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# Drainage Maintenance & Management Manual

HERNE BAY GOLF CLUB, SITES 1&2

## Client

**Quinn Estates Ltd**  
Highland Court Farm  
Bridge, Nr Canterbury  
Kent  
CT4 5HW  
Ref: 10071  
Date: November 2019

## Consulting Engineers

**GTA Civils Ltd**  
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A Site Drainage Drawings

Issue	Issue date	Compiled	Checked
Initial issue	20 <sup>th</sup> November 2019	MR	MR

**Report by:** Martin Roberts IEng, ACIWEM, MCIHT

## 1 Introduction

- 1.1 This report has been prepared for Quinn Estates Ltd in relation to a development at Herne Bay Golf Club (sites 1 and 2). 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 Ltd. was appointed by the client to provide a Drainage Maintenance & Management Manual (DMMM) as requested by Kent County Council sustainable drainage and consenting team.

## 2 Existing and Proposed Site

- 2.1 Existing: the pre-redevelopment site was occupied by a nursery, café and dwelling house.
- 2.2 Proposal: demolition of the existing buildings and development of the site to provide 96 dwellings.
- 2.3 Drainage design: site drainage drawings for the development, by GTA Civils Ltd, is contained in Appendix B. This drawing incorporates a number of Sustainable Urban Drainage Systems (SUDS), the maintenance requirements of which are explained in this report.

## 3 Maintenance Schedule

- 3.1 The following sections detail the main drainage items used within the scheme and details the maintenance requirements for each item.
- 3.2 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 including all the drainage items listed in the schedule below.
- 3.3 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, Silt Pits, Catchpits, Outfalls

- 4.1 Regular inspection and maintenance is required to ensure the effective long-term operation of private drains, manholes, gullies & silt pits.
- 4.2 Prior to construction: a CCTV survey to be carried out on all existing drainage systems (not being demolished as part of the scheme) and any downstream receiving 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, manholes, gullies and silt pits will be for the Management Company. Operation and maintenance requirements for all sewers manholes, gullies and silt pits 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 & silt pits, 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 gratings or silt pit covers.	As required.
	Replace / fix any loose channel drain covers.	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.
Control Chambers 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

- 4.6 Where appropriate refer also to specialist drainage channel and oil separator manufacturer's information and maintenance requirements.
- 4.7 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 Attenuation Cellular Storage

- 5.1 Make: SDS Water Infrastructure Systems Ltd.
- 5.2 Inspection Frequency: Annually
- 5.3 Product Function: Rainwater storage.

- 5.4 Maintenance Requirements: Carry out periodic removal of particulate material from connecting catchpits and channel outlet sumps in accordance with SDS Technical Data to ensure the crates do not become blocked and ineffective.

## 6 Contamination or Dilution of Spillage

- 6.1 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.

- 6.2 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).

