



Introduction

Copperstone Construction LTD are a Swansea based company with a strong connection to the community. Being one of the regions largest private sector employers, we are looking to reinforce links within the locality further by undertaking even more projects in the city. To compliment this, we intend to bolster our local supply chains and create partnerships with other South Wales concerns. We are extremely proud of our Swansea and Welsh heritage, and we incorporate this ethos into all of our schemes through imaginative, innovative designs and considerate, sympathetic construction methods. We have also recently expanded our in-house Environmental team which we believe will lead to many exciting opportunities to apply that knowledge in ensuring sustainable construction and project management.

Copperstone specialises in design and build style commissions with a workforce, plant stock and robust supply chain capable of undertaking projects of all sizes and complexities. Previous projects successfully constructed include:

- Rhosilli Community Centre, completed 2017.
- Swansea Train Station renovations, completed 2019.
- Llangennech Cricket Pavilion, completed 2020.
- Swansea Kingsway improvements, completed 2021.

We are passionate in promoting the Welsh Language as well as addressing the imbalance of female representation within the industry and we have been recognized as such by several industry awards and nominations. Furthermore, we have committed to employing a percentage of ex-offenders per year as well as an impressive graduate programme. Via an ongoing relationship with UWTSD we believe we can continue to



invest in young people and provide additional opportunities for students to enter the construction industry in the future.



Ground Investigations (6003-CCL-XX-XX-SU-J-001-Ground)

Ground Investigations are an important stage of the planning process prior to construction projects commencing on site. The information derived can determine whether a project will go ahead at all at a particular location and inform design and construction technique. Ground conditions were recorded and samples collected for more in depth analysis.

As such, Copperstone Construction undertook 3 trial hole excavations on the site of plot F at the following locations:



(Site map depicting trial hole locations on site, DCWW, 2021)

Each hole was roughly 2mx2m and 3m in depth.

Trial Hole 1: (X: 266993.96, Y: 192778.19)

Trial Hole 2: (X: 267096.34, Y: 192784.21)

Trial Hole 3: (X: 267198.72, Y: 192801.53)



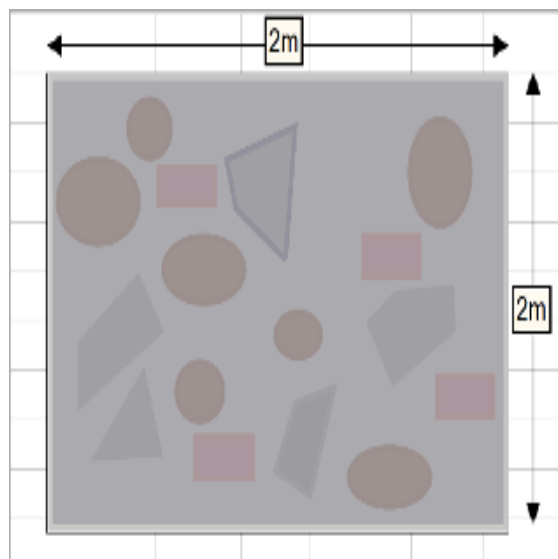
These three locations were selected as between the 3 TH's they should fairly represent ground conditions across the whole site. The results are presented over the following pages. Risk Assessments and Method Statements for this work can be found in appendices.



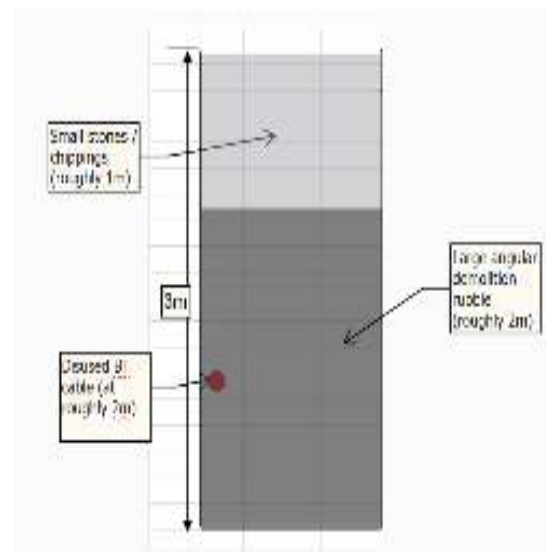
Trial Hole 1

Location:	(X: 266993.96, Y: 192778.19), Plot F, SA1
Purpose:	- Determine ground conditions. - Confirm buried services. - Obtain soil samples.
Date:	20/10/21.
Weather conditions:	Dry, cold.
Surface status:	- Fpath. X - Verge. X - Road. X - Field. X - Other. ✓ (made 'stoned' surface)
TMA:	N/A
Utilities present And depth / size:	- BT cable (confirmed abandoned by BT), 2m, 3inch diameter.

Plan View (at maximum depth):



Profile View:

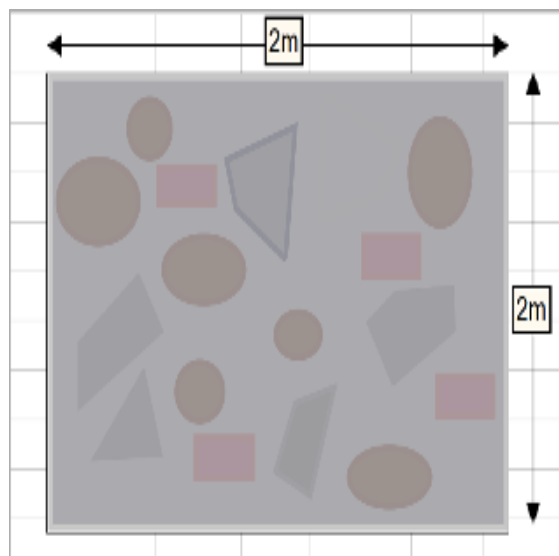




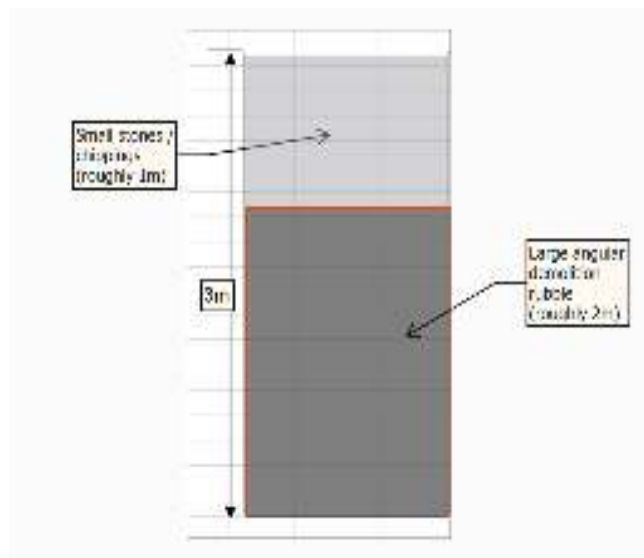
Trial Hole 2

Location:	(X: 267096.34, Y: 192784.21), Plot F, SA1
Purpose:	- Determine ground conditions. - Confirm buried services. - Obtain soil samples.
Date:	20/10/21.
Weather conditions:	Dry, cold.
Surface status:	- Fpath. X - Verge. X - Road. X - Field. X - Other. ✓ (made 'stoned' surface)
TMA:	N/A
Utilities present And depth / size:	None discovered.

Plan View (at maximum depth):



Profile View:

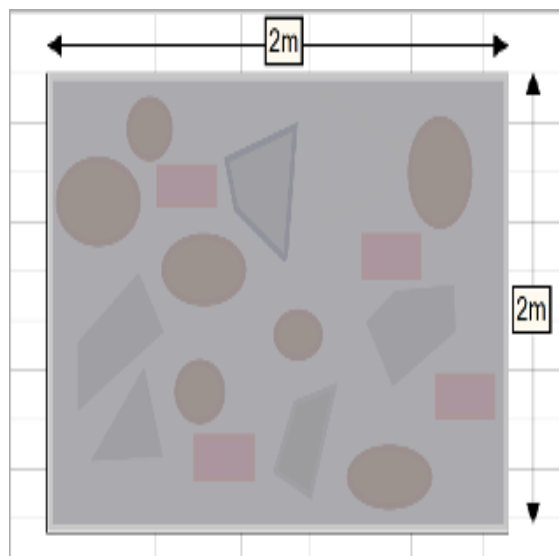




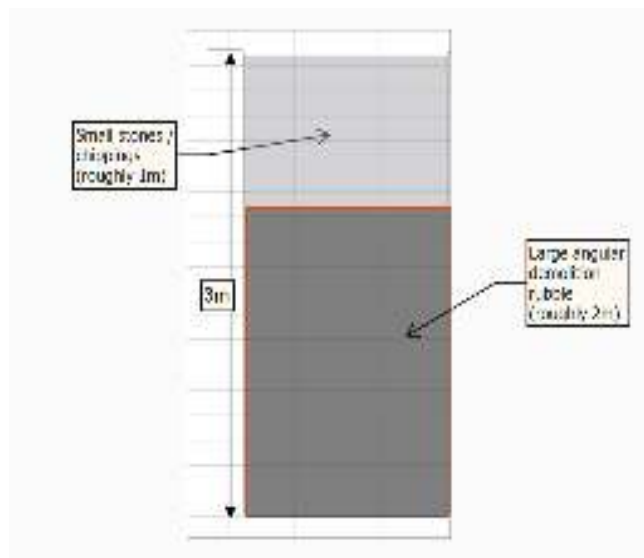
Trial Hole 3

Location:	(X: 267198.72, Y: 192801.53), Plot F, SA1
Purpose:	- Determine ground conditions. - Confirm buried services. - Obtain soil samples.
Date:	20/10/21.
Weather conditions:	Dry, cold.
Surface status:	- Fpath. X - Verge. X - Road. X - Field. X - Other. ✓ (made 'stoned' surface)
TMA:	N/A
Utilities present And depth / size:	None discovered.

Plan View (at maximum depth):



Profile View:





WAC Testing

Soil samples (2kg) obtained from the bottom of the 3 trial holes was sent to *Swansea Soils Ltd* to ascertain their chemical make-up and characteristics. The final review of is as follows:

TH1 sample

- Found to contain varying (but low) amounts of Arsenic, Barium, Cadmium, Chromium, Copper, Mercury, Molybdenum, Nickel, Lead, Antimony, Selenium, Zinc, Chloride, Fluoride, Sulphate.
- **DEEMED INERT.**

TH2 sample

- Found to contain varying (but low) amounts of Arsenic, Barium, Cadmium, Chromium, Copper, Mercury, Molybdenum, Nickel, Lead, Antimony, Selenium, Zinc, Chloride, Fluoride, Sulphate.
- **DEEMED INERT.**

TH3 sample

- Found to contain varying (but low) amounts of Arsenic, Barium, Cadmium, Chromium, Copper, Mercury, Molybdenum, Nickel, Lead, Antimony, Selenium, Zinc, Chloride, Fluoride, Sulphate.
- **DEEMED INERT.**



List of Images

- DCWW Dwr Cymru Welsh Water (2021), *Site map depicting trial hole locations on site, UK*



Ecology Survey (6003-CCL-XX-XX-SU-J-001-Eco)

Copperstone Construction's commitment to sustainable construction in an environmentally responsible fashion necessitates an Ecology Survey to be carried out at all sites at an early stage of all projects. The survey of 'Plot F', was undertaken by the in-house Environmental team in September 2021. The Brownfield site previously housing activities characteristic of Swansea's maritime and industrial heritage. At an unknown point in the recent past the site has been somewhat 'prepared' for re-development via clearance and a hardcore / stone surface laid. Since then nature has begun to recolonise the land, although not to that extent that any mature trees are resident:



(View of site during Autumn 2021, Cullen, 2021)



Fauna

Due to the nature of the plot, it is not thought that habitats for protected species such as badgers, bats or newts or nesting birds are present. There is no fresh water running in the vicinity so the likelihood of a newt or water vole community is low. Site visits confirmed this desktop analysis and no trace of any species besides occasional visits by a seagull colony and individual ravens.

