



DRAINAGE STRATEGY OUTLINE PROPOSALS

CLIENT ATEB

PROJECT LAND AT SOLVA, PEMBROKESHIRE

DOC. REF. 10135

DATE 3 July 2023

Grays (Consulting Engineers) Limited

11-13 Penhill Road, Pontcanna,
Cardiff, CF11 9PQ

T: 029 20733181

E: design@graysconsulting.co.uk

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 Grays (Consulting Engineers) Limited's Quality System (to BS EN ISO 9001:2015)

STATUS		PREPARED		CHECKED		APPROVED	
ISSUE	REV	NAME	DATE	NAME	DATE	NAME	DATE
1		M Bartlett	03/07/23	R Monkley	03/07/23	R Monkley	03/07/23

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1 INTRODUCTION

Grays (Consulting Engineers) Limited ['Grays'] have been instructed by ATEB to provide a drainage strategy to support a planning application relating to the development of their site at Solva, Pembrokeshire.

The original feasibility assessment has determined a maximum of circa 35 dwellings can be accommodated at the site, however, due to financial and drainage constraints, the current proposals include construction of 17 no. units of affordable housing.

The development will be subject to SuDS legislation and will therefore require approval from the SuDS Approval Body (SAB).

This report outlines the initial strategy that will deliver both foul and surface water drainage solutions to meet the requirements of the new development.

2 EXISTING DRAINAGE PROVISION

Desktop and physical investigations have been undertaken into the existing drainage infrastructure in and around the development site.

An existing DCWW foul sewer crosses the site to which a 3 metre easement either side of the pipe has been observed, in accordance with DCWW requirements.

A CCTV and location survey has been carried out to determine the accurate depth and location of the foul sewer. Please refer to the figure below:

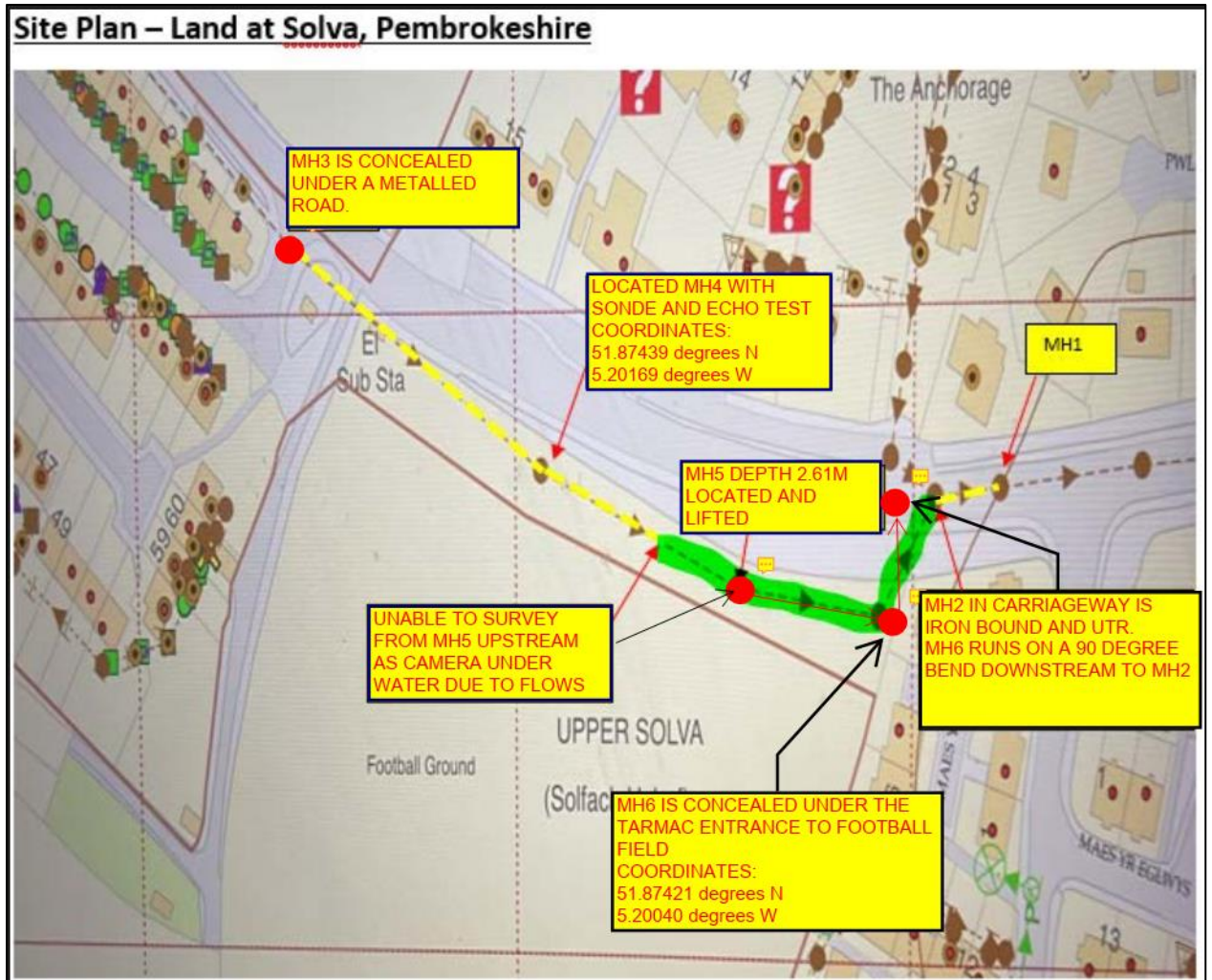


Figure 1 – Existing DCWW foul sewer as surveyed.

There are no surface water bodies in or around the development site.

There are no dedicated surface water sewers serving the site, or within reasonable distance to the site.

3 PROPOSED DRAINAGE

Separate foul and surface water systems are to be provided. Refer to Appendix A1 which shows the outline drainage strategy plan.

Foul Water

A pre-planning consultation has been submitted to DCWW reference: PPA0006850 and is found in Appendix A2.

DCWW have confirmed the existing foul sewer crossing the site can accommodate the new development subject to upgrade works being completed at the Solva Wastewater Treatment works to which it outfalls:

"We have considered the impact of foul flows generated by the proposed development and concluded it is unlikely that sufficient capacity exists at Solva WwTw's to accommodate the overall proposed development of 35 dwellings without causing detriment to the existing services we provide to our customers, or in regard to the protection of the environment. The WwTW's currently has the ability to accommodate a maximum of 10 dwellings.

However, improvements are planned for completion by 31st March 2025. In light of this, any development over 10 dwellings shall not be brought into beneficial use earlier than 31st March 2025, unless the upgrading of the Wastewater Treatment Works, into which the development shall drain, has been completed and written confirmation of this has been issued by the Local Planning Authority."

Due to these constraints and in accordance with DCWW's requirements, it is proposed to connect a maximum of 10 no. dwellings of the total 17 proposed and the remainder of the dwellings will be connected to the proposed foul system upon completion of the upgrade works or following the 31st March 2025 deadline, whichever comes first.

The proposed foul water connection will be subject to a Section 106 agreement with DCWW.

Surface Water

In accordance with the National SuDS standards, the proposed surface water system will need to satisfy Standards S1-S6. Although this will be subject to a separate approval by the SAB, the outline methodology is presented below:

Standard S1 – Runoff Destination

Means of surface water disposal have been investigated in hierarchical order:

Level 1: Collected for Re-use.

Rainwater harvesting systems are not deemed a cost-effective solution or sufficient enough to deal with surface water disposal alone and therefore an alternative method must be considered.

In addition, DCWW have not highlighted any concerns during the pre-planning enquiry and have confirmed a new potable supply can be made available for the site.

Level 2: Infiltrated to Ground

A ground investigation report has been prepared and infiltration testing has been undertaken, the results of which have proven soakaway systems suitable for use at this development. It is therefore proposed to utilise on-plot and communal soakaway systems as the method for surface water disposal. Refer to Appendix A3 for infiltration testing results.

Standard S2 – Hydraulic Control

As it is intended to utilise infiltration methods as a means of surface water disposal, greenfield runoff rate calculations have not been undertaken.

