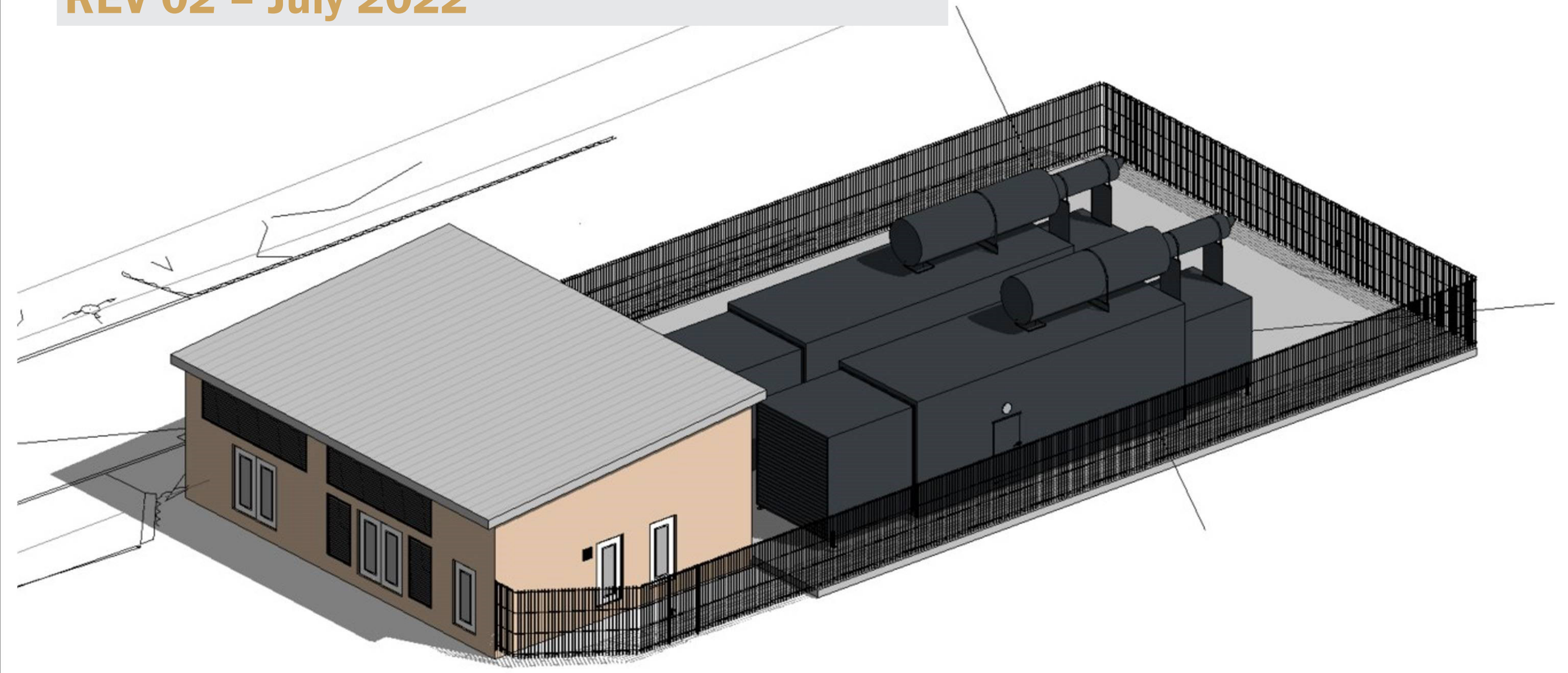
Morriston Hospital - Infrastructure Works

FBC Estates Annex

REV 02 – July 2022



In partnership with

KIER IBI AECOM RVW CONSULTING mace gleeds wsp

GIG CYMRU NHS WALES
Bwrdd Iechyd Prifysgol Bae Abertawe
Swansea Bay University Health Board

MORRISTON HOSPITAL - INFRASTRUCTURE WORKS - FBC Contents

Executive summary of the Estate Implications of the Business Case

MORRISTON HOSPITAL - INFRASTRUCTURE WORKS

1: PROJECT OBJECTIVES (BRIEF)

1: Project Objectives (Brief)

1. Executive Summary

This estates section for the proposed development of the Environmental Modernisations Phase 2 Stage 2 Project for the HSDU at Morriston General Hospital for Swansea Bay University Health Board. This Estates Annex Document has been prepared by the Supply Chain Partner in conjunction with the Swansea Bay University Health Board, and their advisers, using the latest guidance issued by NHS Wales Shared Services Partnership for preparing the Estates content of Business Cases.

Scope

This scheme involves the provision of a new electrical sub-station (Substation 6), including associated HV works and separately, new air handling plant for Morriston General Hospital Sterilisation Disinfectant Unit (HSDU).

The project was initially taken to Business Justification Case stage with the design having been worked up to RIBA Stage 4 and tendered. This design requires either adoption by the Designed for Life partner or modification of the existing design. See further summary of project information within Appendix 1.

It is the intent of the Local Health Board that this selection process will take forward this project from this point to completion.

The project and the scope of services required is contained within the Tender under:

- Project Manager and Cost Adviser

- The Scope - Schedule of Services
- The Scope – Works Information
- The Scope – Site Information
- Supply Chain Partner
- Works Information (including SCP's schedules of services)
- Site Information

Objectives

The objectives of the framework are:

- Implement the Welsh Government's construction policy to ensure that the NHS in Wales complies with best practice models of procurement based on long term strategic partnerships.
- Support the NHS in Wales becoming an exemplar client for all major construction procurement projects.
- Create an environment of continuous improvement and team building and skills development to help deliver better value for money for the NHS in Wales in the procurement of major construction projects through strategic partnerships with integrated supply chains.

The outputs/benefits that are to be realised through achieving the Construction Project Objectives are as follows:

Design and Construction Costs

- Deliver projects at a total design and construction out-turn cost which is 5% below the Project Allowance Construction Cost as defined.

Predictability

- The project to be completed 100% within the Target Price;
- The number of projects to be 100% completed by the Completion Date;

Defects

- The number of projects to be completed with zero defects at Completion to be in excess of 90%;

Accidents

- The Accident Frequency Rate and Accident Incident Rate to be 20% less than the Average National AFR and Average National AIR respectively; and Sustainability
- BREEAM is not applicable to this project

Community Benefits

- Community Benefits realised as meeting the requirements of latest Welsh Government Community Benefits Policy.

The Project Team

The FBC external team consists of the following principal specialist advisers and consultants:

- Project Manager – Mace Ltd
- Cost Adviser - Gleeds Cost Management Ltd
- SCP and Principal Contractor - Kier Construction Ltd
- Architect - IBI
- M&E Engineer - AECOM
- M&E Installer - WBS
- Civil and Structural Engineer – RVW Consulting
- Planning Consultant – WSP

Project Risk

A project risk register has been maintained and updated throughout development of the BJC by the external Project Manager in conjunction with the client team, cost adviser and SCP to inform the level of risk allowance required.

Proposed Changes to the existing Estate

Following a review of the existing design undertaken previously Kier and supply chain set out to take the lessons learnt from the original design and adapt to existing conditions and site constraints. Developing this alongside Swansea Bay University Health Board via a BJC RIBA Stages programme, we have agreed the new Substation 6 will now be located adjacent to the existing hospital grounds on a green field site, currently under ownership by the health board.

The proposed new LV switchroom will be located on the opposite site of Mynydd Gelli Wastard Road on the existing hospital site located directly between GP Out of Hours and the existing engineers compound building. The new substation will be connected to the existing hospital via a series of underground ducts that have been coordinated and located to complete a new HV Ring Main network around the whole hospital site.

The project involves the construction of a new 2MVA 11kV/0.4kV Substation 6 at Morrison Hospital and associated works to connect existing services to the new substation.

The new SBUHB Morriston Hospital Infrastructure Works is intended to address the following issues:

The existing Substation 3 and Substation 4 11kV/ 0.4kV transformers at Morriston Hospital are currently overloaded and are not compliant with WHTM 06-01.

The chillers within Plant Room 4C have been replaced and there is insufficient LV capacity in Substation 4 to serve them fully.

The project involves the construction of a new 2MVA 11kV/0.4kV Substation 6 at Morrison Hospital to take the

chilling load from Chiller 4C, Radiology and A&E from the existing Substations, thereby releasing spare capacity in those substations.

Replace the existing Substation 1 HV (11kV) Radials serving existing Substations 3 & 4, with a new WHTM com-

1: Project Objectives (Brief)

pliant 11kV Ring Main to Substations 3, 4 & new Substation 6.

Growth is included in spare ways, containment and the sizing of equipment as detailed within this specification.

The full extent of works are described within the overall tender package including drawings and specifications and a summary of the works is as follows:

- Construction of a new substation comprising of the following which provides N+1 functionality on the new HV/LV distribution system:
- 2No. 2,000kVA transformers providing
- 2No. ATS boards
- 2No. 2,000kVA (@0.8 p.f.) prime rated generators as packaged enclosures
- ICT hub room
- Construction of a new LV Switchboard building including:
- 2No. LV switchboards
- PFC
- Associated panel boards and distribution boards for local supplies
- Ducted LV submain cabling between the ATS boards in the new substation and the LV switchboards in the LV Switchboard building and other associated cabling including fibre optic, data and ELV systems, fire Alarms
- Modifications of the existing LV distribution to migrate existing supplies to the new Substation 6 LV switchboard including:
- Plant Room 4C chillers
- X-Ray and A&E chillers
- Amendment of the existing HV distribution network to create new HTM compliant 11kV ring from Substation 1, serving existing Substation 3 and 4 and new Substation 6.
- Amendment of the existing oil storage tanks and provision of new connection to new generators including fuel pump set.

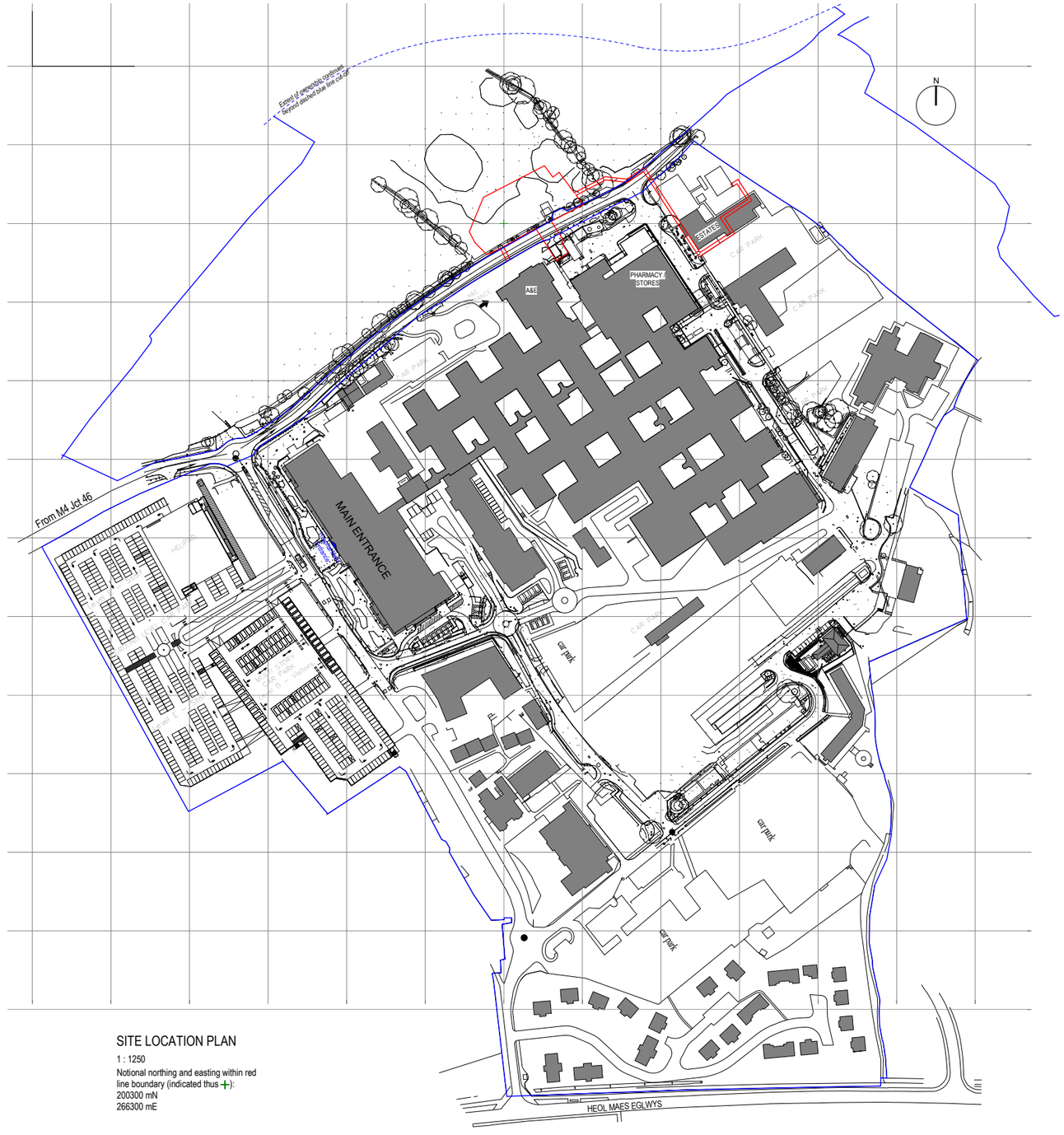
This project also carry's out a replacement of the existing AHU units and associated MEP services serving the Packing room and General Spaces within the HSDU department. Providing a fully WHBN compliant ventilation system only.

MORRISTON HOSPITAL - INFRASTRUCTURE WORKS

2: EXISTING SITE PLAN

2: Existing Site Plan

See below, the current site plan planning application drawing. The redline boundary should the work area from the proposed project, which is all currently owned by Swansea Bay University Health Board (Including the greenfield site where the new Substation is to be located). Mynydd Gelli Wastad Road is owned by Swansea Highway.



SITE LOCATION PLAN

1 : 1250

Notional northing and easting within red line boundary (indicated thus ┼):
200300 mN
266300 mE

NOTE:

Red line indicates extent of proposed development.

Blue line indicates SBUHB land ownership.

Notes:
- This drawing is copyright.
- Do not scale dimensions from this drawing.
- This drawing is to be read in conjunction with all other relevant drawings.
- All discrepancies on this drawing are to be reported to the architect.
- Do not modify any element of this drawing.
- Use drawing only for purpose(s) issued.
- This drawing may contain colour.

North Point

Scale Bar
0 12.5m 37.5m 62.5m
Scale: 1:1250

Key Plan

Hazard
HA2-xx
To warn of significant hazards or information that is unusual
To be read in conjunction with all other consultant's information
Refer to CDM Schedule XXXX-IBI-WB-XX-SH-A-200-XXXX

The following external model files are included within this drawing

Rev	Date	Revision Notes	Drawn	Review
P1	06/10/21	Updated to suit 'draft issue' comments received. Issued for Planning		

Logos

GIG CYMRU NHS WALES — Bwrdd Iechyd Prifysgol Bae Abertawe / Swansea Bay University Health Board

IBI Intelligence Buildings Infrastructure www.ibigroup.com

Project
Morriston General Hospital - Phase 2

Drawing Title
Site Location Plan

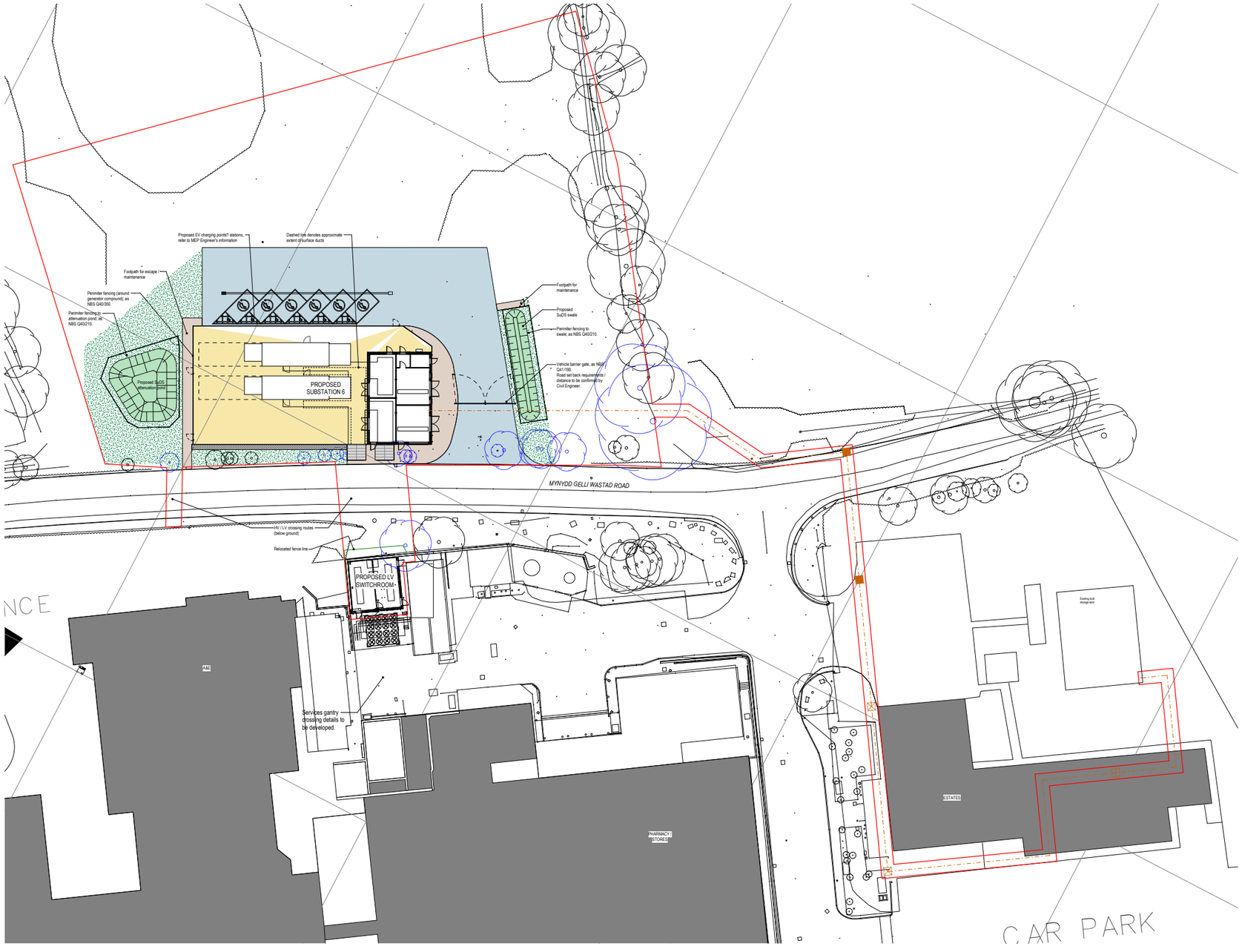
Job Number	Date	Security Classification	Drawn By
MHP2	09/09/2021	-	MW
Scale@A1	Purpose		Reviewed By
1 : 1250	For Planning		MW

Drawing Number	Revision	Suitability
MHP2-IBI-WS-XX-DR-A-100002	P1	S2

MORRISTON HOSPITAL - INFRASTRUCTURE WORKS

3: PROJECT DETAILS (DRAWINGS)

3: Project Details (Drawings)



NOTE:
RVW / Aecom gantry layout and WSP landscaping layout to be added on next revision.

Notes:
- The drawing is copyright.
- Do not scale drawing other than for planning purposes.
- Figured dimensions only to be taken from this drawing.
- All discrepancies on this drawing are to be reported to the architect.
- Do not modify any element of this drawing.
- This drawing may not be used unless issued.
- This drawing may contain colour.

Scale Bar: 0m, 5m, 10m — Scale: 1:200

North Point

Key Plan

Hazard: H&S as:
- To warn of significant hazards or information that is unusual
- To be read in conjunction with all other consultants information
- Refer to CDM Schedule XXXX-80-HB-XX-SH-A-200-XXXX

The following external model files are included within this drawing:

LEGEND:
- Extent of proposed development (boundary).
- Relocated fenceline around rear of LV enclosure (to be in with existing fenceline wherever possible beyond extent of new LV enclosure).
- New fuel transfer line between existing bulk storage tank and Substation 6, refer to Aecom information for further details.
- Existing fuel line inspection chamber.
- New fuel line inspection chamber.
- Existing fuel line pumpset.
- Existing trees to be removed.
- Proposed sustainable drainage system (SuDS) features, as labelled.
- Proposed road surfacing for access, maintenance vehicles and crane access (generator replacement occurances). Mastic asphalt finish. EV charging stations demarcated in white / yellow thermoplastic road paint.
- Generator compound concrete hardstanding.
- Proposed footpath / Substation 6 entry 'apron'. Mastic asphalt finish.
- Proposed soft landscaping (grassed areas); disturbed areas of ground to be re-instated to match that in the immediate vicinity.
- Proposed gravel strip (for maintenance) adjacent to Substation 6 fenceline (along Mynydd Gelli Wastad Road).

NOTES:
1. Refer also to the following drawing information:
   - MHP2-IBI-WS-XX-DR-A-100002: Site Location Plan (1:1250).
   - MHP2-IBI-LV-00-DR-A-251001: Proposed LV Enclosure GA Plan & Elevations (1:50).
   - MHP2-IBI-S6-00-DR-A-251002: Proposed Substation 6 GA Plan (1:50).
   - MHP2-IBI-S6-00-DR-A-251003: Proposed Substation 6 GA Elevations (1:50).
2. Refer also to Aecom MEP, RVW Structures and RVW Civils information.
3. Proposed works within highways curtilage to be agreed with City and County of Swansea Council highways department.

Rev	Date	Description	Drawn By
P1	15/11/21	RIBA Stage 4 Issue.	MW

Logos: GIG CYMRU NHS WALES | Bwrdd Iechyd Prifysgol Bae Abertawe | Swansea Bay University Health Board

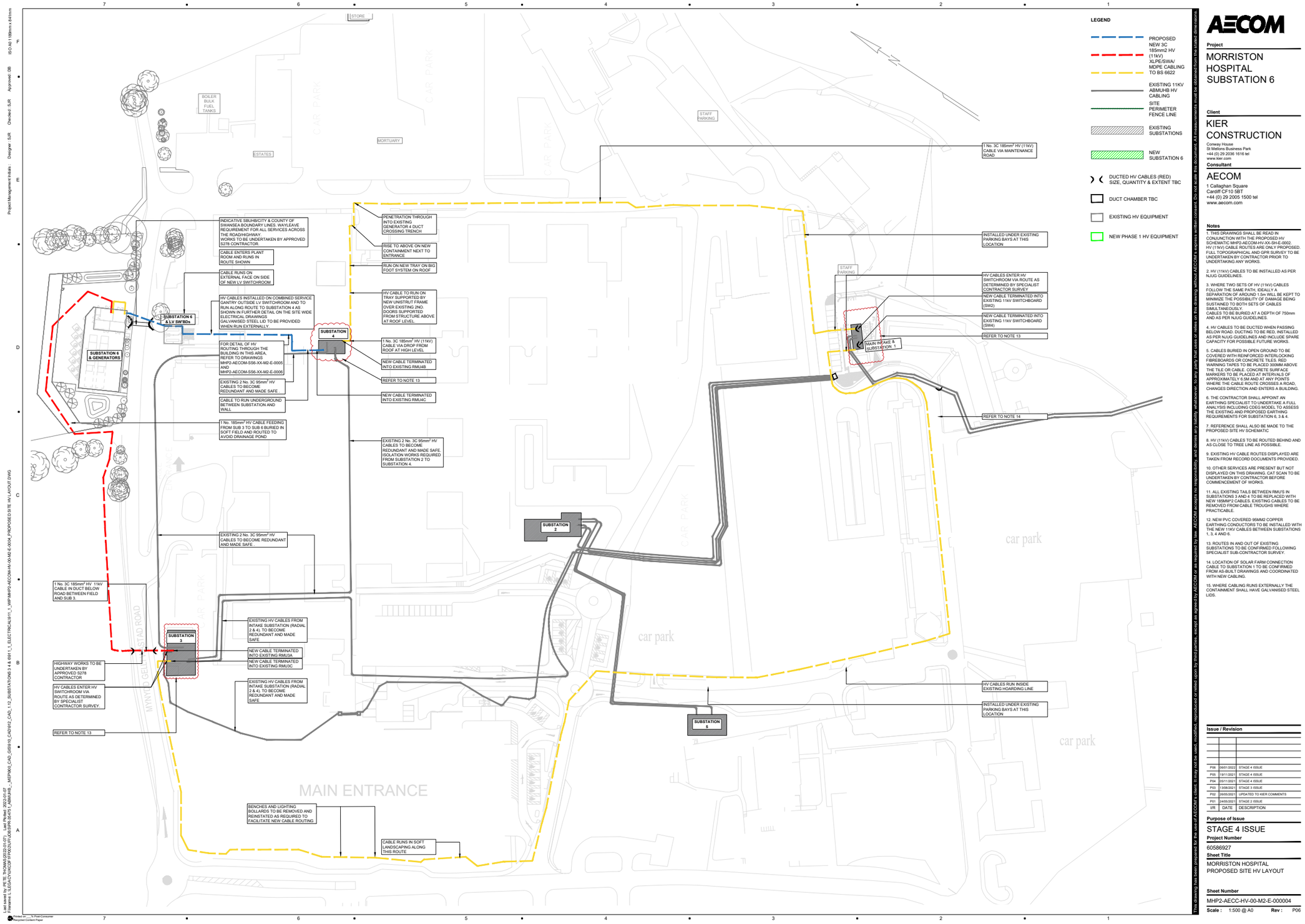
IBI Intelligence Buildings Infrastructure www.ibigroup.com

Project: Morriston General Hospital - Phase 2

Drawing Title: Proposed Site Plan - Completed Works

Job Number	Date	Security Classification	Drawn By
MHP2	15/11/2021	-	MW
Drawing Scale	Purpose		Reviewed By
1 : 200	RIBA STAGE 4 ISSUE		-
Drawing Number		Revision	Suitability
MHP2-IBI-WS-00-DR-A-700001		P1	S4

3: Project Details (Drawings)



AECOM

Project
MORRISTON HOSPITAL SUBSTATION 6

Client
KIER CONSTRUCTION
Conway House
St Mellons Business Park
+44 (0) 29 2036 1616 tel
www.kier.com

Consultant
AECOM
1 Callaghan Square
Cardiff CF10 5BT
+44 (0) 29 2005 1500 tel
www.aecom.com

Notes

1. THIS DRAWINGS SHALL BE READ IN CONJUNCTION WITH THE PROPOSED HV SCHEMATIC MHP2-AECOM-HV-XX-SH-E-0002.
HV (11kV) CABLE ROUTES ARE ONLY PROPOSED. FULL TOPOGRAPHICAL AND GPR SURVEY TO BE UNDERTAKEN BY CONTRACTOR PRIOR TO UNDERTAKING ANY WORKS.

2. HV (11kV) CABLES TO BE INSTALLED AS PER NJUG GUIDELINES.

3. WHERE TWO SETS OF HV (11kV) CABLES FOLLOW THE SAME PATH, IDEALLY A SEPARATION OF AROUND 1.5m WILL BE KEPT TO MINIMIZE THE POSSIBILITY OF DAMAGE BEING SUSTAINED TO BOTH SETS OF CABLES SIMULTANEOUSLY.
CABLES TO BE BURIED AT A DEPTH OF 750mm AND AS PER NJUG GUIDELINES.

4. HV CABLES TO BE DUCTED WHEN PASSING BELOW ROAD. DUCTING TO BE RED, INSTALLED AS PER NJUG GUIDELINES AND INCLUDE SPARE CAPACITY FOR POSSIBLE FUTURE WORKS.

5. CABLES BURIED IN OPEN GROUND TO BE COVERED WITH REINFORCED INTERLOCKING FIBREBOARDS OR CONCRETE TILES. RED WARNING TAPES TO BE PLACED 300MM ABOVE THE TILE OR CABLE. CONCRETE SURFACE MARKERS TO BE PLACED AT INTERVALS OF APPROXIMATELY 6.5M AND AT ANY POINTS WHERE THE CABLE ROUTE CROSSES A ROAD, CHANGES DIRECTION AND ENTERS A BUILDING.

6. THE CONTRACTOR SHALL APPOINT AN EARTHING SPECIALIST TO UNDERTAKE A FULL ANALYSIS INCLUDING CDEG MODEL TO ASSESS THE EXISTING AND PROPOSED EARTHING REQUIREMENTS FOR SUBSTATION 6, 3 & 4.

7. REFERENCE SHALL ALSO BE MADE TO THE PROPOSED SITE HV SCHEMATIC

8. HV (11kV) CABLES TO BE ROUTED BEHIND AND AS CLOSE TO TREE LINE AS POSSIBLE.

9. EXISTING HV CABLE ROUTES DISPLAYED ARE TAKEN FROM RECORD DOCUMENTS PROVIDED.

10. OTHER SERVICES ARE PRESENT BUT NOT DISPLAYED ON THIS DRAWING. CAT SCAN TO BE UNDERTAKEN BY CONTRACTOR BEFORE COMMENCEMENT OF WORKS.

11. ALL EXISTING TAILS BETWEEN RMU'S IN SUBSTATIONS 3 AND 4 TO BE REPLACED WITH NEW 185MM^2 CABLES. EXISTING CABLES TO BE REMOVED FROM CABLE TROUGHS WHERE PRACTICABLE.

12. NEW PVC COVERED 95MM2 COPPER EARTHING CONDUCTORS TO BE INSTALLED WITH THE NEW 11kV CABLES BETWEEN SUBSTATIONS 1, 3, 4 AND 6.

13. ROUTES IN AND OUT OF EXISTING SUBSTATIONS TO BE CONFIRMED FOLLOWING SPECIALIST SUB-CONTRACTOR SURVEY.

14. LOCATION OF SOLAR FARM CONNECTION CABLE TO SUBSTATION 1 TO BE CONFIRMED FROM AS-BUILT DRAWINGS AND COORDINATED WITH NEW CABLING.

15. WHERE CABLING RUNS EXTERNALLY THE CONTAINMENT SHALL HAVE GALVANISED STEEL LIDS.

Issue / Revision

P06	06/01/2022	STAGE 4 ISSUE
P05	19/11/2021	STAGE 4 ISSUE
P04	05/11/2021	STAGE 4 ISSUE
P03	13/08/2021	STAGE 3 ISSUE
P02	29/05/2021	UPDATED TO KIER COMMENTS
P01	24/05/2021	STAGE 2 ISSUE
I/R	DATE	DESCRIPTION

Purpose of Issue
STAGE 4 ISSUE

Project Number
60586927

Sheet Title
MORRISTON HOSPITAL
PROPOSED SITE HV LAYOUT

Sheet Number
MHP2-AECC-HV-00-M2-E-000004

Scale : 1:500 @ A0 **Rev :** P06

Last saved by: PETE.THOMAS (2022-01-07) Last Plotted: 2022-01-07
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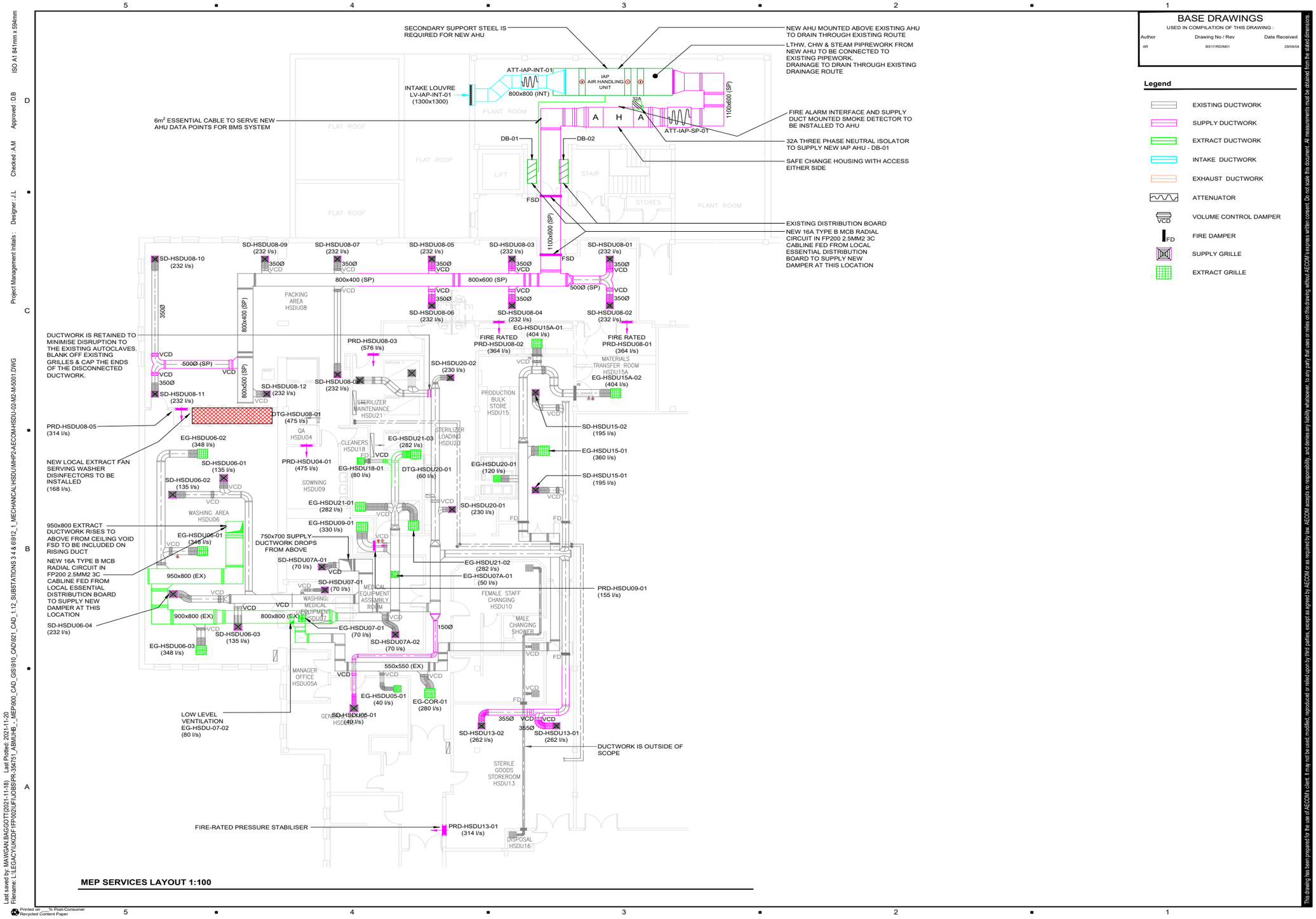
ISO A0 (1189mm x 841mm) Project Management Initials : Designer : SJR Checked : SJR Approved : DB

3: Project Details (Drawings)



MEP SERVICES LAYOUT 1:100

BASE DRAWINGS

USED IN COMPILATION OF THIS DRAWING :

Author	Drawing No / Rev	Date Received
AR	BS17/RD/M01	29/06/04

Legend

- EXISTING DUCTWORK
- SUPPLY DUCTWORK
- EXTRACT DUCTWORK
- INTAKE DUCTWORK
- EXHAUST DUCTWORK
- ATTENUATOR
- VCD — VOLUME CONTROL DAMPER
- FD — FIRE DAMPER
- SUPPLY GRILLE
- EXTRACT GRILLE

AECOM

Project

MORRISTON HOSPITAL SUBSTATION 6

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Notes

1. ALL ELECTRICAL INSTALLATIONS SHALL BE INSTALLED & COMMISSIONED TO FULLY COMPLY WITH BRITISH STANDARDS.
2. CIRCUITRY FED FROM DISTRIBUTION BOARD DB/S2 LOCATED WITHIN ELEC SWITCHBOARD IN IAS. WHEREVER POSSIBLE EXISTING CIRCUITRY SHALL BE RETAINED AND RE-USED
3. ALL CABLING IS TO BE CONTAINED IN NEW CONTAINMENT. MULTICOMPARTMENT DADO TRUNKING SHALL DROP DOWN TO ACCOMMODATE REQUIREMENTS FOR THE OFFICES DESKS.
4. ANY/ALL PENETRATIONS THROUGH FIRE BARRIERS SHALL BE SUITABLY STOPPED USING A SELF-EXPANDING 1-HR RATED FOAM, DRESSED DOWN AFTER APPLICATION TO PROVIDE SMOOTH-FINISH READY FOR FINAL DECORATION.
5. ALL ITEMS ARE EQUAL AND APPROVED.
6. THIS DRAWING MUST NOT BE USED FOR CONSTRUCTION PURPOSES. TESTING WILL BE IN ACCORDANCE WITH THE REQUIREMENTS OF BS7671, BS5266, BS5389.

0 1000 2500 5000 8000
SCALE 1:100 mm

Issue / Revision

P04	19/11/2021	STAGE 4 ISSUE
P03	05/11/2021	STAGE 4 ISSUE
P02	13/08/2021	SUBSTATION 6: PRELIMINARY ISSUE
P01	05/07/2021	TENDER ISSUE
I/R	DATE	DESCRIPTION

Purpose of Issue

STAGE 4 ISSUE

Project Number

60586927

Sheet Title

HSDU
MEP SERVICES
LAYOUT

Sheet Number

MHP2-AECOM-HSDU-02-M2-M-005001

Scale : 1:100 @ A1 **Rev :** P04

Last saved by: MAWGAN.BAGGOTT (2021-11-18) Last Printed: 2021-11-20
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ISO A1 841mm x 594mm Approved : D.B Checked : A.M Designer : J.L Project Management Initials :

3: Project Details (Drawings)

SITE PLAN GROUND FLOOR

SITE PLAN FIRST FLOOR

Project Management Initials : Designer : B.Z Checked : S.R Approved : D.B ISO A1 841mm x 594mm

Last saved by: PETE.THOMAS (2021-11-19) Last Plotted: 2021-11-20
Filename: L:\LG\AC\WC\EF\PYD\EUFX\DRS\PR\SA\70_ARM\MHB_MEP\900_CAD_GIS\910_CAD\921_CAD_1-12_SUBSTATIONS 3 4 & 6\911_1_ELECTRICAL\911_1_WIP\MHP2-AECOM-SS6-XX-M2-E-000004_ICT FIBRE OPTIC ROUTES.DWG

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AECOM

Project

MORRISTON HOSPITAL SUBSTATION 6

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Notes

1. DO NOT SCALE OFF THIS DRAWING.
2. THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT DRAWINGS, ENGINEERING AND ARCHITECTURAL SPECIFICATIONS.
3. THIS DRAWING SHALL NOT BE USED FOR CONSTRUCTION.
4. ALL ROUTES ARE INDICATIVE AND WHILST HAVE BEEN REVIEWED ON SITE FOR DESIGN PURPOSES, WILL REQUIRE FULL SURVEY BY THE CONTRACTOR AS PART OF TENDER PROCESS AND AGAIN DURING SITE WORKS TO ENSURE FINAL MOST SUITABLE ROUTE IS UTILISED IN AGREEMENT WITH ALL PARTIES

Legend

INCOMING FIBRE TRAY (A) AND EXTERNAL GRADE 10 PAIR CW1308 CABLE TO PABX ROOM TO BE LIDDED WITH GALVANISED STEEL LID WHEN EXTERNAL

INCOMING FIBRE TRAY (B) TO BE LIDDED WITH GALVANISED STEEL LID WHEN EXTERNAL

Issue / Revision

P02	19/11/2021	STAGE 4 ISSUE
P01	05/11/2021	STAGE 4 ISSUE
I/R	DATE	DESCRIPTION

Purpose of Issue

STAGE 4 ISSUE

Project Number

60586927

Sheet Title

SUBSTATION 6 NUCLEUS SITEWIDE ELECTRICAL SERVICES ROUTING ICT FIBRE OPTIC

Sheet Number

MHP2-AECOM-SS6-XX-M2-E-000004

Scale : 1:500 @ A1 **Rev :** P02

MORRISTON HOSPITAL - INFRASTRUCTURE WORKS

4: PLANNING PERMISSION STATUS

4: Planning Permission Status

A pre application was submitted to Swansea council in July 2021.

Swansea Council responded to the pre application on 25/08/2021, outlining the advisory comments from across the separate departments and interested parties including ecology, highways, drainage and arboriculture. It was confirmed by the council that the HV Ring Main replacement and associated works would be classified as a permitted development (see attached letter).

The Full Planning Application was submitted in October 2021, with Swansea Council confirming that determination could be expected on 30th December 2021. This date was then moved back to 31st January 2022 due to the backlog of applications caused by Covid 19 within Swansea Council and the availability of staff.

Planning determination notice was granted on 14th March 2022 subject to pre-commencement planning conditions. See below decision notice issued by City & County of Swansea Council outlining conditions that need to be addressed prior to starting on site.

Kier and the Design Team are currently working on closing out the pre-commencement planning conditions

4: Planning Permission Status

CITY & COUNTY OF SWANSEA / DINAS A SIR ABERTAWE
DIRECTORATE OF PLACE / CYFARWYDDIAETH LLEOEDD
PLANNING AND CITY REGENERATION / CYNLLUNIO AC ADFYWIO'R DDINAS
CIVIC CENTRE, OYSTERMOUTH ROAD, SWANSEA, SA1 3SN
Y GANOLFAN DDINESIG, HEOL YSTUMLLWYNARTH, ABERTAWE, SA1 3SN
☎ (01792) 635701 🖷 (01792) 635719 🖷 (01792) 635708
✉ planning@swansea.gov.uk / http://www.swansea.gov.uk

Mr. Josha Scholes
WSP,
The Mailbox
Level 2
100 Wharfside Street
Birmingham
B1 1RT

Please ask for: Catherine Pelleymounter
Direct Line: 07970680595
E-mail: catherine.pelleymounter@swansea.gov.uk
Date: 25/08/2021

Dear Sir/Madam

The Town and Country Planning Act 1990 (As amended)
The Town and Country Planning (Pre-Application Services)(Wales) Regulations 2016

Application No: 2021/1832/PRE
Site Location: Morriston Hospital Heol Maes Eglwys Cwmrhydyceirw Swansea SA6 6NL
Proposal: PRE APP for substation, generators and low voltage switchroom

I refer to the above pre-application seeking advice under the statutory pre-application services provided for under the above Regulations.

