Drainage Maintenance & Management Manual

Pebble Walk, Sinah Lane, Hayling Island, Hampshire

Client

BDW Southampton
Tollbar House, Tollbar Way
Hedge End
Hampshire, SO30 2UH

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Consulting Engineers

GTA Civils & Transport Ltd
Maple House
192-198 London Road
Burgess Hill RH15 9RD
Tel: 01444 871444

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A Site Drainage Plan

Issue	Issue date	Compiled	Checked
Initial Issue	31 October 2022	DS	MR

Report by: David Smith

Checked by: Martin Roberts IEng, ACIWEM, MCIHT

1 Introduction

1.1 This report has been prepared for Barratt Developments, BDW Southampton in relation to a development at 'Pebble Walk', Sinah Lane, Hayling Island, Hampshire. No responsibility is accepted to any third party for all or part of this study in connection with this or any other development.

1.2 GTA Civils & Transport Ltd. was appointed by the client to provide a Drainage Maintenance & Management Manual (DMMM) as requested by Hampshire County Council, Planning (Developer Contributions).

2 Existing and Proposed Site

2.1 Existing: the pre-development site was unoccupied agricultural land.

2.2 Proposal: development of the site to provide 195 new dwellings.

2.3 Drainage design: the site main drainage drawing for the development, by GTA Civils & Transport Ltd, is included in Appendix A. This drawing indicates that the proposed drainage is by way of gravity and pumped systems, with foul water connecting to existing public foul sewer which crosses the open space to the north, and surface water connecting via a proposed attenuation lagoon with restricted discharges, to the existing watercourse network surrounding the site, by way of a new swale, the maintenance requirements of which are explained in this report. Due to the nature of the existing subsoils, infiltration techniques are not appropriate for this site.

2.4 Drainage, Site Outfall: the existing ditches fall towards the north of the development site and convey surface water to the ordinary watercourse and a final outfall into Sinah Lake.

3 Maintenance Schedule

3.1 The timescales for the installation for the on-site drainage is dependent on planning, however this will commence as soon as the planning permission is granted, and the works will take 4-5 months as part of the main infrastructure package.

3.2 The following sections detail the main drainage items used within the scheme and details the maintenance requirements for each item.

3.3 All maintenance regimes are to be in accordance with the CIRIA report C753, The SuDS Manual.

3.4 To ensure ongoing compliance with the requirements of the maintenance schedule, an Estate Management Company will be set up by the Client to administer the site wide infrastructure excluded from the drainage items adopted by the Water Authority, including all the private drainage items listed in the schedule below and will undertake the inspections and maintenance activities in accordance with the schedules below.

3.5 The main sewers, including the pumping stations will be adopted by Southern Water who will be responsible for their maintenance on completion. This excludes the attenuation basin and swales which will be maintained by the Management Company in accordance with the schedules below.

3.6 The main access roads and road gullies will be adopted by Hampshire County Council who will be responsible for their maintenance on completion.

3.7 The Estate Management Company will seek financial contributions (in the form of service charges), at regular intervals, from the leaseholders/owners of the development to include for the regular costs of the maintenance of the site drainage. A separate sinking fund will be maintained to provide for the anticipated replacement cost of the major components at the end of the manufacturer's design life. These funds are to be held in bank client accounts kept separate from the bank account of the Estate Management Company

4 Drains, Manholes, Gullies, Channel Drains

4.1 Regular inspection and maintenance is required to ensure the effective long-term operation of private drains, manholes, gullies & channel drains.

4.2 Prior to construction: a CCTV survey to be carried out on all receiving existing public sewer systems prior to connection with adopted sewers.

4.3 Post Completion: a CCTV survey to be carried out on all new and retained existing drainage systems and any downstream receiving systems, prior to connection with adopted sewers.

4.4 The report will be used to prove the integrity of the as-built drainage system prior to issue of practical completion certificate and will be handed over to the Client & Management Company for future reference.

4.5 Ongoing maintenance responsibility for all sewers and pumping stations are by Southern Water, and adoptable road gullies by Hampshire County Council. All other private gullies and drainage are to be maintained by management company in shared areas and homeowners within conveyed land. Operation and maintenance requirements for all sewer manholes, gullies and channel drains are described in the following table:

Schedule	Action	Frequency
Regular Maintenance	Inspect and identify any areas that are not operating correctly. If required, take remedial action.	6 Monthly intervals.
	Common yard & car park & other hard standing areas to be swept clear of debris, to prevent possibility of blockages to the receiving drainage systems.	Monthly.
	Debris removal from gullies & channel drains (where may cause risks to performance).	6 Monthly intervals, after autumn leaf fall, or as required based on specific observations.
	Lift and inspect receiving manholes to check	Monthly.

	for any blockages.	
Remedial Actions	Repair any damaged gully or channel drain gratings. Replace / fix any loose channel drain covers.	As required. As required.
Monitoring	Carry out full CCTV survey to confirm ongoing integrity of all drains. Inspect all gullies and silt pits & drainage channels during the survey.	10-yearly intervals.

4.6 Where appropriate refer also to specialist drainage channel drain manufacturer's information and maintenance requirements.

4.1 In all instances, inspection and cleaning should be carried out only by a specialist contractor and in accordance with the guidelines given in `Safe Working in Sewers and at Sewage Works' published by National Joint Health and Safety Committee for the Water Services.

