

6033 - Steel Museum

Economic Value Statement & Economic Comparisons

Ace Capital Projects Ltd

17th April 2024

0001

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Economic Value Statement & Economic Comparisons

ACE Capital Project Ltd

Amgueddfa Dur Cymru – National Museum Of Wales

Port Talbot, March 2024



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Figure 2 - Close up, Data Map – (Google Data Map 2024)

1. Introduction

1.1 Blueprint construction has been commissioned by ACE Capital Project Ltd to provide an economic value statement on the project as well as nearby similar economic comparisons of projects.

1.2 The project is to be a landmark project in the heart of the steel making town of port talbot. This National Steel Museum Of Wales will connect the community back to the River Afan which was once an integral part of the steel making process. The museum will take the visitors on a journey through the history of port talbot and the links it has with steel production. It will provide the visitors the full experience from extracting raw materials through to the finished project, including a fully fitted gallery space and Bessemer Converter for the visitors to circulate through.

1.3 The intended site sits inside the local authority boundary of Neath Port Talbot (NPT). To align the local impact area in comparison to the wider area of Wales (See next page for map)

1.4 The remainder of this report structure is as follows:

- [2. Local Economic Context](#) – A profile of neath port Talbot and Wales which provides information on the benefit of these proposed developments.
- [3.Economic Benefits On Construction & Completion](#) – This will provide a consideration of the number of jobs and types of jobs that will be created for this proposed development
- [4. Economic Comparisons](#) – This section will detail similar projects that have been completed which will provide ACE Capital projects with conservation on the successfulness projects.

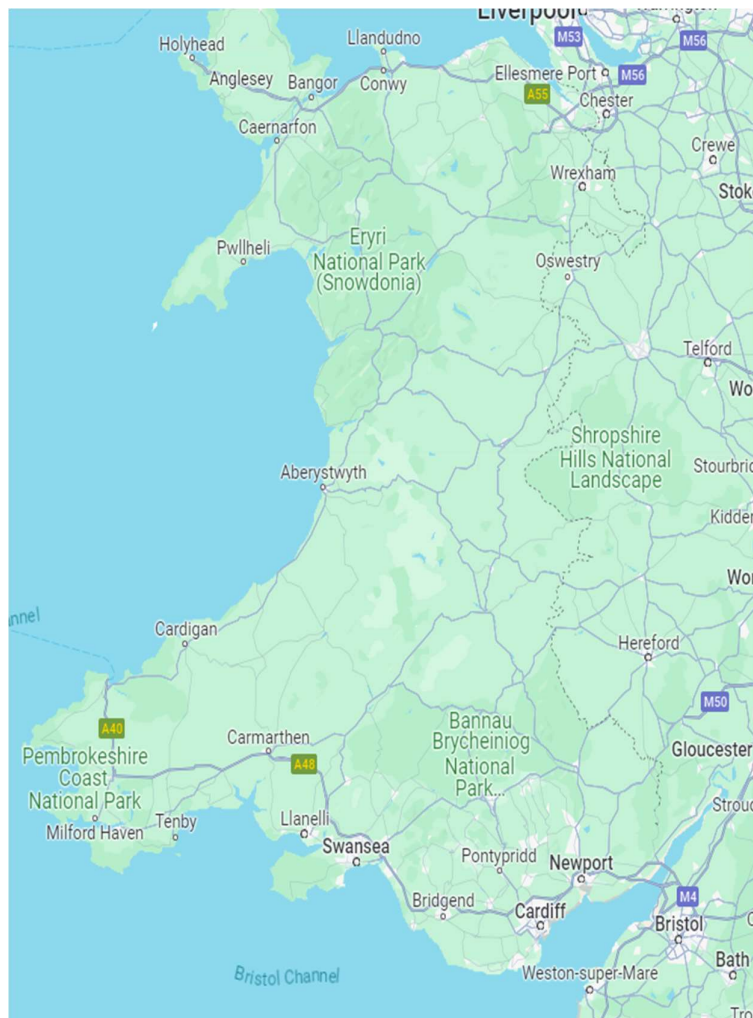


Figure 1- Data Map – (Google Data Map 2024)

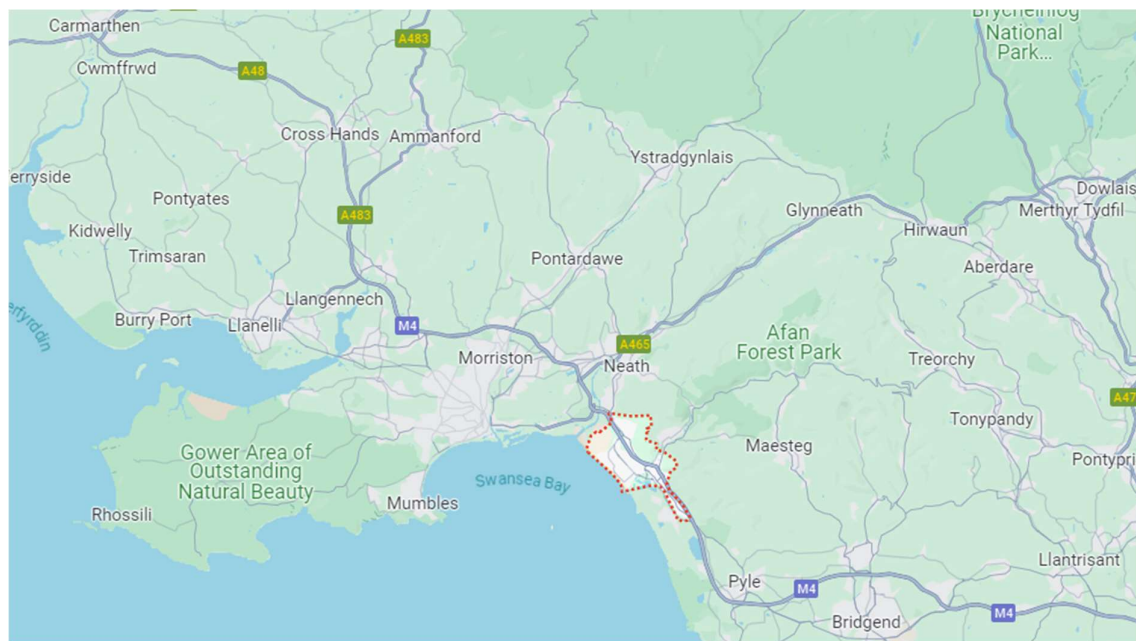


Figure 2 Close up, Data Map – (Google Data Map 2024)

2. Local Economic Context

2.1.1. There is currently 142,906 as per data from (Google Data Commons, 2023), with the majority of which being within working age. The population within Wales has now grown by 1.8% from 2011.

2.1.2. The working age population of those aged 16-64 in NPT stood at 87,000 residents in 2021 meaning that the working age population is at approximately 61% (ONS.gov.uk, 2021).

2.1.3. It should be noted that unemployment has reduced and there has been a steady employment growth within the area. In 2022 as per (Business Register and Employment Survey, BRES, 2022) Neath Port Talbot accommodated around 52,000 jobs in the area.

2.4 UK policy and Economic Strategy Context

2.4.1 To achieve levelling up, a defined framework for identifying and addressing the causes of spatial imbalance as well as a targeted, long-term action plan are necessary. We can sum up these drives in six "capitals" based on evidence from several disciplines (UK Government, 2024):

- Physical capital – infrastructure, machines, and housing.
 - Human capital – the skills, health, and experience of the workforce.
 - Intangible capital – innovation, ideas, and patents.
 - Financial capital – resources supporting the financing of companies.
 - Social capital – the strength of communities, relationships, and trust
- Institutional capital – local leadership, capacity, and capability

2.5 Plans for growth and job amid the cost-of-living crisis

2.5.1. The economic recovery of the UK after COVID-19 will aim to "build back better" by promoting growth that generates high-quality jobs throughout the nation, according to the UK government's economic strategies, which are articulated in its documents "Build Back Better: Our Plan for Growth" (UK Government , 2021)

2.6 Planning Policy Wales (PPW)

2.6.1 The Planning Policy Wales as stated by (Welsh Government , 2024) "ensure that the planning system contributes towards the delivery of sustainable development and improves the social, economic, environmental and cultural well-being of Wales, as required by the Planning (Wales) Act 2015." This policy ensure that all levels of planning incorporate the maximum level of sustainability on Wales and its communities

Summary

2.7.1 This proposed development which is located in Neath Port Talbot will be situated within a large working population area with small areas of deprivation in relation to income, employment, and education.

2.8.1. As per the government strategies there is high levels of urgency to ensure job growth and levelling up within UK communities and Wales. Blueprint will obtain the maximum level of sustainability within the steel museum project, throughout its level of design and construction.

3. Economic Benefits On Construction & Completion

3.1 Total amount jobs created on site from project on construction

3.1.1. a large number of direct FTE construction-related jobs will be supported on and off-site, based on the construction timeline. As per (Careers Wales , 2022) it states that there is currently 121,669 people employed in the Construction Industry with annual work growth of 2.8% by 2026.

3.1.2. Also quoted by (Careers Wales , 2022) “64% of construction employers and 68% of all surveyed employers stated they would be interested in offering Work Experience / Placements. Work Experience would also aid future work readiness”

3.2. Total amount jobs created on site from project on completion

3.2.1. It is predicted that a few hundred full-time equivalent (FTE) gross jobs will be supported by the proposed development. This will involve a variety of positions in management, operations, technical support, and operations.

Summary

3.2.2. Using the data supported above, the project will have a positive effect on both the construction and completion side of job growth, the project will open up opportunities for the older and younger generations for this small community and with the project being a leading innovation design incorporating great attention to its pledge for net zero, it should be a very well-known project for the local and surrounding areas.

4. Economic Comparisons

In this section, blueprint construction has outlined and examined similar projects to identify cost, construction, and operational comparisons. This will be of use to the client to show similar projects and information compared to this particular project. This section will also be useful in identifying issues with regards to construction and maintenance which could allow us to improve this project by learning from mistakes of these other similar projects.

4.1. Project 1 – National waterfront museum Swansea

Project Cost - £30.8 Million

The Grade II listed waterfront warehouse that formerly housed the National Waterfront Museum in Swansea was connected to a brand-new, ultra-modern slate and glass building when it opened its doors in 2005.

The National Waterfront Museum illustrates how industry impacted our way of life using themes and human stories. It explores the reasons behind and consequences of the Industrial Revolution in Wales, as well as how it affected Welsh individuals, groups, and institutions globally.

The National Waterfront Museum makes substantial use of sustainable energy sources, in line with many other modern public buildings. Rainwater collection, solar energy, and dock water conditioning are all included. The fact that the M&E contractor was personally involved in the system installation in this instance may make it even more rare **(Luke, 2005)**.



Figure 2- (Swansea Museum Wales, 2024)

A significant percentage of the 25,000 visits to the Waterfront Museum that it receives annually come from people who are first-time tourists from areas other than the southwest of Wales. They are especially drawn to the cutting-edge exhibits that use interactive interpretation to explain important artefacts from the collections of Amgueddfa Cymru and the City of Swansea to illustrate the human story of Welsh industrialization over the past three centuries. (Mastoris, 2020).

4.2. Project – Margam Stones Museum

Project Cost – £5.6 Million (along with a larger development)

In order to raise awareness and knowledge about the use of natural stone in Wales, the Welsh Stone Forum was established in 2003. The forum is now available to anyone working in the domains of conservation, heritage, planning, geology, architecture, and masonry.

It has a parking lot area for its residents, and the layout of this might be taken into consideration when designing the new location. Initially, the stone museum was constructed as a one-room religious school. This has now been transformed into a museum featuring a gallery framed in steel. This project is deemed considerably smaller than the proposed project however still has the same objectives for its users and community.

The £5.6 million signature project was built with sustainable materials and was made possible by funding from the Heritage Lottery Fund, the National Assembly's Local Regeneration Fund, and the European Regional Development Fund (Margam Country Park, 2024)



Figure 3 - (One Camera One Lense, 2024)

4.3 Summary

As you can see from both these projects, they are both well established within their local areas and create a huge educational stance for the local communities. The projects see a great number of visitors each year, creating high numbers of success and bringing yet another project to another local community of Port Talbot will bring even more tourism to the area and increase overall expenditure for Port Talbot.

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6033 - Steel Museum

Constraints

Ace Capital Projects Ltd

28th February 2024

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Figure 1- Radon levels over intended site
(UKHealthSecurityAgency,2023)

Figure 2 – Service upgrades (Blueprint,2024)

1. Introduction

There are several constraints that were identified. These following constraints need to be taken into consideration for the duration of the project, please see below each point for the recommendations to counteract these constraints:

2. Relocation of existing church services/equipment and market/fair

Blueprint Construction LTD will aim to relocate these church goers to a nearby facility of either a church on forge road called St Agnes church, St Theodore on Talbot Road in Port Talbot, St Mary in Aberavon or St Michael in Cwmavon. This provides the church users multiple choices on which church they would be happy to relocate to. Arrangements can be made to continue use of the market/fair and church services required. Blueprint Construction LTD have committed to a goodwill gesture to provide a move and relocate service to remove semimetal equipment or pieces from the current church to the church/s of the user's choice.

3. Demolition works

The following demolition works are required as part of completion for the new project. The demolition works are as follows:

- Breaking up Existing Road
- Existing (Northern) Church
- Existing (Southern) Church
- Bethany Centre Existing Buildings
- Levelling and Compaction of Existing Car Park

These can be achieved within the current set timescale if no delays arise.

4. UXO survey

Present data shows that there is a moderate risk from German UXB's & HAA shells therefore blueprint advise that we appoint an external team as a precautionary measure, allow 15 working days delay if any UXO is found. This timeframe should be enough to allow a team to survey and safely detonate any UXO if found.

5. Contaminated Land

As result from the gas monitoring survey, the intended site has concluded as a 'Moderate Risk' and for this a gas protection membrane and underfloor ventilation void will need to be included in the construction.

