

APPLICATION FOR A MARINE LICENCE FOR MARINE WORKS

Marine Works include, but are not limited to, coast defences, beneficial uses of dredged materials, subsea cables, pontoons, jetties, land reclamation, grab samples and outfall pipes under the Marine and Coastal Access Act 2009

Please read the notes carefully before completing the form.

- The Marine Licensing Team (MLT) administers Part 4 of the Marine and Coastal Access Act 2009 on behalf of the Licensing Authority, the Welsh Ministers.
- The completed application form must be accompanied by a location plan and, where appropriate, descriptive drawing(s) and any supporting environmental assessments. One completed hard copy of the application and supporting documents will always be required. Additional copies are required for consultation purposes.
 - For application and supporting documents less than 10MB we can accept an additional copy via email.
 - For applications larger than 10MB **16** additional copies in CD/DVD format will be required
 - When applications and supporting documents are hard copy only **16** copies will be required.
- Please submit applications to the **Permit Receipt Centre** via the details at the top of this form
- Please submit marine licence applications, including this form and all supporting documents, **at least 4 months before the licence is required.**

Some projects may raise matters that require a significantly longer time for consideration. These are most likely to be:

- Projects that fall **within** The Marine Works (Environmental Impact Assessment) Regulations 2007 – as amended requiring an Environmental Statement
- Large scale projects with substantial volumes of material being deposited or excavated
- Works requiring an Appropriate Assessment to be conducted under The Conservation of Habitats and Species Regulations 2017.
- Information should be provided about the anticipated **duration of the entire project** in respect of works below/seaward of Mean High Water Spring (MHWS). Where appropriate, planned phasing of the work for which consent is sought must be detailed. For projects lasting more than one calendar year, planned phasing details must be given for each 12 month period.

A licence fee is payable in respect of an application. Details of fees can be found on our web pages.

Please note applications will not be processed without the correct relevant fee or invoicing details.

- Payments can be made via Cheque, BACS or credit/debit card.
 - Cheques should be crossed and made payable to **Natural Resources Wales.**
 - For BACS payments ensure you provide the reference number (not remittance number)

- For credit/debit card payments please complete the CC1 form and submit with the application. The CC1 form can be found on our web pages

Further information on payment methods can be found on our web pages

- **All activities need to comply with the Water Framework Directive (WFD). The framework and guidance can be found on the Natural Resources Wales website, <http://naturalresources.wales>. The results of your WFD assessment must be attached to your marine licence application.**
- Please answer all questions. If any information is not available at the time of application please indicate in the relevant section, giving reasoning in a covering letter. Outstanding details must be submitted as soon as possible. Any delay in forwarding details is likely to result in delays in determining your application.

Your application may not be considered complete and therefore not processed until key information has been submitted. Your application may be returned if you fail to submit outstanding information within given timescales.

- Please note any licence may have conditions that must be discharged before works can commence. This will take additional time.
- If you have any queries with regards to completing this application please contact the MLT: marinelicensing@naturalresourceswales.gov.uk

How your application will be processed by the MLT:

- Submit all application to the **Permit Receipt Centre** via the details at the top of this form.
- Checked and acknowledged by the MLT within 21 days of receipt of application and payment
- If the application is complete and no further information is needed at this time, your application will be placed in a work queue to be assigned a permitting officer
- If the application is not complete, further information will be request and need to be provided before the application can be considered as complete
- Our **4 months** service level for determining non-EIA applications will begin from the date the **completed** application is received (*Please note some projects may take significantly longer than 4 months to determine due to their nature*)
- EIA projects may take significantly longer due to their scale and complexity. Therefore we encourage early engagement with the MLT
- Your application and supporting documents will be sent to for an initial consultation period of 28 days (*42 days for EIA projects*)
- For the majority of projects, a public notice must be advertised. Public consultation will be 28 days (*49 days for EIA projects*).
For EIA projects a second public notice will be required. The MLT will advise on how this should be done.
- Responses to consultation will be considered and additional information requested at this time, if necessary.

- A decision on your Marine Licence Application will be made

All information submitted may be referred to within a licence, therefore all works must be in accordance with this information, unless otherwise agreed with NRW acting on behalf of the Licensing Authority during the determination process.

It is the responsibility of the applicant to obtain any other consents/authorisations that may be required.

Application Form Structure

1. Project Description and Cost
2. Applicant Details
3. Details of Agent, Contractor, Vehicles and/or Vessels used to carry out works
4. Environmental Impact Assessment (EIA)
5. Licensable Period
6. Project Description
7. Methods Statement
8. Materials of Project
9. Beach Replenishment, Land Reclamation or Salt Marsh Feeding
10. Temporary Works
11. Dredge and Disposal of Dredge Material
12. Protected Sites
13. Other Consents
14. Statutory Powers
15. Public Register
16. Application Fee
17. Declaration

Check List

Please ensure that you have included all the necessary information before you submit your application. **If any of the below are not completed in the application form, the application is likely to be considered incomplete and may be returned to you**

Item	Yes (✓)
The applicant is a legal entity?	✓
The declaration is signed by the applicant?	✓
Is the application fee correct?	✓
Are the grid references/coordinates correct?	✓
Do the coordinates match map locations?	✓
Have all the relevant supporting documents been submitted?	✓
Has a clear methodology been provided in the application form?	✓
Has Protected sites information been included?	✓
Has a Water Framework Directive (WFD) assessment been submitted?	✓
Are all the continuation sheets for application questions appended with correct corresponding numbers?	✓

Should you have any queries regarding your application please contact the MLT via marinelicensing@naturalresourceswales.gov.uk

1. Project Description and Cost

1 (a). Project Name

Mumbles Coastal Scheme – Ground Investigation of Foreshore

1(b). Please provide a brief description of the proposed project, including location

Ground investigation along the foreshore of the Mumbles Promenade.

In summary the proposed investigation comprises machine excavated trial pits and windowless sampling drill holes at regular centres along the beach adjacent to the coastal defence.

1(c). Please provide an estimated gross cost of the project (Inc. materials and labour) for works that fall below/seaward of Mean High Water Springs (MHWS)

£50,000

2. Applicant Details

To whom the licence will be issued. *This must be a legal entity such as an individual, registered company/ charity or public body.*

Title

Mr

Full Name

David Hughes

Company or Trading
Name

Swansea Council

Company Registration
Number (if applicable)

Name of Contact or
individual (if different)

Andy Hopkins

Position in Company

Principle Engineer

Address inc. postcode
(provide registered
Company address if
applicable)

City and County of Swansea
Guildhall
St Helens Road
Swansea
SA1 4PE

Telephone Number

01792 636586

Email Address

David.hughes@swansea.gov.uk

3. Details of Agent, Contractor, Vehicles and/or Vessels used to carry out works

3(a). Agent Details

This is who we will correspond with unless otherwise informed. If no agent we will contact the applicant.

Title	Ms	Full Name	Stephanie Chapman
Company or Trading Name	Ove Arup and Partners Ltd. (Arup)		
Company Registration Number (if applicable)			
Name of Contact or individual (if different)			
Position in Company	Senior Environmental Consultant		
Address (Inc. postcode)	63 St. Thomas Street Bristol BS1 6JZ		
Telephone Number	0117 988 6736		
Email Address	Stephanie.chapman@arup.com		

3(b). Does the Applicant wish to be included in all correspondence? Yes ☒ No ☐

3(c). Contractor Details

In order for contractors to benefit from the licence permission, details must be provided. Any details not provided with application must be confirmed before operations commence.

Contractor Company or Trading Name	Address
WYG	5th Floor, Longcross Court, 47 Newport Road, Cardiff, CF24 0AD

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3(d). Will the works require the use of vessels?

Yes ☐ No ☒

3(d) (i). Vessel Details (if applicable and available)

In order for contractors to benefit from the licence permission, details must be provided.
Any details not provided with application must be confirmed before operations commence.

Operator	Name of Vessel	Type of Vessel	Vessel Registration Number	Country of Registration

3(e). Will the works require the use of vehicle?

Yes ☒ No ☐

☐

3(e) (i). Vehicle Details (if applicable and available) to be used below MHWS

In order for contractors to benefit from the licence permission, details must be provided.
Any details not provided with application must be confirmed before operations commence.

Operator	Type/Description of Vehicle
WYG	Machine excavator c. 8 to 13 tonnes [JCB 3CX]
WYG	Windowless Sampling Rig c. 2 tonnes [Archway competitor]
WYG	T41 Beretta rig or similar c. 4 tonnes

3(f). If the contractor or vessels or vehicles are not known at the application stage, when do you expect to provide these details?

These details will need to be confirmed prior to the licence and operations commencement

A machine excavator and windowless sampling rig will be required to undertake the trial pits and exploratory holes.

4. Environmental Impact Assessment (EIA)

Certain projects, due to their scale, location and/or nature, may require an EIA under the Environmental Impact Assessment Directive (Directive 85/337/EEC – as amended). If a project qualifies under EIA, an Environmental Statement (ES) must be prepared and submitted with the application.

