



Discharge of Condition 14

Client: Custom House (Gravesend) Limited

Site: Proposed Development at
Custom House, The Terrace, Gravesend

September 2026

Project reference: 2813

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Client:	Custom House (Gravesend) Limited	
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NON-TECHNICAL CLIENT SUMMARY

Custom House, The Terrace, Gravesend

This report presents the findings of a review of the As-Built drainage, in the form of a drainage verification report. Below is a simplified summary of this assessment:

- The site covers an area of approximately 0.4 hectares and comprises of the conversion of the Grade II Listed Customs House building and outbuildings, as well as the construction of a new outbuilding to accommodate 27no. residential units with Parking.
- This report has been prepared with reference to planning application reference 20240687. Environmental Protection Strategies Ltd (EPS) has been commissioned by Mile Property Group to prepare a report to discharge planning condition 14 for the proposed development at Custom House, The Terrace, Gravesend.
- This verification report has shown that whilst there are minor variations, the drainage system on site has been constructed as designed. On this basis the elements of Condition 14 pursuant to the constructed parts of the proposed development can be discharged.

The above points represent a simplified summary of the findings of this assessment and must not form the basis for key decisions for the proposed development. A thorough review of the details is contained within the following report.

LIMITATIONS

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If third parties have been contracted / consulted during compilation of this report, the validity of any data they may have supplied, and which are included in the report, have been assessed as far as possible by EPS however, EPS cannot guarantee the validity of these data.

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The report has been written, reviewed and authorised by the persons listed on page 2. It has also undergone EPS' in house quality management inspection. Should you require any further assistance regarding the information provided within the report, please do not hesitate to contact us.

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1 SCOPE OF APPRAISAL

This report has been prepared with reference to planning application reference 20240687. Environmental Protection Strategies Ltd (EPS) has been commissioned by Custom House (Gravesend) Limited to prepare a report to discharge planning condition 14 for the proposed development at Custom House, The Terrace, Gravesend.

Planning condition 14 (herein referred to as 'Condition 14') relates to the submission of a verification report to the Local Lead Flood Authority confirming that the constructed surface water drainage on site is consistent with the approved plans.

The details of Condition 14 are stated below:

Planning Condition 14

“ No building on any phase (or within an agreed implementation schedule) of the development hereby permitted shall be occupied or used until a Verification Report, pertaining to the surface water drainage system and prepared by a suitably competent person, has been submitted to and approved by the Local Planning Authority. The Report shall demonstrate that the drainage system constructed is consistent with that which was approved. The Report shall contain information and evidence (including photographs) of details and locations of inlets, outlets and control structures; landscape plans; full as built drawings; information pertinent to the installation of those items identified on the critical drainage assets drawing; and, the submission of an operation and maintenance manual for the sustainable drainage scheme as constructed.”

Reason: To ensure that the flood risks from the development to the future users of the land and neighbouring land are minimised, together with those risks to controlled waters, property and ecological systems, and to ensure that the development as constructed is compliant with and subsequently maintained in accordance with Policies CS18 and CS19 of the Gravesham Local Plan Core Strategy (September 2014) and Section 14 of the National Planning Policy Framework (2024)."

This report has been prepared in accordance with the requirements of both national and local planning policy. To ensure that due account is taken of industry best practice, reference has also been made to, CIRIA Report C753 'The SuDS Manual' and any relevant local planning policy guidance.

2 DEVELOPMENT DESCRIPTION AND PLANNING CONTEXT

2.1 Site Location and Development

The site is located at OS coordinates 565199, 174363, off The Terrace in Gravesend, Kent. The site covers an area of approximately 0.4 hectares and comprises of the conversion of the Grade II Listed Customs House building and outbuildings, as well as the construction of a new outbuilding to accommodate 27no. residential units with Parking. The location of the site in relation to the surrounding area and the River Thames is shown in Figure 2-1.

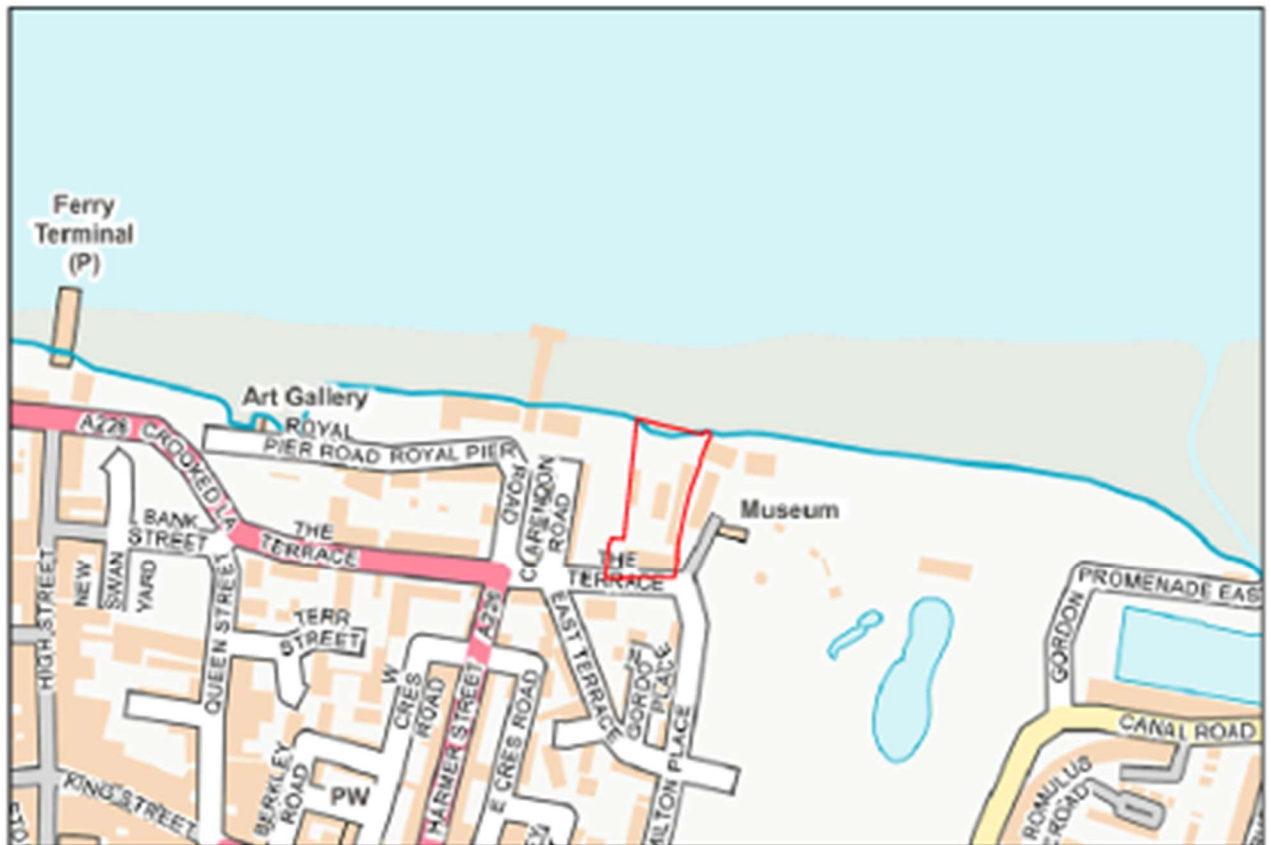


Figure 2-1 Location map. Contains Ordnance Survey data © Crown copyright and database right 2023

This verification report will cover the drainage networks that have been constructed within the site boundary (as shown in Figure 2.2: Site Layout Plan).

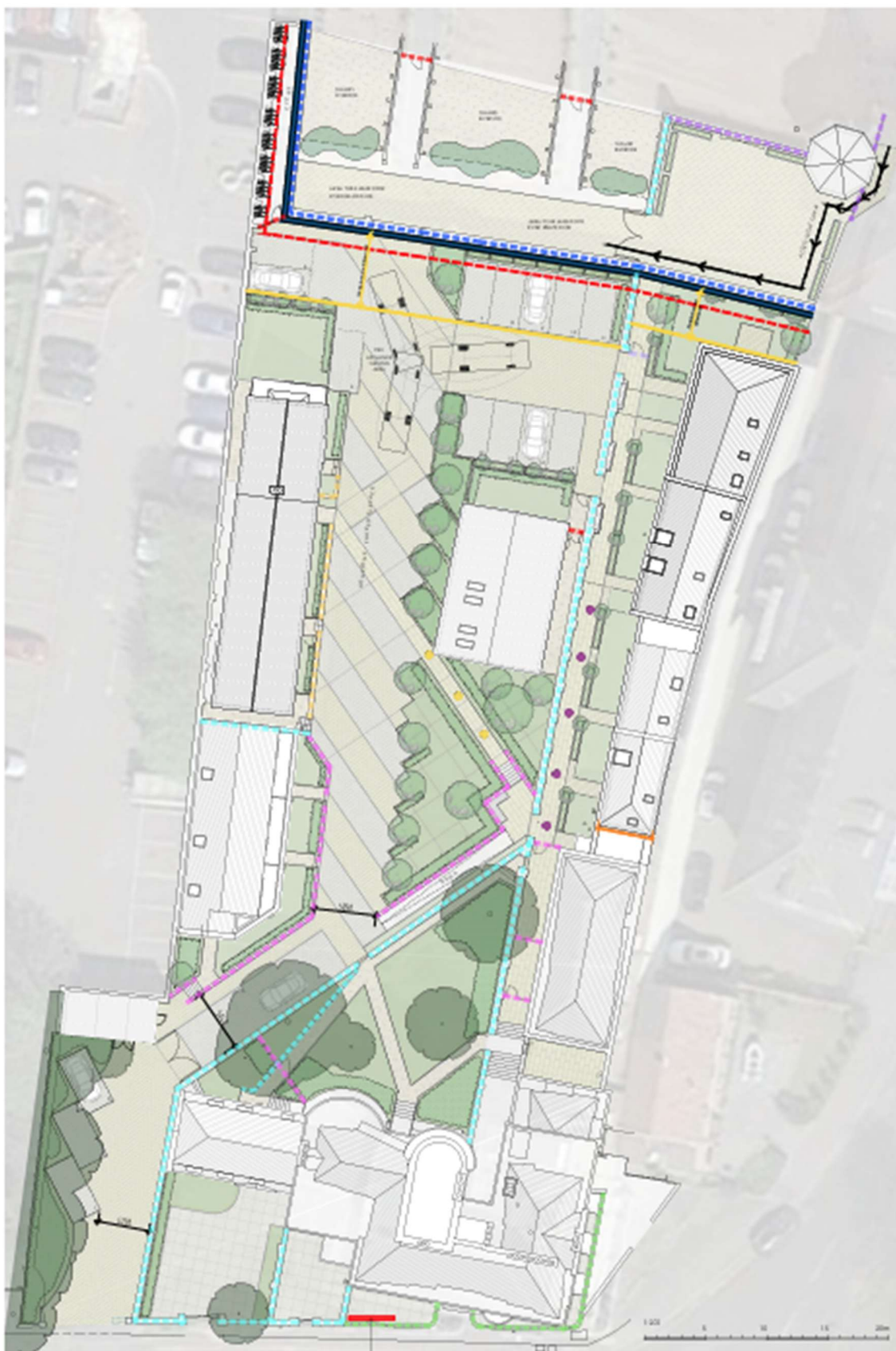


Figure 2-2 Site Layout Plan showing the extent of the development.