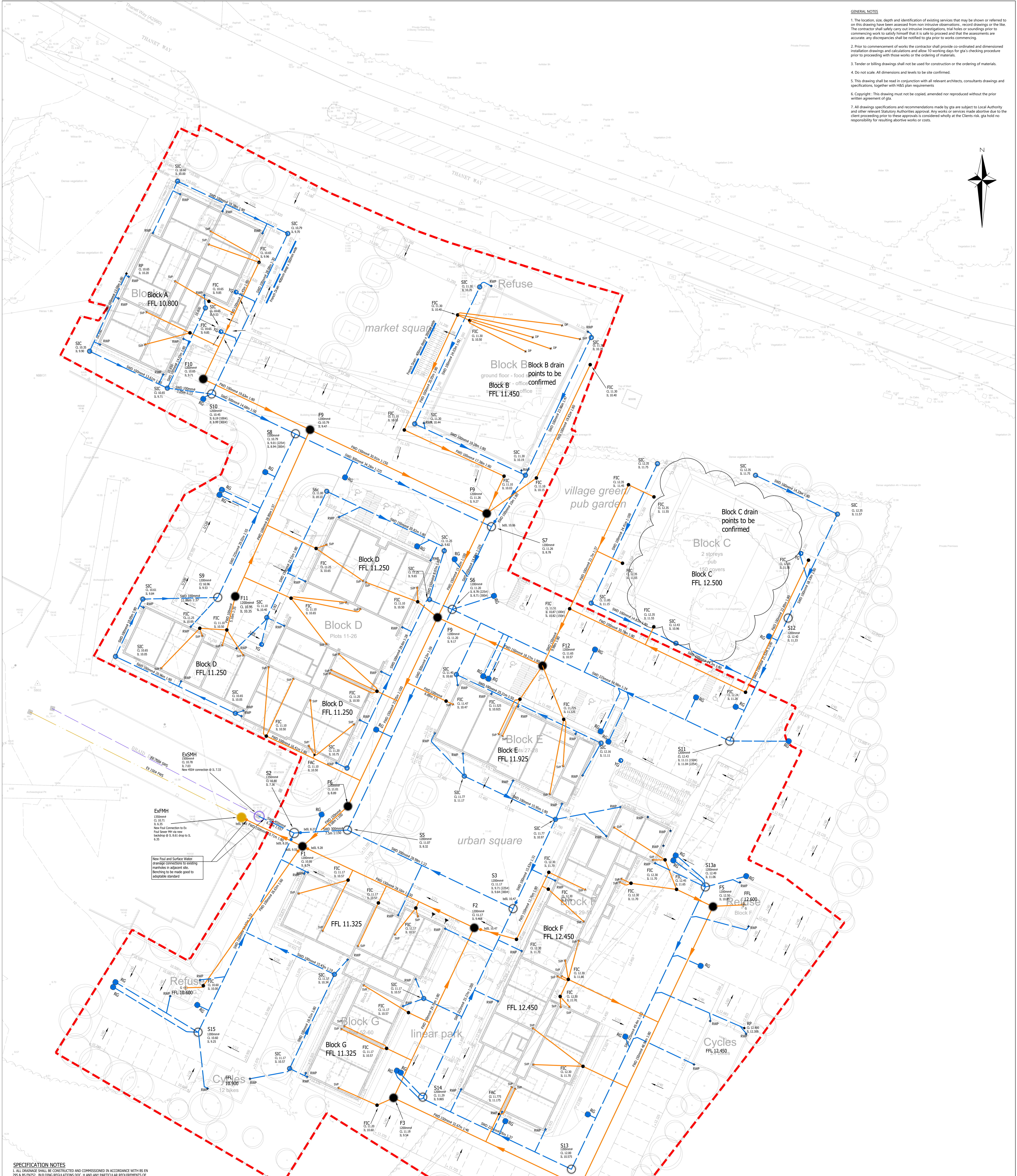
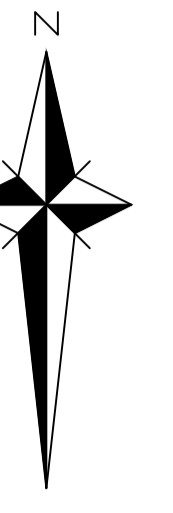
- End of Report -

## Appendix A

### Site Drainage Layouts

**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 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 HSE plan requirements.
- Copyright - This drawing must not be copied, amended nor reproduced without the prior written agreement of gta.
- 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 holds no responsibility for resulting abortive works or costs.