5 Cut-Off Filter Drains

5.1 Inspection Frequency and Maintenance Requirements: as per table below.

Schedule	Action	Frequency
Regular Maintenance	Remove litter (including leaf litter) and debris from filter drain surface. Inspect filter drain surface and inlet pipework for blockages, clogging, standing water and structural damage.	Monthly, or as required Monthly
Occasional Maintenance	Remove or control tree roots where they are encroaching the sides of the filter drain, using recommended methods (eg NJUG, 2007 or BS 3998:2010) At locations with high pollution loads, remove surface geotextile and replace, and wash or replace overlying filter medium	As required Five yearly, or as required

6 Attenuation Basin, Swales and Control Chambers

6.1 Inspection Frequency and Maintenance Requirements: as per table below.

Schedule	Action	Frequency
Regular Maintenance	Remove litter and debris	Monthly, or as required
	Cut grass.	Monthly (during growing season),
	Manage other vegetation and remove nuisance plants.	Monthly at start, then as required.
	Inspect permanent water depth for silt accumulation. Silt removal is only to be carried out after consultation with Environmental Officers.	Monthly for 6 months, quarterly for 2 years, then half yearly
	Inspect vegetation coverage	Monthly for 6 months, quarterly for 2 years, then half yearly
Occasional maintenance	Reseed areas of poor vegetation growth, alter plant types to better suit conditions, if required.	As required or if bare soil is exposed over 10% or more of the swale treatment area
Remedial actions	Repair erosion or other damage by re-turfing or reseeding.	As required.
	Relevel uneven surfaces and reinstate design levels.	As required.
	Remove build-up of silt accumulation from permanent water depth. Silt removal is only to be carried out after consultation with Environmental Officers.	Monthly for 6 months, quarterly for 2 years, then half yearly
	Remove and dispose of oils or petrol residues using safe standard practices	As required.

Control Chambers, Orifice Plates and Hydrobrakes	Check hydrobrake orifices are clear and retention tank door is closed. Check function of retention tank door and oil if necessary. Similarly, check outfalls and inlets of attenuation ponds to ensure pipes are clear and freeflowing.	First 2 years of occupation – Monthly Then annually

7 Contamination or Dilution of Spillage

7.1 In the event of a spillage it is the responsibility of the resident to clear up any spillage before it enters the drainage system. The primary method of dealing with any spillage of hydrocarbons should be using sand to soak up the leak and prevent any hydrocarbons entering the drainage system. Once sand has been contaminated it should not be washed into the drainage system but disposed of by a Licensed Contractor.

7.2 Environment Agency – Emergency Contact Number

In the event of a spillage the Environment Agency should be contacted to notify the event and seek advice. The Environment Agency Incident Hotline is 0800 80 70 60 (Freephone 24hrs).

- End of Report -

Appendix A

Site Drainage Layout

GENERAL NOTES

1. ALL ADOPTABLE HIGHWAY CONSTRUCTION WORKS SHALL BE CARRIED OUT TO THE STANDARD LAID DOWN IN THE HAMPSHIRE COUNTY COUNCIL SPECIFICATIONS, WITH A VIEW TO ADOPTION UPON COMPLETION.
2. ALL ADOPTABLE SEWERS AND SHALL BE CONSTRUCTED TO THE STANDARDS LAID DOWN IN THE "SEWERAGE SECTOR GUIDANCE", AND SOUTHERN WATER SPECIFICATIONS, WITH A VIEW TO ADOPTION UPON COMPLETION.
3. BEFORE CONNECTIONS ARE MADE TO EXISTING DRAINAGE, IT'S LEVEL IS TO BE CHECKED AND CONFIRMED AGAINST LEVELS SHOWN ON THIS DRAWINGS AND THIS OFFICE INFORMED OF ANY SIGNIFICANT DIFFERENCE. **NO CONNECTIONS ARE TO BE MADE TO THE EXISTING PUBLIC SEWERS PRIOR TO A S106 AGREEMENT WITH SOUTHERN WATER.**
4. ALL SEWERS WITH LESS THAN 1.2m COVER WHEN LAID BENEATH THE ROAD OR BENEATH FOOTWAYS/VERGES IMMEDIATELY ADJACENT TO THE CARRIAGEWAY, OR 0.9m OF COVER IN OTHER AREAS, SHALL BE PROTECTED WITH CONCRETE IN ACCORDANCE WITH EITHER OF THE DETAILS SHOWN ON THE STANDARD DRAWING PROVIDED (FOR BEDDING TYPE LOCATIONS, REFER TO SEWER SECTIONS).
5. THE MINIMUM SIZE OF PIPE CONNECTING GULLIES TO THE DRAINAGE SYSTEM SHALL BE 150mm DIA. LAID AT A MINIMUM GRADIENT OF 1 IN 80.
6. IN ORDER TO MAINTAIN THE SATISFACTORY FUNCTIONING OF THE DRAINAGE SYSTEM, ALL ROAD AND YARD GULLIES ARE TO BE "TRAPPED".
7. THE DESIGN IS SUCH THAT WATER FROM PRIVATE AREAS DOES NOT SHED TO ADOPTABLE AREAS AND VICA VERSA.
8. THE CONTRACTOR IS TO KEEP A RECORD OF ANY VARIATIONS MADE ON SITE, INCLUDING THE RELOCATION OF SEWERS OR DRAINS, SO THAT AN AS CONSTRUCTED DRAWING CAN BE PREPARED UPON COMPLETION OF THE PROJECT.
9. THE CONTRACTOR SHOULD CHECK ALL DIMENSIONS ON SITE.
10. IT IS THE SUBCONTRACTORS RESPONSIBILITY TO ENSURE COMPLIANCE WITH CURRENT BUILDING REGULATIONS AND CODES OF PRACTICE.

KEY

- Site Boundary
- Existing Foul Drainage
- Existing Surface Water Drainage
- Proposed Surface Water Drainage
- Proposed Foul Drainage
- Main Foul Sewer Manhole - Type 2
- Main Foul Sewer Manhole - Type 3
- Main Surface Water Manhole - Type 2
- Road Gully
- Direction of Fall
- Sewer Easement
- Tactile Paved Crossing Point
- Street Nameplate
- Bollard Plastic, reflective
- 6m Lighting Column (Stepped Tubular)
- 6m Lighting Column (Raise & Lower)
- Root Protection Zone

REFERENCE SHOULD BE MADE TO SSE ENTERPRISE DRAWINGS SSE225243-LD-001 & 002 FOR STREET LIGHTING SPECIFICATIONS

Highway construction is to be carried out to the latest versions of the Hampshire County Council details which can be found at https://www.hants.gov.uk/transport/developers/standard-details. This Drawing is to be read in conjunction with Hampshire companion document to manual for streets and HCC construction details:

HCC11/C/010 - Precast Concrete Kerbs
HCC11/C/045 - Footways Types 1A, 1B, 2 & 3
HCC11/C/055 - Footways Types 5, 6A & 6B (Stengthened)
HCC11/C/060 - Uncontrolled Pedestrian Crossing in New Works
HCC11/C/100 - Flat Top Road Hump & Junction Table Type 1
HCC11/C/135 - Wooden Dragon's Teeth and Bollards
HCC11/C/155 - Standard Traffic Signs .... Foundation Details
HCC11/D/015 - Gully Type 1T
HCC11/D/045 - Manhole Types M2Z, etc
HCC11/L/015- 5m & 6m "Post Top" Tubular Steel Planted Columns
HCC11/L/020- 5m & 6m Raise and Lower TS Planted Columns
HCC11/L/035- Planted Column Erection Details ... in Paved Areas

Pavement Design Specification.