The Proposal

It is proposed to construct a substation, generators and a low voltage switchroom at Morriston Hospital.

Relevant planning history

There is significant planning history in association with Morriston Hospital, the most recent and relevant of which I have listed below:

2018/08600/FUL: Two storey plant room 6, single storey medi gas cylinder store, single storey extension to plant room 6, self contained generator 4 with associated flue, structure support, cable trays and structure support. Approved 6th August 2018

2019/0822/SCRL: Screening Opinion for a new access road off the roundabout from Junction 46 of the M4 to Morriston Hospital and Morriston Health Campus. Screening opinion required – 21st May 2019.

2019/2603/FUL: Retention of a single storey building to house an automatic electrical transfer switch. Approved 14th January 2020.

CITY & COUNTY OF SWANSEA / DINAS A SIR ABERTAWE
DIRECTORATE OF PLACE / CYFARWYDDIAETH LLEOEDD
PLANNING AND CITY REGENERATION / CYNLLUNIO AC ADFYWIO'R DDINAS
CIVIC CENTRE, OYSTERMOUTH ROAD, SWANSEA, SA1 3SN
Y GANOLFAN DDINESIG, HEOL YSTUMLLWYNARTH, ABERTAWE, SA1 3SN
☎ (01792) 635701 🖷 (01792) 635719 🖷 (01792) 635708
✉ planning@swansea.gov.uk / http://www.swansea.gov.uk

2020/0547/SCO: Scoping Opinion for a new access road off the roundabout from Junction 46 of the M4 to Morriston Hospital and the Expansion of Morriston Health Campus. EIA required – 7th May 2020.

The National Development Framework: Future Wales - the National Plan 2040

Future Wales sets out the Welsh Government's land use priorities and provides a national land use framework for SDPs and LDPs. Future Wales concentrates on development and land use issues of national significance, indicating areas of major opportunities and change, highlighting areas that need protecting and enhancing and helping to co-ordinate the delivery of Welsh Government policies to maximise positive outcomes.

Policy 1 - Where Wales Will Grow
Policy 2 - Shaping Urban Growth and Regeneration - Strategic Placemaking
Policy 9 - Resilient Ecological Networks and Green Infrastructure

Planning Policy Wales (11th Edition) 2021

Good Design Making Better Places
3.3 Good design is fundamental to creating sustainable places where people want to live, work and socialise. Design is not just about the architecture of a building but the relationship between all elements of the natural and built environment and between people and places. To achieve sustainable development, design must go beyond aesthetics and include the social, economic, environmental, cultural aspects of the development, including how space is used, how buildings and the public realm support this use, as well as its construction, operation, management, and its relationship with the surroundings area.

3.4 Design is an inclusive process, which can raise public aspirations, reinforce civic pride and create a sense of place and help shape its future. For those proposing new development, early engagement can help to secure public acceptance of new development. Meeting the objectives of good design should be the aim of all those involved in the development process and applied to all development proposals, at all scales.

Adopted Swansea Local Development Plan (2010-2025)

PS 2 Placemaking and Place Management - development should enhance the quality of places and spaces and should accord with relevant placemaking principles.

SI 4 Morriston Hospital - Land adjacent to Morrison Hospital is safeguarded solely for the future development and expansion of the Hospital. Development at this location is restricted to healthcare related uses in association with the beneficial use of Morriston Hospital within the context of an appropriate comprehensive masterplan agreed with the Council. Proposals must be delivered alongside appropriate new and enhanced highway infrastructure. Proposals for non-health related uses within the safeguarded land will not be permitted.

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CV 2 Development in the Countryside – Development outside defined settlement boundaries will be required to ensure the integrity of the countryside is conserved and enhanced. There is a presumption against development in the countryside except where it meets a specific set of criteria. Countryside development must be of a sustainable form with prudent management of natural resources and respect for the cultural heritage of the area. Where possible, existing buildings should be reused and where this is not feasible new buildings should be positioned close to existing buildings.

ER 8 Habitats and Species - Development proposals that would have a significant adverse effect on the resilience of protected habitats and species will only be permitted where they meet specific criteria.

ER 9 Ecological Networks and Features of Importance for Biodiversity - Development proposals will be expected to maintain, protect and enhance ecological networks and features of importance for biodiversity. Particular importance will be given to maintaining and enhancing the connectivity of ecological network. Development that could have an adverse effect on such networks and features will only be permitted where meet specific criteria are met.

ER 11 Trees, Hedgerows and Development - Development that would adversely affect trees, woodlands and hedgerows of public amenity, natural/cultural heritage value, or that provide important ecosystem services will not normally be permitted. Ancient Woodland, Ancient Woodland Sites, Ancient and Veteran trees merit specific protection and development that would result in specified outcomes will not normally be permitted.

Where necessary a tree survey; arboricultural impact assessment; an arboricultural method statement; tree protection plan and/or scheme for tree replacement, including details of planting and aftercare will be required in support of a planning application.

T1 Transport Measures and Infrastructure - Development must be supported by appropriate transport measures and infrastructure and dependant the nature, scale and siting of the proposal, meet specified requirements. Development that would have an unacceptable impact on the safe and efficient operation of the transport network will not be permitted.

T 5 Design Principles for Transport Measures and Infrastructure - provides design criteria that the design of the new development, including supporting transport measures/infrastructure must adhere to.

T 6 Parking - proposals must be served by appropriate parking provision, in accordance with maximum parking standards, and consider the requirements for cycles, cars, motorcycles and service vehicles. In those instances where adequate parking cannot be provided on site, or is judged not to be appropriate, the developer will be required to provide a financial contribution towards alternative transport measures where appropriate.

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The provision of secure cycle parking and associated facilities will be sought in all major development schemes.

EU4 Public Utilities and New Development - development will be permitted where the utility infrastructure is adequate to meet the needs of the development.

RP 4 Water Pollution and the Protection of Water Resources - development that compromises the quality of the water environment, or does not comply with good water resource management, will not be permitted. Development proposals must make efficient use of water resources and, where appropriate, contribute towards improvements to water quality. Sustainable drainage systems (SuDS) must be implemented wherever they would be effective and practicable. Water courses will be safeguarded through green corridors/riparian buffers. Development proposals that would have a significant adverse impact on biodiversity, fisheries, public access or water related recreation use of water resources, will not be permitted.

RP 5 Avoidance of Flood Risk - In order to avoid the risk of flooding, development will only be permitted in line with Policy principles.

Supplementary Planning Guidance (SPG):

SPG relevant to the proposed development, which are available to download in full from our website at www.swansea.gov.uk are as follows:

- Parking Standards (Adopted March 2012)
- Development and Biodiversity (Adopted 2021)

Initial assessment of the proposed development and consideration of planning merits

Responses to Consultations

Local Authority Ecologist

Preliminary Ecological Assessment (PEA)
Any submission must be accompanied by a Preliminary Ecological Appraisal (PEA). This should include an assessment of the potential of the proposals to impact on protected species and habitats (including invasive non-native species as there is a lot of Japanese knotweed in the area), and determine the need for any further surveys. If the existing shelter on site is to be removed, it will require an assessment for bats and birds. The PEA must be carried out by a suitably qualified and experienced ecologist. The submission must be accompanied by the results of any further surveys that are identified as necessary within the PEA.

Lighting Strategy
A sensitive lighting strategy should be adopted to protect bats and other nocturnal species, and to protect nearby habitats. A plan showing location, light spill and specification for any proposed

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lights on the site (during construction & operation) will be required to inform the development. The lighting plan should reflect the Bat Conservation Trust's Bats and Lighting in the U.K. (2018) guidance.

Construction Environmental Management Plan (CEMP)
A Construction Environmental Management Plan (CEMP) detailing all pollution prevention and other environmental protection measures will be required to inform the development.

Green Infrastructure
LDP Policy ER 2 requires that in order to be acceptable, development must not compromise the integrity of the green infrastructure system. This means that where a development proposal will result in loss in green infrastructure and consequently a loss in ecosystem service provision, mitigation and compensation measures will be required. The LDP policy now requires that compensatory measures should maintain and enhance the green infrastructure network. The policy criteria set out the type of measures that could be incorporated into a development scheme to achieve this.

Ecological Enhancements
A scheme to demonstrate that the development will conserve and enhance biodiversity and resilient ecosystems will be required to inform the development. This is in line with the Section 6 Duty of the Environment (Wales) Act 2016, the Resilient Wales Goal of the Well-being of Future Generations Act 2015, Planning Policy Wales Edition 11 and Technical Advice Note 5.

The Biodiversity Supplementary Planning Guidance (SPG) should be referred to for further information: https://www.swansea.gov.uk/biodiversityspg

Local Highway Authority

In principle there are no highway objections to the proposals, the new access will require upgrading and off site works will be subject to a S278 agreement with the Highway Authority, design and implementation costs at the expense of the developer.

In addition, the following will be required.

CONSTRUCTION TRAFFIC MANAGEMENT PLAN

Prior to any works commencing on the site, a Construction Traffic Management Plan shall be submitted to and approved in writing by the Local Planning Authority. The approved traffic management plan shall be implemented and adhered to at all times unless otherwise agreed by the Local Planning Authority.

CONSTRUCTION METHOD STATEMENT

No development shall commence, including any works of demolition, until a Construction Method Statement has been submitted to and approved in writing by the Local Planning Authority. The

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approved statement shall be adhered to throughout the construction period. The statement shall provide for:

- The parking of vehicles of site operatives and visitors.
- Loading and unloading of plant and materials.
- Storage of plant and materials used in constructing the development.
- The erection and maintenance of security hoarding including decorative displays and facilities for public viewing where appropriate.
- Wheel washing facilities.
- Measures to control the emission of dust and dirt during demolition and construction and
- A scheme for recycling/disposing of waste resulting from demolition and construction works.

The Developer must contact the Highway Management Group, The City and County of Swansea, Guildhall, c/o The Civic Centre , Swansea SA1 3SN before carrying out any work . E-mails to networkmanagement@swansea.gov.uk.

Local Drainage Authority

The proposed SAB layout is not acceptable, we will not consider a connection to the highway drain as it is not designed to accept additional flows from development, nor is there any right to make a connection.

Schedule 3, Flood and Water Management Act 2010.
Your development proposal has been identified as requiring SuDS Approval Body consent irrespective of any other permissions given.

From 7 January 2019, all new developments more than 100m2 will require sustainable drainage to manage on-site surface water. Surface water drainage systems must be designed and built in accordance with mandatory standards for sustainable drainage published by Welsh ministers.

These systems must be approved by the local authority acting in its SuDS Approving Body (SAB) role before construction work begins. The SAB will have a duty to adopt compliant systems so long as it is built and functions in accordance with the approved proposals, including any SAB conditions of approval.

Which legislation are we referring to?
Schedule 3 of the Flood and Water Management Act (FWMA) 2010 requires surface water drainage for new developments to comply with mandatory National Standards for sustainable drainage (SuDS). Schedule 3 to the FWMA 2010 also places a duty on local authorities as SuDS approving body to approve, adopt and maintain systems compliant with section 17 of the schedule.

What exactly is a SAB?
The SAB is a statutory function delivered by the local authority to ensure that drainage proposals for all new developments of more than 1 house or where the construction area is 100m2 are

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designed and built in accordance with the national standards for sustainable drainage published by Welsh Ministers.

The SAB is established to:

- Evaluate and approve drainage applications for new developments where construction work has drainage implications, and
- Adopt and maintain sustainable surface water drainage systems according to Section 17 of Schedule 3 (FWMA).
- The SAB also has powers of inspection and enforcement
- And uses discretionary powers to offer non-statutory pre-application advice

What does it mean for my development?
Whether you are a developer, an agent or an individual seeking planning permission for a development, if your development is of more than 1 house or of 100m2 or more of construction area you must also seek SAB approval alongside planning approval. You will not be allowed to start construction until the 2 permissions are granted.

Further details on how to apply and guidance can be obtained from the website https://www.swansea.gov.uk/sustainabledrainage and by contacting the SuDS Approval Body via email Sab@swansea.gov.uk

Local Authority Tree Officer

The proposed substation is tucked in behind the hedge; this proximity could damage tree or require pruning in the future. A full application would need to be accompanied by an arboricultural impact assessment in accordance with BS5837:2012.

Consider moving further from hedge.

Principle of Development

The submitted documents state that the generators and substation are required due to capacity issues with the existing substations at the site. The substation and generators are proposed to be located within the future Morriston Hospital development site as identified in Policy SI4 of the Local Development Plan. Development at this location is restricted to healthcare related uses in association with the beneficial use of Morriston Hospital. Whilst there is expansion proposed to this area it does not appear that a detailed masterplan has been submitted to date (however a scoping opinion was submitted to the authority last year). I would highlight that Policy SI4 states "Detailed proposals must be brought forward in a comprehensive, rather than piecemeal manner, in order to demonstrate that a proposed scheme relates well to the aspirations for redevelopment and expansion across the site, and that the potential for re-use of existing buildings and land within the settlement boundary is maximised". Therefore it should be highlighted that a piecemeal approach to development in this location would not likely be considered acceptable. Notwithstanding this, given the need for the proposed additional generator capacity and the limited use of the future development site, the proposals may be considered acceptable but justification

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will need to be provided as to why this infrastructure could not be located on the existing site and to ensure it does not prejudice the future plans for the hospital expansion.

In general terms, the principle of additional generators and substations are acceptable however key considerations will also include the impact of the proposal on visual and residential amenity, highways, drainage, ecology and trees; all of which will be discussed in the below paragraphs.

Visual Amenity

In terms of visual amenity the proposed substation, low voltage switchroom and generators are fairly low lying and would not therefore have a significant visual impact upon the surrounding area. The proposed switchroom would also be located within the existing grounds of the hospital adjacent to similar built features and would not therefore appear out of place in this context. It would however be useful if the remaining viewpoint were to be submitted with any future planning application as this would allow us to undertake a more thorough assessment of the visual impact of the proposals.

Residential Amenity

Given the proposed location of the development and the lack of residential properties within the immediate vicinity it is not considered that the proposal would give rise to any concerns with regards to residential amenity. However details of noise generation from the proposals should be submitted for detailed consideration.

Ecology and Trees

As highlighted by the Council's Tree Officer, the substation is proposed to be tucked behind the hedge which could damage trees or increase the requirement for pruning in the future. It may therefore be beneficial to move the substation slightly further form the hedge. The distance from the hedge should weigh up the potential impact on the hedge and its visual impact. The application should also be accompanied by an arboricultural impact assessment accordance with BS5837:2012.

I would advise consulting with an Ecologist in order to produce and submit a Preliminary Ecological Appraisal (PEA). I would recommend that if an application were to be submitted that this information is provided at the outset to alleviate any unnecessary delays. Any recommendations should be formulated as part of your proposals. You are advised to peruse the adopted Supplementary Planning Guidance document 'Development and Biodiversity' and incorporate ecological enhancements into the scheme. In addition, it is imperative that the "step-wise approach" espoused in Planning Policy Wales and the SPG is evidenced in any application.

Highways

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As highlighted in the Local Highway Authority's response above, the new access will require upgrading and off site works will be subject to a S278 agreement with the Highway Authority, design and implementation costs at the expense of the developer.

It has also been highlighted that a construction method statement and construction traffic management plan would be required for this type of development in this location.

Drainage

Given the nature of the development the application would also be required to gain approval from the SuDS Approval Body (SAB) before any commencement of development. It is recommended that pre-application advice is also sought for this element given that development cannot commence until you have both planning permission and SAB approval

Details of any documents required for a subsequent application

I would recommend that the following is submitted with any future planning application:

- Full and detailed justification for the need for the proposals
- Site location plan to a scale of 1.1250
- Block plan to a scale of 1.200 or 1.500
- Floor plans and elevations to a scale of 1.50 or 1.100.
- Visuals/street scene elevations
- Arboricultural impact assessment in accordance with BS5837:2012.
- Preliminary Ecological Appraisal
- Details of noise generation and emissions
- Justification for the location of the apparatus.

Conclusion

In conclusion, I would recommend that a full planning application is submitted for the proposals. I would also recommend that the above suggested information is submitted at the outset to ensure the application is not delayed and the proposals are informed by the results of aforementioned surveys.

Please note that this guidance is given on the basis of the information submitted, and that full consultation with Statutory Undertakers or interested parties, such as neighbours has not been undertaken, and that it is only through the submission of a planning application that full consideration can be given to a proposal.

Additionally, the views expressed are those of an officer of the Authority, which cannot prejudice any final decision the Council may make if an application for planning permission is submitted.

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I trust that the above advice is satisfactory for your current purposes. However should you require clarification of any of the above matters, please do not hesitate to contact Catherine Pelleymounter on the above number.

Should you wish to obtain further discussion and advice in relation to this pre-application, as part of our pre-application services the Council offers follow-up meetings to pre-application letters.

Yours sincerely

Andrew Ferguson

Andrew Ferguson
Area 1 – Team Leader

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Planning & City Regeneration
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8 November 2021

PUBLIC

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Dear Sir/Madam,

Planning Notification

Morriston Hospital Infrastructure – Works to install 2 Gantries to support Fibre Optic, HV and LV cables and Renewal of the HV Ring Main

Swansea Bay University Health Board (SBUHB) is planning to carry out the following works at Morriston Hospital, Heol Maes Eglwys, Morriston, Cwmrhydyceirw, Swansea:

1. Installation of 2 new Gantries to support Fibre Optic, High Voltage (HV) and Low Voltage (LV) cables
2. Installation of a Welsh Health Technical Memoranda (WHTM) compliant 11 Kilovolt (kV) Ring Main to renew the existing HV 2 cable radial network to provide the hospital with a resilient supply network

This purpose of this letter is to notify Swansea Council that these works are Permitted Development. The letter is accompanied by the following plans:

- 'Substation 6 Nucleus Sitewide Electrical Services Routing Ground Floor And Gantry Details' (Ref no. MHP2-AECOM-SS6-XX-M2-E-0005)
- 'Morriston Hospital Electrical Services Proposed Site HV Layout' (Ref no. MHP2-AECC-HV-00-M2-E-0004)

The Site, works and Permitted Development considerations are set out below.

Site

The Site comprises land within the Morriston Hospital Estate at Heol Maes Eglwys, Morriston, Cwmrhydyceirw, Swansea (see **Fig. 2** in the Appendix to this letter).

The detailed locations of the Gantry works are shown on the plan accompanying this letter titled 'Substation 6 Nucleus Sitewide Electrical Services Routing Ground Floor And Gantry Details' (Ref no. MHP2-AECOM-SS6-XX-M2-E-0005). The location of the Ring Main works are shown on the plan accompanying this letter titled 'Morriston Hospital Electrical Services Proposed Site HV Layout' (Ref no. MHP2-AECC-HV-00-M2-E-0004).

Works

2 new Gantries to support Fibre Optic, HV and LV cables and a new WHTM compliant Ring Main will be installed at Morriston Hospital. The works are described in detail below.

Gantries

2 new Gantries will be installed between a proposed LV Switchroom building and Plant Room 6 within the main hospital building to the south east. The LV Switchroom building is currently the subject of a full planning application to Swansea Council under reference number 2021/2621/FUL.

The Gantries will facilitate the routing of Fibre Optic, HV and LV cables from the LV Switchroom building to the main hospital building where undergrounding of these cables will not be possible in order to complete the new WHTM compliant 11 kV Ring Main and connect the Switchroom to the Hospital's Fibre Optic network. Plan no. MHP2-AECOM-SS6-XX-M2-E-0005 illustrates the location of the Gantries whilst **Figure 1** shows an approximate visualisation of the Gantry locations using yellow dashed lines.

Figure 1. Gantries visualisation (Source: Google Imagery, 2021)

4: Planning Permission Status

Ring Main

A new WHTM compliant 11 kV Ring Main will be installed at Morriston Hospital to renew the existing HV 2 cable radial network. The new Ring Main will provide the hospital with a resilient supply network.

The new Ring Main is shown on Plan no. MHP2-AECC-HV-00-M2-E-0004 using blue, red and yellow dashed lines. The Ring Main will be mainly installed underground in ducts adjacent to existing roadways throughout the Morriston Hospital Estate. The Ring Main will be installed at roof level for a short section between Substation 4 and a point to the south west of the Mortuary.

Permitted Development

WSP previously submitted a pre-application request to Swansea Council under reference 2021/1832/PRE. In that request WSP stated that we considered the new Ring Main constituted Permitted Development under Part 10, Class A of The Town and Country Planning (General Permitted Development) Order 1995[1]:

> *"Permitted development*
>
> *The carrying out of any works for the purposes of inspecting, repairing or renewing any sewer, main, pipe, cable or other apparatus, including breaking open any land for that purpose."*

WSP consider that the new Ring Main benefits from Permitted Development rights under Part 10, Class A of The Town and Country Planning (General Permitted Development) Order 1995. Works will be carried out on this basis.

In terms of the Gantries, WSP consider that this element of the works constitutes Permitted Development under Part 32, Class A of The Town and Country Planning (General Permitted Development) (Amendment) (Wales) Order 2014[2]:

> *"Permitted development*
>
> *A. The erection, extension or alteration of a school, college, university or hospital building."*

WSP consider that the installation of the Gantries constitutes the alteration of a hospital building. In terms of the restrictions and conditions on Permitted Development, **Table 1** below identifies that the Gantries will accord with the Permitted Development rights available.

Table 1. Part 32, Class A - Restrictions and Conditions on Development

Part 32, Class A - Restrictions and Conditions	Comments
A.1 Development not permitted	
(a) if the cumulative gross floor space of any buildings erected, extended or altered would exceed— (i) 25% of the gross floor space of the original school, college, university or hospital buildings; or (ii) 100 square metres, whichever is the lesser;	Not Applicable to the Gantries.
(b) if any part of the development would be within 5 metres of a boundary of the curtilage of the premises;	No part of the development would be within 5 metres of a boundary of the curtilage of the premises.
(c) if, as a result of the development, any land used as a playing field at any time in the 5 years before the development commenced and remaining in this use could no longer be so used;	Not Applicable to the Gantries.
(d) if the height of any new building erected would exceed 5 metres;	Not Applicable to the Gantries.
(e) if the height of the building as extended or altered would exceed— (i) if within 10 metres of a boundary of the curtilage of the premises, 5 metres; or (ii)in all other cases, the height of the building being extended or altered;	The Gantries will be located over 10 metres away from the boundary of the curtilage of the premises and would not exceed the height of the building being altered.
(f) if the development would be within the curtilage of a listed building;	The Gantries will not be installed within the curtilage of a listed building.
(g) the development would lead to a reduction in the space available for the parking or turning of vehicles; or	The Gantries will not lead to a reduction in the space available for the parking or turning of vehicles.
(h) unless— (i) in the case of school, college or university buildings, the predominant use of the existing buildings on the premises is for the provision of education; or (ii) in the case of hospital buildings, the predominant use of the existing buildings on the premises is for the provision of any medical or health services.	This provision is not required. However, clause ii would apply to the Morriston Hospital building being altered.
A.2. Development is permitted by Class A subject to the following conditions—	
(a) the development must be within the curtilage of an existing school, college, university or hospital;	The Gantries will be installed within the curtilage of an existing hospital.
(b) the development may only be used as part of, or for a purpose incidental to, the use of that school, college, university or hospital;	The Gantries will only be used for a purpose incidental to, the use of that hospital.
(c) any new building erected must, in the case of article 1(5) land or land within a World Heritage Site, be constructed using materials which have a similar external appearance to those used for the original school, college, university or hospital buildings; and	Not Applicable to the Gantries.

[1] https://www.legislation.gov.uk/uksi/1995/418/schedule/2/part/10
[2] https://www.legislation.gov.uk/wsi/2014/592/article/2/made

(d) any extension or alteration must, in the case of article 1(5) land or land within a World Heritage Site be constructed using materials which have a similar external appearance to those used for the building being extended or altered.	The Gantries will not be located on article 1(5) land or land within a World Heritage Site.

For the reasons outlined above, WSP consider that the works described in this letter are Permitted Development. It would be appreciated if you could acknowledge this view in writing.

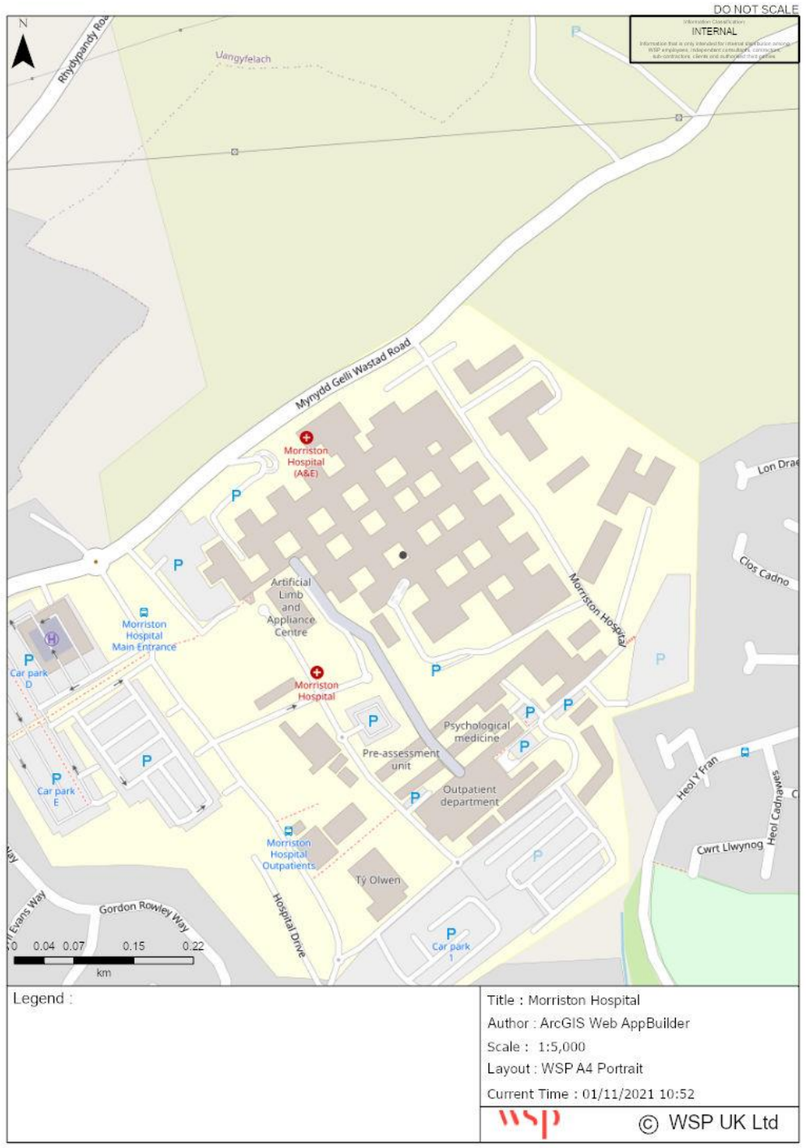
If you require further information, then please do not hesitate to contact me.

Yours sincerely,

Joshua Scholes
Town Planner, WSP

APPENDIX

Figure 2. Morriston Hospital



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Cyngor Abertawe Swansea Council

CITY AND COUNTY OF SWANSEA

TOWN AND COUNTRY PLANNING ACT 1990-2004

GRANT OF PLANNING PERMISSION

TO:
Mr Joshua Scholes
WSP
Level 2
100 Wharfside Street
Birmingham
B1 1RT

DATE VALID: **04.11.2021**

APPLICATION NO: **2021/2621/FUL**

APPLICANT: **Swansea Bay University Health Board**

The CITY AND COUNTY OF SWANSEA, in exercise of its powers under the above ACT, hereby GRANTS planning permission for:

SITE LOCATION:	**PROPOSAL:**
Morriston Hospital **Heol Maes Eglwys** **Cwmrhydyceirw** **Swansea** **SA6 6NL**	**Installation of substation, generators, 2.5m fencing, low voltage switchroom and fuel transfer line**

as referred to in your application and shown on the accompanying plan(s), subject to the following condition(s):-

1 The development hereby permitted shall begin not later than five years from the date of this decision.
Reason: To comply with the provisions of Section 91 of the Town and Country Planning Act, 1990.

2 The development shall be carried out in accordance with the following approved plans and documents:
MHP2-IBI-WS-XX-DR-A-100002 P2 site location plan, MHP2-IBI-XX-XX-DR-A-100010 P8 proposed site plan, MHP2-IBI-LV-00-DR-A-200001 P3 LV enclosure proposed 1-100GA plan & elevations, MHP2-IBI-S6-00-DR-A-200002 P3 substation 6 - proposed 1-100 GA plan & elevations, received 12th October 2021.
70083576-WSP-3000-DR-LA-0001 P02 detailed soft landscape design, 70083576-WSP-3000-DR-LA-0002 P02 soft landscape details, 70083576-WSP-3000-RP-LA-0001 landscape and ecological management plan, 70083576-WSP-3000-RP-LA-0001 soft landscape outline specification, received 10th December 2021.
Reason: For the avoidance of doubt and to ensure compliance with the approved plans.

3 The development shall be implemented and managed in strict accordance with the submitted Landscape and Ecological Management Plan (LEMP), dated November 2021, prepared by WSP.
Reason: To ensure the site is developed in a sensitive manner that respects the surrounding environment with regards to highway safety, public health, contamination and ecology.

4 No development including site clearance, shall commence until a site wide Construction Environmental Management Plan (CEMP) has been submitted to and approved in writing by the Local Planning Authority. The CEMP should include:
o Construction methods: details of materials, how waste generated will be managed;
o General Site Management: details of the construction programme including timetable, details of site clearance; details of site construction drainage, containments areas, appropriately sized buffer zones between storage areas (of spoil, oils, fuels, concrete mixing and washing areas) and any watercourse or surface drain.
o Biodiversity Management: details of tree and hedgerow protection; invasive species management; species and habitats protection, avoidance and mitigation measures.
o Soil Management: details of topsoil strip, storage and amelioration for re-use.
o CEMP Masterplan: details of the extent and phasing of development; location of landscape and environmental resources; design proposals and objectives for integration and mitigation measures.
o Control of Nuisances: details of restrictions to be applied during construction including timing, duration and frequency of works; details of measures to minimise noise and vibration from piling activities, for example acoustic barriers; details of dust control measures; measures to control light spill and the conservation of dark skies.
o Resource Management: details of fuel and chemical storage and containment; details of waste generation and its management; details of water consumption, wastewater and energy use
o Traffic Management: details of site deliveries, plant on site, wheel wash facilities
o Pollution Prevention: demonstrate how relevant Guidelines for Pollution Prevention and best practice will be implemented, including details of emergency spill procedures and incident response plan.
o Details of the persons and bodies responsible for activities associated with the CEMP and emergency contact details
o Landscape/ecological clerk of works to ensure construction compliance with approved plans and environmental regulations.
The CEMP shall be implemented as approved during the site preparation and construction phases of the development.
Justification: A CEMP should be submitted to ensure necessary management measures are agreed prior to commencement of development and implemented for the protection of the environment during construction.

5 Prior to the commencement of development, Invasive Non-Native Species (INNS) on site shall be eradicated, avoided, contained and/ or removed in accordance with an INNS Strategy that has first been submitted to, and approved in writing by the Local Planning Authority.
Reason: In the interests of the ecology and amenity of the area.

6 Prior to the commencement of development, a scheme of Ecological Enhancement Measures and an Implementation Timetable shall be submitted to and approved in writing by the Local Planning Authority. The Ecological Enhancement shall thereafter be undertaken in accordance with the approved scheme and Implementation Timetable and retained thereafter for the lifetime of the development.
Reason: In the interests of biodiversity and to provide a net benefit to biodiversity in accordance with Policy 9 of Future Wales and ER 9 of the Swansea Local Development Plan (2010-2025).

7 No development shall commence until the following components of a scheme to deal with the risks associated with contamination at the site, has been submitted to and approved in writing by the Local Planning Authority.
1. A preliminary risk assessment which has identified:
o all previous uses
o potential contaminants associated with those uses
o a conceptual model of the site indicating sources, pathways and receptors
o potentially unacceptable risks arising from contamination at the site

2. A site investigation scheme, based on (1) to provide information for a detailed assessment of the risk to all receptors that may be affected, including those off site.

4: Planning Permission Status

3. The results of the site investigation and the detailed risk assessment referred to in (2) and, based on these, an options appraisal and remediation strategy giving full details of the remediation measures required and how they are to be undertaken.
4. A verification plan providing details of the data that will be collected in order to demonstrate that the works set out in the remediation strategy in (3) are complete and identifying any requirements for longer-term monitoring of pollutant linkages, maintenance and arrangements for contingency action.

The remediation strategy and its relevant components shall be carried out in accordance with the approved details.
Reason: To ensure the risks associated with contamination at the site have been fully considered prior to commencement of development as controlled waters are of high environmental sensitivity; and where necessary remediation measures and long-term monitoring are implemented to prevent unacceptable risks from contamination.

8 Prior to the operation of the development, a verification report demonstrating completion of works set out in the approved remediation strategy and the effectiveness of the remediation shall be submitted to and approved in writing by the Local Planning Authority. The report shall include results of sampling and monitoring carried out in accordance with the approved verification plan to demonstrate that the site remediation criteria have been met. It shall also include a long-term monitoring and maintenance plan for longer-term monitoring of pollutant linkages, maintenance and arrangements for contingency action, as identified in the verification plan. The long-term monitoring and maintenance plan shall be carried out in accordance with the approved details.
Reason: To ensure the methods identified in the verification plan have been implemented and completed and the risk associated with the contamination at the site has been remediated prior to occupation or operation, to prevent both future users of the land and neighbouring land are minimised, together with those to controlled waters, property and ecological systems, and to ensure that the development can be carried out safely without unacceptable risks to workers, neighbours and other offsite receptors.

9 Prior to the operation of the development, a long term monitoring plan for land contamination shall be submitted and approved in writing by the Local Planning Authority. The long term monitoring plan should include:
o Details of the methods and triggers for action to be undertaken
o Timescales for the long term monitoring and curtailment mechanisms e.g. a scheme of monitoring for 3 years unless the monitoring reports indicate that subsequent monitoring is or is not required
o Details of any necessary contingency and remedial actions and timescales for actions
o Details confirming that the contingency and remedial actions have been carried out.

The monitoring plan shall be carried out in accordance with the approved details, within the agreed timescales.
Reason: To ensure necessary monitoring measures are approved to manage any potential adverse impacts as a result of development on water quality.

10 If, during development, contamination not previously identified is found to be present at the site then no further development (unless otherwise agreed in writing with the Local Planning Authority) shall be carried out until a remediation strategy detailing how this unsuspected contamination shall be dealt with has been submitted to and approved in writing by the Local Planning Authority. The remediation strategy shall be carried out as approved.
Reason: To ensure the risks associated with previously unsuspected contamination at the site are dealt with through a remediation strategy, to minimise the risk to both future users of the land and neighbouring land, and to ensure that the development can be carried out safely without unacceptable risks.

11 No piling or any other foundation designs using penetrative methods shall be undertaken as part of this permission unless full details to demonstrate that there is no unacceptable risk to groundwater have been submitted to and approved in writing by the Local Planning Authority prior to such works commencing. The piling/foundation designs shall be implemented in accordance with the approved details.
Reason: Piling/foundation details should be submitted to ensure there is no unacceptable risk to groundwater during construction and methods/design are agreed prior to the commencement of development if required.

12 Notwithstanding the submitted details, no development or site clearance shall take place until there has been submitted to and approved in writing by the Local Planning Authority a fully detailed scheme of landscaping including species, spacings and height when planted of all new planting. The scheme shall include indications of all existing trees (including spread and species) and hedgerows on the land, identify those to be retained and set out measures for their protection throughout the course of development. The landscaping scheme shall also be informed by The City and County of Swansea's Tree Replacement Standard as specified within the Trees, Hedgerows and Woodland Supplementary Planning Guidance (October 2021).

All planting, seeding or turfing comprised in the approved details of landscaping shall be carried out in the first planting and seeding seasons following the first beneficial occupation of the building(s) or the completion of the development, whichever is the sooner; and any trees or plants which within a period of 5 years from the completion of the development die, are removed or become seriously damaged or diseased shall be replaced in the next planting season with others of similar size and species.
Reason: In the interests of maintaining a suitable scheme of landscaping to protect the visual amenity of the area, to maintain the special qualities of the landscape and habitats through the protection, creation and enhancement of links between sites and their protection for amenity, landscape and biodiversity value.

13 Notwithstanding the details submitted to date, the boundary enclosure to be erected around the substation (indicated as palisade fencing on the layout plan) shall be weld mesh or Paladin fencing finished in black or green. The development shall thereafter be retained in its approved form.
Reason: In the interests of visual amenity.

Informatives:
Please view plans on City & County of Swansea website http://property.swansea.gov.uk

1 The national development plan is Future Wales: The National Plan 2040. The following policies were relevant to the consideration of the application:

Policy 1 - Where Wales Will Grow
Policy 2 - Shaping urban growth and regeneration - Strategic placemaking
Policy 9 - Resilient ecological networks and Green infrastructure
Policy 28 - National Growth Area - Swansea Bay and Llanelli

The development plan covering the City and County of Swansea is the Swansea Local Development Plan. The following policies were relevant to the consideration of the application: PS2, SI4, CV2, ER8, ER9, ER11, T1,, T5, T6, EU4, RP4, RP5 and RP6.

2 Under the provisions of Schedule 3 of the Flood and Water Management Act 2010, your development may require Sustainable Drainage Approval before any construction work commences. Further details can be found on the Authority's website:- https://www.swansea.gov.uk/sustainabledrainage and the SuDS Approval Team can be contacted via SAB.Applications@swansea.gov.uk for further advice and guidance.

3 The developer must contact the Streetworks Department, Technical Services, City and County of Swansea, Players Industrial Estate, Clydach, Swansea SA6 5BJ before carrying out any work . E-mails to Streetworks@swansea.gov.uk

4: Planning Permission Status

4 Bats may be present. All British bat species are protected under Schedule 5 of the Wildlife & Countryside Act 1981 (as amended) and are listed in Schedule 2 of the Conservation of Habitats and Species Regulations 2017. This legislation implements the EC Habitats & Species Directive in the UK making it an offence to capture, kill or disturb a European Protected Species or to damage or destroy the breeding site or resting place of such an animal whether a bat is present at the time or not. It is also an offence to recklessly / intentionally to disturb such an animal.

If evidence of bats is encountered during site clearance e.g. live or dead animals or droppings, work should cease immediately and the advice of the Natural Resources Wales sought before continuing with any work (0300 065 3000).

5 It is an offence under the Wildlife & Countryside Act 1981 (as amended) to intentionally (intentionally or recklessly for Schedule 1 birds) to:
- Kill, injure or take any wild bird
- Take, damage or destroy the nest of any wild bird while that nest is in use or being built
- Take or destroy an egg of any wild bird

You are advised that any clearance of trees, shrubs, scrub (including gorse and bramble) or empty buildings should not be undertaken during the bird nesting season, 1st March - 31st August and that such action may result in an offence being committed.

6 Badgers and their setts are protected under The Protection of Badgers Act 1992. It is an offence to:
- o Kill, injure or take a badger;
- o Damage, destroy or obstruct access to a badger sett; and
- o Disturb a badger when it is occupying a sett.

If evidence of badgers is encountered during development, work must cease immediately and the advice of a suitably qualified ecologist or NRW sought before continuing with any work (0300 065 3000).

7 There is the potential for hedgehogs to be present in the area. Hedgehogs are protected under Schedule 6 of The Wildlife and Countryside Act 1981 (as amended), which prohibits killing and trapping by certain methods. They are also listed on Section 7 of The Environment (Wales) Act 2016. This is a list of the living organisms of principal importance for the purpose of maintaining and enhancing biodiversity in relation to Wales.

8 Reptiles & amphibians may be present. All British reptile & amphibian species are protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). It makes it an offence to intentionally kill or injure these species. If widespread reptile/amphibian species are encountered (common lizard, slow worm, adder, grass snake, common frog, common toad, smooth newt, palmate newt), they should be allowed to move away from the works on their own. An ecologist should be contacted if assistance is required to locate reptiles/amphibians to a suitable habitat.

9 The applicant is advised that no infiltration of surface water drainage into the ground shall be considered as part of the SAB approval other than where it has been demonstrated that there is no resultant unacceptable risk to controlled waters.

DATED: 14th March 2022

P J J Holmes

PHIL HOLMES
HEAD OF PLANNING & CITY REGENERATION

PLEASE NOTE: Your attention is drawn to the attached notes which explain, amongst other things, your right of appeal against this decision.

THE APPLICANT'S ATTENTION IS DRAWN TO THE NOTES BELOW

1. If the applicant is aggrieved by the decision of the Local Planning Authority to refuse permission or approval of the proposed development, or to refuse to grant a Certificate of Lawful Use or Lawful Proposed Use, or to grant permission or approval subject to conditions, he may appeal to the Welsh Ministers in accordance with Sections 78(1) and Section 195/196 of the Town and Country Planning Act 1990, as amended by the Planning and Compensation Act 1991.

Appeals must be made within a prescribed time period. For 'Householder Appeals' and 'Minor Commercial Appeals' validated from 22nd June 2015 onwards, the prescribed period is 12 weeks from the date of this notice. For all other planning appeals, the prescribed period is 6 months from the date of this notice. The definitions of 'Householder' and 'Minor Commercial' applications are available to view at the following website: http://www.assembly.wales/laid%20documents/sub-ld10212/sub-ld10212-e.pdf.

Appeals can be made via the portal using the following link:
https://www.gov.uk/government/organisations/planning-inspectorate

Or, on a form which is obtainable from the Planning Inspectorate, Crown Buildings, Cathays Park, Cardiff, CF10 3NQ – Tel 0303 444 5940, email wales@planninginspectorate.gov.uk

Further information on the appeals process is also available on the website:
https://gov.wales/planning-appeals

The Welsh Ministers can allow a longer period for the giving of notice of appeal but they will not normally be prepared to exercise this power unless there are special circumstances which excuse the delay in giving notice of appeal. The Welsh Ministers are not required to entertain an appeal if it appears to them that permission for the proposed development could not have been granted by the Local Planning Authority or could not have been so granted otherwise than subject to the conditions imposed by them, having regard to the statutory requirements to the provisions of the development order, and to any directions given under the order. The Welsh Ministers do not in practice refuse to entertain appeals solely because the decision of the Local Planning Authority was based on a direction given by them.