Figure 2-3 shows an extract of the proposed surface water drainage layout plan. A copy of the original drainage layout plan prepared to support the planning application and subsequent discharge of conditions has been included with the appendices. The section below outlines the proposed surface water drainage system and details of the proposed SUDs features.



Figure 2-3 Proposed Surface Water Drainage Layout Plan.

The proposed drainage system consists of a below ground gravity network to manage surface water runoff drainage, draining via pollution control devices to the existing surface water sewer within site, below is a summary of the proposed surface water drainage network. A separate foul water drainage system was also proposed, and this is also discussed in the following text:

- The surface water runoff generated by building roofs and hardstanding are to be guided to sumped channel drains and gullies prior to draining, via gravity, to a series of below ground geocellular attenuation tanks.
- The outfall discharge rates from the network of attenuation tanks are to be restricted through the use of orifice plate flow control chambers prior to passing through a vortex separator treatment device and onto the existing 225mm diameter surface water surface that passes through site along the eastern boundary in a northerly direction.
- The foul water drainage from site is discharged via gravity to a foul water pumping station, which in turn discharges to the site connection to the public foul water drainage network situated to the southwest of the site.

Prior to the planning application reviewed in this verification report, an existing drainage system was present on site. Therefore, this report will look to verify the newly constructed drainage network that is serving the new development as shown within Figure 2-3. The purpose of this report is to discharge condition 14 by verifying the drainage system on site with the proposed drainage layout plan.

Drawings of the proposed surface water and foul water drainage layout plans are included in Appendix A of this report.

3 INFORMATION RECEIVED

With reference to the approved drawings discussed in Section 2 of this report, information has been gathered to demonstrate that the drainage system has been installed in line with the approved drawings.

The evidence provided is listed below, highlighting the various drainage elements on site:

- Photographic evidence of gullies and channel drains throughout the site.
- Photographic evidence of attenuation tanks installed within the site.
- Photographic evidence of the installed surface water pipework.
- Photographic evidence of the surface water separator chamber.
- Photographic evidence of foul water drainage system, and
- Foul water pumping station commissioning certificate.

In addition to the information contained within this assessment, the structural design for all components of the drainage system is considered to be the responsibility of the Contractor.

A copy of the Contractor marked as-built drawings are provided in Appendix B.

4 INSTALLED DRAINAGE

4.1 Surface water run-off from buildings

The proposed drainage layout plans show rainwater downpipes discharging to channel drains around the perimeter of the proposed buildings. Photographs showing the rainwater downpipes and channel drains are provided below and were obtained from the Contractor after the completion of works.

Figures 4.1 and 4.2 show the as-built channel drain and rainwater downpipes for boathouse units 21 to 24, 25 to 27 and unit 4. The building perimeter channel drains connect to the below surface water system via a piped outfall which in turn connects to receiving chambers. This is as per the submitted details discussed in Section 2 of this report.



Figure 4-1 Channel drain and rainwater downpipe constructed along units 21 to 24 and to the rear of units 25 to 27.



Figure 4.2 Channel drain during construction to side return of Unit 4.

4.2 Surface water run-off from hardstanding areas.

As per the details discussed in Section 2 of this report, the surface water run-off generated by the hardstanding areas of site are served by a network of channel drains and gullies which discharge to the below ground drainage network.

The Contractor has confirmed, within the as-built drawings contained in Appendix 2, that sections of channel drains have been extended to allow for a more robust system. Due to the constructed levels on site two gullies were removed from the scheme, with the replacement channel drains sized to accommodate the additional contributing areas.

Figure 4.3 shows the extended channel drain that transverses centre of site, this has been extended when compared to the approved layout but provides a more robust detail in terms of surface water run-off interception.

Figure 4.4 shows the installed manholes and gullies to units 12 to 19, the Contractors as-built details show that the outfall connections and locations of these manholes and gullies are as per the approved drawing.



Figure 4-3 Channel drain traversing central access road.



Figure 4-4 Manholes and gullies installed to units 12-19.

4.3 Surface water geocellular attenuation tanks.

Five number geocellular attenuation tanks and associated orifice flow control devices have been installed within the site as per the approved drawings contained within Appendix A. The tanks have been supplied by SDS and are their Geolight crate system (supplier approval drawings are contained within Appendix B).

The Contractor has provided photographic evidence of the attenuation tank installations for inclusion within this report. The figures below show the following:

- Figure 4-5 Installation of attenuation tank A
- Figure 4-6 Installation of attenuation tank B
- Figure 4-7 Installation of attenuation tank C, including backfilling and concrete cover slab
- Figure 4-8 Installation of attenuation tank D, including base preparation, installation backfilling and completed membrane wrapping
- Figure 4-9 Installation of attenuation tank E



Figure 4-5 Installation of attenuation tank A



Figure 4-6 Installation of attenuation tank B



Figure 4-7 Installation of attenuation tank C, including backfilling and concrete cover slab



Figure 4-8 Installation of attenuation tank D, including base preparation, installation backfilling and completed membrane wrapping



Figure 4-9 Installation of attenuation tank E

A vortex separator has also been installed on site as per the approved planning drawings, as shown in Figure 4-10 below. No visual confirmation has been provided of the internal layout of the device from the Contractor.



Figure 4-10 Installation of vortex separator.

This report has been produced by a suitably qualified and experienced Civil Engineer from EPS. At the time of production, the construction of the drainage system was complete with all discussed elements fully in place and connected. During construction amendments to the layout, if any, were discussed with EPS and agreed.

The general quality of the drainage installation, from the details provided, appears to be to a high standard, with various elements installed and finished with care.

Figure 4-11 shows images of the surface water drainage runs during installation on site, highlighting the compliance with the approved details and required level of workmanship.



Figure 4-11 Surface water drainage runs during installation.

4.4 Foul Water System

The foul water system on site consists of a below ground drainage network discharging to a pumping station prior to outfalling to the public foul water sewer network to the south of the site. The Contractors as built details (provided within Appendix B) confirm that the system has been constructed as designed.

Figure 4-12 and Figure 4-13 provides construction images of the installed foul runs and pumping station/main and confirms compliance with the approved details and workmanship levels.



Figure 4-12 Foul drainage installation throughout site.



Figure 4-13 Foul water pumping station and break loop.

5 SUDS MAINATENANCE MANUAL

This maintenance manual has been prepared to support the maintenance and inspection program to ensure that the drainage system at the above site is adequately maintained throughout its lifetime.

The following sections provide a summary of the maintenance requirements for each element of the drainage system, including any manufacturer specific requirements.

5.1 Storm water pipe, manholes, gullies and channel drains.

Pipes and manholes should be inspected regularly to ensure sediment does not restrict hydraulic capacity.

Cleaning of sewers involving jetting/vacuuming, should be carried out as necessary to remove sediment or debris build-up.

Sediment should be removed in consultation with the environmental regulator to confirm appropriate protocols.

Refer to Appendix C for Maintenance Schedule and Responsibilities.

5.2 Geo-cellular storage

Geo-cellular storage systems should be inspected monthly for the initial three months following installation, and annually thereafter. During this inspection, all inlets, outlets, vents, and overflows should be inspected to ensure that they are in good condition and operating as designed.

Debris and sediment should be removed from the catchment surface and from pre-treatment structures, as required based on regular inspection.

Repairs to inlets, outlets, overflow pipes, and vent mechanisms should be carried out as required, based on regular inspections.

Replacement of tank or geotextile should be carried out, as required, if significant damage is observed.

A survey of inside the tank, and any sediment trap mechanisms should be carried out every 5 years (or as required if regular monitoring should demonstrate high siltation rates) to remove sediment as necessary.

6 CONCLUSION AND RECOMMENDATIONS

The overarching objective of this report is to provide the information required to discharge Condition 14, placed on the development by Gravesend Borough Council.

From a combination of the details provided by the Client and the Contractor, it is evident that the approved drainage design has been implemented as intended. Albeit with some relatively minor variations, in some instances improving the site's drainage.

The surface water runoff generated by building roofs and hardstanding are to be guided to sumped channel drains and gullies prior to draining, via gravity, to a series of below ground geocellular attenuation tanks. The outfall discharge rates from the network of attenuation tanks restricted through the use of orifice plate flow control chambers prior to passing through a vortex separator treatment device and onto the existing 225mm diameter surface water surface that passes through site along the eastern boundary in a northerly direction.

Photographic evidence has shown that all elements have been installed correctly. Since the underground piped system was covered by external finishes, tracing of the drainage route was not possible, and if required, a CCTV survey is recommended in order to verify connectivity and dimensions. Additionally, jet washing the piped system after completion of the project is advised to ensure the system is clean and free flowing.

From the analysis it is concluded that the system will operate in a similar manner to the original proposed SuDS and the risk of flooding offsite will not be increased. To ensure that the risk of failure of the drainage infrastructure remains low over the lifetime of the development, there is a requirement to maintain the drainage system. Any SuDS feature will need to be maintained in accordance with the manufacturer's recommendations and any remedial works undertaken as/when required, to ensure the continued function of the drainage system.

In conclusion, the overall objective of the approved drainage strategy is to ensure that a drainage system is implemented on site which is in accordance with the principles of the National Non Statutory Technical Standards for SuDS (NTSS).