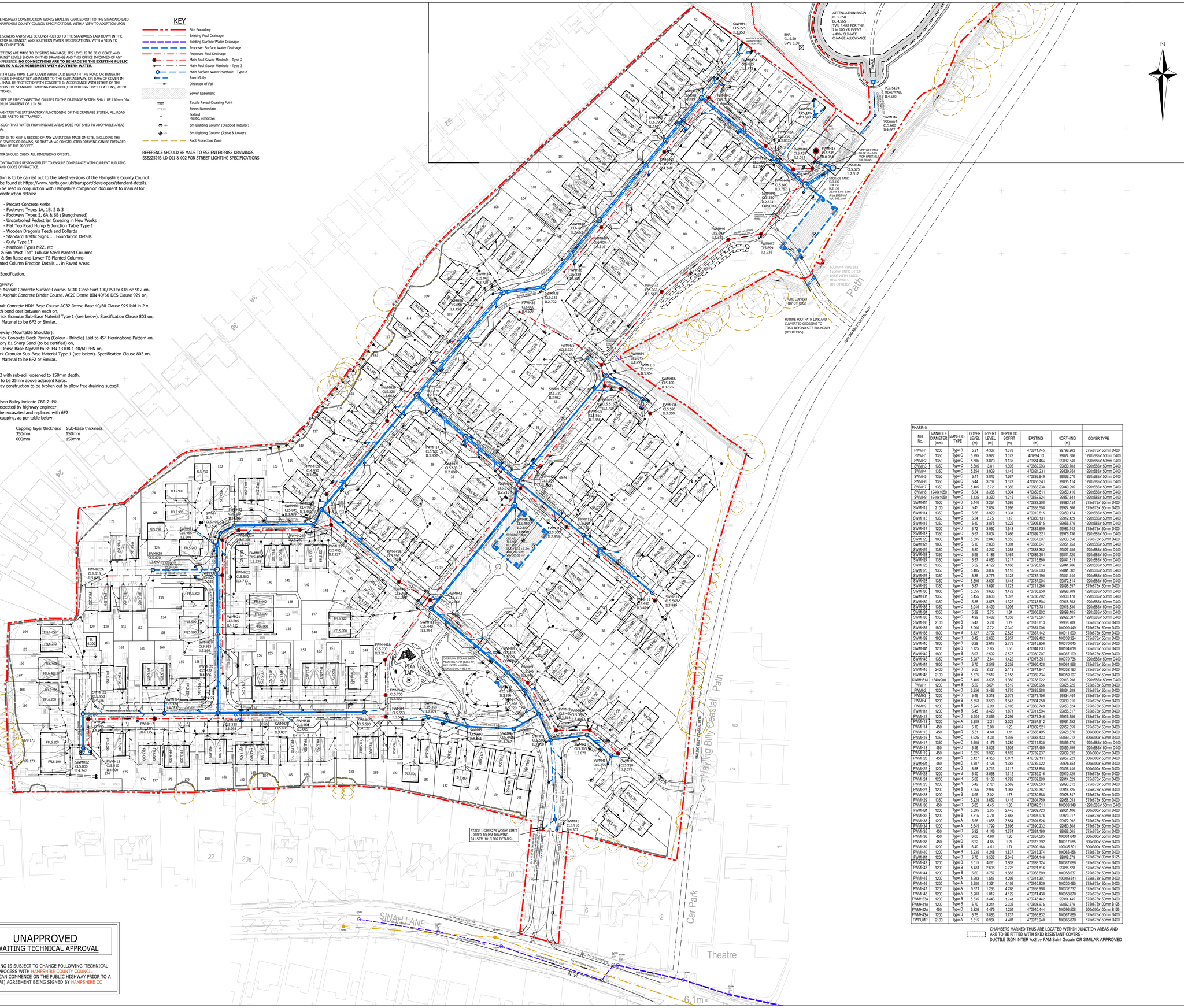
Bituminous Carriageway:
40mm thick Dense Asphalt Concrete Surface Course. AC10 Close Surf 100/150 to Clause 912 on,
65mm thick Dense Asphalt Concrete Binder Course. AC20 Dense BIN 40/60 DES Clause 929 on,
bond coat on,
160mm thick Asphalt Concrete HDM Base Course AC32 Dense Base 40/60 Clause 929 laid in 2 x 80mm courses with bond coat between each on,
* 185mm min. thick Granular Sub-Base Material Type 1 (see below). Specification Clause 803 on,
** Capping Layer. Material to be 6F2 or Similar.

Blockwork Carriageway (Mountable Shoulder):
200x100x80mm thick Concrete Block Paving (Colour - Brindle) Laid to 45° Herringbone Pattern on,
30mm thick Category B1 Sharp Sand (to be certified) on,
90mm Base, Ac20 Dense Base Asphalt to BS EN 13108-1 40/60 PEN on,
* 250mm min. thick Granular Sub-Base Material Type 1 (see below). Specification Clause 803 on,
** Capping Layer. Material to be 6F2 or Similar.

Grass Verge:
Top soil as BS3882 with sub-soil loosened to 150mm depth.
Finished turf level to be 25mm above adjacent kerbs.
Existing carriageway construction to be broken out to allow free draining subsoil.

* NOTE:
Initial Tests by Wilson Bailey indicate CBR 2-4%.
Formation to be inspected by highway engineer.
Any soft spots to be excavated and replaced with 6F2 crushed concrete capping, as per table below.