2. If permission to develop land is refused or granted subject to conditions, whether by the Local Planning Authority or by the Welsh Ministers, and the owner of the land claims that the land has become incapable or reasonably beneficial use in its existing state and cannot be rendered capable of reasonably beneficial use by the carrying out of any development which has been or would be permitted, the owner may serve a purchase notice on the local planning authority in whose area the land is situated. This notice will require the local planning authority to purchase the owner's interest in the land in accordance with the provisions of Part VI of the Town and Country Planning Act 1990. (The local planning authority may accept the notice and proceed to acquire the land; or reject the notice in which case they must refer the notice to the Welsh Ministers.)

3. In certain circumstances, a claim may be made against the Local Planning Authority for compensation, where permission is refused or granted subject to conditions by the Welsh Ministers on appeal or on a reference of the application to him. The circumstances in which such compensation is payable are out in Section 114 of the Town and Country Planning Act 1990.

4. Further correspondence regarding this application should bear the reference number quoted on the top of the form.

MORRISTON HOSPITAL - INFRASTRUCTURE WORKS

5: COMMUNITY BENEFITS

NHS BUILDING FOR WALES

R015 MORRISTON HOSPITAL NEW ELECTRICAL SUB-STATION & AIR HANDLING PLANT FOR HSDU

SUPPLY CHAIN PARTNER COMMUNITY BENEFITS PROPOSAL

FOR

MINIMUM BENCHMARK VALUES (PER £M)

PART B – CORE PRINCIPLES

Community Benefits

Under this Invitation to Tender the Supply Chain Partner is required to submit for inclusion in the Call Off Contract their proposed benchmark values they will deliver under the project.

The minimum Community Benefits requirements to be met on the Morriston Hospital new electrical sub-station & air handling plant for HSDU project are detailed in Clauses 15.1 and 15.3. These Community Benefit requirements form part of the tender documents at Call-Off stage and will form part of the overall evaluation criteria.

Following selection of the successful party at Call-off stage, the tendered Community Benefits will be incorporated into the Works Information prior to issue of the Confirmation Notice.

Upon Completion of the Construction Project, Key Performance Indicators will be utilised to measure whether the Community Benefits targets as stated in the Works Information have been met.

15.1 Community Benefits with financial consequence for non –delivery

The Supply Chain Partner is to insert in column C within the yellow highlighted boxes,

***Either** their increased proposals for the 'Benchmark Minimum Value (per £M)'over and above the values contained in column F,*

***Or** insert as 'AS COLUMN F'*

The current Estimated Construction Cost of the project is £9.0M, the final value of Construction Cost to which the Benchmark Minimum Values will be set is to be the value of Construction Cost included in the approved Full Business Case.

The proposals submitted by the SCP will be scored.

All financial and non-financial metrics as set out below shall, for the final adjustment, be equally weighted out of an overall 100 - thus the 22 metrics overall draw a mark of 4.54 each (100/22);

Financial Consequences (six metrics):

1. ***For each of the 6 metrics with financial consequences, an equal weighting of 10 will be applied and multiplied by the tenderer's Proposal (column C) divided by the Minimum Benchmark (column F)***
2. ***The total score will be further adjusted by:***

5: Community Benefits

Tenderer score / Highest score x 27.27 (4.54 x 6)

<u>Non-financial Consequences (sixteen metrics)</u>

1. ***Where the Candidate submits a proposal (Column C) which meets the minimum Benchmark requirement (column F), a score of 2.27 shall be awarded (4.54 x 50%); where the submission exceeds the minimum requirement, the score awarded shall be 4.54.***
2. ***The maximum score will be 72.73(4.54 x 16)***
3. ***The sum of both financial and non-financial scores derived as above will then be further multiplied by 20% to align with the Interview and Financial Candidate Score Summary which allocates a score range of 10% - 20% for the Community Benefits metric.***

A	B	C	D	E	F	G	H
Target area	**Metric**	**Proposal based on Column F**	**Example**	**Reporting Timescale**	**Benchmark Minimum Value(per £M)**	**Measure Definition**	**Financial Consequence for Non-delivery**
Jobs created (NEET/LT Unemployed)	Person weeks per £m invested	54	As definition of person and weeks	Quarterly	52	weeks	£463.61 per week
Training (including graduates, work placements, pupil placements)	Person weeks of training provided per £m invested (included in the overall person weeks per £m)	34	Welsh graduate engineer sponsored; Welsh year out student; Work experience	Quarterly	30	weeks	£349.28 per week
Apprenticeships	Number of apprentices per £m invested (included in the overall person weeks per £m)	2	Relating the number of weeks for individuals who have been employed; Promote use shared apprentice schemes.	Quarterly	1	apprentices	£207.20 per week
School Engagements (STEM)	Hours donated per £m invested	20	Wider team involvement - interviews, careers fairs.	Quarterly	10	hours	£48.00 per hour
Community - Events	Community Initiatives per project	4	e.g. Work with local scout group to repaint hall	Annual	2	e.g.2 minimum initiatives per project	£1,000 per event
Community - newsletter	Community newsletters per project	4	Letter sent out to local residents	Annual	2	e.g. 2 minimum newsletters per project	£500 per newsletter

15.2 The base date for Financial Consequence for Non-delivery is 1st July 2017. The Financial Consequence for Non-delivery will be adjusted every year from this date at framework level based on data from the Average Weekly Earnings Index, as issued by the Office of National Statistics. The specific index that will be used within the review is the K5AH Construction index, which is not seasonally adjusted, excludes bonuses and includes arrears of pay.

The adjustment mechanism that will be utilised by NWSSP-SES has been developed specifically to reduce the likelihood of volatile monthly fluctuations exerting too much influence over the percentage change which will applied to framework members rates. In order to achieve this, data from each month of the data review period will be analysed and an averaging methodology applied. This will result in the calculation of a percentage change which will apply to the hourly rates, which is fair and takes account of labour market performance over a relevant and stipulated period of time.

When the tendered Community Benefits are incorporated into the Works Information prior to Confirmation Notice No. 2, the Financial Consequence for Non-delivery as issued at that time will be incorporated. Once the Financial Consequences for Non-delivery have been incorporated into the Works Information there will be no further adjustment for the Average Weekly Earnings Index.

15.3 Community Benefits with no Financial Consequence for non-delivery

The Supply Chain Partner is to insert in column C within the yellow highlighted boxes,

<u>Either</u> their increased proposals for the 'Benchmark Minimum Value (per £M)'over and above the values contained in column F,

<u>Or</u> insert as 'AS COLUMN F'

5: Community Benefits

The current Estimated Construction Cost of the project is £9M, the final value of Construction Cost to which the Benchmark Minimum Values will be set is to be the value of Construction Cost included in the approved Full Business Case.

A	B	C	D	E	F	G	H
Target area	**Metric**	**Proposal based on Column F**	**Example**	**Reporting Timescale**	**Benchmark Minimum Value(per £M)**	**Measure Definition**	**Financial Consequence for Non-delivery**
Jobs created (NEET/LT Unemployed)	Number of FTE £m invested (based on 52 weeks provision)	2	Relating to the number of weeks for individuals who have been employed i.e.1 person employed for 52 weeks.	Quarterly	1	FTE persons	Nil Consequence
School Engagements (STEM)	Number of pupil interactions per £m invested	50	School assemblies or individual lessons. Assembly with 70 children = 70 interventions. Maths lesson with 30 children = 30 interventions.	Quarterly	30	interactions	Nil Consequence
Labour Force	Percent of workforce from postcode	40	Use postcode of the project and measure visits, e.g. SA	Annual	30	e.g. 30% minimum	Nil Consequence
Labour Force	Percent of workforce from Wales	70	Measure visits to site	Annual	60	e.g.60% minimum	Nil Consequence
WG measurement Tool	Complete WG measurement Tool	1	Complete on completion of the project and annually if contract more than 12 months	Annual	1		Nil Consequence
Supply chain initiatives	Percent spend in Wales per project	70	Value of contract and location of supplier.e.g. CBME electrical contractor Cardiff postcode	Annual	60	per contract duration	Nil Consequence
			£100,000 contract value expressed as percentage.				
Supply chain initiatives	Number and type of materials produced in Wales	3	e.g. Welsh steel, Welsh slate	Annual	2	e.g.60% minimum, per spend per contract value	Nil Consequence
Supply chain initiatives	Value of materials	As Colum F	£ per tonne (Steel), £/ per metre squared (slate) etc.	Annual	10m2	e.g. 2 number of supply chain initiatives	Nil Consequence
Supply chain initiatives	Volume of materials	As Colum F	Tonnage (Steel), number of metres squared (slate), etc.	Annual	25m2	per £ value of the material supplied	Nil Consequence
Supply chain initiatives	Percent Welsh subcontractors per project	70	Total number of contractors used with welsh postcode expressed as percentage	Annual	60	per project	Nil Consequence
Supply chain initiatives	Number of supply chain engagements per project	3	Meet the buyer event	Annual	2	per project	Nil Consequence
Supply chain initiatives	Use of Sell 2 Wales to advertise opportunities	3	Advise opportunity for subcontractors through sell2wales	Annual	3	per opportunity as a package, per project	Nil Consequence
Fair payment	Payment within 21 days by client	As per contract	Audit percentage of payments	Annual		client response	Nil Consequence
Fair payment	Payment to subcontractors within 28 days	As per contract	Audit percentage of payments	Annual		contractor response	Nil Consequence
Environmental	Percent waste diverted from landfill	As Colum F	Measured from waste transfer advice note	Annual	90	e.g. 85% minimum	Nil Consequence
Environmental	Amount of waste produced tonnes/£m	As Colum F	Measured from waste transfer advice note	Annual	10	tonnes (based on project £9M total)	Nil Consequence

MORRISTON HOSPITAL - INFRASTRUCTURE WORKS

6: SUSTAINABLE DEVELOPMENT - DECARBONISATION

6: Sustainable Development - Decarbonisation

Low loss transformers have been selected to minimise carbon losses associated with the upgraded electrical infrastructure. Grid electricity decarbonisation is leading to electricity being able to be an energy source of low to zero carbon content, significantly lower than fossil fuels such as oil and gas. This project's expansion and enhancement of electrical infrastructure enables opportunities for decarbonisation of the site's systems in the future, including plant and vehicle charging provision. There is specific provision for six charging points for SBUHB estates vans.

The recently installed solar farm connection is now active for the site. The electrical infrastructure upgrades as part of this scheme improved distribution enabling long term site initiatives to replace and decarbonise existing systems across the site.

MORRISTON HOSPITAL - INFRASTRUCTURE WORKS

7: OBC FORMS & WHOLE LIFE CYCLE COSTING

gleeds

Morriston Hospital Environmental Infrastructure Phase 2

Preferred Option
Elemental Life Cycle Costs

CFCM0152

Contents

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Document Control

Document control

Project name	Morriston Hospital Enviror	**Project number**	CFCM0152
Date of Issue	27 June 2022	**Version number**	1
Reason for issue	Morriston Hospital, Environmental Ph 2 Life Cycle Cost Report		
Document author	Ian Bailey	**Grade**	Executive Quantity Surveyor
Contributors	Luke Sullivan		
Approved by	Nigel Watkins	**Grade**	Director
Signature			
Security classification	External Confidential		
Distribution to	Swansea Bay University Health Board		

gleeds

Project Appointment

Project Appointment

Gleeds have been appointed by Swansea Bay University Health Board to provide Elemental Life Cycle Costs in line with 'Standardised method of life cycle costing for construction procurement' PD 156865:20081.'

This report considers the proposed building elements in its analysis.

The lifecycle of the elements is based on BCIS Replacement Periods, and the relevant works.

Separate graphs and summaries for Life Cycle Costs and Facilities Management costs allow the client to use their own Facilities Management costs if required.

gleeds

Life Cycle Report Summary

Life Cycle Report Summary

Summary Pricing Notes

Costs are at 2Q 2022 rates with no allowance for inflation;

The costs included are real costs, i.e future costs are not discounted to net present values (NPV);

The exact year of replacement is unknown. To reflect this, costs have been smoothed over a five-year period:

-2 Years	-1 Year	Year	+1 Year	+2 Years
10%	20%	40%	20%	10%

The Facilities Management figures mentioned throughout the report are calculated using BCIS

	£/100m²		
BUILDING TYPE	Cleaning	Utilities	Total Ops'
Hospitals - mixed specialist facilities	4,675	2,714	7,389

AREA (m2)	Total Annual Cleaning	Total Annual Utilities
984	46,002	26,706

Maintenance (Fabric and Services) costs are contained within Gleeds' own LCC analysis aided by BCIS replacement figures

gleeds

Assumptions and Exclusions

Assumptions and Exclusions

It should be noted that the model is a prediction of what works will be required to keep the building operational and when they will occur. Life cycle replacement is in practice not an exact science and there are many factors that impact upon a component's life.

This report therefore attempts to generate a realistic overall fund of monies to maintain the building and an estimate as to when these funds will be required to be drawn down.

The following assumptions have been used in calculating the Life Cycle Costs:

Construction costs are based on the Options cost plan from Gleeds;

Base date for costs:2Q 2022

Costs are calculated at real costs, i.e. there is no allowance for inflation and increased costs included in the projected figures;

The costs included are real costs, i.e. future costs are not discounted to net present values (NPV); and

Calculated costs exclude allowances for management costs and the overheads and profits of an FM Operator

General assumptions include:

a) Life cycle replacement periods and work intervals included in the model are based on those published by the RICS in their Life Expectancy of Buildings and CIBSE's Guide M for services replacement;
b) The replacement periods assume that the appropriate planned preventative maintenance (PPM) is carried ou
c) All workmanships/installations/maintenance etc. are in accordance with manufacturers' recommendations;
d) Economically sized competitive replacement contracts are placed;
e) All contract areas to be empty of staff and public, and to be safe to allow for replacement access;
f) No unreasonable restrictions on working hours; and
g) Like for like replacements.

Allowances and enhancements have been made on a component by component basis for:

a) Strip out costs;
b) Sub-contract preliminaries;
c) Accessibility enhancement for works not easily reached;
d) Out of sequence enhancements where replacement of the component is not naturally sequenced; and
e) 3% contingency has been included on all items.

General exclusions include:

a) Structural works;
b) Out of hours working premium;
c) ICT equipment;
d) Professional fees;
e) Temporary roofs;
f) Damage caused through vandalism;
g) Effects of future legislation on Building Regulations;
h) Value Added Tax;
i) Potential capital allowances and other tax rebates;
j) Insurances and rates; and
k) Decommissioning or demolition of the building at its end of life.

Calculations

a) The exact replacement of components is not known. Therefore, the replacement cycles inputted into the model have been 'smoothed' across a range of five years.

b) It is anticipated that the building will remain in operation beyond the end of the 60-year concession period. The costs do not include any tailed-off period, i.e. are not reduced in the final years of the study.

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General Summary

7: OBC Forms & Whole Life Costing

Including Facilities Management Costs							
Option	Description	LCC	GIFA (m²)	£/m²	£/m²/pa	Construction Capital Cost	% LCC of Capital Cost
1	Morriston Hospital, Environmental Ph 2 Life Cycle C	£ 10,700,000	984	£ 10,870	£ 180	£ 8,819,713	121%

Excluding Facilities Management Costs							
Option	Description	LCC	GIFA (m²)	£/m²	£/m²/pa	Construction Capital Cost	% LCC of Capital Cost
1	Morriston Hospital, Environmental Ph 2 Life Cycle C	£ 6,324,000	984	£ 6,430	£ 105	£ 8,819,713	72%

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60 Year Smoothed Cashflows

7: OBC Forms & Whole Life Costing

Inc. FM

Option	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Sub-total
1	75,000	75,000	75,000	75,000	75,000	75,000	75,000	75,000	76,000	77,000	76,000	75,000	81,000	87,000	99,000	**1,171,000**

Option	Year 16	Year 17	Year 18	Year 19	Year 20	Year 21	Year 22	Year 23	Year 24	Year 25	Year 26	Year 27	Year 28	Year 29	Year 30	Sub-total
1	87,000	81,000	107,000	140,000	205,000	140,000	107,000	87,000	100,000	125,000	100,000	87,000	512,000	950,000	1,825,000	**5,824,000**

Option	Year 31	Year 32	Year 33	Year 34	Year 35	Year 36	Year 37	Year 38	Year 39	Year 40	Year 41	Year 42	Year 43	Year 44	Year 45	Sub-total
1	950,000	512,000	78,000	81,000	88,000	81,000	78,000	108,000	142,000	209,000	142,000	108,000	81,000	87,000	99,000	**8,668,000**

Option	Year 46	Year 47	Year 48	Year 49	Year 50	Year 51	Year 52	Year 53	Year 54	Year 55	Year 56	Year 57	Year 58	Year 59	Year 60	Total
1	87,000	81,000	94,000	114,000	154,000	114,000	94,000	76,000	76,000	78,000	76,000	75,000	143,000	212,000	558,000	**10,700,000**

Exc. FM

Option	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Sub-total
1	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	3,000	4,000	3,000	2,000	8,000	14,000	26,000	**76,000**

Option	Year 16	Year 17	Year 18	Year 19	Year 20	Year 21	Year 22	Year 23	Year 24	Year 25	Year 26	Year 27	Year 28	Year 29	Year 30	Sub-total
1	14,000	8,000	34,000	67,000	132,000	67,000	34,000	14,000	27,000	52,000	27,000	14,000	439,000	877,000	1,752,000	**3,634,000**

Option	Year 31	Year 32	Year 33	Year 34	Year 35	Year 36	Year 37	Year 38	Year 39	Year 40	Year 41	Year 42	Year 43	Year 44	Year 45	Sub-total
1	877,000	439,000	5,000	8,000	15,000	8,000	5,000	35,000	69,000	136,000	69,000	35,000	8,000	14,000	26,000	**5,383,000**

Option	Year 46	Year 47	Year 48	Year 49	Year 50	Year 51	Year 52	Year 53	Year 54	Year 55	Year 56	Year 57	Year 58	Year 59	Year 60	Total
1	14,000	8,000	22,000	41,000	81,000	41,000	22,000	3,000	4,000	5,000	3,000	2,000	70,000	139,000	486,000	**6,324,000**

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60 Year Elemental Cashflows

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16
Substructure																
Superstructure																
Frame																
Upper Floors																
Roof	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stairs	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
External Walls	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Windows & External Doors	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Internal Walls & Partitions	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Internal Doors	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Internal Finishes																
Wall Finishes	-	-	-	-	-	-	-	-	-	6,005	-	-	-	-	-	-
Floor Finishes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ceiling Finishes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fittings & Furnishings	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Services																
Mechanical	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Electrical	-	-	-	-	-	-	-	-	-	-	-	-	-	-	60,796	-
External Works	1,833	1,833	1,833	1,833	1,833	1,833	1,833	1,833	1,833	1,833	1,833	1,833	1,833	1,833	1,833	1,833
	1,833	**1,833**	**1,833**	**1,833**	**1,833**	**1,833**	**1,833**	**1,833**	**1,833**	**7,838**	**1,833**	**1,833**	**1,833**	**1,833**	**62,629**	**1,833**

7: OBC Forms & Whole Life Costing

	Year 17	Year 18	Year 19	Year 20	Year 21	Year 22	Year 23	Year 24	Year 25	Year 26	Year 27	Year 28	Year 29	Year 30	Total
Substructure															-
															-
Superstructure															-
Frame															-
Upper Floors															-
Roof	-	-	-	43,518	-	-	-	-	15,976	-	-	-	-	-	**59,495**
Stairs	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
External Walls	-	-	-	14,103	-	-	-	-	-	-	-	-	-	-	**14,103**
Windows & External Doors	-	-	-	-	-	-	-	-	-	-	-	-	-	76,035	**76,035**
Internal Walls & Partitions	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
Internal Doors	-	-	-	-	-	-	-	-	14,664	-	-	-	-	-	**14,664**
															-
Internal Finishes															**-**
Wall Finishes	-	-	-	6,005	-	-	-	-	-	-	-	-	-	6,005	**18,014**
Floor Finishes	-	-	-	-	-	-	-	-	-	-	-	-	-	14,820	**14,820**
Ceiling Finishes	-	-	-	-	-	-	-	-	57,189	-	-	-	-	-	**57,189**
															-
Fittings & Furnishings	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**-**
															-
Services															**-**
Mechanical	-	-	-	-	-	-	-	-	-	-	-	-	-	880,926	**880,926**
															-
Electrical	-	-	-	262,173	-	-	-	-	-	-	-	-	-	3,394,723	**3,717,692**
															-
External Works	1,833	1,833	1,833	1,833	1,833	1,833	1,833	39,251	1,833	1,833	1,833	1,833	5,866	1,833	**96,439**
	1,833	**1,833**	**1,833**	**327,632**	**1,833**	**1,833**	**1,833**	**39,251**	**89,662**	**1,833**	**1,833**	**1,833**	**5,866**	**4,374,342**	**4,949,376**

	Year 31	Year 32	Year 33	Year 34	Year 35	Year 36	Year 37	Year 38	Year 39	Year 40	Year 41	Year 42	Year 43	Year 44	Year 45	Year 46
Substructure																
Superstructure																
Frame																
Upper Floors																
Roof	-	-	-	-	-	-	-	-	-	53,050	-	-	-	-	-	-
Stairs	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
External Walls	-	-	-	-	-	-	-	-	-	14,103	-	-	-	-	-	-
Windows & External Doors	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Internal Walls & Partitions	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Internal Doors	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Internal Finishes																
Wall Finishes	-	-	-	-	-	-	-	-	-	6,005	-	-	-	-	-	-
Floor Finishes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ceiling Finishes	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fittings & Furnishings	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Services																
Mechanical	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Electrical	-	-	-	-	-	-	-	-	-	262,173	-	-	-	-	60,796	-
External Works	1,833	1,833	1,833	1,833	34,467	1,833	1,833	1,833	1,833	1,833	1,833	1,833	1,833	1,833	1,833	1,833
	1,833	**1,833**	**1,833**	**1,833**	**34,467**	**1,833**	**1,833**	**1,833**	**1,833**	**337,164**	**1,833**	**1,833**	**1,833**	**1,833**	**62,629**	**1,833**

7: OBC Forms & Whole Life Costing

	Year 47	Year 48	Year 49	Year 50	Year 51	Year 52	Year 53	Year 54	Year 55	Year 56	Year 57	Year 58	Year 59	Year 60	Total
Substructure															-
															-
Superstructure															-
Frame															-
Upper Floors															-
Roof	-	-	-	6,445	-	-	-	-	9,531	-	-	-	-	6,528	75,554
Stairs	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
External Walls	-	-	-	-	-	-	-	-	-	-	-	-	-	2,115	16,218
Windows & External Doors	-	-	-	76,035	-	-	-	-	-	-	-	-	-	-	76,035
Internal Walls & Partitions	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Internal Doors	-	-	-	14,664	-	-	-	-	-	-	-	-	-	-	14,664
															-
Internal Finishes															-
Wall Finishes	-	-	-	6,005	-	-	-	-	-	-	-	-	-	901	12,910
Floor Finishes	-	-	-	-	-	-	-	-	-	-	-	-	-	2,223	2,223
Ceiling Finishes	-	-	-	57,189	-	-	-	-	-	-	-	-	-	-	57,189
															-
Fittings & Furnishings	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
															-
Services															
Mechanical	-	-	-	-	-	-	-	-	-	-	-	-	-	132,139	132,139
Electrical	-	-	-	-	-	-	-	-	-	-	-	-	-	548,534	871,504
															-
External Works	1,833	1,833	1,833	39,251	1,833	1,833	1,833	1,833	1,833	1,375	1,100	825	550	880	120,605
	1,833	**1,833**	**1,833**	**199,588**	**1,833**	**1,833**	**1,833**	**1,833**	**11,364**	**1,375**	**1,100**	**825**	**550**	**693,320**	**1,379,041**

Total 60 Year Life Cycle Cost **6,328,417**

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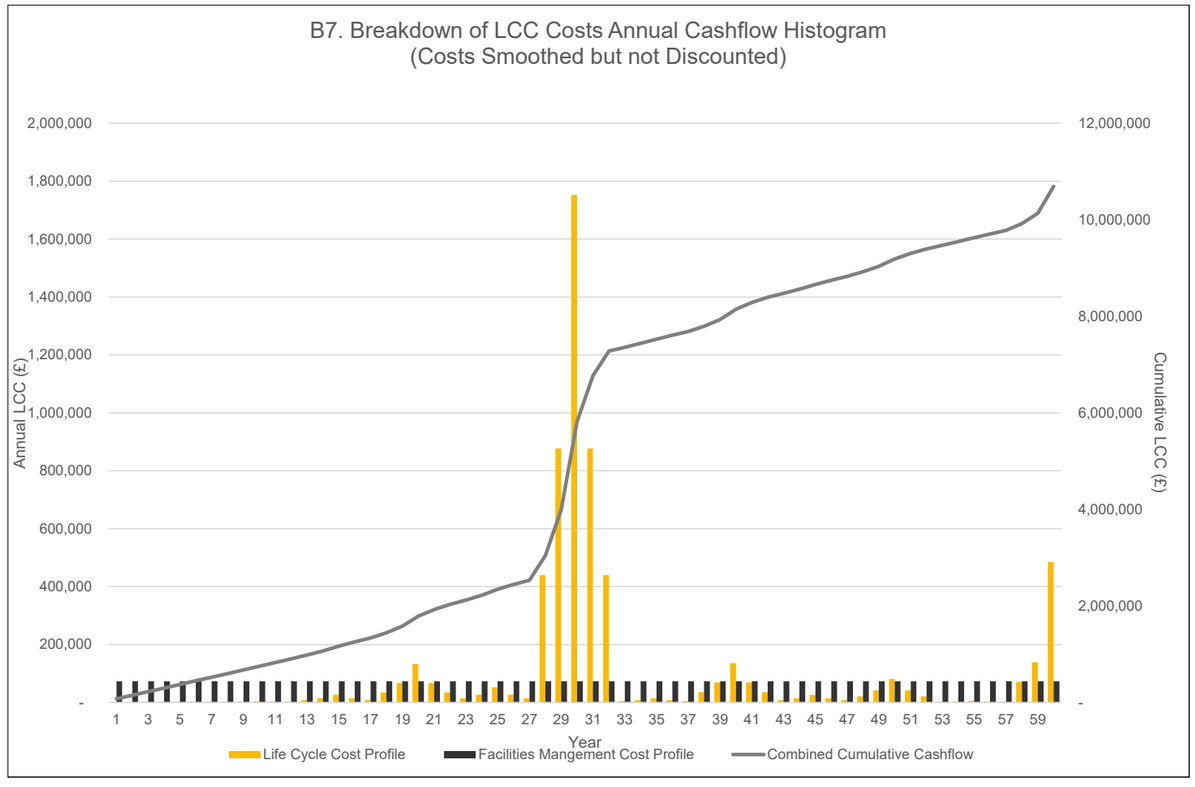
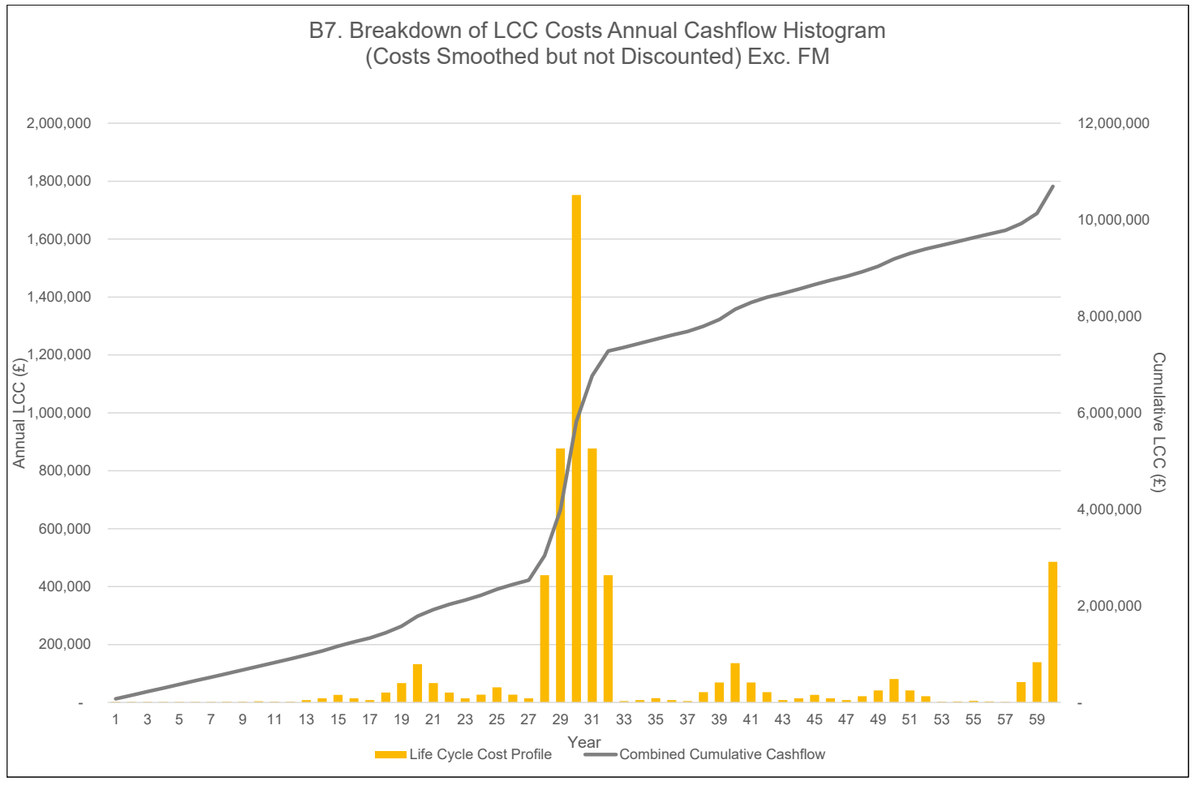
Smoothed Cashflow Total

7: OBC Forms & Whole Life Costing





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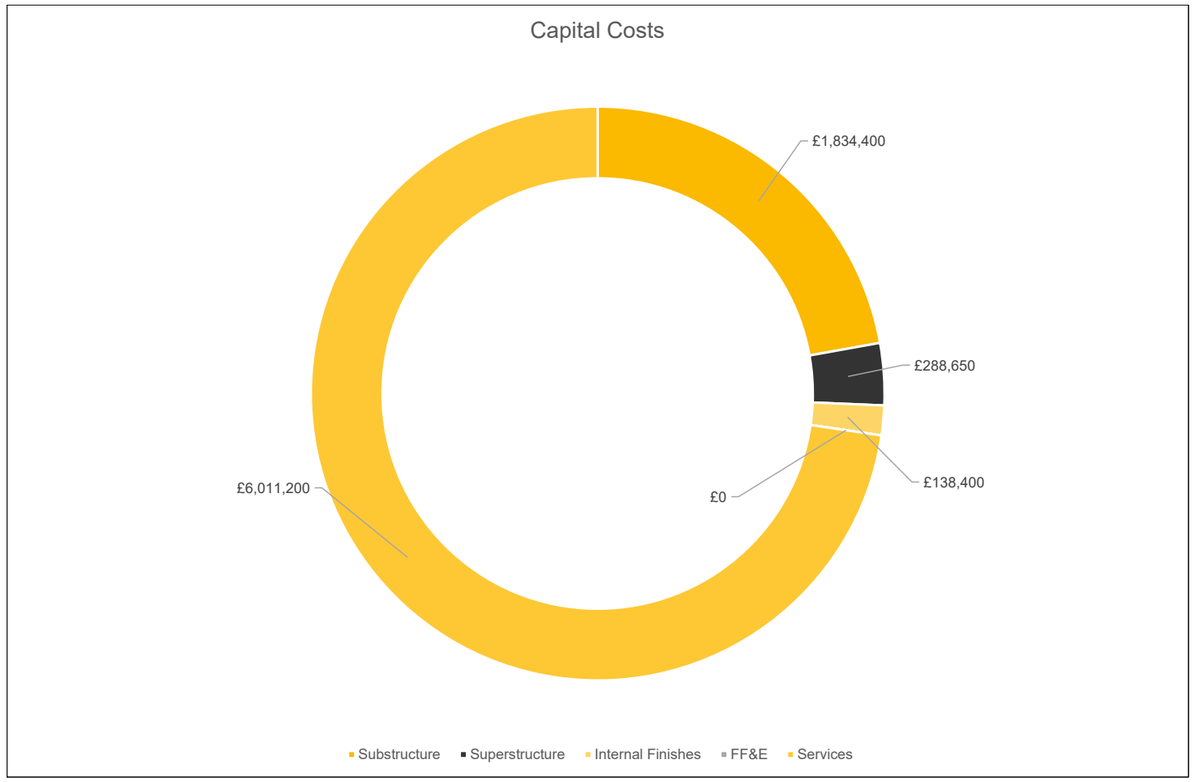
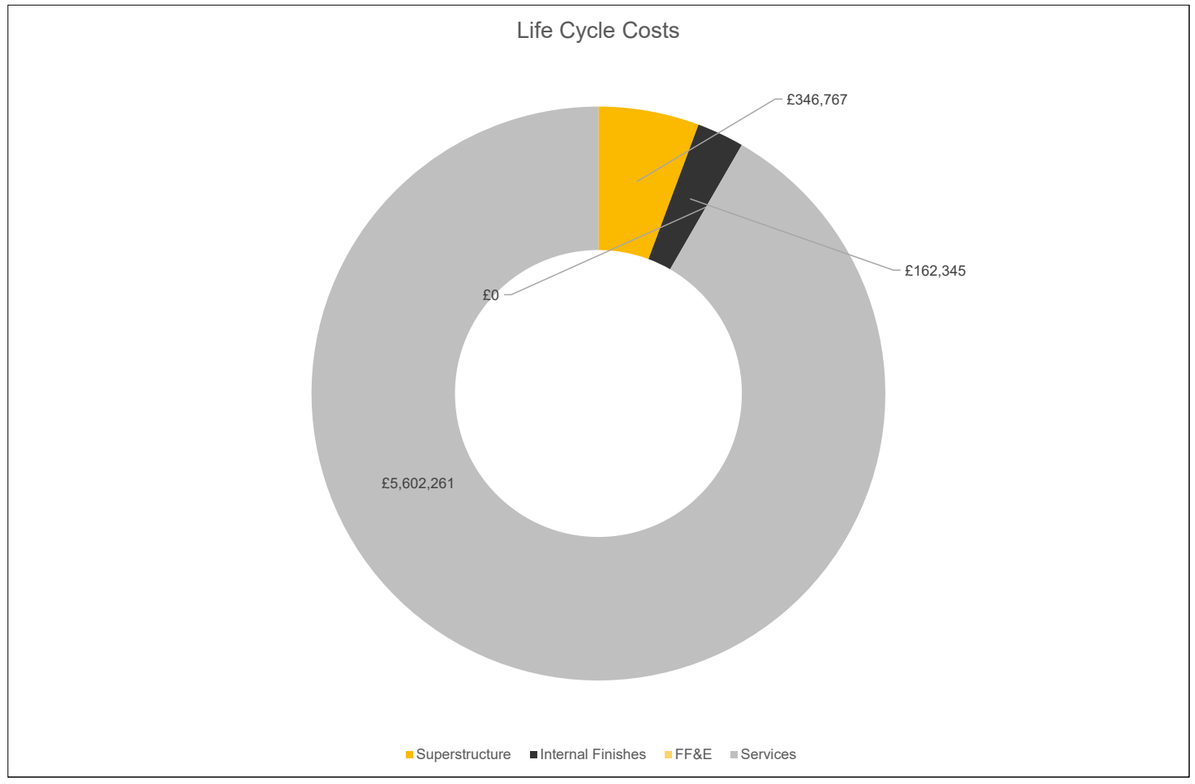
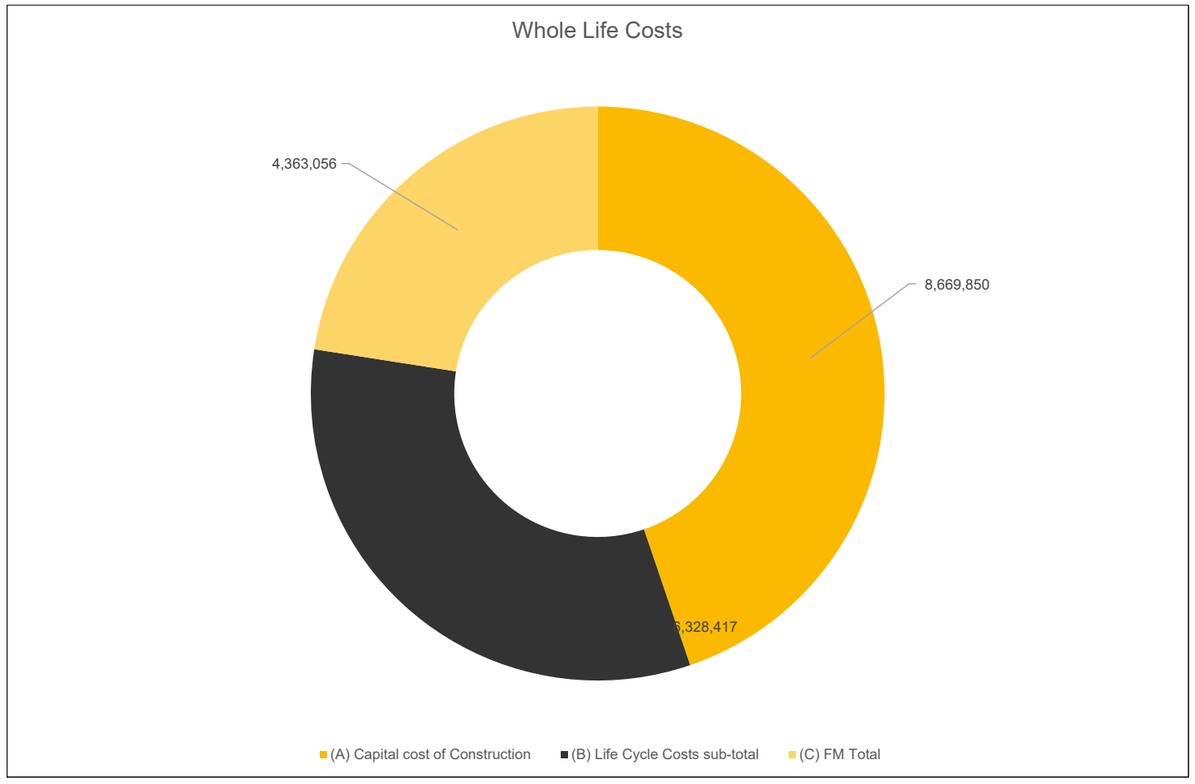
Cost Breakdowns



7: OBC Forms & Whole Life Costing





7: OBC Forms & Whole Life Costing

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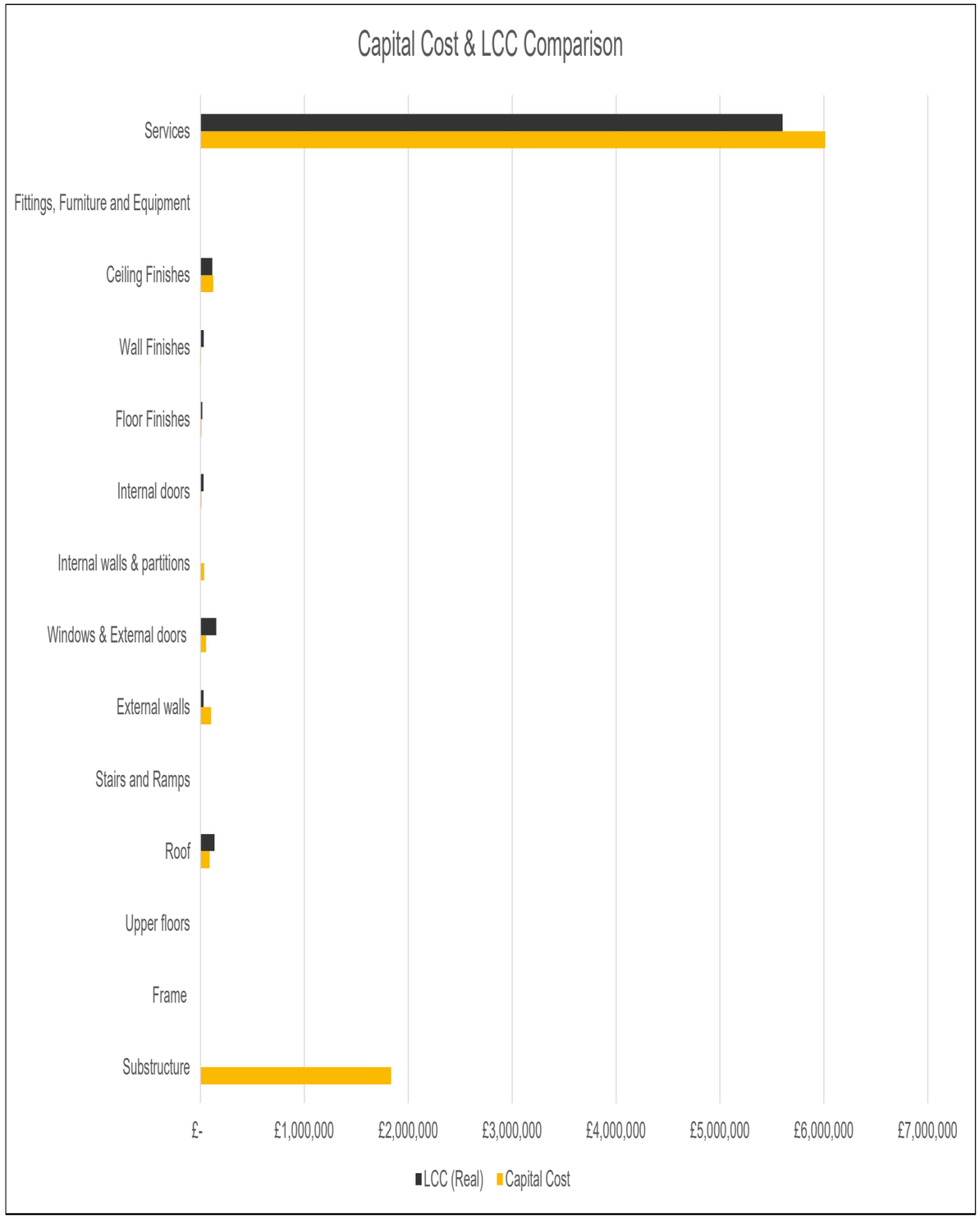
Elemental Cost Comparison