Moderate Risk due to previous activities on site—

Include control measures for operating on contaminated land

- Adequate PPE provided
- Toolbox talks and further training
- Suitable building fabrics
- Wheel wash down points on site exit

6. Methane survey & Radon Survey

Following data surveys, radon measures from the site are mapped below, currently known as the car park of the site has less than 1% radon levels see figure 1.1.

Towards the site for construction of the building, shows 10-30% of maximum radon levels see figure 1.1, therefore, we require approved radon protection measures installed such as sumps.

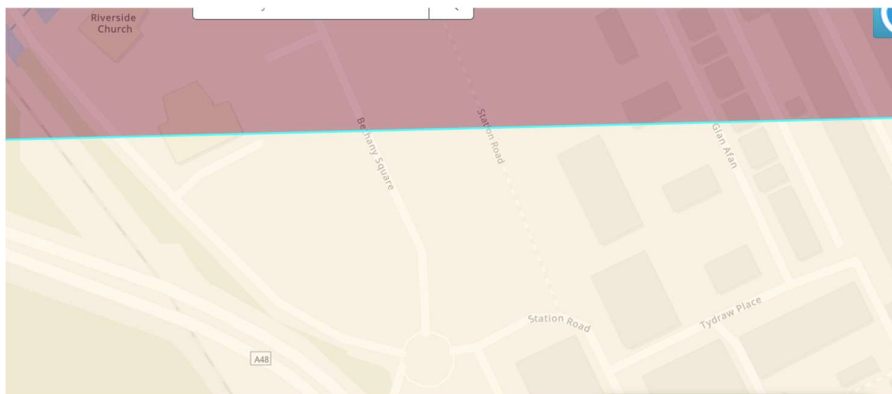


Figure 1. - Radon levels over intended site - (UKHealthSecurityAgency,2023)

7. Condition surveys & Ecology Survey

Blueprint have identified the following for the Condition Survey and Ecology study.

The condition survey has identified the factors such as asbestos onsite, blueprint will source a specialist to remove these hazardous materials before the building is

dismantled and demolished. Consulting a specialist to carry out this survey ahead of time will ensure the project is running on schedule for future works. Asbestos within the building is likely due to the time and age of the building was constructed.

8. Service diversions/upgrades.

The following services have been identified as affected by the construction of this project and therefore the following services will need to be diverted to enable successful completion.

National Grid	Low Voltage (LV)	Underground	Affected (Divert)
National Grid	Service	Underground	Affected (Divert)
Wales & West Utilities	Low Pressure Gas Pipe	Underground	Affected (Divert)
Welsh Water	Combined Sewer (600mm)	Underground	Affected (Divert)
Welsh Water	Distribution Main (250mm)	Underground	Affected (Divert)
Welsh Water	Foul Sewer (150mm)	Underground	Affected (Divert)

Figure 2 – Service upgrades (Blueprint,2024)

Blueprint have raised significant costs for both an additional investigation and the costs of altering the current services and diverting them. Costs came in as a total of £20,600 with a delay of 25 days (approx. 3 and a half weeks).

9. Low risk flood zone – introduce raised foundations/ drainage etc.

Blueprint advise to mitigate the surface water flooding Blueprint, introduce a Filter drains or Sump and integrate into the Civils design ensuring adequate water storage volumes and infiltration rates are calculated, so ground conditions and soil quality are not affected. This will follow the national Standards for Sustainable Urban Drainage Systems (SUDS), introducing such drainage.

We suggest allowing for raising the foundation to ensure no surface water flooding around the site once construction is finished.

10. Structural survey on riverbank - gabion wall

Southeast river deference, may need vegetation removed to establish the condition of the wall.

11. Infrastructure works / TM design

The following infrastructure work and traffic management considerations will need to be addressed for this project. Blueprint suggests that the moving of roundabout to increase the traffic management around the site, introduce another form of traffic management which will a traffic calming zebra crossing and finally blueprint suggest increasing the width of the junction on entry into the site to provide an ease of access for larger construction vehicles.

6033 - Steel Museum

Energy

Ace Capital Projects Ltd

24th February 2024

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1. Introduction

This section of the report will outline the energy considerations for the steel museum located in port talbot. The information detailed below will outline key factors for the energy and efficiency within the project.

The information below details a list of the regulations that are in place for this construction project in relation to energy:

2. UK Building Regulations

- Ventilation: Approved Document F
- Conservation Of Fuel & Power: Approved Document L
- Infrastructure For Electric Vehicles (Charging): Approved Document S

There is an additional Regulation that will also apply to this construction project as a 'Non – Dwelling' in Wales which is The Building (Amendment) Wales regulations 2022 no 993.

As per the client's brief, this project requires a key focus on sustainability and Innovation as well as making full consideration to the whole environmental impact of the project.

Blueprint will advise on materials, resources, and construction methods to ensure the project meets the client brief as much as possible.

3. Compliance

Blueprint and the clients, ACEP have a duty to comply with relevant building regular building regulations. This document will outline these regulations to be compliant as a minimum standard. Blueprint will also outline accreditations for the client to consider as part of this project.

Full Building Regulations outlined below:

3.1 Ventilation: Approved Document F (Non- Dwellings)- (Welsh Government, 2022)

Approved Document F contains guidance on ventilating structures to ensure that the buildings have adequate indoor air quality for its purpose and to ensure that no issues are raise with condensation build up after handover of the building can be completed. Complying with these regulations ensure that both the building and its occupants are safety constructed and monitored.

- I. Mechanical ventilation needs to be designed and installed correctly, with correct sizing, ensuring equipment is secured and fitted with resilient mounts and installed with the manufacturing instructions and guidelines.
- II. Airflow rates need to be appropriately set; these regulations suggest that CO² monitors are installed in each occupiable room in the described areas of buildings within the document to monitor the indoor air quality.
- III. Natural ventilation must be provided in all habitable rooms
- IV. The ventilation systems to be properly maintained and always monitored to ensure they continue to always work effectively. The follow is classed as regular routine maintenance and should be undertaken:
 - i. Cleaning of filters
 - ii. Inspections of ductwork to ensure no damages
 - iii. Continuous monitor of ventilation rates to ensure efficiency

Any issues or defaults found with systems should be correctly dealt with and responded to in a prompt manner.

3.1.1. Interaction with Other Sections and Parts of the approved documents

Part B & F

This section applies if any part of the ductwork passes through the following:

- a. a fire-resisting wall or floor
- b. a fire compartment
- c. a protected stairway.

Additionally, document B gives guidance on the size of escape windows.

Part J

Guidance with Part J is to ensure that any ventilation fan or open flue appliances do not cause combustion.

Part L

Considerations to energy efficiency when choosing ventilation systems and the control of infiltration.

Part K & M

Ensuring that any controls given to occupants are in reachable distance.

Part O

This part provides guidance on ensuring the building is equipped for 'Purging Ventilation' in cases where the room may be contaminated by indoor pollutants.

3.2. Conservation Of Fuel & Power: Approved Document L (Welsh Government , 2022)

This section focuses on the conservation of fuel and power and can be a significant factor when constructing a building and even more a significant factor when ensuring energy efficiency and sustainability of a new building.

- I. U-Values need to be considered and calculated to as per the method set out in the Building Research Establishment BR 443. This will ensure that heat gains and losses are taken into consideration.
- II. Minimum building services efficiencies and control which applies to new fixed buildings services.
- III. Ensuring all walls are adequately designed and constructed to meet regulations in this document. This includes ensuring that all materials used are suitable for the design, structures are safe and secure with little to no thermal bridging.
- IV. Ductwork must be tested for air leakage following procedures in the Building and Engineering Services Association (BESA).
- V. Information on the following must be provided in the logbook:
 - i. Target Primary Energy Rate
 - ii. Target Emission Rate
 - iii. Building Primary Energy Rate
 - iv. Building Emission Rate

3.2.1. Interaction with Other Sections and Parts of the approved documents

Part C

Guidance on upgrading thermal elements, ensuring they are of acceptable standard.

Part E

Providing guidance on reasonable insulation to limit thermal guidance for example construction junctions should have satisfactory edge sealing.

Part F

This section ensure that guidance is followed for part F and specifying a minimum amount of purpose provided ventilation, air tightness and unwanted heat loss

Part J

This part provides guidance on airtightness and permanent ventilation openings on flue appliances in airtightness buildings.

Part K & M

Ensuring that guidance is followed for controls for fixed buildings services, and automated systems and on-site electricity generation.

Recommended additions:

3.3. Infrastructure For Electric Vehicles (Charging): Approved Document S (Welsh Government , 2021)

As we progress into the future, it would be recommended that ACEP include the use of charging facilities for electric vehicles, it is recommended as this stage since it is yet to be fully enforced in Wales. Charging Facilities are a lot more common at project like this and can be seen to encourage the public to use its facilities.

- I. Ensure the building is equipped with at least one charging point for an electric car and cable routes for at least one in every 5 parking spaces for a car park of more than 10 parking spaces.
- II. Meeting the future standards give in relation to BS7671.
- III. Each charging point should be suitable identified and labelled at standards set out in this document.
- IV. Ensuring that all charging points are checked with routine maintenance

4. Energy Performance certificate – Commercial

Blueprint advise on achieving a rating on the EPC at A+ grade. This can be achieved by being the most energy efficient.

5. Additional Accreditations

These accreditations are suggested to improve the project as a whole. Accreditation such as those detailed below sets the bar for best practices when it comes to the sustainability, building design, construction, and operation.

5.1 BREEAM

The BREEAM assessment evaluates a building's specification, design, construction, and use across the following areas using established performance measures such as:

- Energy and water use
- Internal environment Inc Health & Wellbeing
- Management processes
- Pollution
- Transport
- Materials
- Waste
- Ecology

5.1.1. BREEAM Excellence (70%-84%)

"Excellent" is the second-best BREEAM certification level, requiring a score of between 70% and 84%.

This level uses tried-and-true contemporary technology and concepts to improve sustainability performance, earning it the title of "best practice" from BREEAM.

5.1.2. BREEAM Outstanding (85%)

To receive the most sought-after ranking called "BREEAM Outstanding", a building must receive a score of at least 85%.

Throughout the building's design, procurement, construction, and delivery phases, every step of the process needs to be carefully planned.

6. ETL (Energy Technology List)

This is an approved list of about 14,000 energy-efficient items by the government. By lowering the financial and transactional expenses involved in making an energy-efficient product purchase, the ETL hopes to incentivize businesses in the United Kingdom to invest in high performance energy-efficient equipment.

Accelerated tax benefits, such the Annual Investment Allowance (AIA), can be linked with the ETL. The AIA cap has been increased to £1 million for a two-year period beginning in January 2019, allowing companies to make claims through their AIA for investments in new machinery and plant.

The ETL is recognised in various sustainability assessment processes including BREEAM and SKA rating. Additionally, the Carbon Trust's Low Carbon Workplace certification considers the use of ETL compliant products as part of the qualitative assessment (Department for Business, Energy & Industry Strategy , 2020)
(Department for Business, Energy & Industry Strategy , 2020)

EFL's Benefits are:

- It helps businesses and organizations make greener energy choices.
- The ETL is free to use and is backed by the UK Government's Department for Energy Security and Net Zero.

7. References

Department for Business, Energy & Industry Strategy , 2020. *The Energy Technology List (ETL)*.

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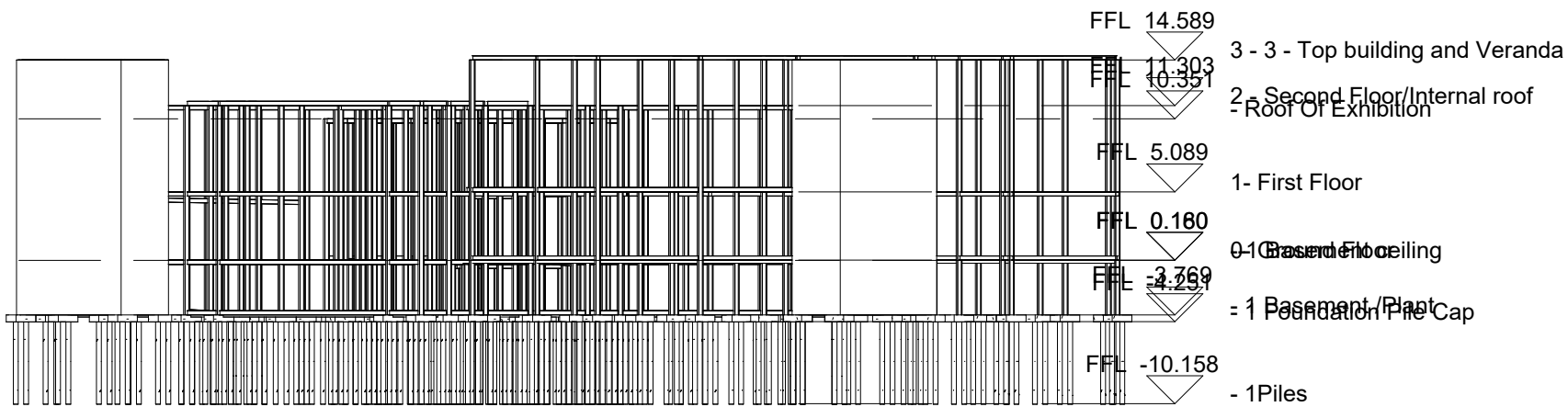
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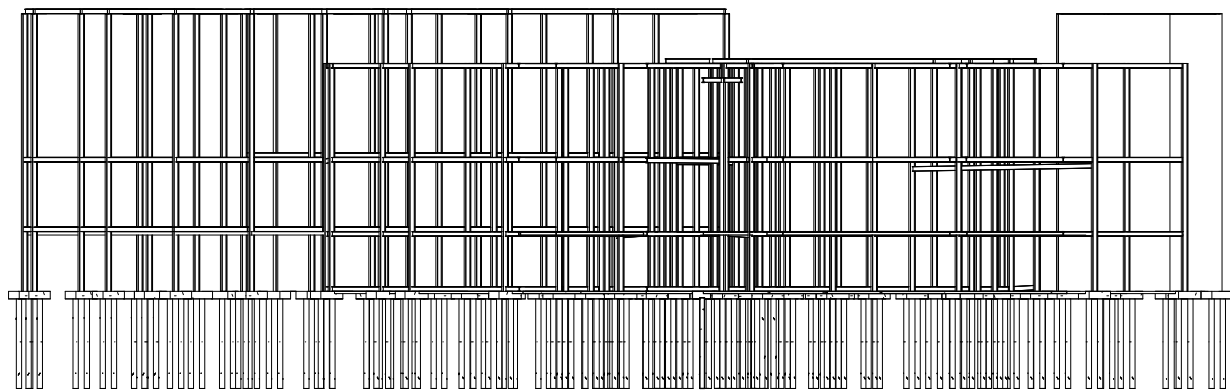
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1 South
1 : 500



