PRINCE CHARLES HOSPITAL SCHEME 3 – GROUND AND FIRST FLOOR REFURBISHMENT – PHASE 2

FBC Annex
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DESIGNED FOR *Life* : BUILDING FOR *Wales* 3
CYNLLUN *Oes* : ADEILADU AR GYFER *Cymru* 3

Interserve

GIG CYMRU NHS WALES
Bwrdd Iechyd Prifysgol Cwm Taf University Health Board

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Section 1- Executive Summary of the Estate Implications of the Business Case

Executive Summary of the Estate Implications of the Business Case

This Annex has been prepared using the NWSSP- FS guidance for preparing the Estates content of a Business Case (FBC).

For clarity this document is termed the Annex however it contains the detail for a Final Business Case (FBC) the Phase 2 of the programme of works at Prince Charles Hospital.

Specifically it provides the supporting information for the options in the original Outline Business Case (OBC) and supplements this with the detailed Estates content for Phase 2 part of the proposed Phase 3 Ground and First Floor refurbishment works at Prince Charles Hospital (PCH). In addition, the document provides the supporting information for the development of the capital costs.

There is a need for the Cwm Taf University Health Board to bring forward planned capital expenditure to address the ground and first floor areas in order to meet the Health Board's obligations in terms of the Regulatory Reform (Fire Safety) Order 2005 and Control of Asbestos Regulations 2006.

In December 2010, the Health Board was served with a Fire Enforcement notice, encompassing the ground and first floor areas at PCH. The Health Board submitted a Strategic Outline Case in December 2011 to address the works needed to lift the Enforcement notice. The SOC was approved in March 2012 which allowed the Health Board to appoint the Supply Chain team, using the Designed for Life Framework, to progress the options for the Outline Business Case. The subsequent OBC was submitted in February 2013 and received Welsh Government approval in December 2013 to progress to the FBC stage of design and development.

Following a period of review the Health Board were advised in July 2016 that they were to proceed with the Ground and First Floor works based of a revised strategy to commence the works to lift the Fire Enforcement Notice. This was

1. To undertake works to the kitchen element as early as possible provide a BJC for approval. Following further discussion this element was separated into two contracts:
    a. Phase 1a – the temporary kitchen and other decant works
    b. Phase 1b – the permanent Kitchen and Pharmacy works

2. Phase 2 - Develop the main ground and first floor works and provide a full business case for approval. The permanent MTDU was to be replaced with a temporary MTDU. The remaining elements of the works and the external car parking (phases 3 and 4) to be future instructions under compensation events. For legal reasons phases 3 and 4 must not exceed 50% of the value of phase 2.

3. A Programme Business Case (PBC) to be deposited to include all phases of works. To be considered with the Phase 2 FBC.

As the Health Board demonstrated progress is being made to address the Enforcement Notice through the business case development, the Fire Authority agreed to provide a temporary extension, which expired in June 2014. Consultation with the Fire Authority during June 2014 led to an agreed programme of works which annually reviews the progress being made to raise fire safety standards; these works must be progressively completed in order to prevent the enforcement notice being enacted with resultant prosecution and potential closure of Prince Charles Hospital.

As a reminder the original Outline Business Case addresses four major investment objectives for the Prince Charles Hospital. In summary, they are:

• Statutory fire compliance with the Regulatory Reform (fire Safety) Order 2005.

• Removing the potential risk of asbestos exposure to patients, visitors and staff within the original building of the Hospital, resulting in compliance with the Health and Safety at Work etc. Act 1974, the Management of Health and Safety at Work Regulations, 1999 and Control of Asbestos Regulations 2012.

• To improve service efficiency, quality and productivity in line with the wider Cwm Taf UHB clinical and financial strategic direction.

• To redesign clinical areas, as currently provided from within the ground and first floor areas of PCH in line with accommodation standards to provide flexible, safe and welcoming accommodation in support of improved productivity and future proofing against emergent strategies.

The Project Management structure for the project has been in place since March 2011 for the preparation of Strategic Outline Case followed by the production of the Outline Business Case for the whole of the PCH3 scheme in February 2013. The management structure comprises key representatives from the University Health Boards Capital, Estates and Planning Directorate, which report to the Project Team and Project Board. The management structure will ensure the delivery of the scheme in accordance with best practice guidelines. It is recognised that the project will need strong leadership and engagement.

The initial Supply Chain Team members were appointed in December 2011 to progress the OBC while the SOC was with the Welsh Government for approval. Following the expiry of Design for Life 1, a new project delivery team was appointed under the procurement structure of the Design for Life 3 Framework and comprises the following Project Team members:

Organisation	Role/Discipline	Individual
Cwm Taf University Health Board	Assistant Director of Capital & Estates	Tim Burns
	Head of Capital	Rosie Cavil
	Project Director	Bill Rogers
	Senior Project Manager	Kirk Riordan
	Capital Finance Lead	Huw Evans
Interserve Construction Limited	Project Lead	Chris Edmonds
	Commercial Manager	Andrew Banfield
Boyes Rees Architects	Project Lead Architect	Jonathan Jones
	Project Healthcare Architect	Martyn Davies
Hoare Lea MEP Consultants	M&E Project Manager	Peter Wells
	Electrical Lead Consultant	Richard Brennan
	Mechanical Lead Consultant	Richard Deacon
Hoare Lea Fire Engineering	Lead Fire Engineer	Declan Thomson
Opus International Consulting	Project Lead & Lead Structural Engineer	Steve James

	Civil Engineering Lead	Jonathon Lee
Boyes Rees	CDM Principal Designer	Jonathan Jones
SHP Healthcare	Healthcare Planner	Jane McMahon
GreenBuild Consult	BREEAM Consultant	Daryl Fisher
Bureau Veritas	Building Control Service	Jon Davies
Gleeds Cost Management	Health Board Cost Advisor	Nigel Watkins
	Health Board Cost Advisor	Michael Roberts
Gleeds Management Services	Health Board Project Manager	Dominic Roche
	Health Board Project Manager	Sarah Sanders

The Project Team also included a number of Health Board and Supply Chain Individuals who contributed to the completion of this business case.

Outline Business Case Development

From their appointment, the Interserve Project Team worked with the University Health Board and Building End-users to develop the options for the now approved outline business case.

In summary the options are:

- Do – Nothing – This option is not considered viable as enforcement action will prevail.
- Do - Minimum: Refurbishment works required only to satisfy the OBC scrutiny with reference to fire protection and asbestos removal.
- Preferred: Refurbishment based on OBC (alternative Option 4), which includes some permanent new build decant accommodation elements along with car parking strategy to satisfy the planning authority on the current shortfall of spaces.

In summary, the project outturn costs for the preferred option at the original 2013 OBC were approved at £119.8m

It should be noted that the Phase 2 is part of the revised strategy. This led to additional scope and costs required to meet the out of sequence working not included in the OBC. The changes to the scope and the costs are described in appendix A.13 The changes to the costs are based on the uplifted OBC and the Gleeds Cost Management Cost estimate for phase 2, not the SCP target cost, and are works costs only.