Projects that fall within Annex I of the Directive automatically require an EIA. Projects that fall within Annex II of the Directive are assessed on a case-by-case basis for the requirement for an EIA to be undertaken.

4(a). Do you consider the works to be under the Environmental Impact Assessment Directive (Directive 85/337/EEC – as amended)? Yes ☐ No ☒

4(a) (i) If Yes, which Annex does the proposal fall under? Annex I ☐ Annex II ☐

4(a) (ii) Which number(s) within the Annex does the proposal relate to?

4(b). Have you applied for a screening or scoping opinion from the MLT under the Marine Works (Environmental Impact Assessment) Regulations 2007 (as amended)? Yes ☐ No ☒

4(b) (i). If Yes, please provide the reference number

4(c). Has an Environmental Impact Assessment been undertaken? Yes ☐ No ☒

4(c)(i). If Yes, has an Environmental Statement been submitted to support this Marine Licence application? Yes ☐ No ☐

4(d). If an Environmental Impact Assessment has been undertaken, but an ES has not been submitted, please provide an explanation

Please continue on a separate sheet if necessary. Please tick if you have done this ☐

5. Licensable Period

Determination of applications will be based on the works taking place during these dates. Please ensure you have included an adequate contingency period. If works are not completed by the Requested Licence Expiry Date you may be required to submit a new application. *Including a contingency period within your original application does not impact on Licence Fee*

Start Date 1 October 2019

Requested Licence Expiry Date 1 October 2020

Please ensure you submit your application for a Marine Licence **at least 4 months** prior to the intended start date. Some projects, such as EIA projects, will take significantly longer to determine.

6. Project Description

6(a). Please give a description of the proposed project.

This should include the purpose of the project, estimated timescales of construction and operation, and broken down by the phases of works, if applicable.

Details should include, but not be limited to, dimensions of project, quantity of material being deposited and removed.

See Appendix A Methodology. Works are estimated to take 3 to 4 weeks.

Please continue on a separate sheet if necessary. Please tick if you have done this ☒

6(b). Please detail the location of the proposed construction project.

This should be either Ordnance Survey National Grid Reference (i.e. AB 12345 67890) or Latitude and Longitude in decimal degrees to 4 decimal places (i.e. Lat 52.1234 Long - 4.1234), defining the extent of the project. **Please specify which coordinate system has been used.**

National Grid Reference: SS 61588 88458 to SS 62671 87618

Please continue on a separate sheet if necessary. Please tick if you have done this ☐

6(c). The following must be provided with the completed application form:

- (i) a suitably scaled extract of an Ordnance Survey Map or Admiralty Chart with location of project, complete with **North Arrow** and **Scale**
- (ii) construction plans and sectional drawings showing those proposed works below/seaward of MHWS, which should give details of the materials to be used (for beach replenishment the quantity, particle size and source of material to be deposited and deposit location is also required).
- (iii) a descriptive schematic drawing and suitably scaled location plan which show the full extent of the project clearly in relation to the surrounding area and features.

Please list below **all supporting documents** that have been submitted with this application, including suitable documents/maps/drawing titles and reference numbers

Appendix A – GI Methodology
Appendix B – Drawings
Appendix C – Water Framework Directive (WFD): Screening
Appendix D – Ecology Phase 1 Walkover plans and site reports
Appendix E – Heritage Impact Assessment

Please continue on a separate sheet if necessary. Please tick if you have done this ☐

The applicant should note that these drawings/plans may be copied to others as part of the MLT's consultation procedures. If they are subject to copyright, it is the **responsibility of the applicant to obtain the necessary approvals to reproduce the documents and to submit up to 16 copies with the application.**

7. Methods Statement

7(a). Please provide a detailed method statement for the works

This must include methods for all works including temporary structures or deposits such as jetties, cofferdams, moorings or landing stages to be constructed seaward of MHWS

See Appendix A

Please continue on a separate sheet if necessary. Please tick if you have done this ☒

7(b). Do you intend to undertake activities that could generate underwater noise?
This include piling, use of explosives, geophysical, acoustic deterrent devices and multibeam echosounders. Yes ☐ No ☒

7(b) (i). If Yes, what type(s) of activities will be undertaken?

7(b) (ii). If Yes, approximately how many days will the activity be undertaken for?

If Yes, you will be required to complete an additional form that will be provided.

7(c). Please state the measures to be taken to:
(i) Minimise risk to the marine environment

The GI works will be undertaken at low tide. Further measures are set out in Section 12(c).

- (ii) Prevent undue interference to others

The GI works will undertaken at low tide, no risk of interference to maritime traffic

- (iii) Maintain navigational safety, including marking and lighting of works

Temporary works undertaken at low tide on the beach.

Please continue on a separate sheet if necessary. Please tick if you have done this ☐

8. Materials of Project

8(a). Description of materials to be deposited seaward of MHWS (Please tick all that apply)

Timber	☒	Iron/Steel	☒	Concrete	☒	Biocides/other chemicals	☐
Silt	☐	Stone/Rock	☒	Gravel	☐	Plastic/Synthetics	☐
Sand	☒	Other	☐				

If other, please provide a description of materials.

Deposit materials only for temporary excavation (sand) and any structural support (shoring – iron / steel bracing, timber support) required within the trial pit for H&S purposes. All excavations will be reinstated immediately following the trial pitting and bracing materials removed from site.

8(b). Delivery method of materials to site

If sea delivery, please include details of vessels to be used with a chart of proposed route and transhipment area. If vehicle delivery, please provide the proposed access route.

The excavator and sampling rig will access the beach from one of the existing slipways along the promenade and track along the beach to the exploratory hole positions.

Please continue on a separate sheet if necessary. Please tick if you have done this ☐

8(c). Will the works involve removals seaward of MHWS?

Yes ☒ No ☐

8(c) (i). Description of materials to be removed seaward of MHWS (Please tick all that apply)

Timber	☐	Iron/Steel	☐	Concrete	☐	Biocides/other chemicals	☐
Silt	☐	Stone/Rock	☒	Gravel	☒	Plastic/Synthetics	☐
Sand	☒	Other	☐				

8(c) (ii). Description of objects/materials to be removed seaward of MHWS

Including quantities to be removed.

Small volume of material will be removed as samples to permit geotechnical laboratory analysis to support the structural condition survey.
Inspection pits will be backfilled when completed.
All temporary supports to be removed following completion of the investigation; same day before next high tide.

9. Beach Replenishment, Land Reclamation or Salt Marsh Feeding

For works involving any of the above, please provide the following information

9(a). Is the material to be deposited like for like to existing material? Yes ☐ No ☐

9(a)(i) If No for Beach Replenishment please provide justification why?

N/A

9(b). Description of material to be deposited

Please provide the grading specification of materials to be used, if using a range of grain sizes please state the percentage by weight passing. *If unsure, please refer to the Wentworth Scale*

N/A

Please continue on a separate sheet if necessary. Please tick if you have done this ☐

9(c). Source of the material to be deposited

Including dredged or land based stating the origin of material

N/A

9(d). Has the material been chemically analysed?

Yes ☐ No ☐

If material has been analysed, we may request this information to determine the application

9(d) (i) If Yes, is the analysis data been included with the application? Yes ☐ No ☐

10. Temporary Works

10(a). Will there be any temporary deposits below MHWS? Yes ☒ No ☐

This includes construction materials, removed objects/material, jetties or cofferdams

If **Yes**, please continue with section 10

10(b). Please provide the location of temporary deposits

Please include a map/chart displaying the location of temporary deposits, if necessary.

Temporary deposits will include sand associated with each trial pit excavation, which will be reinstated immediately after confirming foundation depth; i.e. same day within the same tidal window. Bracing materials may be required and will also be removed from site following trial pitting.

10(c). Description of temporary deposits

As above

Please continue on a separate sheet if necessary. Please tick if you have done this ☐

11. Dredge and Disposal of Dredge Material

If you are undertaking Dredge and Disposal activities please also complete the Dredge and Disposal application form and submit together.

11(a). Do you intend to apply for a marine licence to dispose of dredged material to sea as part of the works in this application? Yes ☐ No ☒

12. Protected Sites

Licensing Authorities have a duty to ensure that projects will **not have significant adverse environmental impact**, particularly on any designated **European Site of Conservation Importance - Special Areas of Conservation (SAC) and Special Protection Areas (SPA)**, listed under the Habitats Directive (**Council Directive 92/42/EEC on the conservation of natural habitats and of wild fauna and flora**). In addition, it is Government Policy that Wetlands of International Importance (Ramsar sites) are also considered as European Sites. There is a duty to take reasonable steps to further the conservation and enhancement of nationally designated sites (Sites of Special Scientific Interest (SSSIs)).

12(a). Have you had pre-application correspondence with NRW, its legacy bodies or Natural England? Yes ☒ No ☐

12(a)(i). If Yes, please provide copies of correspondence with application and state which team(s) you have contacted?

