Wales	Skip Steady State	x
M5-60 (mm)	20.000	Drain Down Time (mins)	240
Ratio-R	0.400	Additional Storage (m ³ /ha)	20.0
Summer CV	0.750	Check Discharge Rate(s)	x
Winter CV	0.840	Check Discharge Volume	x

Storm Durations

15 | 30 | 60 | 120 | 180 | 240 | 360 | 480 | 600 | 720 | 960 | 1440

Return Period (years)	Climate Change (CC %)	Additional Area (A %)	Additional Flow (Q %)
1	0	0	0
30	0	0	0
100	0	0	0
100	40	10	0

Node 2 Online Hydro-Brake® Control

Flap Valve	x	Objective	(HE) Minimise upstream storage
Replaces Downstream Link	✓	Sump Available	✓
Invert Level (m)	5.891	Product Number	CTL-SHE-0091-4000-1250-4000
Design Depth (m)	1.250	Min Outlet Diameter (m)	0.150
Design Flow (l/s)	4.0	Min Node Diameter (mm)	1200

Node 19 Online Orifice Control

Flap Valve	x	Invert Level (m)	6.403	Discharge Coefficient	0.600
Replaces Downstream Link	✓	Diameter (m)	0.060		

Node 3 Depth/Area Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Safety Factor	2.0	Invert Level (m)	5.900
Side Inf Coefficient (m/hr)	0.00000	Porosity	0.95	Time to half empty (mins)	



Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)	Depth (m)	Area (m ²)	Inf Area (m ²)
0.000	200.0	0.0	0.400	200.0	0.0	0.401	0.0	0.0

Node 10 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	6.330	Slope (1:X)	250.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Depth (m)	0.450
Safety Factor	2.0	Width (m)	10.000	Inf Depth (m)	
Porosity	0.32	Length (m)	10.600		

Node 11 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	6.310	Slope (1:X)	250.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Depth (m)	0.450
Safety Factor	2.0	Width (m)	10.000	Inf Depth (m)	
Porosity	0.32	Length (m)	16.850		

Node 12 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	6.290	Slope (1:X)	250.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Depth (m)	0.450
Safety Factor	2.0	Width (m)	10.000	Inf Depth (m)	
Porosity	0.32	Length (m)	42.400		

Node 13 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	6.240	Slope (1:X)	250.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Depth (m)	0.450
Safety Factor	2.0	Width (m)	4.800	Inf Depth (m)	
Porosity	0.32	Length (m)	10.000		

Node 14 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	6.290	Slope (1:X)	250.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Depth (m)	0.450
Safety Factor	2.0	Width (m)	7.700	Inf Depth (m)	
Porosity	0.32	Length (m)	10.000		

Node 15 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	6.340	Slope (1:X)	250.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Depth (m)	0.450
Safety Factor	2.0	Width (m)	10.000	Inf Depth (m)	
Porosity	0.32	Length (m)	20.800		

Node 16 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	6.340	Slope (1:X)	250.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Depth (m)	0.450
Safety Factor	2.0	Width (m)	10.000	Inf Depth (m)	
Porosity	0.32	Length (m)	15.600		



Bright Plan Civils
2 West Barn
Norton Lane
Chichester PO20 3AF

File: D1906 Flow Model B.pfd
Network: S1
Dan Lytton
05/11/2020

Page 7
D1906 Burndell Road, Yapton
West Sussex BN18 0GB
SW Flow Model Rev B

Node 17 Carpark Storage Structure

Base Inf Coefficient (m/hr)	0.00000	Invert Level (m)	6.340	Slope (1:X)	250.0
Side Inf Coefficient (m/hr)	0.00000	Time to half empty (mins)		Depth (m)	0.450
Safety Factor	2.0	Width (m)	10.000	Inf Depth (m)	
Porosity	0.32	Length (m)	26.700		