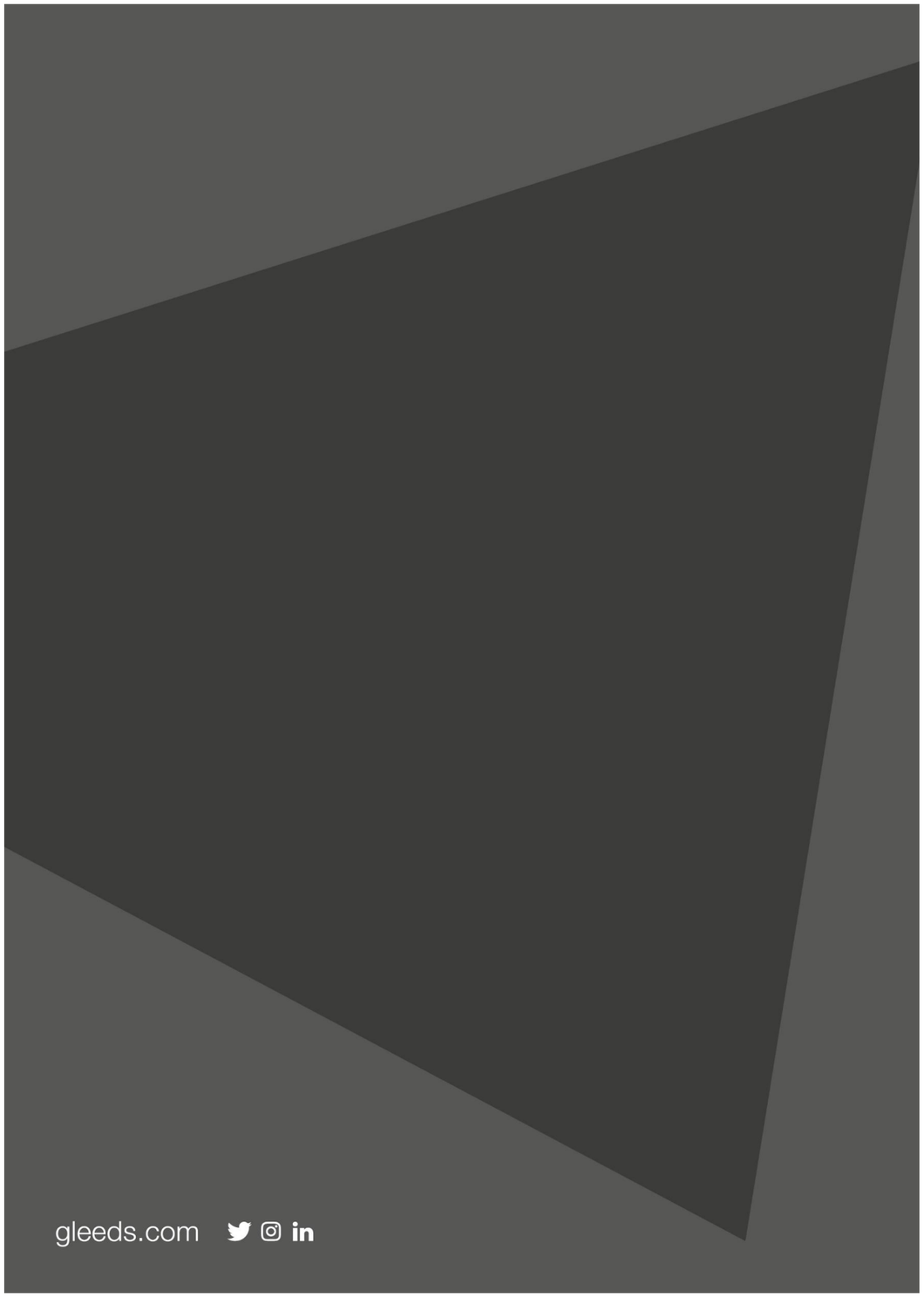


7: OBC Forms & Whole Life Costing

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	15 Year Total
15 Year Servicing Strategy																
5 Services																
5.1 Sanitary installations	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -
5.2 Service equipment	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -
5.3 Disposal installations	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -
5.4 Water installations	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -
5.5 Heat source	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -
5.6 Space heating and air conditioning systems	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -
5.7 Ventilation systems	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -
5.8 Electrical installations	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -
5.9 Fuel installations	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -
5.10 Lift and conveyor installations	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -
5.11 Fire and lightning protection	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -
5.12 Communications, security and control systems	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ 60,796	£ 60,796
5.13 Specialist installations	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -
5.14 Builder's work in connection with services	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -	£ -
	£ -	**£ -**	**£ -**	**£ -**	**£ -**	**£ -**	**£ -**	**£ -**	**£ -**	**£ -**	**£ -**	**£ -**	**£ -**	**£ -**	**£ 60,796**	**£ 60,796**

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	10 Year Total
10 Year Fit-out Strategy											
3 Internal Finishes											
3.1 Wall Finishes	-	-	-	-	-	-	-	-	-	6,005	**6,005**
3.2 Floor Finishes	-	-	-	-	-	-	-	-	-	-	**-**
3.3 Ceiling Finishes	-	-	-	-	-	-	-	-	-	-	**-**
4 Fittings, Furniture and equipment											
4.1 Fittings, Furniture and equipment	-	-	-	-	-	-	-	-	-	-	**-**
	-	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**6,005**	**6,005**

7: OBC Forms & Whole Life Costing



Business Justification Case

Trust/Health Board: Swansea Bay University Health Board

Hospital/Site : Morriston Hospital

Project Title : Environmental Infrastructure Phase 2

Project No : 1

Prepared by : Gleeds

Date 17/06/2022

Project Title : Morriston Hospital
: Environmental Infrastructure Phase 2

BASIS OF ESTIMATING

Healthcare Capital Investment document Version 2

Main Contract Procurement Method : D4L framework

Main Contract Standard Form and Option : NEC Option C

Proposed start on site : October 2022

Proposed completion date : November 2023

Date budget discussed with Estates Development*(ED) :

Capital Cost Summary

Ref	Cost Centre		Net £	VAT @ 20% £	Gross £
5	Works Cost (BJC2)		11,340,626	2,268,125	13,608,751
6	Fees (BJC3)	(11.46% of (5))	1,300,068	260,014	1,560,081
7	Non-works Costs (BJC3)		556,213	111,243	667,456
8	Equipment Costs (BJC2)	(0.09% of (5))	10,000	2,000	12,000
9	Contingency	(5.00% of (5+6+7+8))	660,345	132,069	792,414
10	AWE inflation (estimate based on October 22 start date)		134,179	26,836	161,015
11	***Forecast Project Out-turn Cost (Pre VAT Recovery)***		14,001,431	2,800,286	16,801,717
12	LESS RECOVERABLE VAT (BJC5)			268,454	268,454
13	**FORECAST PROJECT OUT-TURN COST**		14,001,431	2,531,833	16,533,264

7: OBC Forms & Whole Life Costing

Project Title : Morriston Hospital
: Environmental Infrastructure Phase 2

CAPITAL COSTS: WORKS AND EQUIPMENT COSTS (Tender breakdowns to be provided as separate documents)

Accommodation	Functional Size	Functional Unit m2/Nr etc	Gross Floor area (GFA) m2	Cost/m2 GFA £/m2	N/A/C	Works Cost £	Equipment Cost £
Substation 6,HV cabling and HSDU works						11,340,626	10,000

Total (gross) floor area	0		
			10,000
Less: Abatement for transferred equipment 0 %			0
			10,000
Works Cost - to BJC1 Summary		11,340,626	
Equipment Cost - to BJC1 Summary			10,000

Project Title : Morriston Hospital
: Environmental Infrastructure Phase 2

CAPITAL COSTS: FEES AND NON-WORKS COSTS

		11,340,626 £	% of Works Cost
1	Fees		
	Health Board		
	a. Project Manager	155,919	1.37%
	b. Trust Cost Advisor	105,640	0.93%
	c. Supervisor external	68,044	0.60%
	d. Supervisor - internal	39,692	0.35%
	e. Project Director		0.00%
	f. In-house Project Sponsorship	113,406	1.00%
	g. Vat Advisor	15,000	0.13%
	h. Audit	21,617	0.19%
	i. Business Case Writer	17,011	0.15%
	j. Health Planner	0	0.00%
	k. Capital Planning Manager	0	0.00%
	l. Commissioning Manager	13,609	0.12%
	m. Specialist Advisors	8,000	0.07%
	SCP		
	j. Constructor - pre-construction	213,469	1.88%
	k. Project Manager		0.00%
	l. Health Planner		0.00%
	m. Architect	110,901	0.98%
	n. Civil and Structural Engineer	136,841	1.21%
	o. Building Services Engineer	230,662	2.03%
	p. Principal Designer	3,822	0.03%
	q. Building Services Installer- pre-construction	34,552	0.30%
	r. BREEAM Assessor		0.00%
	s. Planning Consultant	3,104	0.03%
	t. Acoustic Consultant		0.00%
	u. Fire Consultant	8,780	0.08%
	v. Ecology Consultant		0.00%
	Total Fees to BJC1 Summary	1,300,068	11.46%

7: OBC Forms & Whole Life Costing

Business Justification Case | Swansea Bay University Health Board | Cost Form BJC3

		£	% of Works Cost
2	Non-Works Costs		
	a. Land purchase costs and associated legal fees		0.00%
	b. Statutory and Local Authority charges	12,007	0.11%
	c. Planning and Building Control fees	36,530	0.32%
	d. Other (list and describe)		
	EV Charging points & associated electrical surveys	70,345	0.62%
	HSDU Equipment Specialist Works	89,514	0.79%
	HSDU Commissioning and operational costs	49,000	0.43%
	Harmonic Filtering	110,000	0.97%
	Asbestos Surveys & removal	20,000	0.18%
	Surveys	82,468	0.73%
	Other	86,350	0.76%
	Total Non-Works Costs to BJC1 Summary	556,213	4.90%

Business Justification Case | Swansea Bay University Health Board | Cost Form BJC4

Project Title : Morriston Hospital
: Environmental Infrastructure Phase 2

PROJECT CASHFLOW FORECAST

Proposed start on site: October 2022
Proposed completion date: November 2023

Year	1	2	3	4	5	6	7	Total
Financial year	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	
Works Cost				£3,857,033	£7,765,453			£11,622,486
Fees	£19,783	£128,436	£523,184	£263,662	£336,342	£28,663		£1,300,069
Non-works Costs			£92,293	£218,276	£245,644			£556,213
Equipment Costs			£2,305		£7,695			£10,000
Contingencies				£113,073	£262,380	£3,032		£378,485
Inflation				£40,879	£93,300			£134,179
VAT		£20,089	£123,556	£898,584	£1,752,281	£5,775		£2,800,286
Sub-total	£19,783	£148,525	£741,338	£5,391,507	£10,463,094	£37,470	£0	£16,801,717
Recoverable VAT	£0	£0	-£24,356	-£52,732	-£173,979	-£17,387	£0	-£268,454
Total	£19,783	£148,525	£765,694	£5,444,239	£10,637,073	£54,857	£0	£16,533,264

Business Justification Case Swansea Bay University Health Board Cost Form BJC5

Project Title : Morriston Hospital
: Environmental Infrastructure Phase 2

RECOVERABLE VAT CALCULATION

	a	b	c	d
	Cost Net of VAT	VAT at 20% (ie prior to recovery)	Percentage recoverable (% of col b)	Recoverable VAT (col b x col c)
	£	£	%	£
Works Cost	11,340,626	2268125	0%	£0
	0	0		£0
Fees	1,300,068	260013.6	100%	£260,014
Non-works Costs	514,013	102802.6	0%	£0
Non-works Costs	42,200	8440	100%	£8,440
Equipment Costs	10,000	2000	0%	£0
Contingencies	660,345	132069.1		£0
Total			£	£268,454

Business Justification Case Swansea Bay University Health Board

Project Title Morriston Environmental Infrastructure

Non-Works costs

	£
Land purchase and associated legal fees	0
Statutory and Local Authority charges	5,000
Planning and Building Control fees	
Pre-application consultation)	250
Outline planning application fee)	1,950
Reserved matters application fee)	3,905
Applications for discharge of conditions)	3,000
Planning reserve matters CE	21,896
Building Control plan fee)	1,455
Building Control inspection fee)	4,074
SAB Fees	
Initial Submission	507
Site Inspections	1,500
Surveys	
As separate schedule	82,468
S104 and 106 Drainage application fees and design	1,000
S111 Works etc.:	
S111 Highway Auth Fees (Inspection)) S278 Legal Fees (Highways)) Highway Safety Audits) Traffic monitoring post completion)	4,000

7: OBC Forms & Whole Life Costing

Highways works	
Highway signage design fees	
Highway Signage Works	0
Incoming Services meters	
Electricity	0
Gas	0
Water	0
Incoming Services (Stats quotes only)	
Electricity	2,000
WPD G99 witnessing costs	4,000
Gas	0
Water	0
Stats costs associated with diversion of existing services	0
IT/phone supplies	0
Drainage infrastructure charges/repairs	5,000
EV Charging points	45,000
Diversion of existing services	4,000
Utilities usage charges during Commissioning	
Electricity	0
Gas	0
Water	5,000
Fuel oil	4,250
Water flushing 5 days a week	0
Temporary plant requirements during changeovers eg chillers	5,000
Medical gases	
Bottles provision and storage,including ventilation	0
Pharmacist costs	
Decommissioning costs of existing sub-stations	3,000
HSDU Equipment decommissioning, protection and recommission	89,514
Estates decommissioning and reconnections	3,000
Commissioning costs of new HSDU and sub-station	20,000

Business Justification Case Swansea Bay University Health Board

Clinical clean to HSDU	4,000
SBUHB IT costs	
Data cabling, wi-fi points and the like)	
Equipment, cabinets and the like)	15,000
Patient call equipment)	
Survey of existing electrical infrastructure for future EV charging	25,345
Temporary CCTV to Service Yard	2,500
Provision of 2 nr mobile towers for access to AHUs	7,000
Temporary storage units for HSDU items	8,000
Western Power AP for HV connections	1,600
Sub-metering of services including steam	10,000
Telephone system	
Local telephone lines Telephone Handsets	1,000
CCTV Installation	3,000
Asbestos analyst costs	5,000
Asbestos removal costs	15,000
Welsh translation costs	0
Resident Communications Costs	1,000
Building signage incl design fees	4,000
Portering for HSDU	4,000
Transportation costs associated with HSDU decant	3,000
Operational costs associated with HSDU	10,000
Allowance for art	0
Statutory Notice and Publicity/consultation charges	1,000
Other Costs	5,000

BREEAM Accreditation	0
Validation costs to Clean Room	0
Harmonic filtering	110,000
TOTAL	**£ 556,213**

Business Justification Case Swansea Bay University Health Board

Project Title: Morriston Enviromental Infrastructure Phase 2

Fees	**£**
NEC Supervisor fees	0
Other fees	
Capital Audit	21,617
Business Case Writer	17,011
Specialist Advisers	
District Valuer	3,000
VAT Advisor	15,000
Misc legal, stat consents, etc	5,000
Other	0
	61,628

Morriston Environmental Phase 2 Non Works Costs

Surveys

Survey Costs	
Site investigation & Geo-environmental survey	17,950
Topographical Survey	13,483
SAB Application	0
CCTV Drainage	8,500
Acoustic/Noise assessment	
Abestos Survey of Existing buildings	1,500
Abestos Survey of Existing buildings	
Asbestos removal costs	
Ecology (inc. Bat survey)	4,847
Nesting bird survey and ecological attendance during construction	3,000
Sharps Surveys & Removal	3,500
Undertake survey of existing electrical supplies and cables	
Planning - works associated with discharge of planning conditions	21,896
Fire Engineer	
Building Control	0
BoQ	3,210
Vegetation clearance works	2,160
MEP surveys to HSDU	1,085
UDS surveys	
Fire compartmentation surveys to HSDU	
Flow and return temperatures surveys	
Arboricultural and landscape proposals	13,626
Planning Consultant	4,990
Enabling works landscaping & ecology	18,366
Sub Total	**118,114**
Services detection survey & stats info	10,000
Materials management plan/WAC analysis	12,000
Temp fire plan	3,500
Highway fees	4,000
Miscellaneous surveys	15,000
Asbestos survey	0
Dilapidation survey	3,000
	47,500
SCP Fee @3.45%	5,714
Survey Costs Total	**171,327**

MORRISTON HOSPITAL - INFRASTRUCTURE WORKS

APPENDICES

MORRISTON HOSPITAL - INFRASTRUCTURE WORKS

1A: SCHEDULE OF DEROGATIONS & CLARIFICATIONS

MEP Derogations Schedule

DRAFT

Project reference: Llanelli Hospital Introductory Project

1. Derogations Schedule

No.	System	Relevant document	Description	Client approved (Y/N)
	General	HTM08-01 Section 2.14	Intrusive noise level criteria may be exceeded at some times in naturally ventilated spaces or spaces where existing systems/equipment has been adopted	
	General	HTM04-01 BCH Standards	Where existing domestic service systems are adopted compliance to HTM04-01/BCH water quality standards cannot be guaranteed	
	Electrical Installation	WHTM06-01	Diverse cable routes have been undertaken in agreement with all parties to inform the Stage 4 design and separation will be provided as far as is practicable given site constraints.	
	Electrical Installation	WHTM06-01	Clauses 17.36, 17.39, 17.53 discuss thermal imaging on distribution systems as potentially being useful for early indication of possible failure on HV and LV equipment. This is not included within the scheme as not understood to be part of project brief.	
	General	HTM 03 01 HBN 22/23	Where existing heating systems are remaining compliance with HTM 03-01 and HBN22/23 cannot be guaranteed around control, set point temperatures and access and maintenance. Surface temperature of existing radiators may exceed the 43.C guidance in HBN 22/23.	
	Ventilation systems	HTM03-01	Where existing ventilation systems or strategies are adopted / extended internal temperature limits for specified hours per year may not be guaranteed.	
	Ventilation systems	HTM03-01 Clause 5.21	Smoke sensors may not be fitted in mate supply ducts unless required by the fire strategy	
	Ventilation systems	HTM03-01 5.25	Ductwork aspect ratios will be designed up to a maximum of 4:1 as per CIBSE guidance	
	Ventilation systems	HTM03-01	Where existing ventilation systems are retained or where co-ordination of new systems prevents, access panel locations in ductwork systems may not meet the criteria in DW144	
	Acoustics	HTM08-01	Intrusive noise level criteria may be exceeded where existing systems are retained/extended from	
	Domestic Services	HTM04-01	Where existing domestic service systems are adopted compliance to HTM04-01 or the Trust specific water safety plan cannot be guaranteed	
	Fire	HTM05-02	As agreed with the Trust; Where existing ductwork passes through existing fire compartment walls/floors, any existing fusible link fire dampers will be retained with no works. Where new ductwork is routed through any assigned fire compartments new actuated smoke dampers will be provided linked to a new central addressable control panel	
	Mechanical	HTM 03-01 Part A – 4.4	Coils/batteries longer than 1m are removable only from one side, not both sides as indicated in clause 4.4.	
	Ventilation systems	HTM 03-01 Part A	Dedicated low level extract with boost function has been requested due to Peracetic acid within the space during the recent design stage. The design currently has low level extract from general extract system without boost ability but is achieving 20ACH.	

Morriston Hospital Infrastructure Phase 2 Clarifications (Rev B)

Planning and Statutory Approvals

The scheme is subject to approval from the local planning authority.

The new highway entrance amendments to substation 6 will be subject to a section 184 agreement processed though Swansea highways. Whilst the application has been submitted by Kier, the risk associated with approval remains with the Client.

The HSDU fire strategy has been provided by SBUHB and our works have been designed in accordance with this. As our works are limited to replacing ventilation we have not undertaken any checks for this fire strategy and cannot take any responsibility for this aspect.

The HSDU works comprise upgrade of ventilation systems only and as such we have only allowed for Building Control sign off for this element. If any additional Building Control sign off is required this would be deemed as a compensation event.

All building control legacy issues are excluded.

Methodology and Logistics

All works will be undertaken during normal working hours (8am-5pm), with the exception of the data cable installation in the main corridors which will be undertaken out of hours. In addition any crane operations in the service yard have been allowed as weekend working.

We will be using normal construction techniques and equipment for the works, in the LV switchroom area machines and equipment will be selected to reduce noise levels. We have made no allowance for suspending activities due to noise. For clarity, we will only stop works due to noise issues under the direct request from MACE or SBUHB authorised person (Mark Gapper or Craig Davies).

During scaffold erection in the service yard the area will be cordoned off from general use. By discussion with the Kier site management team, arrangements can be made for access through to the back of GPOOH once it is deemed safe.

Hospital deliveries to be scheduled as a working arrangement between relevant parties.

We have allowed for use of the existing goods lift for access of materials into the HSDU and plantroom 5B areas. Plywood protection has been allowed for the duration of the works. Maintenance responsibility remains with SBUHB.

Any maintenance to existing services (i.e. A&E chillers in service yard) is to be arranged and agreed with Kier prior to arrival.

Access for scaffolding and materials required in courtyard 4 will be via existing internal pedestrian corridors.

No CCTV to temp access corridor (service yard/GPOOH)

HSDU and Associated Plantrooms

The current design proposal does not include inspection/verification or any correction works to the following

- existing fire compartmentation – full height walls.
- Compartmentation above ceiling to form pressure divides between rooms.
- retained fire dampers
- existing fire alarm systems, or any upgrade works for compliance with current standards, including void protection.
- existing electrical systems, or any upgrade works for compliance with current standards.
- existing equipment, or any upgrade works for compliance with current standards.
- existing general and emergency lighting systems, or any upgrade works for compliance with current standards (all existing lighting to be store and reinstalled).
- existing medical gas systems, or any upgrade works for compliance with current standards.
- existing pipework (LTHW, CHW, steam), any repairs or upgrade works for compliance with current standards.
- Existing wall finishes and floor coverings. No allowances have been made for making good.
- Adjustment of existing services below existing ductwork (to allow removal/replacement of existing ducts).

The Works include for a Refurbishment and Demolition Asbestos Survey and subsequent report. We have made no allowance for dealing with any asbestos found as part of this survey. Any works in connection with asbestos, including statutory notice periods, will be subject to a Compensation Event.

The client brief and design include retention of existing ductwork, fully cleaned, to be incorporated into the new system. We have made no allowances for upgrade or remedial works to ductwork or fire/smoke dampers retained in the final works

No allowances for structural fire protection have been included.

Low level extract in HSDU 07 (equipment assembly room) is not on a dedicated extract system and has been included within the combined extract system.

Where existing ventilation systems or strategies are adopted/extended internal temperature limits for specified hours per year may not be guaranteed

Fire: As agreed with the Trust; Where existing ductwork passes through existing fire compartment walls/floors, any existing fusible link fire dampers will be retained with no works. Where new ductwork is routed through any assigned fire compartments new actuated smoke dampers will be provided linked to a new central addressable control panel

Schedule of Derogations & Clarifications

The current design proposal does not include assessment of the capacity of the existing steam infrastructure and as such the capacity of the existing steam networks to supply the new equipment remains the responsibility of SBUHB.

All maintenance legacy issues are excluded from the project.

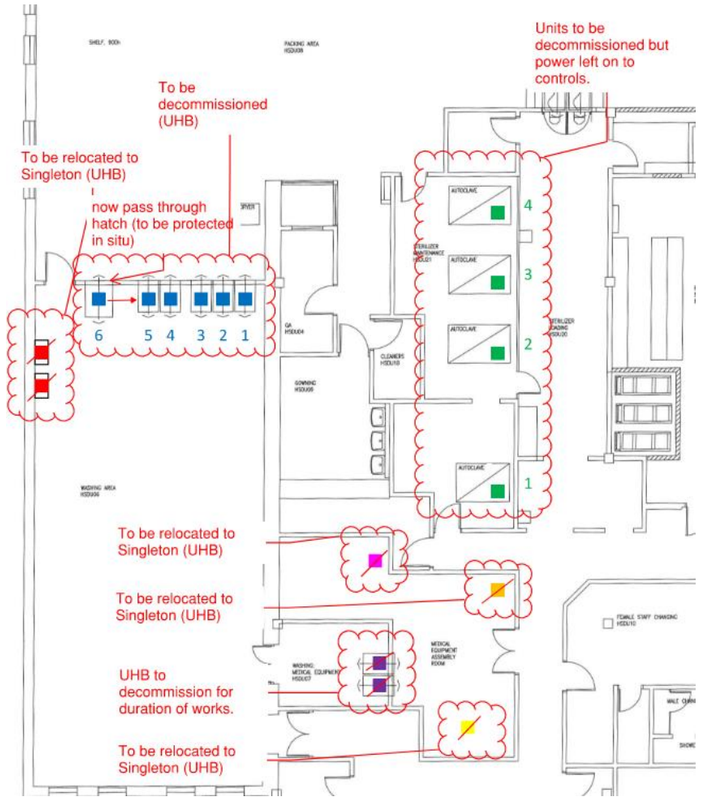
Water quality control – water samples will be taken prior to Kier taking over HSDU, a flushing regime will be agreed with SBUHB for the full duration of works (in line with discussions current allowance for 2 minutes every Monday, Tuesday, Wednesday, Thursday and Friday only), a water sample will then be taken prior to handover so both sets of results can be analysed to show the works have not impacted water quality. Existing domestic, LTHW and CHW systems only will be sampled. We have not allowed for any remedial works these samples may identify as necessary.

Kier will undertake builders and sparkle clean following completion of construction works in HSDU, hospital clean is to be undertaken by SBUHB following handover.

No provision for flushing and commissioning existing equipment or infrastructure system.

No allowance for moving Fire Damper panel or associated cabling in Plantroom 5B (static system group)

The following items of equipment are being removed/decommissioned/isolated by SBUHB:



We have made an allowance for disconnection, protection and reconnection/commissioning of existing plant retained within the HSDU. Allowance agreed with SBUHB via an external quotation and has been included in the cost plan (sum of £41,421.59, subsequently reducing Kier protection allowance to 8k within the latest cost plan).

Service shutdowns will be necessary. We have assumed that these shutdowns can take place during normal working hours and in line with our programme requirements.

Where existing LTHW and CHW systems are being modified these systems will be rebalanced to match existing flow rates on completion. No design work has been undertaken to verify that these existing flow rates are sufficient.

We have allowed to connect the new pumps direct into the existing MCCs and DBs, should these not have sufficient capacity this will be subject to a CE to upgrade boards.

There are several existing MICC cables throughout the work site. We have assumed that the condition of these allows them to be relocated. We have not allowed to renew/replace/repair any existing cables.

We take no responsibility for the integrity of the existing cables to any area within Plantrooms and HSDU area during new construction works

No allowance for upgrading current invertors to existing Pumps that are being upgraded.

The adaption/control of the fire alarm system to facilitate works will be the responsibility of the Client. We have made no allowance for temporary isolations or detector heads.

We have allowed for two portable access platforms to maintain new AHUs (one for plantroom 5B, one for plantroom 4D).

All loose services above ceiling in HSDU to be temporary tied during Kier works, no allowance has been made for extending/fixing onto containment. Should the Client require additional support for the permanent solution this will be deemed to be additional works.

Smoke detectors to ductwork have been allowed as follows: 2 sensors located in plantroom 4D and 1 sensor in plantroom 5B

Validation costs for completed HSDU should remain with Client.

Ventilation has been designed to HTM 03-01 current at the time of Contract Award. A cost to review the design against the HTM 03-01 June 2021 standard has been submitted to the Client and we await a response.

No allowance has been made for making amendments or installation of new sinks to the Gowning Room, this is to be developed with SBUHB and scope added as agreed.

No provision for new lights to tray packing room have been included, discussions have been held regarding new lights being made available that are currently in SBUHB ownership, scope to be agreed with SBUHB.

Schedule of Derogations & Clarifications

Ring Main Works

A HV survey to the existing hospital HV network has been undertaken and report issued. Dead end testing was not able to be undertaken and awaits SBUHB switching of the ring main circuits to complete.

No allowance has currently been allowed to repair/replace any defective equipment identified on the HV Survey reports due to the intrusive nature of the task to access the HV equipment as the system is live.

No allowance for any works in connection with defects identified during dead end testing surveys.

Our works allow for removal of the existing ring main and connection of the new ring main into the interface at the RMU at substations 3 and 4. We cannot accept any liability for the performance of the existing transformers during this switchover period including after re-energising of equipment.

Kier have made no allowance for dealing with contaminated arisings across the project. All material to be disposed off site deemed to be uncontaminated waste.

The Electrical (LV/HV) AP will be provided by SBUHB at no cost to the Contractor. The HVAP will be required to attend the works in accordance with our programme. Any costs/delay due to non-availability will be treated as a compensation event.

An HV ring main switchover schedule is included in appendix 11, for ratification by SBUHB (Authorised person) which lists out access and durations for HV switchover in compliance with the approved construction programme.

We have allowed containment for our new cables only. No allowance for containment for existing cables.

We have assumed that the existing earthing network at the existing sub-stations is compliant and have no allowance for repair or upgrading earthing system to Substation 3 or Substation 4.

We have allowed for the HV trench to be excavated in one continuous operation, working sequentially around the perimeter of the hospital. The trench will be left open for a period of time to allow installation of a full cable length (up to 250m) at which time it will then be backfilled and surface finish reinstated. Full details and durations are as detailed in construction logistic plans and programme. SBUHB will be responsible for granting access to HV cable areas in advance of trenching operations, including parking bays, access roads and designated blue light routes.

HV survey has been a visual inspection only, any faults identified during the works remain the responsibility of the client.

Substation 6 and LV Switchroom

All shrubs and trees are required to be removed outside of nesting season, and is dependant upon receipt on an instruction or early works order.

No allowance for electric vehicle charging points at substation 6 have been included at this time. The works will be costed upon confirmation of the SBUHB specification.

All excavated material is deemed to be non-hazardous and uncontaminated in line with the Ground Investigation report. Any material classified otherwise is outside of the current scope and considered additional cost.

Demolition of existing bund walls and cut out of slab edges expected to be contaminated, Kier have made allowances for removing hazardous material only for the areas of demolition in accordance RVW's drawing No 004020. No allowance for remediation of the area, WAC test to be undertaken prior to works commencing.

WHTM06-01: Diverse LV cable routes have been developed in agreement with all parties (Client, Shared Services) to inform the Stage 4 design and separation will be provided as far as is practicable given site constraints.

WHTM06-01: clauses 17.36, 17.39, 17.63 discuss thermal imaging on distribution systems as potentially being useful for early indication of possible failure on HV and LV equipment. This is not included within the scheme as not understood to be part of project brief.

Surveys

No CCTV or drainage surveys have been undertaken during the design period, on the advice of the project/cost manager. These surveys will be undertaken immediately prior to commencement of the Works. Any remedial works identified in these surveys are outside our scope of works.

The acoustic, heritage, air quality and flood consequence assessments fees were not accepted/instructed by the project manager or cost advisor during OBC/FBC and subsequently this information has not been included in the planning application. Any delays or additional works required because of the Planners/Environmental Health will remain the responsibility of the Client and be subject to a Compensation Event

General

We have allowed for working around services as identified on the UDS survey and issued as part of the stage 4 information.

No allowance for removal of asbestos to any work areas, including any fixings through asbestos materials. Due to the complexities of undertaking an R&D survey within a live hospital environment, we have only undertaken a visual survey at this time which has not identified any potential asbestos materials that will be affected by the proposed works. A R&D survey has been included as part of the works but any works in connection with asbestos, including statutory notice periods, will be subject to a Compensation Event.

No allowance for Harmonic Filtering units

No allowance for remedial works to existing roofs and walls have been included.

Any obstructions underground not identified within the project Ground Investigation are deemed as client risk.

No allowance has been made for upgrading or making good to existing service trenches/tunnels, including any covers and protection barriers.

All power and water consumption for the Works to be issued free of charge by the Client.

No costs are allowed for fuel to fill for the permanent generators, including commissioning consumption. This will be provided from the SBUHB fuel tanks, through the new fuel line.

We have not allowed for any temporary plant e.g. generators, chillers, boilers, pumps, etc for either the new substation works, LV changeover works or HSDU works.

Schedule of Derogations & Clarifications

Kier have made an allowance for the removal of the existing flue from the old generator room (West elevation of Plantroom 5) just off service yard, all other equipment on the flat roof will be left insitu.

MORRISTON HOSPITAL - INFRASTRUCTURE WORKS

2A: RISK REGISTER

Risk Register

Project: Morriston Environmental Modernisation Ph.2
Dated: 25/04/2022
Project Risk Register - Version 10 23 June 2022

Identification				Assessment					Quantification		Management				Risk Quantification Calculation				
Nr	Risk Description	Risk Consequence: 1. Time 2. Cost 3. Quality 4. Operational	Risk Owner	Probability	Impact	Score	Risk Allocation	Category	Quantified Unquantified	Estimated cost impact £	Management Actions	Action Owner	Review Date	Comments	Cost if it happens £	Likelihood Factor	Expected Value	Basis	Basis for assessment
	STRATEGIC RISKS																		
1	Project requirements/scope significantly changes at a strategic level, impacting on service scope, capital cost	Time, Cost, Quality, Operational	Health Board	1	4	4		Strategic	Quantified	50,000	1) Continued liaison with stakeholders; (2) Continued liaison with WGov; (3) Continued liaisons with planners	Health Board	Ongoing		50,000	0.16	8,000		
2	Design brief is not clear	Time, Cost, Quality, Operational	Health Board	1	4	4		Strategic	Quantified	50,000	(1) Confirm brief for main scheme & any decant & relocation accommodation requirements. (2)Project Board signs off decant & relocation briefs as appropriate.	Health Board	Ongoing		50,000	0.16	8,000	HSDU flooring replacement allowance	
3	Senior management support/ Public / Political / support - Failure to maintain political / staff / executive level / press support for agreed project	Operational	Health Board	1	4	4		Strategic	Quantified	0	(1) Communication with local/All Wales public representatives/ Partners/ Staff Representatives; (2) Develop Communications Strategy.	Health Board	Ongoing		0	0.16	0		
4	Leadership - Changes in key personnel/leadership at project and senior operational level	Time, Cost, Quality, Operational	Health Board	2	2	4		Programme	Quantified	0	(1) Confirm SRO support[New in post]; (2) Ensure project structure is resilient; Review regularly.	Health Board	Ongoing		0	0.16	0		
5	Management resources - The project takes up significant portion of senior managements time and detracts from operational management	Time, Operational	Health Board	1	3	3		Strategic	Quantified	0	(1) Project Director to liaise with operational managers & estates leads; (2) Agree resource plan to mitigate impact; (3) monitor management resource and avoid key dates of other projects programmes	Health Board	Ongoing		0	0.12	0		
6	Ineffective project management arrangements during project planning and delivery stages	Time, Operational	Health Board	1	3	3		Programme	Quantified	0	(1) Establish a Project Management Team; (2) Develop Staff Formal Consultation Plan; (3) Develop Communications Strategy and Communications Action Plan.	Health Board	Ongoing		0	0.12	0		
7	Programme delay due to WG approvals. Funding approval delayed or timing of funding does not match current programme.	Time, Cost	Health Board	3	3	9		Programme	Quantified	0	Regular liaison by SBUHB with WG with regards to development of BJC and timing of submission.	Health Board	Ongoing		0	0.36	0	Not costed due to unknown potential delay and significant impact of inflation	
8	Impact of labour market shortages, inflation on Plant and Materials	Time, Cost	Health Board	5	4	20		Programme	Quantified	30,000	Ongoing monitoring of indices during FBC stage	Health Board	Ongoing		30,000	0.80	24,000	AWE Inflation higher than estimated	
9	SCP insolvency	Time, Cost	Health Board	1	5	5				0	SCP on Framework	Health Board	Ongoing		0	0.20	0		
	PLANNING RISKS																		
10	Internal processes / approvals delayed - There is a risk that Health Board Exec approvals are delayed.	Time	Health Board	1	3	3		Programme	Quantified		(1) Continued liaison with SRO	Health Board	Ongoing		0	0.12	0	Anticipated July 2022 submission of BJC	
11	Planning approval & planning conditions - Failure to achieve planning permission conditions, S50 and S184 Agreements and Sections 106 planning condition / building control approvals are more involved than anticipated	Time, Cost	SCP	2	4	8		Programme	Quantified	0	Planning approval/conditions received and being reviewed	SCP			0	0.32	0	Potential work content following survey results	
12	Unrealistic programme set for the main construction phase.	Quality, Operational	Health Board	1	3	3		Programme	Quantified	25,000	Proposed programme reviews	Health Board	Ongoing		25,000	0.12	3,000	2 months of Health Board Consultant fees	
13	Full Planning - local authority rejection of condition discharge - sufficiency of information	Time, Cost, Operational	SCP	2	4	8		Programme	Quantified	140,000	Conditions received and being resolved	SCP	Ongoing		140,000	0.32	44,800		
14	Full Planning - local authority rejection of condition discharge- time for approval	Time, Cost, Operational	Health Board	3	2	6		Programme	Unquantified	0		Health Board	Ongoing		0	0.24	0		
15	Service crossings not approved by highways Section 50 and Section 184 -sufficiency of information	Time, Cost, Operational	SCP	1	3	3		Programme	Quantified	142,000	Planning approval received	SCP	Ongoing		142,000	0.12	17,040	Enhanced requirements as noted by LA	
16	Service crossings not approved by highways Section 50 and Section 184 - time for approval	Time, Cost, Operational	Health Board	3	2	6		Programme	Unquantified	0		Health Board	Ongoing		0	0.24	0		
	Retaining wall is supporting adjacent road - permission to modify is not granted by Highway Authority	Time, Cost, Operational	Health Board	0	0	0		Programme		0	(1) Early engagement with Local Planners; (2) Appoint a Planning Consultant & submit a pre-planning application	Health Board			0	0.00	0		
17	Planning Permission - discharge of pre commencement conditions - sufficiency of information	Time, Cost	SCP	1	3	3		Programme	Quantified	0	Early review of requirements and programme for closure	SCP	Ongoing		84,000	0.12	10,080	See Risk above	
18	Planning Permission - discharge of pre commencement conditions - time for approval	Time, Cost	Health Board	3	2	6		Programme	Unquantified	0		Health Board	Ongoing		0	0.24	0		
19	Content of Planning Conditions	Time, Cost	SCP	1	3	3		Programme	Quantified	0	Early review of requirements and programme for closure	SCP	Ongoing		0	0.12	0		
	Tree Protection Requirements - retention of existing trees	Time, Cost	Health Board	0	0	0		Programme	Quantified	0	Review current information, early engagement with Local Planners	Health Board			0	0.00	0		
	Tree Protection Requirements - implementation	Time, Cost	SCP	0	0	0		Programme	Quantified	0	Early review of requirements and programme for closure	SCP			0	0.00	0		
20	Ecological issues - compliance with statutory approvals and consents	Time, Cost	SCP	1	3	3		Programme	Quantified	0	Planning approval received	SCP	Ongoing		0	0.12	0	Allowances in Target Cost for additional surveys and works	
21	Ecological issues - implementation	Time, Cost	SCP	1	4	4		Programme	Quantified	0	Early review of requirements and programme for closure	SCP	Ongoing		0	0.16	0	Allowances in Target Cost for additional surveys and works	
22	Presence of mammals, reptiles and the like preventing commencement of works	Time, Cost	Health Board	1	5	5		Programme	Unquantified	0	Action following results of surveys to be undertaken	Health Board	Ongoing		0	0.20	0		
	Invasive species	Time, Cost	Health Board	0	0	0		Programme	Quantified	0	Review current information, early engagement with Local Planners, output from surveys	Health Board			0	0.00	0		
23	Issues with obtaining SAB approval	Time, Cost	Health Board	1	3	3		Programme	Unquantified	0		Health Board	Ongoing		0	0.12	0		
24	Discharge of SAB conditions - time for approval	Time, Cost	Health Board	1	3	3		Programme	Unquantified	0		Health Board	Ongoing		0	0.12	0		
25	Discharge of SAB conditions - sufficiency of information	Time, Cost	SCP	2	4	8		Programme	Unquantified	60,000	SCP liaison with Local Authority to identify issues and solutions	SCP	Ongoing		60,000	0.32	19,200		
	FINANCIAL RISKS																		
26	Capital costs - Capital Cost over-run	Time, Cost, Quality	Health Board	1	3	3		Financial	Quantified	200,000	BJC fully tendered, costs are scrutinised Liaison with WG SS	Health Board	Ongoing		200,000	0.12	24,000		
27	Revenue affordability - Affordability of revenue model is over/under estimated	Quality, Operational	Health Board	1	3	3		Financial	Quantified	0	(1) Finance Working Group established; (2) Finance lead regularly report to Project Board.	Health Board	Ongoing		0	0.12	0		
28	VAT recovery rate	Cost	Health Board	1	2	2		Financial	Quantified	100,000	VAT letter received from SBUHB consultant	Health Board	Ongoing		100,000	0.08	8,000		
	DESIGN RISKS																		
29	Fire regulations compliance may require additional works	Time, Cost	Health Board	3	3	9		Design	Quantified	200,000	Continued liaison with NWSSP-SES Fire Officer, H&S representitive and Fire Service during design development, standards are reviewed for updating	Health Board	Ongoing		200,000	0.36	72,000	Potential lack of compartmentation walls and fire dampers/stopping includes allowance for delay to the works	
30	Planning guidance - Changes to Legislation/ British Standard/ HTM/ HBNM/ ISO's/ CPA Accreditation/ HTA's/ Royal Colleges' guidance/ best practice	Time, Cost, Quality	Health Board	1	4	4		Design	Quantified	0	(1) Project Board monitors wider NHS design changes; (2) Continued liaison between partners	Health Board	Ongoing		0	0.16	0		
31	Acoustic requirements and constraints imposed on the site and design by Statutory Authorities	Time, Cost, Operational	SCP	3	2	6		Design	Unquantified	40,000	New HTM 030 to be incorporated into design where agreed	SCP	Ongoing		40,000	0.24	9,600	Potential sound proofing screens and generators	