** Subgrade CBR	Capping layer thickness	Sub-base thickness
2% - 5%	350mm	150mm
Less than 2%	600mm	150mm



CONTINUED ON DRAWING 10162/1016

GENERAL NOTES

1. The location, size, depth and identification of existing services that may be shown or referred to on this drawing have been assessed from non intrusive observations , record drawings or the like. The contractor shall safely carry out intrusive investigations, trial holes or soundings prior to commencing work to satisfy himself that it is safe to proceed and that the assessments are accurate. any discrepancies shall be notified to gta prior to works commencing.
2. Tender or billing drawings shall not be used for construction or the ordering of materials.
3. Do not scale. All dimensions and levels to be site confirmed.
4. This drawing shall be read in conjunction with all relevant architects, consultants drawings and specifications, together with H&S plan requirements
5. Copyright : This drawing must not be copied, amended nor reproduced without the prior written agreement of gta.
6. All drawings specifications and recommendations made by gta are subject to Local Authority and other relevant Statutory Authorities approval. Any works or services made abortive due to the client proceeding prior to these approvals is considered wholly at the Clients risk. gta hold no responsibility for resulting abortive works or costs.

PHASE: 0

MH No.	MANHOLE DIAMETER (mm)	MANHOLE TYPE	COVER LEVEL (m)	INVERT LEVEL (m)	DEPTH TO SOFFIT (m)	EASTING (m)	NORTHING (m)	COVER TYPE
FWMH1	1200	Type B	5.91	4.307	1.378	470871.745	99798.962	675x675x150mm D400
SWMH1	1350	Type C	5.295	3.922	1.073	470894.10	99824.386	1220x685x150mm D400
SWMH2	1350	Type C	5.305	3.870	1.135	470884.464	99832.640	1220x685x150mm D400
SWMH3	1350	Type C	5.505	3.81	1.395	470869.993	99830.703	1220x685x150mm D400
SWMH4	1350	Type C	5.354	3.909	1.145	470821.231	99839.761	1220x685x150mm D400
SWMH5	1350	Type C	5.41	3.843	1.267	470836.849	99836.070	1220x685x150mm D400
SWMH6	1350	Type C	5.44	3.767	1.373	470855.341	99835.114	1220x685x150mm D400
SWMH7	1350	Type C	5.405	3.72	1.385	470865.238	99840.995	1220x685x150mm D400
SWMH8	1240x1050	Type C	5.24	3.336	1.304	470859.511	99850.416	1220x685x150mm D400
SWMH9	1240x1050	Type C	5.135	3.320	1.215	470862.924	99857.641	1220x685x150mm D400
SWMH11	1500	Type B	5.440	3.254	1.586	470822.308	99883.151	675x675x150mm D400
SWMH12	2100	Type B	5.45	2.854	1.996	470855.508	99924.365	675x675x150mm D400
SWMH14	1350	Type C	5.56	3.929	1.331	470910.615	99889.474	1220x685x150mm D400
SWMH15	1350	Type C	5.24	3.75	1.19	470883.131	99912.429	1220x685x150mm D400
SWMH16	1350	Type C	5.40	3.875	1.225	470906.615	99966.776	1220x685x150mm D400
SWMH17	1200	Type B	5.72	3.952	1.543	470884.699	99983.142	675x675x150mm D400
SWMH18	1350	Type C	5.57	3.804	1.466	470892.321	99976.136	1220x685x150mm D400
SWMH20	1800	Type B	5.395	2.840	1.655	470857.007	99933.858	675x675x150mm D400
SWMH21	1800	Type C	5.10	2.808	1.391	470836.047	99951.753	1220x685x150mm D400
SWMH22	1350	Type C	5.80	4.242	1.258	470883.382	99827.486	1220x685x150mm D400
SWMH23	1350	Type C	5.95	4.186	1.464	470683.301	99841.120	1220x685x150mm D400
SWMH24	1350	Type C	5.57	4.053	1.217	470715.860	99841.313	1220x685x150mm D400
SWMH25	1350	Type C	5.59	4.122	1.168	470756.614	99841.786	1220x685x150mm D400
SWMH26	1350	Type C	5.405	3.837	1.118	470762.003	99841.502	1220x685x150mm D400
SWMH27	1350	Type C	5.35	3.775	1.125	470737.190	99841.440	1220x685x150mm D400
SWMH28	1350	Type C	5.595	3.697	1.448	470727.004	99872.814	1220x685x150mm D400
SWMH29	1350	Type B	5.87	3.697	1.723	470711.266	99898.557	675x675x150mm D400
SWMH30	1350	Type C	5.555	3.633	1.472	470736.850	99898.709	1220x685x150mm D400
SWMH31	1350	Type C	5.455	3.608	1.397	470736.792	99908.478	1220x685x150mm D400
SWMH32	1350	Type C	5.35	3.578	1.322	470743.804	99916.353	1220x685x150mm D400
SWMH33	1350	Type C	5.045	3.499	1.096	470775.731	99916.830	1220x685x150mm D400
SWMH34	1350	Type C	5.39	3.75	1.34	470806.802	99899.105	1220x685x150mm D400
SWMH35	1350	Type C	4.99	3.482	1.058	470778.567	99922.697	1220x685x150mm D400
SWMH36	2100	Type B	5.47	2.78	1.79	470816.613	99988.209	675x675x150mm D400
SWMH37	1800	Type B	5.960	2.72	2.340	470851.006	100009.449	675x675x150mm D400
SWMH38	1800	Type B	6.127	2.702	2.525	470867.142	100011.599	675x675x150mm D400