Flora

The site contains no mature trees or hedgerows. As such the area is deemed to have little or no botanical significance. Besides some immature Willow Trees (*Salix Reepens*), the only plants growing can be classified as 'weeds'. There appears to be little or no resident Invasive Non-Native Species such as Knotweed.



List of Images

- Cullen (2021), *View of site during Autumn 2021*, UK



Habitat Impact Assessment (6003-CCL-XX-XX-RP-J-001-HIA)

The ecology survey of 'Plot F' was used to inform a Habitat Impact Assessment of 'Plot F' which identifies any potential mitigation measures that will have to implement during the Construction Stage of the project.

Species Identified during Ecology Survey	Protected Species?	Risk of Impact (low / medium / high severity & likelihood)	Control / Mitigation Measures to be implemented	Risk of Impact (low / medium / high severity & likelihood) following control / mitigation measure implementation
Seagulls (visiting, non-resident)	No	Low – non resident.	None required – colony will not visit during construction.	Low.
Ravens (visiting, non-resident)	No	Low – non resident.	None required – colony will not visit during construction.	Low.
Willow Tree	No	Low – only immature trees present.	-Largest to be preserved where possible and replanted elsewhere.	Low.



Environmental Impact Assessment (6003-CCL-XX-XX-RP-J-001-EIA)

Environmental Impact Assessments (EIA's) are used to appraise the effect of construction project upon the environment in the vicinity of the site. As a considerate contractor, Copperstone Construction commits to carrying out an EIA ahead of every scheme it undertakes and is undertaken by our fully qualified in-house Environmental team.

EIA's are undertaken early in project's in order that they can inform the design, construction methods and mitigation measures required to lessen the impact of works. The Impact Assessment for 'Plot F' is as per below:

Potential Environmental Hazard	Nature of Hazard	Risk of Impact (low / medium / high severity & likelihood)	Control / Mitigation Measures to be implemented	Risk of Impact (low / medium / high severity & likelihood) following control / mitigation measure implementation
Chemicals used during construction.	Contamination of watercourses	High – site near docks	-Refueling areas to clearly designated & kept away from waterside -Spill kits present on site -Chemical stocks securely stored -COSHH assessments to be available for all substances in use	Low.
Construction machinery / plant	Noise pollution for humans and animals	Medium – site near to working docklands, no residential housing in immediate vicinity	-Work to take place during standard working hours only -Consultation with local residents -Ongoing communication with homeowners -Sound monitors to be used to measure noise levels	Low.
Construction Machinery / Methods	Dust	Medium – area already subject to heavy transport /	-Site to be regularly dampened. -Wheelwash present for all traffic leaving site.	Low.



		industrial activities		
Construction generated waste	Contamination of land / watercourses	High – site close to docks / sea	-Waste to be adequately segregated on site. -Waste to be regularly removed from site by registered waste handlers.	Low.
INNS (Invasive Non-native Species)	Spreading and dispersal of INNS	High – Knotweed abundant in Swansea and on former industrial brownfield sites. As are other species such as Himalayan Balsam.	-Ecology / species survey to be undertaken to determine species present. -Further assessment of surrounding area following scheme completion. -Site to be cleared and treated with specialist chemicals throughout project. -Plants removed to be transported and disposed of by registered carriers.	Low.



Feasibility Study (6003-CCL-XX-XX-RP-J-001-Feasibility)

Introduction

Copperstone Construction Ltd has been engaged by the University of Wales, Trinity Saint David's to further their ability to provide the very best facilities for their students. Their latest vision is to add an enclosed Olympic sized swimming-pool and leisure complex, with all the required facilities for it to provide swimming and other related water sports to their SA1 campus. The project brief provided also stipulates that the construction will need to include all necessary sanitary and changing facilities for the pool and other open-air rugby and football pitches as well as 5 tennis courts. In keeping with UWTSD's commitment to serving the local community the site will incorporate landscaped gardens for the visitors and residents of the city to enjoy.

Scope of Feasibility Study

Copperstone Construction Ltd as standard undertakes a Feasibility Study at the Pre-Construction stage of all our projects. This investigation is extremely poignant in this situation as we believe that we should provide the best value and sustainable construction as possible to serve the City of Swansea and the education of young people. This report will investigate and report on whether the brief provided is financially and practically viable calling upon the expertise of the whole project team and information already gathered. The information presented will inform the design and constructability of the Swimming Pool and Leisure Complex.



Outline Brief

Specifications provided by the client:

- Enclosed Olympic sized Swimming Pool.
- Leisure Complex.
- All associated sanitary and changing facilities for indoor activities.
- Rugby Pitch.
- Football Pitch.
- 5 tennis courts.
- All associated sanitary and changing facilities for indoor activities.
- Landscaped grounds.
- Car parking facilities.
- Energy efficient design and construction for heating, lighting and ventilation.
- Efficient and compliant drainage system.

No budgetary or timescale constraints have at this point been provided or stipulated by the client.

Site Location

The plot of land proposed for construction lies adjacent to UWTSD's current SA1 campus as well as the Prince of Wales Dock, Swansea. Situated at grid Reference: X: 267216.98, Y: 192796.64, the roughly triangular parcel of land possesses a perimeter length of 670 metres, equating to an area of 21,230 metres squared. The site currently has no formal address, although it falls within postcodes SA1 8AL and SA1 8RD. The excerpt below is the site depicted on the latest OS map:



(OS excerpt of Swansea docklands and SA1 area, Ordnance Survey, 2021)



Site Ownership

UWTSD has owned the land since 2020 with their land deed and legal boundaries corresponding as per plan below:



(Map of site with perimeter and area measurements of plot, DCWW, 2021)

Within the boundaries depicted above, there are no existing covenants, terms of lease, easements, rights of way, or wayleaves.

Ground Investigation

Please see Ground Investigation section: 3 trial hole pits detected and abundance of demolition rubble at deeper depths and smaller ground make-up and fill at shallower depths.



The historic borehole data available in the vicinity of the site is depicted as per below:



(Map depicting the location of boreholes on site, British Geological Survey, 2021)

Details of borehole SS69SE296:

C No. 3 Bore 100.37 ASD			
sand & stones	10.00		10.00
peat & clay	3.00		13.00
fine gravel	13.00		26.00
clay	3.00		29.00
gravelly sand	5.00		34.00
hard sandy clay with some stones	4.00		38.00

(Extract profiling results of BH SS69SE296, British Geological Survey, 2021)



Details of borehole SS69SE295:

SS69SE295/	No 4 Bore	104.11	local A&D		
tipped ashes from works		67179	92834	7.00	7.00
peat & sand				12.00	19.00
hard sandy clay	Bottom 9 - same as peat & sand			1.00	20.00

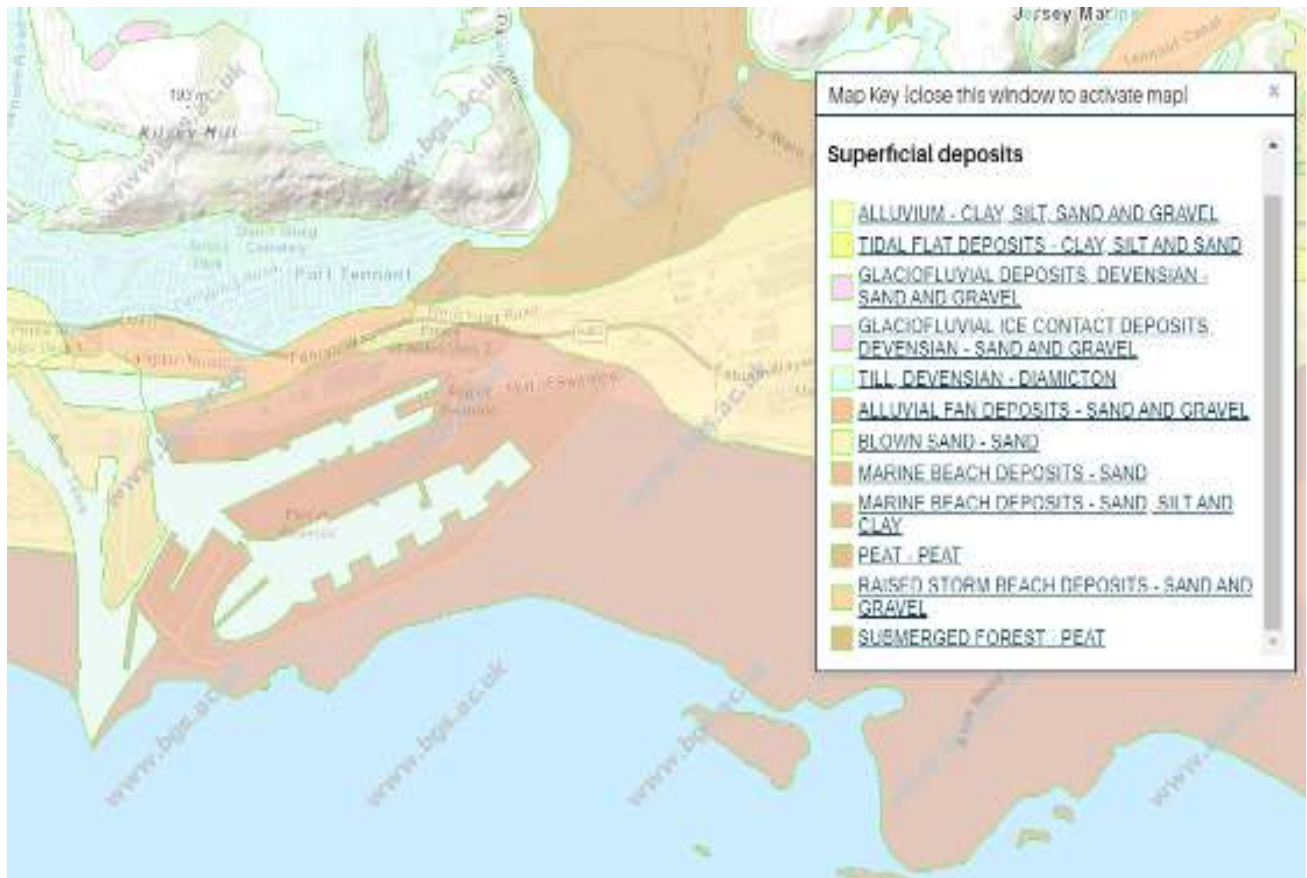
(Extract profiling results of BH SS69SE295, British Geological Survey, 2021)

Both boreholes suggest that at deeper levels the site possesses a fairly standard sand, clay and gravel make up, characteristic of the region as a whole.