**SPECIFICATION NOTES**

- ALL DRAINAGE SHALL BE CONSTRUCTED AND COMMISSIONED IN ACCORDANCE WITH BS EN 252 & BS EN 12052, BUILDING REGULATIONS DOC. H AND ANY PARTICULAR REQUIREMENTS OF THE BUILDING CONTROL OFFICER.
- DRAIN BEDDING IS TO BE PROVIDED AS D200/L, D200/L AND D200/L AS SHOWN ON THE DRAINAGE DETAILS SHEETS.
- EFFECTIVE COVER IS THE MINIMUM DEPTH OF COVER OVER THE PIPE CHAMBER AT ANY TIME DURING THE CONSTRUCTION PROCESS.
- ALL CONCRETE PIPEWORK, MANHOLES AND FITTINGS SHALL BE TO BS 5911 (ALL RELEVANT PARTS). ALL CONCRETE PIPEWORK TO BE TO HIGH STRENGTH.
- WHERE CONNECTIONS ARE TO BE MADE TO EXISTING MANHOLES/CHAMBERS, INSERT LEVELS, PIPE SIZES AND ORIENTATION SHALL BE CHECKED PRIOR TO THE COMMENCEMENT OF THE WORKS AND ANY VARIANCE REPORTED TO THE ENGINEER IMMEDIATELY.
- WHERE PIPELINES CROSS EACH OTHER, THE DEPTH FROM COVER TO INVERT SHALL BE CONCRETE FOR A DISTANCE NOT LESS THAN 1m COVERED ON THE CROSSING POINT. LENGTH OF SURROUNDING TO BE EXTENDED AS NECESSARY TO WITHIN 150mm OF THE NEXT NEAREST FLEXIBLE JOINT.
- 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 OVERSITE FILLING OPERATIONS BEING COMPLETED AROUND BUILDINGS.
- ALL PRIVATE DRAINAGE PIPEWORK SHALL BE PVC-U, ALL ADOPTED DRAINAGE TO BE VC. ALL UNDERBUILDING DRAINS TO BE LAID AT A GRADIENT OF 1:40.
- 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, LINTELS ARE TO BE PROVIDED.
- WHERE PIPELINES 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:
  - WITH 150mm REDUCED COVER WHERE THE DEPTH FROM COVER TO INVERT EXCEEDS 3000mm.
  - 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 SIZE DOES NOT EXCEED 150mm DIA.
- STREET COVERS WITHIN PROPERTY BOUNDARIES SHALL BE:
  - (UNLESS NOTED ON DRAWING OR MANHOLE SCHEDULE)
  - ON PRIVATE DRIVEWAYS: FACTA GRADE A (BS EN ISO 1461:1999)
  - ON PRIVATE PATHWAYS, VERGES OR ON GARDENS: FACTA GRADE A (BS EN ISO 1461:1999)
  - ON SHARED 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 A15 (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 OR BELOW DATUM.
- ALL DRAINS TO BE 100mm DIAMETER UNLESS NOTED OTHERWISE.
- ALL DRAINS MARKED 'FWS' OR 'SWS' ARE PROPOSED ADOPTED SEWERS AND ARE TO BE CONSTRUCTED IN ACCORDANCE WITH 'SEWERS FOR ADOPTION', 7TH EDITION.