Risk Register

Nr	Risk Description	Risk Consequence: 1. Time 2. Cost 3. Quality 4. Operational	Risk Owner	Probability	Impact	Score	Risk Allocation	Category	Quantified Unquantified	Estimated cost impact £	Management Actions	Action Owner	Review Date	Comments	Cost if it happens £	Likelihood Factor	Expected Value	Basis	Basis for assessment
32	Any works undertaken by UHB or 3rd parties delayed or defective causing time, cost or quality impact.	Time, Cost, Quality, Operational	Health Board	1	3	3		Design	Quantified	75,000	Liaise with 3rd parties and estates team and include their activities on programme.	Health Board	Ongoing		75,000	0.12	9,000		
33	Delay in receiving design information from UHB or 3rd parties	Time, Cost, Operational	Health Board	1	3	3		Design	Unquantified	80,000	Stage 4/design complete and tendered	Health Board	Ongoing		80,000	0.12	9,600	Assume 2 week impact	
34	Delay in SCP team responding to PMI's over the contractual periods	Time, Cost, Operational	SCP	1	3	3		Design	Unquantified	80,000	Potential programme risk	SCP	Ongoing		80,000	0.12	9,600		
35	Impact of works in HSDU more significant than anticipated	Time, Cost, Operational	Health Board	2	3	6		Design	Unquantified	20,000	Surveys and agreement of scope	Health Board	Ongoing		20,000	0.24	4,800		
36	Extent of existing underground services requires re-route of HV cable installation resulting in delays	Time, Cost	Health Board	1	3	3		Design	Unquantified	150,000	Survey of route/s	Health Board	Ongoing		150,000	0.12	18,000		
37	Routing of new HV/LV cables through/over existing building	Time, Cost, Operational	SCP	1	3	3		Design	Quantified	140,000	Survey/site investigationcompleted	SCP	Ongoing		140,000	0.12	16,800	Potential changes in cable routing	
38	Routing of new HV/LV cables through/over existing building	Time, Cost, Operational	Health Board	2	2	4		Construction		50,000		Health Board	Ongoing		50,000	0.16	8,000	Existing building condition requires additional works e.g. fire stopping	
	Unknown new solar PV connection to be accommodated	Time, Cost	Health Board	0	0	0		Design	Quantified	0	Review of connection and physical constraints, works scheduled to be complete by end of August 2021	Health Board			0	0.00	0		
39	Condition/capacity of existing plant and equipment to be incorporated in to new works	Time, Operational	Health Board	1	4	4		Design	Unquantified	80,000	Existing plant/equipment surveyed	Health Board	Ongoing		80,000	0.16	12,800		
40	Suitable Contractor Emergency Procedures	Time, Operational	SCP	1	3	3		Design	Quantified	50,000	To be forwarded for Health Board review	SCP	Ongoing		50,000	0.12	6,000		
41	Contaminated ground or obstructions in the ground, both in the trenching areas external to the works area such as the adjacent field/substation area, road cross overs and cable trenching	Time, Cost, Operational	Health Board	3	3	9		Design	Unquantified	220,000	Ground investigations	Health Board	Ongoing		220,000	0.36	79,200		
42	Foundation design adjacent to retaining wall and service routes	Time, Cost	SCP	1	4	4		Design	Unquantified	135,000	Ground investigations	SCP	Ongoing		135,000	0.16	21,600		
43	Unforeseen service diversion works	Time, Cost, Operational	Health Board	2	4	8		Design	Unquantified	50,000	Survey of all routes	Health Board	Ongoing		50,000	0.32	16,000		
44	Obtain Building Control approvals/sign-off, and any changes to current design and consequential improvements.	Time, Cost, Operational	SCP	1	2	2		Design	Quantified	50,000	Liaison with Building Control [understand scope of works] clearly define the design and supporting works	SCP	Ongoing		50,000	0.08	4,000		
45	Envelope penetrations; general complex roof issues, penetrations and the like	Time, Cost, Operational	SCP	1	3	3		Design	Unquantified	30,000	Confirmation of route/s, structures impacted and early agreement of solution/s	SCP	Ongoing		30,000	0.12	3,600		
46	Cable segregation in cable trays	Time	SCP	1	2	2		Design	Quantified	50,000	Review of proposed design to ensure distancing where alternative routing is not available	SCP	Ongoing		50,000	0.08	4,000		
47	Insufficient plant space	Time, Cost, Operational	Health Board	1	2	2		Design	Quantified	0	Survey of area/review completed	Health Board	Ongoing		0	0.08	0		
48	Retaining wall integrity	Time, Cost	Health Board	1	3	3		Design	Unquantified	0	Survey of existing structure	Health Board	Ongoing		0	0.12	0		
49	Diesel cross over detail and pipework arrangement	Time, Cost	SCP	1	3	3		Design	Quantified	75,000	Relocation of diesel pipework close to/contained within major road crossings	SCP	Ongoing		75,000	0.12	9,000		
50	Existing building information, existing equipment, additional investigation	Time, Cost, Operational	Health Board	2	3	6		Design	Unquantified	25,000	Identification of available existing information	Health Board	Ongoing		25,000	0.24	6,000		
51	Existing infrastructure; non conformaties with currrent standards	Time, Cost, Operational	Health Board	2	3	6		Design	Unquantified	0	Review installations as required by new works, agree with UHB extent of replacement	Health Board	Ongoing		0	0.24	0		
	Changes to existing Health Board personnel; changes to design requirements	Time, Cost	Health Board	0	0	0		Design		0		Health Board			0	0.00	0		
52	Highways TRO's and consultation period for cross overs, sectional agreements with highways	Time, Cost	SCP			0		Design	Quantified	0	Review of potential legal agreements, the time to agree and instigate	SCP			0	0.00	0		
53	HV survey results - identified issues	Time, Cost	Health Board	1	3	3				0	Management issues to be reviewed	Health Board	Ongoing		0	0.12	0		
	SITE & CONSTRUCTION RISKS																		
54	Archaeological interests are encountered on site(s) delaying works	Time, Cost	Health Board	1	3	3		Construction	Unquantified	0	Unlikely given proposed site is developed	Health Board	Ongoing		0	0.12	0		
55	Drainage / Ground works / Service Diversions works may be more than expected	Time, Cost	Health Board	1	3	3		Construction	Unquantified	0	Undertake surveys	Health Board	Ongoing		0	0.12	0		
56	Damage to adjacent buildings/roads/pavement due to construction works	Time, Cost	SCP	2	3	6		Construction	Unquantified	75,000	Review site logistics at design / programme stage with main contractor	SCP	Ongoing		75,000	0.24	18,000		
57	Risk of ground instability	Time, Cost	SCP	1	3	3		Construction	Unquantified	42,000	Survey to be undertaken	SCP	Ongoing		42,000	0.12	5,040		
58	Inclement weather greater than allowances in Contract over 1:10 event	Time, Cost	Health Board	2	3	6		Construction		40,000		Health Board	Ongoing		40,000	0.24	9,600	1 week delay assumed	
59	Services strike causes outage to the hospital during excavation works	Time, Cost, Operational	SCP	1	5	5		Construction	Unquantified	100,000	Surveys to be undertaken	SCP	Ongoing		100,000	0.20	20,000		
60	Closure of roads not identified in the contract traffic management plans around hospital causes unacceptable logistics for UHB resulting in delay to	Time, Cost, Operational	SCP	1	3	3		Construction	Unquantified	59,000	Traffic Management plan issued and agreed	SCP	Ongoing		59,000	0.12	7,080		
61	Scheduling of shut downs and tests not in accordance with construction programme resulting in delay	Time, Cost, Operational	Health Board	2	3	6		Construction	Quantified	75,000	Schedule of items and requirements issued	Health Board	Ongoing		75,000	0.24	18,000	Assume 2 week delay	
62	Validation of HSDU identifies issues delaying the department from reopening e.g., water quality tests, air tests	Time, Cost, Operational	Health Board	3	3	9		Construction	Unquantified	0	Protection of equipment, clean area regime, early testing to determine condition	Health Board	Ongoing		0	0.36	0	Operational risk	
63	Isolations by maintenance not being able to be carried out	Time, Operational	Health Board	2	3	6		Construction	Unquantified	20,000	Liaison with Health Board, programme details timing of requirements, readings to be recorded before and following completion of new work.	Health Board	Ongoing		20,000	0.24	4,800		
64	Availability of temporary site power and water	Time, Cost	Health Board	1	2	2		Construction	Quantified	0	Source and availability defined early to enable planning	Health Board	Ongoing		0	0.08	0		
65	Working within live hospital environment	Time, Cost, Operational	SCP	1	3	3		Construction	Unquantified	100,000	Liaison with Health Board	SCP	Ongoing		100,000	0.12	12,000		
66	Logistics daily operation of hospital inc deliveries	Operational	Health Board	3	3	9		Construction	Unquantified	0	Liaison with Health Board	Health Board	Ongoing		0	0.36	0		
67	Health board to review existing access and maintenance requirements	Time, Cost, Operational	Health Board	2	3	6		Construction	Unquantified	0	Early liaison to determine possibilities	Health Board	Ongoing		0	0.24	0		
68	Noise/Dust/Vibration Risk	Time, Cost, Operational	SCP	0	0	0		Construction	Unquantified	0	Liaison with Health Board	SCP			0	0.00	0		
69	Security of site compound and unfixed materials	Cost	SCP	2	3	6		Construction	Quantified	100,000	Secure area and use of manual security	SCP	Ongoing		100,000	0.24	24,000		
70	Operational policy changes	Time, Cost, Operational	Health Board	1	3	3		Construction	Quantified		To be reviewed as issued	Health Board	Ongoing			0.12	0		
71	Decommisioning and recommisioning of existing plant	Time, Cost, Operational	Health Board	3	3	9		Construction	Unquantified	50,000	Agree minimum requirement, record performance before decommisioning and after recommisioning	Health Board	Ongoing		50,000	0.36	18,000		

Risk Register

Nr	Risk Description	Risk Consequence: 1. Time 2. Cost 3. Quality 4. Operational	Risk Owner	Probability	Impact	Score	Risk Allocation	Category	Quantified Unquantified	Estimated cost impact £	Management Actions	Action Owner	Review Date	Comments	Cost if it happens £	Likelihood Factor	Expected Value	Basis	Basis for assessment
71	Protection of existing permanent works/making good	Cost, Operational	SCP	1	3	3		Construction	Quantified	50,000	Agree protective requirements, monitor condition throughout the works	SCP	Ongoing		50,000	0.12	6,000		
66	Client deliveries to the service centre, A&E, clinical waste, med gases; access restrictions	Operational	SCP	0	0	0		Construction	Quantified	0	Agree logistics plan prior to works commencing	SCP			0	0.00	0		
	Lifting of generators, ground bearing capacity/road closure	Time, Operational	SCP	0	0	0		Construction	Quantified	0	Location changed to within substation 6 demise,	SCP			0	0.00	0		
	Fire strategy issues during the works.	Operational	Health Board	0	0	0		Construction	Unquantified	0	Liaison with Health Board	Health Board			0	0.00	0		
72	Asbestos in existing buildings	Time, Cost, Operational	Health Board	1	3	3		Construction	Unquantified	100,000	Review of existing information, early identification for testing	Health Board	Ongoing		100,000	0.12	12,000		
73	Vehicular/Pedestrian movements on site - proximity to public	Time, Operational	SCP	3	3	9		Construction	Unquantified	40,000	Control of parking to minimise impact on access routes	SCP	Ongoing		40,000	0.36	14,400		
74	Excessive Ground water issues	Time, Cost, Operational	Health Board	2	2	4		Construction	Unquantified	5,000	Temporary works design to incorporate ground water issues	Health Board	Ongoing		5,000	0.16	800		
	The availability of an HVAP	Time, Cost, Operational	Health Board	0	0	0		Construction	Quantified	0	Identify prior to contract works commencing	Health Board			0	0.00	0		
75	Contract works overlap with other projects on hospital site/impact of works on other hospital sites	Time, Cost, Operational	Health Board	3	3	9		Construction	Quantified	0	SBUHB to advise of potential issue	Health Board	Ongoing		0	0.36	0		
76	Condition of existing LV cable serving existing Xray for future use	Time, Cost	Health Board	2	3	6		Construction	Unquantified	20,000	Visual survey carried out	Health Board	Ongoing		20,000	0.24	4,800		
77	PEA - potential for badgers/reptiles at SS6 location (north of MGW lane) delaying the start of works	Time, Cost	Health Board	0	0	0		Construction	Unquantified	0	Survey carried out	Health Board			0	0.00	0		
	Early order for tree/scrub clearance - bird nesting	Time, Cost	Health Board	0	0	0		Design	Unquantified	0	Early order required	Health Board			0	0.00	0		
78	Scope content, time and cost issues with SSD proposed work	Time, Cost, Operational	SCP	2	3	6		Design	Unquantified	0	Meeting scheduled 26th April to review requirements, approach, timescales and cost implications	Health Board	Ongoing		0	0.24	0		
79	Condition of retained equipment causing issues during recommissioning process [HSDU]	Time, Cost, Operational	Health Board	2	4	8		Construction	Unquantified	0	Review of equipment during decommissioning, identification of items for possible replacement	Health Board	Ongoing		0	0.32	0	Allowance for spare parts included in Non-Works	
80	Extended commissioning period of existing equipment	Time, Cost, Operational	Health Board	2	2	4		Construction	Unquantified	0	Liaison with manufacturers to identify issues and actions required	Health Board	Ongoing		0	0.16	0	Operational Risk	
81	Issues with staff movement to Singleton during contract works	Time, Cost, Operational	Health Board	2	4	8		Construction	Unquantified	0	Established procedure followed once approval of scheme received from Welsh Government	Health Board	Ongoing		0	0.32	0		
	EARLY WARNING NOTICES																		
									Total £:	**3,273,000**					**Contingency Total £:**		**660,240**		
															Health Board Contingency Total		**378,400**		
															SCP Contingency Total		**281,840**		

MORRISTON HOSPITAL - INFRASTRUCTURE WORKS

3A: ECOLOGY REPORTS & ARBORICULTURAL REPORTS

Kier Construction – Western & Wales (working on behalf of Swansea Bay University Health Board)

MORRISTON HOSPITAL INFRASTRUCTURE

Arboricultural Impact Assessment Report

70083576-ARB-001
OCTOBER 2021

PUBLIC

Kier Construction – Western & Wales (working on behalf of Swansea Bay University Health Board)

MORRISTON HOSPITAL INFRASTRUCTURE

Arboricultural Impact Assessment Report

TYPE OF DOCUMENT (VERSION) PUBLIC

PROJECT NO. 70083576

OUR REF. NO. 70083576-ARB-001

DATE: OCTOBER 2021

Kier Construction – Western & Wales (working on behalf of Swansea Bay University Health Board)

MORRISTON HOSPITAL INFRASTRUCTURE

Arboricultural Impact Assessment Report

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QUALITY CONTROL

Issue/revision	First issue	Revision 1	Revision 2	Revision 3
Remarks	First issue			
Date	October 2021			
Prepared by	Mark Watson			
Signature				
Checked by	Howard Booth			
Signature				
Authorised by	Howard Booth			
Signature				
Project number	70083576			
Report number	70083576-ARB-001			

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APPENDICES

MORRISTON HOSPITAL INFRASTRUCTURE PUBLIC | WSP
Project No.: 70083576 | Our Ref No.: 70083576-ARB-001 October 2021
Kier Construction – Western & Wales (working on behalf of Swansea Bay University Health Board)

EXECUTIVE SUMMARY

The Proposed Development is for the construction of a substation, two generators, a low voltage switchroom and the installation of a new oil line at Morriston Hospital, Swansea.

This arboricultural impact assessment report has been commissioned to support the planning application.

A total of 34 arboricultural features, consisting of 12 individual trees and 22 groups of trees were surveyed within the arboricultural study area.

To facilitate the Proposed Development, the impact assessment has established two low quality and two moderate quality features will require partial removal. Three low quality features will also require removal.

All other arboricultural features can be retained and to ensure their safe retention tree protection measures should be used to avoid harm to these trees. A Tree Removal and Protection Plan illustrates the alignment of protection fencing for use during the construction phase of the Proposed Development.

An outline Arboricultural Method Statement sets out the principles for tree protection and should be used to form the basis of a dynamic working document.

1 INTRODUCTION

1.1 PROJECT BACKGROUND

1.1.1. WSP has been instructed by Kier Construction – Western & Wales ("Kier") (working on behalf of Swansea Bay University Health Board) to provide arboricultural support for a planning application for a substation, generators, low voltage switchroom, installation of new oil line and installation of a new ring main (hereafter referenced Proposed Development) at Morriston Hospital, Heol Maes Eglwys, Morriston, Swansea.

1.1.2. Pre-application advice was sought from the Planning Department at Swansea Council to help inform the Proposed Development and this planning application. This resulted in written advice received from Swansea Council on 25 August 2021 (Pre-Application reference 2021/1832/PRE).

1.1.3. The Local Authority Tree Officer advised that the Proposed Development's proximity to the hedge could damage trees or require pruning in future and stated that a full application would need to be accompanied by an arboricultural impact assessment in accordance with BS5837:2012.

1.2 SCOPE OF REPORT

1.2.1. The purpose of this report is to identify all trees which may be affected by the Proposed Development, to assess the impact of the Proposed Development upon those trees, where necessary recommend mitigation and to recommend such protection measures as are necessary to ensure the health of retained trees.

1.2.2. The scope and level of detail included within this report is commensurate with that required for the adequate consideration of arboricultural features as part of the Proposed Development.

1.2.3. Information provided complies with the requirements of British Standard BS 5837:2012 *Trees in relation to design, demolition and construction – Recommendations* and includes reference to the following:

- desk study search for baseline information on arboricultural statutory designations;
- results of a BS 5837 walkover survey;
- an Arboricultural Impact Assessment (AIA); and,
- an Outline Arboricultural Method Statement (AMS).

1.2.4. Impacts should be defined as an assessment of arboricultural removals and identification of matters to be addressed within an AMS.

1.3 LIMITATIONS

1.3.1. Provisional Tree Preservation Orders (TPO) may be made whenever a local planning authority deems it appropriate with only those persons interested in the land served with a copy of the Order. Because of this, any reference to the presence of TPOs is only valid on

the date at which the desk study search was undertaken. In instances where works unspecified in this report are to be undertaken, and which may impact trees, a further search for the presence of TPOs should be carried out prior to commencement.

1.3.2. Trees are dynamic organisms which are influenced by a variety of environmental variables and whose health and condition can rapidly change. Because of this, any recommendations made within this report are valid for a period of 24 months from the date of survey, when any site conditions change or pruning or other works unspecified in the report are carried out to, or affecting, the subject trees, whichever is the sooner.

1.3.3. This report does not constitute a health and safety survey. Where concerns for tree health and safety exist then necessary and appropriate tree inspections should be carried out.

1.4 RELEVANT LEGISLATION, POLICY AND GUIDANCE

1.4.1. This report has been compiled with reference to the following legislation, policy and guidance.

LEGISTATION

- Town and Country Planning Act 1990

NATIONAL POLICY

- The National Development Framework: Future Wales - the National Plan 2040
- Planning Policy Wales (11th Edition, 2021)

LOCAL POLICY

- Policy ER 11: Trees, hedgerows and development - Swansea Local Development Plan (2010-2025)

GUIDANCE

- British Standards Institute. BS 5837: 2012 Trees in relation to design, demolition and construction – Recommendations. London: BSI

1.5 ABBREVIATIONS OF TERMS USED

Table 1-1 – List of acronyms used within this report

Acronym	Definition
AIA	Arboricultural Impact Assessment
AMS	Arboricultural Method Statement - A methodology for the implementation of any aspect of development which is within the root protection area, or has the capacity to adversely affect, any retained tree.
BS 5837	British Standard BS 5837:2012 ‘Trees in relation to design, demolition and construction – Recommendations’ - This standard ‘*gives*

	recommendations and guidance on the relationship between trees and the design, demolition and construction process. It sets out the principles and procedures to be applied to achieve a harmonious and sustainable relationship between trees and structures’.
CEZ	Construction Exclusion Zone - An area within which all site clearance and construction activities, access and storage of materials are prohibited.
RPA	Root Protection Area - Layout design tool indicating the minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain the tree’s vitality.
TPO	Tree Preservation Orders - An order made by the Local Planning Authority to protect specific trees, groups of trees or woodlands in the interests of amenity.

2 METHODS

2.1 STUDY AREA

2.1.1. The study area comprises the Proposed Development and a buffer of up to 15m. The purpose of the 15m buffer is to ensure compliance with BS 5837 which recommends that all arboricultural features whose Root Protection Areas (RPAs) may be impacted are identified, surveyed and included within the assessment. The British Standard caps RPAs to a maximum radius of 15m, hence the extent of the buffer. Trees outside of the Proposed Development but within the 15m buffer which are small have not been included within this assessment report.

2.1.2. For the purposes of this report, the study area is defined as red line boundary and the alignment of the proposed ring main plus the 15m buffer zone.

2.2 BASELINE DATA COLLECTION

2.2.1. Baseline data collection has been undertaken with reference to BS 5837 and has been undertaken using the following data sources:

- an arboricultural desk study; and
- a walkover survey of all arboricultural features within the study area.

2.3 DESK STUDY

2.3.1. A desk study has been undertaken as a means of identifying statutory and non-statutory arboricultural constraints which may apply to arboricultural features within the study area. Details of the desk study can be viewed within appendix A.

2.4 WALKOVER SURVEY

2.4.1. A walkover survey of arboricultural features within the study area was undertaken to comply with BS 5837 and details of the method used are presented in Appendix A.

2.5 PROVIDED DESIGN INFORMATION

2.5.1. The following documents and plans have been viewed and used to formulate our report and arboricultural assessment:

- Planning Statement
- SAB Application External Arrangements – Drawing No MHP2-RVW-SS6-00-DR-C-001
- Stage 2 Road Duct Crossing from Sub 6 to LV Switchroom – Drawing No MHP2-RVW-SS6-00-DR-C-002
- Electrical Services Proposed Site HV Layout – Drawing No MHP2-AECC-HV-00-M2-E-0004 Rev P02
- Mechanical Services Substation 6 Generator Fuelling Diagram – Drawing No MHP2-AECC-SS6-XX-SH-M-0001 Rev P02

3 ARBORICULTURAL SURVEY FINDINGS

3.1 ARBORICULTURAL FEATURES

3.1.1. The results of the arboricultural desk study confirmed the study area is not in a conservation area and there are no tree preservations orders, ancient woodland nor veteran trees.

3.1.2. An arboricultural survey schedule is presented at Appendix B in which details of the arboricultural features in the study area are presented. Location of the arboricultural features is presented in Appendix C.

3.1.3. The land to the north of Mynydd Gelli Wastad Road comprises an agricultural grass field bounded by hedges, scrub and trees and an abandoned stable building situated next to the field access.

3.1.4. Overall, the arboricultural features were assessed as being predominantly semi mature and of moderate and low quality, a summary of tree quality categories can be seen in Table 3-1 below.

Table 3-1 – Summary of tree quality categories

BS 5837 Category	Quality	Individual Trees	Groups	Linear Groups	Total
Category B	Moderate	10	4	11	**25**
Category C	Low	2	5	2	**9**
Total		**12**	**9**	**13**	**34**

4 ARBORICULTURAL IMPACT ASSESSMENT

4.1 SCOPE OF ASSESSMENT

4.1.1. The scope of this assessment has been established with reference to BS 5837:2012. The scope of assessment is to evaluate the effects of the Proposed Development on arboricultural features and where necessary recommend mitigation.

4.1.2. The assessment includes specific reference to the effects of tree loss and other potentially damaging activities which could foreseeably occur in the vicinity of retained trees. Further reference is made concerning recommendations for mitigation, including those matters which require inclusion within an AMS.

4.2 ASSUMPTIONS AND LIMITIATIONS

4.2.1. This AIA report has been compiled on the basis of the following assumptions:

- All construction activities will be confined to within the Proposed Developments Red Line Boundary; and
- Existing areas of hard surfacing will be utilised wherever possible for haulage routes, site compounds and material storage; and
- That no access or tree removal on third party land will be required to facilitate the Proposed Development.

4.2.2. The following limitations apply to this AIA report:

- Enabling works (such as the installation or diversion of services by statutory undertakers beyond the red line boundary) have not been considered; and
- Some of the arboricultural features have been plotted relative to other site features using aerial imagery, topographical plans and on-site GPS which could have a variance of location by 1m.

4.3 PROPOSED DEVELOPMENT

4.3.1. The Proposed Development is for the construction of a substation, two generators, a low voltage switchroom and the installation of new oil line at Morriston Hospital, Swansea.

4.3.2. The Planning Statement provides more details on work required for the Proposed Development.

4.3.3. The preliminary layout surrounding the proposed substation illustrates a temporary compound (including storage, site offices and car parking) area together with a proposed permanent sustainable drainage system.

4.4 ARBORICULTURAL FEATURES TO BE REMOVED

4.4.1. The majority of arboricultural features that would be fully or partially removed to facilitate the Proposed Development are located in the vicinity of the substation and site compound area.

The arboricultural impact assessment confirms two low quality and two moderate quality features will require partial removal. Three low quality features will also require removal to facilitate the Proposed Development. Table 4-1 provides a summary of arboricultural removals.

Table 4-1 Summary of Arboricultural Removals

BS 5837 Category	Removal	Partial Removal
Category B		LG27 LG28
Category C	G30 G33 T33	G32 LG6
Total	**3**	**4**

4.4.2. Arboricultural features to be removed / partially removed are shown in drawing 70083576-WSP-DR-ARB-001 at Appendix C.

4.4.3. The adoption of mitigation measures i.e. hand dig installation on the southern side of Mynydd Gelli Wastad Road would limit tree removal.

4.5 OTHER ARBORICULTURAL IMPACTS

4.5.1. Other identified arboricultural impacts associated with the construction of the Proposed Development are recorded in Table 4-1. Other arboricultural impacts are activities which have the potential, if uncontrolled, to cause damage to retained arboricultural features.

4.5.2. It is anticipated that the majority of construction activities will utilise areas of existing hard surfacing and reduce the requirement for additional ground protection measures.

4.5.3. The project has confirmed that proposed works in proximity to G10 will utilise existing infrastructure, tree protection fencing is recommended for this area to maintain a construction exclusion zone.

4.5.4. Table 4-1 provides details of the arboricultural features which are at risk of damage, the likely cause of damage and the mitigatory measures which are required. Implementation of the recommended mitigatory measures will be sufficient to ensure that arboricultural features can be retained without significant loss of value or a notable reduction in health or longevity.

Table 4-1 - Other identified arboricultural impacts, proposed mitigation and likely effects

Feature	Cause of Impact	Potential Impact	Mitigatory Measures
T18, LG25 and LG27	Open trenching activities	Root severance and soil compaction	Hand dig installation under arboricultural supervision
All retained features	Contractor spatial working requirements during demolition and construction (below ground impact).	Soil compaction and root damage for contractor spatial working requirements. Loss of vitality and decline in health. Reduction in quality of trees / potential death of trees.	Establish a construction exclusion zone (CEZ) within an AMS for duration of demolition which is demarcated by a tree protection fence. Where access only is required temporary ground protection measures could be installed to prevent soil compaction and root damage.
All retained features	Contractor spatial working requirements during demolition and construction. (above ground impact).	Injurious contact with above ground elements of retained trees. Loss of vitality and decline in health. Reduction in quality of trees / potential death of trees.	Establish a CEZ within an AMS for duration of demolition and construction and arboricultural supervision during demolition and construction near trees. Requirements for pruning to avoid injurious contact are to be determined with arboricultural supervision prior to commencing all activities.

4.5.5. The indicative RPAs used for design are based on a symmetrical circle and are shown in drawing 70083576-WSP-DR-ARB-001 at Appendix C. The shape of RPAs can be adjusted to ensure that sufficient area, and therefore soil volume is protected. An adjusted RPA has not been drawn but the location of the tree protection fence provides sufficient area around the retained trees to ensure protection during construction.

4.5.6. Details of the mitigation measures set out in this report are shown on the Tree Removal and Protection Plan and should be viewed in conjunction with the outline AMS.

4.6 MITIGATION PLANTING

4.6.1. Tree loss should be mitigated through the implementation of a landscape design including new tree planting.

4.6.2. The Proposed Development has been designed to avoid impacting on trees and vegetation where possible. A Landscaping Scheme is being prepared to mitigate and compensate for losses whilst seeking opportunities to enhance biodiversity. A Landscape Ecological Management Plan (LEMP) will be prepared to describe the long-term management of the landscaping scheme.

4.7 OUTLINE ARBORICULTURAL METHOD STATEMENT

4.7.1. An outline AMS is included in Appendix D The AMS adopts a precautionary approach to tree protection and addresses activities which have the potential to cause damage to retained trees.

4.7.2. The AMS addresses, in principle, the following matters which are of relevance to the Proposed Development.

- arboricultural monitoring;
- tree protection fencing; and
- temporary hard surfaces in RPAs.

4.7.3. It is recommended that this AMS be viewed as a ‘living document’. It should therefore be reviewed, and if necessary updated, at the following stages of design and construction:

- Detailed design and discharge of conditions or reserved matters;
- Contractor engagement;
- Pre-commencement; and,
- Prior to any instance where the site clearance or construction methodology is amended.

4.7.4. All tree works undertaken must comply with British Standard 3998:2010 – Tree Work Recommendations and should therefore be carried out by skilled tree surgery contractors.

5 SUMMARY AND CONCLUSIONS

5.1.1. A walkover survey of the arboricultural features within the arboricultural study area was undertaken on 7 October 2021. The arboricultural survey was undertaken in accordance with BS 5837 with OS master maps and a Topographical Survey forming the base mapping.

5.1.2. The desk study confirmed no record of ancient/veteran trees or ancient woodland within the arboricultural study area.

5.1.3. Swansea Council have confirmed there are three TPO's located within the boundaries of Morriston Hospital. The TPO reference numbers are 128, 288 and 472.

5.1.4. The Proposed Development is not considered to impact on any of the TPO trees.

5.1.5. A total of 34 arboricultural features, consisting of 12 individual trees and 22 groups of trees were surveyed. Of these arboricultural features 25 were assessed as moderate quality and nine as low quality.

5.1.6. In order to facilitate the Proposed Development, the impact assessment has established that three moderate quality features would require partial removal together with one low quality feature. A further two low quality features are assessed as requiring full removal.

5.1.7. The Proposed Development includes a landscape design, details of which are reported separately to this report.

5.1.8. Where retained trees are assessed as being at risk of damage from construction activities, tree protection measures have been illustrated within the Tree Removal and Protection Plan in Appendix C. This should be used in conjunction with the outline AMS which sets out the principles for tree protection.

Appendix A

ARBORICULTURAL SURVEY METHODOLOGY

SURVEY METHODOLOGY

METHOD OF BASELINE DATA COLLECTION

Baseline data collection has been undertaken with reference to BS 5837 and uses the following data sources:

- an arboricultural desk study, and;
- a walkover survey of all arboricultural features within the study area.

DESK STUDY

The arboricultural desk study for the Proposed Development was undertaken in October 2021. The desk study reviewed existing arboricultural and environmental information available in the public domain and requested information from Swansea Council in relation to TPOs and Conservation Areas.

The desk study has confirmed no ancient/veteran trees or ancient woodland within the arboricultural study area. Swansea Council are in the process of confirming the status of TPOs and Conservation Areas.

WALKOVER SURVEY

A walkover survey was undertaken on 7 October 2021 and undertaken in accordance with the following criteria:

- Arboricultural features have been recorded as individual trees, tree groups or linear areas where this has been deemed appropriate. Tree groups and linear groups have been recorded on the basis that they form distinct arboricultural features either aerodynamically, visually or because they contain trees of similar cultural and biodiversity value.
- The trees have been visually inspected from ground level only.
- No tissue samples were taken nor was any internal investigation of the subject trees undertaken.
- Tree heights and crown spreads have been estimated to the nearest 1m.
- Notes have been recorded where they relate to the quality of the arboricultural feature.
- Management recommendations have been provided where work is necessary for the abatement of a hazard which presents a high level of risk to persons or property.

Stem diameters have been measured in accordance with Annex C of BS 5837. Diameters of single stem trees on level ground have been measured at 1.5m above ground level. The diameters of other commonly encountered stems have been measured as per the guidance. The combined stem diameters for multi-stemmed trees have been calculated in accordance with BS 5837 paragraph 4.6.1.

By default, Root Protection Areas (RPAs) are calculated as an area equivalent to a circle with a radius 12 times the stem diameter.

QUALITY ASSESSMENT

The quality of arboricultural features has been determined in accordance with BS 5837 Table 1 a copy of which is provided in **Figure A-1.** The purpose of the quality assessment is to enable informed decisions to be made regarding the removal and retention of arboricultural features in the context of development. For an arboricultural feature to be included within a particular quality category it should accord with the description provided.

The quality of each arboricultural feature is defined based on its sub-category. Sub-categories carry equal weight, do not influence retention priority and are simply included to indicate the primary value associated with each surveyed item. Sub-categories 1, 2 and 3 are intended to reflect arboricultural, landscape and cultural values, respectively.

The quality and sub-category assigned to each arboricultural feature are identified within the Arboricultural Survey Schedule included in Appendix B of this report.

Figure A-1 - BS 5837 Table 1 - Cascade Chart for Tree Quality Assessment

Table 1 **Cascade chart for tree quality assessment**

Category and definition	Criteria (including subcategories where appropriate)			Identification on plan
Trees unsuitable for retention (see Note)				
Category U Those in such a condition that they cannot realistically be retained as living trees in the context of the current land use for longer than 10 years	• Trees that have a serious, irremediable, structural defect, such that their early loss is expected due to collapse, including those that will become unviable after removal of other category U trees (e.g. where, for whatever reason, the loss of companion shelter cannot be mitigated by pruning) • Trees that are dead or are showing signs of significant, immediate, and irreversible overall decline • Trees infected with pathogens of significance to the health and/or safety of other trees nearby, or very low quality trees suppressing adjacent trees of better quality *NOTE Category U trees can have existing or potential conservation value which it might be desirable to preserve; see **4.5.7**.*			See Table 2
	1 Mainly arboricultural qualities	**2 Mainly landscape qualities**	**3 Mainly cultural values, including conservation**	
Trees to be considered for retention				
Category A **Trees of high quality** with an estimated remaining life expectancy of at least 40 years	Trees that are particularly good examples of their species, especially if rare or unusual; or those that are essential components of groups or formal or semi-formal arboricultural features (e.g. the dominant and/or principal trees within an avenue)	Trees, groups or woodlands of particular visual importance as arboricultural and/or landscape features	Trees, groups or woodlands of significant conservation, historical, commemorative or other value (e.g. veteran trees or wood-pasture)	See Table 2
Category B **Trees of moderate quality** with an estimated remaining life expectancy of at least 20 years	Trees that might be included in category A, but are downgraded because of impaired condition (e.g. presence of significant though remediable defects, including unsympathetic past management and storm damage), such that they are unlikely to be suitable for retention for beyond 40 years; or trees lacking the special quality necessary to merit the category A designation	Trees present in numbers, usually growing as groups or woodlands, such that they attract a higher collective rating than they might as individuals; or trees occurring as collectives but situated so as to make little visual contribution to the wider locality	Trees with material conservation or other cultural value	See Table 2
Category C **Trees of low quality** with an estimated remaining life expectancy of at least 10 years, or young trees with a stem diameter below 150 mm	Unremarkable trees of very limited merit or such impaired condition that they do not qualify in higher categories	Trees present in groups or woodlands, but without this conferring on them significantly greater collective landscape value; and/or trees offering low or only temporary/transient landscape benefits	Trees with no material conservation or other cultural value	See Table 2

NOTES AND LIMITATIONS

Arboricultural survey data is of a preliminary nature and has been collected based on a walkover survey.

Only defects visible from the ground have been noted and each individual feature may not have been inspected closely due to access difficulties, the presence of dense ivy, other vegetation or safety constraints. Safety related features have not been recorded on the basis that the arboricultural features will be subject to a normal programme of tree hazard assessment and only those features which materially affect the quality of the feature or pose a real and immediate safety concern have been recorded.

Arboricultural survey data is typically valid for a period of two years unless otherwise stated. Significant environmental events (such as extreme weather conditions) or changes to the Site may render it invalid within a shorter timescale.

Whilst arboricultural surveys are not seasonally limited it is the case that certain pests and diseases may be more or less evident at different times of the year. This is especially true of certain wood decaying fungi such as the Giant Polypore (*Meripilus giganteus*) where fruiting bodies are short-lived, and the early stages of root decay may not result in other identifiable symptoms. Walkover survey data is therefore based upon observations made at the time of the site visit and may be subject to change should further or more detailed inspections be undertaken.

The survey has only been undertaken from land within the client's ownership, from public land or from areas where formal access has been arranged.

The position of arboricultural features has been estimated using aerial photography. The position and extent of these features should be regarded as approximate only.

Appendix B

ARBORICULTURAL SURVEY SCHEDULE

Public

TREE SURVEY SCHEDULE - EXPLANATORY NOTES

REFERENCE ABBREVIATIONS

- G – Group
- LG – Linear Group
- T – Tree

MEASUREMENTS

Height is estimated to provide a relative indication of tree size.

Stem Diameter measurements are in accordance with BS 5837:2012.

Crown spreads have been estimated in the four cardinal points.

LCH is the lowest canopy height. It is an estimate of the lowest point of foliage above ground level of the tree indicating the clearance below the tree.

LBH is the lowest branch height and is the height above ground level of the first branch union.

ASSESSMENTS

Life stage:

- Y – Young – planted within the last three years (unless heavy/extra heavy standard
- SM – Semi-mature – <25% estimated life expectancy
- EM – Early Mature – < 50% estimated life expectancy
- M – Mature – >50% estimated life expectancy

Physiological condition – Good, Fair Poor or Dead

Structural condition – Good, Fair, Poor or Unstable

Estimated remaining contribution - <10 years, 10+ years, 20+ years or 40+ years.

BS 5837 Category – A, B, C or U with a single sub-category recorded as 1, 2 or 3.

ROOT PROTECTION AREA

RPA is the radius of a circular Root Protection Area associated with the tree as measured from the centre of the stem. For arboricultural features where more than one stem diameter is recorded the RPA radius is calculated using the largest dimension.

RPA is the area of root protection of the tree. For arboricultural features where more than one stem diameter is recorded the RPA radius is calculated using the largest dimension.

The RPA for groups is the equivalent RPA for the largest tree in that group and is illustrated in 70083576-WSP-DR-ARB-001 at Appendix D.