This verification report has shown that whilst there are minor variations, the drainage system on site has been constructed as designed. On this basis the elements of Condition 14 pursuant to the constructed parts of the proposed development can be discharged.

APPENDICES

Appendix A – Drawings

Appendix B – Contractors As Built Drawings

Appendix C – Maintenance Schedules

Appendix A – Drawings

Drawing contains Ordnance Survey data (c) Crown copyright and database right 2025. The proposal is also based on the assumption that copyright in any designs, drawings or other material provided to Herringington Consulting by the Client or any person acting on behalf of the Client, which Herringington Consulting is required to use, amend or incorporate into its own material is either owned by or licensed to the Client and is licensed or otherwise to Herringington Consulting. Herringington Consulting accepts no liability for infringement of any third party's intellectual property rights from the use of such documents in the understanding of any basis arising from this proposal unless it has been notified that the Client does not own or licence the relevant copyright.

GENERAL NOTES

- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ENGINEERS, ARCHITECTS AND SPECIALISTS DRAWINGS AND THE SPECIFICATION.
- ALL WORK IS TO BE CARRIED OUT IN ACCORDANCE WITH THE RELEVANT BRITISH STANDARDS, EUROPEAN NORMS, CODES OF PRACTICE AND BUILDING PRACTICE.
- ALL DIMENSIONS ARE TO BE CHECKED BY THE CONTRACTOR PRIOR TO STARTING THE WORKS ON SITE. ANY DISCREPANCIES ARE TO BE REPORTED TO THE ENGINEER IMMEDIATELY.
- ALL DRAINAGE SYSTEMS WILL NEED TO BE INSTALLED AND DESIGNED FOR SUITABLE LOADING REQUIREMENTS.
- THE CONTRACTOR SHALL OBTAIN PRIOR APPROVAL AND ALL NECESSARY LICENCES FROM THE HIGHWAY AUTHORITY AND/OR SEWERAGE UNDERTAKER BEFORE CARRYING OUT ANY WORKS.
- SURFACE WATER DESIGN PREPARED FOR PLANNING DISCHARGE OF CONDITIONS ONLY. FURTHER DETAIL IN RESPECT TO THE EXACT SPECIFICATION OF THE ATTENUATION TANKS, FITTINGS AND ALL OTHER DETAILS TO BE CONFIRMED BEFORE CONSTRUCTION.

SURFACE WATER DRAINAGE NOTES

- ALL PRIVATE DRAINAGE WORKS SHALL BE IN ACCORDANCE WITH THE BUILDING REGULATIONS APPROVED DOCUMENT H AND BRITISH STANDARD EN 752.
- PRIOR TO COMMENCEMENT OF THE WORKS THE CONTRACTOR SHALL LAISE WITH ALL RELEVANT AUTHORITIES TO OBTAIN THEIR REQUIREMENTS AND TO OBTAIN APPROVAL FOR HIS METHOD OF WORKING AND WHERE APPROPRIATE HIS INTENDED CHOICE OF MATERIALS.
- REFER TO SITE SURVEY FOR DETAILS OF EXISTING SITE CONDITIONS AND BENCH MARKS.
- PRIOR TO COMMENCEMENT OF THE WORKS THE CONTRACTOR SHALL LAISE WITH ALL RELEVANT AUTHORITIES TO LOCATE, PROTECT AND WHERE NECESSARY DIVERT ALL EXISTING SERVICES AFFECTED BY THE WORKS.
- ALL EXCAVATIONS SHALL BE KEPT FREE OF STANDING WATER.
- THE CONTRACTOR SHALL ENSURE THE STABILITY OF ALL EXCAVATIONS IS MAINTAINED AT ALL TIMES.
- ALL WORKS IN, OR ADJACENT TO, THE PUBLIC HIGHWAY SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE HIGHWAY AUTHORITY. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY LICENCES REQUIRED TO CARRY OUT THE WORKS WITHIN THE PUBLIC HIGHWAY.
- ALL WORKS TO NEW OR EXISTING PUBLIC SEWERS SHALL BE TO THE APPROVAL OF THE WATER AUTHORITY AND IN ACCORDANCE WITH SEWERS FOR ADOPTION LATEST EDITION.
- PRIOR TO COMMENCEMENT OF THE WORKS ALL DRAINAGE OUTFALL POINTS, WHETHER EXISTING SEWER, DRAIN OR WATERCOURSE, SHALL BE VISITED ON SITE BY THE CONTRACTOR. IF THE OUTFALL POINT IS FOUND TO BE HIGHER OR SIGNIFICANTLY LOWER THAN SHOWN ON THE DRAWINGS THEN THE CONTRACT ADMINISTRATOR SHALL BE NOTIFIED IMMEDIATELY. DISCONTINUATION OF DRAINAGE AND LEVELS MAY BE NECESSARY. PRIOR TO COMMENCEMENT OF CONSTRUCTION ON-SITE THE CONTRACTOR SHALL INSTALL ALL OF SITE DRAINAGE CONNECTIONS, OR SATISFY HIMSELF THAT THERE ARE NO OBSTRUCTIONS OR OTHER REASONS WHY THE CONNECTIONS SHOULD NOT BE MADE.
- ALL COVER LEVELS SHOWN ON THIS DRAWING ARE APPROXIMATE. EXACT LEVELS OF NEW COVERS AND FRAMES TO BE DETERMINED ON SITE TO MATCH LEVEL AND PROFILE OF FINISHED SURFACE.
- THE CONSTRUCTION OF ALL EXISTING CHAMBERS, GULLIES ETC. AND THEIR COVERS, GRATINGS AND FRAMES TO BE IMPROVED, REPAIRED OR REPLACED AS NECESSARY TO SUIT THEIR LOCATION WITHIN THE FINISHED DEVELOPMENT.
- ALL COVERS, GRATINGS AND FRAMES TO CHAMBERS, GULLIES, CHANNELS ETC. SHALL BE OF THE CORRECT LOAD CLASS TO SUIT THEIR LOCATION.
 - LOAD CLASS A15 PEDESTRIAN AREAS (NOT ACCESSIBLE BY VEHICLES)
 - LOAD CLASS B125 PRIVATE DRIVERS
 - LOAD CLASS C250 BARNYARDS / PARKING BAYS / LIGHTLY TRAFFICKED ROADS
 - LOAD CLASS D400 MAIN ROADS
 - LOAD CLASS E600 CLOCKS / FORK LIFT TRUCK PAVEMENTS
 - LOAD CLASS F900 AIRCRAFT PAVEMENTSGRATINGS IN PEDESTRIAN AREAS TO BE DESIGNED FOR PEDESTRIAN USE.
- ALL EXISTING CHAMBERS, GULLIES, CHANNELS, PIPES AND OTHER DRAINAGE APPARATUS SHALL BE PROTECTED FROM DAMAGE DURING THE WORKS. THE CONTRACTOR SHALL TAKE ALL NECESSARY MEASURES TO ENSURE THAT NO MATERIAL ENTERS THE DRAINS (OTHER THAN THAT WHICH THEY ARE DESIGNED TO CARRY).
- REFER TO SITE INVESTIGATION REPORT FOR EXISTING GROUND CONDITIONS AND ANY SPECIAL REQUIREMENTS FOR BARED CONCRETE (SPECIAL REQUIREMENTS FOR BARED CONCRETE SHALL INCLUDE ALL PRE-CAST AND IN-SITU CONCRETE AND MORTARS), WHERE APPROPRIATE REFER TO CONTAMINATION REPORTS FOR DETAILS OF CHEMICALS AFFECTING CHOICE OF MATERIALS AND OTHER ADDITIONAL REQUIREMENTS.
- ALL PRE-CAST AND IN-SITU CONCRETE AND MORTARS USED IN THE CONSTRUCTION OF FOUL DRAINS AND SEWERS SHALL BE MADE FROM SULPHATE RESISTING CONCRETE.
- UNLESS NOTED OTHERWISE ALL PIPEWORK SHALL BE 100mm DIAMETER LAID TO A FALL OF 1 IN 100 OR STEEPER FOR SURFACE WATER AND 1 IN 40 OR STEEPER FOR FOUL WATER. FOUL DRAIN S WITH ONE OR MORE W.C. CONNECTED MAY BE LAID AT 1 IN 80 OR STEEPER. WHERE APPROPRIATE ROAD GULLY CONNECTIONS SHALL BE 150mm DIA AT 1 IN 150 OR STEEPER.
- UNLESS NOTED OTHERWISE ALL PIPEWORK SHALL BE CONSTRUCTED FROM "SUPER STRENGTH" VITRIFIED CLAY BS 6545 EN 252 OR UPVC TO BS EN 1221 BECCO AND BACKFILLED AS PER THE MANUFACTURERS RECOMMENDATIONS AND THE ABOVE LISTED PUBLICATIONS.
- THE CONTRACTOR'S ATTENTION IS DRAWN TO DIAGRAMS 7 AND 8 OF THE BUILDING REGULATIONS APPROVED DOCUMENT H SHOWING DETAILS OF DRAINS LAID BELOW AND NEAR TO BUILDINGS, WHERE GROUND BEARS ARE USED, THEIR LEVEL SHALL BE SET TO AVOID CLASHING WITH DRAIN CONNECTIONS.
- EXACT LOCATION OF GULLIES TO BE DETERMINED ON SITE TO SUIT LOW POINTS. THE CONTRACTOR SHALL ENSURE THAT ALL FINISHED SURFACE ARE LAID TO FALLS THAT ARE SUFFICIENT FOR ALL SURFACE WATER TO DRAIN WITHOUT SURFACE FLOODING.
- FOR THE EXACT LOCATION OF RAINWATER PIPES AND OTHER DRAINAGE CONNECTIONS REFER TO THE LARGE SCALE ARCHITECTURAL BUILDING PLANS.
- RAINWATER DOWNPIPES THAT DO NOT CONNECT DIRECTLY TO AN ACCESS POINT, SHALL BE FITTED WITH A RIDDING ACCESS.
- ALL CHANNEL DRAINS OR SIMILAR TO BE OF A TYPE SIZE AND CAPACITY SUITABLE FOR THEIR LOCATION.
- EXISTING FITTINGS, INSPECTION CHAMBERS AND MANHOLES SHALL BE CONSTRUCTED TO THE DIMENSIONS SHOWN IN TABLES 11 AND 12 OF THE BUILDING REGULATIONS APPROVED DOCUMENT H AND FROM THE MATERIALS LISTED IN TABLE 14 ACCESS POINTS, INSPECTION CHAMBERS AND MANHOLES SHALL BE CONSTRUCTED FROM PRODUCTS DESIGNATED/RATED FOR THE LOCATION IN WHICH THEY ARE TO BE USED. THEY SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS/SUPPLIERS RECOMMENDATIONS.
- PRIOR TO COMMENCEMENT OF ANY WORKS THE EXISTING DRAINAGE MUST BE TRACED TO ENSURE THAT NO LIVE CONNECTIONS REMAIN. ANY SUCH CONNECTIONS MUST BE REPORTED TO THE CONTRACT ADMINISTRATOR, PRIOR TO DIVERSION INTO THE NEW DRAINS.
- EXISTING PIPES TO BE ABANDONED SHALL BE BROKEN OUT OR FILLED WITH PFA GROUT. MANHOLES SHALL BE BROKEN OUT AND FILLED WITH COMPACTED GRANULAR MATERIAL.