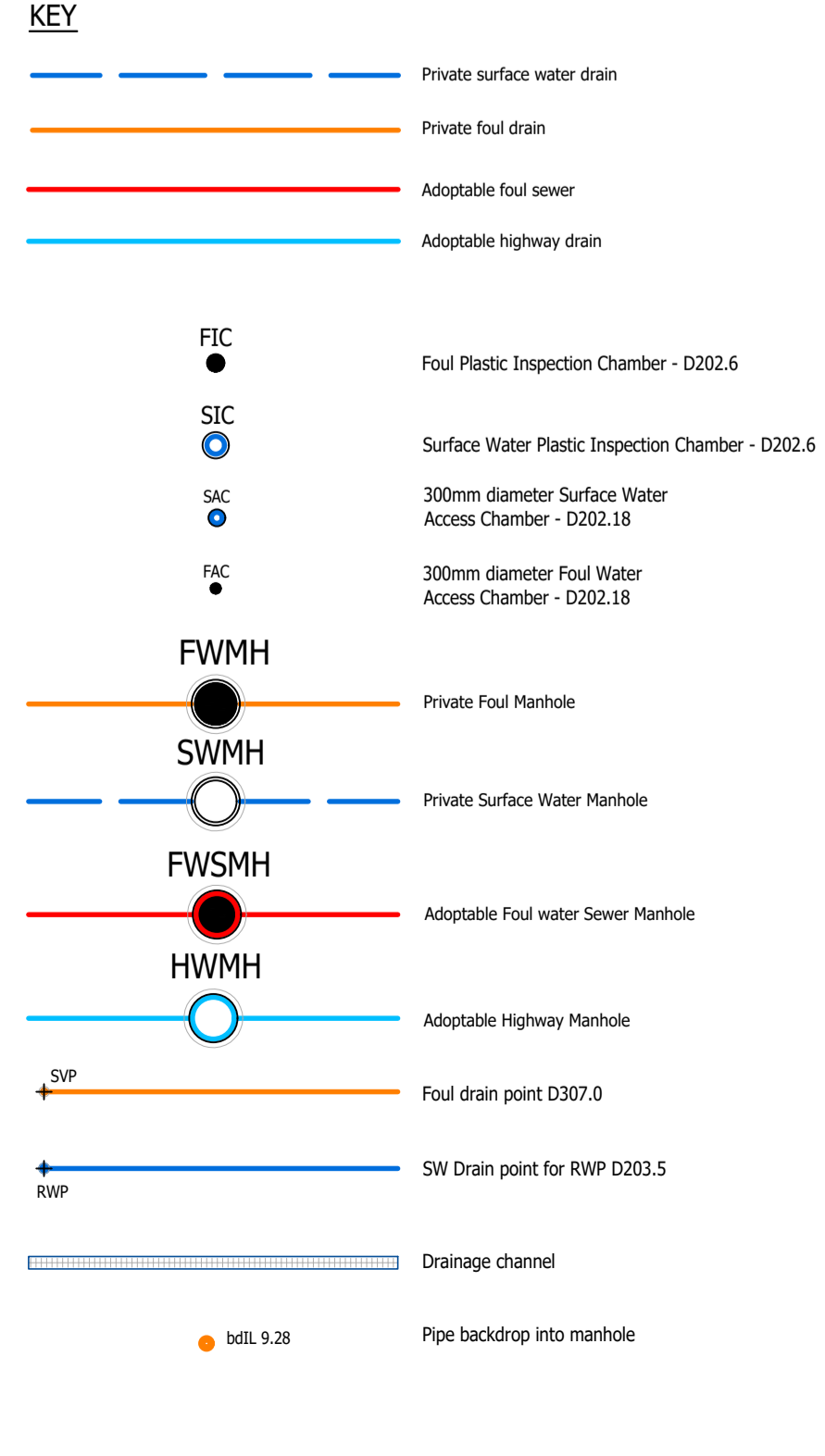
**ABBREVIATIONS**

0307.0 DETAIL NUMBER - SEE DRAINAGE DETAIL SHEET

FD FOLE DRAIN  
 SWS SURFACE WATER DRAIN  
 ADP ADAPTABLE FOUL WATER SEWER  
 ADP ADAPTABLE SURFACE WATER SEWER  
 MH MANHOLE  
 IC INSPECTION CHAMBER  
 SA 450mm DIA. FOL INSPECTION CHAMBER - D202.6  
 SIC 400mm DIA. SURFACE WATER INSPECTION CHAMBER - D202.6  
 FAC 300mm DIA. FOUL ACCESS CHAMBER - D202.18  
 SAC 300mm DIA. SURFACE WATER ACCESS CHAMBER - D202.18  
 CAC CAST IRON  
 VC VITRIFIED CLAY  
 CMK CONCRETE  
 PVC-U POLYVINYL CHLORIDE - UNPLASTICISED  
 SG SMALL GULLY - D202.0  
 VG VARD GULLY - D202.2  
 RG ROAD GULLY - D202.1  
 CG CAR PARK GULLY - D202.2  
 SG STRIP STRACK OR STREET DRAIN CONNECTION  
 SP SOIL VENT PIPE DROP  
 STB STRIP STRACK OR STREET DRAIN CONNECTION  
 EXL EXTERNAL ROOFTOP POINT - D202.1  
 DT SURFACE WATER DISTRIBUTION TANK  
 FIC FLEXIBLE FLOOR LEVEL  
 SIL STRUCTURAL SLAB LEVEL  
 CL COVER LEVEL  
 IL INVERT LEVEL  
 SL SURF LEVEL  
 BL BASE LEVEL  
 HL HIGH LEVEL  
 ML MID LEVEL  
 CRB CONCRETE BED & SURROUND  
 GR GRANULAR BED & SURROUND  
 CLASS B CLASS B  
 CLASS S CLASS S