2 North
1 : 500



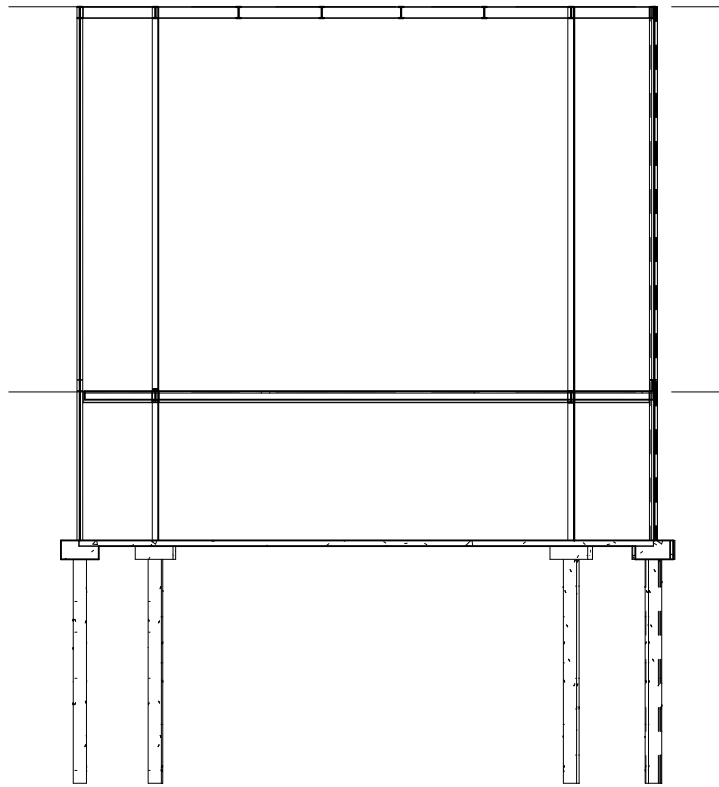
No.	Description	Date

Blueprint Construction LTD

PROJECT	Steel Museum		
	CLIENT		
	ACECP		
	Date	Project number	Scale (@ A3)
SHEET	1 May 2024	6033	
	Drawn by	DRWAING NUMBER	
	AW		
	Checked by	6033-ACECP-CD-ZZ-DR-S-0001-Rev01-StructuralElevations	
	MC		

