

Drainage Maintenance & Management Statement

Regis Park, Land off Sefter Road, Bognor Regis, West Sussex

Client

Taylor Wimpey UK Limited
Gate House, Turnpike Road,
High Wycombe,
HP12 3NR

Ref: 10768

Date: May 2022

Consulting Engineers

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- B Site Drainage layouts

Issue	Issue date	Compiled	Checked
Preliminary Issue	13 May 2022	DT	NS
Second Issue	20 October 2022	DT	NS

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Checked by: Neil Stevenson MCIHT

1 Introduction and Description of System

- 1.1 The drainage system has been split into three separate catchments, which follow the falls of the existing topography. The eastern catchment drains positively to the final discharge point (600mm diameter anti-tank drain). Similarly, the north-west and south-west catchment drain positively to a common for the two catchments final discharge point (600mm diameter anti-tank drain). All surface water generated within the site is being treated through a series of detention basins, designed to store water for the 100 year storm event, including climate change allowance (40%). The flow rates to the final outfalls from the proposed development are restricted via flow control devices, designed to not exceed the greenfield run-off rates of the site's proposed impermeable areas.
- 1.2 Flow control devices are situated in four locations, three of them immediately upstream of the final outfalls, and one in-between the series of detention basins controlling the maximum water level within them. Flow control devices are installed in manholes and will require regular maintenance as outlined in the following sections, to ensure the site is free-flowing and any potential flooding from or within the site is prevented.
- 1.3 Upstream of the storage features, water is collected from roofs via traditional rainwater pipework. From private car parks and footways water is collected via trapped gullies, whilst in locations where tanked permeable surface is proposed, water is collected from distribution tanks within the sub-base stone layer.
- 1.4 Water generated from the main roads is collected via traditional road gullies, which drain into an adopted by the highway authority surface water sewer under the road.
- 1.5 Foul drainage is collected by gravity from each plot via 450mm inspection plastic chambers, which then drain into a main water authority owned foul system. Foul network drains into an adoptable pumping station from which water is pumped to the final outfall manhole in Sefter Road, south of the proposed development.
- 1.6 Maintenance of any drainage scheme is essential to ensure that it continues to perform as designed. Within the site's Health & Safety File, a Maintenance Strategy will be developed which will give details of routine maintenance inspections for each element of the drainage system, together with details of how they should be undertaken and at what intervals or events. It should also include, where relevant, the installed manufacturer's details and maintenance recommendations.

- 1.7 The surface water drainage systems require regular inspection/clearing to prevent blockages due to the accumulation of silt. Tables in following sections set out the maintenance requirement for each SuDS element proposed for the development, based on CIRIA C753 SuDS Manual.
- 1.8 Adopted elements of the drainage system will be the responsibility of Icosa Water or West Sussex Highways Authority, who will be liable for the on-going inspection and maintenance.
- 1.9 To ensure ongoing compliance with the requirements of the maintenance schedule, an Estate Management Company will be set up by the Client for the lifetime of the development and therefore the private drainage system will form part of their maintenance obligations.
- 1.10 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.
- 1.11 The following sections detail the main drainage items used within the scheme as well as the maintenance requirements for each item.

2 Drains, Sewers Manholes, Gullies, Silt Pits, Catchpits

- 2.1 Regular inspection and maintenance is required to ensure the effective long-term operation of private drains, manholes, gullies & silt pits.
- 2.2 Prior to construction: a CCTV survey to be carried out on all existing sewer systems (not being demolished as part of the scheme) and any downstream receiving systems, prior to connection with adopted sewers.
- 2.3 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.
- 2.4 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.

- 2.5 Ongoing maintenance responsibility for all Section 104 sewers will be the responsibility of Icosa Water (marked SWS and FWS on the drainage layout)
- 2.6 Highway drainage (marked HWD on plan) will be the responsibility of West Sussex County Council under the Section 38 highway adoption agreement.
- 2.7 Foul and surface water drainage within the conveyance boundary of an individual house will be the responsibility of the homeowner.
- 2.8 All other private drainage outside of individual house owners conveyance will be the responsibility of the Management Company. Operation and maintenance requirements for all sewers manholes, gullies and silt pits are described in the following table.

Item	Task	Frequency	Comments
Main Drainage Network			
Rainwater downpipes	Clean out at roof level and ground level	Twice yearly for the first 2 years of operation then annually	Works undertaken by appropriately qualified person(s).
Chambers, silt-traps & catchpits	Clean out chamber/sump		For RWP outlets at roof level follow health & safety regulations dealing with working at height
Pipe network & drainage channels	Pipes to be inspected and condition assessed. Pipes/channels to be cleaned (jetted) as necessary		

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.

3 Flow Control Devices

Item	Task	Frequency	Comments
Flow Control Devices			
Hydrobrake chambers	Clean out chamber/sump	Monthly for first 3 months then twice yearly	Works undertaken by appropriately qualified person(s)
	Inspect flow control unit and remove debris		
Pumps	As pump manufacture's maintenance schedule	Annually (or as otherwise defined by pump manufacture's maintenance schedule)	Works undertaken by appropriately qualified person(s) It is recommended that an annual maintenance contract is arranged with the pump supplier

4 Permeable Pavements and Attenuation Storage Tanks

Item	Task	Frequency	Comments
Permeable Pavement Incorporating Geocellular Attenuation Tanks			
Pavement structure	Remove organic matter. Brush and vacuum (standard cosmetic sweep over entire surface).	Monthly for first 3 months then twice yearly (in spring and autumn)	Provide adequate working space and safety zone at work location. Provide clear warning of obstructions, minimise potential conflict between road users and road works. Works undertaken by appropriately qualified person(s)
	Replace broken slabs/blocks	As required	
	Replace jointing material	As required	
	Remedial sweeping to rehabilitate surface and upper substructure	Every 10 to 15 years (or as required if significant siltation is apparent)	
Sub-surface conveyance/ attenuation tanks	Inspect catchpits/ silt traps for excessive siltation. Clean as necessary	Twice yearly for first 2 years and then annually	
	CCTV inspection and clean (jetted) as necessary	5 Years	