Results for 1 year Critical Storm Duration. Lowest mass balance: 99.83%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	21	10	6.498	0.027	1.0	0.0394	0.0000	OK
15 minute winter	20	12	6.478	0.038	1.0	0.0528	0.0000	OK
15 minute winter	19	12	6.478	0.075	1.7	0.0850	0.0000	OK
15 minute summer	18	1	6.382	0.000	1.5	0.0000	0.0000	OK
15 minute winter	17	12	6.319	0.284	11.1	0.8399	0.0000	SURCHARGED
15 minute winter	16	12	6.342	0.181	5.5	0.3992	0.0000	OK
15 minute winter	15	13	6.344	0.175	6.9	0.4392	0.0000	OK
15 minute winter	14	13	6.343	0.217	13.4	1.3043	0.0000	OK
15 minute winter	13	13	6.329	0.281	14.3	1.6424	0.0000	SURCHARGED
15 minute winter	12	13	6.333	0.248	7.3	1.3717	0.0000	SURCHARGED
15 minute winter	11	13	6.338	0.132	4.4	0.5768	0.0000	OK
15 minute winter	10	13	6.340	0.070	3.5	0.1776	0.0000	OK
15 minute winter	9	11	6.343	0.031	1.3	0.0454	0.0000	OK
15 minute winter	8	13	6.340	0.098	6.6	0.1564	0.0000	OK
15 minute winter	7	14	6.336	0.155	10.4	0.2435	0.0000	OK
15 minute winter	6	13	6.332	0.265	17.2	0.5822	0.0000	SURCHARGED
15 minute winter	5	12	6.315	0.308	39.0	0.5447	0.0000	SURCHARGED
15 minute summer	4	10	6.280	0.324	39.0	0.7512	0.0000	SURCHARGED
180 minute winter	3	140	6.105	0.205	14.7	39.2966	0.0000	OK
180 minute winter	2	140	6.105	0.214	3.8	0.3774	0.0000	OK
15 minute summer	1	1	5.772	0.000	3.3	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	21	8.000	19	0.9	0.283	0.071	0.0644	
15 minute winter	20	9.000	19	0.9	0.302	0.064	0.0399	
15 minute winter	19	Orifice	18	1.6				0.9
15 minute winter	17	7.000	5	10.3	0.494	0.345	0.3314	
15 minute winter	16	6.000	14	3.6	0.289	0.120	0.3890	
15 minute winter	15	5.000	14	5.4	0.382	0.182	0.4691	
15 minute winter	14	5.001	13	13.0	0.580	0.435	0.9195	
15 minute winter	13	5.002	5	18.4	0.462	0.616	0.4912	
15 minute winter	12	4.000	6	6.8	0.375	0.229	0.2096	
15 minute winter	11	3.000	7	3.8	0.349	0.128	0.1974	
15 minute winter	10	2.000	8	3.4	0.392	0.114	0.1129	
15 minute winter	9	1.000	8	1.2	0.186	0.041	0.2018	
15 minute winter	8	1.001	7	6.0	0.462	0.200	0.4159	
15 minute winter	7	1.002	6	10.0	0.411	0.334	1.1780	
15 minute winter	6	1.003	5	18.4	0.462	0.617	0.7110	
15 minute winter	5	1.004	4	39.5	0.993	1.325	0.6087	
15 minute summer	4	1.005	3	40.4	1.621	1.357	0.3962	
180 minute winter	3	1.006	2	3.8	0.232	0.128	0.1025	
180 minute winter	2	Hydro-Brake®	1	3.8				58.7