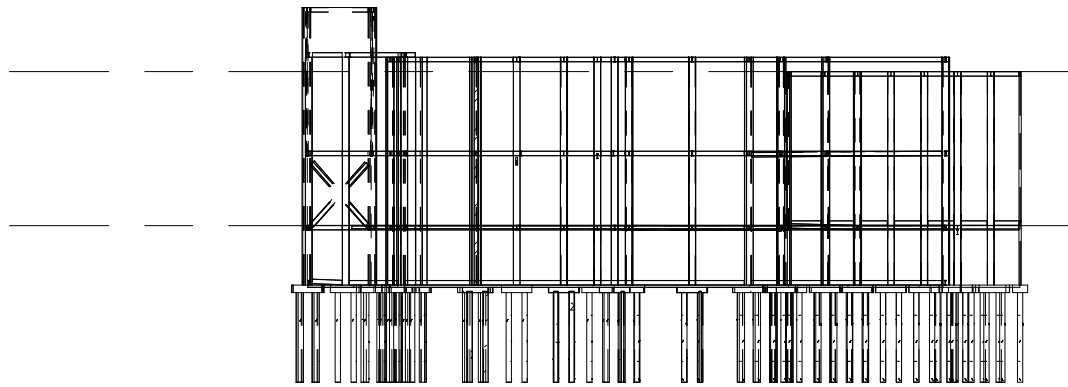
1

Section 1- Bessmer
Converter Exhib
1 : 200



3

Section 3 Short Section
1 : 500

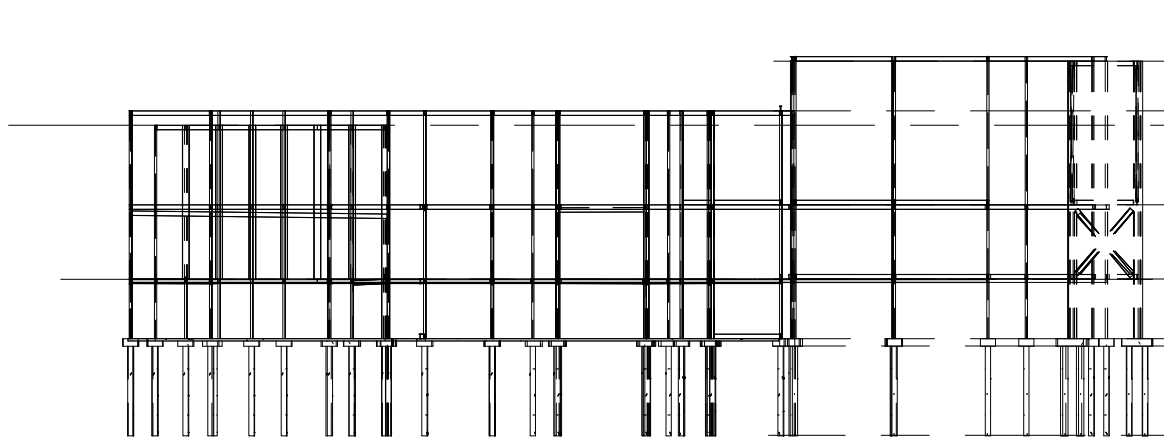


FFL 10.351
- Roof Of Exhibition

FFL 0.160
--1 Basement ceiling

2

Section 2 - Long Section
1 : 500



FFL 14.589
3 - 3 - Top building and Veranda

FFL 11.303
2 - Second Floor/Internal roof

FFL 10.351
2 - Second Floor/Internal roof

FFL 5.089
1- First Floor

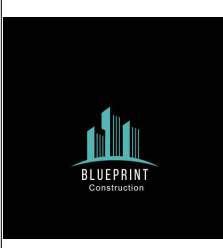
FFL 0.180
0- Ground Floor

FFL 0.160
0- Ground Floor

FFL -3.769
-1- Basement / Plant

FFL -4.259
-1- Foundation Pile Cap

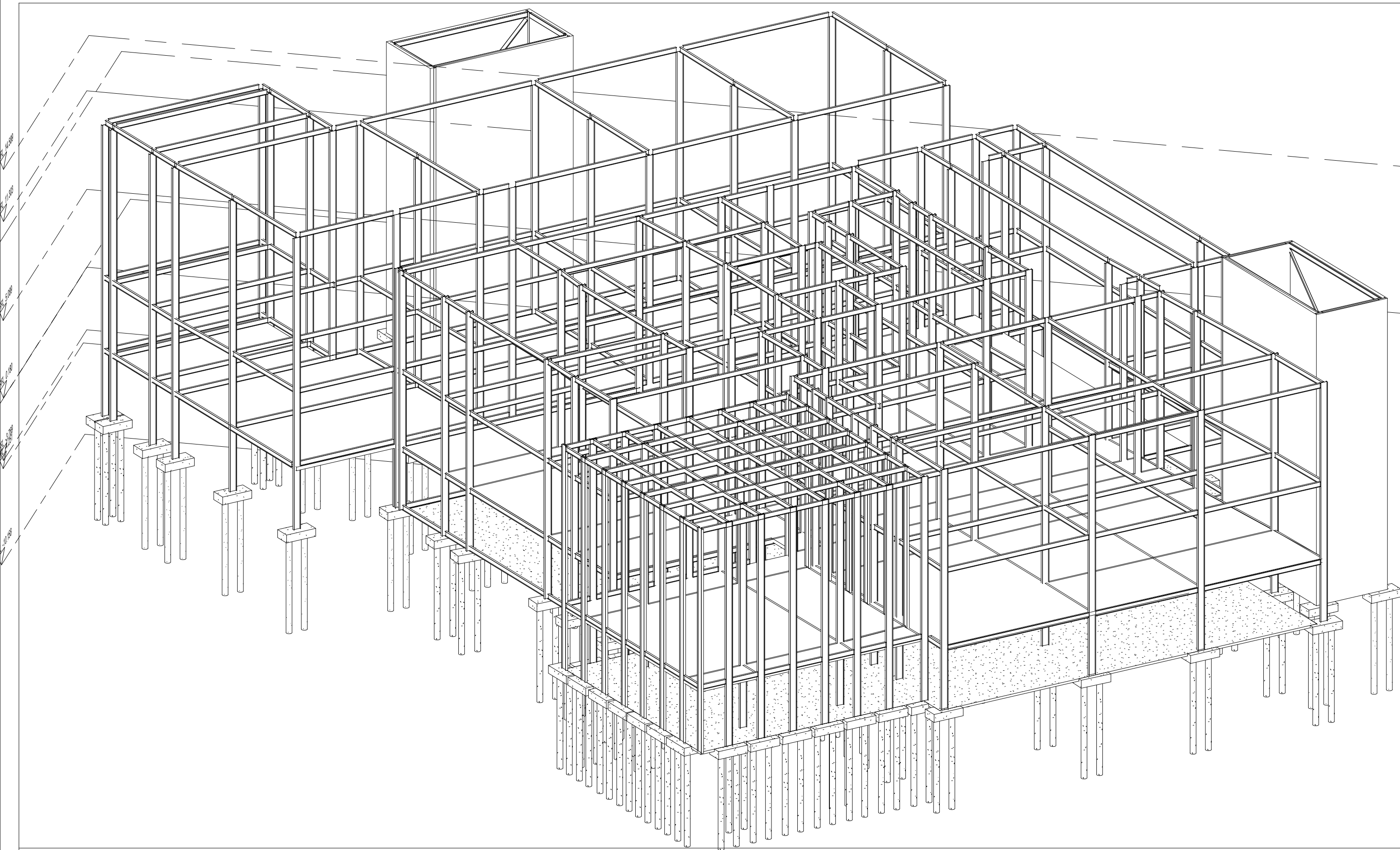
FFL -10.158
- 1Piles



No.	Description	Date

Blueprint Construction LTD

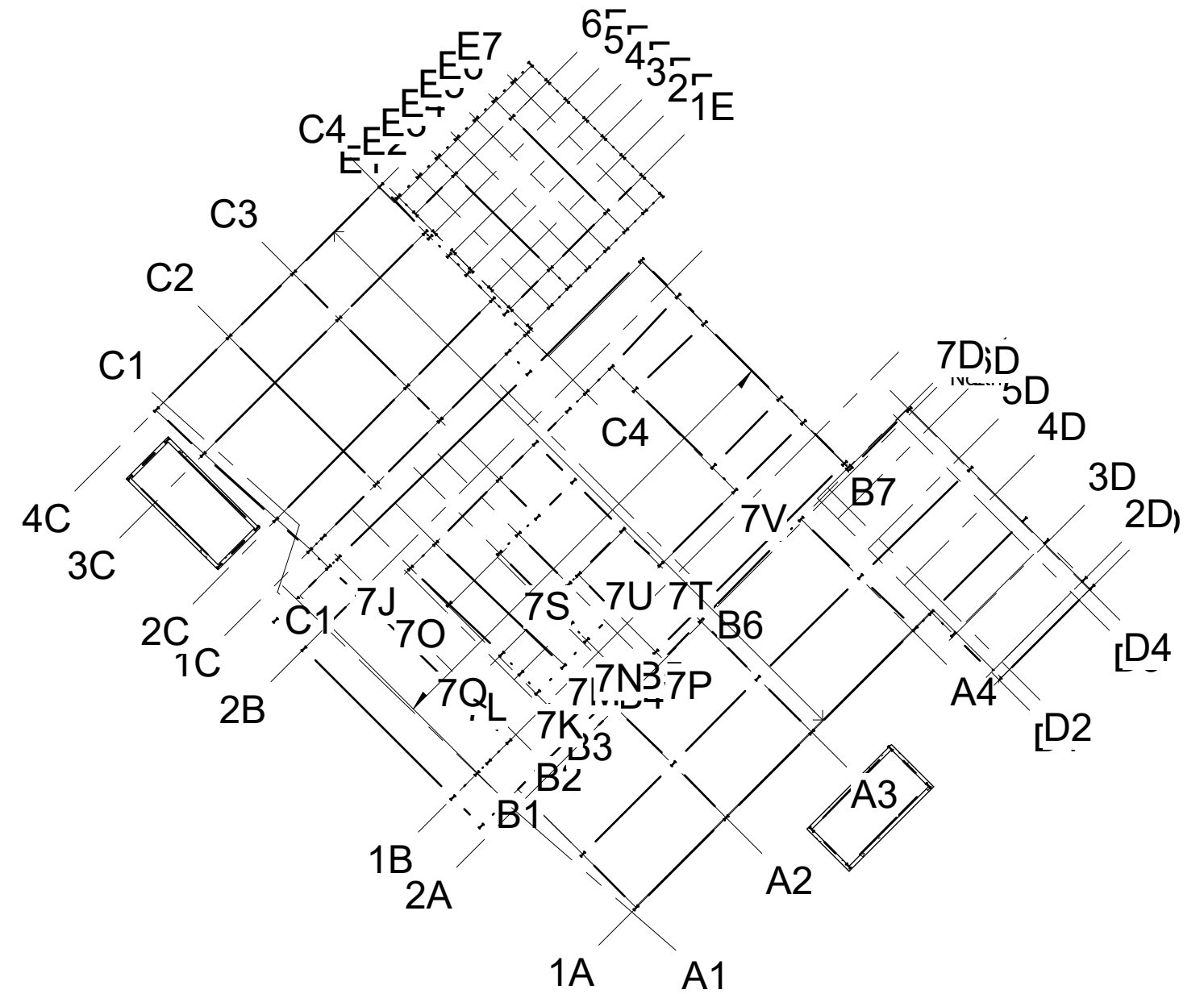
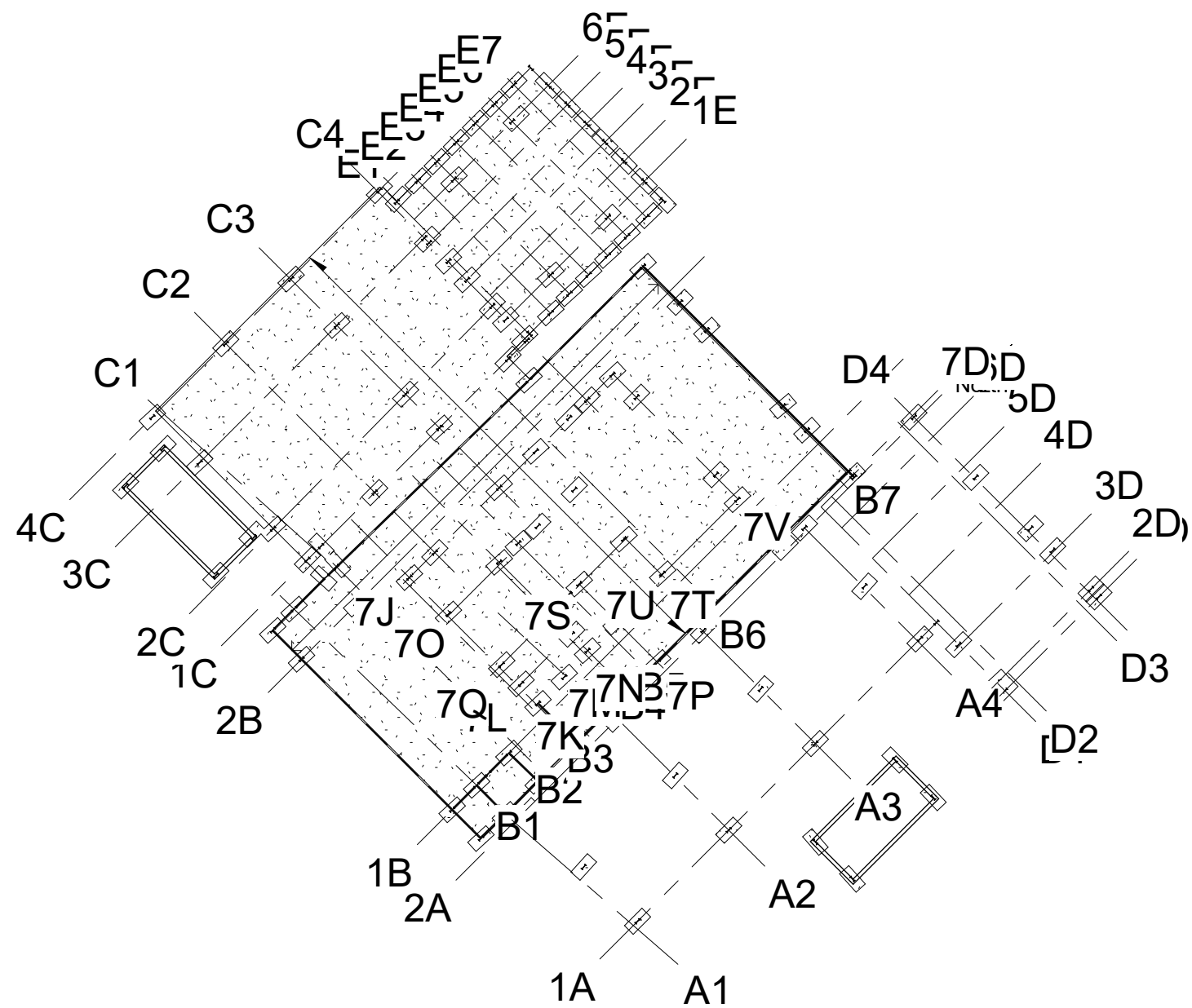
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	ACECP		
SHEET	Date	Project number	Scale (@ A3)
	1 May 2024	6033	As indicated
	Drawn by AW	DRWAING NUMBER	
Checked by MC		6033-ACECP-CD-ZZ-DR-S-0002-Rev01-Sections	



No.	Description	Date

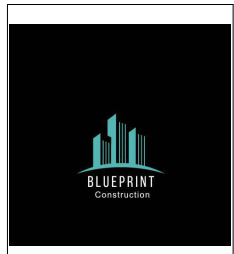
Blueprint Construction LTD

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SHEET	3D	Drawn by AW	DRWAING NUMBER			
		Checked by MC	6033-ACECP-CD-ZZ-DR-S-0003-Rev01-STR			



1 - 1 Basement /Plant
1 : 500

2 0- Ground Floor
1 : 500

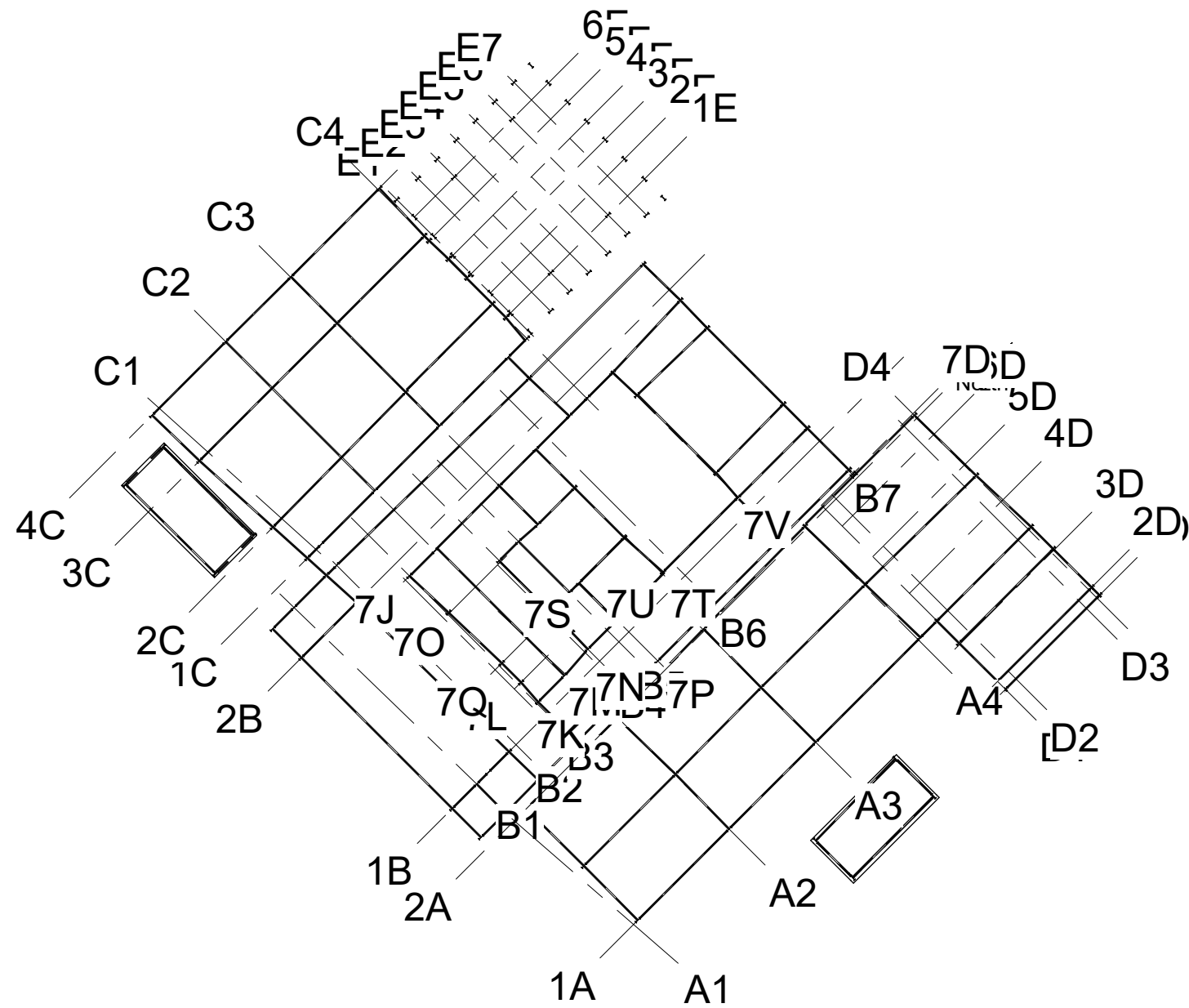


No.	Description	Date

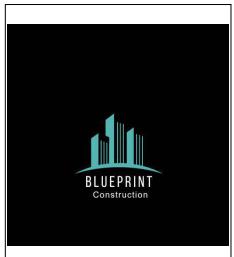
Blueprint Construction LTD

PROJECT	Steel Museum		
	CLIENT ACECP		
SHEET	Date	Project number	Scale (@ A3)
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	Drawn by AW	DRWAING NUMBER	
Checked by MC		6033-ACECP-CD-ZZ-DR-S-0004-Rev01-Basement&GFPlan	

Basement & GF Plan -
0004



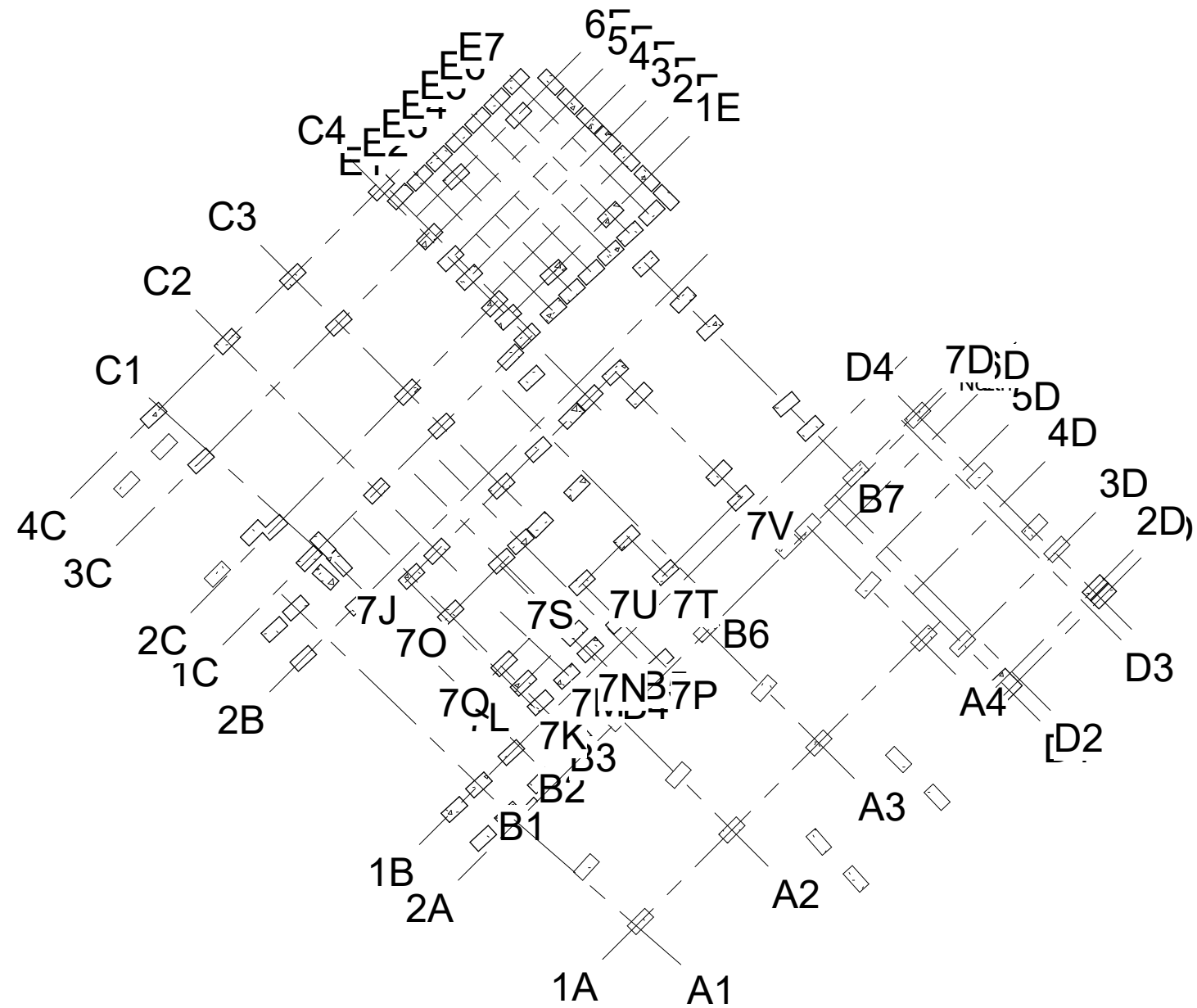
1- First Floor
1 : 500



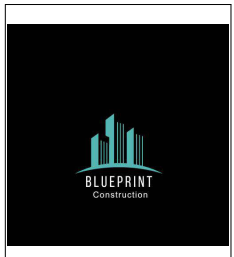
No.	Description	Date

PROJECT	Steel Museum
SHEET	First Floor Plan - 0006

CLIENT	ACECP
Date	1 May 2024
Project number	6033
Scale (@ A3)	As Indicated
Drawn by	AW
Checked by	MC
DRWAING NUMBER	6033-ACECP-CD-ZZ-DR-S-0006-Rev01-FFPlan