Item	Task	Frequency	Comments
Permeable Hardstandings			
Self-binding gravel (e.g. CEDEC)	Remove organic matter from surface. Re-roll surface if the material appears to have become 'fluffy'	Monthly for first 3 months then twice yearly (in spring and autumn)	Works undertaken by appropriately qualified person(s) in accordance with the manufacturer's guidance
Gravel Confinement System (e.g. Bodpave)	Remove organic matter from surface. Replenish gravel if required.		
Resin bound gravel (e.g. Addaset, Addabound or Terrabound by Addagrip)	Remove organic matter from surface (with brush and suction cleaner)		

Item	Task	Frequency	Comments
Geocellular Attenuation Tanks			
Upstream & downstream catchpit chambers	Clean out chamber/sump	Twice yearly for the first 2 years of operation then annually	Works undertaken by appropriately qualified person(s)
Inlets, outlets, vents and overflows	Inspect/check to ensure in good condition and correct operation	Annually and after large storms	
Geocellular units	CCTV inspection. Clean (jet) if required	5 Years or if excessive silt/debris observed in upstream & downstream catchpit chambers	

5 Detention Basins

5.1 Detention basins will remain private, and therefore their maintenance will be the responsibility of the Management Company.

5.2 Function: water treatment and storm water storage.

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

Maintenance	Required Action	Typical Frequency
Regular Maintenance	Remove litter and debris	Monthly
	Cut the grass- for spillways and access routes	Monthly (during growing season or as required)
	Cut grass - meadow grass in and around basin	Half yearly (Spring, before nesting season, and Autumn)
	Manage other vegetation and remove nuisance plants	Monthly (at start, then as required)
	Inspect inlets, outlets, banksides, structures, pipework etc for evidence of blockage and/or physical damage	Monthly
	Check penstocks and other mechanical devices	Annually
	Inspect inlets and facility surface for silt accumulation and establish appropriate removal frequencies	Monthly (for first year), then annually or as required
	Tidy all dead growth (scrub clearance) before start of growing season (Note: tree maintenance is usually part of overall landscape management contract)	Annually
	Remove sediment from inlets, outlet and forebay	Annually or as required
	Manage wetland plants in outlet pool – where provided	Annually
Occasional Maintenance	Reseed areas of poor vegetation growth	As required
	Prune and trim any trees and remove cuttings	Every 2 years, or as required
	Remove sediment from inlets, outlets, forebay and main basin when required	Every 5 years, or as required (likely to be minimal requirements where effective upstream source control is provided)
Remedial Actions	Repair erosion or other damage by reseedling or re-turfing	As required
	Realignment of rip-rap	As required

	Repair/rehabilitation of inlets, outlets and overflows	As required
	Relevel uneven surfaces and reinstate design levels	As required

6 On Site Ditches

- 6.1 Function: water conveyance and storage.
- 6.2 Responsibility: The management company has legal riparian responsibility for ensuring the ditches on site are freeflowing.
- 6.3 Inspection Frequency and Maintenance Requirements: as per table below. NOTE: Take note of bird nesting season when carrying out these maintenance items – some may need to be postponed until after this.

Maintenance	Required Action	Typical Frequency
Regular Maintenance	Remove litter and debris	Monthly, or as required
	Cut grass – to retain grass height within specified design range	Monthly (during growing season), or as required
	Manage other vegetation and remove nuisance plants	Monthly at start, then as required
	Inspect inlets, outlets and overflows for blockages, and clear if required	Monthly
	Inspect vegetation coverage	Monthly for six months, quarterly for two years, then half yearly
	Inspect inlets/outlets and ditch base for silt accumulation, establish appropriate silt removal frequencies	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
	Remove silt in the ditch base	As required
	Relevel uneven surfaces and reinstate design levels	As required
	Remove and dispose of oils or petrol residues using safe standard practices	As required

7 Existing Culverts / Anti-Tank Drain

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

Maintenance	Required Action	Typical Frequency
Regular Maintenance	Remove litter and debris	Monthly (every two weeks between October and January)
	Inspect inlets, outlets, for blockages and clear as required	Monthly (every two weeks between October and January)
	Inspect pipework, for evidence of physical damage	Monthly
	Remove sediment from inlets, outlet and forebay	Annually or as required
Occasional Maintenance	Remove sediment from inlets, outlets and main pipe.	Every 5 years, or as required (likely to be minimal requirements where effective upstream source control is provided)
Remedial Actions	Repair/rehabilitation of inlets, outlets	As required

8 Headwalls

8.1 With respect to the maintenance of any exposed surfaces of concrete components, only routine (Annual) cleaning may be necessary with a power washer and possibly some mild detergent to any exposed surfaces to maintain appearance. Where cleaning is required, using clean water and a power washer/ stiff brush should suffice. Concrete units are often expected to "weather" and some coverage will help them to blend into their environment.

8.2 If damage to the structure of any pre-cast concrete components occurs, it is recommended that they are replaced and not repaired. If there is minor damage to corners during their normal life by grass cutting equipment etc., then they can be repaired with an epoxy compound.

- 8.3 To dispose of any Pre-Cast concrete components the preferred method is to recycle the material by crushing and grading, but if the quantity is too small to be cost effective then disposal in conventional landfill is acceptable as all the concrete components are inert with regard to having any environmental impact.

9 Galvanised Grates and Handrails

- 9.1 Annual/bi-annual visual checks are basic recommendations. Gratings within a water course are subject to a higher level of debris/weed, and more regular checks may be required. Clearing of debris/weeds from the grate will ensure no disruption to the flow, or backing up of the water course. Handrails should also only require a visual inspection - annually or at the same time as the headwall and grates.

10 Contamination or Dilution of Spillage

- 10.1 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.