Results for 30 year Critical Storm Duration. Lowest mass balance: 99.83%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	21	13	6.583	0.112	2.4	0.1628	0.0000	OK
15 minute winter	20	13	6.582	0.142	2.4	0.1973	0.0000	OK
15 minute winter	19	13	6.582	0.179	3.3	0.2024	0.0000	SURCHARGED
15 minute summer	18	1	6.382	0.000	2.7	0.0000	0.0000	OK
15 minute winter	17	13	6.413	0.378	27.3	3.2716	0.0000	SURCHARGED
15 minute winter	16	15	6.437	0.276	18.5	3.8800	0.0000	SURCHARGED
15 minute winter	15	15	6.439	0.270	18.3	4.4676	0.0000	SURCHARGED
15 minute winter	14	14	6.436	0.310	29.7	3.8125	0.0000	SURCHARGED
15 minute winter	13	13	6.418	0.370	17.5	3.1974	0.0000	SURCHARGED
15 minute winter	12	15	6.419	0.334	24.9	7.4928	0.0000	SURCHARGED
15 minute winter	11	15	6.430	0.224	17.2	5.0877	0.0000	OK
15 minute winter	10	15	6.430	0.160	11.9	2.9712	0.0000	OK
15 minute winter	9	15	6.430	0.118	3.1	0.1733	0.0000	OK
15 minute winter	8	15	6.430	0.188	10.9	0.3011	0.0000	OK
15 minute winter	7	15	6.429	0.248	14.4	0.3893	0.0000	SURCHARGED
15 minute winter	6	15	6.418	0.351	20.9	0.7699	0.0000	SURCHARGED
240 minute winter	5	232	6.412	0.405	21.8	0.7153	0.0000	SURCHARGED
240 minute winter	4	232	6.411	0.455	22.6	1.0556	0.0000	SURCHARGED
240 minute winter	3	232	6.409	0.509	22.1	76.9949	0.0000	SURCHARGED
240 minute winter	2	232	6.409	0.518	5.1	0.9160	0.0000	SURCHARGED
15 minute summer	1	1	5.772	0.000	3.9	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	21	8.000	19	1.9	0.322	0.141	0.1887	
15 minute winter	20	9.000	19	1.8	0.355	0.136	0.1129	
15 minute winter	19	Orifice	18	2.9				2.3
15 minute winter	17	7.000	5	16.7	0.626	0.562	0.3314	
15 minute winter	16	6.000	14	7.7	0.297	0.258	0.4209	
15 minute winter	15	5.000	14	10.9	0.385	0.366	0.5152	
15 minute winter	14	5.001	13	17.1	0.603	0.573	0.9251	
15 minute winter	13	5.002	5	19.3	0.485	0.648	0.4912	
15 minute winter	12	4.000	6	10.4	0.455	0.348	0.2096	
15 minute winter	11	3.000	7	-7.4	0.400	-0.249	0.2943	
15 minute winter	10	2.000	8	5.0	0.429	0.168	0.2740	
15 minute winter	9	1.000	8	2.1	0.206	0.070	0.5918	
15 minute winter	8	1.001	7	6.8	0.491	0.227	0.6846	
15 minute winter	7	1.002	6	12.4	0.455	0.416	1.3585	
15 minute winter	6	1.003	5	21.2	0.533	0.711	0.7110	
240 minute winter	5	1.004	4	21.3	0.686	0.714	0.6087	
240 minute winter	4	1.005	3	22.1	1.026	0.742	0.6623	
240 minute winter	3	1.006	2	5.1	0.283	0.171	0.1060	
240 minute winter	2	Hydro-Brake®	1	4.0				98.4



Results for 100 year Critical Storm Duration. Lowest mass balance: 99.83%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	21	13	6.665	0.194	3.1	0.2822	0.0000	FLOOD RISK
15 minute winter	20	13	6.664	0.224	3.1	0.3099	0.0000	SURCHARGED
15 minute winter	19	13	6.663	0.260	4.0	0.2940	0.0000	SURCHARGED
15 minute summer	18	1	6.382	0.000	3.4	0.0000	0.0000	OK
240 minute winter	17	236	6.506	0.471	6.6	11.0202	0.0000	SURCHARGED
240 minute winter	16	236	6.506	0.345	4.3	7.4727	0.0000	SURCHARGED
240 minute winter	15	236	6.506	0.337	4.2	9.1261	0.0000	SURCHARGED
240 minute winter	14	236	6.506	0.380	10.1	5.6994	0.0000	SURCHARGED
240 minute winter	13	236	6.506	0.458	9.8	4.7436	0.0000	FLOOD RISK
240 minute winter	12	236	6.506	0.421	7.6	18.8708	0.0000	SURCHARGED
240 minute winter	11	236	6.506	0.300	5.4	9.3478	0.0000	SURCHARGED
240 minute winter	10	236	6.506	0.236	4.4	5.6847	0.0000	SURCHARGED
240 minute winter	9	236	6.506	0.194	0.8	0.2848	0.0000	OK
240 minute winter	8	236	6.506	0.264	3.7	0.4226	0.0000	SURCHARGED
240 minute winter	7	236	6.506	0.325	6.6	0.5104	0.0000	SURCHARGED
240 minute winter	6	236	6.506	0.439	11.5	0.9642	0.0000	FLOOD RISK
240 minute winter	5	236	6.506	0.499	23.8	0.8819	0.0000	FLOOD RISK
240 minute winter	4	236	6.505	0.549	25.4	1.2744	0.0000	FLOOD RISK
240 minute winter	3	236	6.504	0.604	25.1	77.1629	0.0000	FLOOD RISK
240 minute winter	2	232	6.503	0.612	4.9	1.0822	0.0000	FLOOD RISK
15 minute summer	1	1	5.772	0.000	4.0	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	21	8.000	19	2.1	0.343	0.160	0.2098	
15 minute winter	20	9.000	19	2.3	0.380	0.172	0.1140	
15 minute winter	19	Orifice	18	3.6				2.9
240 minute winter	17	7.000	5	6.3	0.346	0.213	0.3314	
240 minute winter	16	6.000	14	2.9	0.265	0.098	0.4209	
240 minute winter	15	5.000	14	3.8	0.331	0.127	0.5152	
240 minute winter	14	5.001	13	7.9	0.443	0.264	0.9251	
240 minute winter	13	5.002	5	8.8	0.328	0.294	0.4912	
240 minute winter	12	4.000	6	-3.9	0.246	-0.130	0.2096	
240 minute winter	11	3.000	7	-3.1	0.252	-0.105	0.2945	
240 minute winter	10	2.000	8	-2.5	0.333	-0.083	0.3315	
240 minute winter	9	1.000	8	0.7	0.155	0.023	0.7966	
240 minute winter	8	1.001	7	3.6	0.394	0.121	0.7233	
240 minute winter	7	1.002	6	6.3	0.400	0.212	1.3585	
240 minute winter	6	1.003	5	10.1	0.394	0.340	0.7110	
240 minute winter	5	1.004	4	23.6	0.689	0.791	0.6087	
240 minute winter	4	1.005	3	25.1	1.087	0.843	0.6623	
240 minute winter	3	1.006	2	4.9	0.279	0.165	0.1060	
240 minute winter	2	Hydro-Brake®	1	4.0				98.2