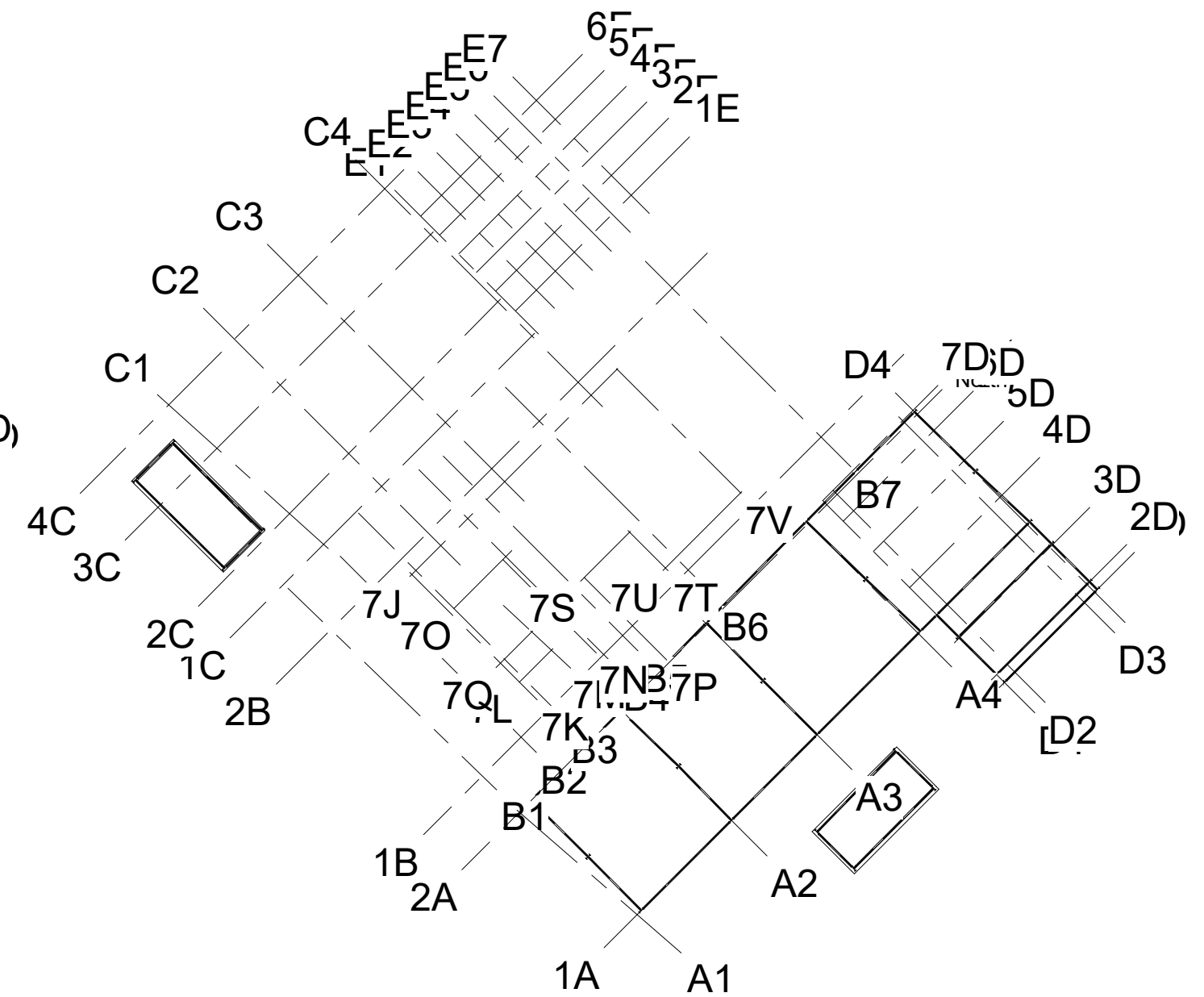
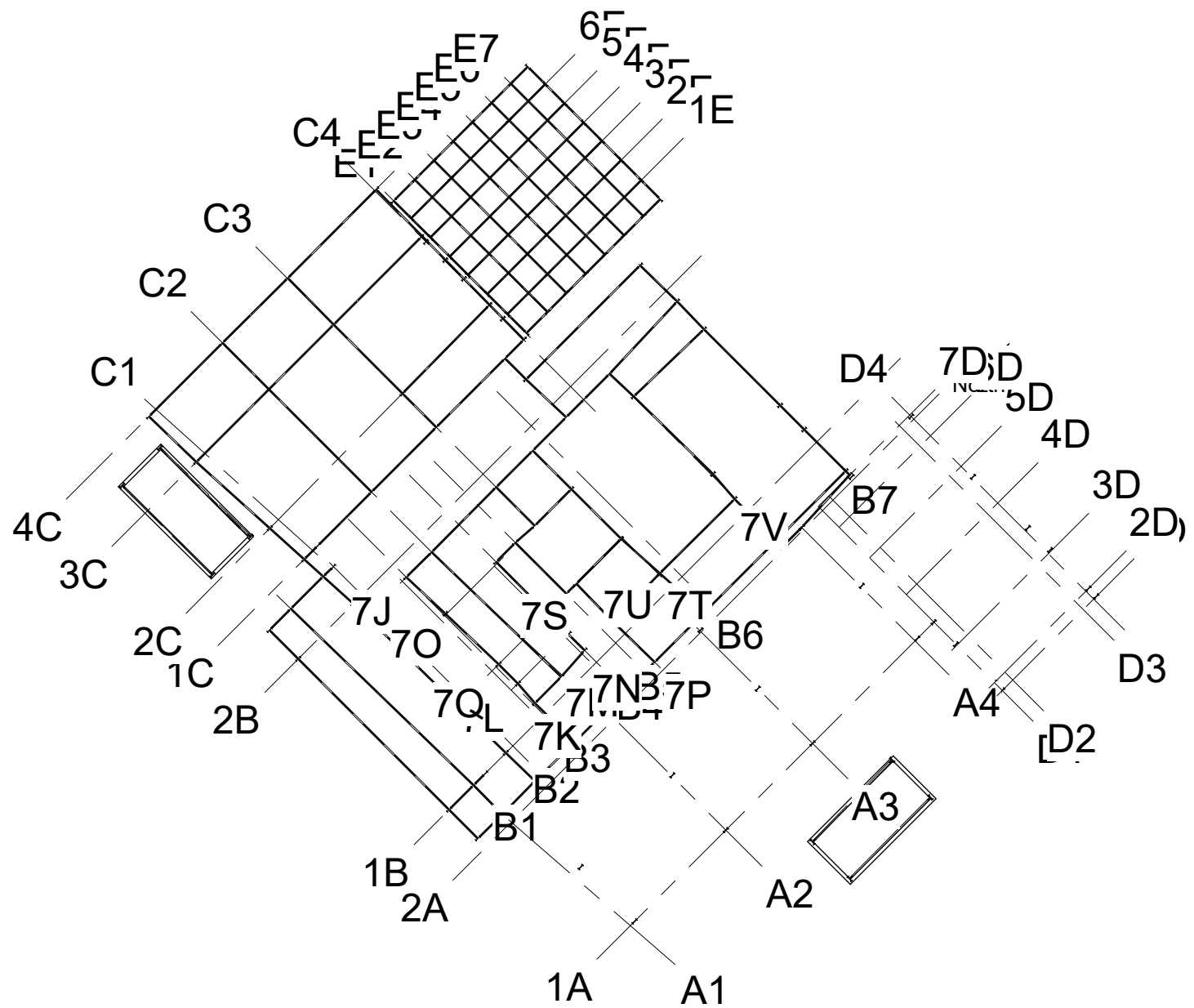


1 - 1 Foundation Pile Cap
1 : 500



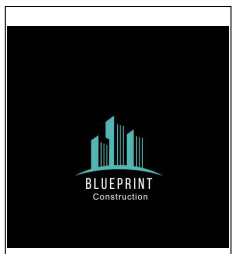
No.	Description	Date

Blueprint Construction LTD	PROJECT	Steel Museum	CLIENT			ACECP	
	SHEET	Pile Locations	Date	Project number	Scale (@ A3)		
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			Drawn by	DRWAING NUMBER			
			AW				
			Checked by	6033-ACECP-CD-ZZ-DR-S-0007-Rev01-PILE			
			MC	SITE LOCATION			



1 2 - Second Floor/Internal roof
1:500

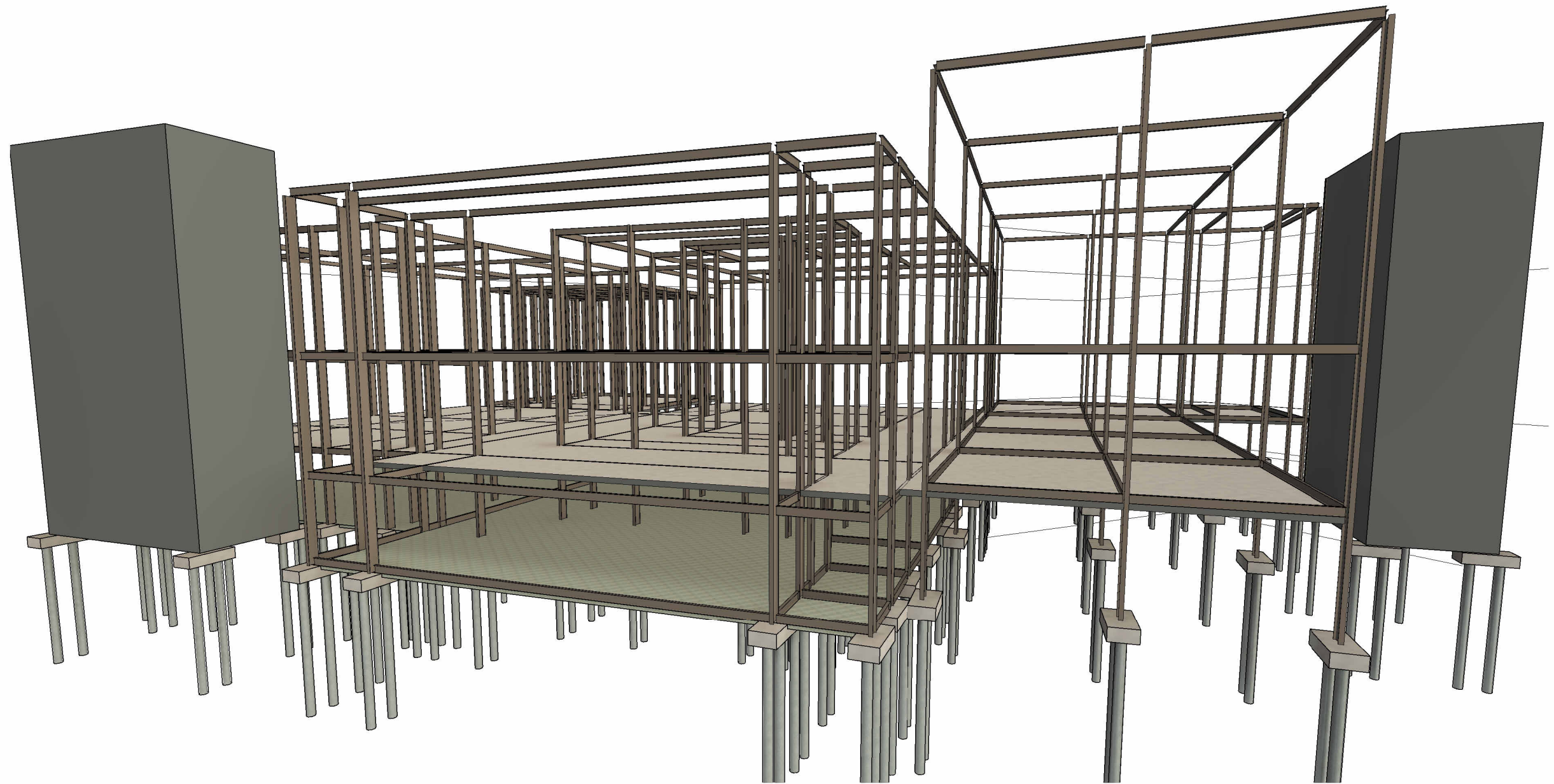
2 3 - 3 - Top building and Veranda
1:500



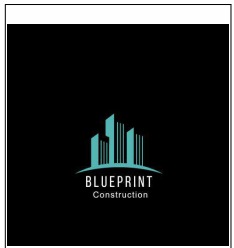
No.	Description	Date

Blueprint Construction LTD

PROJECT	Steel Museum		CLIENT		ACECP	
	SHEET		Date		Project number	
SF Plan-0008		1 May 2024	Drawn by		6033	
			Author		DRWAING NUMBER	
		Checked by			6033-ACECP-CD-ZZ-DR-S-0008-Rev01-SF&TFPlan	
		Checker				