The ground surface level is uniformly flat and even across the plot.

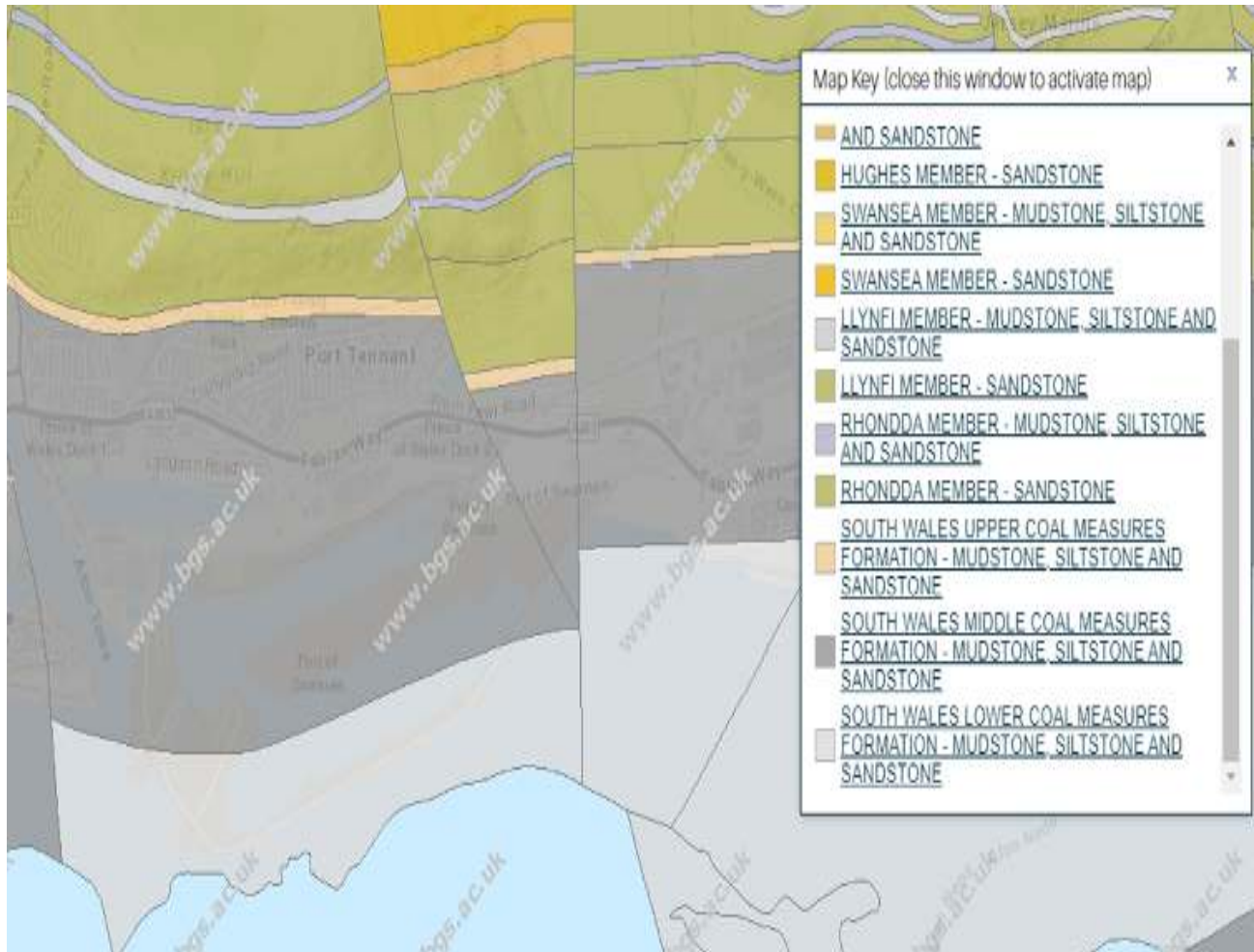


These findings are accentuated by *British Geological Survey* records for superficial bedrock:



(Geological map of site and key, British Geological Survey, 2021)

At deeper depths, the geological bedrock consists of mudstone, siltstone and sandstone:



(Geological Bedrock map of site, British Geological Survey, 2021)



Contaminated Land

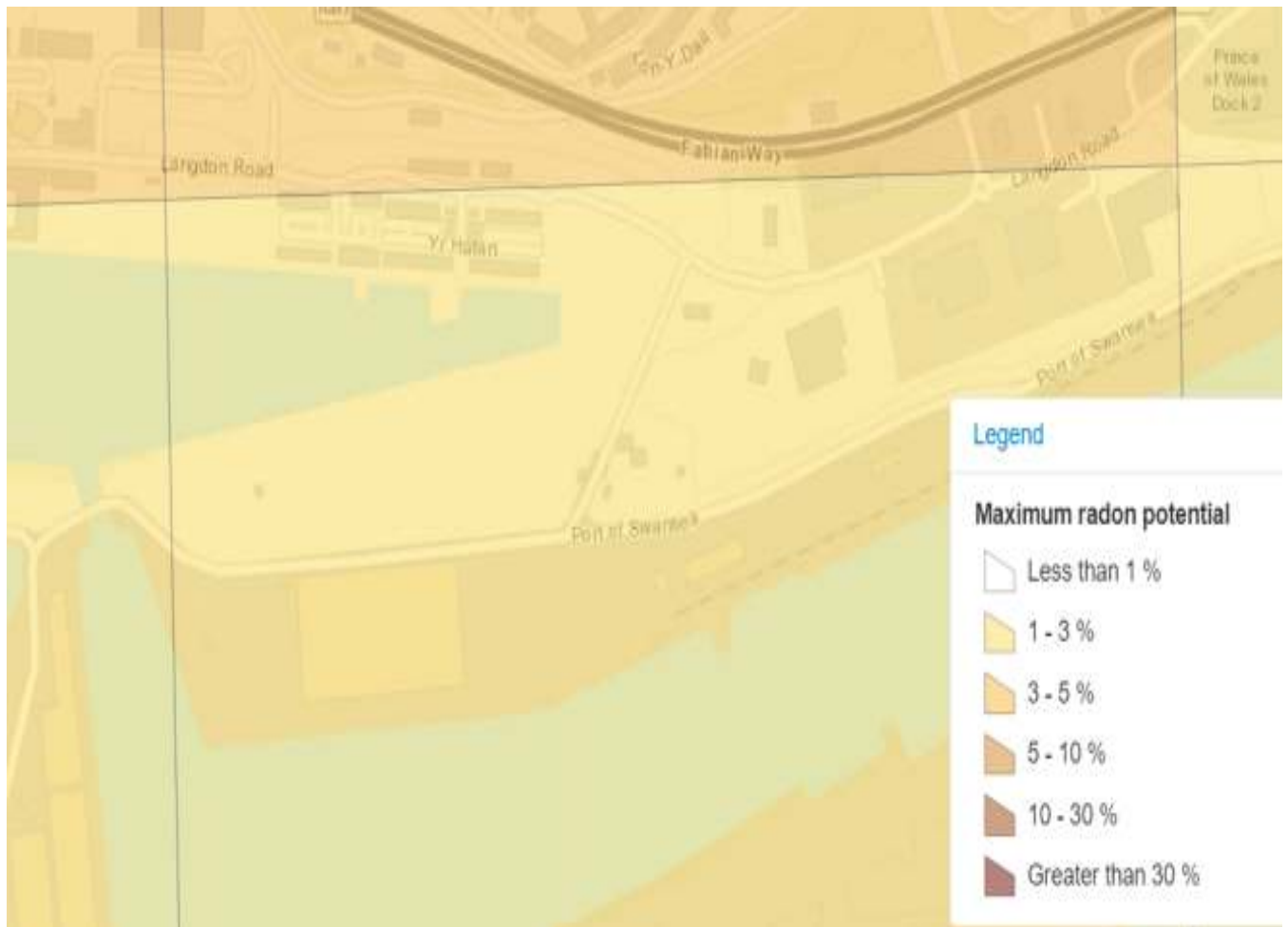
The location, it is thought borders but is not subject to contamination itself as per plan below:



(Map depicting site in relation to areas considered to be 'contaminated', DCWW, 2021)



Additionally, the plot isn't thought to possess excessive Radon potential:



(Map depicting Radon levels of the plot and surrounding areas, Public Health England, 2021)



Location of existing Statutory services

Enquiries were made with the following utility providers:

- Electricity.
- Water.
- Gas.
- Telephone (disused cable discovered during ground investigation).
- Drainage.
- Sewers.
- Tv Cables.
- Fibre Optics.

However, no services were found to be present within the proposed site location.



Service / Infrastructure Adequacy

There is no current water, sewerage or drainage provision at site as per plan below:



(Map profiling the water mains and sewerage in the region, DCWW, 2021)

However, 160mm water main runs very near to the site, presumably laid with future development and expansion of the area in mind. Early, informal discussions with Welsh Water (local water / waste utility company) suggest connection onto this main would not present any major issues.



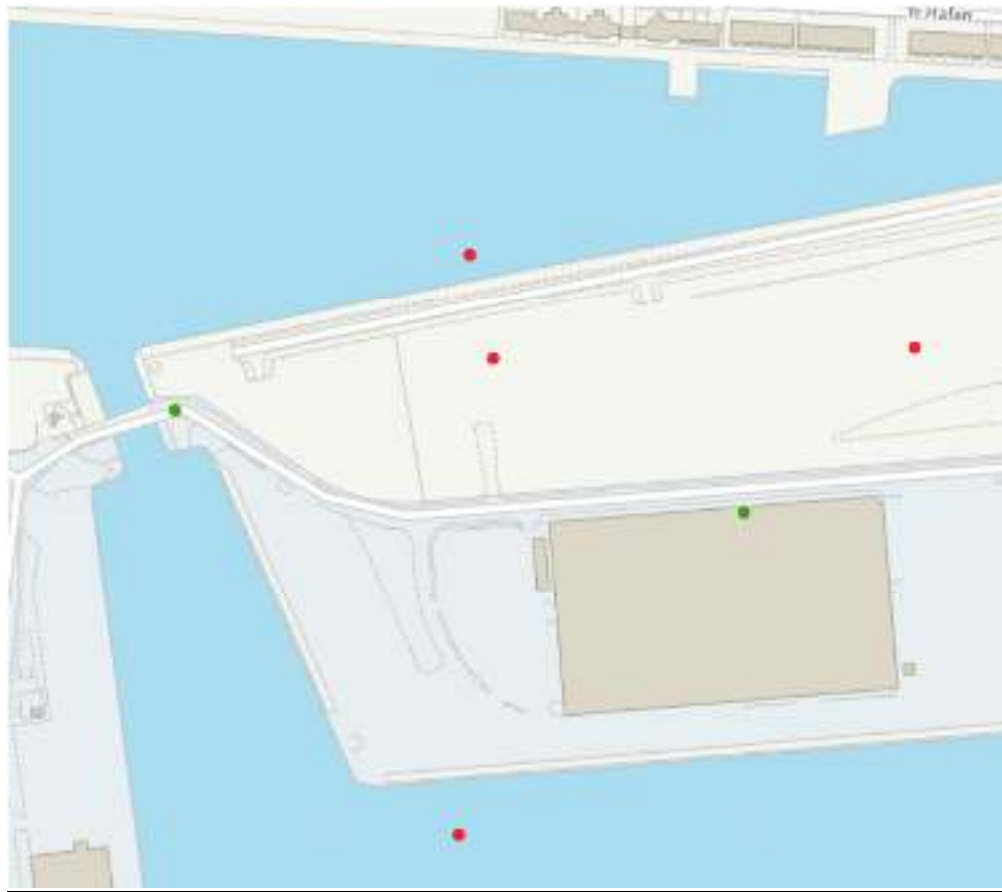
Records suggest there is no waste sewerage infrastructure near the site, however a desktop study has identified 4 viable options:

- A 6 inch sewer does run several hundred yards away which the development could connect onto. May require the construction of a small private pumping station.
- A far larger 3840mm trunk sewer runs a short distance further away, although its depth may prove prohibitive. May require the construction of a small private pumping station.
- Direct connection to Langdon Road Pumping station (will require extensive liaison with Welsh Water). May require the construction of a small private pumping station.
- Potential for discussions to be held with the surrounding land owners / users to connect onto their private sewerage system (will present ongoing costs).