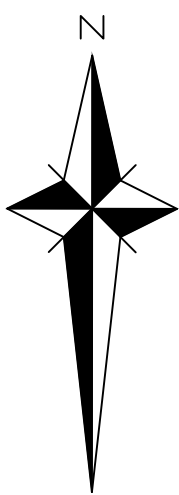
10.2 Environment Agency – Emergency Contact Number

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

Conveyance Plan



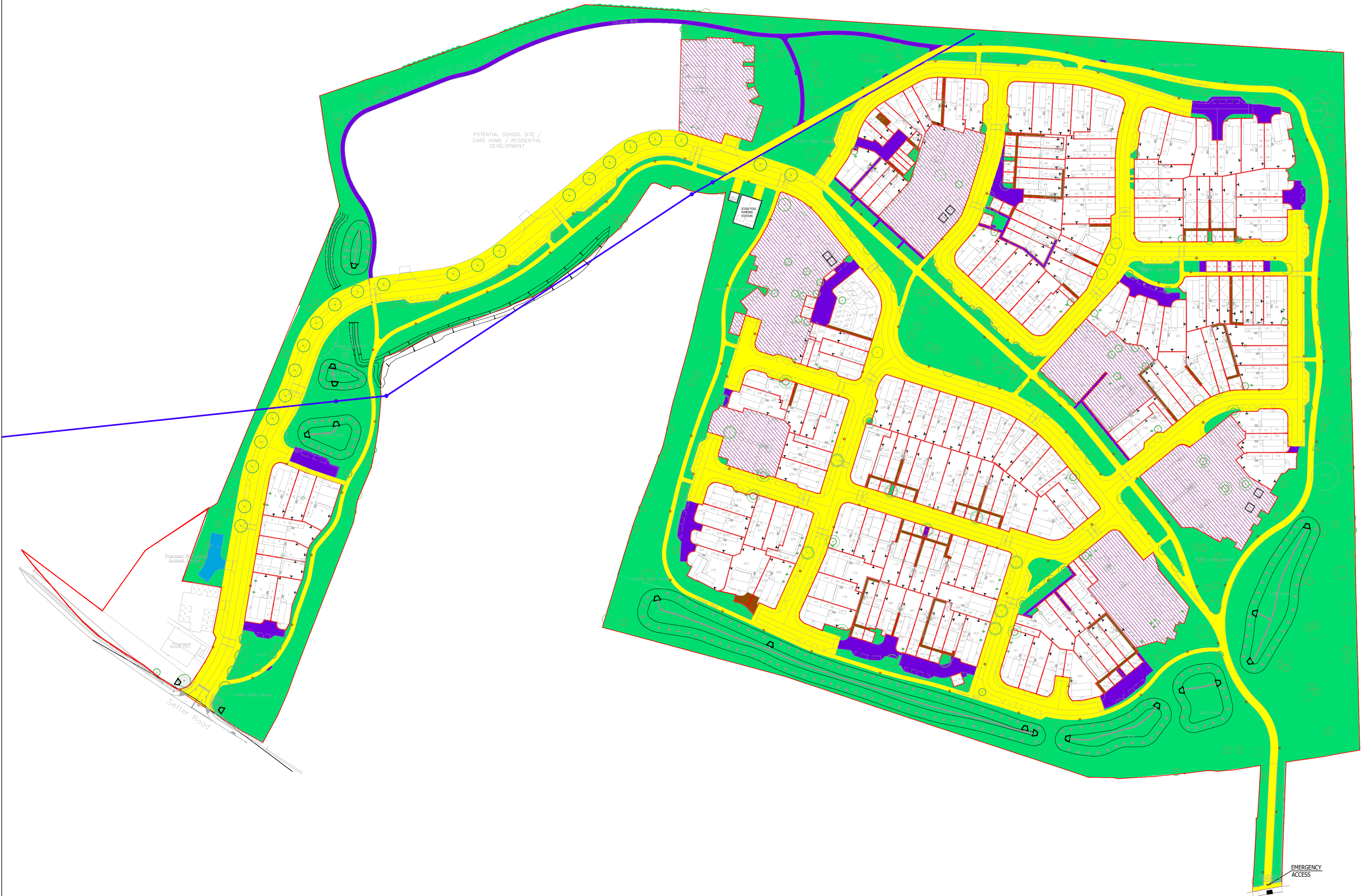
GENERAL NOTES

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.

Key

- Freehold Land to be Transferred
- Plot Boundary Ownership Marker
- Reciprocal Row over private, Non Managed Land
- HA Land
- S38 Adoptable Roads ,Footway & Verges
- Managed Land (Hard Landscaping)
- Visitors Parking Within Management Land
- Bin Collection Point to be used by Freehold Dwellings
- Managed Land (Soft Landscaping)
- Proposed Ambulance Outpost Station
- Site Boundary
- Street Lighting Column
- Anti-Tank Drain

1:1000



P8	Revised to client comments	09.09.22	GS	NS
P7	Site layout updated	26.08.22	GS	NS
P6	Revised to client comments	04.07.22	GS	NS
P5	Revised to client comments	27.06.22	GS	NS
P4	Revised to client comments	21.06.22	NG	NS
P3	Revised to client comments	18.05.22	NG	NS
P2	Revised to client comments	28.04.22	GS	NS
P1	Initial issue	20.04.22	GS	NS

Rev	Amendments	Date	Dsn	Chk
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Status

PRELIMINARY

Client

Taylor Wimpey

Project

SEFTER ROAD
BOGNOR REGIS

Title

CONVEYANCE PLAN

Date	Scale @ A1
FEBRUARY 2022	1/1000
Base Layout Ref.	CAD File ref.
Clients Ref.	Project Ref.
	10768