A meeting was held on 5th June with Stuart Thomas (Senior Environment Officer), Steve Allison (Development Flood Risk), Robin Copley (Flood Risk) from NRW to discuss the main project proposals for protection works to the sea wall.

12(b). Are any part of the works located *within or likely to affect* a designated conservation site? (SAC, SPA, SSSI or Ramsar) Yes ☒ No ☐

12(b)(i). If Yes, which designated site(s) may be affected?

The proposed trial pit locations are within Blackpill, Swansea SSSI.

12(c). Please provide a description of all mitigation measures proposed to avoid any impact on designated conservation sites.

- All works will be undertaken at low tide
- The contractor will have a Risk Assessment and Method Statement (RAMS) document containing site-specific methods to ensure that all site activities are controlled and are in accordance with the aforementioned best practice procedures.
- All plant will be sourced from a trusted reputable company and will come with spill kits which site personnel will be trained to use.
- No containers or fuel will be stored on site. No storage of materials or refuelling operations will be permitted outside the site compound and all materials and manmade debris is to be removed from the beach after the work is complete.
- Minimal quantities of fuels, materials, etc. will be taken on to the foreshore to reduce the risk of pollution.

Please continue on a separate sheet if necessary. Please tick if you have done this ☐

12(d). If the works are not located *within or likely to affect* a designated conservation site, please indicated the approximate distance to the nearest designated conservation site.

Please note that if the proposed works are in or within 2km of a European Site of Conservation Importance you will have to provide suitable mitigation measure to avoid any impact on designated conservation sites.

13. Other Consents

Please detail all consents that you have applied for or received for these works

Type of Consent	Applied for	To be applied for	Reference Number	Date of Issue and Expiry
Planning Permission under Town and County Planning Act 1990 – From Local Planning Authority (LPA)				
Name and Address of LPA for location of works				
Land Owners Consent such as The Crown Estate Consent				
Port Authority or Local Harbour permissions				
Other NRW consents such as Flood Defence or SSSI assent		SSSI Assent		
Details of NRW consent	SSSI Assent to be applied for with this marine licence application.			
Other consents such as Transport and Works Act Order, Section 36 Electricity Act, grant/loan sanction				
Details of other consents				

14. Statutory Powers

14(a).Does the applicant have statutory powers to consent any aspect of the project?
 E.g. coast protection authority, dredging powers, statutory undertakers Yes ☒ No ☐

14(a)(i).If Yes, please give details and state the relevant legislation that gives these powers

Local Harbour Authority – Harbours Act 1964. Coast Protection Authority – Coast Protection Act 1949.

15. Public Register

Under The Marine Licensing (Register of Licensing Information)(Wales) Regulations 2011 and the Environmental Impact Assessment Directive (Directive 85/337/EEC – as amended) , all information contained within or provided in support of this application will be placed on the Public Register unless NRW approve of the applicant's reasons for withholding all or part.

15. Is there any information contained within or provided in support of this application that you consider should NOT be included on the Public Register on the grounds that its disclosure:

15(a). Would be contrary to the interest of National Security? Yes ☐ No ☒

15(b). Would prejudice to an unreasonable degree you, or some other person's commercial interest of those of a third party? Yes ☐ No ☒

If **Yes** to either (a) or (b), please provide full justification as to why all or part of the information you have provided should be withheld

Please continue on a separate sheet if necessary. Please tick if you have done this ☐

16. Application Fee

16(a). What are the corresponding fee band for this application? Band 2 ☐ Band 3 ☐

16(b) Band 2 Only

Projects are charged at a fixed fee of £1920. The application will not be processed until the correct fee has been provided.

Please provide the method of payment

Method	Yes (✓)	Reference Number
Cheque		

BACS (not remittance no.)	Yes	465221
World Pay (phone or CC1)		

Please attach **CC1 Form** with application. Can be found on our web pages

16(c) Band 3 Application only

Band 3 applications are charged at on hourly rate of £120 and are invoiced in arrears. Please complete the details below which will be required for invoicing.

Customer Name	
FAO	
Purchase order number	
Address for invoice	
Telephone Number	
Email Address	

17. Declaration

I declare that to the best of my knowledge and belief that the information given in this application form and supporting documentation is true.

WARNING: It is an offence under the Marine and Coastal Access Act 2009, under which this application is made, to fail to disclose information or to provide false or misleading information and can invalidate any licence granted.

Signature David Hughes Date 21/6/19

Name (in capitals) David Hughes

Position in Company PRINCIPAL ENGINEER

*Applications cannot be processed unless signed by the **Applicant** (not agent), the applicant must have appropriate level of authority within the company.*

Applications will not be processed unless signed



Permit Receipt Centre
Natural Resources Wales
29 Newport Road
Cambria House
Cardiff
CF24 0TP
Tel: 0300 065 3000

Email: permitreceiptcentre@naturalresourceswales.gov.uk

Appendices

Appendix A – GI Methodology

Appendix B – Drawings

Appendix C – Water Framework Directive (WFD): Screening

Appendix D – Ecology Phase 1 Walkover plans and site reports

Appendix E – Heritage Impact Assessment



Permit Receipt Centre
Natural Resources Wales
29 Newport Road
Cambria House
Cardiff
CF24 0TP
Tel: 0300 065 3000

Email: permitreceiptcentre@naturalresourceswales.gov.uk

Appendix A – GI Methodology

4 Pierhead Street
Capital Waterside
Cardiff CF10 4QP
United Kingdom
www.arup.com

t +44 29 2047 3727
f +44 29 2047 2277

Project title Mumbles Promenade

Job number

252724

cc

File reference

4-60

Prepared by Jamie Lancaster / David Heard

Date

21 June 2019

Subject Foreshore ground investigation summary

1 Introduction

This note has been prepared to provide a summary of the proposed ground investigation along the foreshore of the Mumbles Promenade which will require a Marine License. The site extent is shown on Drawing 1.

In summary the proposed investigation comprises machine excavated trial pits and windowless sampling drill holes at regular centres along the beach adjacent to the coastal defence in addition to trial pits, boreholes and coring to investigate the existing spillways. Two boreholes are also located on the beach to target previously encountered voiding within the limestone bedrock.

(Note ground investigation currently ongoing on the promenade in June 2019, and further investigation planned on the promenade, falls outside of the requirements for a Marine License.)

2 Ground investigation specification

Introduction

The ground investigation shall be undertaken in accordance with the published ICE UK Specification for Ground Investigation (2nd edition). The purpose and scope of the ground investigation shall comprise:

- 8no. machine excavated trial pits at the base of the existing vertical promenade wall to investigate the foundation detail and founding material. The pits shall be excavated to a maximum of 2.5m depth.
- 2no. machine excavated trial pits to investigate a shoal of gravel in the southern end of the site. The pits shall be excavated to a maximum of 2.5m depth.
- 13no. windowless sampler holes to investigate the ground conditions along the foreshore to inform the design of coastal protection measures. The holes will be advanced to a maximum of 8m depth.

Technical Note

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- 4no. machine excavated trial pits to investigate the foundation detail and founding material of the slipways to inform the future works. The pits shall be excavated to a maximum of 2.5m depth.
- 4no. boreholes to investigate the construction and foundation of the slipways. The holes will be advanced to a maximum of 10m depth.
- 4no. horizontal cores to investigate the concrete used in the construction of the slipways.
- 4no. horizontal cores to investigate the concrete used in the construction of the revetment to inform design.
- 2no. boreholes to investigate the limestone voids encountered during the preliminary phase of investigation. The holes will be advanced to a maximum of 15m depth.

The locations of the exploratory holes are shown on Drawings 5 to 8.

Sampling

In trial pits, bulk samples shall be taken at a maximum of 1m centres and every change in strata.

In windowless sampling holes, continuous samples shall be obtained using 1m long 80mm diameter tubes.

Structural cores using hand held samplers are to be taken and tested in accordance with BS EN 2504-1 and BS EN 12390-3. Cylindrical core samples are to be retained for concrete testing.

In boreholes on the slipways, structural cores are to be recovered from the slipway construction, along with cores from any bedrock encountered. Bulk samples shall be taken of other materials encountered. Coring through the slipway shall be undertaken at adequate diameter to allow progression of boreholes through underlying materials, including use of casing as necessary.

In boreholes to investigate the limestone voids encountered during the preliminary phase of investigation, open holing is acceptable and therefore sampling may not be obtained from this methodology.

In situ testing

In trial pits, hand vanes shall be undertaken in cohesive strata at 0.5m centres.

In windowless sampling holes, Standard Penetration Tests (SPTs) shall be undertake at 1m centres in accordance with BS EN ISO 22476-3.

In boreholes, SPTs testing shall be undertaken.

Reinstatement

Trial pits (including inspection pits) shall be backfilled with arisings in the reverse order they were excavated. The backfill shall be placed in layers and compacted with the excavator bucket.