A modern, well laid, highways compliant, 2 lane carriageway runs along the Northern boundary of the plot. The road appears to be constructed to standard and is capable of withstanding relevant weight, traffic and use for not only the construction stage, but also when the facility is fully operational. There is also potential entrance road opening already present onto the site.

Archaeological Considerations

Archaeological records of the site do suggest some significant historical activity in or very near to the plot. However, upon further consultation with *Cadw* and *Coflïen* these appear to be recording errors and the red dots on the plan below relate to locations elsewhere in the City.

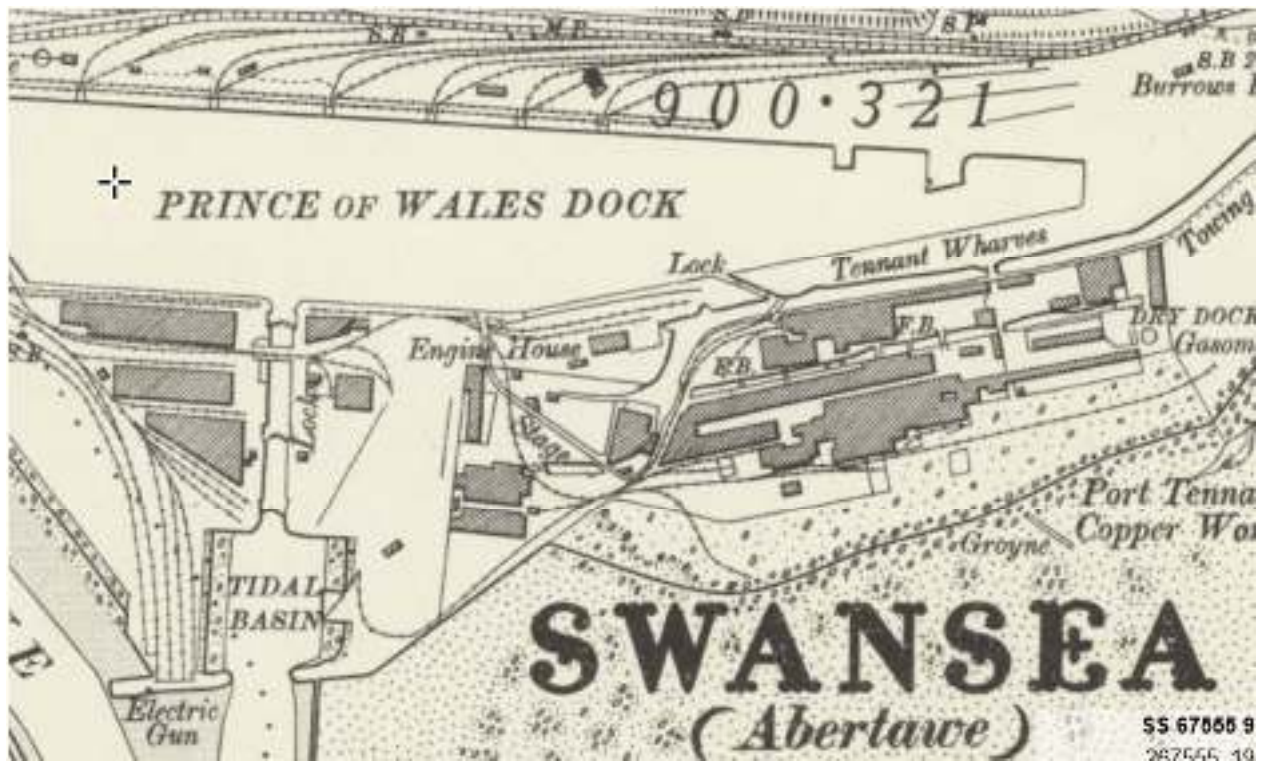


(Site map depicting the presence of listed buildings or archaeological sites in the vicinity of the plot, CADW, 2021)

Liaison with CADW has also demonstrated no listed structures within the vicinity.

Historical Site Land Use

Historic maps and records of the area depict a highly industrialised location:



(1876 Historic map of site, National Library of Scotland, UK)



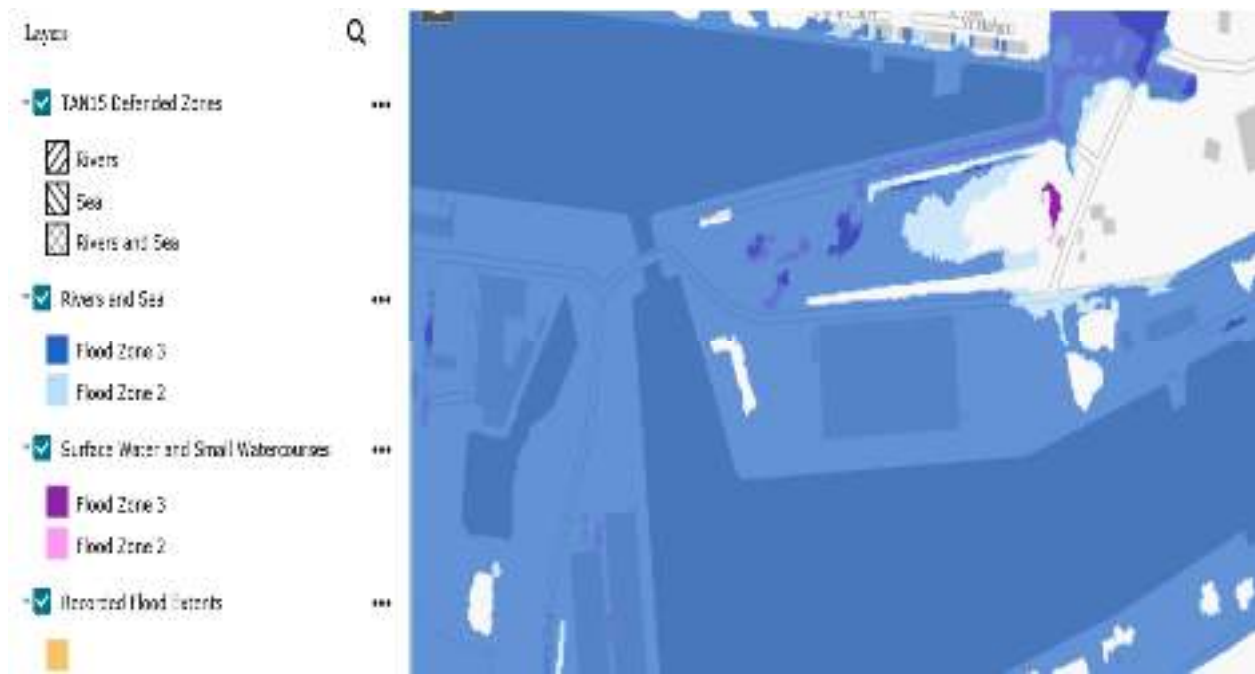
Ecological Considerations

The site does not within any known environmental designated area including a SSSI, SSI, SNCI, AONB.

An ecological survey was carried out in conjunction with this feasibility study which produced no major findings or impediments for the scheme. Habitat and Environmental Impact Assessments have also been undertaken and provided some minor recommendations to aid the scheme's development. The site possesses no hedgerow or tree preservation orders.

Flood Risk

The flood risk plan below suggests that the location is at risk from flooding:



(Flood risk map of site, Natural Resources Wales, 2021)

The plot is almost entirely within the Rivers and Sea Flood Zone 2 or higher threshold. Other developments in the area however are also under a similar risk level, but have still been constructed. It is not thought that this should affect the scheme from advancing, with no recorded flood events occurring at the location.



Local land use

To the West of the site is the newly constructed UWTSD SA1 Campus, also housing the CWIC headquarters. As a result the area is frequented by a young and vibrant demographic who also make use of the nearby bars and restaurants.

To the North is the Prince of Wales Dock, now used for recreation, which has modern residential properties and a hotel on its Northern shore. To the South lies the operational and long-established Dock and associated concerns such as scrap yards, warehouses and dry docks. The immediate East of the site remains unoccupied and is in a similar condition to plot F. No planning permission has of yet been granted so there is no current plan to develop this land. Despite this, Swansea County's Local Development Plan has earmarked the whole region for housing growth:



(Local development plan map, City and County of Swansea Council, 2021)



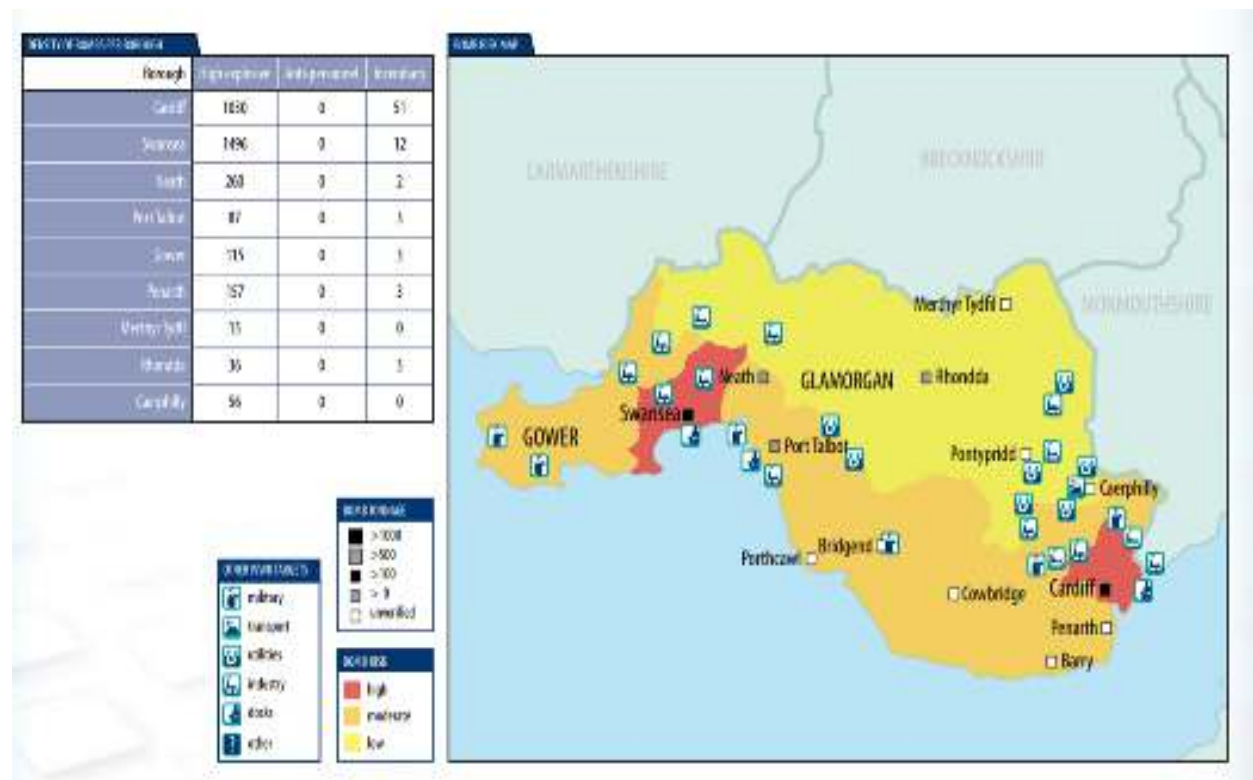
UWTSD is in the process of applying for outline planning permission for the Leisure Complex Development. It is thought this will likely be a formality and will be granted imminently. The proposal does not appear to be in conflict with the surrounding land use described above and there should be no major noise or disruption implications.