Ref.	Species	Height (m)	Stem Dia. (mm)	Crown Spread (m)				LCH (m)	LBH (m)	Life Stage	Physiological Condition	Structural Condition	Tree Condition Notes & Observations	RPA radius (m)	Estimated Remaining Contribution	BS5837 Category
				N	E	S	W									
T1	Sessile oak	15	450	6	5	4	5	1.5	2	Semi Mature	Fair	Fair	Located close to T2	5.4	20+	B1
T2	Sessile oak	15	450	6	5	4	5	1	1	Semi Mature	Fair	Fair		5.4	20+	B1
T3	Hawthorn	5	250	0	2	3	1	1	1	Semi Mature	Fair	Fair	Suppressed by adjacent oaks	3.0	20+	B2
T4	Sessile oak	15	500	4	4	6	5	1.5	2.5	Early Mature	Fair	Fair	Top of hedge bank	6.0	20+	B1
G5	Goat willow, Elder	4	200	1	1	1	1	1	1	Semi Mature	Fair	Fair		2.4	10+	C2
LG6	Goat willow, Sessile oak, Holly, Silver birch	13	350	2	3	2	3	1.5	1.5	Semi Mature	Fair	Fair	Boundary, hedge bank, gappy, browsed by horses?	4.2	10+	C3
LG7	Field maple	12	200	2	1	2	1	2	2	Semi Mature	Fair	Fair	Semi-natural boundary planting	2.4	20+	B3
G8	Alder, Field maple, Rowan, Wild cherry	17	350	3	3	4	3	2	2	Semi Mature	Good	Fair		4.2	20+	B2
T9	Sorbus sp.	5	320	2	2	2	2	1.5	1	Early Mature	Fair	Fair	Past pruning to lift crown	3.8	20+	B1
G10	Sessile oak	17	500	6	6	6	6	2	2.5	Early Mature	Fair	Fair	Boundary hedge bank	6.0	20+	B2
T11	Silver maple	10	310	3	3	3	3	2	3	Semi Mature	Good	Good	In shrub bed with small alder	3.7	20+	B1
T12	Silver birch	8	115	1	1	1	1	1.5	2	Semi Mature	Good	Fair	Twin stem, red paint dots	1.3	20+	B1
LG13	Sessile oak, Field maple, Silver birch	14	550	4	4	5	5	2.5	3	Early Mature	Fair	Fair	Mixed semi-natural planting	6.6	20+	B3
LG14	Rowan, Silver birch	10	160	2	2	2	2	2.5	3	Semi Mature	Good	Fair	Mixed ornamental planting	1.9	20+	B3
LG15	Sorbus sp.	6	150	2	2	2	2	2	2	Semi Mature	Poor	Fair	3 x ornamental sorbus in shrub bed	1.8	10+	C3
T16	Ash	16	750	4	4	4	4	2	3	Early Mature	Poor	Poor	Ash dieback evident	9.0		C1
G17	Alder	18	250	4	4	4	4	2	2	Semi Mature	Good	Fair	Mixed group, alder dominate	3.0	20+	B2
T18	London Plane	19	800	8	7	8	8	2	3	Early Mature	Good	Good	Fenced off, no access	9.6	20+	B1
G19	Lime, Cypress, Unknown	12	450	4	4	4	4	2	2.5	Semi Mature	Fair	Fair	3 x mixed ornamental; lime, cypress and unknown	5.4	20+	B2
T20	Southern beech, Maple	5	250	2	3	3	4	1	1	Semi Mature	Fair	Poor	Nothofagus, in shrub bed, with ornamental maple	3.0	20+	B1
LG21	Deciduous ornamental trees	25	900	6	6	7	6	2	2	Early Mature	Fair	Fair	Line of established ornamental trees, beyond buffer zone	10.8	20+	B3
T22	Beech	18	550	6	6	6	6	2	2	Semi Mature	Fair	Fair	Fenced off, no access - assessed from distance	6.6	20+	B1
LG23	Pine	13	250	3	3	3	3	2	2	Semi Mature	Fair	Fair	Fenced off, no access	3	20+	B2
LG24	Callery pear	7	140	1	1	1	1	2	2	Young	Fair	Fair	Line of 4 trees	1.6	20+	B2
LG25	Pine, Alder	12	550	3	3	3	3	2	1.5	Semi Mature	Fair	Fair	Mixed ornamental planting	6.6	20+	B2
LG26	Field maple	11	180	2	2	2	2	2	1.5	Semi Mature	Fair	Fair	Maintained hedge with maple maiden trees	2.1	20+	B3
LG27	Sessile oak, Hazel, Goat willow, Hawthorn	10	400	4	4	4	4	1	1	Semi Mature	Fair	Fair	Field boundary	4.8	20+	B3

Ref.	Species	Height (m)	Stem Dia. (mm)	Crown Spread (m)				LCH (m)	LBH (m)	Life Stage	Physiological Condition	Structural Condition	Tree Condition Notes & Observations	RPA radius (m)	Estimated Remaining Contribution	BS5837 Category
				N	E	S	W									
LG28	Sessile oak, Hazel	14	400	2	2	2	2	1.5	2	Semi Mature	Fair	Fair	Inaccessible dense bramble	4.8	20+	B3
G29	Field maple, Hawthorn, Rowan	12	300	3	3	3	3	2	2	Semi Mature	Good	Fair	2 x maples with small rowan and hawthorn	3.6	20+	B2
G30	Hazel, Goat willow	6	200	2	2	3	3	1	2	Semi Mature	Fair	Fair	Scrub emerging through dense bramble	2.4	10+	C3
G31	Hazel, Common lime	4	150	2	2	2	2	1	1	Semi Mature	Fair	Fair	Hazel spreading with dense bramble	1.8	10+	C3
G32	Sessile oak, Ash, Hazel	6	300	2	2	2	2	1	1	Young	Fair	Fair	Inaccessible dense bramble	3.6	10+	C3
T33	Hawthorn	4	75	1	1	1	1	0.5	0.5	Young	Fair	Fair		0.9	10+	C1
G34	Goat willow	8	250	3	4	4	4	1	1	Semi Mature	Fair	Fair	Willow scrub emerging from dense bramble	3.0	10+	C3

Appendix C

TREE REMOVAL AND PROTECTION PLAN

Public

LEGEND:

- Red Line Boundary
- Ring Main
- Indicative Tree Protection Fencin
- Indicative Root Protection Area
- Trees To Be Removed
- Potential Hand Dig Area

BS5837 Quality Grading

- B
- C

Prefix

T Tree
G Group
LG Linear Group

STATUS: FOR INFORMATION ONLY

WSP, 6 Devonshire Square
London, EC2M 4YE
Tel: +44 (0) 20 7337 1700
www.wsp.com

CLIENT:	Kier Construction
PROJECT:	Morriston Hospital
TITLE:	TREE REMOVAL AND PROTECTION PLAN Page 1 of 4

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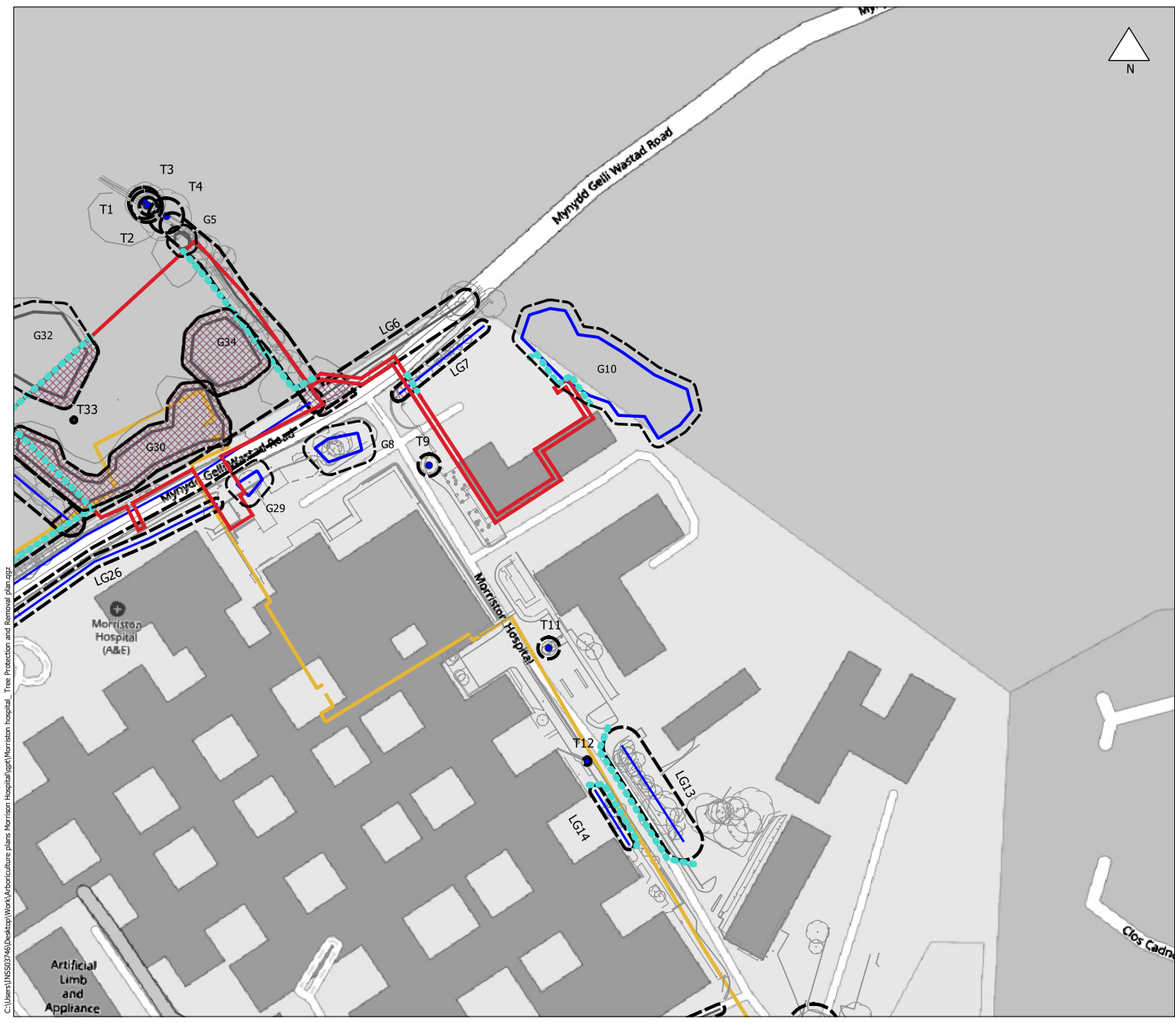

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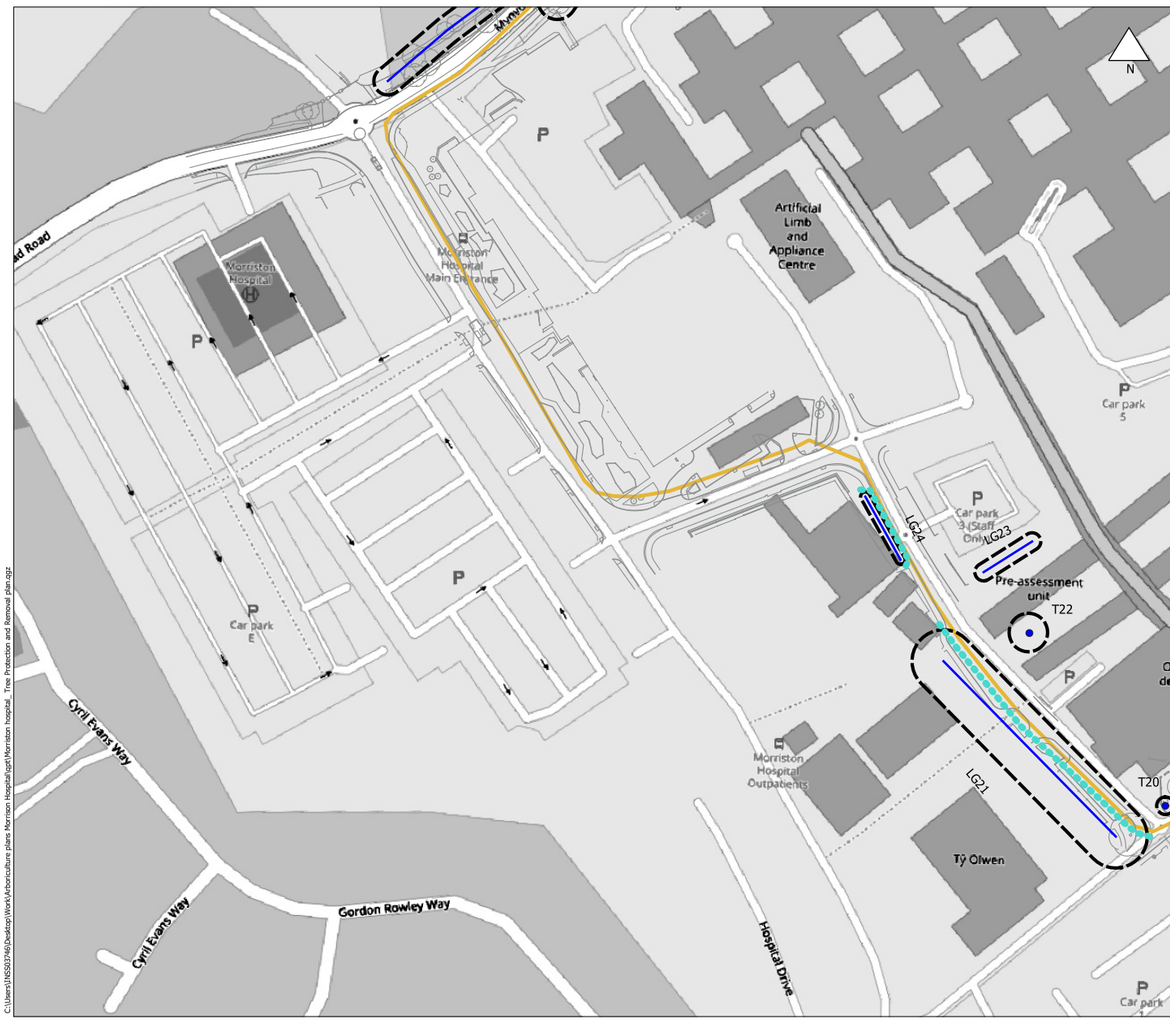

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Appendix D

OUTLINE ARBORICULTURAL METHOD STATEMENT

Public

INTRODUCTION

The outline Arboricultural Method Statement (AMS) is designed to provide guidance to the Principal Contractor to ensure appropriate protection is given to retained trees during the demolition and construction phases of the project.

The AMS should be considered as a working document and be modified appropriately with input from the Site Manager and the appointed project arboriculturist acting as an Arboricultural Clerk of Works (ACoW).

PHASING

Detailed below is the phasing programme which should be followed by the contractor throughout the life of the Proposed Development to ensure that trees are protected in accordance with the Arboricultural Method Statement.

Phase 1 – Pre-development

- Pre-commencement site meeting with client, contractor, Local Planning Authority, engineer and appointed arboriculturist;
- Pegging out of construction areas;
- With reference to project plans and in consultation with client, contractor, LPA and scheme arboriculturist confirm trees to be removed and trees to be retained;
- Install protective fencing; and
- Carry out tree removal.

Phase 2 – Scheme development/construction

- Establish site compounds - location for cabins, car park and the storage of materials;
- Carry out initial ground works and services installations; and
- Undertake main development.

Phase 3 – post-development

- Carry out soft landscaping;
- Remove protective fencing; and
- Remove ground protection.

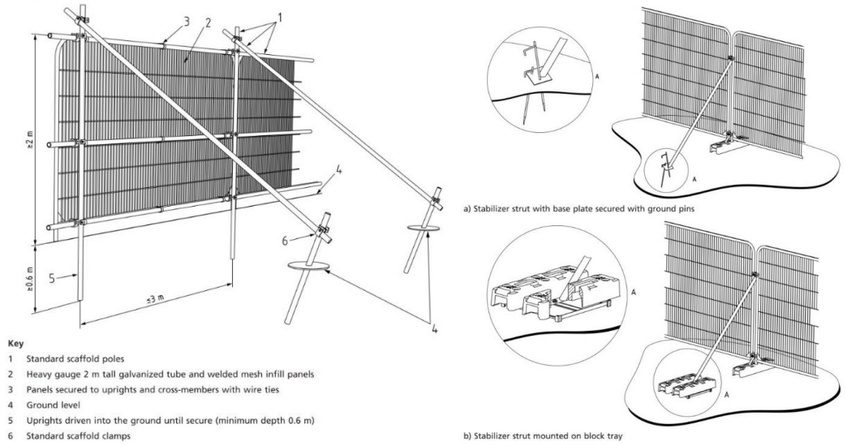
TREE PROTECTION

Effective tree protection can only be achieved by adherence to a logical sequence of works combined with effective arboricultural monitoring. Tree protection fencing in accordance with BS5837:2012 (or similar and approved) shall be erected prior to the commencement of any of the following activities:

- The delivery of any plant or materials;
- Demolition;
- Soil stripping;
- Construction works;
- Installation of utilities; and
- Landscape works.

The protective fencing will be erected to protect retained trees with positioning agreed on site with the ACoW. The Tree Removal and Protection Plan 70083576-WSP-DR-ARB-001 (in Appendix D) indicates the indicative positioning of fencing and should be used as a guide. Typical examples of the type of tree protection fencing are included in Figure D1.

Figure D1



Key
1 Standard scaffold poles
2 Heavy gauge 2 m tall galvanized tube and welded mesh infill panels
3 Panels secured to uprights and cross-members with wire ties
4 Ground level
5 Uprights driven into the ground until secure (minimum depth 0.6 m)
6 Standard scaffold clamps

Extracts taken from BS 5837:2012 - *Trees in relation to design, demolition and construction – Recommendations.*

All weather notices should be attached to the tree protection fencing at suitable intervals and positioned an eye level. These notices should include suitably sized informative text containing the following statement:

''TREE PROTECTION FENCING

CONSTRUCTION EXCLUSION ZONE – NO ACCESS''

Once erected these areas should be regarded as sacrosanct, and, once installed, barriers should not be removed or altered without prior recommendation by the project arboriculturist and, where necessary, approval from the Local Planning Authority (LPA).

This fencing is to remain in place until completion of all construction works on site.

The areas covered by the tree protection fencing are known as the Construction Exclusion Zones (CEZ) and should not be compromised. The following shall apply within these areas:

- No mechanical excavations;
- No excavations by other means without the agreement of the project arboriculturist;
- No change in levels (except removal of grass sward using hand tools);
- No storage of plant or materials;
- No storage or handling of any chemicals including cement washings; and
- No vehicular access.

Where the Root Protection Areas (RPAs) for retained trees exceeds the perimeter of the tree protection fencing then temporary ground protection should be installed in areas of soft landscaping. This should be in accordance with BS5837:2012.

Suitable ground protection with the objective of avoiding soil compaction and therefore leaving the tree roots to function unimpaired shall consist of the following:

- For pedestrian access only: single thickness scaffold boards laid butt jointed on a 100mm compression-resistant layer of woodchip, laid on a geo-textile membrane. Or a single thickness of scaffold boards laid on top of a driven scaffold frame to form a suspended walkway.
- For pedestrian-operated machinery up to 2 tonnes gross weight: proprietary, inter-linked ground protection boards placed on top of a compression-resistant layer (e.g. 150 mm depth of woodchip), laid onto a geotextile membrane.
- For wheeled or tracked construction traffic exceeding 2 tonnes gross weight, an alternative system (e.g. proprietary systems or pre-cast reinforced concrete slabs) to an engineering specification designed in conjunction with arboricultural advice, to accommodate the likely loading to which it will be subjected.

On completion of all works the above systems shall be removed only with the consent of the LPA. Surface de-compaction and root zone enhancement measures may then be undertaken. This may include spiking, aeration and/or injection of rhizobium inoculants.

ADDITIONAL PRECAUTIONS OUTSIDE THE CEZ

Care should be taken when planning site operations to ensure that wide or tall loads or plant with booms, jibs and counterweights can operate without coming into contact with retained trees. Such contact can result in serious damage to them and might make their safe retention impossible. Consequently, any transit or traverse of plant in close proximity to trees should be conducted under the supervision of a banksman to ensure that adequate

clearance from trees is maintained at all times. In some circumstances it may be impossible to maintain adequate clearance thus necessitating access facilitation pruning in consultation with the project arboriculturist. Notice boards, telephone cables or any other services shall not be attached to any part of a tree to be retained.

SITE HUTS, STORAGE OF MATERIALS AND SPOIL

Temporary site compounds, including mobile WCs and all their service connections, are to be positioned clear of the RPAs of retained trees.

The delivery, storage, mixing and discharge of concrete and all other cement-based materials shall be carried out so that there is no run-off and spillage near the RPAs of retained trees. No substances that are potentially injurious to plant tissue (including diesel, bitumen, concrete, mortar and other phyto-toxic materials) shall be stored, discharged, prepared or used, where direct contact, infiltration or run-off might reasonably be considered liable to harmfully affect existing root growth or other parts of retained trees. Where chemicals are stored it is now standard practice to have emergency spillage kits available to minimise the impacts of any accidental spillages to the local environment. All cement mixing, vehicle washing or any other activity where toxic chemicals are used shall have the provision to contain any accidental spillage. This can be achieved using suitable soil bunding or using a supporting timber framework sealed with heavy duty plastic sheeting.

No building materials shall be stored within RPAs of retained trees. Spoil from any site activity, including demolition and any materials from the project designated for re-use, shall either be removed from site; or, if kept on site, shall be stored or piled well clear of RPAs of retained trees.

INSTALLATION OF UNDERGROUND SERVICES

All underground services should be routed well outside the RPAs of all retained trees as mechanical trenching severs any root present and can adversely affect the local soil hydrology. Where this is not feasible then it is preferable to keep all apparatus in common ducts to minimise disturbance.

Provided that roots can be retained and suitably protected (i.e. exposed roots are immediately wrapped or covered to prevent desiccation and rapid temperature change and all wrappings removed prior to backfilling) excavation with hand tools may be acceptable for shallow service runs under the supervision of the project arboriculturist.

Where services are to pass within the RPA then plans showing the proposed route should be drawn up with input from the project arboriculturist. Trenchless insertion methods should be used with the entry and exit pits situated outside the RPAs.

Demolition of existing structures in close proximity to retained trees should be carried out under the supervision of the project arboriculturist as necessary and should be undertaken from within the footprint of the building or structure using the “top down, pull back” method.

Great care must be exercised to ensure that no parts of the adjacent trees are damaged during this process.

REMOVAL OF FOUNDATIONS, FOOTPATHS, HARD SURFACING WITHIN THE CEZ

Temporary pedestrian access shall be allowed within the CEZ to carry out these operations. A suitable gap in the fencing shall be created just wide enough to allow pedestrian and wheelbarrow access only. On completion of the works the breach shall be closed to prevent further access.

The foundations of the demolished buildings and any hard surfacing to be removed from within the RPA should be broken up using low impact pneumatic tools only not breakers attached to JCBs, unless absolutely necessary due to the nature of the materials. If this is the only option then this must first be agreed with the arboriculturist.

Work to remove the existing hard surfacing should begin at the furthest point from the edge of the CEZ and continue back towards the protective fencing. Removal of the existing hard surfacing should be carried out in 2m strips working from the undisturbed surface. This will allow any exposed roots to be suitably covered to prevent desiccation in a timely manner. The exposed surface can then be made good as the work proceeds to avoid unnecessary travel over the newly uncovered ground. The existing hard surfacing prior to its removal should be used as the working platform. Sections of existing path/foundation shall be broken out separately and debris carefully lifted clear and exported outside the protective fencing using wheelbarrows.

As each section of existing surfacing is removed it shall immediately be replaced with topsoil. The topsoil shall be imported using wheelbarrows and loose tipped. Grading shall be undertaken using hand tools only to avoid compaction.

No reduction of levels of the underlying soil surface shall be carried out.

Topsoil shall conform to BS3882:2007 Specification for Topsoil and Requirements for Use and shall be stored in convenient piles adjacent to the working area just outside the CEZ.

SOFT LANDSCAPING WITHIN THE CEZ

For all soft landscape works, excavations and ground preparation within these areas is to be carried out using hand tools only in a sensitive manner to ensure root damage is kept to a minimum. At no time shall a rotavator be used within any of the protected areas to prepare the soil.

Removal of existing vegetation and turf will be carried out by hand only. Any herbicide used during the development works shall be appropriate for the type of vegetation to be killed and all instructions, warnings and other relevant information from manufacturers should be strictly observed and followed. Care should be taken to avoid any damaging effects upon existing plants and trees to be retained.

Care should be taken to avoid changes in ground levels within the RPAs and no changes in ground levels shall occur within 1m of the trunks of all retained trees.

No works shall be carried out within the RPAs if the soil moisture levels are high enough to allow compaction to occur. If compaction of the ground has occurred then decompaction measures should be undertaken, these may include forking, spiking, soil augering and tilthed radial trenching.

Final grading to marry in new levels with existing ground will be achieved by importing good quality topsoil and spreading it using hand tools only. Areas of proposed grass shall then be raked to a fine tilth and will be grass seeded or turfed as necessary by hand.

All new tree planting should be undertaken in accordance with *BS8545:2014 Trees: from nursery to independence in the landscape. Recommendations.* Planting pits for shrubs or trees must be hand excavated taking care to avoid damage to existing tree roots. If substantial roots are discovered then the planting pit should be relocated if possible in order to retain them. Hedging plants if bare root shall be notch planted and no trench planting shall take place within the RPAs. If fertiliser is to be incorporated into the planting pits it should be a slow release type such as ‘Enmag’ or other similar approved and should be applied in accordance with the manufacturer’s recommendations.

Roots shall be retained and carefully worked around, wherever practicable. No root greater than 25mm dia. shall be cut without confirmation from the project ACoW. If damage does occur to a root greater than 25mm dia, then advice must be sought from the project ACoW. Where it is essential to sever roots they shall be cleanly cut, using an appropriate, sharp bladed hand-tool.

If in the course of operations, roots, that are to be retained, are unearthed, they shall not be left unduly exposed, but shall be covered with hessian, or similar, to protect from desiccation. Prior to backfilling, any hessian wrapping should be removed and retained roots should be surrounded with sharp sand, or other loose granular fill before soil or other material is replaced.

Where materials or plants are to be brought into or removed from the RPAs they should be transported in wheelbarrows and must be moved across existing hard surfacing or temporary ground protection in accordance with BS5837:2012 in a way that prevents compaction of the soil.

Mulch should be applied to open soils and shrub planting areas to inhibit weed growth, reduce groundwater evaporation, resist and mitigate soil compaction and reduce maintenance requirements. Material that may be used shall include well composted wood chip, pulverised bark, leaf mould or green waste conforming to PAS 100. The depth of mulch should not exceed 100mm, taking particular care not to lay excessive mulch around new plants and should be avoided in areas of established tree growth.

CONSTRUCTION OF NEW FOOTPATHS WITHIN THE CEZ

The construction of any new footpaths within the RPAs must be installed using a ‘no dig’ construction method as follows:

Re-align the tree protection fencing (see Appendix D) to allow access to the immediate working area only.

Remove all existing vegetation from the surface using hand tools only. Arisings should be removed from the RPA using wheelbarrows only. No further excavations in this area are to take place. Any voids or depressions within the ground surface are to be made good using sharp sand (not builder’s sand) to maintain levels.

Install standard 150 x 50mm concrete kerb edging for lateral support held in place with a minimum amount of concrete haunching and carefully secured to the ground with an appropriate method between the kerb edge and haunching at 900mm centres.

Lay down a permeable geotextile separation membrane over the existing ground. Install a cellular confinement mat (e.g. Cellweb) of 100mm thickness on top of this membrane. Expand the mat to its full length and trim to the desired length and width. Carefully peg down the matting with proprietary staking pins to keep the cells open. Fill all the cells with a 20-40mm no fines angular granular stone working from the area furthest from the tree first. Continue filling all the cells using the filled cells as a working platform.

Put down a second layer of permeable geotextile membrane before installing a permeable wearing course of 20mm porous tarmac over a 40mm base.

Topsoil is to be graded down from the top of the kerb edge to the existing ground level to avoid creating trip hazards.

MONITORING

Once the protective fencing and ground protection measures have been installed but prior to the commencement of the development a site inspection should be undertaken by the project ACoW. This is to confirm that all protection measures have been installed in accordance with the Tree Protection Plans and method statement.

Regular monitoring visits should be carried out as necessary during the development.

On completion of the development a general survey of the trees is recommended to identify any remedial action necessary as a result of the works. Note that permission for any additional tree works not included in the original development consent may need to be obtained through application to the LPA.

If any arboricultural issues arise during the development, then the site manager should immediately contact the project ACoW for advice on how to proceed.

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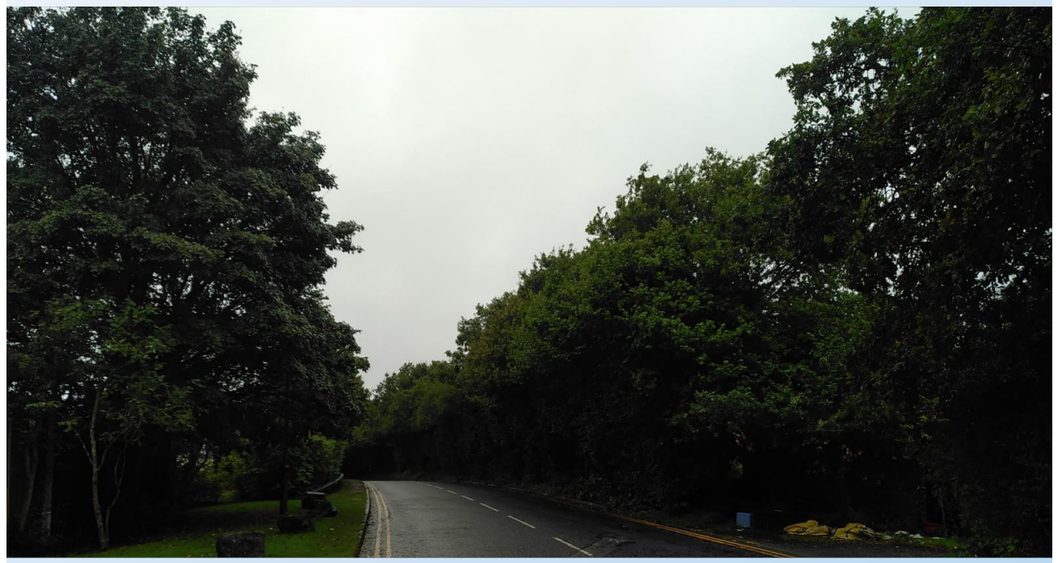
Kier Construction

MORRISTON HOSPITAL SUB-STATION 6 AND GENERATORS REPLACEMENT

PRELIMINARY ECOLOGICAL APPRAISAL



PEA
OCTOBER 2021

PUBLIC

Kier Construction

MORRISTON HOSPITAL SUB-STATION 6 AND GENERATORS REPLACEMENT

PRELIMINARY ECOLOGICAL APPRAISAL

TYPE OF DOCUMENT (VERSION) PUBLIC

PROJECT NO. 70083576

OUR REF. NO. PEA

DATE: OCTOBER 2021

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MORRISTON HOSPITAL SUB-STATION 6 AND GENERATORS REPLACEMENT

PRELIMINARY ECOLOGICAL APPRAISAL

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QUALITY CONTROL

Issue/revision	First issue	Revision 1	Revision 2
Remarks	Version 1		
Date	October 2021		
Prepared by	Aaron Davies		
Signature	Digitally signed by Davies, Aaron (UKAXD055) DN: cn=Davies, Aaron (UKAXD055), ou=Active, email=Aaron.Davies@wsp.com Reason: I am the author of this document Date: 2021.10.07 16:57:53 +01'00'		
Checked by	Gabi Horup		
Signature	Digitally signed by Nia Bowen DN: cn=Nia Bowen, c=GB, email=nia.bowen@wsp.com Reason: PP Date: 2021.10.07 17:16:52 +01'00'		
Authorised by	Nia Bowen		
Signature	Digitally signed by Nia Bowen DN: cn=Nia Bowen, c=GB, email=nia.bowen@wsp.com Reason: I am approving this document Date: 2021.10.07 17:13:54 +01'00'		
Project number	70083576		
Report number	V1		
File reference	\\uk.wspgroup.com\central data\Projects\70083xxx\70083576 - Morriston Hospital Replacement of Sub-Station 6\03 WIP\Ecology\05 Reports\PEA		

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Kier Construction

EXECUTIVE SUMMARY

Kier Construction is looking to construct a new Sub-station and generators to the north of Mynydd Gelliwastad Road and the installation of Low Voltage (LV) Switchgear within the Morriston Hospital Service Yard; hereafter referred to as the 'Proposed Development'. Kier Construction commissioned WSP UK Limited (hereafter referred to as 'WSP') to undertake a Preliminary Ecological Appraisal (PEA) of certain habitats at Morriston Hospital, Morriston, Swansea (central National Grid Reference: SN 66349 00295); hereafter referred to as the 'Site'.

The aim of the PEA was to identify the habitat types on Site and to assess their potential for supporting protected and / or notable species. The appraisal comprised a desk study and a Site visit. In addition to the above, further protected species survey work was also commissioned for bats, and the results of the survey work and subsequent recommendations are also contained within this report. This included an external and internal building inspections of two structures.

No statutory designated sites of international or national importance were identified within 2 km of the Site. The desk study identified seven non-statutory nature conservation sites within 1 km of the Site. The closest of which was 400 m from the Site. Due to the localised nature of the Proposed Development, lack of pathway for impacts and distance from the Site, it is considered that the Proposed Development will not impact upon any non-statutory designated sites.

The desk study returned several records of protected and / or notable species within 1 km of the Site including badger *Meles meles,* dormouse *Muscardinus avellanarius,* several bat species, hedgehog *Erinaceus europaeus,* birds, reptiles, amphibians, and invasive non-native species.

The Site visit identified habitats that are suitable for badger, dormouse, bats, hedgehogs, reptiles, amphibians and breeding bird species. Two buildings present (B1 and B2) were inspected to enable an assessment of their potential to support bat roosts, and to search for evidence indicating the current or historic use of the building by roosting bats.

B1 was considered to have negligible suitability to support roosting bats as it was very open and exposed to light, draught etc with no potential roost features. B2 was quite open and susceptible to draughts. B2 was also considered to be vulnerable to high disturbance levels through human usage and was only considered suitable to support small numbers of bats for short periods of time, on an opportunistic basis. It was therefore considered to offer low suitability for roosting bats and was also deemed suitable for nesting birds. It is understood that as part of the current designs, B2 will not be directly impacted by the Proposed Development.

Montbretia *Crocosmia x crocosmiiflora* was recorded during the field survey within amenity grassland across the Site. A single stand of wall cotoneaster *Cotoneaster horizontalis* was found on a wall at the southern point of the Site.

For the Proposed Development to comply with relevant legislation and planning policy, the following further surveys, assessments, avoidance and mitigation measures are proposed:

- A pre-works check for badgers and avoidance of newly created setts by setting up exclusion zones (if required);
- Precautionary methods of working supervised by an Ecological Clerk of Works (ECoW) for badger, hedgehogs, breeding birds, amphibians and reptiles, prior to vegetation clearance and ground works;
- A combined Ecological and Construction Environmental Management Plan (CEMP) to be produced in agreement with the Local Planning Authority (LPA) and employed throughout construction works; and
- Removal and control of invasive non-native plant species and adherence to a non-native plant species management plan.

The creation of a Site Management Plan to enhance the Site in accordance with the Environment (Wales) Act 2016, Section 6 of Planning Policy Wales (ed 11) and planning policies should also be considered as ecological enhancements for the Proposed Development.

WSP
OCTOBER 2021
MORRISTON HOSPITAL SUB-STATION 6 AND GENERATORS REPLACEMENT
Project No.: 70083576 | Our Ref No.: PEA
Kier Construction

1. INTRODUCTION

1.1. BACKGROUND

PROJECT BACKGROUND

1.1.1. WSP UK Limited (hereafter referred to as 'WSP') was commissioned by Kier Construction (hereafter referred to as 'Kier') to undertake a Preliminary Ecological Appraisal (PEA) of certain habitats at Morriston Hospital, Morriston, Swansea (central National Grid Reference: SN 66349 00295); hereafter referred to as the 'Site' (shown as the Red Line Boundary on Figure 1).

1.1.2. The Site comprises the grounds of the Morriston Hospital, with associated buildings, car parking, minor roads, and areas of hard standing. Mynydd Gelliwastad Road runs across the Site with horse grazed fields separated by hedges, scattered trees and pockets of woodland to the north.

1.1.3. It is understood that Kier is looking to construct a new Sub-station and generators to the north of Mynydd Gelliwastad Road and the installation of Low Voltage (LV) Switchgear within the Morriston Hospital Service Yard (locations of which are within the Red Line Boundary as shown on Figure 1) which will assist in the future development of existing Masterplan proposals to refurbish, upgrade, and expand Morriston Hospital, including new hospital units and buildings with associated infrastructure (hereafter referred to as the 'Proposed Development'. The Proposed Development will also include the installation of a replacement High Voltage Ring Main and a new Oil line within the grounds of the hospital.

ECOLOGICAL BACKGROUND

1.1.4. As part of the existing Masterplan proposals to construct a new access road to serve an expanding Morriston Hospital, WSP was commissioned to undertake ecology surveys within the wider area of the Morriston Hospital (hereafter referred to as the 'Study Area'). The Study Area overlapped with the Red Line Boundary of the Site within the field to the north of Mynydd Gelliwastad Road.

1.1.5. As part of a constraint's assessment for the Morriston Hospital access road produced in 2019, WSP conducted a desk study and review of aerial imagery of the Study Area. This information, including a figure showing the Study Area, is detailed within the Ecological Constraints Report (WSP, 2019) and has been used to inform this PEA report. Following the Ecological Constraints Report, WSP undertook the following surveys to inform the Masterplan:

- Preliminary Ecological Appraisal Report (WSP, 2020a);
- Bat roost assessment of trees and buildings (WSP, 2020b);
- Bat activity surveys (WSP, 2020c);
- Dormouse *Muscardinus avellanarius* surveys (WSP, 2020d);
- Barn Owl *Tyto alba* surveys (WSP, 2020e);
- Breeding bird surveys (WSP, 2020f);
- Great crested newt *Triturus cristatus* (GCN) Environmental DNA (eDNA) surveys (WSP, 2020g);
- Otter *Lutra lutra* and water vole *Arvicola amphibius* surveys (WSP, 2020h);
- Reptile surveys (WSP, 2020i); and
- Stage one Habitat Regulations Assessment (HRA) screening (WSP, 2020j).

1.1.6. Based on the habitats recorded within the Study Area the results from the assessments and surveys undertaken in 2019 and 2020 are summarised below and are considered of relevance to the

Proposed Development. Ecological survey data is typically valid for two years unless otherwise specified, therefore the results from these and assessments are still considered

1.1.7. Records of badger *Meles meles* were returned from the desk study and signs of badger were found during the PEA within the Study Area. The grasslands and woodland habitats across the Study Area were considered to provide suitable foraging and commuting habitat for badger.

1.1.8. Two records of dormouse were returned from the desk study and optimal habitat for nesting and foraging dormouse was identified within the Study Area in the form of woodland, hedgerows and scrub. Therefore, further dormouse surveys were recommended. No dormouse or evidence of dormouse were found; therefore, the survey results indicate that dormice are likely absent from the Study Area. The Study Area included all field boundaries and dormouse suitable habitat present within the Site.

1.1.9. During the PEA, 45 trees and five buildings within the Study Area were assessed as providing suitable roosting habitat for bats. No buildings or trees within the Site were considered as part of this assessment. The Study Area was also considered to provide suitable habitat for foraging and commuting bats in the form of woodland, tree lines, pasture and waterbodies. The further bat roost surveys confirmed the presence of a single Daubenton's bat *Myotis daubentonii* day roost, however no bat roosts were confirmed during these surveys within 500 m of the Site.

1.1.10. Records of bats within the hospital grounds exist. In July 2021, the author of this report, a registered bat carer, was called to Morriston Hospital to rescue a baby bat which had been found within one of the wards. As a result, a large maternity soprano pipistrelle *Pipistrellus pygmaeus* bat roost (100+ individuals) was identified.

1.1.11. Records of western European hedgehog *Erinaceus europaeus* were returned within the Study Area. The Study Area was considered to provide suitable habitat for foraging and commuting hedgehog, in addition to suitable habitat for resting locations and nesting sites.

1.1.12. No suitable waterbodies were present within the Study Area however terrestrial habitat was considered suitable to support amphibians, including GCN. Three waterbodies were identified within 500 m of the Study Area which were considered to potentially provide breeding habitat. No GCN or evidence of GCN was recorded during the eDNA sampling visits of the three waterbodies in 2020 by WSP. The survey results indicate that GCN are likely absent from the Study Area and surrounding habitat.

1.1.13. Reptile surveys confirmed three reptile species present within the Study Area; slow worm *Anguis fragilis*, common lizard *Zootoca vivipara* and grass snake *Natrix helvetica*, however habitats where these species were confirmed present within the Study Area were not located within or close to the Site. However, during the reptile surveys, a number of common toads *Bufo bufo* were found under reptile refugia within the field to the north of Mynydd Gelliwastad Road, within the Site.

1.1.14. Much of the Study Area was considered suitable for nesting birds including within hospital properties close to the Site. During surveys undertaken the following species were recorded nesting within hospital properties; house martin *Delichon urbicum*, jackdaw *Corvus monedula*, herring gull *Larus argentatus* and lesser black backed gull *Larus fuscus*.

1.1.15. Four species of invasive non-native plants were identified within the Study Area: Japanese knotweed *Reynoutria japonica*, Himalayan balsam *Impatiens glandulifera*, montbretia *Crocosmia x*

crocosmiiflora, and Rhododendron *Rhododendron ponticum*. The desk study also returned records of wall cotoneaster *Cotoneaster horizontalis*.

1.2. SCOPE OF REPORT

1.2.1. Kier commissioned WSP to complete a PEA of the Site in August 2021. The brief was:

- To provide baseline ecological information about the Site and a surrounding survey area with particular reference to whether legally protected and / or notable sites, species or habitats are present or likely to be present;
- To provide recommendations to enable compliance with relevant nature conservation legislation and planning policy; and
- If necessary, to identify the need for avoidance, mitigation, compensation or enhancement measures and/or further ecological surveys.

1.2.2. In addition to the above, further protected species survey work was also commissioned for bats, and the results of the survey work and subsequent recommendations are also contained within this report. The brief was to:

- Complete an external inspection of buildings / trees on Site that were identified as being impacted, and internal inspections where possible, to confirm the suitability or otherwise for bat roosts to be present; and
- If required, complete dusk emergence of buildings with potential to support bat roosts to establish the presence or likely absence of bat roosts on Site.

1.2.3. Trees and buildings were assessed if they were located within the construction footprint or a distance where they may be likely to suffer disturbance from lighting, vibration or noise, or likely to support a roost of high conservation status that may be impacted by the severing of commuting routes from the roost, and lighting, noise, vibration impacts (Zone of influence of the Proposed Development). All other buildings / trees were not subject to assessments.

1.3. RELEVANT LEGISLATION AND POLICY

1.3.1. The appraisal has been compiled with reference to the following relevant nature conservation legislation, planning policy and the UK Biodiversity Framework from which the protection of sites, habitats and species is derived in Wales. The context and applicability of each item is explained as appropriate in the relevant sections of the report and additional details are presented in Appendix A.

- The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 (as amended) (Habitats Regulations);
- The Wildlife and Countryside Act 1981 (as amended) (WCA);
- Countryside Rights of Way Act 2000;
- The Protection of Badgers Act 1992;
- The Wild Mammals (Protection) Act 1996;
- Environment (Wales) Act 2016;
- The Wellbeing of Future Generations (Wales) Act 2015;
- The UK Post-2010 Biodiversity Framework (2011-2020) (JNCC and DEFRA, 2012);
- UK Biodiversity Action Plan (UKBAP)[1];
- Planning Policy Wales (PPW) (Edition 11) 2021; and
- Technical Advice Note 5; Nature Conservation and Planning 2009.

[1] The UK BAP has now been replaced by the UK Post-2010 Biodiversity Framework, however, it contains useful information on how to characterise important species assemblages and habitats which is still relevant.

2. METHODS

2.1. OVERVIEW

2.1.1. This appraisal has been prepared with reference to current good practice guidance published by the Chartered Institute for Ecology and Environmental Management (CIEEM, 2017a, 2017b and 2018), and Joint Nature Conservation Committee (JNCC, 2016); and guidance contained in the British Standard - Code of Practice for Biodiversity and Development BS42020:2013 (British Standards Institute (2013).

2.1.2. This PEA is based on the following data sources:

- An ecological desk study;
- A Phase 1 habitat survey; and
- A protected / notable species assessment.

2.2. DESK STUDY

2.2.1. A desk study was undertaken in February 2019 as part of the Ecological Constraints Report (WSP, 2019) and the results have been used to inform this PEA. The desk study included a review of the existing ecological baseline information available in the public domain and to obtain information held by relevant third parties. For the purpose of the desk study exercise, records were collated within various radii around the Study Area. This approach is consistent with current good practice guidance published by CIEEM, 2017a and 2017b. To provide the baseline data for the ecological desk study, the following information was requested from South East Wales Biodiversity Records Centre (SEWBReC):

- Records of legally protected and notable species within 2 km of the Study Area;
- Records of statutory sites designated for national importance (Site of Special Scientific Interest (SSSI)) within 2 km of the Site, and to 2 km for statutory designated sites of international importance (Special Areas of Conservation (SAC), candidate Special Areas of Conservation (cSAC) and Special Protection Areas (SPA)) and internationally designated Ramsar sites; and
- Records of non-statutory sites designated for nature conservation value, Priority Habitats, and Natural Resources Wales (NRW) Priority Areas (including Ancient Woodlands) within 1 km of the Site.