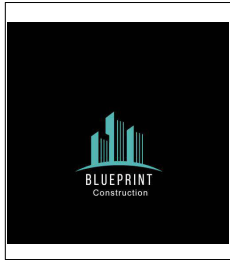
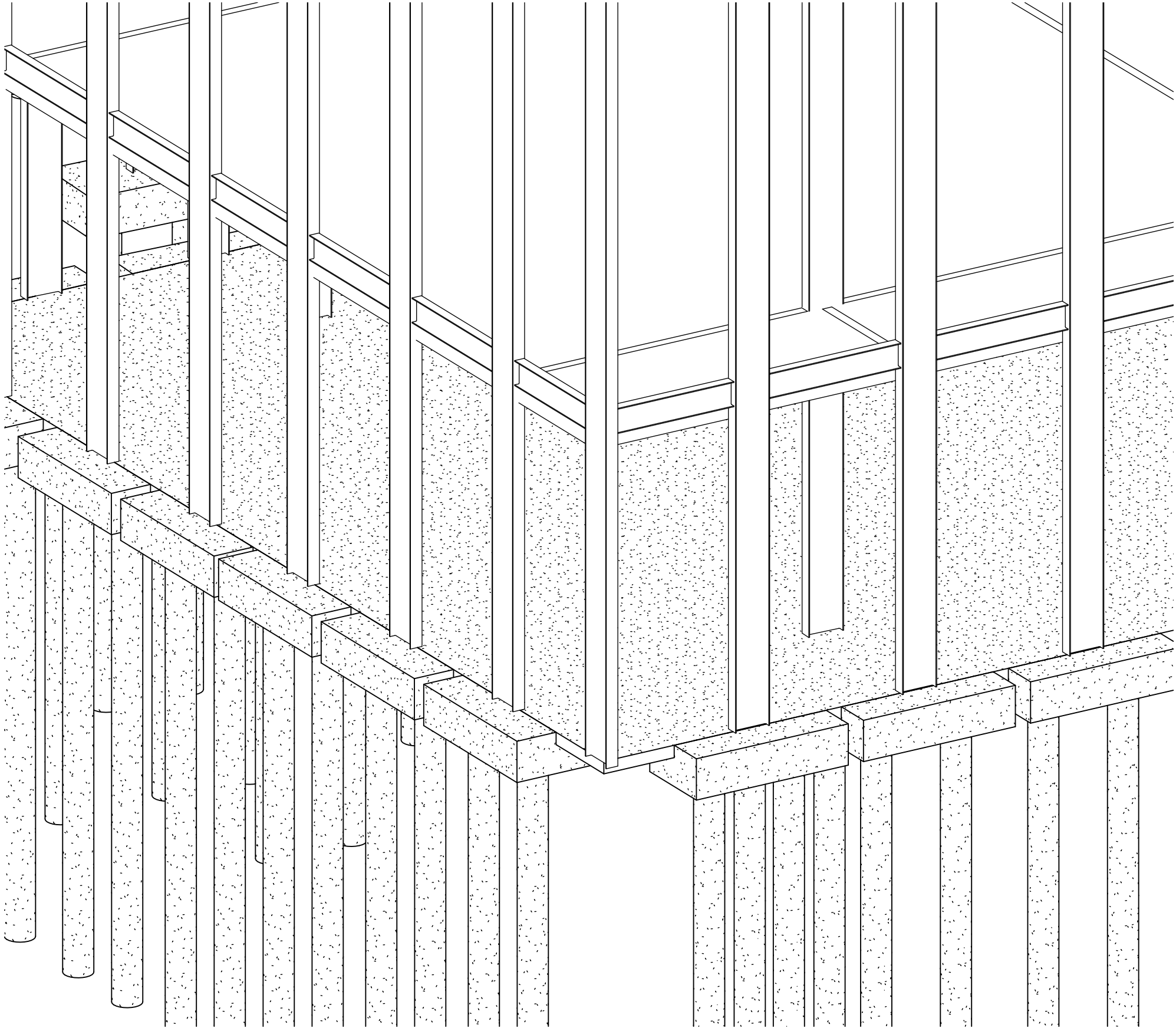


1 South 3D View



No.	Description	Date

Blueprint Construction LTD	PROJECT		CLIENT	
	Steel Museum		ACECP	
	SHEET		Date	Project number
	South 3D View Realistic		1 May 2024	6033
		Drawn by	Scale (@ A3)	
		AW	DRWAING NUMBER	
		Checked by	6033-ACECP-CD-ZZ-DR-S-0009-Rev01-SOUTH	
		MC	3D VIEW	



No.	Description	Date

Blueprint Construction LTD	PROJECT	CLIENT		
	Steel Museum	ACECP		
	SHEET	Date 1 May 2024	Project number 6033	Scale (@ A3)
		Drawn by AW	DRWAING NUMBER	
		Checked by MC	6033-ACECP-CD-ZZ-DR-S-0010-Rev01-DETAIL SECTIONS	
DETAIL SECTIONS				

FEASIBILITY INDIVIDUAL SUBMISSIONS

4.04 Contaminated Land & Landfill - AW

A Study of the land as per figure 2.1 in appendix, shows the intended site is situated on grey shaded suburban land which suggests that there is no clear evidence as to whether the land itself is contaminated or not. During 1960's it was discovered that an old disused railway track would run adjacent to the intended site (as seen in figure 4.4) therefore, we suggest that an alternative experienced company should carry out ground testing in order to confirm these findings.



Figure 4-4 - Showing disused railway tracks during 1960's (DigiMap 2023)

Ground Testing Includes installing and monitor Landfill Gas standpipes as part of the Site Investigation and unless agreed with the Local Authority, a minimum of three gas monitoring standpipes should be installed (dependant on the size of the site) and monitored every two weeks for a minimum of six visits. Monitoring of each standpipe will include:

Methane (%)

Carbon Dioxide (%)

Oxygen (%)

Gas Flow Rate (l/hr)

Atmospheric Pressure (mbar)

Groundwater Level (m)

On request, monitoring of Hydrogen Sulphide and Carbon Monoxide.

When the Gas Monitoring is complete, a Ground Gas Risk Assessment will determine whether gas protection measure will be necessary according to the BS 8485:2015 Code of practice for the design protective measures for methane and carbon dioxide ground gases for new buildings.



Figure 4.5 - Showing site is situated on suburban land (DigiMap, 2023)

4.4.1 Air Quality - AW

In recent years the air quality has so what improved with the implementation of the 50MPH zone running along this intended site, although we do have to consider the site is situated in the steel town of port talbot in range of the steel works itself. Air quality is good in the area with the odd moderate concern for air quality which as seen from figure 3.1 of the year 2023.

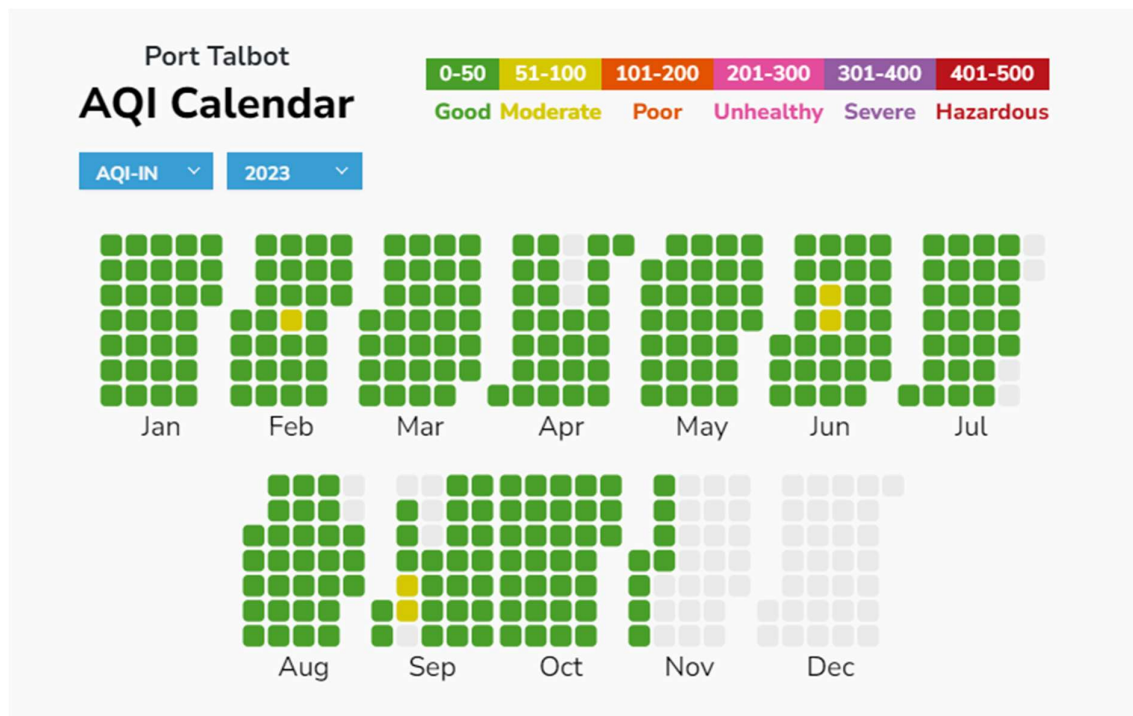


Figure 4.7 - Showing air quality (AQI,2023)

4.4.2 Radon - AW

Radon is a naturally occurring radioactive gas that is odourless, invisible, and released from rocks, soil, and water. Small gaps or breaches allow radon to enter houses and buildings, where it can accumulate in the atmosphere. Lung cancer can develop over time as a result of breathing in high radon levels.

Map of site intended sites shows a spilt-on radon level. Currently known as the car park of the site has less than 1% radon levels see figure 4.6 (All parts of this 1km grid square are in the lowest band of radon potential). however, towards the site for construction of the building, shows 10-30% of maximum radon levels see figure 4.7.

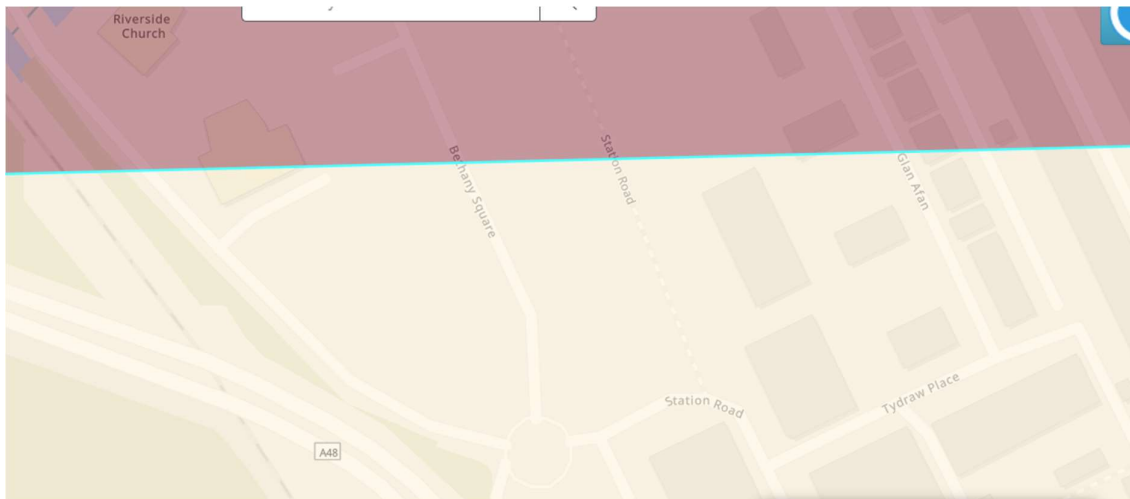


Figure 4-6 - Showing close up radon levels over site (UKHealthSecurityAgency,2023)

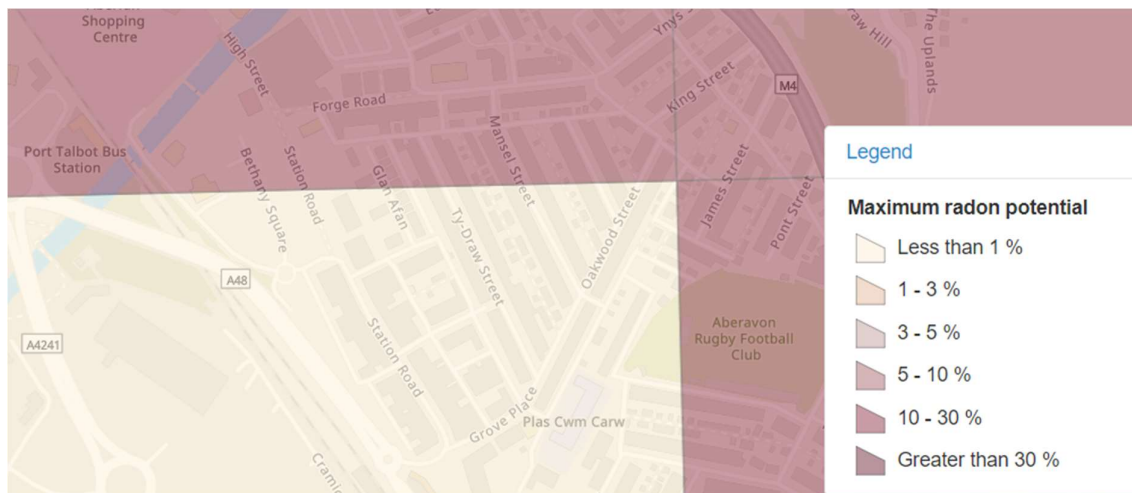


Figure 4-7 - Showing overall radon levels over site (UKHealthSecurityAgency,2023)

A desk top study into a UXO survey shows the intended site is deemed as medium risk and this is due to the nearby area of Swansea and World War II having strong links in relation to the blitz. Due to the risk of encountering an unexploded ordinance (UXO) while conducting groundworks it is strongly recommended as well as being in line with CIRCA C681, CDM 2015 and the 'Health and safety at work act 1974'. A recommendation would be to receive a full comprehensive report on the site findings, if findings of an UXO are found, a external company would need to be instructed to carry out works and the client should expect a delay of 15 days to have this UXO destroyed, and a new survey carried out. (CIRIA, 2023).

4.09 Archaeological status - AW

An Archaeological desk-based assessment was undertaken by Blueprint construction for the construction of the new steel museum in port talbot in October 2023 to assess the potential impacts of construction and the possibility of discovering any archaeological findings. The desk-based assessment concluded that the intended site does not contains any archaeological concerns of the following:

- No listed buildings on site
- No scheduled Monuments
- No registered historic parks or gardens
- Not a world heritage site, no points of archaeologist interest or significant view
- Not registered as a historic landscape
- No protected wrecks nearby (reference to river Afan)

This information has been sourced from (CADW,2023)

Although the desk-based assessment suggests that there are no archaeological concerns we recommend a further site-based field study to confirm these findings above. Blueprint construction recommend due to the unknown concerns that an allowance for an archaeological investigation is included in this programme.