Although the region features residential, educational, recreational and industrial buildings of varying ages, the prevailing style amongst the newer constructs appears to be to maintain a historic and maritime style.



Unexploded Ordnances

Although Swansea has heavily targeted by the Luftwaffe during World War Two and there have been numerous unexploded bombs discovered within the city previously. As such, the whole region is classed as being in the high risk category:



(Map of South Wales depicting likelihood of presence of unexploded ordnances and key, ZeticaUXO, 2021)

With the docklands being of particular prominence in the risk plan, an acceptable mitigation measure would be to pre-warn the bomb squad prior to excavations taking place. The site will be extensively CAT scanned also.



Aerial and Site Photographs



(Aerial photograph of site, Google Earth, 2021)



(Site photograph 1, Cullen, 2021)



(Site photograph 2, Cullen, 2021)



(Site photograph 3, Cullen, 2021)



(Site photograph 4, Cullen, 2021)



(Site photograph 5, Cullen, 2021)



(Site photograph 6, Cullen, 2021)



Conclusion

From the information contained within this Feasibility Study, Copperstone Construction would recommend that the design stage should commence. Subsequently, there appears to be no relevant obstacles and impediments for the construction phase to then also proceed.

Should the client also reach this conclusion, the recommendations within this report will be enacted and the information within used to inform the Design and Constructability of the concept.

As UWTSD have presented no other alternative locations for the complex, no other plots were investigated as part of the study. Should the client find the current plot to be unsuitable, we would recommend further enquiries to be undertaken on the plot of land immediately adjacent to the plot's Eastern boundary.



List of Images

- British Geological Survey (2021), *Extract profiling results of BH SS69SE295*, UK
- British Geological Survey (2021), *Extract profiling results of BH SS69SE296*, UK
- British Geological Survey (2021), *Geological Bedrock map of site*, UK
- British Geological Survey (2021), *Geological map of site and key*, UK
- British Geological Survey (2021), *Map depicting the location of boreholes on site*, UK
- CADW (2021), *Site map depicting the presence of listed buildings or archaeological sites in the vicinity of the plot*, UK
- City and Council of Swansea Council (2021), *Local development plan map*, UK
- Cullen (2021), *Site Photograph 1*, UK
- Cullen (2021), *Site Photograph 2*, UK
- Cullen (2021), *Site Photograph 3*, UK
- Cullen (2021), *Site Photograph 4*, UK



- Cullen (2021), *Site Photograph 5*, UK
- Cullen (2021), *Site Photograph 6*, UK
- DCWW Dwr Cymru (2021), *Map depicting site in relation to areas considered to be 'contaminated'*, UK
- DCWW Dwr Cymru (2021), *Map of site with perimeter and area measurements of plot*, UK
- DCWW Dwr Cymru (2021), *Map profiling the water mains and sewerage in the region*, UK
- Google Earth (2021), *Aerial photograph of site*, UK
- National Library of Scotland (2021), *1876 Historic map of site*, UK
- Natural Resources Wales (2021), *Flood risk map of site*, UK
- Ordnance Survey (2021), *OS excerpt of Swansea docklands and SA1 area*, UK
- Public Health England (2021), *Map depicting Radon levels of the plot and surrounding areas*, UK
- ZeticaUXO (2021), *Map of South Wales depicting likelihood of presence of unexploded ordnances and key*, UK



Foundation Calculations (6003-CCL-XX-XX-CA-S-001)

The depth of the foundation required will be calculated using Rankine's formula:

$$\text{Minimum depth of foundation} = \frac{p}{w} \left(\frac{1 - \sin \Phi}{1 + \sin \Phi} \right)$$

Where,

p=Soil bearing capacity (SBC)

w =density of soil

Φ =angle of response of soil

(Rankine's formula, Institute of Civil Engineers, 2022)

- The ground investigation undertaken found the site to possess a substrate that could be described as loose gravel / sand gravel which possesses a SBC of roughly 250 KN/m squared (p).
- The density of the ground material present has been determined to consist of dry / loose sand and gravel and therefore possesses a density of roughly 1850 kg/cum (w).
- The angle of repose of excavated material (sand / gravel) of approximately 37 degrees.



Therefore:

Minimum depth of foundation = $0.135 \times 1.974 = 0.27\text{m}$

The area of the foundation per column is determined by the formula:

$$\text{Area of column footing} = \frac{\text{Load carried by column}}{\text{S.B.C. Of Soil}}$$

(Column footing area formula, Institute of Civil Engineers, 2022)

- The self-weight of steel = 7850kg/m cubed.
- The steel columns for the tower section of the development = 30m high x 0.45m width x 0.45 length.
- $30\text{m} \times 0.45\text{m} \times 0.45\text{m} = 6.075\text{m cubed of steel} \times 7850 \text{ kg} = 47688.75\text{kg of steel.}$
- Converted to load (mass) = 467.67 Kilonewtons.
- Area of column footing = $467.67 \text{ KN} \div 250 \text{ KN/m} = 1.88 \text{ metres squared.}$

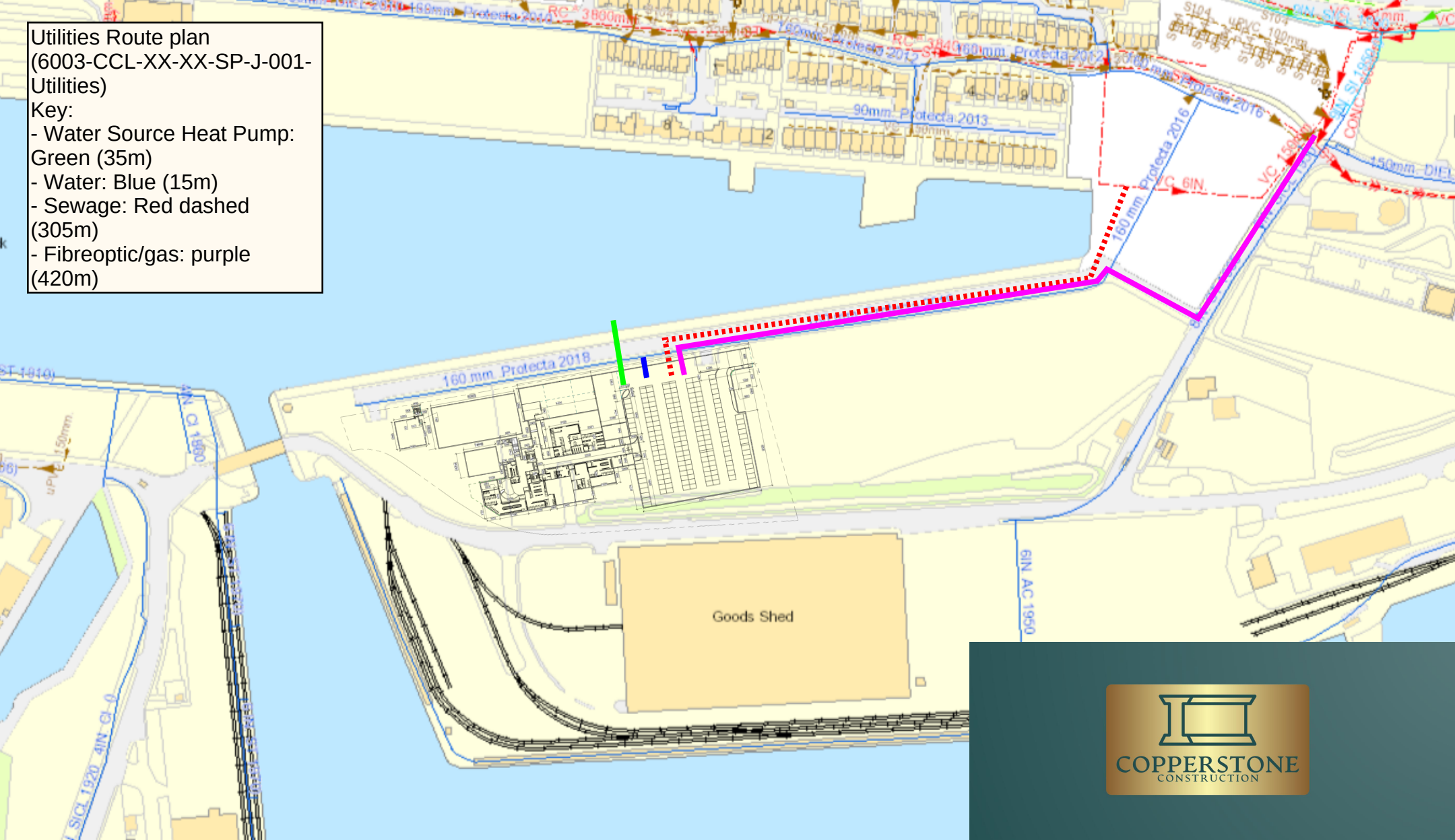


- For the lower-level structure = 15m high x 0.45m width x 0.45m length.
- $15\text{m} \times 0.45\text{m} \times 0.45\text{m} = 3.0375\text{m}^3$ of steel x $7850\text{kg} = 23844.375\text{ kg}$ of steel.
- Converted to load (mass) = 233.83 Kilonewtons.
- Area of column footing = $233.83\text{ KN} \div 250\text{ KN/m} = 0.94\text{ metres squared}$.