2.2.2. The findings of the desk study have been incorporated within Section 3 and can be seen in full in the Ecological Constraints Report (WSP, 2019). Locations of any statutory designated sites within 2 km and non-statutory designated sites within 1 km are shown on Figure 2.

2.2.3. The ecological desk study was carried out by a full member of CIEEM, who has completed numerous ecological desk studies.

2.3. HABITAT SURVEY

2.3.1. A Phase 1 habitat survey of the Site was carried out on 16th September 2021. The survey covered the entire Site including boundary features. The Phase 1 habitat survey was carried out by two surveyors who are both members of CIEEM and have experience of completing PEAs of sites containing similar habitat types.

2.3.2. Habitats were described and mapped following the standard Phase 1 habitat survey methodology (JNCC, 2016). Phase 1 habitat survey is a standard technique for classifying and mapping British habitats. The dominant plant species are recorded and habitats are classified according to their vegetation types. Where appropriate consideration was given to whether habitats qualify, or could qualify, as a Priority Habitat following habitat descriptions published by the Joint Nature Conservation Committee (JNCC, 2008).

2.3.3. Habitats were marked on a mobile mapping computer and were subsequently digitised using a Geographical Information System (GIS).

2.3.4. Target notes were made to provide information on specific features of ecological interest (e.g. a badger sett) or habitat features too small to be mapped. These are included in Appendix B and shown on Figure 4.

2.3.5. Any invasive plant species listed on Schedule 9 of the Wildlife and Countryside Act (1981) (as amended) which were evident during the Phase 1 habitat survey were also target noted. Detailed mapping of such species; or a full survey of the Site for all invasive plant species is beyond the scope of this commission.

2.3.6. Data collected as part of this Phase 1 Habitat survey is suitable for use in retrospective biodiversity unit calculations, if required.

2.4. PROTECTED SPECIES ASSESSMENT

2.4.1. The potential for the Site to support legally protected and notable species was assessed using the desk study results and combined with field observations during the habitat survey. The assessment of habitat suitability for protected and notable species was based on professional experience and judgement. This was supplemented by standard sources of guidance on habitat suitability assessment for key faunal groups including: birds (Gilbert et al, 1998 and Bibby et al, 2000), GCN (Gent and Gibson, 2003 and English Nature, 2001); reptiles (Froglife, 1999 and Gent and Gibson, 2003); bats (Collins, 2016 and Mitchell-Jones, 2004); badger (Harris et al, 1991 and Roper, 2010); dormouse (English Nature, 2006); otter (Chanin, 2003); and invertebrates (Drake et al, 2007 and Kirby, P, 2001).

2.5. PRELIMINARY GROUND LEVEL ROOST ASSESSMENT OF TREES AND BUILDINGS FOR BATS

2.5.1. All trees and buildings within the Site were inspected from the ground to enable an assessment of their suitability for supporting bat roosts.

2.5.2. A visual inspection of trees / buildings was completed to search for features which may provide potential roosting opportunities for bats. Where suitable features were noted, their location and a brief description of the character was recorded. Additionally, where possible, features were visually inspected for evidence indicating use by roosting bats such as droppings, urine staining, noises and odours from bats and staining around a hole that may be caused by the natural oils in bat fur.

2.5.3. Trees and buildings and were categorised in line with the descriptions in Table 2-1 (adapted from Collins, 2016). Assessments were recommended if it was determined that the trees and structures which may support roosting bats may be impacted upon by the Proposed Development. Trees and buildings were considered as requiring assessment / further surveys if they were considered to have suitability to support roosting bats, and within the construction footprint or a distance where they

may be likely to suffer disturbance from lighting, vibration or noise, or likely to support a roost of high conservation status that may be impacted by the severing of commuting routes from the roost, and lighting, noise, vibration impacts (Zone of Influence of the Proposed Development).

Table 2-1 - Bat Roosting Suitability Categorisation

Category	Description
High	A building or tree with one or more potential roost sites that are suitable for supporting large roosts on a regular basis/for longer periods of time because of their size, shelter, protection, conditions and suitable surrounding habitat.
Moderate	A building or tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status.
Low	A building with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable habitat to be used on a regular basis or by larger numbers of bats. A tree of sufficient size and age to contain potential roosting features but with none seen from the ground or features that only offer limited roosting opportunities.
Negligible	Building or tree with no potential opportunities for roosting bats, or very few or minor features in an isolated/unsuitable location such that the presence of a roost is considered highly improbable. e.g. isolated from suitable foraging or commuting habitats.

2.6. EXTERNAL AND INTERNAL BUILDING INSPECTIONS

2.6.1. External and internal building inspections were undertaken on 30th September 2021. The two buildings present (B1 and B2) that were considered within the zone of influence of the Proposed Development were inspected to enable an assessment of their potential to support bat roosts, and to search for evidence indicating the current or historic use of the building by roosting bats. All other buildings on Site were not surveyed as were considered outside the zone of influence of the Proposed Development.

2.6.2. A visual inspection of the exterior of the buildings using binoculars, high-powered torch, and endoscope was completed to search for features which may provide potential roosting opportunities for bats. Where suitable features were noted, their location and a brief description of their character was recorded. Additionally, each feature was visually inspected for evidence indicating use by roosting bats such as droppings, urine staining, and scratch marks / characteristic staining (from fur oils). Where it was safe to do so, an internal inspection was also completed to search for similar features and evidence inside buildings that showed moderate and high suitability for bats.

2.6.3. Buildings were categorised in line with the descriptions in Table 2-1. Based on the features present and the location of the buildings, the potential for different types of bat roost was also considered. For the purpose of this external and internal building inspection roost types were grouped as follows (from Collins, 2016):

- Maternity (breeding roost);
- Summer / transitional (to include transitional, satellite, night and day roosts); and

- Hibernation.

2.7. NOTES AND LIMITATIONS

2.7.1. Every effort has been made to provide a comprehensive description of the Site; however, the following specific limitations apply to this assessment:

- Ecological survey data is typically valid for two years unless otherwise specified, for example if conditions are likely to change more quickly due to ecological processes or anticipated changes in management.
- Records held by local biological record centres and local recording groups are generally collected on a voluntary basis; therefore, the absence of records does not demonstrate the absence of species, it may simply indicate a gap in recording coverage.
- The Phase 1 Habitat survey was carried out over the period of a single day, as such only a selection of all species that occur within the Site will have been recorded. However, through use of desk study information to supplement Site survey data, it is considered that an accurate assessment of the potential for the Site to support protected species or those of conservation concern was possible.
- As specified in paragraph 2.4.3, trees and buildings were subject to ecological assessment if they were within the construction footprint or a distance where they may be likely to suffer disturbance from lighting, vibration or noise, or likely to support a bat roost of high conservation status that may be impacted by the severing of commuting routes from the roost, and lighting, noise, vibration impacts.

3. RESULTS

3.1. DESIGNATED SITES

STATUTORY SITES

3.1.1. No statutory designated sites of international or national importance were identified within 2 km of the Site.

NON-STATUTORY SITES

3.1.2. The desk study identified seven non-statutory nature conservation sites within 1 km of the Site. A description of these sites are detailed in Table 3-1 below.

Table 3-1 – Non-statutory designated sites

Site Name	Designation	Size (ha)	Distance and orientation from Site	Description
Pant Lasau	Sites of Importance for Nature Conservation (SINC)	28	460 m north west of Site	An area with wet woodland, lowland mixed deciduous woodland, structurally diverse and species-rich scrub, species-rich purple moor-grass and rush pasture with gorse stands and lowland fen. Part of the qualifying species features of Pant Lasau SINC was lesser redpoll *Carduelis cabaret*, reed bunting *Emberiza schoeniclus*, common bullfinch *Pyrrhula pyrrhula*, and song thrush *Turdus philomelos.*
M4 Corridor	SINC	95	Approx. 400 m south	A site with continuous semi-natural linear vegetation and structurally diverse and species-rich scrub.
Llangyfelach Golf Course & Surrounds	SINC	23	Approx. 700 m south	An area of predominate lowland mixed deciduous woodland, relatively species-rich neutral grassland and purple moor-grass and rush pasture.
Middle Llan	SINC	6	Approx. 550 m north	A site with continuous semi-natural linear vegetation and watercourse with exposure/erosion features.
Cwm Rhydyceirw to Birchgrove Railway	SINC	35	Approx. 900 m south	A site with continuous semi-natural linear vegetation.
Mynydd Gelli-wasted	SINC	88	Approx. 800 m east	An area of predominate degraded upland heath, unmodified upland dry heath with wet woodland,

				species-rich bracken communities, lowland mixed deciduous woodland, structurally diverse and species rich scrub, ancient semi-natural woodland, upland oak woodland and gorse stands.
Pen-Rhiw-Forgan Woods	SINC	1	Approx. 1 km south west	An area of lowland mixed deciduous woodland with a watercourse with exposure/erosion features.

OTHER HABITATS OF CONSERVATION IMPORTANCE

3.1.3. Three Ancient Woodland Inventory (AWI) woodlands were present within the desk study area. These were made up of two sites of Ancient Semi Natural Woodland and one Restored Ancient Woodland Sites; the closest was 0.5 km west of the Site.

3.2. HABITAT SURVEY

OVERVIEW

3.2.1. The following account summarises the findings of the Phase 1 habitat survey. Eight Phase 1 habitat types were identified in the Site. They are mapped on Figure 3 and are listed in Table 3-2 along with areas in hectares (or length for linear features). A description of the dominant and notable species, the composition and management of each habitat is provided below. Target notes are provided in Appendix B and photographs in Appendix C. Alpha-numeric codes used in this section cross-refer to the JNCC Phase 1 habitat survey classification (JNCC, 2016). The order of the habitat descriptions below reflects their ordering in the Phase 1 habitat survey manual and does not reflect habitat importance.

Table 3-2 – Phase 1 Habitat Areas

Phase 1 Habitat	Area (ha)	Length (m)	% of Site Area
A2.1 Dense scrub	0.20	-	5.33
A3. 1 Broad-leaved parkland / Scattered trees	0.34	-	9.10
B4 Improved grassland	0.82		22.19
J1.2 Amenity grassland	0.23	-	6.15
J1.4 Introduced shrubs	0.004	-	0.10
J2.1.2 Intact hedge – species poor	-	123.78	-
J3.6 Buildings	0.68	-	18.34

J4 Bare Ground	0.02	-	0.65
Hard standing	1.41	-	38.14
TOTAL	3.69	123.78	100

A2.1 – DENSE SCRUB

3.2.2. Five parcels of bramble *Rubus fruticosus* / hawthorn *Crataegus monogyna* scrub was recorded within the field to the north of Mynydd Gelliwastad Road (see Photo 2, Appendix C). These were largely surrounded by heavily grazed improved grassland with the southern parcel close to the hedge with trees that formed the boundary to Mynydd Gelliwastad Road

A3.1 BROAD-LEAVED PARKLAND / SCATTERED TREES

3.2.3. Scattered broad-leaved trees were recorded within the Site to the north of Mynydd Gelliwastad Road and within amenity grassland across the Site (see Photo 1 and 3, Appendix C). Scattered broad-leaved trees comprised field boundaries and clusters of trees that were too sparse and scattered to be classified as woodland. The tree species comprised hazel *Corylus avellana*, pedunculate oak *Quercus robur*, sycamore *Acer pseudoplatanus*, hawthorn and ash *Fraxinus excelsior*.

B4 – IMPROVED GRASSLAND

3.2.4. To the north of Mynydd Gelliwastad was a field which consisted of improved grassland, located within a wider network of improved grassland parcels outside the Site.

3.2.5. At the time of survey, the sward length of the improved grassland was less than 5 cm and was subject to grazing by horses. The dominant grass in all parcels was perennial rye grass *Lolium perenne*, with abundant sweet vernal grass *Anthoxanthum odoratum*, red fescue *Festuca rubra*, crested dog's tail *Cynosurus cristatus* and cock's foot *Dactylis glomerata*. Abundant dandelion *Taraxacum officinale* agg., meadow buttercup *Ranunculus acris* and creeping buttercup *Ranunculus repens* were also recorded with frequent common daisy *Bellis perennis*, common sorrel *Rumex acetosa* and ragwort *Jacobaea vulgaris*.

J1.2 – AMENITY GRASSLAND

3.2.6. Five distinct parcels of amenity grassland were recorded throughout the Site. At the time of survey, the sward length of all amenity grassland was less than 5 cm and most parcels were subject to management. The dominant grass in all parcels was perennial rye grass with scattered trees or introduced scrubs located within the amenity grassland scattered around the Site.

J1.4 – INTRODUCED SHRUBS

3.2.7. Introduced shrubs were scattered around the Site, particularly in areas of amenity grassland to the east of the Site. Species of particular relevance and within the Site was montbretia and wall cotoneaster.

J2.1.2 – INTACT SPECIES-POOR HEDGE

3.2.8. A short length of intact hedge formed the boundary of the hospital ground and Mynydd Gelliwastad Road. This was relatively heavily managed and consisted principally of hawthorn and hazel.

J3.6 – BUILDINGS

3.2.9. The built structures on Site comprised a combination of modern buildings in current use for the hospital, with several structures interlinked with similar features and make up. This included individual small buildings which functioned as boiler rooms and storage sheds for maintenance equipment – classified as Engineers Compounds. This included B2 which is discussed further in 3.3.3 – 3.3.5.

3.2.10. To the north of Mynydd Gelliwastad Road was a red brick structure with flat roof which was used as shelter by horses (B1).

J4 – BARE GROUND

3.2.11. On the southern boundary of the field to the north of Mynydd Gelliwastad Road was a narrow belt of bare ground, where it had been poached by grazing horses.

HARD STANDING

3.2.12. Hardstanding recorded within the Site included Mynydd Gelliwastad Road, and the roads, footpaths and parking locations within the hospital grounds.

3.3. PROTECTED AND NOTABLE SPECIES ASSESSMENT

3.3.1. The potential for the Site to support legally protected species and notable species has been assessed using the results of the desk study and observations made during the Site survey of habitats within and immediately surrounding the Site. A summary of desk study information is included within the Ecological Constraints Report (WSP, 2019) and further outlined in paragraphs 1.1.7 – 1.1.15 . Desk study records have only been considered below if they are recent (from the last 10 years) and / or if they relate to species that may be supported by habitats at the Site. Habitats present within the Site are suitable for the following species; further consideration is given below to the likelihood for these species to be present within the Site:

- Badger;
- Dormice;
- Hedgehog;
- Bats;
- Birds;
- Amphibians;
- Reptiles; and
- Invasive non-native plant species

3.3.2. The Site does not provide suitable habitat for other protected or notable species and other species, beyond those listed above, will not be considered further in this PEA.

BADGER

3.3.3. Badgers had been recorded within the Study Area during the 2020 surveys but no evidence of badger presence was identified during the PEA.

3.3.4. Suitable foraging and sett creation habitat for badgers was recorded within the Site; to the north of Mynydd Gelliwastad Road, in particular along linear features such as hedgerows with a raised bank.

3.3.5. No setts or direct signs of badger was identified on Site or in the surrounding accessible areas. Badgers can rapidly excavate new setts in areas of suitable habitat, particularly woodland and field boundaries. Furthermore, a presumed fox *Vulpes vulpes* earth was identified within the field boundary (TN4).

DORMICE

3.3.6. Two records of dormouse were returned from the desk study. Optimal habitat for nesting and foraging dormouse was identified within the Site; to the north of Mynydd Gelliwastad Road in the form of scrub and hedgerows. However, no evidence of dormice was found within the Study Area during the 2020 surveys which included boundaries of the Site.

HEDGEHOG

3.3.7. Multiple records of hedgehog were identified in the desk study.

3.3.8. The Site provides suitable habitat for foraging and commuting hedgehog. In addition, habitat such as scrub to the north of Mynydd Gelliwastad Road is considered suitable to be used as resting locations and nesting sites.

BATS

3.3.9. During the PEA, one structure was assessed as providing suitable roosting habitat for bats. A full description of the structure is provided in paragraphs 3.4.3 – 3.4.5. Photographs of the structure are shown in Photographs 5-6 in Appendix C.

BIRDS

3.3.10. Much of the Site was suitable for common and widespread nesting birds, including the hospital buildings, scrub, scattered trees, intact hedges and hedges with trees. During ecology surveys in 2020, house martin, jackdaw, herring gull and lesser black backed gull were recorded nesting within or on hospital properties across the Site.

AMPHIBIANS

3.3.11. No GCN or evidence of GCN was recorded during the 2020 by WSP. The survey results indicate that GCN are likely absent from the Site and surrounding habitat

3.3.12. Suitable terrestrial habitat for supporting amphibians is present within the Site, in particular within the field to the north of Mynydd Gelliwastad Road where a several common toads were recorded during previous surveys.

REPTILES

3.3.13. Reptile surveys in 2020 confirmed slow worm, common lizard and grass snake within the Study Area however habitats where these species were confirmed present were not located within or close to the Site, and the Site is considered of low suitability to support reptiles.

3.3.14. The amenity grassland and grazed grassland with a short sward formed a significant proportion of the Site and are considered too intensively managed to support reptiles, however suitable reptile habitat was noted within the edge of the scrub habitats.

INVASIVE NON-NATIVE PLANT SPECIES

3.3.15. Montbretia was recorded during the field survey within amenity grassland across the Site. A single stand of wall cotoneaster was found on a wall at the southern point of the Site. These are shown on Figure 4 as TN11 and TN7 respectively (see Photograph 7 and 8 in Appendix C).

3.4. PRELIMINARY GROUND LEVEL ROOST ASSESSMENT OF TREES AND STRUCTURES FOR BATS / EXTERNAL AND INTERNAL BUILDING INSPECTIONS

3.4.1. Trees and structures within the construction footprint which were to be directly impacted were considered as requiring further surveys if they were assessed as having low-high suitability to support roosting bats. Trees and structures within 30 m of the construction footprint were considered as requiring further surveys if they were assessed as having moderate-high suitability to support roosting bats and where they may be likely to suffer disturbance from lighting, vibration or noise, or impacted by the severing of commuting routes from the roost, and lighting, noise, vibration impacts.

3.4.2. All trees within the Site were assessed as having negligible suitability to support roosting bats. Trees identified as containing potential roost features (PRFs) on the boundary of, and adjacent to the Site, are not considered to be impacted and were therefore excluded from the report.

3.4.3. One structure was identified on Site as having suitability to support roosting bats that may be impacted by the Proposed Development. Within the hospital grounds was an existing boiler room and storage shed for maintenance equipment (B2 – Engineers Compound 1) (Target Note (TN) 5, see Figure 5) which was identified during the PEA as being accessible to bats and as having roost suitability. B2 was located close to the proposed new location of the LV enclosure, but no suitable access points or PRF for bats will be blocked by the Proposed Development.

3.4.4. B2 was a single storey detached structure with a pitched, clay tiled roof. Potential access points were gaps under the eaves, located between the top of the brick wall and the tiled roof. B2 was subject to an internal inspection where possible and an endoscope inspection of all PRFs.

3.4.5. The PRFs within B2 were quite open and susceptible to draughts / nesting birds and therefore considered of lower suitability for roosting bats and more suitable to roosting or nesting birds. B2 was also considered to be vulnerable to high disturbance levels through regular human usage and was only considered suitable to support small numbers of bats for short periods of time, on an opportunistic basis. B2 was therefore assessed as having low suitability to support roosting bats. It is understood in the current designs that B2 will not be directly impacted by the Proposed Development.

3.4.6. The other structure that was considered likely to be directly impacted by the Proposed Development was the red brick structure to the north of Mynydd Gelliwastad Road (B1) (Target Note (TN) 1, see Figure 5). This was considered of negligible suitability as it was very open with negligible potential roost features.

4. DISCUSSION AND RECOMMENDATIONS

4.1.1. This section considers the potential for effects on designated sites, legally protected species, notable species and notable habitats as a consequence of the Proposed Development. Where further surveys or detailed assessment of potential effects are required in order to design suitable mitigation this is identified.

4.2. STATUTORY DESIGNATED SITES

4.2.1. No statutory designated sites of international or national importance were identified within 2 km of the Site. These are therefore not considered further in this report.

4.3. NON-STATUTORY DESIGNATED SITES

4.3.1. The desk study identified seven non-statutory nature conservation sites within 1 km of the Site. The closest of which was 400m from the Site.

4.3.2. Due to the localised nature of the Proposed Development, lack of pathway for impacts and distance from the Site, it is considered that the Proposed Development will not impact upon any non-statutory designated sites. These are therefore not considered further in this report.

4.4. OTHER HABITATS OF CONSERVATION IMPORTANCE

4.4.1. Three AWI woodlands were present within the desk study area; the closest was 500 m from the Site.

4.4.2. Due to the localised nature of the Proposed Development, lack of pathway for impacts and distance from the Site, it is considered that the Proposed Development will not impact upon any non-statutory designated sites. These are therefore not considered further in this report.

4.5. HABITATS

4.5.1. All habitats identified within the Phase 1 habitat survey are considered to be of low ecological value but when considered together could offer greater value. Impacts upon these habitats arising from the Proposed Development are therefore unlikely to lead to significant detrimental effects on biodiversity.

4.6. PROTECTED AND NOTABLE SPECIES

4.6.1. The results of the PEA highlighted the potential presence of several protected species or species of conservation concern within the Site, or within the immediate surroundings of the Site. These include badger, dormouse, hedgehog, bats, amphibians, reptiles, and birds. Stands of invasive non-native plant species were also recorded. The legal protection afforded to these species is outlined below and, where appropriate, the requirement for further survey and / or mitigation measures is identified.

BADGER

4.6.2. The Protection of Badgers Act 1992 makes it illegal to wilfully kill, injure or take any badger, or attempt to do so. It also makes it an offence to intentionally or recklessly damage, destroy or obstruct access to any part of a badger sett. Activities that would otherwise constitute an offence under this legislation may be licensed by NRW for certain purposes.

4.6.3. No signs of badgers were identified on Site however habitat suitable to support badgers was recorded on Site and signs of badger were found in the wider area during 2020 ecology surveys. Badgers are highly mobile and can create new setts readily in suitable areas. Due to the risk of badger setts being present on Site, it is recommended that a pre-works check for badgers is carried out prior to any construction works (a minimum of two weeks in advance of works). Mitigation measures to avoid effects on badger are described in Table 4.1 below

DORMOUSE

4.6.4. Dormice are protected from killing, injury and disturbance[2] and their places of rest or shelter (occupied habitat) protected from damage or destruction under the Habitats Regulations. Protection is also afforded under the WCA with respect to disturbance of individuals occupying places of rest or shelter and obstruction of access to these. Activities that would otherwise constitute an offence under this legislation may be licensed by NRW for certain purposes.

4.6.5. Dormice are also listed as Priority Species in accordance with Section 7 of the Environment (Wales) Act 2016. Public bodies have an obligation under Section 7 to have regard for these species when carrying out their functions.

4.6.6. No evidence of dormice was identified during the 2020 dormouse surveys which included all dormouse suitable habitat within the Site. Therefore, the survey results indicate that dormice are likely absent from the Site and a derogation licence from NRW is not required. However due to the presence of suitable habitat for the species in the wider environment and presence of historical records south from the M4, it is recommended that any removal of habitat suitable for dormouse proceeds under a Precautionary Method of Working (PMoW) supervised by an ecologist with a NRW dormouse licence. Mitigation measures to avoid effects on hedgehogs are described in Table 4.1 below.

HEDGEHOG

4.6.7. The hedgehog is listed on Schedule 6 of the Wildlife and Countryside Act (1981) which makes it illegal to kill or capture wild hedgehogs by certain methods and is listed under the Wild Mammals Protection Act (1996), which prohibits cruel treatment of hedgehogs. The species is also listed as a Priority Species in accordance with Section 7 of the Environment (Wales) Act 2016. Public bodies have an obligation under Section 7 to have regard for these species when carrying out their functions.

4.6.8. It is likely that hedgehogs are present and use the Site to forage and commute, particularly within the woodland and scrub habitats. Therefore, negative impacts on hedgehog may result, particularly during site clearance works and through loss of foraging habitat / resting places. Mitigation measures to avoid effects on hedgehogs are described in Table 4.1 below.

[2] Disturbance is defined within the Habitats Regulations as that which is likely to impair a species ability to survive, breed or reproduce, hibernate or migrate or to significantly affect the local distribution or abundance of the species.

BATS

4.6.9. All species of bats recorded within the UK are protected from killing, injury and disturbance[3] and their roosts protected from damage or destruction under the Habitats Regulations. Protection is also afforded under the Wildlife and Countryside Act 1981 (as amended) with respect to disturbance of individuals occupying places of rest or shelter and obstruction of access to these. Activities that would otherwise constitute an offence under this legislation may be licensed by NRW for certain purposes.

4.6.10. Certain species of bats, including the Bechstein's *Myotis bechsteinii* bat, greater horseshoe *Rhinolophus ferrumequinum* and lesser horseshoe *Rhinolophus hipposideros* bats, noctule *Nyctalus noctula* bat, brown long-eared *Plecotus auritus* bat and soprano pipistrelle bat are also listed as Priority Species for the conservation of biodiversity in Wales in accordance with Section 7 of the Environment (Wales) Act 2016. Section 7 obliges public bodies (including local planning authorities) to have regard for the conservation of biodiversity (including Priority Species) when discharging their duties (including determining planning applications).

4.6.11. No trees were identified as providing PRFs on Site. One building (B2) was identified as having low suitability to support roosting bats. It is understood in the current designs that B2 will not be directly or indirectly impacted by the Proposed Development. Bats are therefore not considered further in this report.

AMPHIBIANS

4.6.12. GCN are protected from killing, injury and disturbance and their places of rest or shelter (occupied habitat) protected from damage or destruction under the Habitats Regulations. Protection is also afforded under the Wildlife and Countryside Act 1981 (as amended) with respect to disturbance of individuals occupying places of rest or shelter and obstruction of access to these. Activities that would otherwise constitute an offence under this legislation may be licensed by NRW for certain purposes.

4.6.13. GCN and common toad are also listed as Priority Species in accordance with Section 7 of the Environment (Wales) Act 2016. Public bodies have an obligation under Section 7 to have regard for these species when carrying out their functions.

4.6.14. Survey results indicate that GCN are likely absent from the Site and surrounding habitat. Suitable terrestrial habitat for supporting common amphibian species is present within the Site, particularly within the scrub habitats and common toads were recorded within the Site.

4.6.15. The Proposed Development could result in the disturbance or destruction of suitable amphibian habitat. Mitigation measures to avoid effects on amphibians are described in Table 4.1 below.

[3] Disturbance is defined within the Habitats Regulations as that which is likely to impair a species ability to survive, breed or reproduce, hibernate or migrate or to significantly affect the local distribution or abundance of the species.

REPTILES

4.6.16. Widespread reptile species (common or viviparous lizard, adder, grass snake and slow-worm are partially protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). This includes protection from killing and injury.

4.6.17. All reptile species are also listed as Priority Species in accordance with Section 7 of the Environment (Wales) Act 2016. Public bodies have an obligation under Section 7 to have regard for these species when carrying out their functions.

4.6.18. No evidence of reptiles were recorded on Site. The majority of the Site had limited suitability for reptiles with suitable reptile habitat limited to the edge of the scrub and woodland habitats.

4.6.19. Although the habitat of widespread reptile species is not directly protected by law, habitat removal or alteration has potential to cause death or injury to individual reptiles. This should be avoided to ensure legal compliance. A limited amount of habitat for supporting reptiles is located at the Site boundaries. Mitigation measures to avoid impacts on reptiles are included in Table 4.1 below.

BIRDS

4.6.20. The Habitat Regulations Part 1 Regulation 10(2) & (3) states that local authorities '*must take such steps in the exercise of their functions as they consider appropriate to contribute to…the preservation, maintenance and re-establishment of a sufficient diversity and area of habitat for wild birds in the UK including by means of the upkeep, management and creation of such habitat…*'. The legislation continues to state that economic and recreation requirements must be taken into consideration in considering which measures are appropriate.

4.6.21. Under the Wildlife and Countryside Act 1981 (as amended) all wild birds are protected from killing and injury, and their nests and eggs protected from taking, damage and destruction whilst in use. Additional protection is extended to species listed under Schedule 1 of the Act, meaning it is also an offence to disturb these species at or near the nest, or whilst they have dependent young.

4.6.22. Various bird species are also listed as Priority Species in accordance with Section 7 of the Environment (Wales) Act 2016.

4.6.23. The Site contained a range of habitats with suitability to support common and widespread breeding birds. Mitigation measures to avoid effects on birds are described in Table 4.1 below.

INVASIVE NON-NATIVE PLANT SPECIES

4.6.24. Certain plant species are listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended). It is an offence to plant or otherwise cause these species to grow in the wild.

4.6.25. Two species of invasive non-native plants was identified on Site during the PEA. These were Montbretia and wall cotoneaster. Mitigation measures to prevent the spread of non-native species are proposed in Table 4.1 below.

FURTHER SURVEY AND / OR MITIGATION REQUIREMENTS

4.6.26. Potential ecological constraints for which further surveys and / or mitigation measures are required to ensure legal and planning policy compliance are listed in Table 4.1.

Table 4-1 – Key Ecological Constraints and Further Survey and / or Mitigation Requirements

Ecological Receptor	Potential Constraints	Further Survey / Mitigation Requirements	Seasonal Constraints
Badger	Disturbance and / or destruction of badger setts through habitat clearance and construction works	A pre-works check for badger setts is recommended due to the ability of badger to create new setts in a short space of time. The check should be carried out a minimum of two weeks in advance of works. If badger are found to be present, avoid impacts to potential setts by setting up exclusion zones. If disturbance to / destruction of setts cannot be avoided, then they must be excluded and closed under licence. Further surveys would be required to characterise the setts on Site and where access is possible, in the wider area.	Further badger surveys can be undertaken at any time of year. Licences from NRW to exclude and close setts are only issued between 1 July and 30 November.
Dormouse	Potential destruction of nests and habitat through vegetation clearance.	Any clearance of scrub / hedge with tree habitat to be subject to a Precautionary Method of Working and Ecological Clerk of Works (ECoW), whereby all vegetation to be removed is hand-searched by a suitably qualified ecologist immediately prior to clearance. Should dormouse be present on Site, all works must stop and a mitigation licence from NRW will be required for works to proceed lawfully.	Hibernation period – October / November through to March/April.

Ecological Receptor	Potential Constraints	Further Survey / Mitigation Requirements	Seasonal Constraints
Hedgehog	Killing / injury of hedgehog through vegetation clearance / construction works.	Clearance of suitable terrestrial habitat should be checked in advance by a suitably qualified ecologist to minimise the risk of disturbance and injury / killing. Avoidance of vegetation clearance during the hibernation season, if possible. Specific mitigation measures will require safeguarding by the implementation of a Precautionary Method of Working and ECoW.	Hibernation period – October / November through to March/April
Reptiles / Amphibians	Killing / injury of reptiles / amphibians through vegetation clearance / construction works.	Work under a Precautionary Method of Working and ECoW. Maintain vegetation within the construction footprint at ground level (less than 10 cm) during the active reptile season.	N/A
Birds	Destruction of nests through vegetation clearance.	Avoidance of vegetation clearance during the breeding bird season, where possible. If works must occur within the breeding bird season, then all vegetation must be hand-searched by a suitably qualified ecologist prior to removal and a breeding bird check of aquatic habitats, and habitats adjacent to the reservoir and watercourses should be undertaken. If an active nest is discovered, an appropriate exclusion zone must be set up and no works are to occur within it until the chicks have fledged.	The breeding bird season is considered to be March to September inclusive.

Ecological Receptor	Potential Constraints	Further Survey / Mitigation Requirements	Seasonal Constraints
Invasive non-native plant species	Spread of Schedule 9 WCA (as amended) plant species	Avoidance of area where invasive species are present. If unable to avoid area where invasive species are present, then Montbretia and wall cotoneaster should be treated and removed by suitably certified contractors. An Ecological Management Plan (EcMP) should be written and implemented on Site, including biosecurity measures to control the spread of invasive non-native species.	N/A

ENVIRONMENTAL BEST PRACTICE

4.6.27. In addition, general environmental protection measures must be implemented during the construction phase of the Proposed Development and included within an EcMP and Construction Environmental Management Plan (CEMP) which is to be produced in agreement with the LPA and employed throughout construction works. Such measures include best environmental practice guidance outlined in the NRW Guidance for Pollution Prevention (NRW, 2018) and those outlined by the Construction Industry Research and Information Association guidance (CIRIA, 2015). The following minimum standards must be adhered to prevent ecological impacts beyond the Site boundary:

- Measures must be taken to prevent dust and other emissions from construction affecting land beyond the Site;
- Chemicals and fuels must be stored in secure containers located away from watercourses or water bodies. Spill kits must be available;
- Excavations must be covered or securely fenced (with no potential access points beneath fencing) when the Site is closed (e.g. overnight) to prevent entrapment of animals;
- Retained trees must be protected in accordance with BS5837;
- Noise and vibration must be controlled and kept to the minimum necessary; and
- Lighting used for construction must be switched-off when not in use and positioned so as not to spill on to adjacent land or retained vegetation within the Site.

4.7. ECOLOGICAL ENHANCEMENT OPPORTUNITIES

4.7.1. The Planning Policy Wales (Edition 11, 2021) states that development plans should '*provide for the conservation of and where appropriate, enhancement of biodiversity…identifying opportunities to conserve important local habitats and species*…'.

4.7.2. Under section 6 of the Environment (Wales) Act 2016 public authorities that exercise their functions in relation to Wales have a duty to maintain and enhance biodiversity and promote the resilience of ecosystems.

4.7.3. To encourage compliance with planning policy the following measures are recommended for inclusion within the Proposed Development; where possible:

- Creation of a Site Management Plan to specify management recommendation to enhance the Site in accordance with the Environment (Wales) Act 2016, Section 6 of Planning Policy Wales (ed 11) and planning policies;
- Creation of additional hedgerows or enhancing of existing hedgerows using native species of local provenance;
- Installation of bird and bat boxes in trees and integral within new structures to provide additional refuge sites for these species' groups;
- The incorporation of wildflower areas / species rich grassland creation to provide additional habitat. This could feed into the existing Biophilic Wales project which has created wildflower areas within the hospital grounds; and
- Arisings from vegetation clearance should be used to create log, or habitat piles, to provide refuge for reptiles, amphibians, and hedgehogs.

5. CONCLUSIONS

5.1.1. The Site comprises the grounds of the Morriston Hospital, with associated buildings, car parking, minor roads, and areas of hard standing. Mynydd Gelliwastad Road runs across the Site with horse grazed fields separated by hedges, scattered trees and pockets of woodland to the north.

5.1.2. No statutory designated sites of international or national importance were identified within 2 km of the Site. The desk study identified seven non-statutory nature conservation sites within 1 km of the Site. The closest of which was 400m from the Site. Due to the localised nature of the Proposed Development, lack of pathway for impacts and distance from the Site, it is considered that the Proposed Development will not impact upon any non-statutory designated sites.

5.1.3. Suitable foraging, sett building and commuting habitat for badger was found on Site. A pre-works check for badger is recommended a minimum of two weeks in advance of works due to the ability of badgers to create new setts in a short space of time.

5.1.4. Mitigation measures are recommended for dormouse, hedgehogs, amphibians, reptiles and breeding birds in the form of protection / retention of habitats, ECoW, Precautionary Methods of Working, production of an EcMP and CEMP, and environmental best-practice during construction.

5.1.5. Invasive non-native plant species were recorded on Site. Recommendations have been made for further invasive species surveys to map the extent of invasive species throughout the Site.

5.1.6. A management plan should be written and implemented for the Site as part of a combined EcMP and CEMP to be produced in agreement with the LPA and employed throughout construction works. The plan will also include biosecurity measures to control the spread of invasive non-native species.