Results for 100 year +40% CC +10% A Critical Storm Duration. Lowest mass balance: 99.83%

Node Event	US Node	Peak (mins)	Level (m)	Depth (m)	Inflow (l/s)	Node Vol (m³)	Flood (m³)	Status
15 minute winter	21	13	6.871	0.400	4.8	0.5965	0.0000	FLOOD RISK
15 minute winter	20	13	6.870	0.430	4.8	0.6070	0.0000	FLOOD RISK
15 minute winter	19	13	6.868	0.465	5.8	0.5263	0.0000	FLOOD RISK
15 minute summer	18	1	6.382	0.000	4.7	0.0000	0.0000	OK
360 minute winter	17	352	6.742	0.707	7.5	32.0021	0.0000	FLOOD RISK
360 minute winter	16	352	6.742	0.581	4.3	19.7977	0.0000	FLOOD RISK
360 minute winter	15	352	6.742	0.573	5.7	25.4749	0.0000	FLOOD RISK
360 minute winter	14	352	6.742	0.616	8.8	12.0744	0.0000	FLOOD RISK
360 minute winter	13	352	6.742	0.694	8.6	8.1158	0.0000	FLOOD RISK
360 minute winter	12	352	6.742	0.657	10.2	51.3249	0.0000	FLOOD RISK
360 minute winter	11	352	6.742	0.536	5.7	22.5764	0.0000	FLOOD RISK
360 minute winter	10	352	6.742	0.472	4.6	14.1562	0.0000	FLOOD RISK
360 minute winter	9	352	6.742	0.430	0.9	0.6452	0.0000	FLOOD RISK
360 minute winter	8	352	6.742	0.500	3.3	0.8235	0.0000	FLOOD RISK
360 minute winter	7	352	6.742	0.561	5.5	0.9054	0.0000	FLOOD RISK
360 minute winter	6	352	6.742	0.675	9.3	1.5337	0.0000	FLOOD RISK
360 minute winter	5	352	6.742	0.735	20.5	1.2986	0.0000	FLOOD RISK
360 minute winter	4	352	6.741	0.785	21.9	1.8664	0.0000	FLOOD RISK
360 minute winter	3	352	6.740	0.840	21.7	77.5789	0.0000	FLOOD RISK
360 minute winter	2	352	6.740	0.849	4.2	1.5007	0.0000	FLOOD RISK
15 minute summer	1	1	5.772	0.000	4.0	0.0000	0.0000	OK