In windowless sampling holes and boreholes undertaken on the beach, if the hole does not collapse after withdrawal of the casing the drill holes shall be backfilled with bentonite pellets.

Technical Note

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21 June 2019

For boreholes the hole shall be backfilled with bentonite pellets. Where concrete has been cored within the slipway structure this will be reinstated with rapid set concrete which shall be hand pushed and funnelled in using a tube placed in the hole and trowel fed into position.

3 Summary table

A summary table of the proposed ground investigation is provided below and should be read in conjunction the exploratory hole location plans (Drawings 5 to 8).

Technical Note

ARUP

Hole	Location	Estimated excavation size	Rig details	Sampling	Reinstatement
TP22	On beach against base of vertical sea wall	2.5m depth 2.5m by 0.6m in plan, although may be larger if sides of excavation collapse	The trial pits will be excavated with a machine excavator. It is anticipated this will be a small tracked excavator around 8 to 13 tonnes in weight	Soil samples will be taken using a shovel from the arisings	Trial pits will be backfilled with arisings and compacted with the back of the excavator bucket
TP23					
TP24					
TP25					
TP26					
TP27					
TP28					
TP29					
TP30	On beach against base of slipway				
TP31					
TP32					
TP33					
TP34	On shoal of gravel				
TP35					
WS01	On beach circa 2m from sea wall	A small hand dug inspection pit will be excavated to check for buried services to 1.2m depth and circa 0.5x0.5m in plan area The drill hole will be continued to a maximum 8m depth and will be <0.2m in diameter	The drill hole will be advanced using a windowless sampling rig. Windowless sampling rigs are generally small tracked rigs approximately 1x1.5m in plan size and less than 2 tonne in weight. The rig uses a percussive hammer to drive a tube in to the ground to advance the drill hole.	The windowless sampler is advanced by driving a tube in to the ground which is retrieved to obtain the sample	The hand dug pit will be backfilled with the sand arisings. If the hole does not collapse after withdrawal of the casing the drill holes shall be backfilled with bentonite pellets.
WS02					
WS03					
WS04					
WS05					
WS06					
WS07	On beach circa 1m from toe of sloping revetment				
WS08					
WS09					
WS10					

Technical Note

252724

21 June 2019

Hole	Location	Estimated excavation size	Rig details	Sampling	Reinstatement
WS11					
WS12					
WS13					
BH13	On beach circa 0.5m from toe	The borehole will be continued to a maximum 10m depth.	Anticipated to be T41 Beretta or similar rig. Advanced by open hole in order to complete within tide constraints.		If the hole does not collapse the drill holes shall be backfilled with bentonite pellets.
BH14					
BH15	Slipways	The borehole will be continued to a maximum 10m depth.	Equipment shall be selected to allow coring through existing slipway. It is anticipated that the slipway is constructed of mass concrete	Cored diameter through slipway construction shall be of adequate diameter to allow progression of borehole through underlying materials, including use of casing as necessary.	The hole shall be backfilled with bentonite pellets. Where concrete has been cored within the slipway structure this will be reinstated with rapid set concrete which shall be hand pushed and funnelled in using a tube placed in the hole and trowel fed into position.
BH16					
BH17					
BH18					
HC16	Slipways	Cylindrical slipway core samples	Structural cores are required at 100mm diameter using hand held samplers.	Cylindrical slipway core samples, 100mm diameter and at least 300mm long from all cores are to be retained for concrete testing.	All drillholes shall be backfilled on the day of completion using a rapid set concrete which shall be hand pushed and funnelled in using a tube placed in the hole and trowel fed into position.
HC17					
HC18					
HC19					
HC20	Revetment				
HC21					
HC22					
HC23					

4 Methodology

4.1 Machine excavated trial pits

The methodology for the trial pits will be as follows:

1. Tide charts and forecast will be monitored to confirm suitable conditions to undertake the exploratory holes on the beach.
2. The excavator will access the beach from one of the existing slipways along the promenade and track along the beach to the exploratory hole position.
3. The exploratory hole position will be scanned for buried services using a CAT scanner.
4. The excavator will be positioned facing the existing promenade wall and the excavation commenced down the front face of the wall.
5. Bulk samples of the arisings will be taken using a shovel.
6. The hole will be terminated once the base of the wall has been encountered and the underlying ground conditions proven, or a maximum depth of 2.5m.
7. The trial pits will be backfilled with the arisings in the reverse order they were excavated. The material will be placed in layers and compacted with the excavator bucket.

4.2 Boreholes undertaken within slipway

The methodology for completing the boreholes will be as follows:

1. Tide charts and forecast will be monitored to confirm suitable conditions to undertake the exploratory holes on the beach.
2. The borehole rig will access the existing slipways along the promenade.
3. The exploratory hole position will be scanned for buried services using a CAT scanner.
4. The borehole will be commenced and samples obtained. Casing will also be driven to support the hole if needed. The maximum depth of the hole will be 10m.
5. Standard Penetration Tests (SPTs) will be undertaken at 1m centres where suitable.
6. On completion of the borehole, the casing will be removed. The hole shall be backfilled with bentonite pellets. Where concrete has been cored within the slipway structure this will be reinstated with rapid set concrete which shall be hand pushed and funnelled in using a tube placed in the hole and trowel fed into position.

4.3 Boreholes undertaken on beach

The methodology for completing the boreholes will be as follows:

1. Tide charts and forecast will be monitored to confirm suitable conditions to undertake the exploratory holes on the beach.

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2. The borehole rig will access the beach from one of the existing slipways along the promenade and track along the beach to the exploratory hole position.
3. The exploratory hole position will be scanned for buried services using a CAT scanner.
4. The borehole will be commenced. Casing will also be driven to support the hole if needed. The maximum depth of the hole will be 10m.
5. Standard Penetration Tests (SPTs) will be undertaken at 1m centres where suitable.
6. On completion of the borehole, the casing will be removed. It is anticipated the hole will likely collapse in on itself. If the hole remains open, the drill hole will be backfilled using bentonite pellets.

4.4 Windowless sampling holes

The methodology for completing the windowless sampling holes will be as follows:

1. Tide charts and forecast will be monitored to confirm suitable conditions to undertake the exploratory holes on the beach.
2. The windowless sampling rig will access the beach from one of the existing slipways along the promenade and track along the beach to the exploratory hole position.
3. The exploratory hole position will be scanned for buried services using a CAT scanner.
4. A small hand dug pit will be excavated to check for buried services.
5. The windowless sampling hole will be commenced and continuous samples obtained by driving the tube in to the ground. Casing will also be driven to support the hole. The maximum depth of the hole will be 8m.
6. Standard Penetration Tests (SPTs) will be undertaken at 1m centres.
7. On completion of the windowless sampling hole, the casing will be removed. It is anticipated the hole will likely collapse in on itself. If the hole remains open, the drill hole will be backfilled using bentonite pellets.
8. The inspection pit will be backfilled with the arisings and compacted using hand tamping equipment.

4.5 Horizontal cores

The methodology for completing the horizontal cores will be as follows:

1. Tide charts and forecast will be monitored to confirm suitable conditions to undertake the exploratory holes on the beach.
2. A handheld coring sampler will be used to take samples.
3. Structural cores are to be placed in core boxes or between two close-fitting sections of plastic drain pipe.

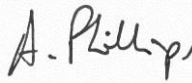
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21 June 2019

4. All concrete cores shall be backfilled on the day of completion using a rapid set concrete which shall be hand pushed and funnelled in using a tube placed in the hole and trowel fed into position.

DOCUMENT CHECKING (not mandatory for File Note)