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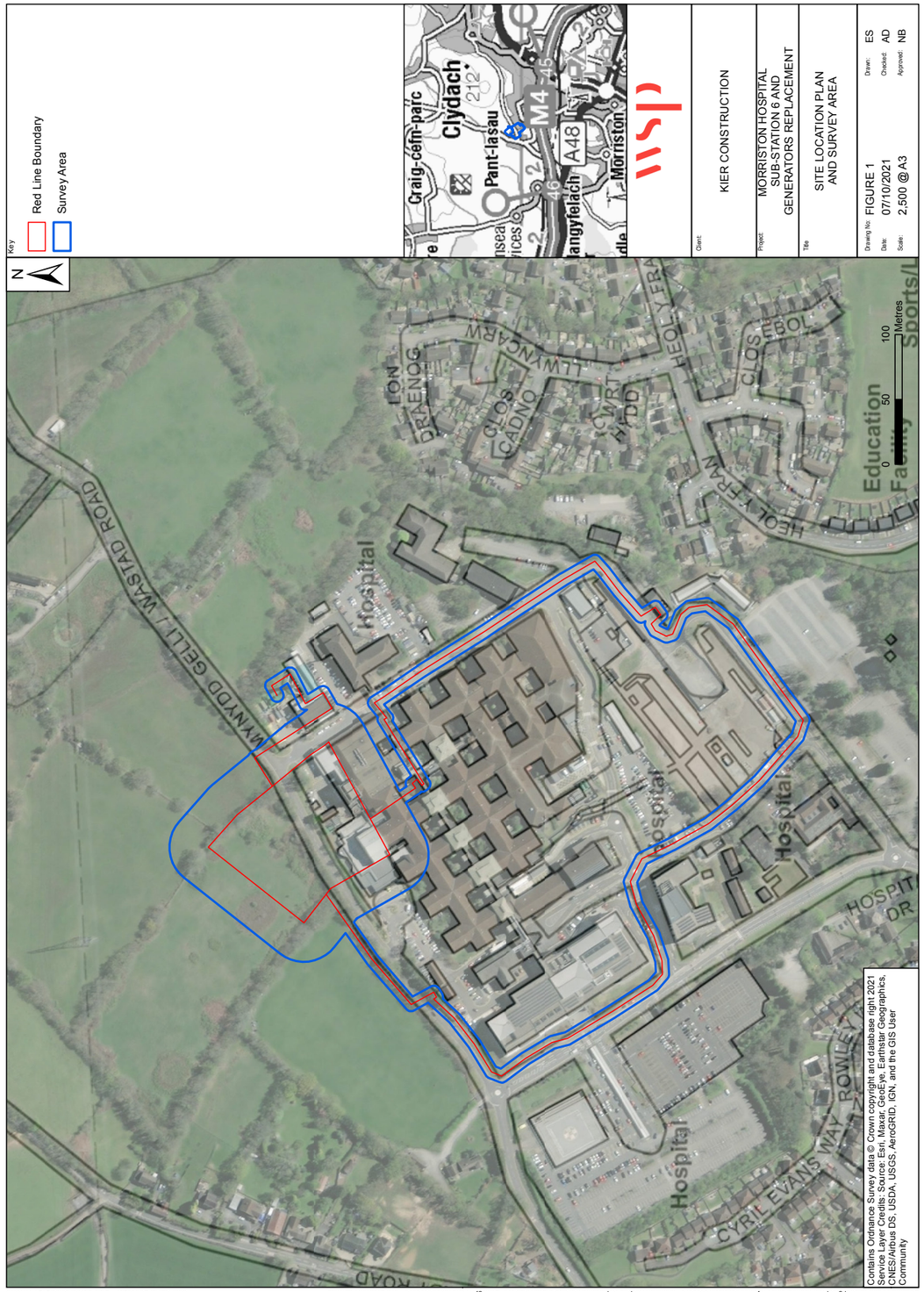
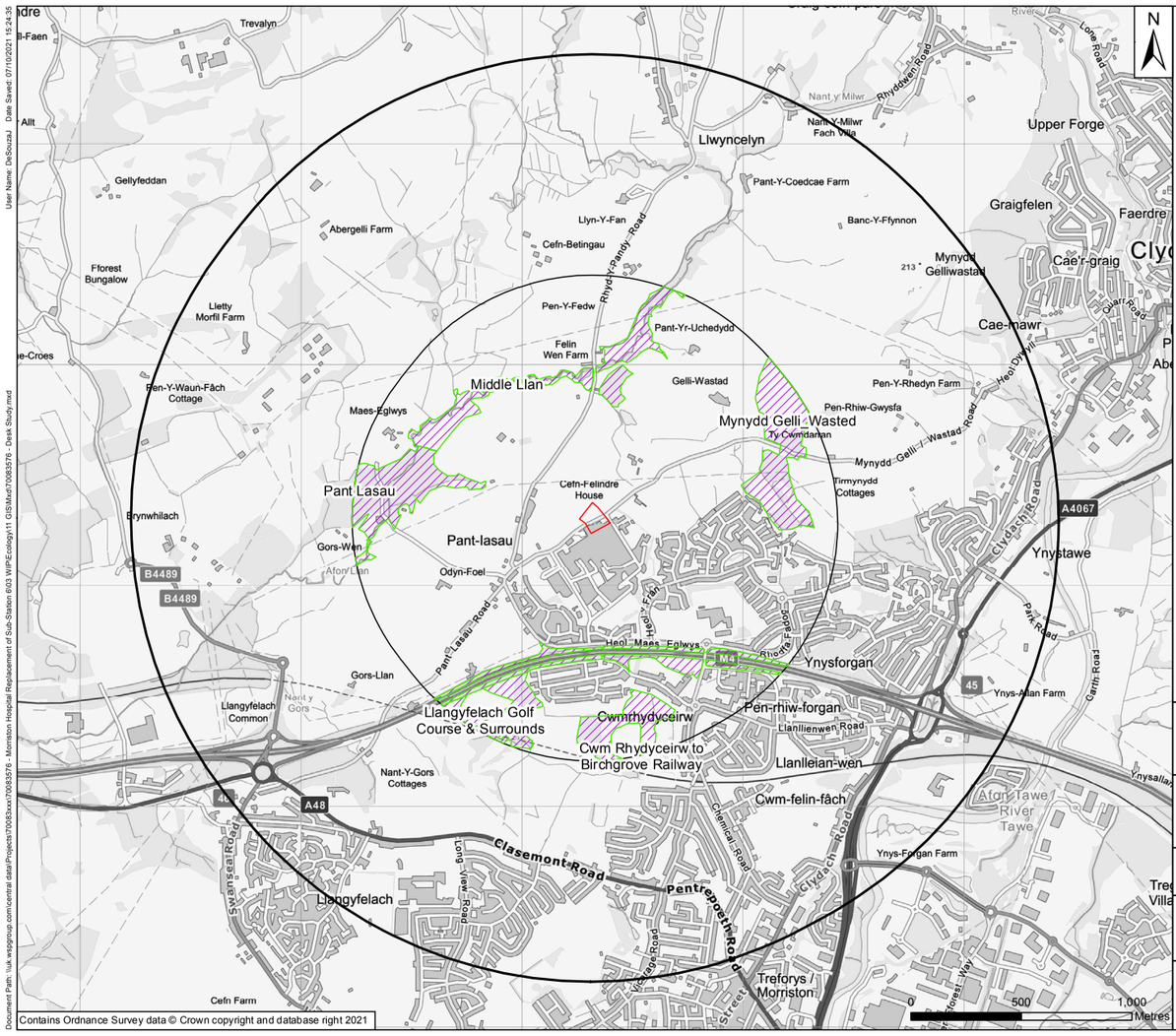
FIGURES

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Red Line Boundary
Buffer 1km
Buffer 2km
Sites of Importance for Nature Conservation
Llwyncelyn
Upper Forge
Graigfelen
Cae'r-graig
Cae-mawr
Middle Llan
Mynydd Gelli Wasted
Pant Lasau
Pant-lasau
Ynystawe
Ynysforgan
Llangyfelach Golf Course & Surrounds
Cwmrhydyceirw
Cwm Rhydyceirw to Birchgrove Railway
Pen-rhiw-forgan
Llanllieian-wen
Cwm-felin-fâch
Llangyfelach
Treforys / Morriston
Clasemont Road
Pentrepoeth Road
Rhydy-Pandy Road
Pant Lasau Road
Clydach Road
A48
B4489
A4067
M4
0
500
1,000
Metres
Contains Ordnance Survey data © Crown copyright and database right 2021
Client: KIER CONSTRUCTION
Project: MORRISTON HOSPITAL SUB-STATION 6 AND GENERATORS REPLACEMENT
Title: STATUTORY DESIGNATED SITES WITHIN 2KM AND NON-STATUTORY DESIGNATED SITES WITHIN 1KM OF THE SITE
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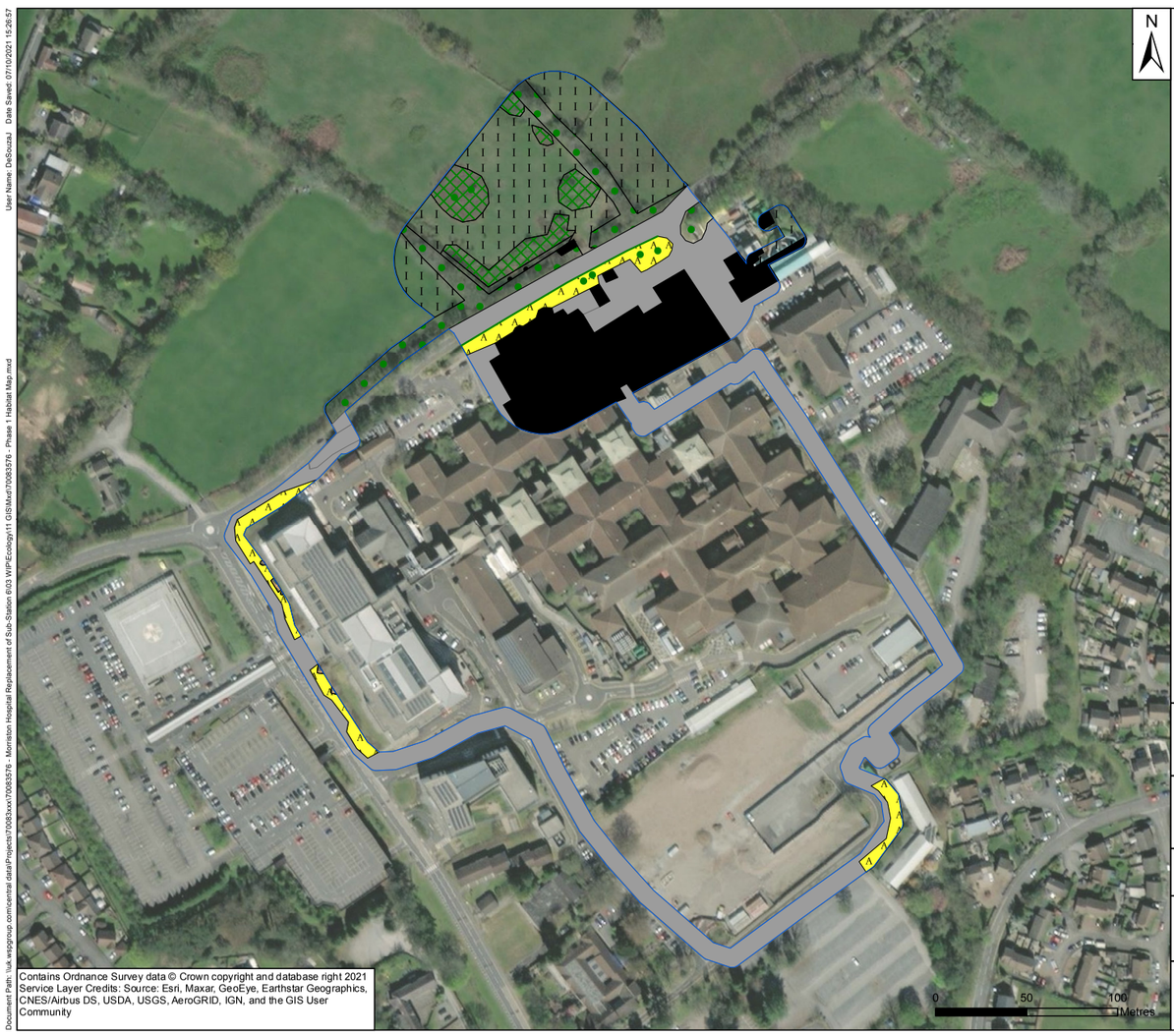
Drawn: ES
Checked: AD
Approved: NB


N
Key
Survey Area
Phase1 Habitats
Hard standing
Bare ground
Broadleaved Parkland/scattered trees
Buildings
Cultivated/disturbed land - amenity grassland
Improved grassland
Introduced shrub
Scrub - dense/continuous
Intact hedge - species-poor
Broad-Leaved Parkland/scattered trees
0
50
100
Metres
Contains Ordnance Survey data © Crown copyright and database right 2021
Service Layer Credits: Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
Client: KIER CONSTRUCTION
Project: MORRISTON HOSPITAL SUB-STATION 6 AND GENERATORS REPLACEMENT
Title: PHASE 1 HABITAT SURVEY MAP
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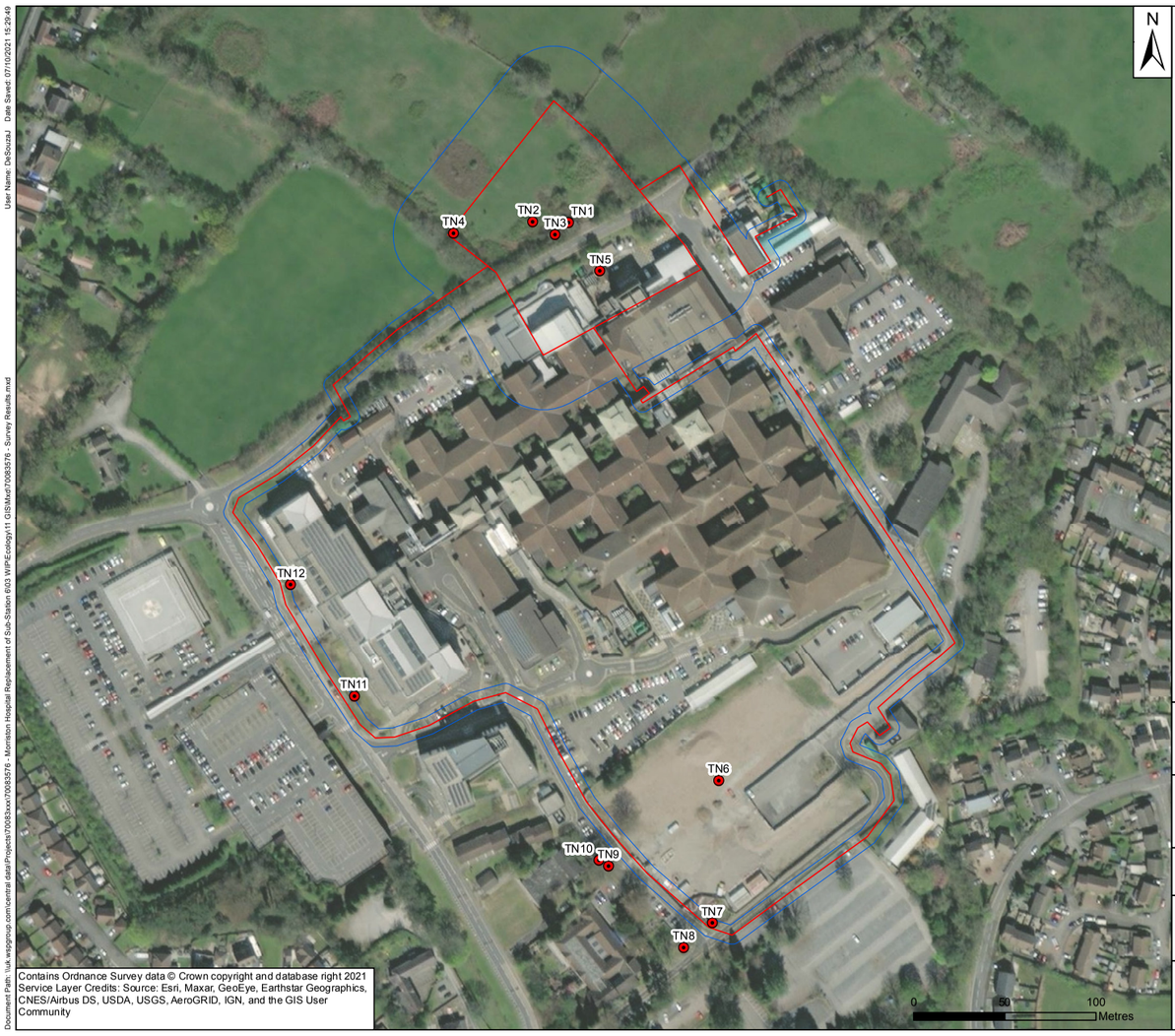

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Project: MORRISTON HOSPITAL SUB-STATION 6 AND GENERATORS REPLACEMENT

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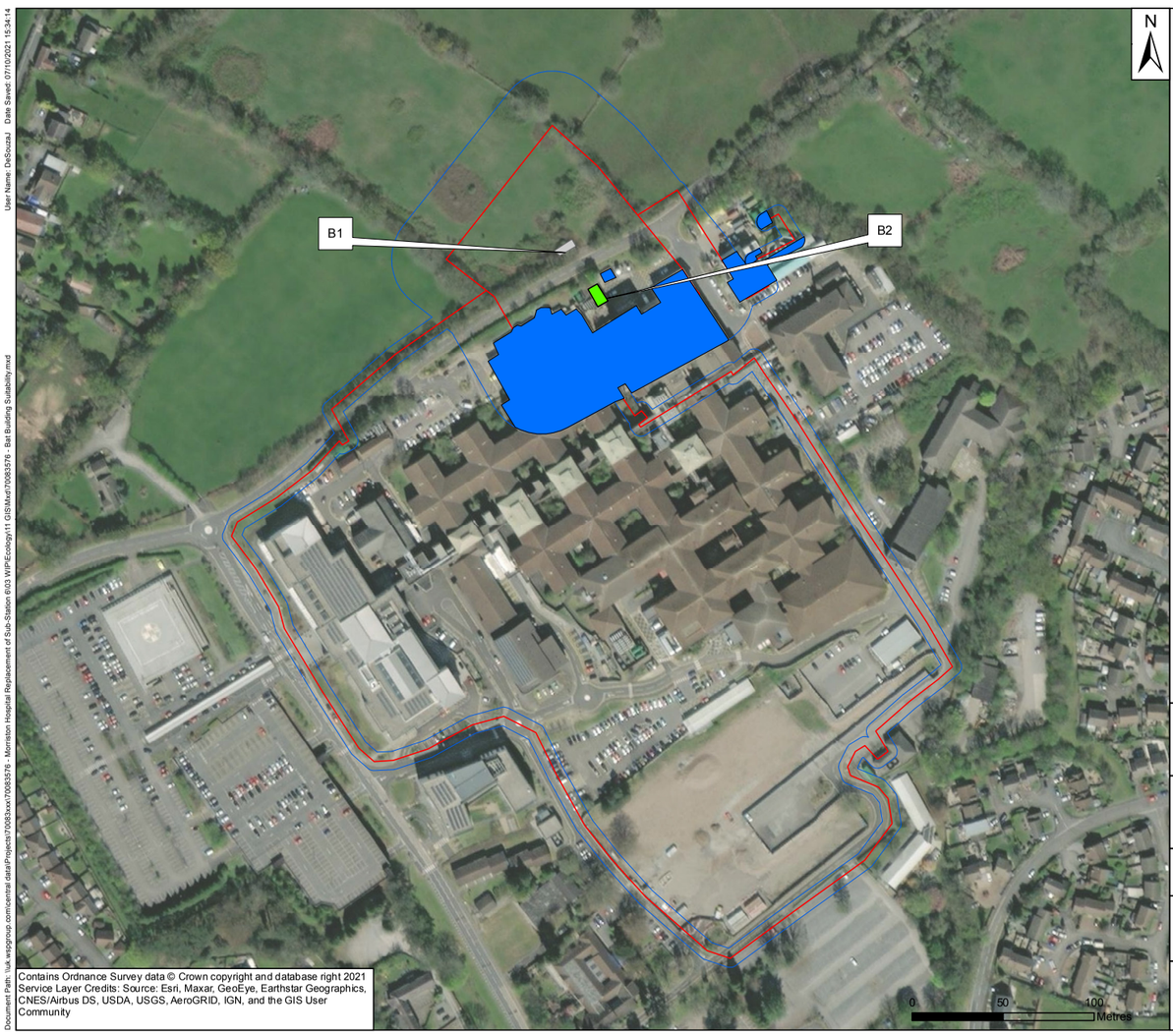

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Project: MORRISTON HOSPITAL SUB-STATION 6 AND GENERATORS REPLACEMENT

Title: BUILDINGS WITH BAT ROOST SUITABILITY

Drawing No: FIGURE 5 | Drawn: ES
Date: 07/10/2021 | Checked: AD
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Appendix A

RELEVANT LEGISLATION AND PLANNING POLICY

ENGLAND & WALES LEGISLATION AND POLICY CONTEXT

This report has been compiled with reference to relevant wildlife legislation, planning policy and the UK Biodiversity Framework. An overview and context of relevant legislation is provided, with the relevant protection each species groups or species receives summarised in Table 1.

The Wildlife and Countryside Act 1981, (as amended) (WCA)

Protected birds, animals and plants are listed under Schedules 1, 5, 8 respectively of the WCA, while Schedule 9 lists non-native and/or invasive species the spread of which in the wild is prohibited by the WCA. A description of these Schedules and their meaning is provided below.

Under the WCA (England and Wales) all birds, their nests and eggs (with exception of species listed under Schedule 2) are protected by the WCA. It is an offence to:

- Intentionally kill, injure, or take any wild bird,
- Take or destroy an egg of any wild bird.
- Damage or destroy the nest of any wild bird (whilst being built, or in use). Under the WCA the clearance of vegetation within the survey area boundary, or immediately adjacent to the survey area during the bird nesting season could result in an offence occurring by the disruption or destruction of nest sites. The bird breeding season can be taken to occur between March - August inclusive, although is subject to variations based on species, geographical and seasonal factors.

Schedule 1

Birds listed under Schedule 1 of the WCA[4] are afforded additional protection with regard to intentional or reckless disturbance whilst nest-building, or at a nest containing eggs or young, or disturb the dependent young of such a bird.

Schedule 5

Species listed in Schedule 5 can either be fully protected or be partially protected under Section 9, which makes it unlawful to intentionally:

- Part 1: kill, injure or take;
- Part 2: possess or control (live or dead animal, part or derivative);
- Part 4 (a): damage or destruct any structure used for shelter or protection;
- Part 4 (b): disturb them in a place of shelter or protection;
- Part 4 (c): obstruct access to place of shelter or protection;
- Part 5 (a): sell, offer for sale, possess or transport for the purpose of sale (live or dead animal, part or derivative);
- Part 5 (b): advertise for buying or selling.

Schedule 8

The Act makes it an offence (subject to exceptions) to pick, uproot, trade in, or possess (for the purposes of trade) any wild plant listed in Schedule 8, and prohibits the unauthorised intentional uprooting of such plants.

Schedule 9

Invasive species listed under Schedule 9 are prohibited from release into the wild and the Act prohibits planting or “causing to grow” in the wild of any plant species listed in Schedule 9. It should be noted that certain bird species listed on Schedule 1 of the WCA are also listed on Schedule 9 to prevent release of non-native and captive individuals, this includes barn owl, red kite, goshawk and corncrake.

Countryside Rights of Way Act 2000 (CRoW Act)

The CRoW Act has amended the WCA in England and Wales strengthening the protection afforded to Sites of Special Scientific Interest (SSSI) and the legal protection for threatened species. It adds the word ‘reckless’ to the wording of the offences listed under Section 9(4) of the WCA. This alteration makes it an offence to recklessly commit an offence, where previously an offence had to be intentional to result in a breach of legislation.

[4] To view the current list of Schedule 1 listed birds visit: http://www.legislation.gov.uk/ukpga/1981/69/schedule/1 [Accessed 04/10/2021].

Natural Environment and Rural Communities (NERC) Act 2006

Species and Habitats of Principal Importance in England and Wales are listed under Section 41 and Section 42 respectively of the NERC Act. The Section 41 and 42 lists detail species that are of principal importance for the conservation of biodiversity in England and Wales, and should be used to guide decision-makers such as local and regional authorities when implementing their duty to have regard for the conservation of biodiversity in the exercise of their normal functions – as required under Section 40 of the NERC Act 2006.

The Environment (Wales) Act 2016

The Environment (Wales) Act 2016 (http://www.legislation.gov.uk/anaw/2016/3/contents/enacted) puts in place the legislation needed to plan and manage Wales' natural resources in a more proactive, sustainable and cohesive way. Section 7 replaces the duty in Section 42 of the NERC Act 2006 and it places a duty on the Welsh Ministers to publish, review and revise lists of living organisms and types of habitats which they consider are of key significance to sustain and improve biodiversity in Wales. The species and habitat lists are identical to those in Section 42 but it should be noted it is currently under review (23.03.2017).

The Protection of Badgers Act (1992)

It is an offence to wilfully take, kill, injure, possess or ill-treat a badger. Under the Act their setts are protected against intentional or reckless interference. Sett interference includes damaging or destroying a sett, obstructing access to any part of the sett, or disturbance of a badger whilst it is occupying a sett. The Act defines a badger sett as 'any structure or place, which displays signs indicating the current use by a badger' and Natural England (NE) takes this definition to include seasonally used setts that are not occupied but that show sign of recent use by badgers (Natural England, 2009[5]).

If impacts to badgers or their setts are unavoidable then authorised sett disturbance requires a licence.

The UK Post-2010 Biodiversity Framework (2011-2020) (JNCC and DEFRA, 2012)

This Framework lists the UK's most threatened species and habitats and sets out targets and objectives for their management and recovery. The UK Biodiversity Action Plan (BAP) process is delivered nationally, regionally and locally and should be used as a guide for decision-makers to have regards for the targets set by the framework and the goals they aim to achieve. The UK BAP has now been replaced by the UK Post-2010 Biodiversity Framework, however, it contains useful information on how to characterise important species assemblages and habitats which is still relevant (UK Post-2010 Biodiversity Framework, 2012[6]).

The Conservation of Habitats and Species Regulations 2017 (as amended)

The Conservation of Habitats and Species Regulations 2017 (as amended) consolidate the Conservation of Habitats and Species Regulations 2010 with subsequent amendments. The Regulations transpose Council Directive 92/43/EEC, on the conservation of natural habitats and of wild fauna and flora (EC Habitats Directive), into national law. They also transpose elements of the EU Wild Birds Directive in England and Wales. The Regulations came into force on 30th November 2017, and extend to England and Wales (including the adjacent territorial sea) and to a limited extent in Scotland (reserved matters) and Northern Ireland (excepted matters). In Scotland, the Habitats Directive is transposed through a combination of the Habitats Regulations 2010 (in relation to reserved matters) and the Conservation (Natural Habitats &c.) Regulations 1994. The Conservation (Natural Habitats, &c) Regulations (Northern Ireland) 1995 (as amended) transpose the Habitats Directive in relation to Northern Ireland.

All species listed under Annex IV of the Habitats Directive require strict protection and are known as European Protected Species (EPS). Under Regulation 42 of the Habitats Regulations it is unlawful to:

- Deliberately kill, capture or disturb;
- Deliberately take or destroy the eggs of; and
- Damage or destroy the breeding site/resting place of any species protected under this legislation.

If the Ecologist determines that impacts to an EPS are unavoidable then the works may need to be carried out under a site specific mitigation licence from Natural England (NE) or Natural Resources Wales (NRW). Low Impact Class licences are also available in both England and Wales for bats and great crested newts. This enables Registered Low Impact Consultants to undertake certain low impact activities reducing the EPS application paperwork and process length.

[5] Natural England, June 2009, Protection of Badgers Act 1992 (as amended), Guidance on 'Current Use' in the definition of a Badger Sett WMLG17, Natural England, Peterborough.

[6] JNCC and Defra (on behalf of the Four Countries' Biodiversity Group), July 2012, UK Post-2010 Biodiversity Framework, Available from: http://jncc.defra.gov.uk/pdf/UK_Post2010_Bio-Fwork.pdf [04/10/2021].

Certain EPS are also listed under Annex II of the Habitats Directive and are afforded protection by the establishment of core areas of habitat known as Special Areas of Conservation. This means these species are a relevant consideration in a Habitats Regulations Assessment (HRA).

The Birds Directive seeks to maintain populations of all wild bird species across their natural range (Article 2). All bird species listed under Annex I[7] of the Birds Directive are rare or vulnerable and afforded protection by the classification of Special Protection Areas (SPAs), these are also designated under all regularly occurring migratory species, with regard to the protection of wetlands of international importance (Article 4). This means these bird species and communities are a relevant consideration in HRA.

Salmon and Freshwater Fisheries Act 1975 (SAFFA)

This Act covers regulation of fisheries in England and Wales and includes legislation that covers the introduction of polluting effluents, the obstruction of fish passage (screens, dams, weirs, culverts etc) illegal means of fishing, permitted times of legal fishing and fishing licencing (which covers electric fishing).

Under this act any person who causes or knowingly permits to flow, or puts or knowingly permits to be put, into any waters containing fish or into any tributaries of waters containing fish, any liquid or solid matter to such an extent as to cause the waters to be poisonous or injurious to fish or the spawning grounds, spawn or food of fish, shall be guilty of an offence.

The act also requires that fish passes are installed on new and rebuilt barriers that affect waters frequented by salmon or migratory trout. In the future, it is likely that fish passage facilities will need to be designed to accommodate all fish species and life stagesThe Water Environment (Water Framework Directive) (England and Wales) Regulations 2003.

The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017

The purpose of the WFD is to establish a framework for the protection of inland surface waters (rivers and lakes), transitional waters (estuaries), coastal waters and groundwater and for water all waterbodies (unless artificial or heavily modified) to achieve "good" ecological status.

Ecological Status is expressed in terms of five classes (high, good, moderate, poor or bad). These classes are established on the basis of specific criteria and boundaries defined against biological, physico-chemical and hydromorphological elements. Biological assessment uses numeric measures of communities of plants and animals (for example, fish and rooted plants). Physico-chemical assessment looks at elements such as temperature and the level of nutrients, which support the biology. Hydromorphological quality looks at water flow, sediment composition and movement, continuity (in rivers) and the structure of physical habitat.

The overall Ecological Status of a water body is determined by whichever of these assessments is the poorer. For example, a water body might pass 'Good Status' for chemical and physico-chemical assessments but be classed as 'Moderate Status' for the biological assessment: In this case it would be classed overall as 'Moderate Ecological Status'. To achieve the overall aim of good surface water status, the Directive requires that surface waters be of at least Good Ecological Status and Good Chemical Status. To achieve High Status, the Directive requires that the hydromorphological Quality Elements are also in place.

When considering the effect of a development or activity on a waterbody it is a regulatory requirement under the WFD to assess if it will cause or contribute to a deterioration in status or jeopardise the waterbody achieving good status in the future.

Where a scheme is considered to cause deterioration, or where it may contribute to the failure of the water body to meet Good Ecological Status or Good Ecological Potential, then an Article 4.7 assessment would be required which makes provision for deterioration of status provided that certain stringent conditions are met.

[7] To view birds listed under Annex I visit: http://ec.europa.eu/environment/nature/conservation/wildbirds/threatened/index_en.htm [04/10/2021]

Table A-1 - Key Species and National Wildlife Legislation, Policy and Biodiversity Framework Applicable in England & Wales

Table A:1: Key Species and National Wildlife Legislation, Policy and Biodiversity Framework Applicable in England & Wales

Species	Legislation, Planning Policy and UK Biodiversity Framework							
	Wildlife and Countryside Act 1981 (as amended), (WCA)				The Conservation of /Habitats and Species Regulations 2010 (as amended) (Habitats Regulations) - Regulation 41	Natural Environment and Rural Communities (NERC) Act 2006 / The Environment(Wales) Act (2016)	The Protection of Badgers Act 1992	The UK Post-2010 Biodiversity Framework 2011-2020 (JNCC and DEFRA, 2012)
	Schedule1	Schedule 5	Schedule 8	Schedule 9	European Protected Species (Annex IV of the EC Habitats Directive),			
Badger							✓	
Bats		✓ [8](part)			✓[9]	✓[10]		✓[11]
Hazel Dormouse		✓ 5(part)			✓	✓		✓
Otter		✓ 5(part)			✓	✓		✓
Water vole		✓[12](full)				✓		✓
Birds	✓			✓[13]		✓[14]		✓[15]

[8] These species are partially protected under section 9(4)(b), (4)(c) and (5).

[9] Only Barbastelle (*Barbastella barbastellus*), Bechstein's bat (*Myotis bechsteinii*), greater horseshoe bat (*Rhinolophus ferrumequinum*) and lesser horseshoe bat (*Rhinolophus hipposideros*) are listed on Annex II of the Habitats Directive.

[10] Greater horseshoe bat, lesser horseshoe bat, Bechstein's bat, noctule (*Nyctalus noctula*), soprano pipistrelle (*Pipistrellus pygmaeus*), brown long-eared bat (*Plecotus auritus*) and barbastelle are listed as Species of Principal Importance in England with the addition of common pipistrelle (*Pipistrellus pipistrellus*) in Wales listed under

Section 7 of the Environment (Wales) Act (2016) http://www.legislation.gov.uk/ukpga/2006/16/contents.

[11] Barbastelle bat, Bechstein's bat, noctule, soprano pipistrelle, brown long-eared bat, greater horseshoe bat, lesser horseshoe bat are listed as UK BAP species of bat.

[12] Class Licences are available to Registered Consultants to intentionally disturb, damage or destroy water vole burrows or to displace water voles from their burrows in relation to a development proposal where the licensed action provides a conservation benefit for water voles. Certain displacement operations may be carried out under a Class licence by a registered person in England, however in Wales all displacement operations must be carried out under a site specific licence.

[13] To view plants and animals listed on Schedule 9 Part 1 visit http://www.legislation.gov.uk/ukpga/1981/69/schedule/9 [accessed 04/10/2021]

[14] There are 49 species of birds listed as Species of Principal Importance in England in Section 41 of the NERC Act 2006 and 51 species in Wales under Section 7 of the Environment (Wales) Act (2016) http://www.legislation.gov.uk/ukpga/2006/16/contents.

[15] To view the current list of UK BAP priority birds visit: http://jncc.defra.gov.uk/page-5163 [Accessed 04/10/2021].

Reptiles		✓[16](part)		✓[9]	✓[17]	✓[18]		✓[19]
Amphibians		✓[20](part)		✓[21]	✓[22],[23]	✓[24]		
White-clawed Crayfish		✓[25](partial)			✓[26]	✓		✓
Invertebrates		✓[27](full/part)		✓	✓[28],[29]	✓[30]		✓[31]

[16] The four common reptile species, Adder (*Vipera berus*), Grass snake (*Natrix natrix*), Common lizard (*Zootoca vivipara*) and Slow worm (*Anguis fragilis*) are offered partial protection under section 9(5). The rarer UK reptile species (Smooth snake (*Coronella austriaca*) and Sand lizard (*Lacerta agilis*)) are partially protected under section 9(4)(b) and (c) and (5).

[17] Smooth snake (*Coronella austriaca*) and Sand lizard (*Lacerta agilis*) are the only reptiles to be designated as European Protected Species.

[18] All 6 reptile species are listed as Species of Principal Importance in England listed under Section 41 of the NERC Act 2006 and 5 species, excluding smooth snake, listed under Section 7 of the Environment (Wales) Act (2016) http://www.legislation.gov.uk/ukpga/2006/16/contents.

[19] To view the current list of UK BAP priority herptile species visit: http://jncc.defra.gov.uk/page-5166 [Accessed 04/10/2021].

[20] The four common reptile species, Adder (*Vipera berus*), Grass snake (*Natrix natrix*), Common lizard (*Zootoca vivipara*) and Slow worm (*Anguis fragilis*) are offered partial protection under section 9(5). The rarer UK reptile species (Smooth snake (*Coronella austriaca*) and Sand lizard (*Lacerta agilis*)) are partially protected under section 9(4)(b) and (c) and (5).

[21] Common frog (*Rana temporaria*), Common toad (*Bufo bufo*), Smooth newt (*Lissotriton vulgaris*) and Palmate newt (*Lissotriton helveticus*) are offered partial protection under section 9(5). Great crested newt (*Triturus cristatus*) and Natterjack toad (*Epidalea calamita*) are offered partial protection under section 9(4)(b) and (c) and (5). Pool frog (*Pelophylax lessonae*) is offered partial protection under section 9(4)(b) and (c)(1) only and with respect to England only.

[22] Great crested newt, Natterjack toad and Pool frog are the only amphibians to be designated European Protected Species.

[23] Great crested newt is the only amphibian listed on Annex II of the Habitats Directive.

[24] Great crested newt, Natterjack toad and Common toad are listed as Species of Principal Importance in England in Section 41 of the NERC Act 2006 and under Section 7 of the Environment (Wales) Act (2016) http://www.legislation.gov.uk/ukpga/2006/16/contents.

[25] Under the Wildlife and Countryside Act it is illegal to take or sell white clawed crayfish under the WCA. A licence is required to survey (hand net or trap) for the species. To undertake work within WCC inhabited rivers a Class Licence maybe issued by the relevant authority to move WCC away from harm prior to works. Although WCC are not protected from killing or injury Natural England state in their Class licence that due to declining numbers all efforts should be made to conserve the species.

26 White clawed crayfish are listed under Annex II and V of the Habitats Directive.

[27] To view the current list of invertebrates that are protected under this Act either in part or full visit: http://www.legislation.gov.uk/ukpga/1981/69/schedule/5 [Accessed 04/10/2021].

[28] The Large blue butterfly (*Maculinea arion*), Fisher's estuarine moth (*Gortyna borelii lunata*) and Lesser whirlpool ram's-horn snail (*Anisus vorticulus*) are the only invertebrates to be designated European Protected Species.

[29] There are currently twelve invertebrates listed in Annex II of the Habitats Directive; White-clawed crayfish (*Austropotamobius pallipes*), Southern damselfly (*Coenagrion mercuriale*), Marsh fritillary butterfly (*Eurodryas aurinia*), Violet click beetle (*Limoniscus violaceus*), Stag beetle (*Lucanus cervus*), Freshwater pearl mussel (*Margaritifera margaritifera*), Narrow-mouthed whorl snail (*Vertigo angustior*), Round-mouthed whorl snail (*Vertigo genesii*), Geyer's whorl snail (*Vertigo geyeri*), Desmoulin's whorl snail (*Vertigo moulinsiana*), Lesser whirlpool ram's-horn snail (*Anisus vorticulus*) and Fisher's estuarine moth (*Gortyna borelii lunata*).

[30] There are currently 379 invertebrate species (not including marine species) listed as Species of Principal Importance in England http://www.google.co.uk/url?sa=t&rct=j&q=&esrc=s&source=web&cd=4&ved=0ahUKEwivvu7J9trSAhXiCsAKHX4TBGcQFggvMAM&url=http%3A%2F%2Fpublications.naturalengland.org.uk%2Ffile%2F6518755878240256&usg=AFQjCNEpiUWYuOqhVcfSDvi_3iK2TJytfQ and 188 species in Wales http://www.ervri-npa.gov.uk/__data/assets/pdf_file/0003/486156/SpeciesList.pdf listed under Section 41 of the NERC Act 2006 and listed under Section 7 of the of the Environment (Wales) Act 2016. [Accessed 19.04.21]

[31] To view the current list of UK BAP priority invertebrates visit: http://jncc.defra.gov.uk/page-5169 [Accessed 04/10/2021].

Fish		✓[32](full/part)		✓[9]	✓[33],[34]	✓[35]		✓[36]
Plants			✓[37]	✓[9]	✓[38],[39]	✓[40]		✓[41]

[32] To view the current list of fish either part or fully protected under the Act visit: http://www.legislation.gov.uk/ukpga/1981/69/schedule/5 [Accessed 04/10/2021].

[33] Sturgeon (*Acipenser sturio*) is the only fish to be designated a European Protected Species.

[34] There are eight fish species listed on Annex II of the Habitats Directive. To view the current list visit: http://jncc.defra.gov.uk/page-1523 [Accessed 04/10/2021].

[35] There are 35 species of fish listed as Species of Principal Importance in England listed under Section 41 of the NERC Act 2006 and 10 species in Wales listed under Section 7 of the Environment (Wales) Act 2016.

[36] To view the current list of UK BAP priority fish visit: http://jncc.defra.gov.uk/page-5164 [Accessed 04/10/2021].

[37] To view the current list of Schedule 8 listed plants visit: http://www.legislation.gov.uk/ukpga/1981/69/schedule/8 [Accessed 04/10/2021].

[38] There are nine plant species designated as European Protected Species. To view the current list visit: http://www.legislation.gov.uk/uksi/2010/490/schedule/5/made [Accessed 04/10/2021].

[39] To view the current list of plant species on Annex II of the Habitats Directive visit: http://jncc.defra.gov.uk/page-1523 [Accessed 04/10/2021].

[40] There are currently 152 vascular plants listed as Species of Principal Importance in England listed under Section 41 of the NERC Act 2006 and 77 species in Wales listed under Section 7 of the Environment (Wales) Act 2016.[31] To view the current list of UK BAP priority plants visit: http://jncc.defra.gov.uk/page-5171 and http://jncc.defra.gov.uk/page-5168 [Accessed 04/10/2021].

[41] To view the current list of UK BAP priority plants visit: http://jncc.defra.gov.uk/page-5171 and http://jncc.defra.gov.uk/page-5168 [Accessed 04/10/2021].

Appendix B

TARGET NOTES

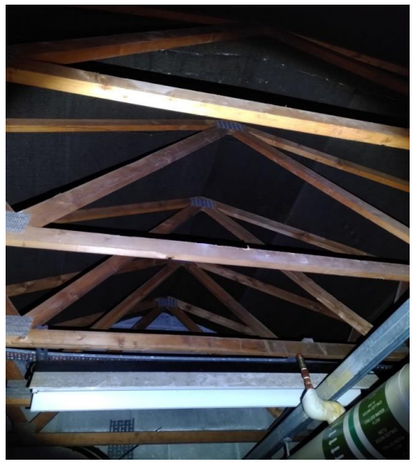
Table B1 – Target Notes

Target note	Target note description
TN1	Building / used as horse shelter (B1), negligible suitability for roosting bats, suitable for use by breeding birds
TN2	Dense bramble scrub – suitable for breeding birds
TN3	Scattered trees – line of trees on bank
TN4	Two rabbit burrows and third entrance potentially used by fox
TN5	B2 - Engineers Compound 1, low suitability for roosting bats, suitable for use more likely used by breeding birds
TN6	Large areas of bare ground with rubble piles suitable for reptiles
TN7	Wall cotoneaster – small stand present on wall
TN8	Bat Box
TN9	Bat Box
TN10	Bat Box
TN11	Montbretia

Appendix C

PHOTOGRAPHS

Table C1 – Photographs

	
Photograph 1 –Mynydd Gelliwastad Road and scattered trees	Photograph 2 – Dense bramble scrub
	
Photograph 3 –Scattered trees on boundary of field	Photograph 4 – B1
	
Photograph 5 – B2	Photo 6 – B2 internal
	
Photo 7 – Wall cotoneaster	Photo 8 – Montbretia

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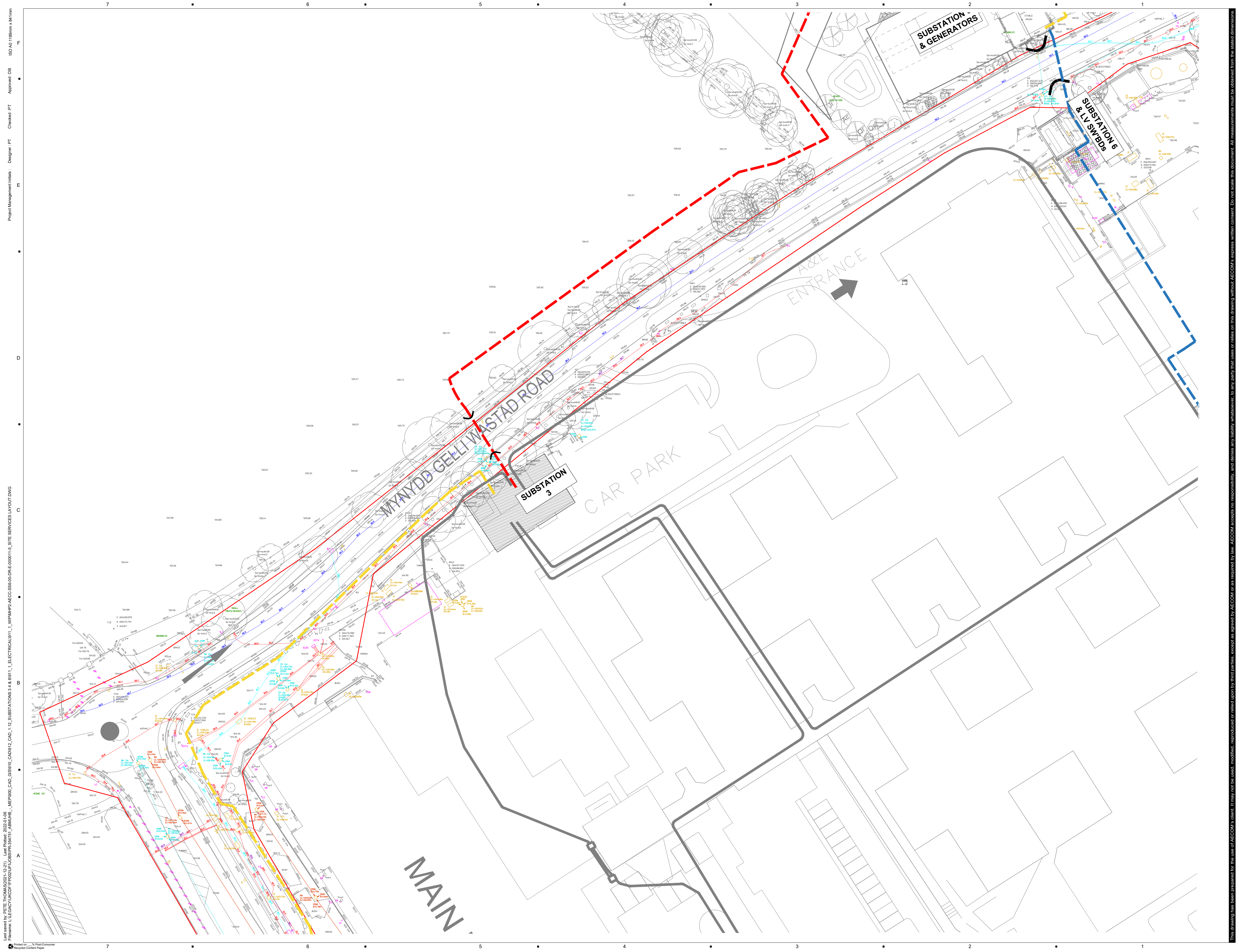
MORRISTON HOSPITAL - INFRASTRUCTURE WORKS

4A: FULL SIZE DRAWINGS



AECOM

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Notes

1. THIS DRAWING IS PROVIDED FOR INFORMATION ONLY AND SHOULD NOT BE RELIED UPON FOR EXACT LOCATIONS OF EXISTING AND PROPOSED SERVICES.

2. THERE HAVE BEEN SCALING ISSUES WHEN IMPORTING THE SURVEY INFORMATION ACROSS THE SITE.

2. TO BE READ IN CONJUNCTION WITH MHP2-AECC-HV-00-M2-E-000004

LEGEND

PROPOSED NEW 3C 185mm2 HV (11kV) XLPE/SWA/ MDPE CABLING TO BS 6622

EXISTING 11KV ABMUHB HV CABLING

EXISTING SUBSTATIONS

Issue / Revision

I/R	DATE	DESCRIPTION
P02	06/01/2022	STAGE 4 ISSUE
P01	19/11/2021	STAGE 4 ISSUE

Purpose of Issue

FOR INFORMATION

Project Number

60586927

Sheet Title

MORRISTON HOSPITAL
PROPOSED SITE HV LAYOUT
SHEET 1 OF 5

Sheet Number

MHP2-AECC-HV-00-DR-E-000011

Scale : 1:250 @ A0 **Rev :** P02