See figure 4.1 for reference.

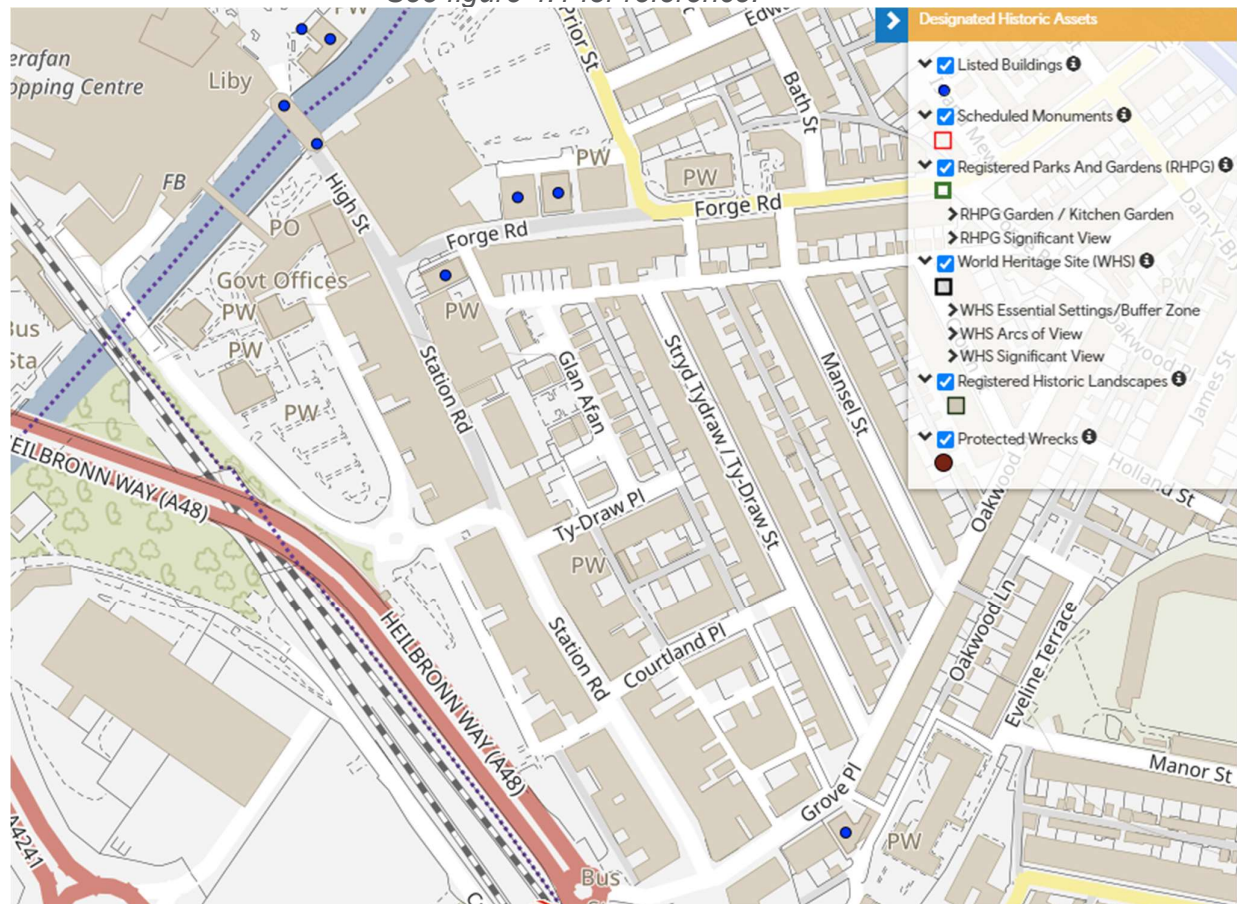


Figure 4.1- Showing Archaeological Status (CADW,2023)

10. SSI/ SSSI/ SNCI/ AONB status - AW

Sites of special scientific interest

A desk top study has been undertaken to identify the potential presence of SSSI's or SSI's. The intended site shows no evidence as per the Natural Resources Wales website

See figure 4.2 for evidence.

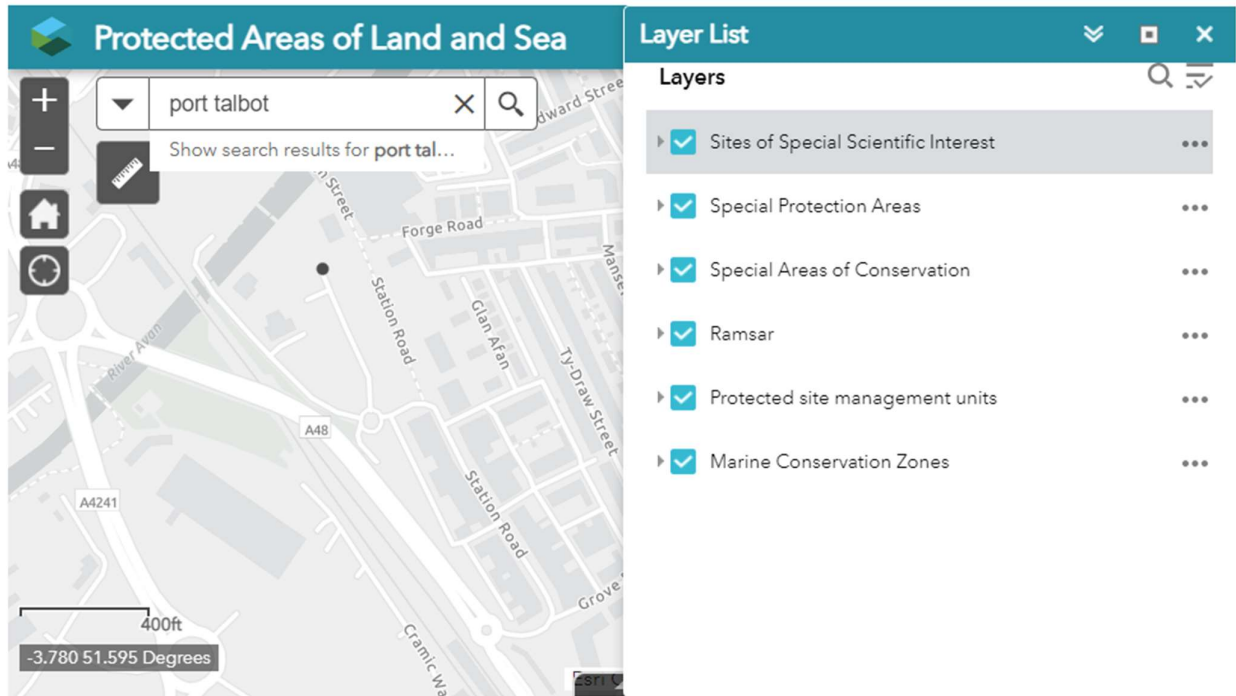


Figure 4.2 - Showing no evidence of SSSI in area (NRW,2023)

Protected areas and seas - AW

No evidence has been identified for any protected areas of land and seas.
(CADW,2023)

Areas of Outstanding Natural Beauty -AW

The intended site is currently not part of an area which is classified as an area of outstanding natural beauty in reference to the Natural Resources Wales Website
(CADW,2023)

See figure 4.13 for reference

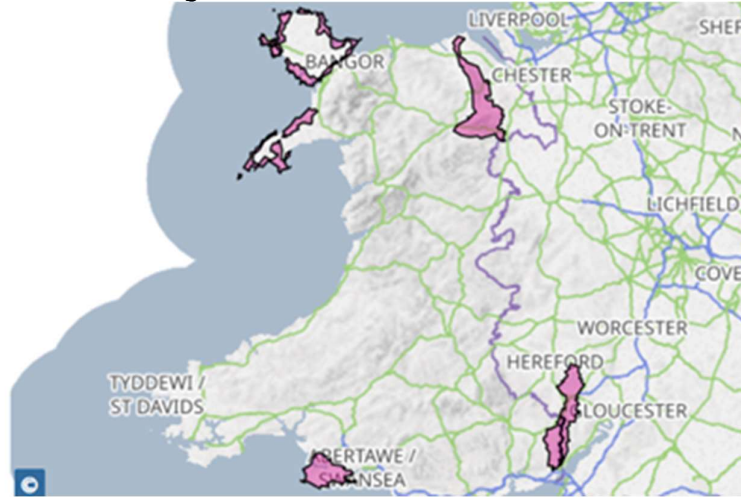


Figure 4-8 - Showing no evidence of the site being in an area of outstanding natural beauty (CADW,2023)

World Heritage Sites- AW

No evidence has been identified for any world Heritage sites (CADW,2023).

See figure 4.14 for reference

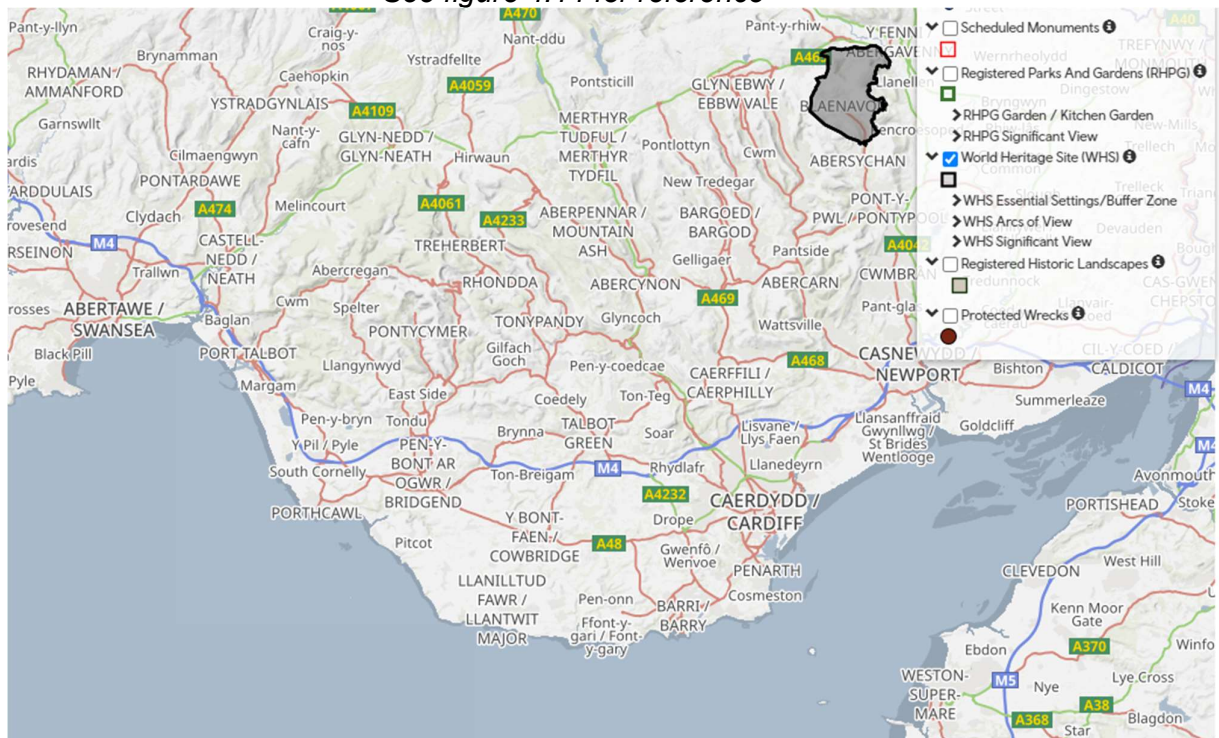


Figure 4-9 - Showing no evidence of world heritage sites. (CADW,2023)

Registered Parks & Gardens - AW

No evidence has been identified for a registered parks and gardens

See figure 4.15 for reference.

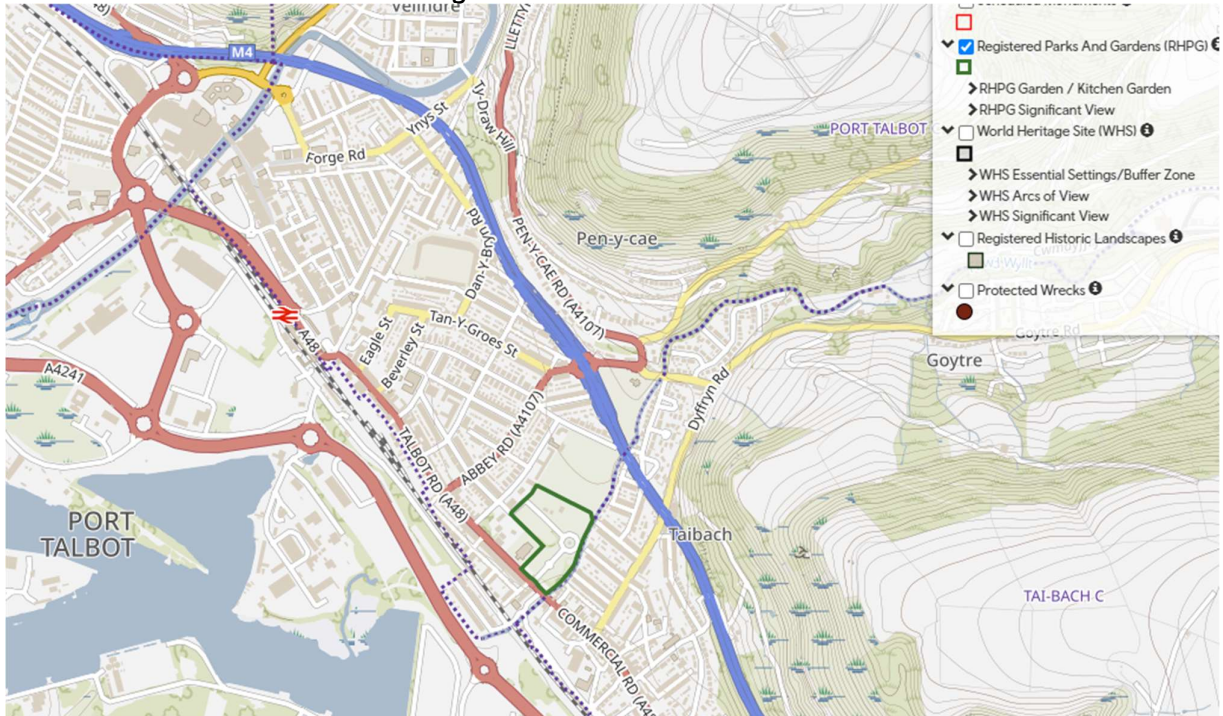


Figure 4-10 - Showing no evidence of registered gardens (CADW,2023)

Site of conservation interest - AW

No evidence has been identified for sites of conservation interest.