Utilities Route plan
(6003-CCL-XX-XX-SP-J-001-
Utilities)

Key:

- Water Source Heat Pump:
Green (35m)
- Water: Blue (15m)
- Sewage: Red dashed
(305m)
- Fibreoptic/gas: purple
(420m)





**Risk Assessment and Method Statement (6003-CCL-XX-XX-MS-J-001-
Excavations)**

Site excavations

Project: SA1 Leisure Complex Development

Client: UWTSD Swansea

Activity: Excavating Ground ahead of Foundation / Basement construction

Prepared By	Signed	Date	Checked By	Signed	Date
James Cullen	<i>[Signature]</i>				

Issue	Revision	Date	Checked By	Signed	Date
1					

Distribution / Issue list

Client / Engineer / Other	UWTSD	
Copperstone	J Cullen, J Williams, D Rowlands,	
Site Engineer (s)		
Works Manager / Site Manage		
Site File	File in 'Site Safety Register'	



The following personnel have been briefed in the procedures required to carry out the operations detailed in this method statement / risk assessment. Copy to be returned to site manager.

Name	Job Description	Signature	Employer

Persons providing site briefing:

Name: **Sign:** **Date:**

Name: **Sign:** **Date:**

Name: **Sign:** **Date:**

Name: **Sign:** **Date:**



Contents

- 1.0 CDM 15 Introductions
- 2.0 Scope of Works
- 3.0 Responsibilities
- 4.0 Plant and Equipment
- 5.0 Inductions and Training
- 6.0 Works Procedure
- 7.0 Quality Assurance
- 8.0 Contingency Plans
- 9.0 Special Conditions
- 10.0 Emergency Procedures
- 11.0 Risk Assessment



1.0 CDM 15 Introductions

The scheme is notifiable under the CDM '15 HSE under Regulation 6 (1).

The Client is: UWTSD

The Principal Designer is: Copperstone Construction

The Principal Contractors are: Copperstone Construction

The Designers are: Copperstone Construction

The main Sub Contractors Named on the F10 are: N/A



2.0 Scope of Works

This method statement & risk assessment outlines the working methods for the proposed activities to be undertaken involving:

- Excavating to a depth of roughly 5 metres covering roughly 5100 square metres to house the building foundations, basement and a level from which to pile-drive the sheet piles:





3.0 Responsibilities

Management:

<i>Name:</i>	Position:	<i>Mobile:</i>
	Contracts Manager	
	Works Manager	
	Site Manager	
	Health & Safety Advisor	

- The Site Manager must be in possession of approved risk assessments and method statements (RAMS) for the works, prior to authorising the Permit to Excavate. The Ganger shall be responsible for completing the Excavation Checklist prior to breaking ground. All site operatives must be briefed as to the requirements of the RAMS and the permit before work commences. The Site Manager is responsible for the satisfactory completion of the works.
- The Site Manager / Ganger shall ensure that the works proceed according to the approved RAMS.
- Prior to work commencing the site manager will complete a Copperstone Construction Site Specific Hazard Identification Form to determine the site specific risks.
- Copperstone Construction staff will supervise all works to ensure that the method of working is correct and that the standard of work being produced is satisfactory, including that performed by any Sub Contractors.



- The designated site operatives will have the necessary experience of and be familiar with, deep excavations in the vicinity of buried services, temporary works support and the erection of edge protection.



4.0 Plant and Equipment

The following items of plant and equipment will be present on site throughout the duration of the excavation activity:

- 2x 20T 360 degree tracked excavators.
- Temporary works equipment such as trench boxes.
- ECAT4+ and Genny.
- Various hand tools.
- Water pump.
- Dump trucks.



5.0 Inductions and Training

- All site operatives taking part in work to receive a Copperstone Construction Site Induction. Records of the inductions will be kept on site.
- Due to Covid-19, Copperstone Construction will reduce the number of people in attendance at site inductions and hold them outdoors wherever possible ensuring social distancing measures apply.
- All training records are to be made available and checked for compliance before the work begins and records kept on site. It is the Site Managers responsibility to determine the levels of training required along with the competence of the individual undertaking the work on site.
- The Permits that are required to be issued for works to be carried out under this RAMS are as follows:
 - Permit to excavate (to be issued by Copperstone Construction Manager)
 - Excavation Checklist (to be issued by Copperstone Construction Manager)
- Weekly toolbox talks and daily briefings to be delivered by a Copperstone Construction Manager and attendance records kept.



6.0 Works Procedure

- Access and egress will be via main road alongside dock. All traffic to be controlled via a Copperstone Construction trained banksman.
- A copy of the HSE's HSG 47 "**Avoiding Danger from Buried Services**" must be on site and used as a reference throughout the construction works. There must also be a copy on site of the HSE's GS6 "**Avoiding Danger from Overhead Power Lines**". Always remember to "LOOK OUT AND LOOK UP" for the presence of any overhead lines. If unsure then treat all overhead lines as POWER LINES!
- Prior to any excavation being carried out, a **Permit to Excavate** will be issued by the Site Manager following a thorough survey / CAT scan of the area. The permit will include copies of all the utility services drawings in the area and details of previous ground investigations undertaken by Copperstone Construction. Those operatives involved will be briefed onto the permit and this RAMS. The ganger **MUST** also complete a **Pre-Excavation Checklist** to ensure he has followed all the required procedures to ensure a safe dig.
- All services will be carefully located by means of thoroughly surveying the work area using the utility service drawings as a reference and the ECAT4+ & Genny. **TREAT ALL SERVICES AS**



LIVE! Ensure any services that are located are marked up using different colour spray paints for each of the services found, Only hand dig techniques (see trial hole RA) will be permitted around any buried services. Any services that have been exposed will be protected and supported across the excavations and clearly highlighted (no live services detected during previous Ground Investigation). No sharp / pointed implemented tools or mechanical equipment will be permitted to be used within 0.5m of any service. Also don't attempt to remove concrete from around or close to any buried services.

- All operatives to apply Personal Protective Equipment (PPE) – Mandatory requirements:
 - Hi – Vis jackets or waistcoats
 - Safety glasses or goggles
 - Safety helmets
 - Steel toe capped safety boots or Wellington boots
 - Gloves
 - Face Coverings in the public domain.
- Both excavators will be manned by fully trained operatives and will commence excavating a metre at a time and construction adequate ramps to provide safe access and egress into excavation for operatives and plant.
- CAT and genny surveys will be undertaken at every metre interval.
- Dump trucks will ferry excavated material to storage area as per Copperstone Constructions site management plans which will be on display on site cabins.



7.0 Quality Assurance

- Excavation logs to be filled in in conjunction with an excavation inspection by Copperstone site manager:
 - At the start of every shift.
 - After a change in weather conditions.
 - Following an incident.
 - At the start and end of every working day.
- Regular site audits to be carried out by Copperstone Construction Managers.



8.0 Contingency Plans

- Water Pumps to be on site should excavation begin to fill with water.
- Trench boxes and shoring equipment be present on site ready to be installed when required.
- A watching brief by an operative of the MoD to provide advice on avoiding unexploded ordinances.



9.0 Special Conditions

COVID-19

All employees and sub-contractors working on Copperstone Construction sites have received regular toolbox talks providing up-to-date government COVID-19 information and advice including “Site Operating Procedures – Protecting Your Workforce”. In addition to the distancing and increase hygiene controls set out in the above document, the following additional controls will be implemented: PLEASE READ RA.

Up to date Government Guidelines are being checked daily by Copperstone Management team and distributed out to site operatives.



10.0 Emergency Procedures

In the event of an emergency operatives are to carry out the following steps:

1. Withdraw to a safe position and make safe the area and preserve the scene of the accident

2. If the nature of the emergency is life-threatening, operatives are to contact the emergency services immediately by dialing 999 and providing clear and precise information on the nature of the injuries, the site address and directions to the site.

3. Local A+E department address:

Morrison Hospital

Heol Maes Eglwys

Morrison

Swansea

SA6 6NL

Tel: 01792 702222

A map will be present in the site canteen for directions. Copies are available for operatives.

4. Operatives to report incident to Copperstone Construction Management immediately.



5. The trained first Aiders on this site will TBC (displayed on site cabin noticeboard). One of them will stay with casualty until the emergency services arrive or transport to hospital for further treatment.
6. Send someone to meet the emergency services to ensure the correct directions are given
7. Suspend work immediately, review the situation and seek advice on whether it is permissible to re-start work.
8. Copperstone Construction management to fill in the appropriate documents ie. Accident book etc. and inform the HSE (if necessary) in accordance with RIDDOR.
9. Report all near miss incidents 'on a no blame culture' to prevent any similar situations.
10. The assembly point for the site is in the welfare compound and will be clearly signposted with a green / white sign (if scheme dictates).



11.0 Risk Assessment

Risk rating matrix:

Consequence	No Effect (1)	Minor Injuries (2)	Major Injuries (3)	Fatalities (4)
Likelihood				
Negligible (1)	$1 \times 1 = 1$ (low)	$1 \times 2 = 2$ (low)	$1 \times 3 = 3$ (low)	$1 \times 4 = 4$ (low)
Unlikely (2)	$2 \times 1 = 2$ (low)	$2 \times 2 = 4$ (low)	$2 \times 3 = 6$ (acceptable)	$2 \times 4 = 8$ (acceptable)
Likely (3)	$3 \times 1 = 3$ (low)	$3 \times 2 = 6$ (acceptable)	$3 \times 3 = 9$ (substantial)	$3 \times 4 = 12$ (substantial)
Probable (4)	$4 \times 1 = 4$ (low)	$4 \times 2 = 8$ (acceptable)	$4 \times 3 = 12$ (substantial)	$4 \times 4 = 16$ (intolerable)

Matrix key:

- Scores between 1 – 4 = Low risk
- Scores between 5 – 8 = Acceptable risk
- Scores between 9 – 12 = Substantial risk
- Scores between 13 – 16 = Intolerable risk



Specific site risks on relation to excavation:

Hazard	Those at risk	Risk	Score before mitigation	Control measures	Risk score after control
Vehicles / plant on site	Site workers	Collisions / being runover	3 x 3 = Substantial	Banksmen on site, hi-vis and PPE to be worn by all operatives, operatives to abide by Traffic Management Plan, flashing beacons and mirrors to be used by plant operators	2 x 3 = Acceptable
Slips trips and falls	Site workers	Personal injury	2 x 3 = Acceptable	PPE to be worn, site to be kept clean and tidy, areas fenced off	2 x 2 = Low
Striking underground services	Site workers	Electrical shock, explosion, drowning	2 x 4 = 8 Substantial	Utility plans to be consulted, utility companies contacted, CAT and genny survey before starting, previous GI undertaken	1 x 4 = Low
Falling objects	Site workers	Personal injury	3 x 3 = 9 Substantial	Solid edge protection to be erected around excavation, good housekeeping, hard hats and steel toe caps to be worn at all times	1 x 3 = 3 low



Harmful substances present	Site workers	Eye irritation, breathing difficulties, skin infections	2 x 3 = 6 acceptable	Gloves and goggles to be worn at all times, previous GI undertaken (no contaminated land)	1 x 3 = low
Noise	Site workers	Ear damage	2 x 3 = 6 acceptable	Ear protectors to be worn at all times, noise logs to be recorded by staff	1 x 3 = 3 low
Working at height	Site workers	Falls leading to personal injury	2 x 4 = 8 acceptable	Edge protection around excavation, PPE to be worn	1 x 4 = 4 low
Working within an excavation	Site workers	Sides of excavation falling in	3 x 4 = 12 substantial	Excavation to be monitored, sides battered back where required, weather forecast to be consulted, shoring to be used, sides battered back, GI carried out	2 x 4 = 8 acceptable
Covid-19	Site workers	Contracting coronavirus	3 x 3 = 9 Substantial	Social distancing, masks to be worn, all operatives vaccinated, handgel to be used regularly	2 x 3 = 6 acceptable