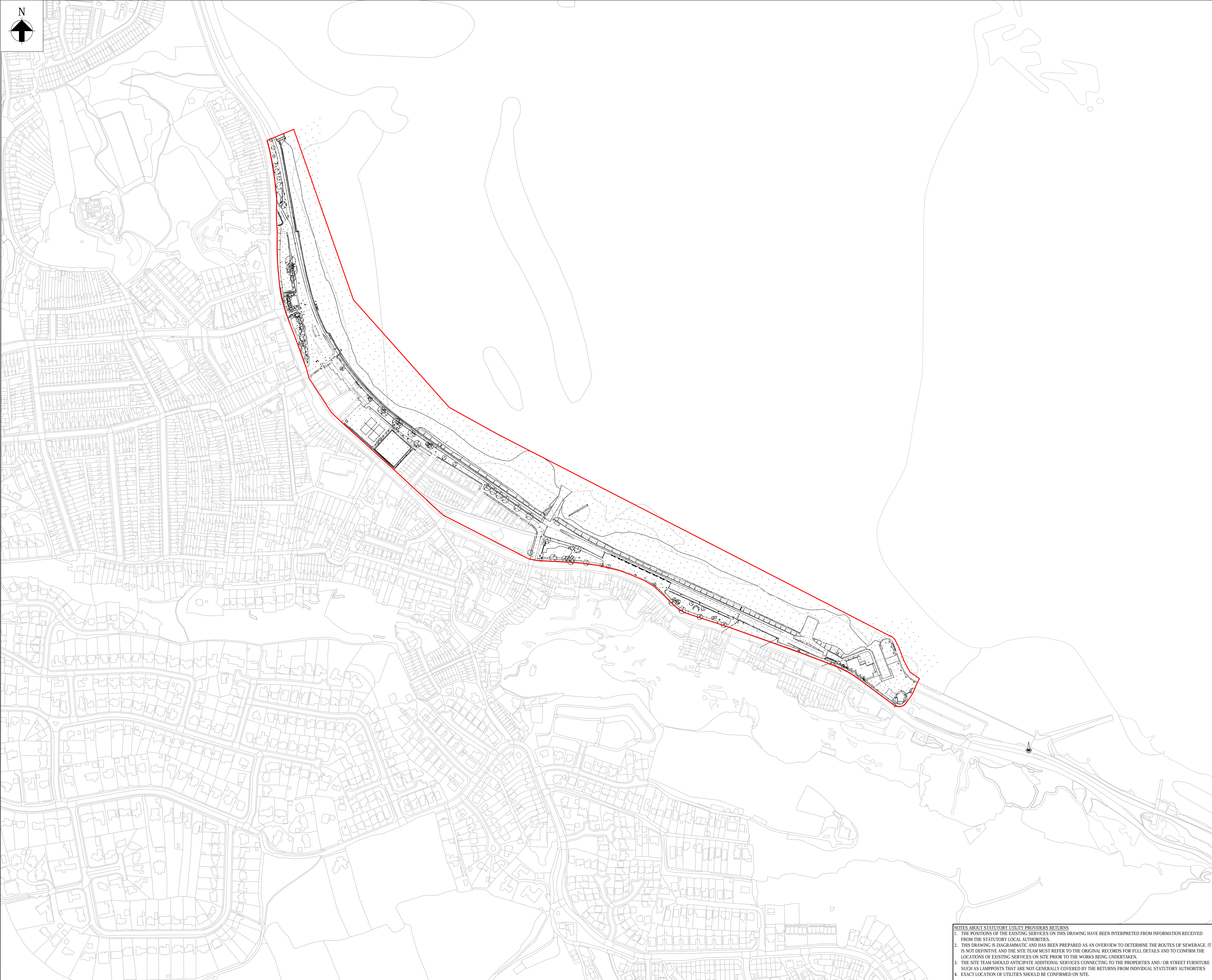
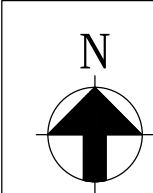
	Prepared by	Checked by	Approved by
Name	Jamie Lancaster / David Heard	Aled Phillips	Aled Phillips
Signature			



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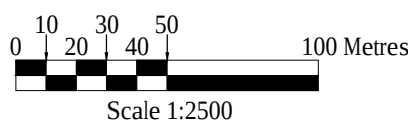
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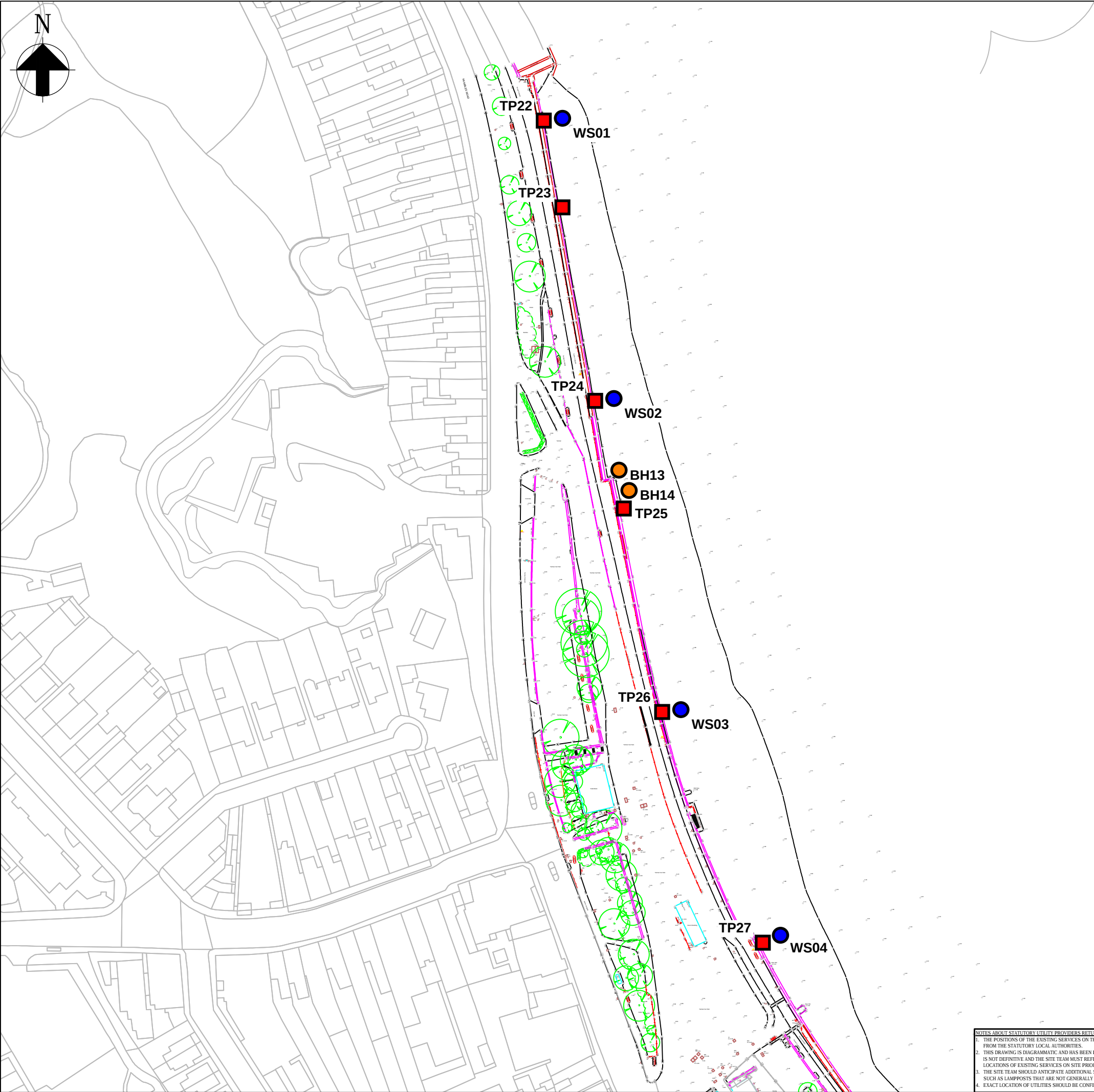
STUDY AREA

A1



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Drawing Title: LOCATION PLAN						
Suitability: FOR INFORMATION					Suitability Code: S2	
Originator: TR		Designer: JL		Date: MAR 19		
Internal Project Number: 252724		Scale: 1:2500		Rev: P1		
Drawing Number: 00001						

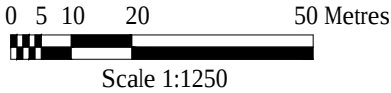
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4. EXACT LOCATION OF UTILITIES SHOULD BE CONFIRMED ON SITE.



LEGEND:

- Machine excavated trial pit
- Windowless sampling hole

A3



P1	06.06.19	TR	FOR INFORMATION	JL	AP	06.06.19
Rev.	Date.	Drawn	Description.	Chkd.	Appd.	Date.
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Drawing Title. EXPLORATORY HOLE LOCATION PLAN SHEET 01 OF 04						
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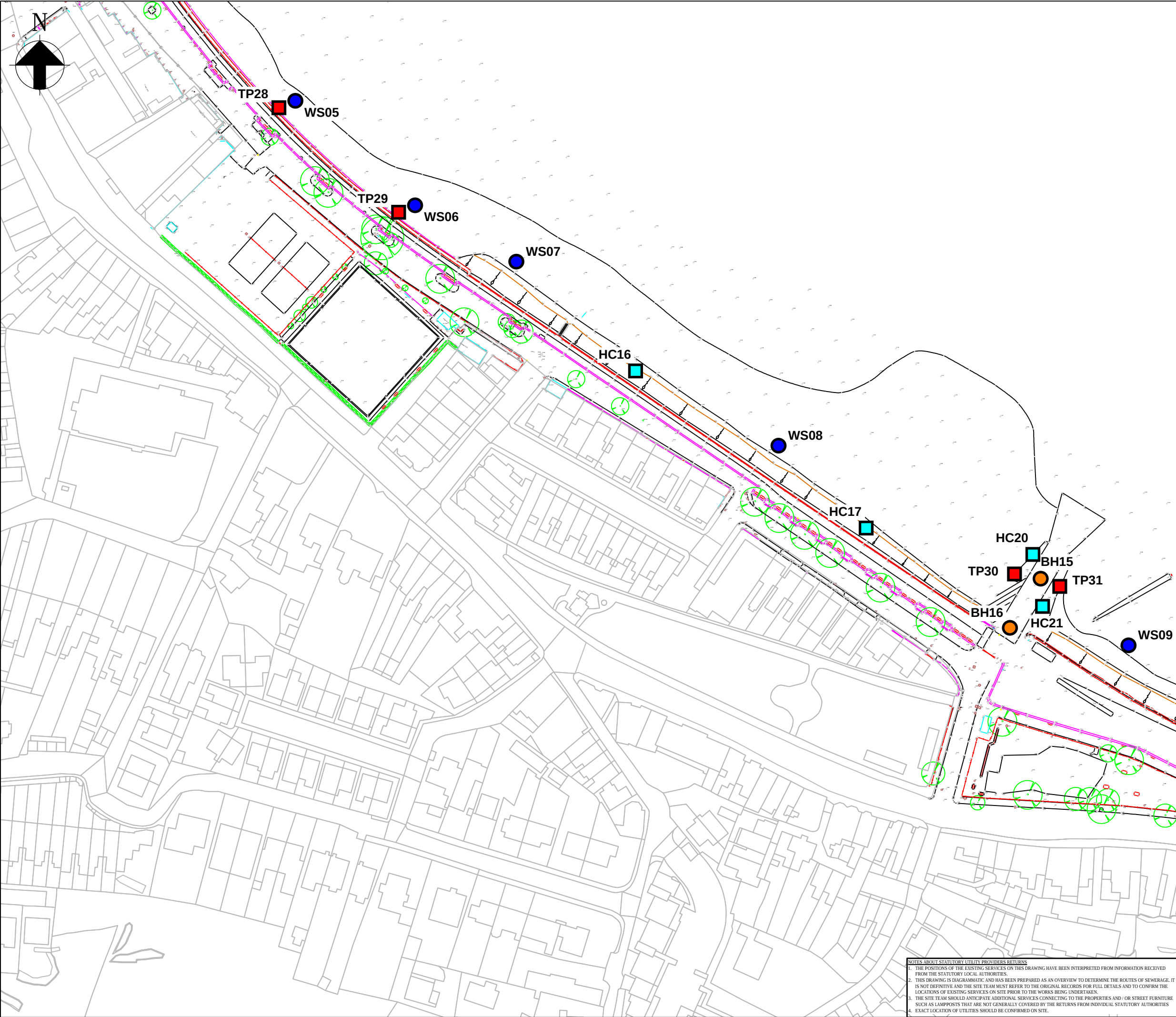
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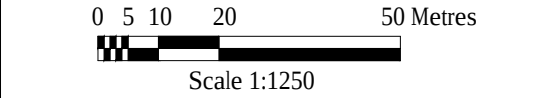
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4. EXACT LOCATION OF UTILITIES SHOULD BE CONFIRMED ON SITE.



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Rev.	Date.	Drawn	Description.	Chkd.	Appd.	Date.

City and County of Swansea
Dinas a Sir Abertawe



Project Name. MUMBLES PROMENADE

Drawing Title. EXPLORATORY HOLE LOCATION PLAN
SHEET 02 OF 04

Suitability. FOR INFORMATION				Suitability Code. S2	
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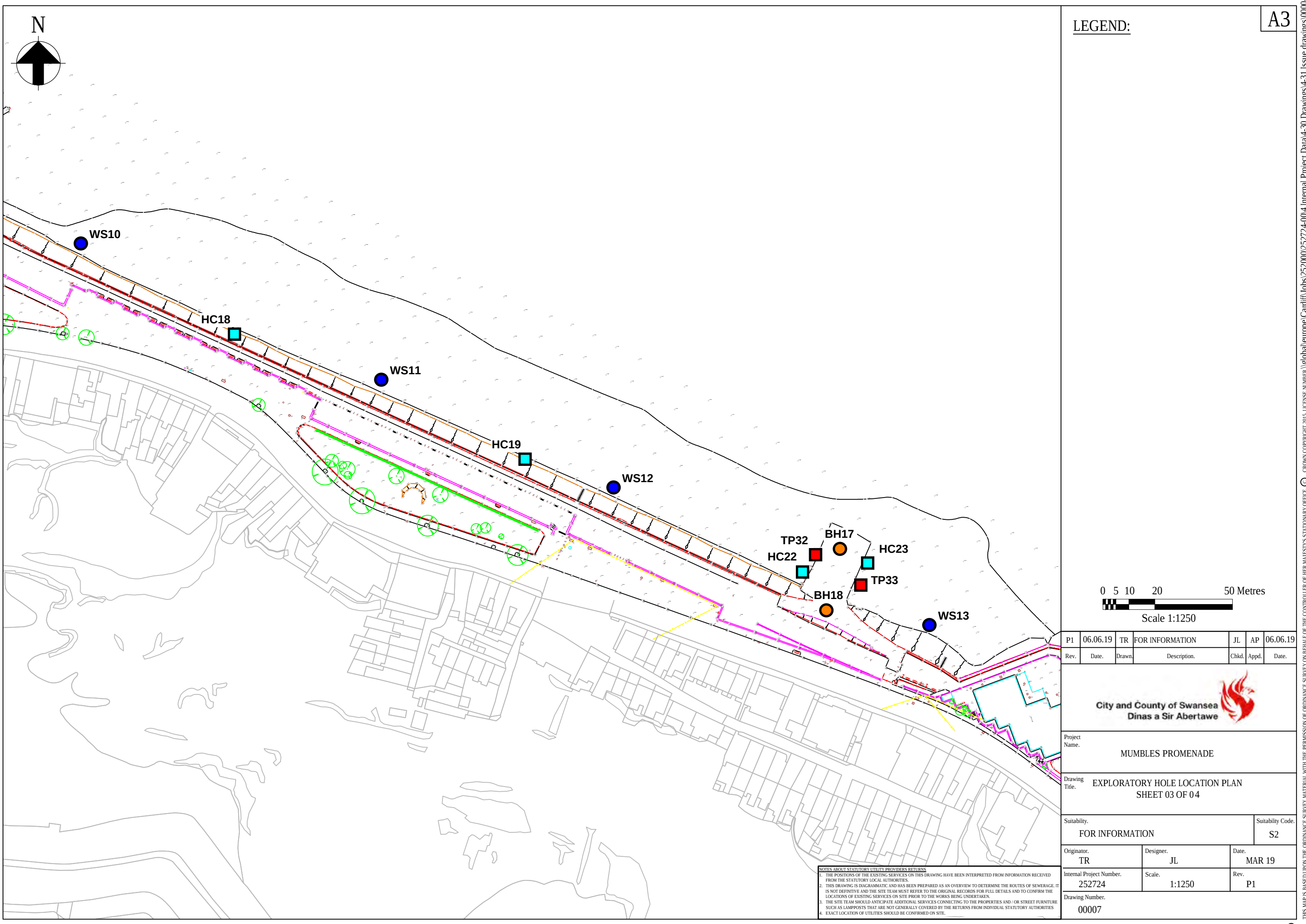
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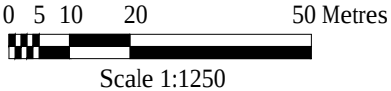
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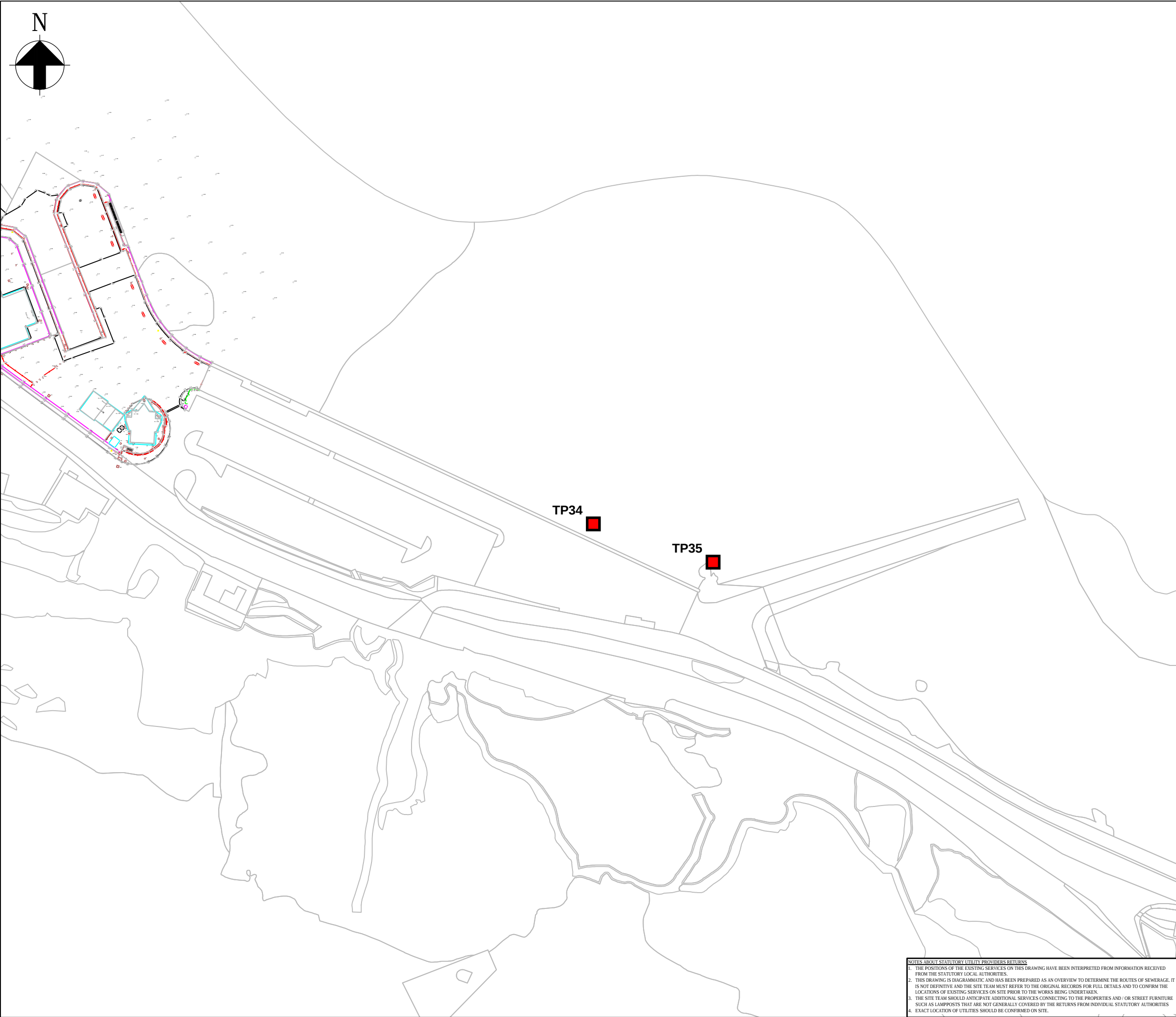