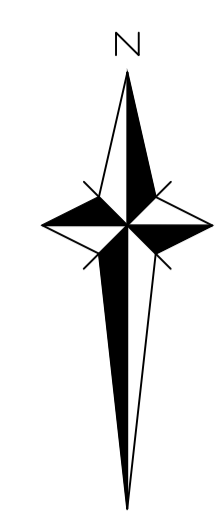
**DESIGN NOTES**

- SURFACE WATER DESIGN BASED ON DIRECT CONNECTION TO EXISTING INFRASTRUCTURE DRAINAGE WITH NO RESTRICTION AS PER MUM CONSULTING ENGINEER'S STRATEGY.
- DRAIN POINTS AND LOCATIONS TO BE CONFIRMED BY ARCHITECT.
- CONTRACTOR TO ESTABLISH LOCATIONS OF ALL EXISTING SERVICES PRIOR TO COMMENCING.
- EXISTING TREES TO BE PROTECTED WHERE EXCAVATIONS RUN CLOSE.
- APPROVAL TO BE GAINED FROM SOUTHERN WATER FOR CONNECTIONS TO SEWERS AND DISCHARGE RATES.



Rev	INITIAL ISSUE	14/10/19	CS	MR
T1	Amendments	Date	CS	CS
<b>TENDER</b>				
Client	Quinn Estates Ltd			
Architect	CLAGUE ARCHITECTS			
Project	HERNE BAY GOLF CLUB THE LINKS, EDDINGTON, HERNE BAY			
Title	SITE 1 DRAINAGE LAYOUT			
Date	JUNE 2019	Scale of A3	1:200	
Client's Ref.		Project Ref.	10071	
 Gloucester House, 66a Church Walk Burgess Hill, West Sussex, RH15 9AS Tel 01448 871444 Web www.gta.co.uk				
Drawing Number	10071-1061	Rev	T1	





**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 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.
- 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.
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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 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 295 & BS EN 752, Building Regulations Doc. H and any particular requirements of the Building Control Officer.

Drainage pipelines shall be in PVC-u below ground as Marley or similar approved, or vitrified clay.

All sewer pipelines to be VC only.

This drawing shall be read in conjunction with all other relevant drainage drawings, architectural drawings and structural drawings.

For manhole details, gully details, bedding etc, refer to GTA detail sheets.

All foul water drain runs shall have a fall of 1:40 or steeper, unless noted otherwise.

All cement used for concrete drainage installations shall be sulphate resistant to class 3 of BRE Digest 363, (Grade 575)

The use of short radius or 90° bends for changes in direction is not permitted, only long or medium radius 45° bends shall be used. All junctions shall be 45°.

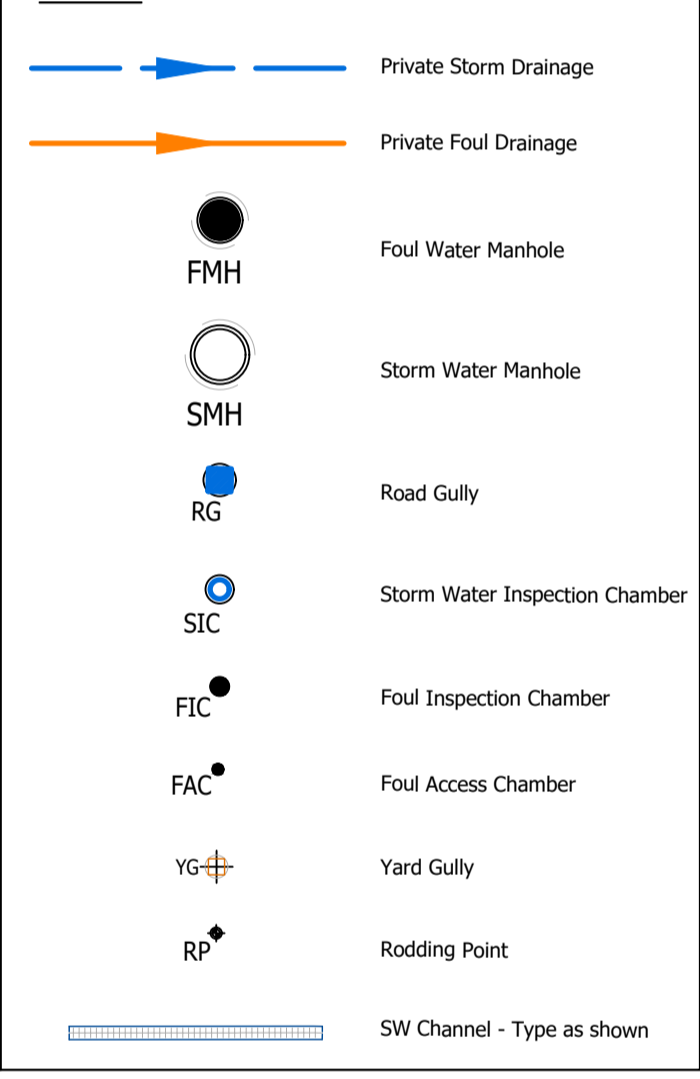
All drains shall have granular bed and surround as class 'S' bedding, unless noted otherwise.