Design Development for the FBC

The Health Board and Project Architects held a series of meetings with the building End Users to develop the Final Scheme drawings for this FBC Phase 2. The works are split into several phases and are summarised below:

PHASE 2A- Enabling

- Infrastructure works
- Temporary fit out of Cynon for Therapies
- Temporary fit out of 1st floor Merthyr for Cardio Pulmonary
- Temporary fit out of Rhymney for OPD
- Form new Comms. room
- Form new switch room
- Temporary fit out area of Max fax for diabetes
- Demolition of diabetes building
- Demolition of Cardio Pulmonary and the training building

PHASE 2 B

- Works to Therapies department (including plantroom D)
- Dismantle part of temporary kitchen and install unit 2
- Install unit 3 temporary Admin /MDTU
- 2nd fit out for Cynon for Diabetes & Cardio Pulmonary- (to free up OPD2)

PHASE 2 C

- Works to OPD phases 1 & 2
- Works to Max fax (1st floor)
- Demolish dental training building
- Construct 2 storey Endoscopy link
- Refurbish 1st floor Merthyr used for temp Cardio Pulmonary for Endoscopy
- Refurbish G floor Merthyr block previously Max Fax and temp Diabetes for OPD
- Plantrooms B,&(C - part hand over not Oncology)
- Temporary accommodation for Neurophysiology - (to free up OPD2

PHASE 2 D

- New theatres
- 23.59 & white space
- Phase 1 Radiology
- Plantroom A , works in existing plantroom E & Temporary plant in courtyard for Radiology phase 1

PHASE 2 E

- Radiology phases 2 &3
- Trauma lift and link corridor

- 1st floor ITU
- Possible remodel of Rhymney block for admin – (No details at this time)
- Demolition of admin buildings & externals– (No details at this time)
- Construct new MRI facility and plant room H
- Plantrooms F &G

The Project Team M&E Consultants also met with the Health Board's Estates Representatives and NWSSP to develop the M&E systems for these temporary works. A description is included in the building services section of this Annex.

Project Risk Workshops were held with the Project Team and Estates Department representatives. The Risk Register has been costed to calculate the planning contingency allowance for the Construction Stage Contract. A copy of this risk register is included in the appendices of this Estates Annex.

AEDET and BREEAM reviews have been carried out for these works.

BREEAM is being assessed for the whole programme of works; there is not a separate BREEAM assessment for Phase 2. The project was assessed against BREEAM 2008 but on the recommencement of works under the new strategy it was confirmed that the assessment was to be undertaken under BREEAM 2014. The opportunity to achieve 'very good' against BREEAM 2014 on a fully designed scheme was discussed with NWSSP-SES as the opportunity to obtain certain credits had passed. It was agreed that the project could target a ' good+'. The current BREEAM assessment is contained in Appendix A5.

The phase 1a enabling works commenced in October 2017 to provide decant accommodation to start the refurbishment works in the main building. These works are currently planned for completion by October 2018

The Phase1b works (permanent kitchen and pharmacy) are targeted to start on site September 2018 subject to approval by Welsh Government and are currently planned for completion in January 2021

Key Dates for Phase 2 are summarised as follows:

Submit FBC to Welsh Government - March 2019

Approval of FBC – May 2019

Start on site – June 2019

Project Completion – April 2026

The case for Phase 2 is being presented with a total cost of £189,566,136 inc VAT

Section 2- Estates Investment Objectives

2.0 Estates Investment Objectives

Cwm Taf Health Board was established on 01 October 2009 and received University status in December 2013. Prior to this Cwm Taf NHS Trust was established formally on 1 April 2008 and combined the former North Glamorgan and Pontypridd & Rhondda NHS Trusts. Services are delivered across a network of Community Clinics, Health Centres and Community Hospitals supported by two District General Hospitals, Prince Charles Hospital in Merthyr Tydfil and the Royal Glamorgan Hospital in Llantrisant. Cwm Taf University Health Board is responsible for the provision of health care services to over 330,000 people principally covering the Merthyr Tydfil and Rhondda Cynon Taff Unitary Authority areas

The existing hospital at Prince Charles Hospital (PCH) was opened in 1977 and comprises one of two acute hospitals within Cwm Taf University Health Boards existing estate, alongside the Royal Glamorgan Hospital.

The main driver for the proposed refurbishment of Prince Charles Hospital arises from the Welsh Health Estates (WHE) Fire Risk Assessment dated December 1996 due to the current health & safety risks inherent within the existing building. The Assessment included the Welsh Office 'Recommended Timescale' for full compliance which was extended from five to seven years. This deadline has long passed and there is still substantial work required to be completed in order to achieve full compliance. Subsequent fire safety audits have further highlighted areas of non-compliance at the PCH site with statutory fire legislation, relating to the Regulatory Reform (Fire Safety) Order 2005.

Works were completed in January 2013 to address the non-compliance to the inpatient areas on the 2nd, 3rd and 4th floors respectively, via the Ward Refurbishment programme.

This FBC for phase 2 addresses the main volume of works to cover the remaining fire and asbestos issues to the ground and first floor of Merthyr Block.

There have been significant changes in legislation since the WHE Fire Risk Assessment was carried out. The Firecode documentation which was current at the time has since been replaced with new guidance - HTM05 Firecode - Fire Safety in the NHS and is now incorporated into these works.

Another driver for the proposed development includes the inherent asbestos problems at the PCH site in order to meet the Health Board's obligations in terms of the Control of Asbestos Regulations 2012. Asbestos used as fire proofing on steelwork during the original construction of Prince Charles Hospital has deteriorated, become friable and has contaminated the ceilings, which also has the added implication of leaving the structure falling considerably short of the required fire protection. This requires remediation across the ground and first floor areas and significantly impacts upon the UHB's ability to maintain the estate

Similarly, the previous and now superseded Business Cases and Estate code condition appraisals have identified the existing estate to be functionally unsuitable and have many areas of underutilisation. As part of the scheme much of the ground and first floor areas of the building will be required to be stripped back to the existing steel frame. This provides a unique opportunity to improve patient care and achieve greater efficiency by reconfiguring theatres and departments in line with the Cwm Taf University Health Board's strategic approach to these areas. The internal environmental improvements will be made to ensure compliance with current healthcare standards to compliment modern day models of care.

The investment objectives for the full scheme are:-

- Statutory fire compliance with the Regulatory Reform (fire Safety) Order 2005* at the Prince Charles Hospital site.
- Removing the potential risk of asbestos exposure to patients, visitors and staff within the original building of Prince Charles Hospital, resulting in compliance with the Health and Safety at Work etc. Act 1974, the Management of Health and Safety at Work Regulations, 1999 and Control of Asbestos Regulations 2012.
- To improve service efficiency, quality and productivity in line with the wider Cwm Taf UHB clinical and financial strategic direction.
- To redesign clinical areas, as currently provided from within the ground and first floor areas of PCH in line with accommodation standards to provide flexible, safe and welcoming accommodation in support of improved productivity and future proofing against emergent strategies.

The existing accommodation does not meet the requirements of current HBN and HTM guidelines and the existing accommodation on the ground and first floors respectively at Prince Charles Hospital will require refurbishment to primarily address the following issues:

- Reinstatement of appropriate level of fire protection and compartmentation to the existing structure
- Removal of asbestos contamination
- Replace existing non – compliant Theatre plant
- Provide modern flexible accommodation
- Improve efficiency and economy in operation
- Reduce backlog maintenance
- Minimise disruption to existing operations
- Sustain activity of the hospital
- Enhance relationships between departments and functions.

Below describes the case for change at OBC in relation to each of the defined investment objectives, as compared to the existing arrangements. For full details of the investment objectives please refer to the main body of the business case.