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Drawing Title. EXPLORATORY HOLE LOCATION PLAN SHEET 03 OF 04						
Suitability. FOR INFORMATION					Suitability Code. S2	
Originator. TR		Designer. JL		Date. MAR 19		
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Rev.	Date.	Drawn	Description.	Chkd.	Appd.	Date.

City and County of Swansea

Dinas a Sir Abertawe



Project Name.

MUMBLES PROMENADE

Drawing Title.

EXPLORATORY HOLE LOCATION PLAN
SHEET 04 of 04

Suitability.

FOR INFORMATION

Suitability Code.

S2

Originator.

TR

Designer.

JL

Date.

13.03.19

Internal Project Number.

252724

Scale.

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Rev.

P1

Drawing Number.

00008

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Appendix C – Water Framework Directive (WFD): Screening

City and County of Swansea
Mumbles Promenade
WFD Compliance Assessment

WFD/01

Final | 19 June 2019

This report takes into account the particular instructions and requirements of our client.

It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

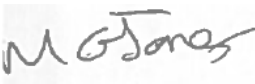
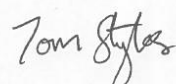
Job number 252724

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ARUP

Document Verification

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Job title		Mumbles Promenade		Job number	
				252724	
Document title		WFD Compliance Assessment		File reference	
Document ref		WFD/01			
Revision	Date	Filename	Mumbles WFD Scoping Assessment (Coastal)		
Final	19 June 2019	Description	Final Version		
			Prepared by	Checked by	Approved by
		Name	Mike Jones (G)	Tom Styles (J)	Helen Westhead
		Signature			
		Filename			
		Description			
			Prepared by	Checked by	Approved by
		Name			
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1 Introduction	2
2 Project Details	3
3 WFD Baseline Information	4
4 Screening Assessment	5
5 Summary	6

1 Introduction

Arup has been commissioned by City and County of Swansea to undertake a Water Framework Directive (WFD) Assessment for the scheme known as Mumbles Promenade.

Under the WFD¹, all proposed schemes with the potential to impact upon WFD-designated water bodies must be assessed to ensure:

- no deterioration of the current status or potential of any WFD quality elements; and
- no prevention of future attainment of the ‘good’ status or potential objectives of any WFD quality elements.

This report follows guidance produced by Natural Resources Wales² (NRW) to produce a WFD Assessment Report which identifies the activities related to the scheme that may cause deterioration or prevent a water body from meeting its objectives. The report follows the scoping template provided as part of this guidance, along with a detailed impact assessment of residual risk identified.

¹ European Commission. Directive 2000/60/EC of the European Parliament and of the Council establishing a framework for the Community action in the field of water policy.

² Natural Resources Wales / Environment Agency. Water Framework Directive assessment: estuarine and coastal water. Available at: <https://www.gov.uk/guidance/water-framework-directive-assessment-estuarine-and-coastal-waters>

2 Project Details

Your activity	Description, notes or more information
Applicant name	<i>City and County of Swansea</i>
Application reference number (where applicable)	
Name of activity	<i>Foreshore Ground Investigation</i>
Brief description of activity	8no. machine excavated trial pits at the base of the existing vertical promenade wall to investigate the foundation detail and founding material. The pits shall be excavated to a maximum of 2.5m depth. 2no. machine excavated trial pits to investigate a shoal of gravel in the southern end of the site. The pits shall be excavated to a maximum of 2.5m depth. 14no. windowless sampler holes to investigate the ground conditions along the foreshore to inform the design of coastal protection measures. The holes will be advanced to a maximum of 8m depth.
Location of activity (central point XY coordinates or national grid reference)	Central NGR: SS617880
Footprint of activity (ha)	Redline boundary approx. 10.5ha
Timings of activity (including start and finish dates)	Dates TBC.
Extent of activity (for example size, scale frequency, expected volumes of output or discharge)	The proposed works will not result in operational discharges.
Use or release of chemicals (state which ones)	TBC on appointment of contractor

3 WFD Baseline Information

Water body ³	Description, notes or more information
WFD water body name	<i>Swansea Bay</i>
Water body ID	<i>GB641008260000</i>
River basin district name	<i>Western Wales</i>
Water body type (estuarine or coastal)	<i>Coastal</i>
Water body total area (ha)	<i>11019</i>
Overall water body status (2015)	<i>Moderate</i>
Ecological status	<i>Moderate</i>
Chemical status	<i>Fail</i>
Target water body status and deadline	<i>Good by 2027</i>
Hydromorphology status of water body	<i>Not designated</i>
Heavily modified water body and for what use	<i>Heavily modified – Coast protection use</i>
Higher sensitivity habitats present	<i>Mussel Beds within Swansea Bay. Adjacent, to the north of the redline boundary at the closest point</i>
Lower sensitivity habitats present	<i>Along the coastline:</i> - <i>Rockyshore</i> - <i>Gravel & cobbles (intertidal & subtidal coarse sediment)</i> <i>Subtidal Soft Sediment (Sand, Mud & Mixed) at Village Lane</i> <i>Subtidal Soft Sediment (Sand, Mud & Mixed)</i>
Phytoplankton status	<i>Not classified</i>
History of harmful algae	<i>NA (Not a category in Wales data)</i>
WFD protected areas within 2km	<i>Limestone Coast of South West Wales Special Areas of Conservation (SAC) c. 5km west of redline boundary</i> <i>Special Protection Areas (England)</i> <i>Swansea Bay is a designated as a Shellfish Water⁴ (although this has been superseded by the Marine and Coastal Access Act⁵).</i> <i>Swansea Bay Bathing Waters 1.8km north of the redline boundary</i>

³ Water body information can be found in the Environment Agency's catchment data explorer and the water body summary table. Magic maps provide additional information on habitats and protected areas. Links to these information sources can be found in the WFD assessment guidance for estuarine and coastal waters.

⁴ <http://magic.defra.gov.uk/MagicMap.aspx>

⁵ Shellfish Waters Directive repealed in 2013 and requirements transferred into the Water Framework Directive. The Sandy Bay area is no longer classified as a Shellfish Water (<https://naturalresources.wales/media/676244/shellfish-water-protected-areas-wales-2016-8-feb-002.pdf>)

4 Screening Assessment

Following NRW guidance⁶, the windowless sampler holes fall under the sediment (grab) samples example (Appendix 2) and can therefore be screened out from further assessment. The exemption relating to Trial Pit exemption specifies no larger than 1m x 4m and 2m depth. With a 2.5m maximum depth within the proposed GI specification, the following screening assessment has been carried out taking the precautionary approach.