SWMH39	1800	Type B	6.42	2.663	2.857	470889.462	100038.324	675x675x150mm D400
SWMH40	1800	Type B	6.29	2.617	2.773	470915.956	100070.045	675x675x150mm D400
SWMH41	1200	Type B	5.725	3.95	1.55	470944.831	100104.619	675x675x150mm D400
SWMH42	1800	Type B	6.07	2.592	2.578	470930.207	100087.109	675x675x150mm D400
SWMH43	1350	Type C	5.287	3.64	1.422	470975.351	100079.736	1220x685x150mm D400
SWMH44	1800	Type B	5.70	2.548	2.252	470960.428	100061.868	675x675x150mm D400
SWMH45	2400	Type B	5.55	2.531	2.119	470971.947	100052.183	675x675x150mm D400
SWMH46	2100	Type B	5.575	2.517	2.158	470982.734	100059.107	675x675x150mm D400
SWMH47	1240x900	Type C	5.405	3.595	1.360	470738.022	99913.296	1220x685x150mm D400
FWMH1	1200	Type B	5.29	3.671	1.519	470896.956	99825.225	675x675x150mm D400
FWMH2	1200	Type B	5.356	3.486	1.770	470885.588	99834.689	675x675x150mm D400
FWMH3	1200	Type B	5.49	3.318	2.072	470872.156	99834.461	675x675x150mm D400
FWMH4	1200	Type B	5.553	3.560	1.843	470804.250	99839.916	675x675x150mm D400
FWMH9	1200	Type B	5.245	2.99	2.105	470860.749	99883.524	675x675x150mm D400
FWMH11	1200	Type B	5.45	3.429	1.871	470911.594	99899.317	675x675x150mm D400
FWMH12	1200	Type B	5.301	2.855	2.296	470876.346	99915.756	675x675x150mm D400
FWMH13	1200	Type A	5.389	2.21	3.029	470857.912	99931.152	675x675x150mm D400
FWMH14	450	Type D	5.10	3.80	1.20	470832.521	99952.350	675x675x150mm D400
FWMH15	450	Type D	5.81	4.60	1.11	470685.495	99828.670	300x300x150mm D400
FWMH16	1350	Type C	5.925	4.38	1.395	470685.433	99839.012	300x300x150mm D400
FWMH17	1350	Type C	5.605	4.175	1.280	470711.935	99839.170	1220x685x150mm D400
FWMH18	450	Type D	5.46	3.805	1.505	470767.459	99839.499	1220x685x150mm D400
FWMH19	450	Type D	5.325	3.993	1.182	470739.237	99859.332	300x300x150mm D400
FWMH20	450	Type D	5.427	4.356	0.971	470739.131	99857.223	300x300x150mm D400
FWMH21	450	Type D	5.607	4.125	1.382	470739.022	99875.651	300x300x150mm D400
FWMH22	1200	Type B	5.58	3.713	1.717	470738.898	99896.446	300x300x150mm D400
FWMH23	1200	Type B	5.40	3.538	1.712	470739.016	99910.429	675x675x150mm D400
FWMH24	1200	Type B	5.08	3.138	1.792	470769.889	99914.529	675x675x150mm D400
FWMH25	1200	Type B	5.42	2.701	2.569	470809.563	99893.812	675x675x150mm D400
FWMH27	1200	Type B	5.055	2.937	1.968	470782.367	99916.525	675x675x150mm D400
FWMH28	1200	Type B	4.95	3.02	1.78	470780.588	99928.847	675x675x150mm D400
FWMH29	1350	Type C	5.228	3.682	1.416	470804.759	99958.053	675x675x150mm D400
FWMH30	450	Type D	5.85	4.45	1.30	470842.511	100003.349	1220x685x150mm D400
FWMH31	1200	Type B	5.595	3.05	2.445	470909.723	99961.106	300x300x150mm D400
FWMH32	1200	Type B	5.515	2.70	2.665	470897.976	99970.917	675x675x150mm D400
FWMH33	1200	Type A	5.56	1.856	3.554	470891.626	99972.092	675x675x150mm D400
FWMH34	1200	Type A	5.645	1.799	3.696	470890.232	99980.369	675x675x150mm D400
FWMH35	450	Type D	5.92	4.146	1.674	470881.169	99988.065	675x675x150mm D400
FWMH36	450	Type D	6.00	4.60	1.30	470857.585	100001.640	300x300x150mm D400
FWMH38	450	Type D	6.22	4.85	1.27	470875.392	100017.585	300x300x150mm D400
FWMH39	1200	Type B	6.40	4.51	1.74	470890.188	100035.301	300x300x150mm D400
FWMH40	1200	Type B	6.235	4.248	1.837	470915.374	100065.456	675x675x150mm D400
FWMH41	1200	Type B	5.70	3.502	2.048	470804.146	99846.579	675x675x100mm B125
FWMH42	1200	Type B	6.015	4.061	1.803	470933.124	100087.086	675x675x150mm D400
FWMH43	1200	Type B	5.481	2.606	2.725	470821.816	99886.528	675x675x150mm D400
FWMH44	1200	Type B	5.60	3.767	1.683	470966.889	100058.537	675x675x150mm D400
FWMH45	1200	Type A	5.903	1.547	4.206	470914.307	100009.641	675x675x150mm D400
FWMH46	1200	Type A	5.580	1.321	4.109	470940.939	100030.465	675x675x150mm D400
FWMH47	1200	Type A	5.671	1.233	4.288	470953.998	100032.732	675x675x150mm D400
FWMH48	1200	Type A	5.283	1.012	4.122	470974.438	100058.870	675x675x150mm D400
FWMH21A	1200	Type B	5.335	3.443	1.741	470745.442	99914.445	675x675x150mm D400
FWMH14A	1200	Type B	5.70	3.214	2.336	470833.975	99862.676	675x675x100mm B125
FWMH42A	450	Type D	5.626	4.475	1.251	470940.444	100096.508	300x300x100mm B125
FWMH43A	1200	Type B	5.75	3.863	1.737	470955.832	100067.869	675x675x150mm D400
FWPUMP	2100	Type A	5.515	0.964	4.401	470975.940	100065.870	675x675x150mm D400

CHAMBERS MARKED THUS ARE LOCATED WITHIN JUNCTION AREAS AND ARE TO BE FITTED WITH SKID RESISTANT COVERS - DUCTILE IRON INTER Ax2 by PAM Saint Gobain OR SIMILAR APPROVED