Attenuation systems will be provided to cater for the 1:100year plus 40% climate change storm event with no flooding on site or elsewhere.

A 10% allowance for urban creep shall be applied during detailed design.

Standard S3 – Surface Water Quality

Pollution from the development originates from the following sources:

- Residential roofing – Deemed 'Very low risk'
- Individual property driveways – Deemed 'Low risk'
- Low traffic roads – Deemed 'Low risk'

It is proposed to treat surface water runoff prior to discharging to ground. Individual properties will drain via raingardens/bio-retention planting before discharging to on-plot soakaways where they can be accommodated within the property curtilage. The block of apartments (09-14) will make use of green open spaces and incorporate an at-surface swale/shallow basin feature for treatment purposes.

Communal parking areas and residential streets will drain via kerb-side swales/bio-retention planting before discharging to a cellular soakaway system.

Detailed calculations will be submitted for approval via a formal SAB application.

The Simple Index Approach (SIA) will be used to validate the surface water treatment.

Standard S4 and S5 – Amenity and Biodiversity

The development will include a dedicated landscape strategy to ensure amenity and biodiversity benefits are achieved.

Standard S6 – Design, Construction, Operation and Maintenance

The final drainage solution will ensure the proposed surface water system can be constructed, operated and maintained effectively. A maintenance strategy document will be provided to assist the end user with future operations and maintenance.

4 CONCLUSION

Subject to detailed design and formal approvals, this outline strategy demonstrates that both foul and surface water drainage can be effectively managed and a SAB compliant design can be achieved for the initial site proposals and is sufficient to support the proposed developments planning application.

A1 DRAINAGE PLAN



NOTES

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

ALL WORK TO BE CARRIED OUT IN ACCORDANCE WITH CURRENT CDM REGULATIONS 2015 AND HSE/150. IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, PLEASE NOTE THE FOLLOWING:

SuDS KEY

- EXISTING DCWW SEWER
- DCWW EASEMENT
- PROPOSED FOUL SEWER
- PROPOSED SURFACE WATER SEWER
- PROPOSED RAINGARDEN / BIO-RETENTION
- CELLULAR SOAKAWAY

REV	DESCRIPTION	MB	RM	11.07.23
P01	FIRST ISSUE, FOR COMMENT.			

GRAYS
CONSULTING ENGINEERS

11-13 Penhill Road,
Potters Bar,
Herts SG8 5JF
+44 (0) 2992 733181
www.graysconsulting.co.uk

CLIENT: ATEB

PROJECT TITLE: LAND ADJACENT TO BRO DAWEL, SOLVA

DRAWING TITLE: PROPOSED DRAINAGE STRATEGY

DRAWN	CHECKED	APPROVED	DATE	SHEET SIZE/SCALE	GRAYS JOB NO.
MB	MB	MB	DEC. 2022	1:250	10135

SUITABILITY	S2	REVISION	P01
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DRAWING NUMBER: **10135-GRY-XX-XX-DR-C-001**

Fluxus\10135\10135 - Land of Solva\05 Documents\05 Drawings\10135 GRV-XX-XX-DR-C-001 Proposed Drainage Layout

A2 DCWW CORRESPONDENCE



Dŵr Cymru
Welsh Water

Developer Services
PO Box 3146
Cardiff
CF30 0EH

Tel: +44 (0)800 917 2652
Fax: +44 (0)2920 740472
E.mail: developer.services@dwrcymru.com

Gwasanaethau Datblygu
Blwch Post 3146
Caerdydd
CF30 0EH

Ffôn: +44 (0)800 917 2652
Ffacs: +44 (0)2920 740472
E.bost: developer.services@dwrcymru.com

Mr Matthew Bartlett
Grays Consulting
Pentwyn
Cardiff
CF23 7HA

Date:30.01.23
Our Ref: PPA0006850

Dear Mr Bartlett,

Site Address: Land at Solva, Pembrokeshire
Development: 35 residential dwellings

I refer to your pre-planning enquiry received relating to the above site, seeking our views on the capacity of our network of assets and infrastructure to accommodate your proposed development. Having reviewed the details submitted I can provide the following comments which should be taken into account within any future planning application for the development.