Investment Objective 1	**To achieve statutory fire compliance with Firecode at the Prince Charles Hospital site. This will result in compliance with:** • **The Regulatory Reform (Fire Safety) Order 2005** • **The 'Firecode' Regulations**
Existing Arrangements	The majority of the ground and first floor area is currently failing to comply with current fire legislation. The existing asbestos spray coating fire protection to the steel frame has become friable over time and has deteriorated to such an extent that the level of fire protection to the steel frame is substantially reduced. In addition, large areas of the ground and first floor building have either non-existent or insufficient levels of fire compartmentation and fire stopping. Furthermore, various other fire safety issues prevail in the form of inadequate fire doors, fire fighting equipment and appropriate means of detection. As a consequence, several Enforcement Notices have been served upon on the Health Board at Chief Executive level for rectification as a matter of urgency. In November 2012, the Fire Authority issued an extension to the enforcement notice to June 2014. Copies of the respective Enforcement Notice letters from South Wales Fire and Rescue Services are included within the Executive Summary to this Estates Annex.
Business Needs	In order to address the inadequate levels of fire protection to the existing steel frame superstructure, the building will be stripped back to its original form and enhanced with a minimum period of 60min fire resistance in accordance with HTM 05-02. Fire doors will be provided with the appropriate integrity, seals and closing devices. Equally, compartmentation above ceiling levels will be robust and adequately fire stopped where penetrations are necessary to maintain the required levels of integrity and protection. Automated fire detection systems will be provided to ensure the earliest possible warning of fire. Furniture and furnishing will also be replaced to comply with current legislation, as well as addressing emergency routes, exits and both statutory and operational fire safety signage requirements. In terms of 'non quantifiable benefits, these works will provide a safe and secure environment for visitors, patients and staff, both within the ground and first floor areas and consequently across the site as a whole. Also, they allow the Health Board to meet its statutory obligation in respect of Fire compliance and Enforcement notice in a timely fashion. In terms of 'non cash releasing benefits' (eg staff time) these works will reduce building maintenance issues, and the potential impact in the event of a fire occurring both in terms of resulting remediation and potential litigation.
Investment Objective 2	**Removing the potential risk of asbestos exposure to patients, visitors and staff within the original building of the Hospital, resulting in compliance with the Health and Safety at Work etc Act 1974, the Management of Health and Safety at Work Regulations, 1999 and Control of Asbestos Regulations 2006.**
Existing Arrangements	Sprayed asbestos coating has been used throughout the building to provide fire protection to the structural steel frame. Progressive deterioration and damage has resulted in widespread asbestos contamination throughout the ground and first floor areas, and air currents have spread asbestos fibres into other connecting voids and cavities.
Business Needs	Each area will be soft-stripped back to sub-structure by a licensed asbestos contractor working under fully controlled conditions. The strip out will include the removal of all partitioning, ceiling grids, floor finishes (including screeds) and window frames. Contaminated M&E installations will be cleaned in-situ and retained for modification or removal by a specialist contractor. In the process all asbestos will be removed, with any residual contamination being sealed, to enable subsequent building works and long term asset management to be carried out in safety. In terms of 'non quantifiable benefits' these works will provide a safe and secure environment for visitors, patients and staff, both within the ground and first floor areas and consequently across the site as a whole. Also, these works provide a high quality and sustainable building with a significant extended life. In terms of 'non cash releasing benefits' (eg staff time), these works help avoid potential litigation with regards to asbestos exposure. Also, there is potential to minimise costs in future in relation to building maintenance and estates management for asbestos. In terms of quantifiable benefits, these works provide a safe working environment for both clinical and support staff in the delivery of services and maintenance of the environment. Also, these works allow the Health Board to satisfy its statutory obligations in respect of asbestos management.
Investment Objective 3	**To improve service efficiency, quality and productivity in line with the wider Cwm Taf LHB clinical and financial strategic direction.**

Existing Arrangements	Current facilities, environments and physical layout do not provide the ability to deliver the new model of care either in part or whole in an efficient or wholly effective manner to recognised quality standards.
Business Needs	To ensure that the care environments and support functions at PCH are aligned to the delivery of the new efficient and effective model of care as part of the wider Cwm Taf Strategic Service and financial direction. In terms of 'non quantifiable or qualitative benefits', these works will also improve access and patient flow within services at PCH, improve privacy and dignity across a number of clinical areas at PCH, enable teams to work efficiently and effectively, and improve staff morale, recruitment and retention. These works will enable the delivery of modern clinical care and extended range of options for delivery (eg. Modern theatre settings.) In terms of 'non cash releasing benefits' these works will reduce the need for acute hospital attendance in line with CT LHB strategy to shift to community and primary care delivery. In terms of cash releasing benefits, these works will reduce duplication of administration through use of shared reception functions and improved technology. Also enable equipment rationalisation through more efficient use and maintenance via a readily accessible equipment library. In terms of quantifiable benefits, these works will create a reduction in hospital acquired infections (laminar flow theatres), improve clinical pathways allowing timely delivery of care, and support the achievement of reducing waiting times and average LOS in certain specialities. Eg across surgical specialities. These works will effect a shift in greater provision of community and primary care delivery as part of the Cwm Taf wider strategic direction – disinvest and reinvest from acute to community.
Investment Objective 4	**To redesign clinical areas, as currently provided from within the ground and first floor areas of PCH in line with accommodation standards to provide flexible, safe and welcoming accommodation in support of improved productivity and future proofing against emergent strategies.**
Existing Arrangements	The current fabric and layout of the building across the G&FF areas does not meet current accommodation standards and is not conducive to flexible use and is neither inviting nor easy to access and causes significant issues when trying to navigate a way through or orientate within
Business Needs	To provide accommodation to recognised standards wherever possible that is inviting, accessible, easy to navigate and of a flexible nature for providing ever changing modernised health care that is of benefit to and appreciated by both patients and staff. In terms of 'non quantifiable benefits', these works will provide a welcoming, safe and appropriate environment of care for patients and visitors, enable developing models of care delivery, provide strategic fit for co-ordinated development of services to remove and prevent duplication, and provide greater flexibility to adapt services as delivery models develop. In terms of cash releasing benefits, these works will provide a more energy efficient building through the use of new engineering distribution equipment and BMS. These works will also remove various short life expectancy temporary structure accommodation around PCH through integration into the main building envelop. In terms of quantifiable benefits, improved reconfiguration/ co-location allow more effective service delivery through better co-ordinated services. These works allow for compliance with HBNs (where possible), Fire, Health and Safety, DDA and HIW standards, and an ability towards achieving a BREEAM Very Good rating.

The 2015-16 Planning Framework emphasises that infrastructure is a key enabler for service development and delivery. The investment objectives for the NHS Infrastructure Investment Programme including capital funding are:

- support the delivery of safe, sustainable and accessible services and facilitate high standards of patient care;
- support changes to streamlining and transforming healthcare provision, with a focus on prevention and supported self-management, the provision of care closer to home, and the integration and coordination of service delivery with partners;
- promote the maximum efficient utilisation of assets and to improve asset condition and performance: and
- promote the use of innovation to improve the quality of care, to reduce costs and to deliver the necessary service change.