Link Event (Upstream Depth)	US Node	Link	DS Node	Outflow (l/s)	Velocity (m/s)	Flow/Cap	Link Vol (m³)	Discharge Vol (m³)
15 minute winter	21	8.000	19	2.9	0.372	0.213	0.2098	
15 minute winter	20	9.000	19	2.9	0.411	0.220	0.1140	
15 minute winter	19	Orifice	18	5.0				4.5
360 minute winter	17	7.000	5	5.6	0.212	0.188	0.3314	
360 minute winter	16	6.000	14	2.5	0.257	0.084	0.4209	
360 minute winter	15	5.000	14	3.3	0.312	0.109	0.5152	
360 minute winter	14	5.001	13	6.7	0.440	0.224	0.9251	
360 minute winter	13	5.002	5	7.6	0.321	0.254	0.4912	
360 minute winter	12	4.000	6	-5.3	0.225	-0.176	0.2096	
360 minute winter	11	3.000	7	-3.1	0.246	-0.105	0.2945	
360 minute winter	10	2.000	8	-2.4	0.317	-0.080	0.3315	
360 minute winter	9	1.000	8	0.7	0.151	0.023	0.8312	
360 minute winter	8	1.001	7	3.0	0.367	0.102	0.7233	
360 minute winter	7	1.002	6	5.0	0.388	0.169	1.3585	
360 minute winter	6	1.003	5	8.6	0.390	0.289	0.7110	
360 minute winter	5	1.004	4	20.3	0.616	0.682	0.6087	
360 minute winter	4	1.005	3	21.7	1.036	0.729	0.6623	
360 minute winter	3	1.006	2	4.2	0.282	0.139	0.1060	
360 minute winter	2	Hydro-Brake®	1	4.0				111.7



Notes:

1. Do not scale from this drawing.
2. All dimensions must be checked on site prior to commencement of work.
3. Where applicable this drawing is to be read in conjunction with other consultants drawings.
4. This drawing is the copyright of Impact Geotechnical Ltd.

Drawing Title:

Hole Location Plan

Site Name:

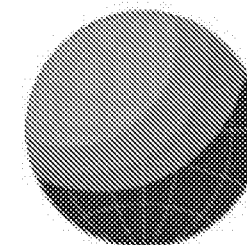
Paynters Croft GWM

Project Reference:

P19.160

Revision: 0

Drawn by: RM
Scale: Not to Scale



IMPACT
GEOTECHNICAL



Percussion Drilling Log

Project Name: Paynters Croft		Client: Mr J Napthine		Date: 29/11/2019	
Location: Yapton, West Sussex		Contractor: Impact Geotechnical Ltd			
Project No. : P19.160		Crew Name: SG		Drilling Equipment: Archway Dart	
Borehole Number WS1	Hole Type WLS	Level	Logged By RM	Scale 1:50	Page Number Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.20			0.20			MADE GROUND: Grass over brown silty sandy Clay. Sand is fine to coarse. Rare subangular to subrounded fine to coarse sized flint (Topsoil).	
		0.50	D					(Soft to firm) brown mottled orange brown silty sandy slightly gravelly CLAY. Sand is fine to medium. Gravel is subangular to subrounded fine to coarse sized flint (RIVER TERRACE DEPOSITS).	1
		1.00	SPT	N=8 (1,1/2,2,2,2)					
		1.50	D						
		2.00	SPT	N=10 (1,2/2,3,2,3)				Becoming firm below 2.00mbgl.	2
		2.50	D					Below 2.30mbgl becoming very silty/fine sandy with gravel of flint and chalk.	
		3.00	SPT	N=13 (1,2/2,3,3,5)					3
		3.50	D						4
		4.50	D					4.40-4.60mbgl: band of very fine sandy Silt.	
					5.00			End of Borehole at 5.000m	5
									6
									7
									8
									9
									10

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks
Hand dug starter pit dug to 1.00mbgl. Groundwater encountered at 3.00mbgl and noted to rise to 2.80mbgl and 4.50mbgl noted to rise to 1.05mbgl. 35mm diameter standpipe installed to 4.75mbgl.