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P22	Minor design changes	EC	SMB	04/02/25
P21	Minor design changes	EC	SMB	31/01/25
P20	Minor design change (boat house)	DB	SMB	20/12/24
P19	Minor layout change, reissue of FINAL	HA	SMB	01/11/24
P18	Minor layout change, reissue of FINAL	HA	SMB	23/10/24
P17	Minor Amendment, reissue of FINAL	HA	SMB	16/10/24
P16	Minor amend. to Client Issue FINAL	HA	SMB	15/08/24
P15	Minor amend. to Client Issue FINAL	HA	SMB	13/08/24
P14	Detailed Design, Client Issue FINAL	HA	SMB	12/08/24
Rev	Description	Author	Checked	Date

CLIENT			
Mile Property Group			
PROJECT			
Custom House, The Terrace, Gravesend			
SCALE	PROJ REF	ORIGINATOR	CHECKED BY
1:200	2813	EC	SMB
HC DWG REF.			
2813_DWG_r14			
DWG TITLE		DWG No.	
SURFACE WATER DRAINAGE LAYOUT		HC-2813-501	



KEY:

- EXISTING SURFACE WATER SEWER
- EXISTING SURFACE WATER CHAMBER
- EXISTING RAINWATER PIPE / YARD GULLY
- EXISTING TAP AND GULLY
- SURFACE WATER DRAIN
- SURFACE WATER CHAMBER
- RAINWATER PIPE
- GULLY
- SURFACE WATER DRAINAGE CHANNEL
- SURFACE WATER THRESHOLD DRAIN
- FLOW CONTROL DEVICE
- GEOCELLULAR STORAGE
- FLOW DIRECTION
- RETAINING WALL LAND DRAIN

Heritage

The Boat House

COMMERCIAL PLACE

SCALE 1 : 200 @ A1

10 m 0 10 m

FINAL COVER DEPTH AND POTENTIAL REQUIREMENTS FOR REINFORCEMENT TO BE CONFIRMED BY ENGINEERS RESPONSIBLE FOR CONSTRUCTION DESIGN OF EACH TANK SYSTEM IN CONSULTATION WITH THE CHOSEN TANK MANUFACTURER. DETAILS OF THE TANKS, INCLUDING INTERNAL CHANNELS FOR INSPECTION AND DESILTING, POSITIONS OF VENTS, BUOYANCY CALCULATIONS, AND DETAILS OF CONNECTIONS BETWEEN TANKS MUST ALL BE CONFIRMED WITH TANK MANUFACTURERS AS PART OF THE DETAILED DESIGN FOR THESE FEATURES AND BEFORE CONSTRUCTION.

ALL MANHOLES WITHIN MAIN ACCESS ROAD SHOULD BE BUILT TO APPROPRIATE SPECIFICATIONS AND MATERIAL TO WITHSTAND HEAVY VEHICLE TRAFFIC. APPROPRIATE LOADINGS SHOULD BE CONSIDERED, EN 124 CLASS D400 IS ASSUMED.

CELLULAR STORAGE CRATE (TANK A)
AREA: 44 m²
DEPTH: 1.125 m
POROSITY: 95%
INVERT LEVEL: 4.94mAOON

CELLULAR STORAGE CRATE (TANK B)
AREA: 45.6 m²
DEPTH: 1.125 m
POROSITY: 95%
INVERT LEVEL: 3.60mAOON

CELLULAR STORAGE CRATE (TANK C)
AREA: 50 m²
DEPTH: 1.125 m
POROSITY: 95%
INVERT LEVEL: 2.83mAOON

RAINWATER DOWNPIPES TO THE FRONT OF THE BOATHOUSE TO DISCHARGE DIRECTLY INTO ACO DRAIN

ANY EXISTING PIPE RUNS ADJACENT AND EAST OF THE BOAT HOUSE ARE TO BE REMOVED

DOWNSTREAM INVERT LEVEL OF NEW PROPOSED SURFACE WATER PIPE TO MEET INVERT OF SMH 10

CELLULAR STORAGE CRATE (TANK D)
AREA: 37.2 m²
DEPTH: 1.125 m
POROSITY: 95%
INVERT LEVEL: 2.83mAOON

CELLULAR STORAGE CRATE (TANK E)
AREA: 30 m²
DEPTH: 1.125 m
POROSITY: 95%
INVERT LEVEL: 2.73mAOON

CELLULAR STORAGE CRATE (TANK F)
AREA: 30 m²
DEPTH: 1.125 m
POROSITY: 95%
INVERT LEVEL: 2.73mAOON

CELLULAR STORAGE CRATE (TANK G)
AREA: 30 m²
DEPTH: 1.125 m
POROSITY: 95%
INVERT LEVEL: 2.73mAOON

CELLULAR STORAGE CRATE (TANK H)
AREA: 30 m²
DEPTH: 1.125 m
POROSITY: 95%
INVERT LEVEL: 2.73mAOON

CELLULAR STORAGE CRATE (TANK I)
AREA: 30 m²
DEPTH: 1.125 m
POROSITY: 95%
INVERT LEVEL: 2.73mAOON

CELLULAR STORAGE CRATE (TANK J)
AREA: 30 m²
DEPTH: 1.125 m
POROSITY: 95%
INVERT LEVEL: 2.73mAOON

CELLULAR STORAGE CRATE (TANK K)
AREA: 30 m²
DEPTH: 1.125 m
POROSITY: 95%
INVERT LEVEL: 2.73mAOON

CELLULAR STORAGE CRATE (TANK L)
AREA: 30 m²
DEPTH: 1.125 m
POROSITY: 95%
INVERT LEVEL: 2.73mAOON

CELLULAR STORAGE CRATE (TANK M)
AREA: 30 m²
DEPTH: 1.125 m
POROSITY: 95%
INVERT LEVEL: 2.73mAOON

CELLULAR STORAGE CRATE (TANK N)
AREA: 30 m²
DEPTH: 1.125 m
POROSITY: 95%
INVERT LEVEL: 2.73mAOON

CELLULAR STORAGE CRATE (TANK O)
AREA: 30 m²
DEPTH: 1.125 m
POROSITY: 95%
INVERT LEVEL: 2.73mAOON

CELLULAR STORAGE CRATE (TANK P)
AREA: 30 m²
DEPTH: 1.125 m
POROSITY: 95%
INVERT LEVEL: 2.73mAOON

CELLULAR STORAGE CRATE (TANK Q)
AREA: 30 m²
DEPTH: 1.125 m
POROSITY: 95%
INVERT LEVEL: 2.73mAOON

CELLULAR STORAGE CRATE (TANK R)
AREA: 30 m²
DEPTH: 1.125 m
POROSITY: 95%
INVERT LEVEL: 2.73mAOON

CELLULAR STORAGE CRATE (TANK S)
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DEPTH: 1.125 m
POROSITY: 95%
INVERT LEVEL: 2.73mAOON

CELLULAR STORAGE CRATE (TANK T)
AREA: 30 m²
DEPTH: 1.125 m
POROSITY: 95%
INVERT LEVEL: 2.73mAOON

CELLULAR STORAGE CRATE (TANK U)
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POROSITY: 95%
INVERT LEVEL: 2.73mAOON

CELLULAR STORAGE CRATE (TANK V)
AREA: 30 m²
DEPTH: 1.125 m
POROSITY: 95%
INVERT LEVEL: 2.73mAOON

CELLULAR STORAGE CRATE (TANK W)
AREA: 30 m²
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POROSITY: 95%
INVERT LEVEL: 2.73mAOON

CELLULAR STORAGE CRATE (TANK X)
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POROSITY: 95%
INVERT LEVEL: 2.73mAOON

CELLULAR STORAGE CRATE (TANK Y)
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POROSITY: 95%
INVERT LEVEL: 2.73mAOON

CELLULAR STORAGE CRATE (TANK Z)
AREA: 30 m²
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POROSITY: 95%
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CELLULAR STORAGE CRATE (TANK AA)
AREA: 30 m²
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POROSITY: 95%
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CELLULAR STORAGE CRATE (TANK AB)
AREA: 30 m²
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POROSITY: 95%
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POROSITY: 95%
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AREA: 30 m²
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POROSITY: 95%
INVERT LEVEL: 2.73mAOON

CELLULAR STORAGE CRATE (TANK AE)
AREA: 30 m²
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POROSITY: 95%
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CELLULAR STORAGE CRATE (TANK AF)
AREA: 30 m²
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POROSITY: 95%
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POROSITY: 95%
INVERT LEVEL: 2.73mAOON

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POROSITY: 95%
INVERT LEVEL: 2.73mAOON

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POROSITY: 95%
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POROSITY: 95%
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POROSITY: 95%
INVERT LEVEL: 2.73mAOON

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POROSITY: 95%
INVERT LEVEL: 2.73mAOON

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DEPTH: 1.125 m
POROSITY: 95%
INVERT LEVEL: 2.73mAOON

CELLULAR STORAGE CRATE (TANK BC)
AREA: 30 m²
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POROSITY: 95%
INVERT LEVEL: 2.73mAOON