		COSHH Assessment (6003-CCL-XX-XX-HS-J-001-Concrete)		Date: 03/04/22		Review Date: 03/05/22	
Substance used:		Blue Circle Portland Cement					
Manufacturer:		Lafarge Cement United Kingdom					
Description of product:		An odourless white to grey powder mainly insoluble in water					
Emergency telephone number		0870 609 0011					
Location of process		SA1 Docklands					
Activity being carried out?		Concrete mixing / use in construction					
Identify the persons at risk:		Employees (including trainees) ☒		Contractors ☒		Public ☐	
Describe the activity or work process. (Include how long and how often this is carried out and the quantity of substance used.		Large quantities being mixed on site and being poured into place to create foundations of building.					
Classification under CHIP/CLP							
							
Corrosive	Environment Hazard	Explosive	Flammable	Long Term Hazard	Harmful/irritant	Oxidising	Toxic
							Pressurised Container
Hazard Type							
Gas	Vapour	Mist	Fume	Dust	Liquid	Solid	Other
Route of Exposure							
Inhalation		Absorption		Ingestion		Injection	
Workplace Exposure Limits (WELs) please indicate n/a where not applicable							
Long-term exposure level (8hrTWA): Total inhalable dust 10/mg/m3 Respirable dust 4mg/m3				Short-term exposure level (15 mins): 100ppm			
State the Risks to Health from Identified Hazards							
Inhalation: Frequent inhalation of large quantities of cement dust over a long period of time increases the risk of developing lung diseases. Eyes: Eye contact with cement (dry or wet) may cause serious and potentially irreversible injuries. Skin: Cement may have an irritating effect on moist skin (due to transpiration or humidity) after prolonged contact. Prolonged skin contact with wet cement or fresh concrete may cause serious burns because they develop without pain being felt (for example when kneeling in fresh concrete even when wearing trousers). Repeated skin contact with wet cement may cause contact dermatitis.							
Control Measures: (for example extraction, ventilation, training, supervision). Take account of those substances that are produced from activities undertaken by another employer's employees.							
General: During work avoid kneeling in fresh mortar or concrete wherever possible. If kneeling is absolutely necessary then appropriate waterproof personal protective equipment must be worn. Do not eat, drink or smoke when working with cement to avoid contact with skin or mouth. Immediately after working with cement or cement-containing materials, workers should wash or shower or use skin moisturisers. Remove contaminated clothing, footwear, watches, etc, and clean thoroughly before re-using them. Respiratory protection: When a person is exposed to dust above exposure limits, use appropriate respiratory protection. It should be adapted to the dust level and conform to the relevant EN standard. Suitable respiratory protection (FFP3) should be worn to ensure that personal exposure is less than the WEL. Eye protection: Wear approved glasses or safety goggles according to EN 166 when handling dry or wet cement to prevent contact with eyes. Skin protection: Use impervious, abrasion and alkali-resistant gloves (made of low soluble Cr (VI) containing material), internally lined with cotton, boots, closed long-sleeved protective clothing and additionally skin care products (including barrier creams) to							

protect the skin from prolonged contact with wet cement. Particular care should be taken to ensure that wet cement does not enter the boots. In some circumstances such as when laying concrete or screed, waterproof trousers or kneepads are necessary

Chronic effects

Inhalation: Chronic exposure to respirable dust in excess of occupational exposure limits may cause coughing, shortness of breath and may cause chronic obstructive lung disease (COPD) and Silicosis.

Carcinogenicity: A causal association between cement exposure and cancer has not been established [Reference (1)]. Contact dermatitis/Sensitising effects: Some individuals may exhibit eczema upon exposure to wet cement, caused either by the high pH which induces irritant contact dermatitis, or by an immunological reaction to soluble Cr (VI) which elicits allergic contact dermatitis [Reference (4)]. The response may appear in a variety of forms ranging from a mild rash to severe dermatitis and is a combination of those two mechanisms. An exact diagnosis is often difficult to assess. If the cement contains a soluble Cr (VI) reducing agent and as long as the mentioned period of effectiveness of the chromate reduction is not exceeded, a sensitising effect is not expected [Reference (3)].

Personal Protective Equipment

	Safety glasses with side shields		Neoprene/nitrile rubber gloves
	FP3		Coveralls

First Aid Measures

After significant accidental inhalation; Move person to fresh air. Dust in throat and nasal passages should clear spontaneously. Contact a physician if irritation persists or later develops or if discomfort, coughing or other symptoms do not subside.

After contact with eyes; Do not rub eyes, as additional cornea damage is possible by mechanical stress. Remove any contact lenses and open the eyelid(s) widely to flush eye(s) immediately by thoroughly rinsing with plenty of clean water for at least 45 minutes to remove all particles. If possible, use isotonic water (0.9% NaCl). Contact a specialist of occupational medicine or an eye specialist.

After skin contact; For dry cement, remove and rinse abundantly with water. For wet cement, wash skin with water. Remove contaminated clothing, footwear, watches, etc, and clean thoroughly before re-using them. Seek medical treatment in all cases of irritation or burns.

After significant accidental ingestion; Do not induce vomiting. If person is conscious, wash out mouth with water and give plenty of water to drink. Get immediate medical attention or contact anti poison centre.

Storage & Handling

Bulk cement should be stored in silos that are waterproof, dry (internal condensation minimised), clean and protected from contamination.

Follow the recommendations as given under Heading 8. Avoid dust development.

For (bagged) cement used in open-ended mixers: first add the water and then carefully add the cement. Keep the height of the fall low. Start the mixing smoothly. Do not compress empty bags, except when contained in another clean bag. • To clean up dry cement, see Heading 6.3. Carrying cement bags may cause sprains and strains to the back, arms, shoulders and legs. Handle with care and use appropriate control measures.

Disposal of Substances & Contaminated Containers

When demonstrated that it contains more than 0.0002% soluble Cr (VI): shall not be used/sold other than for use in controlled closed and totally automated processes or should be recycled or disposed of according to local legislation or treated again with a reducing agent.

Fire Fighting Measures

Cements are non-combustible and non-explosive and will not facilitate nor support combustion of other materials.

Water	X	AAAF	X	CO ₂	X	Dry Powder	X		
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This assessment must be shown to all operatives working with this substance

Is exposure adequately controlled?

Yes

☒

No

☐

Risk Rating Following Control Measures

Low



Energy Cost Assessment (6003-CCL-XX-XX-RP-J-001-Energy)

As an environmentally aware concern, Copperstone commit to finding sustainable solutions for the energy needs of our constructions. As such, as standard undertake an energy assessment for all our project's based on industry standard *Energy Consumption Guide: Energy Use in Sports and Recreation Buildings*.

Building footprint area: 5100 metres squared.

Site has been deemed to be a hybrid between a 'Combined Centre':

Type 4 – combined centre

This includes a 25 m five-lane pool and a learning pool, plus a six-court sports hall and a six-lane indoor bowls hall. There is a licensed bar and snack bar, fitness room and health suite with jacuzzi, sauna and solarium.



And a 'Leisure Pool Centre':

Type 3 – leisure pool centre

The free-form pool has a wave area, adjoining learning pool, splash pool for the flume run-off, changing area, cafe and bar.



Stated benchmark annual energy cost of combined centre: £14.34 per metre squared.

Stated benchmark annual energy cost of leisure pool centre: £27.40 per metre squared.

Average: $27.40 + 14.34 = £41.74 / 2 = £20.87$ per metre squared will be used for this site.



Therefore:

£20.87 (running cost per metre squared) x 5100 (area of building) = **£106,437** energy running costs per year.

- 1) This however will be reduced by the use of the water source heat pump installed on site. *Greenmatch* states: "Water source heat pump reduces monthly heating and cooling costs. The monthly utility bill decreases approximately by 15 percent after installing this efficient system"

Therefore:

15% of £106,437 = £15,965.55

Annual Energy bill with water source heat pump = £106,437 - £15,966 = £90,471 (2001 costs)

Adjusted for inflation to represent 2022 prices (Bank of England): **£159,214.14**

- 2) The site will also possess roughly 11 wind turbine trees. According to *Curbed*, they "can generate approximately 3,500 Kilowatt hours (kWh) to 13,500 kWh annually". Based on Swansea being a particularly windy location and the site being coastal we would estimate an output of 8500 kWh annually.

Therefore:

11 trees x 8500 = 93500 kWh total produced by tree turbines on site.

According to *Gocompare*, the average cost per kWh of energy in 2020 was 17.2p. Judging by recent increases in energy costs by construction time, we'd estimate an increase to roughly 25p.

Therefore:

0.25p x 93500 kWh = £23,375 which can be deducted from the running cost:



£159,214.14 – £23,375 = **£135,839.14**

- 3) In addition the site will make use of photovoltaic panels mounted on the roof which has an area of 5120.20 metres squared. As the roof will be 'waved' only a section of this would be facing a direction capable of harnessing solar power. We therefore estimate an area of 2000 metres squared capable of supporting panels that can generate power. This calculation will be based upon figures provided by *The Eco Experts*:

Solar panel system size	Number of solar panels	Required roof space	Annual electricity output
1kW	4	8 sq. metres	850 kWh
2kW	8	14 sq. metres	1,700 kWh
3kW	12	21 sq. metres	2,550 kWh
4kW	16	28 sq. metres	3,400 kWh

As 16 panels fit into 28 metres squared = 1.75m per panel.

Therefore the 2000 metres squared roof area can hold 1142 panels.

As 16, 4 kW panels can produce 3400 kWh annually, each panel can individually produce 212.5 kWh a year.

Therefore, total output for solar panels on the roof of our development: 212.5 kWh x 1142 panels = 242,675 kWh.



Therefore: cost savings using solar panels = $242,675 \text{ kWh} \times 0.25\text{p} = \text{£}60,668.75$.

Therefore, we estimate (conservatively) that the annual average running cost of the building =

$\text{£}135,839.14 - \text{£}60,668.75 =$

£75,170.39



Risk and Issues Register (6003-CCL-XX-XX-RP-J-001-Register)

Reference	Nature of Issue	Date issue arose	Solution	Predicted cost	Comments
1	During design stage it was discovered that there may not be adequate space within plot of land to house all the features contained within the scope	29/11/21	Area of plot to be extended onto neighboring land	No cost envisaged	Decided at client meeting 08/12/21 that lowest limit rugby pitch to be used, with orientation also being decided upon.



Meeting Title: Meeting 1 (6003-CCL-XX-XX-MI-J)

Date: Wednesday 29/09/2021

Time: 10am

Place: UWTSD

Chair: James Cullen (Project Manager)

Attendees: James Cullen (JC), Joseff Williams (JW), Daniel Rowlands (DR), Rhys Mathias (RM), David Whitecross (DW).

Apologies: N/A

Notes:

- The brief was discussed, and thoughts shared into what project to undertake.
- Each member confirmed what experiences and skill sets they possess, upon which it was decided that a Civil Engineering project was not a viable option to undertake, due to a lack of expertise in that field.
- Field of expertise: JC: Project Management, JW: Project Management, DR: Quantity Surveying, RM: Building Surveying, DW: Quantity Surveying.
- Member's phone numbers and email addresses were exchanged.
- JW suggested that a font style, size and layout should be universally followed throughout scheme.