It is intended that the service model and the refurbished areas will meet the requirements and recommendations in;

- Welsh Health Estates (WHE) Fire Risk Assessment dated December 1996
- HTM-05 Firecode - Fire Safety in the NHS
- The Regulatory Reform (Fire Safety) Order 2005
- The Health & Safety at Work etc. Act, 1974
- The Management of Health & Safety at Work Regulations, 1999
- The Control of Asbestos Regulations, 2012
- NHS Estate Condition and Performance Report 2012 / 13
- Designed for Life 3

Section 3 - Summary of Health Board Estates Strategy

3.1 The Existing Estate

Prince Charles Hospital Existing Arrangements

Prince Charles Hospital currently has 417 beds which comprise acute beds for integrated medicine, acute surgery, intensive care, trauma and orthopaedics, paediatrics, obstetrics and gynaecology, special care baby unit and oral surgery. The existing wards occupy the three-storey H tower block above the two-storey podium. The main hospital was designed with four wards on each floor providing 12 wards in total. Each ward consists of 24 beds comprising four four-bed bays and eight single rooms.

The wards are organised in 3 'blocks': Merthyr Block – which is the main hospital ward block, Cynon Block which accommodates the gynaecology and obstetrics services and Rhymney Block which accommodates Paediatrics services on the first floor and an older persons Mental Health unit on the ground floor.

The hospital has an Accident & Emergency Department and a Medical Assessment Unit. The A & E Department is one of the busiest in Wales (60,000 attendances per annum). It struggled to provide an efficient service in a building designed for the NHS of the 1960s. The current A&E department has been refurbished & expanded to develop an integrated Emergency Care Centre which was completed in 2011 to enable the co-location and integration of the Medical Assessment Unit and the Out of Hours base.

It also has 6 cardiac care beds which provide care for patients who have experienced an acute coronary episode (MI or acute coronary syndrome). The 8-bedded Step-down unit provides follow on care for patients who have been in CCU or accepts patients from MAU/medical wards when they require a higher degree of monitoring/ treatment. The step-down unit is also the area where the majority of patients are situated whilst they await transfer to a tertiary centre for angiography.

Seven ITU beds are provided and general, orthopaedic and oral surgery outpatients departments. All the main services are based on site including pathology and x-ray facilities along with physiotherapy, dietetics, occupational therapy, speech and language therapy, podiatry services.

There are long-standing and increasingly pressing issues at Prince Charles Hospital related to asbestos and fire safety compliance. These stem from the extensive use of asbestos in the construction of the original building. It was of particular concern that the asbestos sprayed coating to the structural steelwork frame is deteriorating, resulting in restricted access to the ceiling voids and an increased risk of contamination of the areas below. It also makes it increasingly difficult to carry out essential maintenance and meet statutory obligations. These issues have been the basis of previous and current major capital expenditure in the ward and adjacent areas.

The potential deterioration of the asbestos, the requirement of the Fire Enforcement Notice and the ability of the Health Board continue to manage the situation, are invariably a cause for concern. As a result of engagement the Fire and Rescue Authority had served two Enforcement Notices which require the Cwm Taf University Health Board to:

• Resolve the immediate compliance issue related lack of fire protection in the central core (requiring also asbestos removal above ceiling voids to allow such works to commence) – Works Now completed and the notice for this area has been lifted and,

• Agree a corrective action plan (also requiring extensive removal asbestos containing materials from the ground and first floor areas). – The purpose of this business case.

Overall, it is the position of the Fire and Rescue Authority that the Cwm Taf University Health Board has failed to comply with the requirements placed upon them by The Regulatory Reform (Fire Safety) Order 2005 in respect of the Prince Charles Hospital premises. The Fire and Rescue Authority are further of the opinion that the steps identified in the Enforcement Notice must be taken to remedy the specified failure(s) to comply. Originally at SOC the steps identified in the Enforcement Notice had to be complied with within 24 months – December 2012 – but due to some temporary interim measures this had been extended in the first instance to June 2014.

Subsequently the UHB have on the back of these temporary interim works and through development of this business case secured an annual review arrangement with the fire authority with the review each year in July.

This Business Case therefore proposes the removal of all accessible (Areas that cannot be removed will be encapsulated and compliant with the Control of Asbestos Regulations, 2012) asbestos from Prince Charles Hospital as soon as is practical, thus allowing the necessary fire precautionary work to be undertaken.

However without advancing the permanent resolution measures identified within this business case without delay, Cwm Taf University Health Board will be regarded as not being in compliance and the Fire Authority may consider a prosecution/ building expulsion.

3.2 Existing Estates Site Plans

A full set of existing layouts for Prince Charles Hospital is available on request including:

- Ground Floor Layout
- First Floor Layout
- Second Floor Layout
- Third Floor Layout
- Fourth Floor Layout

The ground and first floor refurbishment works will eventually interface and link in to the completed Ward Refurbishment scheme to the second, third and fourth floors directly above, as well as immediately benefiting from a physical link with the new Emergency Care Centre extension and Day Surgery Unit at ground and first floor levels.

A thorough review of clinical services and the estate has previously been undertaken as part of the Strategic Outline Programme and the Outline Business Case resulting in a number of interdependent schemes required to enable the Cwm Taf University Health Board to deliver clinical services in the 21st century. Many of these schemes have been recently delivered leaving the ground and first floor areas of PCH as the one remaining major priority to address.

The Major Capital Programme Plan in Cwm Taf University Health Board underpins the recommendations of the Strategic Outline Plan and OBC for the Health Community and demonstrates that the ground and first floor works forms an essential component of a programme of capital developments designed to deliver a different model of services to meet healthcare needs in the 21st century.

A number of business cases were approved and numerous projects have been completed as part of Cwm Taf University Health Boards Major Capital Programme – See section 3.9.

These works include the following at Prince Charles Hospital

- Ward Refurbishment of main ward block, £53.2 Million completed in February 2013
- Emergency Care Centre , £27 Million completed in June 2012

From an estates perspective, this works represents the next phase of the ground and first floor refurbishment works & is critical to meeting fire and asbestos compliance issues providing compliant mechanical, electrical and public health systems as well as contributing to meeting the current and future activity projections and overall delivery of the wider service model.

3.3 Existing Estate PCH Site Plan

The arrangement of the existing site is shown on the plan, demonstrating the two principle vehicle site access roads and circulation routes.

The majority of parking is on the southern side of the site, which is accessed from a single entrance off the roundabout on the western boundary.

This gives the hospital 2 main pedestrian entry points; the main entrance with drop off to the west and at the southern end of the building the secondary entrance.