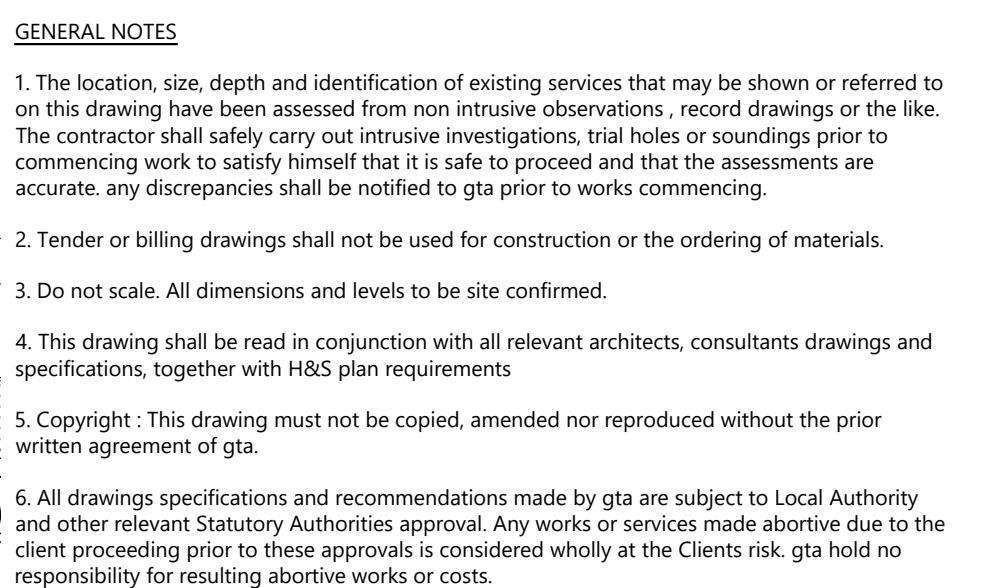
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Drawing Number	Rev.
10768/1810	P8

Appendix B

Site Drainage Layouts



P12	Updated to add latest engineering layout. 20/04/17 9 discharge to be rate updated.	19/10/22	DR	MR
P13	Selection tables & information table is amended.	09/06/22	DR	MR
P14	Pumping station with charge from 9a to 5pm.	09/06/22	DR	MR
P15	Pumping station with charge from 9a to 5pm.	09/06/22	DR	MR
P16	Notes regarding flow charges from 9a to 5pm. (P16/11.1, P16/11.3, P16/11.4)	01/06/22	DR	MR
P17	Notes regarding flow connection table amended. (P17/10.3, P17.5, P17.6, P17.8, P17.9, P17.10, P17.11, P17.12, P17.13, P17.14, P17.15, P17.16, P17.17, P17.18 & P17.19)	12/05/22	DR	MR
P18	Amended to add SOW agreement for future development proceeds.	10/05/22	DR	MR
P19	Amended to add SOW agreement for future development proceeds.	03/05/22	DR	MR
P20	Rising main levels amended. Wasth out value removed to add SOW agreement for future development proceeds.	19/04/22	DR	MR
P21	Engineering design updated underpinning ponds to suit updated boundary calculations. (P21/06/1, P21/06/2, P21/06/3, P21/06/4, P21/06/5, P21/06/6, P21/06/7, P21/06/8, P21/06/9, P21/06/10, P21/06/11, P21/06/12, P21/06/13, P21/06/14, P21/06/15, P21/06/16, P21/06/17, P21/06/18, P21/06/19, P21/06/20, P21/06/21, P21/06/22, P21/06/23, P21/06/24, P21/06/25, P21/06/26, P21/06/27, P21/06/28, P21/06/29, P21/06/30, P21/06/31, P21/06/32, P21/06/33, P21/06/34, P21/06/35, P21/06/36, P21/06/37, P21/06/38, P21/06/39, P21/06/40, P21/06/41, P21/06/42, P21/06/43, P21/06/44, P21/06/45, P21/06/46, P21/06/47, P21/06/48, P21/06/49, P21/06/50, P21/06/51, P21/06/52, P21/06/53, P21/06/54, P21/06/55, P21/06/56, P21/06/57, P21/06/58, P21/06/59, P21/06/60, P21/06/61, P21/06/62, P21/06/63, P21/06/64, P21/06/65, P21/06/66, P21/06/67, P21/06/68, P21/06/69, P21/06/70, P21/06/71, P21/06/72, P21/06/73, P21/06/74, P21/06/75, P21/06/76, P21/06/77, P21/06/78, P21/06/79, P21/06/80, P21/06/81, P21/06/82, P21/06/83, P21/06/84, P21/06/85, P21/06/86, P21/06/87, P21/06/88, P21/06/89, P21/06/90, P21/06/91, 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GENERAL NOTES

- 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 satisfy 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.
- Prior to commencement of works the contractor shall provide co-ordinated and dimensioned installation drawings and calculations and allow 10 working days for gta's checking procedure prior to proceeding with those works or the ordering of materials.
- Tender or billing drawings shall not be used for construction or the ordering of materials.
- Do not scale. All dimensions and levels to be site confirmed.
- This drawing shall be read in conjunction with all relevant architects, consultants drawings and specifications, together with H&S plan requirements.
- Copyright: This drawing must not be copied, amended nor reproduced without the prior written agreement of gta.
- All drawing 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.