APPRAISAL

Firstly, we note that the proposal relates to a proposed development of 35 dwellings and acknowledge that the site comprises of a potential windfall development with no allocated status in the Local Development Plan (LDP). Accordingly, whilst it does not appear an assessment has been previously undertaken of the public sewerage system, we offer the following comments as part of our appraisal of this development.

Please note, notwithstanding the following assessment, we would advise there is also a mandatory requirement to undertake pre-application consultation with all 'Specialist Consultees', including Dwr Cymru Welsh Water as the statutory water and sewerage undertaker, in accordance with Schedule 4 of Town & Country Planning (Development Management Procedure) (Wales) (Amendment) Order 2016. As a major development, amounting to more than 10 units, you will be statutorily required to consult Welsh Water and a substantive response will be issued within 28 days from the date of the notice as per the requirements of Article 2E.

Public Sewerage Network

The proposed development site is located in the immediate vicinity of a foul sewerage system, which drains to Solva Sewage Pumping Station (SPS) and then on to Solva Wastewater Treatment Works (WwTW).



Welsh Water is owned by Glas Cymru – a 'not-for-profit' company.
Mae Dŵr Cymru yn eiddo i Glas Cymru – cwmni 'nid-er-elw'.

We welcome correspondence in
Welsh and English

Dŵr Cymru Cyf, a limited company registered in
Wales no 2366777. Registered office: Pentwyn Road,
Nelson, Treharris, Mid Glamorgan CF46 6LY

Rydym yn croesawu gohebiaeth yn y
Gymraeg neu yn Saesneg

Dŵr Cymru Cyf, cwmni cyfyngedig wedi'i gofrestru yng
Nghymru rhif 2366777. Swyddfa gofrestredig: Heol Pentwyn
Nelson, Treharris, Morgannwg Ganol CF46 6LY.

The proposed development site is crossed by a public foul sewer with the approximate position being marked on the attached Statutory Public Sewer Record. The position shall be accurately located, marked out on site before works commence and no operational development shall be carried out within 3 metres either side of the centreline of the public sewer.

You are also advised that some public sewers and lateral drains may not be recorded on our maps of public sewers because they were originally privately owned and were transferred into public ownership by nature of the Water Industry (Schemes for Adoption of Private Sewers) Regulations 2011. The presence of such assets may affect the proposal. In order to assist you may contact Dwr Cymru Welsh Water on 0800 085 3968 to establish the location and status of the apparatus in and around your site. Please be mindful that under the Water Industry Act 1991 Dwr Cymru Welsh Water has rights of access to its apparatus at all times.

Surface Water Drainage

As of 7th January 2019, this proposed development is subject to Schedule 3 of the Flood and Water Management Act 2010. The development therefore requires approval of Sustainable Drainage Systems (SuDS) features, in accordance with the 'Statutory standards for sustainable drainage systems – designing, constructing, operating and maintaining surface water drainage systems'. As highlighted in these standards, the developer is required to explore and fully exhaust all surface water drainage options in accordance with a hierarchy which states that discharge to a combined sewer shall only be made as a last resort. Disposal should be made through the hierarchical approach, preferring infiltration and, where infiltration is not possible, disposal to a surface water drainage body in liaison with the Land Drainage Authority and/or Natural Resources Wales.

It is therefore recommended that the developer consult with Pembrokeshire County Council as the determining SuDS Approval Body (SAB), in relation to their proposals for SuDS features. Please note, DCWW is a statutory consultee to the SAB application process and will provide comments to any SuDS proposals by response to SAB consultation. Please refer to further detailed advice relating to surface water management included in our attached Advice & Guidance note. In addition, please note that no highway or land drainage run-off will be permitted to discharge directly or indirectly into the public sewerage system.

Foul Water Drainage – Sewerage Network

We have considered the impact of foul flows generated by the proposed development and concluded that flows can be accommodated within the public sewerage system. We advise that the flows should be connected to the foul sewer that is located within the boundary of the site.

Should a planning application be submitted for this development we will seek to control these points of communication via appropriate planning conditions and therefore recommend that any drainage layout or strategy submitted as part of your application takes this into account. However, should you wish for an alternative connection point to be considered please provide further information to us in the form of a drainage strategy, preferably in advance of a planning application being submitted.