Rev	Amendments	Date	Drn	Chk
T16	SKID RESISTANT COVERS INDICATED & BITUMINOUS CARRIAGEWAY CONSTRUCTION SPEC UPDATED TO HCC REQUIREMENTS	28.07.22	DMS	ds
T15	FWMH14A ADDED TO RE-ROUTE DRAINAGE FROM PLAY AREA TO SWS REQUIREMENTS	16.05.22	DMS	ds
T14	ALL DRAINAGE ADJUSTED TO SUIT REDESIGNED SYSTEM TO GENERALLY RAISED LEVELS	24.03.22	DMS	ds
T13	SPEED CONTROL BEND AT PLOT 26 ADJUSTED TO HCC REQUIREMENTS - OFFSITE LINK TO TRAIL DETAILED - FURTHER ROAD GULLIES ADDED TO COMPLY WITH DRAINED AREAS HCC REQUIREMENTS	30.11.21	DMS	ds
T12	FWMH46 RELOCATED TO SUIT EXTENDED RISING MAIN LENGTH	27.08.21	DMS	ds
T11	ALL UNITS ADJUSTED IN ACCORDANCE WITH MASONRY CONSTRUCTION DETAILS - FOUL DRAINAGE RE-ROUTED AT PLOTS 61-64 - ALL FOUL SEWERS RENUMBERED TO SUIT - BACKDROPS ADDED TO STEEPER FOUL SEWERS WHERE PRACTICAL	11.06.21	DMS	ds
T10	GENERAL AMENDMENTS IN ACCORDANCE WITH SITE LAYOUT PL-02 P12 + ADJUSTMENTS TO SUIT HCC S38 COMMENTS (20.08.14) & SWS FINAL S104 AGREEMENT COMMENTS	26.03.21	DMS	ds
T9	GENERAL AMENDMENTS TO S38 COMMENTS AND CLIENT REQUIREMENTS - SPEED CONTROLS ADDED, STORAGE PROVISION ADJUSTED, FW RISING MAIN REALIGNED	15.05.20	DMS	ds
T8	ALL BLOCKS UPDATED IN ACCORDANCE WITH TIMBER FRAMING DETAILS - DIVERTED HV ELECTRIC CABLE ADDED - MODULAR STORAGE TANKS REINTRODUCED - POND MOVED AWAY FROM OVERHEAD CABLES	31.03.20	DMS	ds
T7	VISITOR PARKING ADJUSTED ROADS 1 & 3 EITHER END OF PATH 1 / SHEDS AND BIN STORES ADDED PLOTS 144-156 / WHOLITE STORAGE TANKS ADDED	11.03.20	DMS	ds
T6	PLOTS 101-104, 129 ADJUSTED / PLOTS 139-157 MOVED OR SUBSTITUTED / VISITOR PARKING BAYS ADJUSTED & CYCLE SHEDS ADDED TO GARDENS WITHOUT GARAGES / PATH 3 DELETED AND PLOTS 73-75 PARKING ADJUSTED TO SUIT	25.02.20	DMS	ds
T5	DRAINAGE ADJUSTED TO SWS COMMENTS & PUMP STATION SPECIFICATION AS CLOUDED ITEMS ON SCHEDULE	07.02.20	DMS	ds
T4	STREET LIGHTING ADDED - FWMH41 RELOCATED TO SUIT RISING MAIN DESIGN	13.01.20	DMS	ds
T3	ACCESS ROAD GENERALLY ADJUSTED - HWMH1 ADDED	07.01.20	DMS	ds
T2	SWMH10 DELETED	16.12.19	DMS	ds
T1	GROUNDWORKS TENDER ISSUE	05.12.19	DMS	ds
P1	PRELIMINARY ISSUE FOR S38 DISCUSSION	22.11.19	DMS	ds

Status: PRELIMINARY

Client: BARRATT HOMES

Project: PEBBLE WALK, SINAH LANE HAYLING ISLAND, HANTS

Title: ROAD AND MAIN SEWER LAYOUT

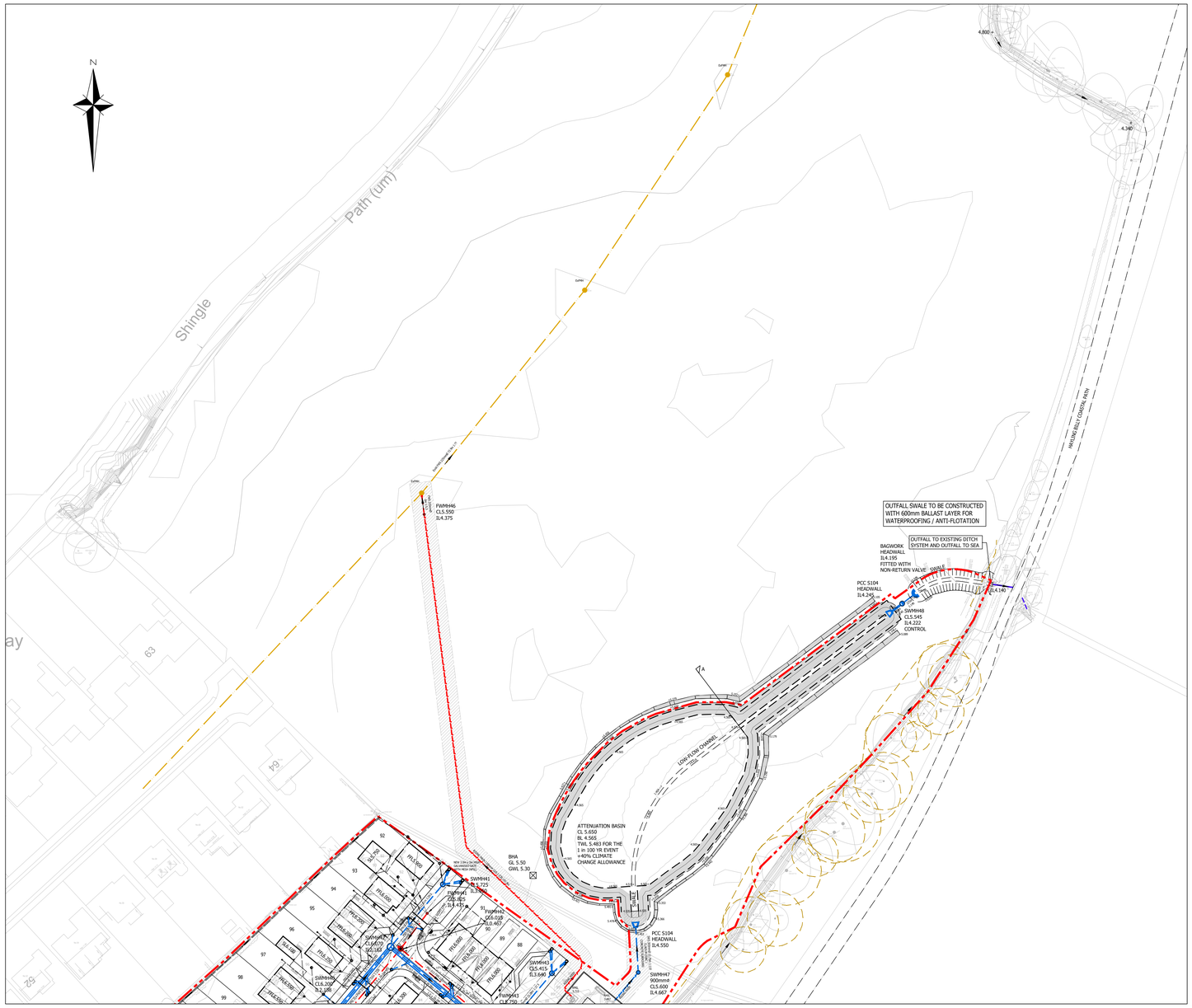
Date	Scale @ A0
NOVEMBER 2019	1:500
Base Layout Ref.	CAD File ref.
Clients Ref.	Project Ref. 10162