SPECIFICATION NOTES

- ALL DRAINAGE SHALL BE CONSTRUCTED AND COMMISSIONED IN ACCORDANCE WITH BS EN 206 & BS EN 202, BUILDING REGULATIONS DOC. H AND ANY PARTICULAR REQUIREMENTS OF THE BUILDING CONTROL OFFICE.
- DRAIN BEDDING IS TO BE PROVIDED AS D200, D200.1 AND D200.2 AS SHOWN ON THE DRAINAGE DETAILS SHEETS.
- EFFECTIVE COVER IS THE MINIMUM DEPTH OF COVER OVER THE PIPE CROWN AT ANY TIME DURING THE CONSTRUCTION PERIOD.
- ALL DRAIN MANHOLES SHALL BE CONSTRUCTED AS DETAILED IN THE SECTOR GUIDANCE IN RELATION TO THE ADOPTION OF SEWERAGE ASSETS BY SEWERAGE COMPANIES IN ENGLAND AS ENABLED BY WATER UK'S CODE FOR ADOPTIONS. SECTIONS OF DRAINAGE TO BE ADOPTED UNDER THE TERMS OF A SECTION 106 AGREEMENT. ALL ADAPTABLE PIPEWORK TO BE CONSTRUCTED FROM VITRIFIED CLAY TO BS EN 205 (UP TO 225mm PIPE) OR CONCRETE TO BS EN 1916 AND BS EN 591.1 (300mm PIPE AND ABOVE).
- ALL CONCRETE PIPEWORK, MANHOLES AND FITTINGS SHALL BE TO BS EN 1916 & BS EN 591.1 (ALL RELEVANT PARTS). ALL CONCRETE PIPEWORK TO BE TO HIGH STRENGTH.
- WHERE CONNECTIONS ARE TO BE MADE TO EXISTING MANHOLES/SEWERS, INVERT LEVELS, PIPE SIZES & ORIENTATION SHALL BE CHECKED PRIOR TO THE COMMENCEMENT OF THE WORKS AND ANY VARIANCE REPORTED TO THE ENGINEER IMMEDIATELY. WORK TO COMMENCE AT DOWNSTREAM END WHEREVER POSSIBLE.
- WHERE PIPELINES CROSS, EACH IS TO BE SUBORDINATED WITH GRADE 54 MASS CONCRETE FOR A DISTANCE NOT LESS THAN 1m CENTRED ON THE CROSSING POINT. LENGTH OF SORROUNDING TO BE EXTENDED AS NECESSARY TO WITHIN 150mm OF THE NEXT NEAREST FLEXIBLE JOINTS.
- THE CONTRACTOR IS TO ENSURE THAT PROTECTIVE MEASURES ARE TAKEN TO ENSURE THAT DRAINAGE PIPEWORK AND FITTINGS ARE NOT DAMAGED BY SITE TRAFFIC PRIOR TO COMPLETION. FILLING OPERATIONS BEING COMPLETED AROUND BUILDINGS.
- ALL PRIVATE DRAINAGE PIPEWORK SHALL BE UNPLASTICISED PVC TO BS EN 1401. ALL UNDERGROUND DRAINS TO BE LAID AT A GRADIENT OF 1:40 WITH A MINIMUM BEST BED LEVEL OF 375mm BELOW THE PROPOSED FINISHED FLOOR LEVEL. CONNECTIONS INTO PIPES RUNS BENEATH BUILDINGS WILL NOT BE PERMITTED WITH THE EXCEPTION OF WASH HAND BASINS, BATHS OR SHOWERS STRICTLY IN ACCORDANCE WITH H&S TECHNICAL GUIDANCE 'J' JUNCTIONS IN DRAINS UNDER BUILDINGS.
- WHERE DRAINS PASS THROUGH FOUNDATIONS OR CONNECT TO MANHOLES, FLEXIBLE PIPE JOINTS ARE TO BE PROVIDED WITHIN 150mm OF THE FACE OF THE STRUCTURE AND WITHIN A FURTHER 600mm TO FORM A ROCKER PIPE.
- WHERE PIPES PASS THROUGH SCREEN WALLS, FOOTINGS OR RETAINING WALLS, UNITS ARE TO BE PROVIDED.
- WHERE PIPES PASS WITHIN 1m OF BUILDINGS OR WALLS THE FOUNDATIONS ARE TO BE TAKEN DOWN BELOW THE BOTTOM OF THE TRENCH.
- 450mm DIA. INSPECTION CHAMBERS (FIC/SIC) MAY BE USED:
 - WITHIN 350mm REDUCED OPENINGS WHERE THE DEPTH FROM COVER TO INVERT EXCEEDS 1000mm.
 - 300mm DIA. POLYPROPYLENE ACCESS CHAMBERS (FAC/SAC) MAY BE USED:
 - WHERE THE DEPTH FROM COVER TO INVERT DOES NOT EXCEED 600mm AND WHERE THE PIPE SIZES DOES NOT EXCEED 100mm DIA.
- STEEL COVERS WITHIN PROPERTY BOUNDARIES SHALL BE:
 - (UNLESS NOTED ON DRAWING OR MANHOLE SCHEDULE)
 - ON PRIVATE DRIVEWAYS, FACTA GRADE B (BS EN 124:1991)
 - ON PRIVATE PATHWAYS, VERGES OR ON GARDENS: FACTA GRADE A (BS EN ISO 1461:1999)
- DUCTILE IRON COVERS OUTSIDE PROPERTY BOUNDARIES SHALL BE:
 - (UNLESS NOTED ON DRAWING OR MANHOLE SCHEDULE)
 - ON ACCESS ROADS AND CAR PARKS: GRADE D400 (BS EN 124:1994)
 - ON SHARED PATHWAYS, VERGES: GRADE A15 (BS EN 124:1994)
- COVER LEVELS SHOWN 'CL' AND INVERT LEVELS SHOWN 'IL' ARE IN METRES ABOVE ORIGINATE DATUM.
- ALL DRAINS TO BE 100mm DIAMETER UNLESS NOTED OTHERWISE.
- SEWER SETTING FOR FUTURE MAINTENANCE SHOULD ACCORD WITH BS EN 14654:2014 AND THE SEWER SETTING CODE OF PRACTICE (PUBLISHED BY WRc). MANUFACTURERS OF THE DRAINAGE SYSTEM COMPONENTS SHOULD ALSO BE CONSULTED BUT UNDER NO CIRCUMSTANCES SHOULD THE FOLLOWING PRESSURES BE EXCEEDED:
 - PLASTIC PIPES - 2000 psi
 - CLAY PIPES - 3000 psi
 - CONCRETE PIPES - 5000 psi
- BELOW GROUND SURFACE WATER ATTENUATION TANK TO PROVIDE THE MINIMUM VOLUME SHOWN ON THE DRAINAGE LAYOUT. THIS ARRANGEMENT IS BASED UPON THE USE OF WASH ALLOWANCE CODE / FORMULA PLUS WITH A MINIMUM VOID RATIO OF 0.95. TANK SHALL INCORPORATE FULL LENGTH ACCESS CHANNEL, TO ALLOW FOR CCTV INSPECTION AND SETTING. SHOULD THE CONTRACTOR PROPOSE A DIFFERENT TANK ARRANGEMENT, PRODUCT TO ACHIEVE THE STATED VOLUME. DETAILS SHOULD BE SUBMITTED TO THE ENGINEER FOR APPROVAL.