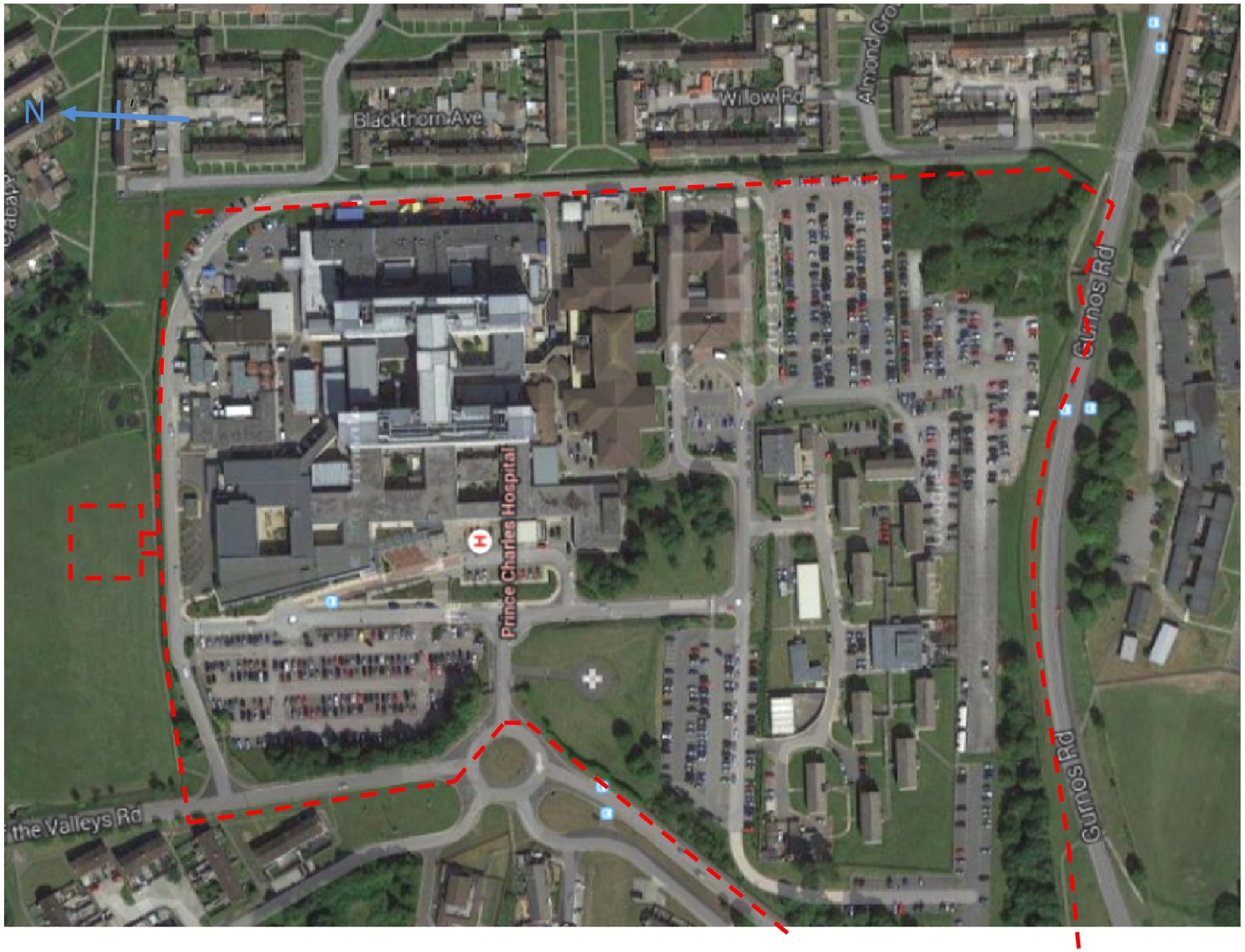
The existing helipad has been relocated to the west of the site on the field adjacent the EEC entrance.

The main hospital building is a podium and tower arrangement which has been extended over the years with Cynon phase (southern template blocks including maternity, therapies, colposcopy and currently temporary ward accommodation).

Rhymney Block currently includes an EMI Ward at ground floor and paediatrics at first floor level.

The main energy centre is privately operated and sits to the north of the hospital building.

FM access to the building is centralised at the east of the podium, allowing good opportunity for separation of flows in the main hospital building.

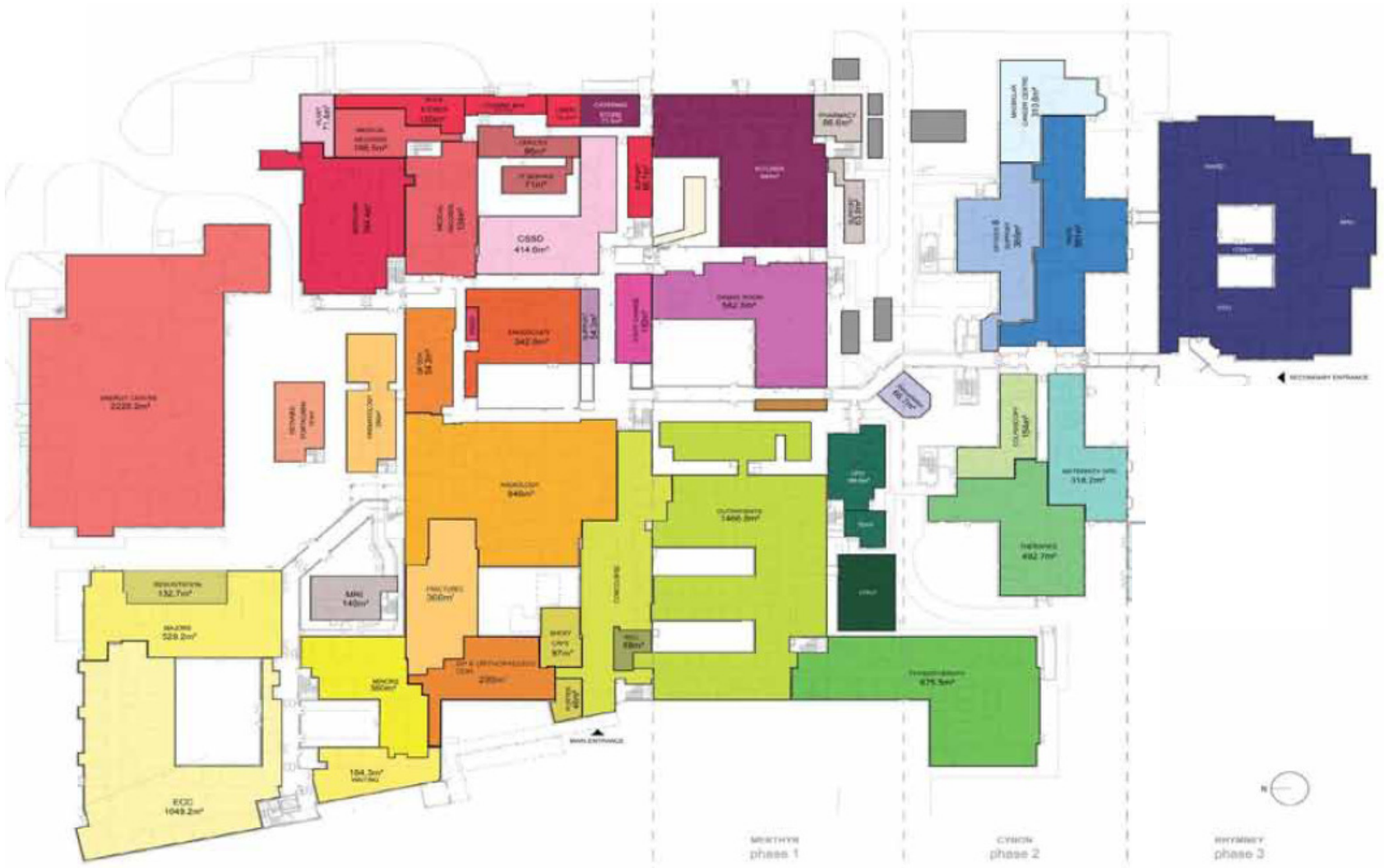


3.4 Existing Departments and Areas

Ground Floor Plan

The information shown below describes the ground floor accommodation of Prince Charles Hospital. It is based on information received from the Health Board and is receiving validation through inspection and surveys.