CELLULAR STORAGE CRATE (TANK BD)
AREA: 30 m²
DEPTH: 1.125 m
POROSITY: 95%
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CELLULAR STORAGE CRATE (TANK BE)
AREA: 30 m²
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POROSITY: 95%
INVERT LEVEL: 2.73mAOON

CELLULAR STORAGE CRATE (TANK BF)
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POROSITY: 95%
INVERT LEVEL: 2.73mAOON

CELLULAR STORAGE CRATE (TANK BG)
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POROSITY: 95%
INVERT LEVEL: 2.73mAOON

CELLULAR STORAGE CRATE (TANK BH)
AREA: 30 m²
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POROSITY: 95%
INVERT LEVEL: 2.73mAOON

CELLULAR STORAGE CRATE (TANK BI)
AREA: 30 m²
DEPTH: 1.125 m
POROSITY: 95%
INVERT LEVEL: 2.73mAOON

CELLULAR STORAGE CRATE (TANK BJ)
AREA: 30 m²
DEPTH: 1.125 m
POROSITY: 95%
INVERT LEVEL: 2.73mAOON

CELLULAR STORAGE CRATE (TANK BK)
AREA: 30 m²
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POROSITY: 95%
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POROSITY: 95%
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POROSITY: 95%
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CELLULAR STORAGE CRATE (TANK BP)
AREA: 30 m²
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CELLULAR STORAGE CRATE (TANK BQ)
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CELLULAR STORAGE CRATE (TANK BS)
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CELLULAR STORAGE CRATE (TANK BT)
AREA: 30 m²
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POROSITY: 95%
INVERT LEVEL: 2.73mAOON

CELLULAR STORAGE CRATE (TANK BU)
AREA: 30 m²
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CELLULAR STORAGE CRATE (TANK BV)
AREA: 30 m²
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CELLULAR STORAGE CRATE (TANK BW)
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CELLULAR STORAGE CRATE (TANK BX)
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CELLULAR STORAGE CRATE (TANK BY)
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CELLULAR STORAGE CRATE (TANK BZ)
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CELLULAR STORAGE CRATE (TANK CA)
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POROSITY: 95%
INVERT LEVEL: 2.73mAOON

CELLULAR STORAGE CRATE (TANK CC)
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POROSITY: 95%
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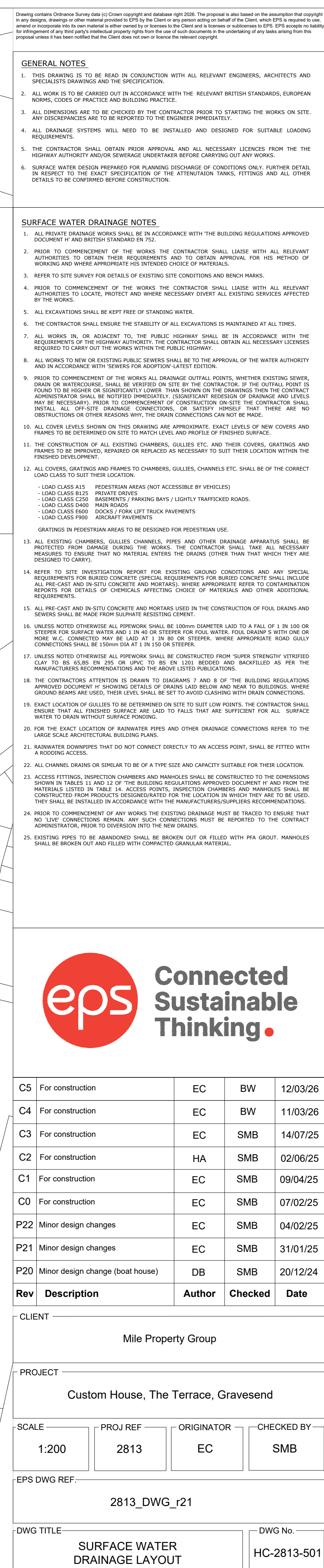
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INVERT LEVEL: 2.73mAOON

CELLULAR STORAGE CRATE (TANK CF)
AREA: 30 m²
DEPTH: 1.125 m
POROSITY: 95%
INVERT LEVEL: 2.73mAOON

CELLULAR STORAGE CRATE (TANK CG)
AREA: 30 m²
DEPTH: 1.125 m
POROSITY: 95%
INVERT LEVEL: 2.73mAOON

CELLULAR STORAGE CRATE (TANK CH)
AREA: 30

Appendix B – Contractor As Built Drawings



Drawing contains Ordnance Survey data (c) Crown copyright and database right 2025. The proposal is also based on the assumption that copyright in any designs, drawings or other material provided to Herrington Consulting by the Client or any person acting on behalf of the Client, will be transferred to Herrington Consulting. Herrington Consulting accepts no liability for infringement of any third party's intellectual property rights from the use of such documents in the understanding of any tasks arising from this proposal unless it has been notified that the Client does not own or license the relevant copyright.

GENERAL NOTES

- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ENGINEERS, ARCHITECTS AND SPECIALISTS DRAWINGS AND THE SPECIFICATION.
- ALL WORK IS TO BE CARRIED OUT IN ACCORDANCE WITH THE RELEVANT BRITISH STANDARDS, EUROPEAN NORMS, CODES OF PRACTICE AND BUILDING PRACTICE.
- ALL DIMENSIONS ARE TO BE CHECKED BY THE CONTRACTOR PRIOR TO STARTING THE WORKS ON SITE. ANY DISCREPANCIES ARE TO BE REPORTED TO THE ENGINEER IMMEDIATELY.
- ALL DRAINAGE SYSTEMS WILL NEED TO BE INSTALLED AND DESIGNED FOR SUITABLE LOADING REQUIREMENTS.
- THE CONTRACTOR SHALL OBTAIN PRIOR APPROVAL AND ALL NECESSARY LICENCES FROM THE THE HIGHWAY AUTHORITY AND/OR SEWERAGE UNDERTAKER BEFORE CARRYING OUT ANY WORKS.
- SURFACE WATER DESIGN PREPARED FOR PLANNING DISCHARGE OF CONDITIONS ONLY. FURTHER DETAIL IN RESPECT TO THE EXACT SPECIFICATION OF THE ATTENDANCE TANKS, FITTINGS AND ALL OTHER DETAILS TO BE CONFIRMED BEFORE CONSTRUCTION.