Percussion Drilling Log

Project Name: Paynters Croft		Client: Mr J Napthine		Date: 29/11/2011	
Location: Yapton, West Sussex		Contractor: Impact Geotechnical Ltd			
Project No. : P19.160		Crew Name: SG		Drilling Equipment: Archway Dart	
Borehole Number WS2	Hole Type WLS	Level	Logged By RM	Scale 1:50	Page Number Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.50	D					Grass over brown very silty sandy CLAY. Sand is fine, Rare subangular to subrounded fine to coarse sized gravel of flint (RIVER TERRACE DEPOSITS).	1
		1.00	SPT	N=5 (1,1/1,1,1,2)					
		1.50	D						
		2.00	SPT	N=0 (0,0/0,0,0,0)	2.00			(Very loose) orange brown very silty very clayey SAND. Sand is fine to medium. Rare subangular to subrounded fine to medium gravel of flint (RIVER TERRACE DEPOSITS). <i>2.00mbgl: band of silty fine SAND.</i>	2
		2.50	D		2.80				
		3.00	SPT	N=16 (3,3/4,4,4,4)				White sandy gravelly SILT of CHALK. Sand is fine to medium. Gravel is subangular to subrounded fine to coarse sized weak chalk (LEWES NODULAR CHALK FORMATION).	3
		3.50	D						
		4.00	SPT	N=21 (3,4/5,5,5,6)					4
		4.50	D						
					5.00			End of Borehole at 5.000m	5
									6
									7
									8
									9
									10

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks Hand dug starter pit dug to 1.00mbgl. Groundwater encountered at 1.00mbgl and noted to rise to 1.20mbgl. 35mm diameter standpipe installed to 4.80mbgl.										
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Percussion Drilling Log

Project Name: Paynters Croft		Client: Mr J Napthine		Date: 29/11/2019	
Location: Yapton, West Sussex		Contractor: Impact Geotechnical Ltd			
Project No. : P19.160		Crew Name: SG		Drilling Equipment: Archway Dart	
Borehole Number WS3	Hole Type WLS	Level	Logged By RM	Scale 1:50	Page Number Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.50	D		0.30 0.40			MADE GROUND: Grass over brown silty sandy Clay. Sand is fine to coarse. Rare subangular to subrounded fine to coarse sized flint (Topsoil). Brown silty sandy Gravel. Sand is fine to medium. Gravel is rounded medium to coarse sized flint. (Soft to firm) brown silty slightly sandy slightly gravelly CLAY. Sand is fine to medium. Gravel is subangular to subrounded fine to coarse sized flint (RIVER TERRACE DEPOSITS). <u>1.00-1.10mbgl: fine to medium Sand band (wet).</u> <u>Below 1.60mbgl locally very sandy.</u>	1
		1.00	SPT	N=8 (1,1/1,1,2,4)					
		1.50	D						
		2.00	SPT	N=3 (0,1/0,1,1,1)	2.00				2
		2.50	D					Orange brown clayey very silty slightly gravelly SAND. Sand is fine to medium. Gravel is subangular to subrounded fine to coarse sized flint and chalk (RIVER TERRACE DEPOSITS).	
		3.00	SPT	N=11 (2,3/3,3,2,3)					3
		3.50	D						
					3.80 4.00			Pale grey mottled white sandy gravelly CLAY. Sand is fine to medium. Gravel is subangular to subrounded fine to coarser sized flint and chalk (RIVER TERRACE DEPOSITS). End of Borehole at 4.000m	4
									5
									6
									7
									8
									9
									10

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks Hand dug starter pit dug to 1.00mbgl. Groundwater encountered at 1.00mbgl. Borehole collapsed back from 4.00m to 3.00mbgl. 35mm diameter standpipe installed to 3.00mbgl.										
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Percussion Drilling Log

Project Name: Paynters Croft		Client: Mr J Napthine		Date: 18/12/2019	
Location: Yapton, West Sussex		Contractor: Impact Geotechnical Ltd			
Project No. : P19.160		Crew Name: SG		Drilling Equipment: Archway Dart	
Borehole Number WS4	Hole Type WLS	Level	Logged By RM	Scale 1:50	Page Number Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
								Grass over brown very silty sandy CLAY. Sand is fine, Rare subangular to subrounded fine to coarse sized gravel of flint (RIVER TERRACE DEPOSITS).	1
					2.00			(Very loose) pale brown very silty very clayey SAND. Sand is fine to medium. Rare subangular to subrounded fine to medium gravel of flint (RIVER TERRACE DEPOSITS).	2
					2.50			Pale brown mottled white clayey silty sandy GRAVEL. Sand is fine to medium. Gravel is angular to subangular fine to coarser sized flint and chalk (RIVER TERRACE DEPOSITS).	3
					3.10			White sandy gravelly SILT of CHALK. Sand is fine to medium. Gravel is subangular to subrounded fine to coarse sized weak chalk (LEWES NODULAR CHALK FORMATION).	4
					4.00			End of Borehole at 4.000m	4
									5
									6
									7
									8
									9
									10

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks
Hand dug starter pit dug to 1.00mbgl. Groundwater encountered at 1.00mbgl and noted to rise to 0.82mbgl. 35mm diameter standpipe installed to 4.00mbgl.