Completion of the Ward Block refurbishment allowed CCU to move from Rhymney Block



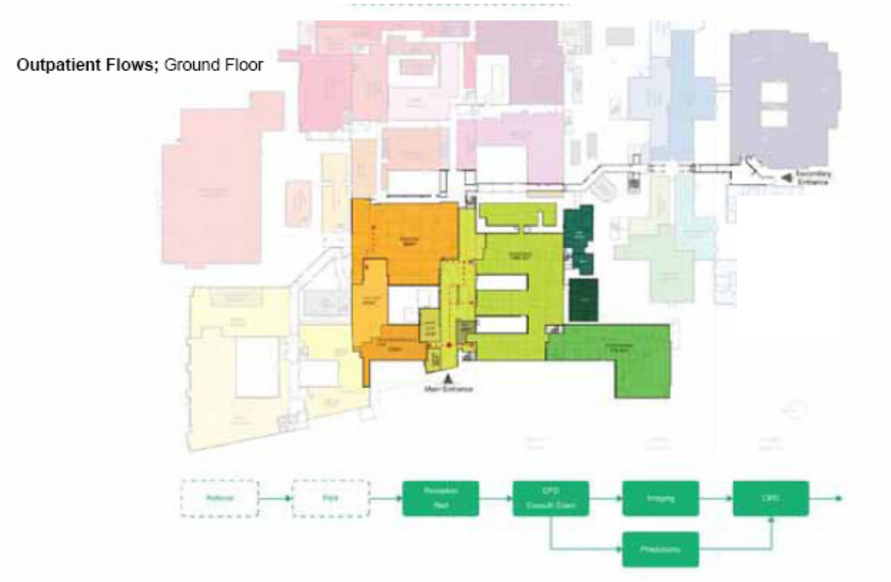
First Floor Plan

The information shown below describes the first floor accommodation of Prince Charles Hospital. It is based on information received from the Health Board and is being validated through inspection and surveys.

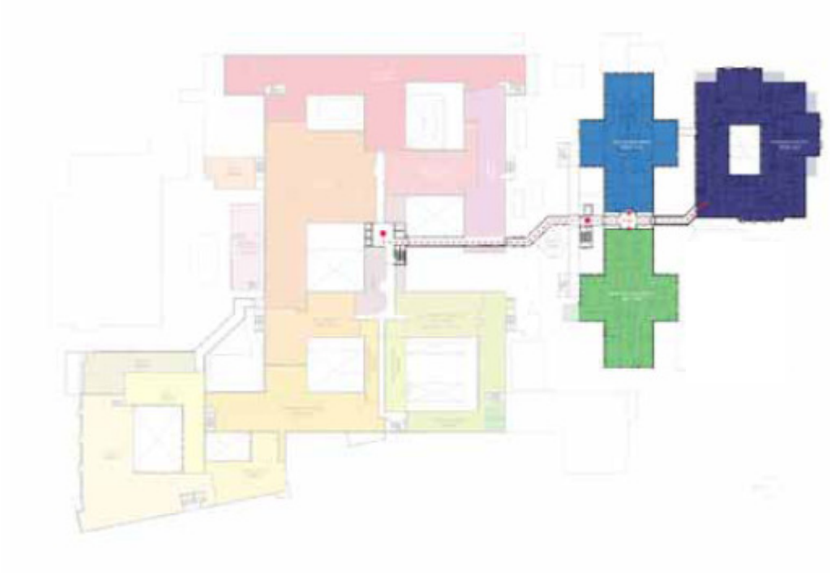
Completion of the DSU relocated the day theatres and associated day surgical accommodation

3.5 Current Flows

Several of the key clinical flows have been explored to ensure a patient focused approached to the redevelopment can be achieved, a sample of these are shown in this section;



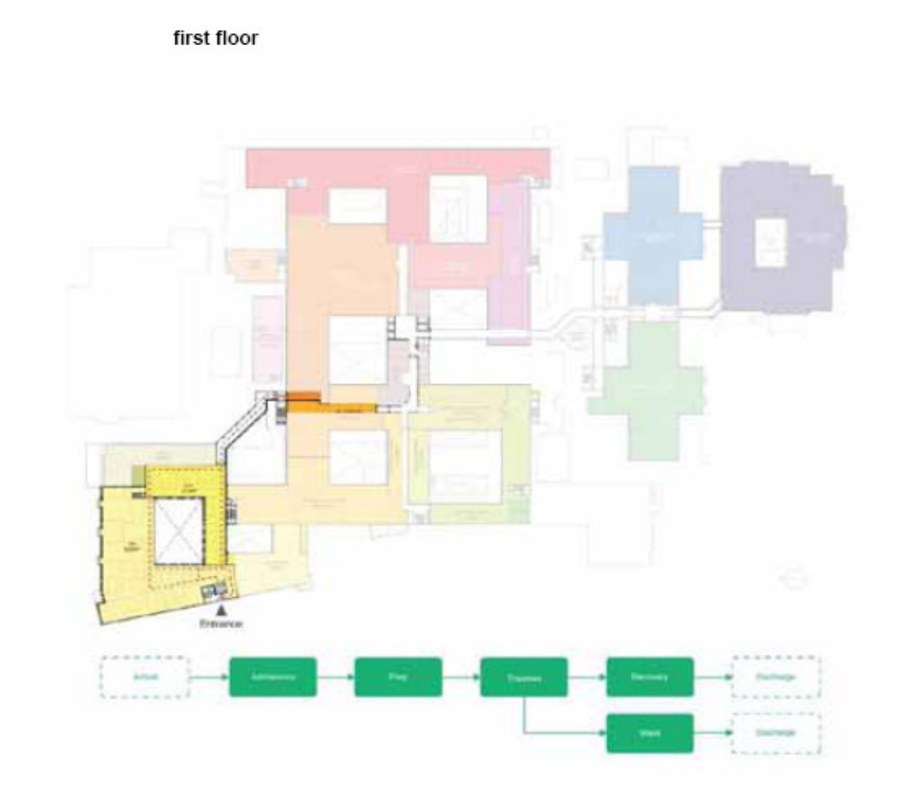
First Floor



First Floor

Day case flows – ground floor

FM flows – ground floor



3.6 Current Estate Performance

Mindful that the last published data was the 2012/13 Estate Condition and Performance Report the information provided in this section is the information reported by Cwm Taf University Health Board's annual estates performance report.

It should be noted that the backlog maintenance costs reported in 2009/10 was £60,502,301. This was mainly attributed to Prince Charles Hospital which had the largest backlog maintenance costs. Subsequent reports on backlog have excluded the costs associated with Prince Charles Hospital with the backlog sum reported in 2015 /16 at £6,812m.

Welsh Health Circular WHC(2002)50 *Introduction of an Estates Performance Management System*, issued in April 2002, set out details of five national PIs based on guidance contained in Estate code. More recently, Facilities Services Notification (FSN) 13/06 confirmed that *Fire safety compliance* would also be included as a national performance indicator in its own right. The current targets agreed with the Welsh Government are shown in Figure 7. They relate to the essential estate only, that is, the estate that is deemed to have a health use of five years or more.

National PI	Target	Definition of condition category
Physical condition	90% of the estate to be in condition category 'B' or above.	Condition category 'B' applies to buildings that are sound, operationally safe and exhibit only minor deterioration.
Statutory and safety compliance	90% of the estate to be in condition category 'B'.	Condition category 'B' applies to buildings where action will be needed in the current plan period to comply with relevant guidance and statutory requirements.
Fire safety compliance	90% of the estate to be in condition category 'B'.	Condition category 'B' applies to buildings where action will be needed in the current plan period to comply with relevant guidance and statutory requirements.
Functional suitability	90% of the estate to be in condition category 'B' or above.	Condition category 'B' applies to buildings that are satisfactory and minor changes are needed.
Space utilisation	90% of the estate to be in category 'F'.	Category 'F' applies to buildings that are fully used.
Energy performance	The estate to achieve energy 'B' rating or better.	Energy 'B' rating applies to buildings with an energy consumption of 410 kWh/m² or less.