WASTEWATER DRAINAGE NOTES

- ALL PRIVATE DRAINAGE WORKS SHALL BE IN ACCORDANCE WITH 'THE BUILDING REGULATIONS APPROVED DOCUMENT H' AND BRITISH STANDARD EN 752.
- PRIOR TO COMMENCEMENT OF THE WORKS THE CONTRACTOR SHALL LIAISE WITH ALL RELEVANT AUTHORITIES TO OBTAIN THEIR REQUIREMENTS AND TO OBTAIN APPROVAL FOR HIS METHOD OF WORKING AND WHERE APPROPRIATE HIS INTENDED CHOICE OF MATERIALS.
- REFER TO SITE SURVEY FOR DETAILS OF EXISTING SITE CONDITIONS AND BENCH MARKS.
- PRIOR TO COMMENCEMENT OF THE WORKS THE CONTRACTOR SHALL LIAISE WITH ALL RELEVANT AUTHORITIES TO LOCATE, PROTECT AND WHERE NECESSARY DIVERT ALL EXISTING SERVICES AFFECTED BY THE WORKS.
- ALL EXCAVATIONS SHALL BE KEPT FREE OF STANDING WATER.
- THE CONTRACTOR SHALL ENSURE THE STABILITY OF ALL EXCAVATIONS IS MAINTAINED AT ALL TIMES.
- ALL WORKS IN, OR ADJACENT TO, THE PUBLIC HIGHWAY SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE HIGHWAY AUTHORITY. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY LICENCES REQUIRED TO CARRY OUT THE WORKS WITHIN THE PUBLIC HIGHWAY.
- ALL WORKS TO NEW OR EXISTING PUBLIC SEWERS SHALL BE TO THE APPROVAL OF THE WATER AUTHORITY AND IN ACCORDANCE WITH 'SEWERS FOR ADOPTION' LATEST EDITION.
- PRIOR TO COMMENCEMENT OF THE WORKS ALL DRAINAGE OUTFALL POINTS, WHETHER EXISTING SEWER, DRAIN OR WATERCOURSE, SHALL BE VERIFIED ON SITE BY THE CONTRACTOR. IF THE OUTFALL POINT IS FOUND TO BE HIGHER OR SIGNIFICANTLY LOWER THAN SHOWN ON THE DRAWINGS THEN THE CONTRACT ADMINISTRATOR SHALL BE NOTIFIED IMMEDIATELY. (SIGNIFICANT REDESIGN OF DRAINAGE AND LEVELS MAY BE NECESSARY). PRIOR TO COMMENCEMENT OF CONSTRUCTION ON-SITE THE CONTRACTOR SHALL INSTALL ALL OFF-SITE DRAINAGE CONNECTIONS, OR SATISFY HIMSELF THAT THERE ARE NO OBSTRUCTIONS OR OTHER REASONS WHY THE DRAIN CONNECTIONS CAN NOT BE MADE.
- ALL COVER LEVELS SHOWN ON THIS DRAWING ARE APPROXIMATE. EXACT LEVELS OF NEW COVERS AND FRAMES TO BE DETERMINED ON SITE TO MATCH LEVEL AND PROFILE OF FINISHED SURFACE.
- THE CONSTRUCTION OF ALL EXISTING CHAMBERS, GULLIES ETC. AND THEIR COVERS, GRATINGS AND FRAMES TO BE IMPROVED, REPAIRED OR REPLACED AS NECESSARY TO SUIT THEIR LOCATION WITHIN THE FINISHED DEVELOPMENT.
- ALL COVERS, GRATINGS AND FRAMES TO CHAMBERS, GULLIES, CHANNELS ETC. SHALL BE OF THE CORRECT LOAD CLASS TO SUIT THEIR LOCATION.
 - LOAD CLASS A15 PEDESTRIAN AREAS (NOT ACCESSIBLE BY VEHICLES)
 - LOAD CLASS B125 PRIVATE DRIVES
 - LOAD CLASS C250 BASEMENTS / PARKING BAYS / LIGHTLY TRAFFICKED ROADS
 - LOAD CLASS D400 MAIN ROADS
 - LOAD CLASS E600 DOCKS / FORK LIFT TRUCK PAVEMENTS
 - LOAD CLASS F900 AIRCRAFT PAVEMENTS
- GRATINGS IN PEDESTRIAN AREAS TO BE DESIGNED FOR PEDESTRIAN USE.
- ALL EXISTING CHAMBERS, GULLIES CHANNELS, PIPES AND OTHER DRAINAGE APPARATUS SHALL BE PROTECTED FROM DAMAGE DURING THE WORKS. THE CONTRACTOR SHALL TAKE ALL NECESSARY MEASURES TO ENSURE THAT NO MATERIAL ENTERS THE DRAINS (OTHER THAN THAT WHICH THEY ARE DESIGNED TO CARRY).
- REFER TO SITE INVESTIGATION REPORT FOR EXISTING GROUND CONDITIONS AND ANY SPECIAL REQUIREMENTS FOR BURIED CONCRETE (SPECIAL REQUIREMENTS FOR BURIED CONCRETE SHALL INCLUDE ALL PRE-CAST AND IN-SITU CONCRETE AND MORTARS). WHERE APPROPRIATE REFER TO CONTAMINATION REPORTS FOR DETAILS OF CHEMICALS AFFECTING CHOICE OF MATERIALS AND OTHER ADDITIONAL REQUIREMENTS.
- ALL PRE-CAST AND IN-SITU CONCRETE AND MORTARS USED IN THE CONSTRUCTION OF FOUL DRAINS AND SEWERS SHALL BE MADE FROM SULPHATE RESISTING CEMENT.
- UNLESS NOTED OTHERWISE ALL PIPEWORK SHALL BE 100mm Ø DIAMETER LAID TO A FALL OF 1 IN 100 OR STEEPER FOR SURFACE WATER AND 1 IN 40 OR STEEPER FOR FOUL WATER. FOUL DRAINS WITH ONE OR MORE W.C. CONNECTED MAY BE LAID AT 1 IN 60 OR STEEPER, WHERE APPROPRIATE ROAD GULLY CONNECTIONS SHALL BE 150mm DIA AT 1 IN 150 OR STEEPER.
- UNLESS NOTED OTHERWISE ALL PIPEWORK SHALL BE CONSTRUCTED FROM 'SUPER STRENGTH VITRIFIED CLAY' TO BS 6585 EN 285 OR UPVC TO BS EN 1268 BEHOLD AND BACKFILLED AS PER THE MANUFACTURERS' RECOMMENDATIONS AND THE ABOVE LISTED PUBLICATIONS.
- THE CONTRACTORS ATTENTION IS DRAWN TO DIAGRAMS 7 AND 8 OF 'THE BUILDING REGULATIONS APPROVED DOCUMENT H' SHOWING DETAILS OF DRAINS LAID BELOW AND NEAR TO BUILDINGS, WHERE GROUND BEAMS ARE USED, THEIR LEVEL SHALL BE SET TO AVOID CLASHING WITH DRAIN CONNECTIONS.
- EXACT LOCATION OF GULLIES TO BE DETERMINED ON SITE TO SUIT LOW POINTS, THE CONTRACTOR SHALL ENSURE THAT ALL FINISHED SURFACE ARE LAID TO FALLS THAT ARE SUFFICIENT FOR ALL SURFACE WATER TO DRAIN WITHOUT SURFACE PONDING.
- FOR THE EXACT LOCATION OF SOIL PIPES, SUBSTACKS, W.C.'S AND OTHER DRAINAGE CONNECTIONS REFER TO THE LARGE SCALE ARCHITECTURAL BUILDING PLANS.
- ACCESS FITTINGS, INSPECTION CHAMBERS AND MANHOLES SHALL BE CONSTRUCTED TO THE DIMENSIONS SHOWN IN TABLES 11 AND 12 OF 'THE BUILDING REGULATIONS APPROVED DOCUMENT H' AND FROM THE MATERIALS LISTED IN TABLE 14. ACCESS POINTS, INSPECTION CHAMBERS AND MANHOLES SHALL BE CONSTRUCTED FROM PRODUCTS DESIGNED/RATED FOR THE LOCATION IN WHICH THEY ARE TO BE USED. THEY SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS/SUPPLIERS RECOMMENDATIONS.
- PRIOR TO COMMENCEMENT OF ANY WORKS THE EXISTING DRAINAGE MUST BE TRACED TO ENSURE THAT NO 'LIVE' CONNECTIONS REMAIN. ANY SUCH CONNECTIONS MUST BE REPORTED TO THE CONTRACT ADMINISTRATOR, PRIOR TO DIVERSION INTO THE NEW DRAINS.
- EXISTING PIPES TO BE ABANDONED SHALL BE BROKEN OUT OR FILLED WITH PFA GROUT. MANHOLES SHALL BE BROKEN OUT AND FILLED WITH COMPACTED GRANULAR MATERIAL.
- IT SHOULD BE NOTED THAT THE OUTFALL PIPE CONNECTING TO THE PUBLIC SEWER HAS NOT BEEN FULLY SURVEYED. IT IS RECOMMENDED THAT FURTHER INVESTIGATIONS ARE UNDERTAKEN TO CONFIRM ITS CAPACITY IS SUFFICIENT TO ACCOMMODATE THE PROPOSED FLOWS, AND UPGRADED IF REQUIRED.

KEY:

- EXISTING FOUL CHAMBER
- EXISTING FOUL DRAIN
- FOUL WATER DRAIN
- FOUL WATER RISING MAIN
- FOUL WATER CHAMBER
- PUMPING STATION
- EXISTING PUBLIC FOUL WATER SEWER
- EXISTING PUBLIC FOUL WATER CHAMBER
- DISCHARGE UNITS /S
- SOIL VENT PIPE No.
- STUB STACK No.

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C3	For construction	EC	SMB	14/07/25
C2	For construction	EC	SMB	09/04/25
C1	For construction	EC	SMB	26/03/25
C0	For construction	JS	SMB	07/02/25
P14	Minor amendments, reissue of FINAL	JS	EC	04/02/25
P13	Minor amendments, reissue of FINAL	JS	EC	31/01/25
Rev	Description	Author	Checked	Date

CLIENT

Mile Property Group

PROJECT

Custom House, The Terrace, Gravesend

SCALE

PROJ REF	ORIGINATOR	CHECKED BY
2813	EC	SMB

HC DWG REF.

2813_DWG_r19

DWG TITLE

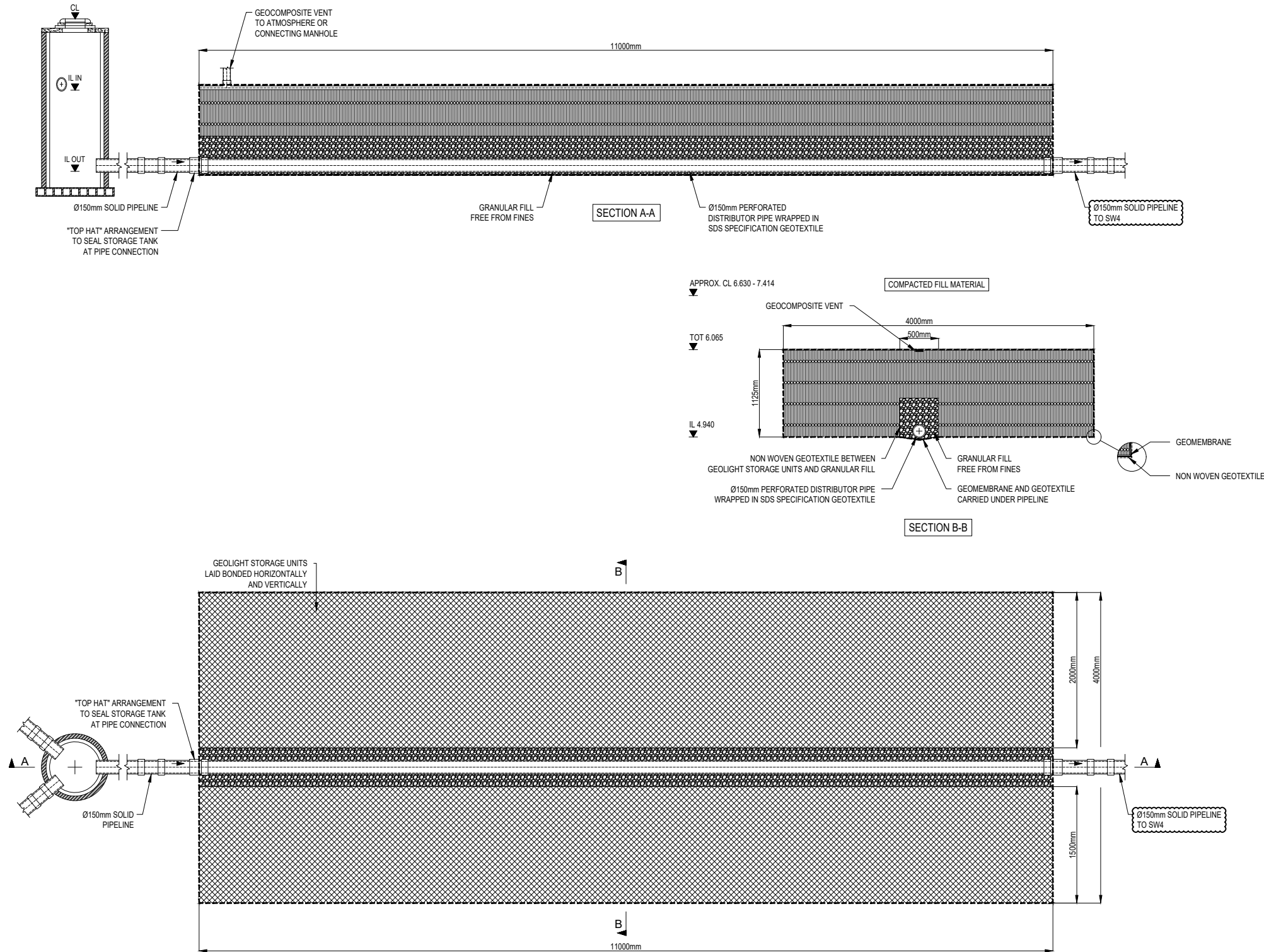
FOUL WATER
DRAINAGE LAYOUT

DWG No.