All drainage works shall commence from the upstream end first unless agreed otherwise. Outfall level to be checked by contractor prior to any works commencing and any discrepancy identified to engineer prior to laying and drainage.

**ABBREVIATIONS**

D307.0	DETAIL NUMBER - SEE DRAINAGE DETAIL SHEET
FD	FOUL DRAIN
SWD	SURFACE WATER DRAIN
FWS	ADOPTABLE FOUL WATER SEWER
SWS	ADOPTABLE SURFACE WATER SEWER
MH	MANHOLE
IC	INSPECTION CHAMBER
SA	SOAKAWAY
FIC	450mm DIA. FOUL INSPECTION CHAMBER - D202.6
SIC	450mm DIA. SURFACE WATER INSPECTION CHAMBER - D202.6
FAC	300mm DIA. FOUL ACCESS CHAMBER - D202.18
SAC	300mm DIA. SURFACE WATER ACCESS CHAMBER - D202.18
CI	CAST IRON
VC	VITRIFIED CLAY
CONC	CONCRETE
PVC-U	POLYVINYL CHLORIDE - UNPLASTICISED
G	SMALL GULLY - D209.0
YG	YARD GULLY - D209.2
RG	ROAD GULLY - D208.1
CPG	CAR PARK GULLY - D208.2
DP	BELOW GROUND DRAIN POINT
SVP	SOIL VENT PIPE DROP
DT	RODDING POINT
RP	SURFACE WATER DISTRIBUTION TANK
CL	FINISHED FLOOR LEVEL
SSL	STRUCTURAL SLAB LEVEL
GL	GROUND LEVEL
CV	COVER LEVEL
IL	INVERT LEVEL
HL	HIGH LEVEL
BD	BACKDROP
CBS	CONCRETE BED & SURROUND
CLASS S	GRANULAR BED & SURROUND
CLASS B	GRANULAR BED

**LEGEND**



T2	Updated to 2/s outfall restriction	19/11/19	MB	MR
T1	TENDER ISSUE	08/10/19	MB	MR
Rev	Amendments	Date	Dsn	Chk

Status: **TENDER**

Client: **Quinn Estates Ltd**

Architect: **CLAGUE ARCHITECTS**

Project: **HERNE BAY GOLF CLUB THE LINKS, EDDINGTON, HERNE BAY**

Title: **SITE 2 DRAINAGE LAYOUT**

Date: **JUNE 2019** Scale @ A1: **1 : 200**

Clients Ref: **10071**

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Drawing Number	Rev.
<b>10071/1062</b>	<b>T2</b>

**Attenuation Tank 1**  
19 x 14 x 0.8m DP  
202m<sup>3</sup> Net storage required  
CL 8.130 min  
TOTL 7.680  
BOTL 6.890  
S35 Geolight Tank or similar approved wrapped in impermeable membrane with welded joints.

New 150ø connection to existing Southern Water Foul sewer manhole at IL 5.370 (level soffit) subject to Section 106 approval. Contractor to confirm IL prior to works commencing.

New Sandbag Headwall to existing ditch IL 6.520 Subject to LLFA approval





## Drainage - Flood Risk - Highways - Transport

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