Figure 7: Table showing national performance indicators and targets

The table below compares the estate code results of all the Health Boards and Trusts

National Key Performance Indicators

Percentage of the estate which is of reasonable standard and therefore falls within Estatecode category 'B'/'F' or above:

	Physical Condition (%)	Statutory & safety compliance (%)	Fire safety compliance (%)	Functional suitability (%)	Space utilisation (%)
ABERTAWE BRO MORGANNWG UNIVERSITY LHB	82	89	100	91	98
ANEURIN BEVAN LHB	89	90	95	90	90
BETSI CADWALADR UNIVERSITY LHB	75	78	80	84	88
CARDIFF & VALE UNIVERSITY LHB	78	86	91	56	90
CWM TAF LHB	85	86	87	97	96
HYWEL DDA LHB	87	88	92	92	99
POWYS TEACHING LHB	62	77	70	71	95
VELINDRE NHS TRUST	89	92	91	87	99
WELSH AMBULANCE SERVICES NHS TRUST	35	90	90	36	99

Current Hospital Estates Position – Health Community Overview

The key drivers for changing the current pattern of estates and service provision are:

Workforce – ensuring that there is effective and efficient organisation of the workforce to comply with both employment legislation and also to make best use of the constantly developing skills of staff across health and University authority care organisations.

Clinical standards – ensuring that services are provided by appropriately skilled staff that have appropriate training and experience to deliver safe services.

Performance standards – ensuring that services are provided in line with national and University performance standards.

Estates – ensuring that the facilities are both conditionally and functionally suitable for the delivery of modern healthcare services.

The estates condition and functional suitability are a particular challenge in Cwm Taf University Health Boards major capital modernisation programme. The most recent major new facility to be completed comprises the Keir Hardie Health Park and Ysbyty Cwm Cynon, which were completed in March 2012 and October 2012 respectively. In addition to the above, a range of smaller externally funded capital schemes have been completed in the last 24-48 months as follows: the replacement of a CT scanner and installation of pharmacy robotics, the installation of an MRI scanner and the replacement of the existing lifts in the main ward block at PCH, which are all now complete.

Current Facilities

Hospital services are currently provided by Cwm Taf University Health Board, are located at:

• **Prince Charles Hospital, Merthyr Tydfil** – this acute hospital has 417 bed capacity. 12 wards of 24 beds are in the main ward block and the remaining wards are accommodated in the Rhymney and Cynon Block (where there is also a 4th mothballed decant ward) The hospital provides acute emergency and elective medical and surgical services, ITU and CCU, consultant-led obstetrics services with SCBU, inpatient consultant-led paediatric medicine and has a busy accident and emergency unit (over 60,000 attendances per annum). The hospital also provides sub-regional oral and maxillo facial services, a full range of University provided and visiting specialist outpatient services and has an extensive range of diagnostic services and facilities including 64 slice CT, and MRI.

• **St Tydfil's Hospital** – this community and mental health hospital which served the Merthyr Valley population has now been decommissioned and sold and the non-inpatient healthcare facilities have been transferred to the Kier Hardie Health Park.

• **Aberdare Hospital** – this community hospital which served the Cynon Valley population has also been sold. Its range of services transferred to the newly opened Ysbyty Cwm Cynon (YCC) in 2012.

• **Mountain Ash Hospital** – this community hospital also serviced the Cynon Valley population and has been sold. Again services transferred to YCC in 2012.

• **Kier Hardie Health Park** – this recently opened (Oct 2012) joint agency health and wellbeing facility replaced most of the non-inpatient healthcare facilities from St Tydfil's hospital and all of the services from the Hollies Health Centre and Seymour Berry Centre. The healthcare services include: Children's Services, GPs and Primary Care, Learning Disabilities, Mental Health Services, Adult Resource Centre, Community Dental Service and Community Team Administration suites.

• **The Royal Glamorgan Hospital,** near Llantrisant has around 570 beds and provides a comprehensive range of in-patient, day case and outpatient facilities with Accident and Emergency and Diagnostic facilities. The Acute Mental Health Unit is also based on the Royal Glamorgan site. There are also currently a range of Critical Care services including Intensive Care Unit, High Dependency Unit, Special Care Baby Unit and Neonatal Intensive Care Unit some of which are subject to change since the reporting of the South Wales Programme recommendations. There are also nine Operating Theatres and the hospital is film less with digital images and reports available to clinicians across the site. The Pathology service is also modern and well staffed using specialist equipment. Modern innovations have been introduced to enable authorised results to be viewed on computer screens in all wards and clinics.

• **Ysbyty Cwm Rhondda** – this is a four-year old 108-bed Community Hospital with an integrated Primary Care Centre. The building replaced a previous facility in the small Rhondda village of Llwynypia on the site of a former factory unit. It includes four 27-bed Rehabilitation Wards plus Minor Injuries, Radiology, Pharmacy, Therapies and Outpatient Departments and an integrated Primary Care Centre which provides facilities for general consulting and the Out of Hours Service.

• **Dewi Sant Hospital – The UHB** recently rationalised the remaining inpatient services from the site and has begun a programme of service remodelling across the site with a view to redeveloping it as a model akin to that seen in the new Keir Hardie Health Park. The hospital currently provides
Rheumatology Outpatient Services, plain film Radiology Services and outpatient accommodation for Therapy Services, Genito-Urinary Medicine and Specialist Day Hospital Rehabilitation.

• **Pontypridd Cottage Hospital** provides for Inpatient, Outpatient and Day Care for patients requiring Palliative Care, there are 6 in-patient beds. Y Bwthyn also provides a base for the Macmillan Nursing Service, Open Access Physiotherapy Services and Psychology Services. There is also an Elderly Mentally Ill (EMI) day unit on site.

3.7 Estate Performance Improvement

The Health Board's Estate covers a total land area of 76 Hectares with building having a total gross internal floor area of 193,000m2.

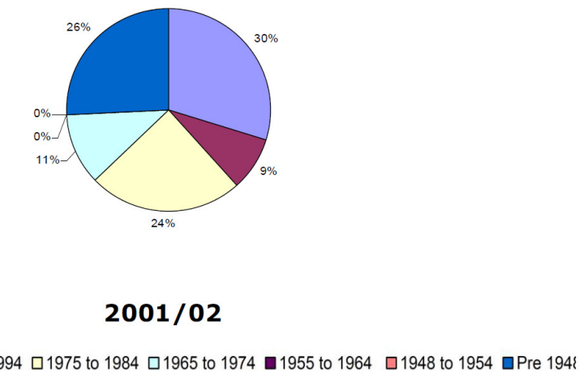
The profile of the Health Board's premises includes the following:

General Acute Hospitals	2
Multi-service Hospitals	0
Short term Non-acute Hospitals	0
Long stay Hospitals	2
Specialist Hospitals	3
Community Hospitals	2
Other Patient Facilities	20
Other Support Facilities	5

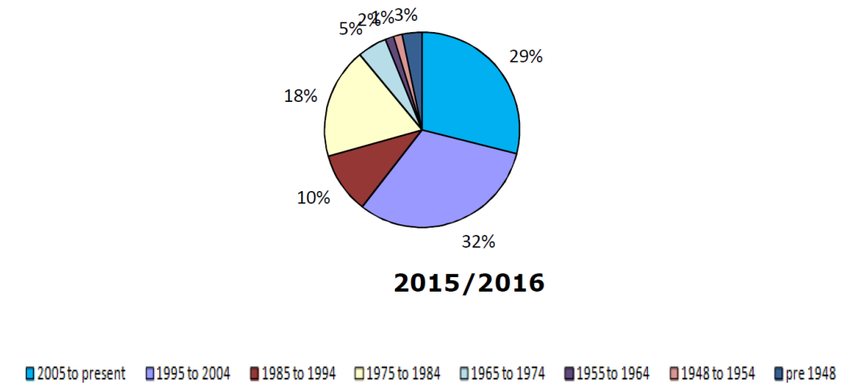
The percentage of building area and land area categorised as 'essential' is 93% and 97% respectively, compared with 84% and 67% in the previous period.