See figure 4.16 for reference.

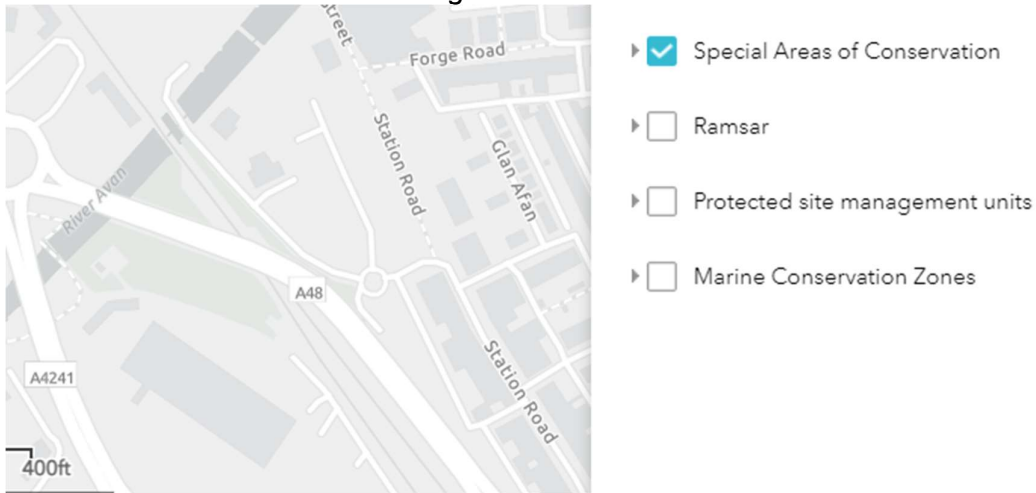


Figure 4-11 - Showing Special Areas of Conservation (NRW,2023)

5.03 - Environmental Protection Requirements

5.3.1 Methane Protection Measures and Contaminated Land Remediation Measures - AW

To reference 4.4 which concluded the necessary action of appointing a specialist to gas test the site due to unconfirmed data on contaminated land. In the unfortunate scenario where it has been confirmed that the land is contaminated a technique that completely removes the risks of methane soil gas incursion into buildings is called a methane mitigation plan such as a using vapour barrier. There is high importance to install methane mitigation systems to prevent toxic vapours migrating through foundations affecting indoor air quality. Building layout and design should be taken into account to maximise the benefits of natural ventilation.

Additional Information can be sourced from document C within buildings regs.

Given that these structures can have huge floor areas and that it's crucial to make sure gas is sufficiently distributed from below the floor, expert guidance should be sought. It can be required to employ mechanical systems, as opposed to passive ones, as well as monitoring and alarm systems (Welsh Government,2010)

5.3.2.Radon Protection Measures -AW

Using 4.4 in the feasibility as a reference, radon protection should be done with caution. The building must be given protective measures of a polyethylene membrane should be used across the footprint of the building, which includes bridging cavities and sealing of all laps and penetrations. To install a radon reduction system, also known as a radon mitigation system, would be to install a sump followed by a vapour barrier. It is advisable to monitor the radon and gas levels in the building at all times during construction and post occupancy to ensure levels of gas are kept to minimum levels (NHBC,2023)

Guidance of BRE Report BR 211 should be followed.

Further information on radon can be found from HSE where they produced guidelines on requirements for employers Act of 1974 to protect the health and safety of their workers and anyone else who has access to their workplace, to the extent that it is reasonably practicable. In the following situations, radon should be included in the evaluation of health and safety risks required by the Management of Health and Safety at Work Regulations of 1999 (HSE,2020)

6.3. Services requirements - AW

Building Services -Electrical- AW

Introduction

This section of the feasibility report has been compiled following a brief site visit Wednesday 29th November 2023 and desk top study throughout the latter part of the year 2023. This section has been carried out to evaluate both the suitability and capability of the existing electrical services systems to support the proposed project of a new steel museum located in Port Talbot.

The proposals contained in this report concerning the electrical services have been compiled with mainly a desktop study however a lack of information was available at the time of the survey.

Recommendations and Comments

The electrical services to be installed for the internal aspects of the new build shall adhere to all known requirements, both present and future, regarding small power, fire and intruder alarms, emergency escape lighting, and general interior and outside lighting and requirements of the Equality Act (Legislation.gov,2010). Telephone and data facilities will be made available executed in a way that satisfies both user needs and the intended purpose of the spaces.

The electrical services related to this project will be planned in compliance with all applicable CIBSE Design Guidelines and British Standards.

The highlighted concern is ensuring the Bessemer convertor is the focus for the museum, lighting layouts, high quality supply to ensure no issues with display for demonstration visuals of the Bessemer convertor in act and displays will need to highlight this fixture.

Electrical Supply

The intended site is served by national grid underground supply of both Low voltage and a service supply. As detailed in 4.6 of the feasibility report the low voltage looks like it would be unaffected however the service supply from national grid will be affected by the construction therefore would need to divert this.

General Lighting installation

Good quality lighting is a crucial component for both practical purposes and to improve the architectural form of the building. The lighting fixtures will be chosen to visually complement the building, resulting in a bright, engaging, and comfortable space.

Given this project is for use by the public as part of a government funded project, a focus on lighting for each exhibition rooms needs to be clear and help with highlighting any necessary features within the given rooms. E.g. display walls will require bright lighting to ensure the exhibition details are readable and clear.

Automatic controls and dimming features will be included where suitable to ensure optimal lighting performance, flexibility, and energy efficiency.

New LED bulb technology will also be taken into consideration in an effort to lower maintenance needs, boost energy efficiency, and lower energy costs. If ceiling heights are such that special equipment is needed to reach the luminaire for lamp replacement, LED luminaires are advised.

External Lighting

The building must contain external lighting for both safety and security reasons.

The external luminaire placements will be carefully chosen to prevent light trespass from negatively impacting the surrounding area and any nearby homes/ commercial units.

Emergency Lighting

Considerations to emergency lighting need to be in accordance with BS 5266: emergency lighting (BSI,2016).Emergency luminaires must be supplied in accordance with ICEL Standards and offer a three-hour backup capability if the building's power fails entirely.

Apart from the interior spaces, emergency lighting needs to be installed above and directly outside the outdoor emergency exit doors and along the escape routes that are in close proximity to the building.

Small Power Installation

When needed, suitable power supply will be offered to run electrical appliances and stationary equipment. Perimeter trunking with many compartments will be used in locations that demand a high density of accessories.

Data and Telephone Services

The data and telephone services will be crucial to ensuring that IT services can be provided within the building, technical systems and electrical systems can work efficiently. The data and telephone services will need to be of adequate speed and quality to cope with the day-to-day demand for uses of both staff, building services and visitors.

Fire Alarm Systems

Fire alarm systems will need to be installed in reference to building regs part B. Fire alarm systems should contain automatic fire detection such as pressure differential systems or door releases, electric operated fire detection and alarm system should comply with BS 5839-1.

The 3-category specified:

- **Category L** – for the protection of life.
- **Category M** – manual fire detection and alarm systems.
- **Category P** – for property protection.

(BSI,2019)

Security Systems

The following security systems will be recommended:

- Security Guards
- Security Cameras – Cameras will be placed around the museum, covering as much floor space as possible
- Security Alarms - The best alarm system for a museum, gallery, library or archive will be one which is linked through to an ARC and will directly request the Police to attend.
- Motion Detection Security Systems on private restricted doors, activated at night for extra layer of protection

6.3.2.Building Services- Mechanical - AW Introduction

The proposals contained in this section advise on all aspects of the mechanical building services.

Gas Services

When considering the design for gas services for this project, the gas meter location must be vented as outlined in the gas safety regulations (HSE,2018) - <https://www.hse.gov.uk/pubns/priced/l56.pdf>

The intended site is served by a low-pressure gas pipe and a gas main served by ESP from the statutory undertaker of national grid underground which will be affected by the construction therefore a divert is required.

Water Services

Welsh water serves five utility water supplies, these are displayed in 6.4. The only concern for diversion will be the combined sewer and distribution main, all others will be unaffected.

Heating

The building will need to be equipped with adequate heating facilities to ensure visitor and staff comfort. Building regulations part L will cover conservation of fuel and power (Welsh Government,2023).

Ventilation

Given this project is for use for many different visitors, consideration to whole building ventilation will need to be applied with relation to mechanical ventilation ensure a clean and healthy environment for all visitors. Natural Ventilation will be used from windows and entrance doors.

Comfort Cooling

If building contains vast amount of glazing, demands for cooling the environment will be crucial to prevent overheating from solar gains. This will need to be considered in relation to 6.3.16.

Equipment / fixed and loose furniture- AW

Considerations on fixed and loose furniture for this project must be approached in a way that visitors can Maintain a unified aesthetic throughout, and the display/s will assist people to focus on the information and displays as well as clearly identify points of interest and safety displays.

Suggestion on fixed and loose equipment/furniture should contain but is not limited to:

- Digital images in exhibitions
- Object mounts made from Perspex 'risers', Custom made supports and secured using wire wrapped in silicone tubing for smaller significant objects
- Exhibition labels fixed, direction labels, fire exit and general museum safety measures
- Lighting – exhibition lighting, hallway lighting, fire exit lighting, entry and exit lighting

- Fixed locally bought benches for visitors during each exhibition
- Reception fit out equipment and furnishings
- Interactive equipment for visitors
- Staff room furnishings:
 - Lockers
 - Seating
 - Cooking equipment
- Staff seating throughout museum
- Recycling and General waste Bins
- Outdoor seating and tables
- Fire safety Equipment (fire extinguishers, call points, detectors)

Furnishings - AW

Suggestions on furnishings to be included in museum but not limited to:

Museum:

- Display cases secured with toughened glass surround to avoid breakages and for security purposes
- Additional seating/ benches throughout building

Full café fit out to include but not limited to:

- Seating
- Full kitchen fit out
- Vending machines (food/drinks/ hot drinks)

Customer supplied equipment/ furniture - AW

Client to advise on required or specific furniture. See above for advisory on suitable furniture.

Additional Access Requirements - AW

There is high importance to ensure both welcoming and safe access for all persons who wish to use this facility.

Access and use of facilities must be in accordance with document M of building regulations especially for disabled persons, visually and hearing-impaired users/elderly persons/young persons. The Approved document M should be used in accordance with Document K (Protection from falling, collision and impact). (Welsh Government, 2023)

Some general guidance for Disabled person should be considered but not limited to:

- Level access from car park to boundary
- Durable nonslip materials
- Lift access to all levels
- Braille facilities for those who may require additional support and guidance within the boundary of the building
- Ramp access to levels higher than ground floor where lifts cannot be placed.

Additional Guidance can be sourced from the workplace regulations 1992 and the Equality and disability act 2010 (HSE,2013).

7.2. Alternative systems of construction - AW

The ease of on-site implementation, resilience to supply chain problems, improved u-values, less cold bridging, increased airtightness, decreased environmental effect of construction materials, and reduced waste are some advantages of using alternative construction methods.

In regard to this project, based on accessibility for deliveries, we would like to adopt off site construction as much as possible to prevent distribution of other shops and outlets nearby and to also speed up construction, we will adopt off site construction if we feel that it could prevent us running over time or meeting our targets.

7.6. Environmental Protection requirements - AW

As discussed under point 5.3.

7.10. Accessibility issues - AW

Delivering the project with accessibility issues coincide with 4.2 in relation to rights of way and easements.

As per 4.2 the accessibility issues will be in relation to:

- Two plots of privately owned land, the current use of plot Riverside Church is a church building in which we propose to be demolished and Fully Purchase of the land
- There is also another plot which is currently being used a car park facility, which will also need a small section purchased under and built over for our proposal and the remainder of the land will also be purchased in which our site setup and demolition plan can utilise without having to borrow any land for Construction phase.
- An area of easement that may be needed to be acquired to accommodate the site compound for Phase 2 of works, this land is then proposed to be used as car parking for the site and will be fully reinstated and acquired.

7.11. Workplace Health, Safety and Welfare Regulations - AW

This part is not a thorough review of the related health and safety issues because this report primarily addresses the buildability components of the project; instead, it focuses on health and safety issues that may have an impact on the program's delivery.

Welfare

Welfare programmes are a necessary aspect of a safe workplace for construction workers. In addition to being a fundamental right, providing high welfare standards is also required by law therefore It will be necessary to provide mobile welfare close to designated job areas. And will result in employees spending less time travelling between welfare breaks and the workplace.

Installing a septic tank or sewage hookup may be necessary for the main compounds. Planning permission could be needed for either choice.

Traffic interference & Management

It is recommended that TM constraints on all affected roads are discussed with Neath Port Talbot Council network management team and sub-contractors to inform the development of Works Information.

Full Traffic Management design to be undertaken by a competent Subcontractor

Night Work

Workers may experience long-term health effects from prolonged night work. The times when night work is necessary should be reduced in order to lessen this. The plan created for the proposed work presumes that night work will only be employed when road closures are necessary to lessen the impact on the transport system.

More Information can be found in the (HSE,2013) Workplace Health, safety, and welfare -