KEY

- Existing surface water drain
- Existing foul water drain
- Private surface water drain
- Private foul drain
- Adaptable foul rising main
- Adaptable foul sewer
- Adaptable surface water sewer
- Adaptable Section 38 Highway drain
- Private Foul Water Manhole
- Private Surface Water Manhole
- Adaptable Foul Water Sewer Manhole
- Adaptable Highway Manhole
- Adaptable Section 104 Surface water sewer Manhole
- Foul drain point (Refer to drawing 1702)
- SW Drain point for RWP (Refer to drawing 1702)
- Drainage channel (Refer to drawing 1701)
- 300mm wide x 450mm deep gravel filled trench drain (Refer to drawing 1702)
- Foul Plastic Inspection Chamber (Refer to drawing 1701)
- Surface Water Plastic Inspection Chamber (Refer to drawing 1701)
- Adaptable Highway Road gully (Refer to drawing 1401)
- IL CL 5.996
- Private Road gully (Refer to drawing 1701)
- CL CL 5.996
- Headwall (Refer to drawing 1502)
- Permeable Paving (Refer to drawing 1901 where collector drain is shown within the sub-base layer or to drawing 1702 where distribution tank is shown within sub-base layer)
- Distribution collection tank (Refer to drawing 1702)
- Underground attenuation tank (Refer to drawing 1901)
- Proposed SACS Service Margin 1.0m
- Proposed SACS Buffer Zone 3.0m
- Existing/Proposed Watercourse Easement 5.0m

- # ABBREVIATIONS
- | | |
|-----|---|
| FD | Foul Drain |
| SWD | SURFACE WATER DRAIN |
| PWS | ADAPTABLE FOWL WATER SEWER |
| SWS | ADAPTABLE SURFACE WATER SEWER |
| MH | MANHOLE |
| IC | INSPECTION CHAMBER |
| FIC | 450mm DIA. FOUL INSPECTION CHAMBER |
| SIC | 450mm DIA. SURFACE WATER INSPECTION CHAMBER |
| RG | ROAD GULLY |
| DP | BELOW GROUND DRAIN POINT |
| SOP | SOIL VENT PIPE DROP |
| DT | EXTERNAL DRAINAGE POINT |
| DT | SURFACE WATER DISTRIBUTION TANK |
| FFL | FINISHED FLOOR LEVEL |
| CL | COVER LEVEL |
| IL | INVERT LEVEL |
| SL | SUMP LEVEL |
| BL | BASE LEVEL |
| BDL | BACKDROP INVERT LEVEL |

DESIGN NOTES

- STORAGE DESIGN BASED ON 1 IN 100 YR STORM + 40%.
- DRAIN POINTS AND LOCATIONS TO BE CONFIRMED BY ARCHITECT.
- CONTRACTOR TO ESTABLISH LOCATIONS OF ALL EXISTING SEWERAGES PRIOR TO COMMENCING.
- EXISTING TREES TO BE PROTECTED WHERE EXCAVATIONS RUN CLOSE.
- THE PROPOSED CONNECTIONS INTO THE ADOPTED SEWER NETWORK AND THE DISCHARGE RATES WILL ALL BE SUBJECT TO APPROVAL AND INSPECTION BY SOUTHERN WATER UNDER THE TERMS OF A SECTION 106 AGREEMENT.
- ALL ADAPTABLE ELEMENTS OF THE WORKS TO BE CONSTRUCTED AS DETAILED IN THE SECTOR GUIDANCE IN RELATION TO THE ADOPTION OF SEWERAGE ASSETS BY SEWERAGE COMPANIES IN ENGLAND AS ENABLED BY WATER UK'S CODE FOR ADOPTIONS.
- THE PROPOSED DRAINAGE LAYOUT IS SUBJECT TO DRAINAGE SURVEY OUTCOME CONFIRMING PIPE SIZES AND INVERT LEVELS OF EXISTING MANHOLES FORMING FINAL OUTFALLS OF THE SITE'S PROPOSED DRAINAGE NETWORK. ANY VARIATIONS TO BE REPORTED TO THE ENGINEER PRIOR TO COMMENCING ANY WORKS ON SITE. WORK TO COMMENCE AT DOWNSTREAM END WHEREVER POSSIBLE.

NOTE - EXISTING WATERCOURSE TO BE DIVERTED AROUND DETENTION BASIN 5 AND CULVERTED UNDER PROPOSED ROAD. SUBJECT TO ORDINARY WATERCOURSE CONSENT. EXISTING SECTION DOWNSTREAM OF THE CULVERT TO BE CLEANED OUT TO THE SATISFACTION OF ADC ENGINEER.

HEADWALL 17
Bagwork Headwall to WSCC specification.
(Refer to drawing 10768/1638)
Invert Level: 4.700

Remove existing culvert and reinstate ditch

Contractor to ensure fence foundations span either side of 600mm diameter pipe

HEADWALL 15
Precast Concrete Splayed Headwall SFA15 B with Cranked Grating (3 Sided Kee Klamp)
Invert Level: 4.225

DETENTION BASIN 5
TOP OF BANK MH: 5.750
BASE OF POND: 5.300
DEPTH: 1.450m
BASE AREA: 99.00m²
TOP OF BANK AREA: 279.00m²
1:3 SIDE SLOPES
0.5m wide/0.6m depth channel - clean coarse granular material nominal size 40/60mm - to be provided within the base of the basin to allow water flow.
Basins to be lined with an impermeable geo-membrane - Bentes CL35 Geosynthetic Clay liner related to manufacturer's instruction on base and sides of excavation. Pond liner anchorage to be installed as per Bentes installation instructions. Basins to be backfilled with 150mm topsoil and 600mm minimum thickness of engineering fill of high clay content to act as ballast to prevent pond buoyancy. Liner wrapped under and up sides to existing ground level.

HEADWALL 12
Precast Concrete Splayed Headwall SFA15 B with Cranked Grating (3 Sided Kee Klamp)
Invert Level: 4.300

Proposed 3750 surface water connection laid at 1:313 left capped for future development. 2300mm² of impermeable area has been allowed to discharge free into surface water system.

Proposed 1500 foul water connection laid at 1:150 left capped for future development. *Pumping Station design does not allow for future development to discharge into the downstream foul network.