Proposed Activity	Explanation	Screen In/Out for further assessment
<i>Construction (Temporary) Activities</i>		
Temporary dewatering to allow construction of Trial Pits	Dewatering to enable the construction of temporary Trial Pits has the potential to temporarily modify local groundwater levels and flows, potentially creating new pollution pathways or causing detriment to features (e.g. groundwater-supported surface water features) reliant on groundwater resource. The extent and depth of excavations requiring temporary dewatering are very limited. Due to the limited duration and low volume of dewatering anticipated there will be minimal impacts on groundwater levels and flow. Standard best practice pollution control measures will be incorporated by the contractor, to minimise the risk of pollutants from surface water entering the groundwater body.	Out
Sediment mobilisation from site runoff	These temporary activities are present at all construction sites and provided that standard best practice is followed by the contractor, it is highly unlikely that any detriment to WFD status or objectives would occur. The RAMS will be reviewed when available to ensure standard best practice pollution control measures as detailed above are included.	Out
Discharge of site runoff		Out
Accidental spillage of pollutants (e.g. fuel leakage from storage or plant)		Out

⁶ Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 (OGN 72)

5 Summary

This screening assessment has established the zone of influence of the scheme and the proposed activities will not have the potential to cause deterioration to the status of the WFD groundwater body or prevent any surface WFD waterbody from achieving either Good Ecological Status or Potential by 2027.

The potential for temporary impacts to Swansea Bay Coastal Waterbody is not anticipated to be significant due to the scale of the proposed works.

This assessment has been based on currently available WFD baseline data and design information for the scheme. It is considered a 'live' document and should be reviewed and updated during design and construction, particularly if:

- NRW update or provide additional WFD baseline data for the relevant water bodies; and/or
- Significant changes to the nature, spatial extent, scale or construction methods of the scheme are made.

The outcomes of this assessment should be shared and agreed with NRW (as the regulatory authority for the WFD in Wales) as part of the consenting process.



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Appendix D – Ecology Phase 1 Walkover plans and site reports

Our ref: P19-365 Mumbles Promenade - Letter Report

Your ref:

26 April 2019

Adam Cross
Ove Arup and Partners Ltd (Bristol)
63 St Thomas Street
Bristol
BS1 6JZ

Dear Adam

Re: Mumbles Promenade Ground Investigations – Extended Phase 1 Habitat Survey

BSG Ecology was instructed by Arup to conduct an Extended Phase 1 Habitat Survey of an area extending along the Mumbles Promenade, Swansea. The survey was carried out in relation to ground investigation works which are scheduled for the week commencing 29 April 2019. The works are to include approximately twelve bore holes along the length of the site, beyond the sea wall, some hand dug trial pits and horizontal bores into the sea wall.

The purpose of this document is to summarise the results of the ecological work undertaken, and establish whether the baseline ecological conditions at the site have changed significantly since Arup carried out an Extended Phase 1 Habitat Survey in 2017. Our understanding of the baseline ecological conditions at the site is derived from the Phase 1 Habitat Survey Plan¹ provided by Arup on 23 April. For reference, this figure is provided in Appendix 1. The site boundary has been extended slightly since the 2017 survey: the extended area includes buildings and amenity grassland up to Mumbles Road. This area was included in the 2019 survey.

Survey methods

The survey was completed on 25 April 2019 by Charlotte Alsop, following methods recommended in the Joint Nature Conservation Committee (JNCC) handbook for extended Phase 1 habitat survey².

All mature trees and external elevations of buildings were inspected for evidence of nesting birds and features that may provide potential roosting opportunities for bats (including any signs of use by bats) in accordance with the Bat Conservation Trust's good practice guidelines³. No internal inspection of the buildings was possible as part of the work.

Results

Habitats

The site is divided by a sea wall which runs through the length of the site. To the east and north of the sea wall the site is dominated by intertidal mud and cobbles. To the west and south of the wall the site primarily comprises areas of hardstanding (pavements/ tarmac), some amenity grassland, scattered

¹ Job no. 252724-00, Drawing no. 001, Issue F1.

² JNCC (2010) Handbook for Phase 1 habitat survey. A technique for environmental audit. Joint Nature Conservancy Council. Peterborough.

³ Collins, J. (ed) (2016). Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn.). The Bat Conservation Trust, London.

broadleaved trees and buildings. All habitats are mapped in Figure 1. Target notes and photographs are provided in Appendices 2 and 3.

Birds

The intertidal habitats provide foraging opportunities for birds. Green and brown algal beds (unidentified), cockle shells and whelks were identified along the length of the intertidal habitats.

The eastern portion of the sea wall is sloped at approximately 45 degrees, and has green and brown algae along its base providing some foraging opportunities for birds. The western end of the sea wall is vertical, and has narrow ledges upon which wood pigeons *Columba palumbus* were seen perching. These ledges do not provide any cover and are very shallow, and are therefore unlikely to provide suitable nesting opportunities for birds. There are some cracks and holes along the vertical part of the sea wall which are not considered to be suitable for nesting birds as they are low down and likely to get washed out during higher tides.

Pigeons, herring gulls *Larus argentatus* and lesser black-backed gulls *Larus fuscus* were seen perched on top of restaurant buildings in the west of the site. Gulls in particular are likely to nest on top of buildings such as these, and if there are any covered areas away from gulls, pigeons may also nest here.

Scattered broadleaved trees including whitebeam *Sorbus aria*, rowan *Sorbus aucuparia*, sycamore *Acer pseudoplatanus*, Norway maple *Acer platanoides* and horse chestnut *Aesculus hippocastanum* are present throughout the site. These trees provide suitable nesting habitat for birds. A small area of scrub in a car park in the north-west part of the site also provides some nesting opportunities for birds.

Bats

No potential bat roosting features were identified on any trees on site. However, multiple buildings appear to provide some roosting opportunities for bats. This includes some residential properties with lifted flashing, and gaps under missing or dislodged roof tiles. The Mumbles Waterski Club hut appears to have high potential for roosting bats, with multiple missing or dislodged roof tiles which may lead into a roof void. However, note that none of the potential roosting features could be fully assessed from the ground, or accessed internally. Therefore their suitability for roosting bats is unconfirmed and further survey would be required to determine their suitability for roosting bats.

Conclusion

There have been no major changes in the baseline ecological conditions at the site since Arup undertook their survey in 2017. The site provides some foraging and nesting habitat for birds, and some roosting potential for bats in the buildings.

Yours Sincerely



Charlotte Alsop

Ecologist

For and on behalf of BSG Ecology

Appendices

Appendix 1: Arup Phase 1 Habitat Survey Plan (2017)

(Overleaf)



Legend

Target Note

Sea wall

Mean High Water Springs (MHWS)

Scattered broad-leaved trees

Intertidal sand

Intertidal mud

Building

Tarmac

Survey Boundary

Target Note:
TN1: Bird species foraging on mud - redshank, oystercatcher, jackdaw, herring gull, crow, pigeon, black-headed gull
TN2: Shell bank: Mussle, cockle, oyster, flat topshell, barnacle, grey topshell
TN3: Brown algal bed over intertidal cobbles
TN4: Increased intertidal diversity over mud with foraging winter bird species potential
TN5: Incidental species recording: Slipper limpet shells and 2 x dead dogfish
TN6: Scattered trees with breeding bird potential but no bat roosting potential
TN7: Bat roosting potential in adjacent buildings
TN8: Brown algal bed over intertidal cobbles

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Client

The City and County of Swansea / Dinas a Sir Abertawe

Job Title

Mumbles Sea Defence / Revetment PAR

Phase 1 Habitat Survey

Scale at A3

1:3,000

Job No	Drawing Status
252724-00	For Issue
Drawing No	Issue
001	F1

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Appendix 2: Target Notes

Target note reference	Description
TN1	Green and brown algae along most parts of sea wall up to where the wall changes slope (from 45 degrees to vertical). Foraging potential for birds.
TN2	Mumbles Waterski Club hut – high bat roosting potential. Multiple missing/ slipped roof tiles into a possible roof void. No internal access to confirm if void present.
TN3	Houses with low bat potential – some lifted flashing/ gaps under capping tiles.
TN4	Dilapidated building with slipped roof tiles. Potential for roosting bats. Could not get close enough to assess thoroughly.
TN5	Herring gull, pigeon and lesser black-backed gull perched on roof of restaurant buildings (flat roof). Nesting potential for birds.
TN6	Pay and display hut and public WCs – negligible bat potential.
TN7	Pigeons sat on ledge part-way down sea wall + cracks and crevices in sea wall.
TN8	Brown algal bed, green algal bed, shells and whelks on cobbles and mud. Foraging potential for birds.
TN9	Scrub (bramble and buddleia) against wall in car park. Nesting potential for birds.

Appendix 3: Photographs

Photographs 1 & 2: Green and brown algae along sea wall



Photograph 1



Photograph 2

Photographs 3 & 4: Green and brown algal beds on intertidal habitat



Photograph 3



Photograph 4

Photographs 5, 6 & 7: Suitable nesting bird habitat in mature trees, scrub and on buildings



Photograph 5



Photograph 6



Photograph 7

Photographs 8 & 9: Mumbles Waterski Club hut



Photograph 8



Photograph 9