HC-2813-601



WEHOLITE MANHOLE WITH SUMP
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IL OUT: 4.940



Notes:

This Drawing is to be read in conjunction with all relevant Architect's Engineer's and specialists' drawings and specifications.

Do not scale from this drawing in either paper or digital form. Use written dimensions only.

SDS to leave solid stub only, exiting tank for connection by others.

All external Manholes, Access Points, Junctions & Pipe are shown for guidance only and not part of the SDS program unless otherwise agreed.

A	UPDATED AS PER COMMENTS	20.06.24
CG	ISSUED FOR APPROVAL	SP
-	ISSUED FOR APPROVAL	12.06.24
CG	ISSUED FOR APPROVAL	RJ
Rev	Comments	Date
DRW	CHK	



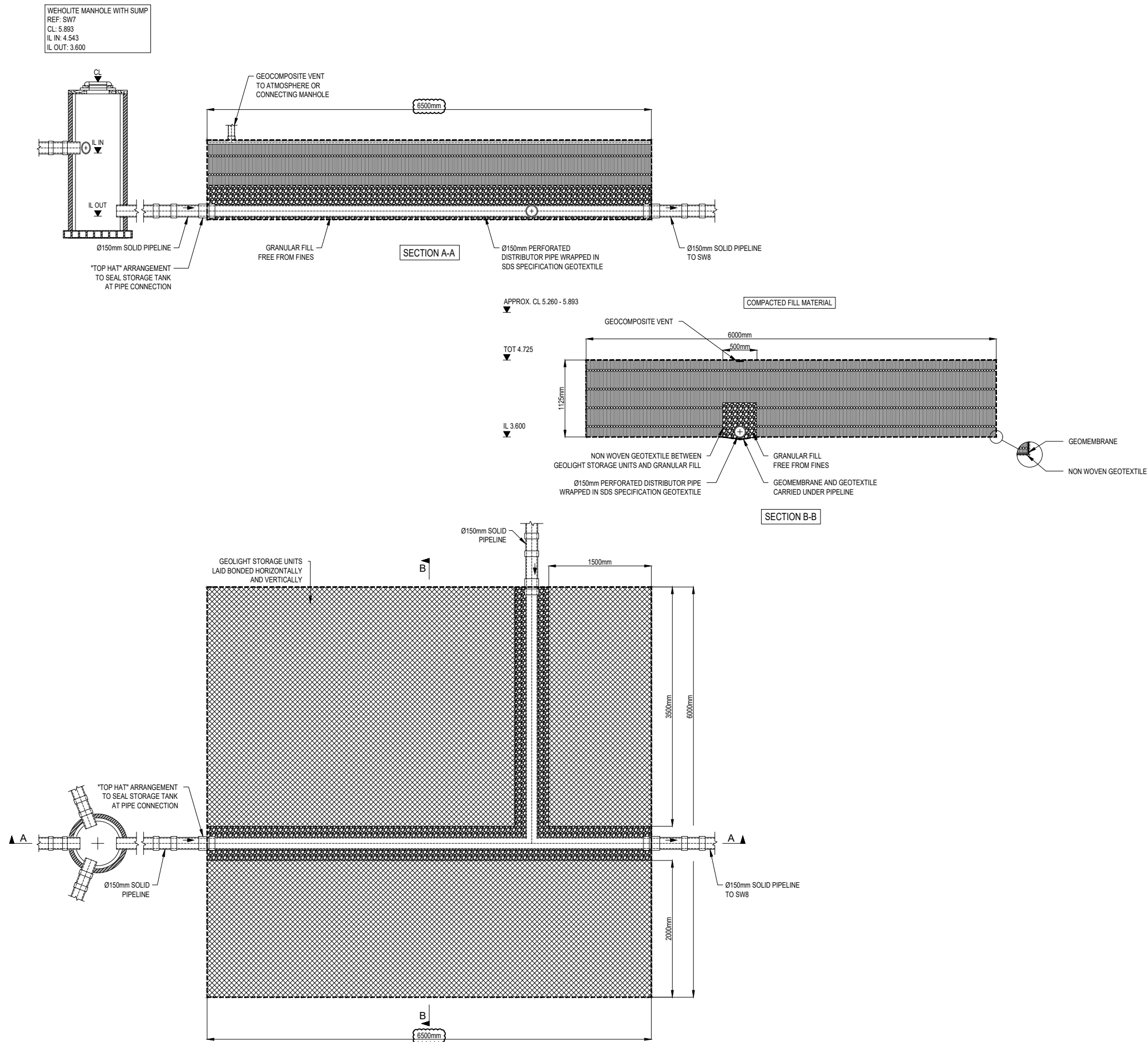
sdslimited.com

CUSTOM HOUSE
GRAVESEND

ATTENUATION TANK A DETAIL

REFERENCE DRAWINGS:			
Drawing Number	Revision	Drawing Title	Date
2813_DWG_R0	-	INDICATIVE SURFACE WATER DRAINAGE LAYOUT	-

Scale	NTS	Date	12.06.24
Drawing No	E114524_01	Rev	A



Notes:

This Drawing is to be read in conjunction with all relevant Architect's Engineer's and specialists' drawings and specifications.

Do not scale from this drawing in either paper or digital form. Use written dimensions only.

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A	UPDATED AS PER COMMENTS	20.06.24
CG	ISSUED FOR APPROVAL	SP
-	ISSUED FOR APPROVAL	12.06.24
CG	DATE	RJ
Rev	Comments	Date
DRW	CHK	



Clearwater House
Castlemills
Biddisham
Somerset
BS26 2RE
+44 (0)1934 751303

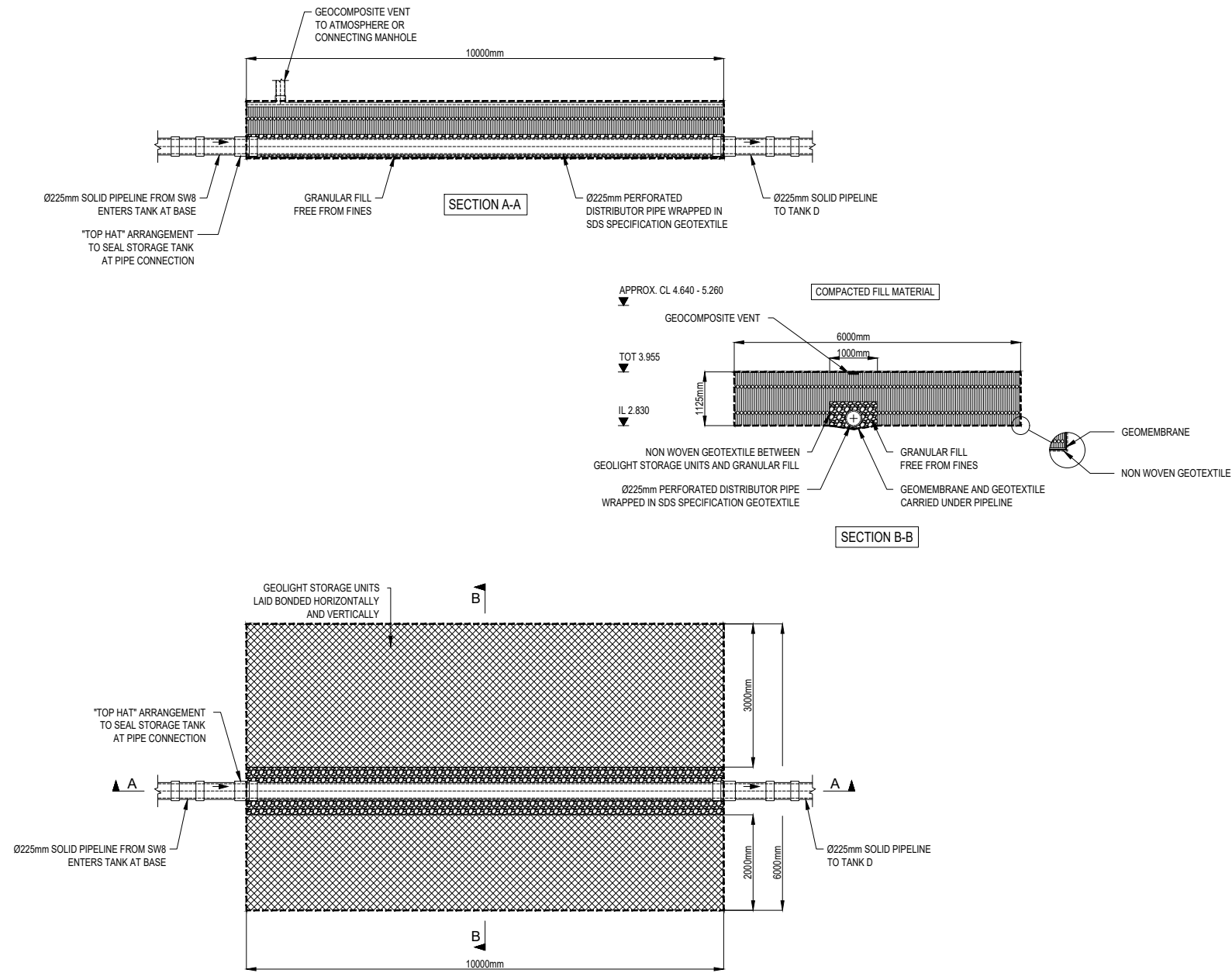
[sdslimited.com](https://www.sdslimited.com)

CUSTOM HOUSE
GRAVESEND

ATTENUATION TANK B DETAIL

Drawing Number	Revision	Drawing Title	Date
2813_DWG_R0	-	INDICATIVE SURFACE WATER DRAINAGE LAYOUT	-

Scale	NTS	Date	12.06.24
Drawing No	E114524_02	Rev	A



Notes:

This Drawing is to be read in conjunction with all relevant Architect's Engineer's and specialists' drawings and specifications.

Do not scale from this drawing in either paper or digital form. Use written dimensions only.

SDS to leave solid stub only, exiting tank for connection by others.

All external Manholes, Access Points, Junctions & Pipe are shown for guidance only and not part of the SDS program unless otherwise agreed.