HEADWALL 18
Bagwork Headwall to WSCC specification.
(Refer to drawing 10768/1638)
Invert Level: 4.650

DETENTION BASIN 6
TOP OF BANK MH: 5.350
BASE OF POND: 4.185
DEPTH: 1.165m
BASE AREA: 69.00m²
TOP OF BANK AREA: 236.00m²
1:3 SIDE SLOPES
0.5m wide/0.6m depth channel - clean coarse granular material nominal size 40/60mm - to be provided within the base of the basin to allow water flow.
Basins to be lined with an impermeable geo-membrane - Bentes CL35 Geosynthetic Clay liner related to manufacturer's instruction on base and sides of excavation. Pond liner anchorage to be installed as per Bentes installation instructions. Basins to be backfilled with 150mm topsoil and 720mm minimum thickness of engineering fill of high clay content to act as ballast to prevent pond buoyancy. Liner wrapped under and up sides to existing ground level.

HEADWALL 14
Precast Concrete Splayed Headwall SFA15 B with Cranked Grating (3 Sided Kee Klamp)
Invert Level: 4.185

HEADWALL 16
Precast Concrete Splayed Headwall SFA15 B with Cranked Grating (3 Sided Kee Klamp)
Invert Level: 4.190

DETENTION BASIN 7
TOP OF BANK MH: 5.500
BASE OF POND: 4.190
DEPTH: 1.310m
BASE AREA: 166.20m²
TOP OF BANK AREA: 446.40m²
1:3 SIDE SLOPES
0.5m wide/0.6m depth channel - clean coarse granular material nominal size 40/60mm - to be provided within the base of the basin to allow water flow.
Basins to be lined with an impermeable geo-membrane - Bentes CL35 Geosynthetic Clay liner related to manufacturer's instruction on base and sides of excavation. Pond liner anchorage to be installed as per Bentes installation instructions. Basins to be backfilled with 150mm topsoil and 840mm minimum thickness of engineering fill of high clay content to act as ballast to prevent pond buoyancy. Liner wrapped under and up sides to existing ground level.

PERMEABLE PAVING
Min CL 6.070
Formation level of sub-base 5.775
Flat formation with 450mm min width of trench to accommodate the collector drain.
Refer to drawing 1901.

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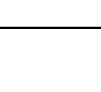
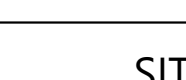
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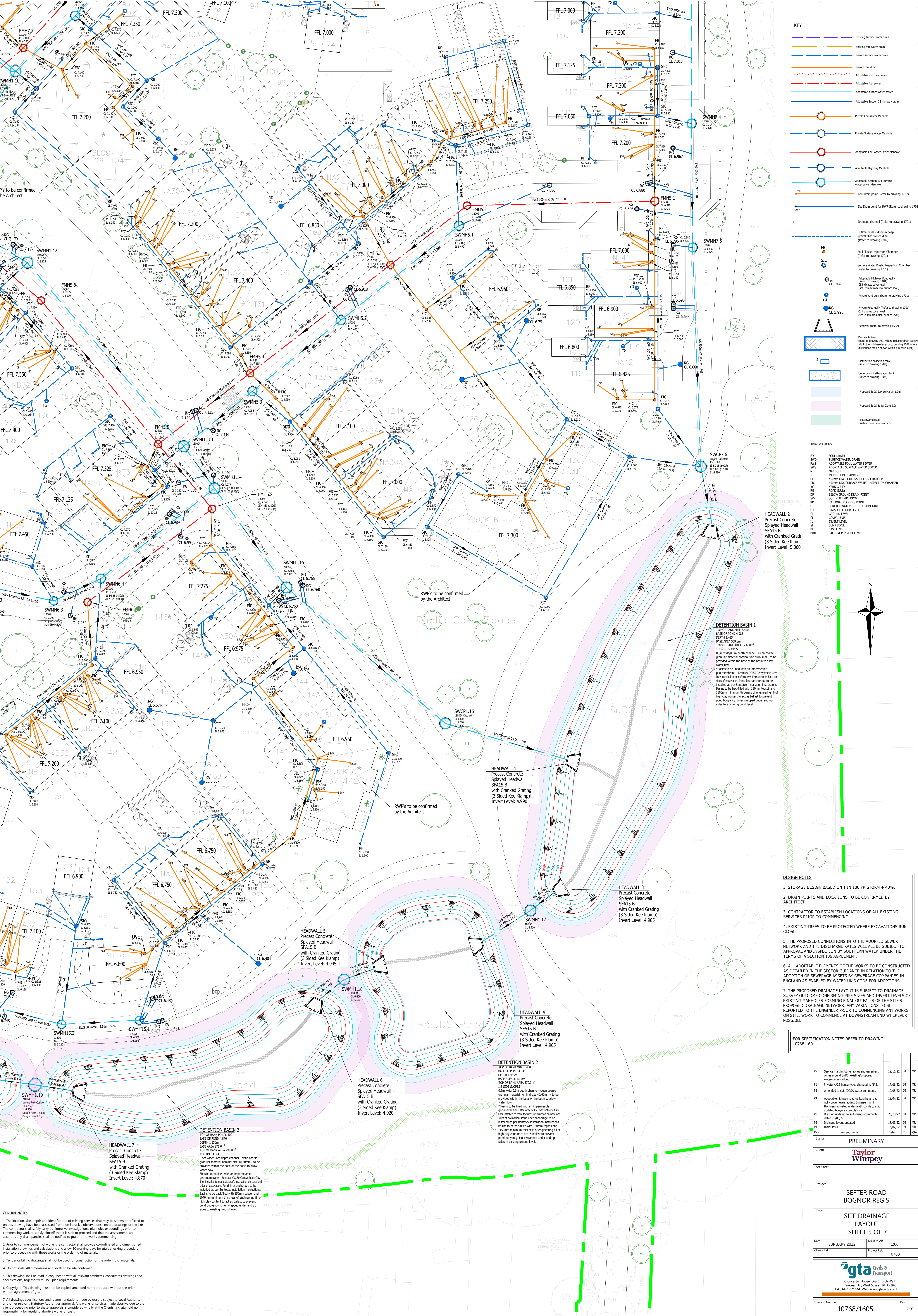
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Flat formation with 450mm min width of trench to accommodate the collector drain.
Refer to drawing 1901.