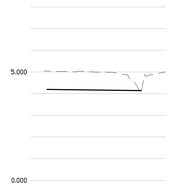
gta Civils & Transport
Gloucester House, 66a Church Walk,
Burgess Hill, West Sussex, RH15 9AS.
Tel.01444 871444 Web: www.gtacivils.co.uk

Drawing Number: 10162/1011 Rev. T16

UNAPPROVED
AWAITING TECHNICAL APPROVAL

THIS DRAWING IS SUBJECT TO CHANGE FOLLOWING TECHNICAL APPROVAL PROCESS WITH HAMPSHIRE COUNTY COUNCIL
NO WORKS CAN COMMENCE ON THE PUBLIC HIGHWAY PRIOR TO A (SECTION 278) AGREEMENT BEING SIGNED BY HAMPSHIRE CC

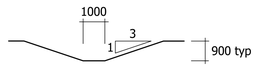




SWALE

CHAINAGE	0.000 0.775	10.000	13.879	20.000	28.082	
EXISTING GROUND LEVEL	5.051	5.016	4.679	5.066		
ALIGNMENT LEVEL	4.795	4.172	4.146	4.140		
VERTICAL ALIGNMENT	G= -0.254% 1: -394.0					
HORIZONTAL ALIGNMENT	R= 16.414					

SCALE 1:500 Horizontal / 1:100 Vertical



TYPICAL SWALE CROSS SECTION

ALIGNMENT SWALE								
LOCATION	CHAINAGE	EASTING	NORTHING	RADIUS	BEARING	ANGLE	ARC LENGTH	TANL
SPSWALE-1	0.000	471077.403	100186.278		52.85159			
TPSWALE-1a	0.775	471078.021	100186.746		52.85159			
IPSWALE-1		471083.539	100190.927	16.414		45.74073	13.104	6.924
CPSWALE-1	10.000	471086.517	100190.015					
TPSWALE-1b	13.879	471090.385	100189.892		98.59233			
CPSWALE-2	20.000	471096.438	100188.978					
EPSWALE-1	28.082	471104.429	100187.770		98.59233			

GENERAL NOTES

1. The location, size, depth and identification of existing services that may be shown or referred to on this drawing have been assessed from non intrusive observations , record drawings or the like. The contractor shall safely carry out intrusive investigations, trial holes or soundings prior to commencing work to satisfy himself that it is safe to proceed and that the assessments are accurate. any discrepancies shall be notified to gta prior to works commencing.

2. Tender or billing drawings shall not be used for construction or the ordering of materials.

3. Do not scale. All dimensions and levels to be site confirmed.

4. This drawing shall be read in conjunction with all relevant architects, consultants drawings and specifications, together with H&S plan requirements

5. Copyright : This drawing must not be copied, amended nor reproduced without the prior written agreement of gta.

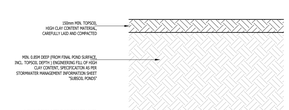
6. All drawings specifications and recommendations made by gta are subject to Local Authority and other relevant Statutory Authorities approval. Any works or services made abortive due to the client proceeding prior to these approvals is considered wholly at the Clients risk. gta hold no responsibility for resulting abortive works or costs.

GENERAL NOTES

1. ALL ADOPTABLE HIGHWAY CONSTRUCTION WORKS SHALL BE CARRIED OUT TO THE STANDARD LAID DOWN IN THE HAMPSHIRE COUNTY COUNCIL SPECIFICATIONS, WITH A VIEW TO ADOPTION UPON COMPLETION.
2. ALL ADOPTABLE SEWERS AND SHALL BE CONSTRUCTED TO THE STANDARDS LAID DOWN IN "SEWERS FOR ADOPTION" 7th EDITION, AND SOUTHERN WATER SPECIFICATIONS, WITH A VIEW TO ADOPTION UPON COMPLETION.
3. BEFORE CONNECTIONS ARE MADE TO EXISTING DRAINAGE, IT'S LEVEL IS TO BE CHECKED AND CONFIRMED AGAINST LEVELS SHOWN ON THIS DRAWINGS AND THIS OFFICE INFORMED OF ANY SIGNIFICANT DIFFERENCE. **NO CONNECTIONS ARE TO BE MADE TO THE EXISTING PUBLIC SEWERS PRIOR TO A S106 AGREEMENT WITH SOUTHERN WATER.**
4. ALL SEWERS WITH LESS THAN 1.2m COVER WHEN LAID BENEATH THE ROAD OR BENEATH FOOTWAYS/VERGES IMMEDIATELY ADJACENT TO THE CARRIAGEWAY, OR 0.9m OF COVER IN OTHER AREAS, SHALL BE PROTECTED WITH CONCRETE IN ACCORDANCE WITH EITHER OF THE DETAILS SHOWN ON THE STANDARD DRAWING PROVIDED (FOR BEDDING TYPE LOCATIONS, REFER TO SEWER SECTIONS).
5. THE MINIMUM SIZE OF PIPE CONNECTING GULLIES TO THE DRAINAGE SYSTEM SHALL BE 150mm DIA. LAID AT A MINIMUM GRADIENT OF 1 IN 80.
6. IN ORDER TO MAINTAIN THE SATISFACTORY FUNCTIONING OF THE DRAINAGE SYSTEM, ALL ROAD AND YARD GULLIES ARE TO BE "TRAPPED".
7. THE DESIGN IS SUCH THAT WATER FROM PRIVATE AREAS DOES NOT SHED TO ADOPTABLE AREAS AND VICA VERSA.
8. THE CONTRACTOR IS TO KEEP A RECORD OF ANY VARIATIONS MADE ON SITE, INCLUDING THE RELOCATION OF SEWERS OR DRAINS, SO THAT AN AS CONSTRUCTED DRAWING CAN BE PREPARED UPON COMPLETION OF THE PROJECT.
9. THE CONTRACTOR SHOULD CHECK ALL DIMENSIONS ON SITE.
10. IT IS THE SUBCONTRACTORS RESPONSIBILITY TO ENSURE COMPLIANCE WITH CURRENT BUILDING REGULATIONS AND CODES OF PRACTICE.