You may need to apply to Dwr Cymru Welsh Water for any connection to the public sewer under Section 106 of the Water Industry Act 1991. However, if the connection to the public sewer network is either via a lateral drain (i.e. a drain which extends beyond the connecting property boundary) or via a new sewer (i.e. serves more than one property), it is now a mandatory requirement to first enter into a Section 104 Adoption Agreement (Water Industry Act 1991). The design of the sewers and lateral drains must also conform to the Welsh Ministers Standards for Foul Sewers and Lateral Drains and conform with the publication "Sewers for Adoption"- 7th Edition. Further information can be obtained via the Developer Services pages of www.dwrcymru.com.

SEWAGE TREATMENT

We have considered the impact of foul flows generated by the proposed development and concluded it is unlikely that sufficient capacity exists at Solva WwTW's to accommodate the overall proposed development of 35 dwellings without causing detriment to the existing services we provide to our customers, or in regard to the protection of the environment. The WwTW's currently has the ability to accommodate a maximum of 10 dwellings.

However, improvements are planned for completion by 31st March 2025. In light of this, any development over 10 dwellings shall not be brought into beneficial use earlier than 31st March 2025, unless the upgrading of the Wastewater Treatment Works, into which the development shall drain, has been completed and written confirmation of this has been issued by the Local Planning Authority.

WATER SUPPLY

A water supply can be made available to service this proposed development. However, this would require the installation of off-site mains. Under Sections 40 - 41 of the Water Industry Act 1991 the above cost is requisitionable and, subject to us receiving your detailed site layout plan and your programme for construction, we would be able to provide a more accurate assessment of the developer's contribution.

I trust the above information is helpful and will assist you in forming water and drainage strategies that should accompany any future planning application. I also attach copies of our water and sewer extract plans for the area, and a copy of our Planning Guidance Note which provides further information on our approach to the planning process, making connections to our systems and ensuring any existing public assets or infrastructure located within new development sites are protected.



Please note that our response is based on the information provided in your enquiry and should the information change we reserve the right to make a new representation. Should you have any queries or wish to discuss any aspect of our response please do not hesitate to contact our dedicated team of planning officers, either on 0800 917 2652 or via email at developer.services@dwrcymru.com Please quote our reference number in all communications and correspondence.

Yours faithfully,



Owain George
Planning Liaison Manager
Developer Services

Please Note that demands upon the water and sewerage systems change continually; consequently, the information given above should be regarded as reliable for a maximum period of 12 months from the date of this letter.

A3 INFILTRATION TESTING RESULTS



Grays (Consulting Engineers) Limited

11-13 Penhill Road, Pontcanna,
Cardiff, CF11 9PQ

T: 029 20733181

E: design@graysconsulting.co.uk

7.4 SOIL INFILTRATION TESTS

LOCATION	BASE DEPTH (MBGL)	CYCLE 1 (m/s)	CYCLE 2 (m/s)	CYCLE 3 (m/s)	DESIGN INFILTRATION RATE (m/s)
TP01	2.1	4.2×10^{-06}	4.8×10^{-06}	N/A	4.2×10^{-06}
TP02	2.0	8.2×10^{-04}	4.6×10^{-04}	4.3×10^{-04}	4.3×10^{-04}
TP03	1.8	1.6×10^{-03}	1.3×10^{-03}	1.1×10^{-03}	1.1×10^{-03}
TP04	2.1	4.8×10^{-04}	4.0×10^{-04}	4.3×10^{-04}	4.0×10^{-04}
TP06	2.2	8.5×10^{-04}	6.2×10^{-04}	5.1×10^{-04}	5.1×10^{-04}
TP08	2.35	2.6×10^{-05}	2.5×10^{-05}	N/A	2.5×10^{-05}

The soakaway test results are specific to the location and depths of the tests undertaken.

It should be noted that the above infiltration rates may vary due to seasonal and other effects.

It should be noted that this initial testing should only be regarded as indicative. If it should be proposed to use soakaways for this site, then more extensive follow-up tests will be required and should fully comply with BRE 365, in order to confirm the suitability of the site and to satisfy the local authority.