P9	SWMH17.9 discharge flow rate updated. Service margin, buffer zones and easement zones around SACS, existing/proposed watercourses added.	19/10/22	DT	MR
P8	SWMH17.10 moved, detention basin 5 retained & relocated, attenuation tank size amended. Notes regarding existing ditch added. SWMH17.10 and SWMH17.25 changed to 1.8m internal dia catchpits. Changes in line with ADC Engineer.	03/08/22	DT	MR
P7	Private NA22 house types changed to NA21. Amended to suit JCSA Water comments.	17/06/22	DT	MR
P6	Rising main levels added. Wash out valve manhole added.	10/05/22	DT	MR
P4	Adaptable highway road gully/private road gully cover levels added. Engineering fill thickness adjusted underneath ponds to suit updated buoyancy calculations.	19/04/22	DT	MR
P3	Drawing updated to suit client's comments dated 28/03/22.	28/03/22	DT	MR
P2	Drainage layout updated.	18/03/22	DT	MR
P1	Initial Issue.	14/02/22	DT	MR

Status	PRELIMINARY			Issue	Con	Rev
Client						
Architect						
Project	SEFTER ROAD BOGNOR REGIS					
Title	SITE DRAINAGE LAYOUT SHEET 1 OF 7					
Date	FEBRUARY 2022	Scale	BF A0	1:200		
Clients Ref		Project Ref	10768			
 Gloschester House, 66a Church Walk, Burgess Hill, West Sussex, PO15 9AS Tel:01404 871444 Web: www.gtacivils.co.uk						
Drawing Number	10768/1601					Rev.
					P9	

FIFTY COUNCIL MEMBERS DEC



KEY

- Existing surface water drain
- Existing foul water drain
- Private surface water drain
- Private foul drain
- Adoptable foul ring main
- Adoptable foul sewer
- Adoptable surface water sewer
- Adoptable Section 38 highway drain
- Private Foul Water Manhole
- Private Surface Water Manhole
- Adoptable Foul water Sewer Manhole
- Adoptable Highway Manhole
- Adoptable Section 104 Surface water sewer Manhole
- Foul drain point (Refer to drawing 1702)
- SW Drain point for RWP (Refer to drawing 1702)
- Drainage channel (Refer to drawing 1701)
- 300mm wide x 450mm deep gravel filled trench drain (Refer to drawing 1701)
- Foul Plastic Inspection Chamber (Refer to drawing 1701)
- Surface Water Plastic Inspection Chamber (Refer to drawing 1701)
- Adoptable Highway Road gully (Refer to drawing 1701)
- CL indicates cover level (see 25mm from final surface level)
- Private Yard gully (Refer to drawing 1701)
- Private Road gully (Refer to drawing 1701)
- CL indicates cover level (see 25mm from final surface level)
- Headwall (Refer to drawing 1502)
- Permeable Paving (Refer to drawing 1501 where collector drain is shown within the sub-base layer or to drawing 1702 where distribution tank is shown within sub-base layer)
- Distribution collection tank (Refer to drawing 1702)
- Underground attenuation tank (Refer to drawing 1502)
- Proposed SuDS Service Margin 1.0m
- Proposed SuDS Buffer Zone 3.0m
- Existing/Proposed Watercourse Extent 5.0m

ABBREVIATIONS

FD	Foul Drain
SWD	Surface Water Drain
AWWS	Adoptable Foul Water Sewer
SWS	Adoptable Surface Water Sewer
PH	Manhole
IC	Inspection Chamber
FIC	450mm DIA. FOUL INSPECTION CHAMBER
SWIC	450mm DIA. SURFACE WATER INSPECTION CHAMBER
YG	Yard Gully
RG	Road Gully
SDP	Section 104 Drain Point
SWP	Surface Water Drain Point
ET	External Trench Point
DT	Surface Water Distribution Tank
FCL	Finished Floor Level
CL	Ground Level
SL	Subsoil Level
IL	Invert Level
BL	Base Level
BDL	Backdrop Invert Level

- DESIGN NOTES**
- STORAGE DESIGN BASED ON 1 IN 100 YR STORM + 40%.
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FOR SPECIFICATION NOTES REFER TO DRAWING 10768-1601			
#7	Service margin, buffer zones and easement zone around SuDS, existing/proposed watercourses adopt.	19/10/22	DR
#6	Private NA21 house types changed to NA21. Approved by suit EC204 Water comments.	17/06/22	DR
#5	Adoptable highway road gully/pipes and gully cover levels added. Engineering fill thickness adjusted underneath ponds to suit updated hydraulic calculations.	10/05/22	DR
#4	Adoptable highway road gully/pipes and gully cover levels added. Engineering fill thickness adjusted underneath ponds to suit updated hydraulic calculations.	19/04/22	DR
#3	Drawing updated to suit client's comments dated 18/03/22.	28/03/22	DR
#2	Drainage layout updated.	18/03/22	DR
#1	Initial Issue.	14/02/22	DR
Rev	Amendments	Date	Drawn
Status			
PRELIMINARY			
Client			
Taylor Wimpey			
Architect			
Project			
SEFTER ROAD BOGNOR REGIS			
Title			
SITE DRAINAGE LAYOUT SHEET 5 OF 7			
Date	FEBRUARY 2022	Scale	1:200
Client's Ref		Project Ref	10768
gta Civils & Transport			
Glossier House, 66a Church Walk, Burgess Hill, West Sussex, BN15 9AS, Tel: 01444 671444 Web: www.gtacivils.co.uk			
Drawing Number			
10768/1605			
Rev			
P7			

GENERAL NOTES

- 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 satisfy any outstanding 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 the architect prior to works commencing.
- Prior to commencement of works the contractor shall provide co-ordinated and dimensioned installation drawings and calculations and allow 10 working days for the architect's checking procedure prior to proceeding with those works or the ordering of materials.
- Tender or billing drawings shall not be used for construction or the ordering of materials.
- Do not scale. All dimensions and levels to be site confirmed.
- This drawing shall be read in conjunction with all relevant architects' consultants' drawings and specifications, together with HGS plan requirements.
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- 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 Client's risk. gta hold no responsibility for resulting abortive works or costs.