KEY

- Site Boundary
- Existing Foul Drainage
- Existing Surface Water Drainage
- Proposed Surface Water Drainage
- Proposed Foul Drainage
- Main Foul Sewer Manhole - Type 2
- Main Foul Sewer Manhole - Type 3
- Main Surface Water Manhole - Type 2
- Road Gully
- Direction of Fall
- Sewer Easement
- Tactile Paved Crossing Point
- Street Nameplate
- Bollard Plastic, reflective
- 6m Lighting Column (Stepped Tubular)
- 6m Lighting Column (Raise & Lower)
- Root Protection Zone



POND MAKEUP/LINING DETAIL

Pebble Walk, Sinah Lane, Hayling Island

10162

Attenuation Lagoon - Anti-Flotation Calculation

V1 - 15.6.21

Pond ref	Pond lowest level
Pond Area at base (m2)	1767.200
Pond Area at highest GW level (m2)	2538.600
Average Pond area (m2)	2152.900
Top GW levelm AOD)	5.500
Pond base (m AOD)	4.375
Depth GW- Base (m)	1.125
Ballast thickness (m)	0.850
Topsoil depth	0.000
Overall depth (m)	1.975
Volume for buoyancy (m^3)	4251.978
Buoyancy uplift (kN)	41711.90
Ballast construction depth (m)	0.850
Ballast downward force	43156.20
Topsoil depth (m)	0.000
Topsoil downward force (m)	0.00
Downward forces (kN)	43156.20
Factor of safety	1.2
OK	

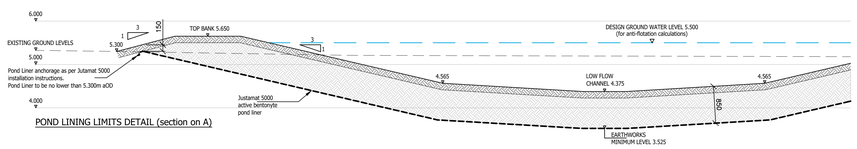
Pebble Walk, Sinah Lane, Hayling Island

10162

Attenuation Lagoon Outfall Swale - Anti-Flotation Calculation

V1 - 15.6.21

Pond ref	Pond lowest level
Pond Area at base (m2)	20.656
Pond Area at highest GW level (m2)	137.768
Average Pond area (m2)	79.212
Top GW level (m AOD)	5.500
Pond base (m AOD)	4.140
Depth GW- Base (m)	1.360
Ballast thickness (m)	0.600
Topsoil depth	0.000
Overall depth (m)	1.960
Volume for buoyancy (m^3)	155.256
Buoyancy uplift (kN)	1523.1
Ballast construction depth (m)	0.600
Ballast downward force	1653.22
Topsoil depth (m)	0.000
Topsoil downward force (m)	0.00
Downward forces (kN)	1653.22
Factor of safety	1.2
OK	



POND LINING LIMITS DETAIL (section on A)

Rev	Amendments	Date	Dsn	Chk
T11	OUTFALL SWALE ANTI-FLOTATION MEASURES CALCULATION ADDED	24.02.22	DMS	ds
T10	DESIGN UPDATED IN ACCORDANCE WITH RECORDED GROUNDWATER LEVELS	09.12.21	DMS	ds
T9	FWMH46 RELOCATED TO SUIT EXTENDED RISING MAIN LENGTH	27.08.21	DMS	ds
T8	ALL FOUL SEWERS RENUMBERED & BACKDROPS ADDED TO STEERER FOUL SEWERS WHERE PRACTICAL	11.06.21	DMS	ds
T7	GENERAL AMENDMENTS IN ACCORDANCE WITH SITE LAYOUT PL-02 P12 + ADJUSTMENTS TO SUIT HCC S38 COMMENTS (20.08.14) & SWS FINAL S104 AGREEMENT COMMENTS	26.03.21	DMS	ds
T6	OUTFALL SWALE ADJUSTED TO CONNECT TO APPROVED OUTFALL LOCATION	15.05.20	DMS	ds
T5	POND MOVED AWAY FROM OVERHEAD CABLES	31.03.20	DMS	ds
T4	FWMH41 RELOCATED TO SUIT RISING MAIN	13.01.20	DMS	ds
T3	ACCESS PATHS GENERALLY ADJUSTED	07.01.20	DMS	ds
T2	SWALE DESIGN DETAILS ADDED	16.12.19	DMS	ds
T1	GROUNDWORKS TENDER ISSUE	06.12.19	DMS	ds

Status

PRELIMINARY

Client

BARRATT HOMES

Project

PEBBLE WALK, SINAH LANE
HAYLING ISLAND, HANTS

Title

SURFACE WATER DRAINAGE
OUTFALL PLAN

Date	Scale @ A0
NOVEMBER 2019	1:500
Base Layout Ref.	CAD File ref.
Clients Ref.	Project Ref. 10162

gta Civils & Transport
Gloucester House, 66a Church Walk,
Burgess Hill, West Sussex, RH15 9AS
Tel:01444 871444 Web: www.gtacivils.co.uk

Drawing Number 10162/1016

Rev. T11