Actions:

Number	Action	Owner	Completion due date	Complete (Y/N)
1	Decision to be made which project to undertake.	JC, JW, DR, RM, DW	06/10/21	Y



2	<i>Whatsapp</i> Group to be set up	JC	06/10/21	Y
3	<i>Microsoft Teams</i> Group to be set up	DW	06/10/21	Y
4	Company name ideas to be thought of	JC, JW, DR, RM, DW	06/10/21	Y



Meeting Title: Meeting 2

Date: Wednesday 06/10/2021

Time: 19.00pm

Place: Microsoft Teams

Chair: James Cullen (Project Manager)

Attendees: James Cullen (JC), Joseff Williams (JW), Daniel Rowlands (DR), Rhys Mathias (RM), David Whitecross (DW).

Apologies: N/A

Notes:

- It was unanimously agreed that the scheme to be undertaken is *Olympic sized swimming-pool and leisure complex*, situated at Plot F.
- The map was viewed, and the location discussed amongst the group.
- Whatsapp and Microsoft teams groups are operational and members are encouraged to discuss matters on those platforms where convenient.
- The group shared some company name ideas: DW: Balmoral&Kern Ltd, JC: Cymru Construction.
- JC: Company should be a local concern which may appeal to the client's needs.
- DR: The company will specialise in design and build style contracts.
- JW: raised the scale and scope of the project, general discussion on what it entails.
- Group discussion centred around which tasks each member would undertake.

Actions:

Number	Action	Owner	Completion due date	Complete (Y/N)
1	Site Visit to be undertaken and photos to be taken	JC	13/10/21	Y
2	Company logo ideas to be formulated	JC	13/10/21	Y



3	Design concept ideas to be formulated	JC, JW, DR, RM, DW	13/10/21	Y
4	Company name ideas to be thought of	JC, JW, DR, RM, DW	06/10/21	Y



Meeting Title: Meeting 3

Date: Wednesday 13/10/2021

Time: 19.00pm

Place: Microsoft Teams

Chair: James Cullen (Project Manager)

Attendees: James Cullen (JC), Joseff Williams (JW), Daniel Rowlands (DR), Rhys Mathias (RM), David Whitecross (DW).

Apologies: N/A

Notes:

- JC shared photographs of the plot obtained during his visit which was followed by a general discussion on the site.
- It was noted that view facing North (Kilvey Hill) is more aesthetically pleasing than to the South (Industrial Docklands).
- JW and DW presented some group logo concepts as well as Company name ideas.
- RM presented the name *Copperstone Construction* and associated logo which the group agreed would be used.
- The upcoming meeting with the client and ideas for content relating to the acceptance letter document to be submitted were discussed.
-

Actions:

Number	Action	Owner	Completion due date	Complete (Y/N)
1	To write up Acceptance Letter document for submission at meeting with client.	DW	20/10/21	Y



2	Acceptance Letter document to be shared with group once completed.	DW	20/10/21	Y
3	Acceptance Letter document to be reviewed.	JC, JW, DR, RM	20/10/21	Y
4	Company logo to be uploaded to teams for use amongst project team	RM	20/10/21	Y



Meeting Title: Meeting 4

Date: Wednesday 20/10/2021

Time: 11.00am

Place: UWTSD

Chair: James Cullen (Project Manager)

Attendees: James Cullen (JC), Joseff Williams (JW), Daniel Rowlands (DR), Rhys Mathias (RM), David Whitecross (DW).

Apologies: N/A

Notes:

- The client meeting and feedback was discussed amongst the group.
- More emphasis was placed on what each member's individual role entails and what tasks they will undertake.
- JW and DW discussed which IT package should be used to display the design detail diagrams. JW has expertise in *CAD & Sketch Up*, DW proficient in *Revit & BIM*. The issues surrounding compatibility of each program with each other was outlined by JW/DW.
- The ethos of the company and sustainable aspects of the project were considered.
- Design stage of project to be commenced by members sketching ideas for designs.
- JC: to concentrate on less creative aspects such as feasibility etc.

Actions:

Number	Action	Owner	Completion due date	Complete (Y/N)
1	Information to be sought surrounding <i>Sketch up / Revit compatibility</i> .	JW	27/10/21	Y



2	Research to be undertaken into relevant case studies (swimming pools / leisure centres).	DW	20/10/21	Y
3	Previous investigation undertaken into Sustainable Leisure Complex to be obtained and shared with group.	JC, JW	27/10/21	Y
4	Concept design sketches / mood boards to be completed	JW, DR, RM, DW	27/10/21	Y



Meeting Title: Meeting 5

Date: Wednesday 03/11/2021

Time: 11.00am

Place: UWTSD

Chair: James Cullen (Project Manager)

Attendees: James Cullen (JC), Joseff Williams (JW), Daniel Rowlands (DR), Rhys Mathias (RM), David Whitecross (DW).

Apologies: N/A

Notes:

- The issues surrounding *Sketch up / Revit* was discussed and what implications this has on the scheme and who carries out what tasks due to the incompatibility of the programmes.
- Case studies of similar schemes were discussed amongst the group. JW and JC provided overview of similar previous work carried out.
- Design team presented some of their designs and idea for their ongoing sketches.
- Further discussion was had into the feedback discussed at the client meeting, notably the 'tree affect' wind turbine.

Actions:

Number	Action	Owner	Completion due date	Complete (Y/N)
1	CIBSE guide to be requested	JC	17/11/21	Y
2	Tree effect wind turbine to be investigated	DW	17/11/21	Y



Meeting Title: Meeting

Date: Wednesday 17/11/2021

Time: 11.00am

Place: UWTSD

Chair: James Cullen (Project Manager)

Attendees: James Cullen (JC), Joseff Williams (JW), Daniel Rowlands (DR), Rhys Mathias (RM), David Whitecross (DW).

Apologies: N/A

Notes:

- Design team shared some of their concept ideas and members provided feedback.
- Cost was discussed and how team would construct an accurate and definitive cost to the client. Although *Revit* and *BIM* will provide financial costings, it is thought prudent to also obtain information from BCIS.
- Design team presented some of their designs and idea for their ongoing sketches.
- JW shared his latest research and site set up plans. Having an adequate compound set up and having enough room while piling operations are commencing will be difficult.
- A 2-phase construction was discussed and decided would be a good idea considering the site constraints.
- The practicalities of piling foundations were discussed. It is thought that a depth of roughly 20 metres would be sufficient.

Actions:

Number	Action	Owner	Completion due date	Complete (Y/N)
1	BCIS access to be requested	DR	01/12/21	Y



2	Legal and Regulatory background to added to EIA	RM	01/12/21	Y
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Meeting Title: Meeting

Date: Wednesday 01/12/2021

Time: 11.00am

Place: UWTSD

Chair: James Cullen (Project Manager)

Attendees: James Cullen (JC), Joseff Williams (JW), Daniel Rowlands (DR), Rhys Mathias (RM), David Whitecross (DW).

Apologies: N/A

Notes:

- The upcoming client meeting on the 08/11/21 was discussed and what preparation was required to present to the client team.
- DR discussed a design issue regarding the size of the plot and the requirement for a rugby pitch. It was decided to contact the client team for clarification and that it should be treated as an *Early Warning*.
- DW discussed the requirement for a plant room and confirmed his design has a sub-level. The engineering complexities of such an undertaking were discussed.
- JC presented the CIBSE guide and it was decided that an energy efficiency comparison should be undertaken for the client, based on the renewable energy generation sources integrated into the design.



Actions:

Number	Action	Owner	Completion due date	Complete (Y/N)
1	Design team to finalise concept designs to present to client	DR, RM, JW, DW	08/12/21	
2	Print out documents	JC	08/12/21	
3	DR to communicate with clients regarding EW1	DR	08/12/21	
4	EW and CW register to be updated	JC	08/12/21	
5	CIBSE information to be uploaded to teams for review by team	JC	08/12/21	



Meeting Title: Meeting

Date: Wednesday 08/12/2021

Time: 7.00pm

Place: Remotely

Chair: James Cullen (Project Manager)

Attendees: James Cullen (JC), Joseff Williams (JW), Daniel Rowlands (DR), Rhys Mathias (RM), David Whitecross (DW).

Apologies: N/A

Notes:

- The client meeting was discussed in general.
- The client stated that EW1 submitted was not valid and further thought required by the team and sizing aspects to be re-checked.
- The rugby pitch orientation was also discussed following the PMI conveyed by the Client that wish the pitch to be located away from the dock and Northern edge of the site.
- As UWTSD has now requested a formal submission of design concepts, it was thought prudent to develop a project and construction programme at this stage.
- To present the documents for the client in an efficient manner, it was decided that the documents should be numbered.
- JC raised the necessity for a front page to created for the project portfolio.

Actions:

Number	Action	Owner	Completion due date	Complete (Y/N)
1	Site sizing in relation to rugby pitch to be further investigated and checked.	DR	15/12/21	



2	Team to upload all their documents in readiness for draft submission	DR, DW, RM, JW, JC	15/12/21	
3	Programme to formulated	JW	15/12/21	
4	Contact client to check numbering system of documents	JC	15/12/21	Y



Meeting Title: Meeting

Date: Wednesday 09/02/2022

Time: 7.00pm

Place: Remotely

Chair: James Cullen (Project Manager)

Attendees: James Cullen (JC), Joseff Williams (JW), Daniel Rowlands (DR), Rhys Mathias (RM), David Whitecross (DW).

Apologies: N/A

Notes:

- The latest client meeting feedback was discussed in general.
- Members agreed that the basic site layout and plan presented to the client by DR was to be what we will proceed with.
- Waveform roof concept was discussed which was the selected option by the client.
- A tiered system of the building was also spoken of and it was decided that form will provide a better form and function. This was endorsed by the client also.
- Delivery provision was also debated and that it is required to be incorporated into the design.
- DW discussed a naming convention for all documents.

Actions:

Number	Action	Owner	Completion due date	Complete (Y/N)
1	DW to proceed with design and revit model	DW	03/04/22	Y
2	Team to upload all their documents in readiness for submission	DR, DW,	03/04/22	Y



		RM, JW, JC		
3	Programme to formulated	JW	03/04/22	Y
4	Contact client to check numbering system of documents	JC	03/04/22	Y



Meeting Title: Meeting

Date: Monday 02/05/2022

Time: 7.00pm

Place: Remotely

Chair: James Cullen (Project Manager)

Attendees: James Cullen (JC), Joseff Williams (JW), Daniel Rowlands (DR), Rhys Mathias (RM), David Whitecross (DW).

Apologies: N/A

Notes:

- The final arrangements for submission was discussed.
- Decided that a contents page would be drawn up and numbered only by sections.
- DR to carry out some further cost comparisons.
- Numbering documents using revit convention was raised by DW.
- Order of presentations was decided – DW, then JC, then DR, then RM.

Actions:

Number	Action	Owner	Completion due date	Complete (Y/N)
1	Team to development personal presentations	DW	04/05/22	Y
2	Team to upload all their documents in readiness for submission	DR, DW, RM, JW, JC	04/05/22	Y