ISSUED FOR APPROVAL	12.06.24
CG	RJ

Rev	Comments	Date
DRW	CHK	

SDS

Water
Infrastructure
Systems

Clearwater House
Castlemills
Biddisham
Somerset
BS26 2RE
+44 (0)1934 751303

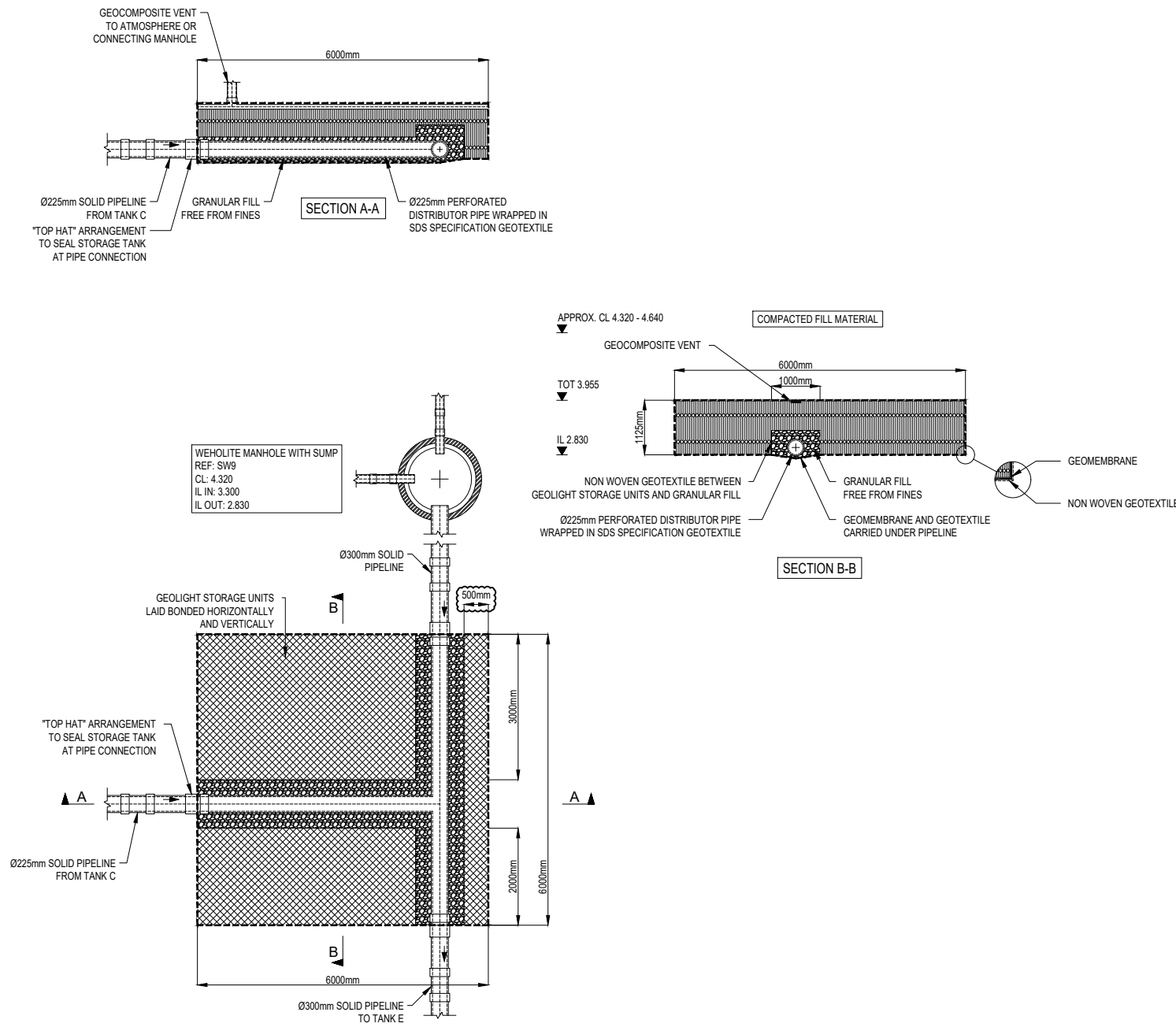
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CUSTOM HOUSE
GRAVESEND

ATTENUATION TANK C DETAIL

Drawing Number	Revision	Drawing Title	Date
2813_DWG_R0	-	INDICATIVE SURFACE WATER DRAINAGE LAYOUT	-

Scale	NTS	Date	12.06.24
Drawing No	E114524_03	Rev	-



Notes:

This Drawing is to be read in conjunction with all relevant Architect's Engineer's and specialists' drawings and specifications.

Do not scale from this drawing in either paper or digital form. Use written dimensions only.

SDS to leave solid stub only, exiting tank for connection by others.

All external Manholes, Access Points, Junctions & Pipe are shown for guidance only and not part of the SDS program unless otherwise agreed.

A	UPDATED AS PER COMMENTS	20.06.24
	ISSUED FOR APPROVAL	CG SP
-	ISSUED FOR APPROVAL	12.06.24
		CG RJ
Rev	Comments	Date
		DRW CHK

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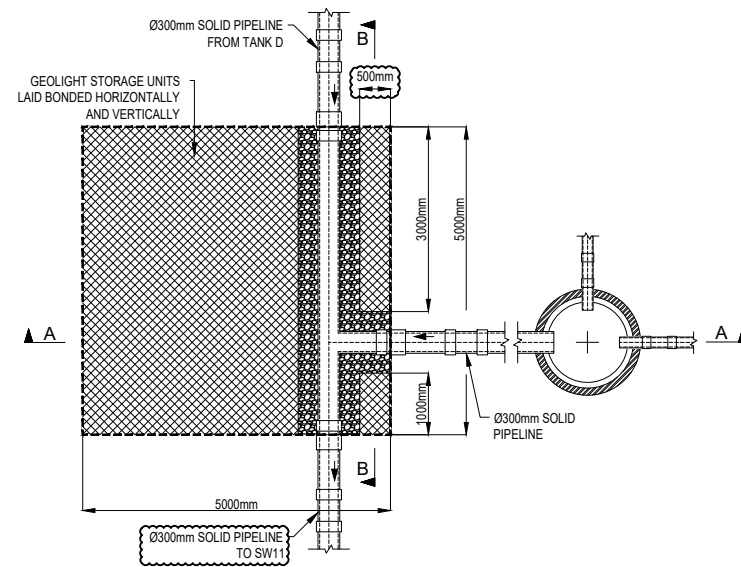
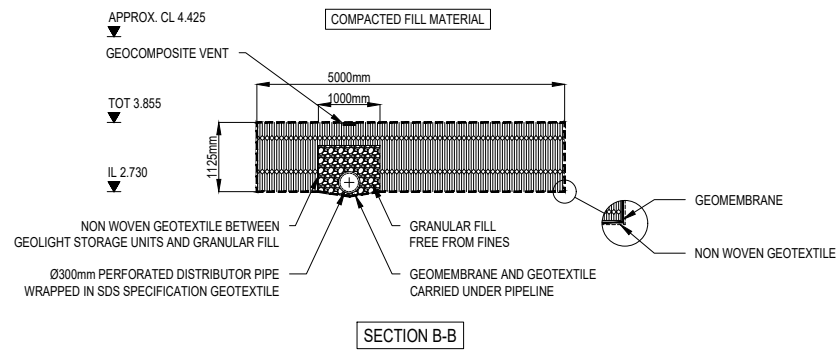
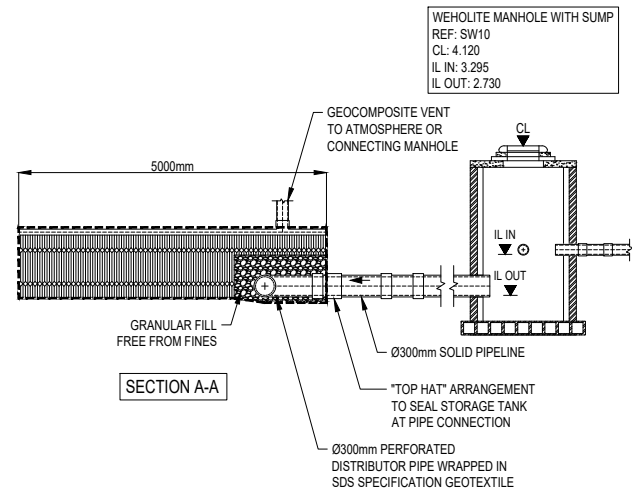
Project
CUSTOM HOUSE GRAVESEND

Client

File
ATTENUATION TANK D DETAIL

Scale NTS	Date 12.06.24
Drawing No E114524_04	Rev A

REFERENCE DRAWINGS:			
Drawing Number	Revision	Drawing Title	Date
2813_DWG_R0	-	INDICATIVE SURFACE WATER DRAINAGE LAYOUT	-



Notes:

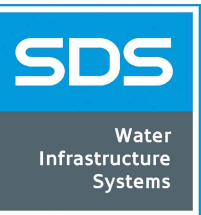
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ATTENUATION TANK E DETAIL

REFERENCE DRAWINGS:			
Drawing Number	Revision	Drawing Title	Date
2813_DWG_R0	-	INDICATIVE SURFACE WATER DRAINAGE LAYOUT	-

Scale	NTS	Date	12.06.24
Drawing No	E114524_05	Rev	A

Appendix C – Maintenance Schedule

Operation and Maintenance Schedule – Geo-Cellular Storage System

Maintenance Schedule	Required Action	Typical Frequency
Regular maintenance	Inspect and identify any areas that are not operating correctly. If required, take remedial action.	Monthly for 3 months then annually
	Remove debris and sediment from the catchment surface, wherever it presents a risk to the performance of the drainage system,	Monthly, or as required based on inspection frequencies.
	Remove sediment from pre-treatment structures (e.g. sediment traps) and from internal forebays	Annually or as required based on inspection frequencies
Remedial Actions	Repair; inlets, outlets, overflow pipes, and vent mechanisms	As required, based on inspections
	Replace tank or geotextile if significant damage is observed or geotextile is torn.	As required
Monitoring	Inspect and check all inlets, outlets, vents, and overflows to ensure that they are in good condition and operating as designed.	Following installation, and annually hereafter
	Survey inside of tank, and at any sediment trap mechanisms, for sediment build-up and remove sediment if necessary. Use inspections to develop a regular maintenance and inspection procedure for sediment removal.	Every 5 years, or as required if inspections show high siltation rates.

General Operation and Maintenance Table for Geo-Cellular Storage Systems