Percussion Drilling Log

Project Name: Paynters Croft		Client: Mr J Napthine		Date: 18/12/2019	
Location: Yapton, West Sussex		Contractor: Impact Geotechnical Ltd			
Project No. : P19.160		Crew Name: SG		Drilling Equipment: Archway Dart	
Borehole Number WS5	Hole Type WLS	Level	Logged By RM	Scale 1:50	Page Number Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
								Grass over brown very silty sandy CLAY. Sand is fine, Rare subangular to subrounded fine to coarse sized gravel of flint (RIVER TERRACE DEPOSITS).	1
					2.00			(Very loose) orange brown very silty very clayey SAND. Sand is fine to medium. Rare subangular to subrounded fine to medium gravel of flint (RIVER TERRACE DEPOSITS).	2
					3.50			Pale grey mottled orange brown clayey very silty SAND. Sand is fine to medium. Rare subangular to subrounded fine to medium gravel of flint (RIVER TERRACE DEPOSITS).	3
					4.00			End of Borehole at 4.000m	4
									5
									6
									7
									8
									9
									10

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks
Hand dug starter pit dug to 1.00mbgl. Groundwater encountered at 1.00mbgl and noted to rise to 0.84mbgl. 35mm diameter standpipe installed to 4.00mbgl.





Percussion Drilling Log

Project Name: Paynters Croft		Client: Mr J Napthine		Date: 18/12/2019	
Location: Yapton, West Sussex		Contractor: Impact Geotechnical Ltd			
Project No. : P19.160		Crew Name: SG		Drilling Equipment: Archwat Dart	
Borehole Number WS6	Hole Type WLS	Level	Logged By RM	Scale 1:50	Page Number Sheet 1 of 1

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
								Grass over brown very silty sandy CLAY. Sand is fine, Rare subangular to subrounded fine to coarse sized gravel of flint (RIVER TERRACE DEPOSITS).	1
					2.00			(Very loose) orange brown very silty very clayey SAND. Sand is fine to medium. Rare subangular to subrounded fine to medium gravel of flint (RIVER TERRACE DEPOSITS).	2
					3.80				
					4.00			White sandy gravelly SILT of CHALK. Sand is fine to medium. Gravel is subangular to subrounded fine to coarse sized weak chalk (LEWES NODULAR CHALK FORMATION). End of Borehole at 4.000m	4
									5
									6
									7
									8
									9
									10

Hole Diameter		Casing Diameter		Chiselling				Inclination and Orientation			
Depth Base	Diameter	Depth Base	Diameter	Depth Top	Depth Base	Duration	Tool	Depth Top	Depth Base	Inclination	Orientation

Remarks Hand dug starter pit dug to 1.00mbgl. Groundwater encountered at 1.00mbgl and noted to rise to 0.86mbgl. 35mm diameter standpipe installed to 4.00mbgl.										
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Water Monitoring Well Readings:

Site Address: Paynters Croft, Burndell Road, Yapton, Arundel.

Job Number: 1196.

Measurement from top of well to top of ground water level (meters).

Measurement equates to depth below ground level at location of monitoring well.

[illegible]

	2019.11.29	2019.12.18	2020.01.03	2020.01.17	2020.01.31	2020.02.14	2020.02.28	2020.03.13	2020.03.27
MW 1	1.05	0.99	1.12	1.03	1.24	0.50			
MW 2	1.20	1.73	1.78	1.76	1.83	1.55			
MW 3	1.10	0.69	0.88	0.88	1.07	0.45			
MW 4		0.82	0.99	0.95	1.09	0.46			
MW 5		0.84	1.03	1.00	1.16	0.29			
MW 6		0.86	1.10	0.97	1.16	0.55			