The following figure compares the age profile of the Health Board's estate in 2015/16 with 2001/02. This shows that the Health Board's modernisation programme over the last 15 years has resulted in a reduction in 'pre 1948' facilities from 26% to 3% and an increase in 'post 1995' facilities from 30% to 61%.

Age Profile 2001/02



Age Profile 2015 / 16



Risk Adjusted Backlog Maintenance

The Estates and Facilities Performance Management system (EFPMS) returns record the resources required to address the maintenance backlog required to bring the estate up to physical condition B and to statutory and fire safety compliance. The associated costs for Cwm Taf are shown in the table below.

	Cost to eradicate High Risk Backlog	Cost to eradicate Significant Risk Backlog	Cost to eradicate Moderate Risk Backlog	Cost to eradicate Low Risk Backlog	Risk Adjusted Backlog Cost
ROYAL GLAMORGAN HOSPITAL	0.0	4,367,411	2,989,764	468,045	4,848,697
PRINCE CHARLES HOSPITAL	0.0	18,211	2,561,197	5,725	197,294
PONTYPRIDD & DISTRICT HOSPITAL	50,648	252,101	11,527	0.0	274,698
YSBYTY CWM RHONDDA	0.0	1,093	961,772	279,738	30,652
DEWI SANT HOSPITAL	0.0	510,079	551,827	0.0	529,107
YSBYTY GEORGE THOMAS	0.0	179,367	552,580	11,255	301,526
PINEWOOD HOUSE	0.0	1,639	152,184	16,391	5,151
YSBYTY CWM CYNON	0.0	10,997	0.0	0.0	6,161
AGGREGATED SITES	5,518	275,712	622,887	220,027	619,446
Health Board Totals / Averages	**56,166**	**5,616,630**	**8,403,738**	**1,001,181**	**6,812,732**

The total risk adjusted backlog of £6,812m compares with a figure of £7,530m reported in 2014/15. **It should be noted that these figures exclude the costs associated with the ground and first floor scheme at PCH. If the scheme were not to be advanced for any reason, then the total backlog maintenance figure for Cwm Taf would increase by tens of millions.**

The Health Board's Estates Strategy sets itself a target of reducing backlog maintenance to minimal levels by 2018/19 and consideration is given to this when the discretionary capital programme is agreed each year. In addition, the disposal programme will help to reduce the backlog position when properties such as Tonteg and Pontypridd Cottage are sold as is the current plan.

In summary, the data on the condition of the estate highlights the following:

- Major improvements have been made in the condition of the estate over the last few years.
- Work is still required to ensure that PCH improves compliance against fire standards.
- The condition of the plant and estate is deteriorating at RGH, with the biggest backlog maintenance cost associated with this site, for which a major capital Strategic Outline Programme has been submitted to the Welsh Government in 2016/17.
- Dewi Sant Hospital requires work to bring this up to standard and deliver the desired Health Park remodelling.
- An increase in expenditure is required to reduce the overall backlog maintenance costs.
- There are a number of primary care practices in poor condition which will need to be addressed as part of the Primary Care Estates strategy

Performance based on the national performance indicators

The national and local data for 2015/16 was published in September 2016. The performance of Cwm Taf Health Board in 2015/16, compared with the two previous years is indicated in the table below.

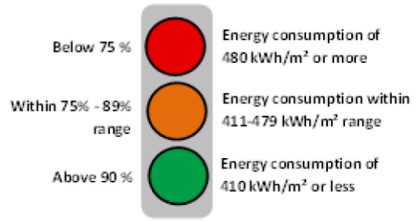
National Performance Indicators.	2015/16	2014/15	2013/14
Physical condition	85%	85%	85%
Statutory and safety compliance	86%	86%	82%
Fire safety*	87%	87%	88%
Functional suitability	97%	97%	97%
Space utilisation	96%	96%	97%

	90% (current target) or above
	75-89%
	74%

This demonstrates that Cwm Taf's performance has been sustained against these national indicators. Comparisons against other Health Boards and the All Wales average.

Energy Performance

The following is the energy performance compared with the other Health Board and Trusts.



Energy Performance and Carbon Dioxide (CO_2) Emissions

	Net Energy Consumption (kWh/m²)	CO_2 Emissions* (kg/m²)
ABERTAWE BRO MORGANNWG UNIVERSITY LHB	428	124
ANEURIN BEVAN LHB	363	99
BETSI CADWALADR UNIVERSITY LHB	398	108
CARDIFF & VALE UNIVERSITY LHB	346	84
CWM TAF LHB	400	106
HYWEL DDA LHB	470	118
POWYS TEACHING LHB	197	59
VELINDRE NHS TRUST	414	142
WELSH AMBULANCE SERVICES NHS TRUST	181	60

*Target to be agreed

The figure shows the overall 400 kWh/m2 has improved from the 2012 /13 consumption of 438 kWh/m2.

It should be noted that the Royal Glamorgan Hospital, the largest energy consumer in the Health Board, remains in the red zone while Prince Charles Hospital is just managing to remain in the amber zone.

Summary

The performance of Cwm Taf University Health Board against the six Welsh Government national estate performance targets shows some improvement with the exception of *Statutory and safety compliance* and *Energy performance*. There has been a significant improvement in *Functional suitability* to take it to the green zone and *Fire safety* performance which has moved from the red zone to the amber zone. Overall, there is plenty of scope for improvement.

The Health Board's significant reduction in RAB costs is due mainly to the disposal of both Mountain Ash and Aberdare Hospitals. It should be noted that, in line with EFPMS data definitions, the reported backlog maintenance costs do not include significant sums associated with Prince Charles Hospital as these are included in a business case awaiting final approval.

Energy consumption has increased overall, pointing to the fact that the Health Board needs to concentrate its efforts on improving efficiency at both the Royal Glamorgan and Prince Charles Hospitals. These are the Heath Board's major energy consuming sites and their energy efficiency performance indicators show that efforts to improve performance need to be concentrated at these locations, for maximum impact.

3.8 Proposed Changes to the Estate

As part of an ongoing major capital development programme, Cwm Taf University Health Board is committed to modernising and enhancing clinical services at Prince Charles Hospital, Merthyr Tydfil.

	Proposed Major Capital Schemes	PCH Ward Refurb	Emergency Care Dept PCH	Cynon Valley Community Hospital	Merthyr Healthe Park (Kier Hardie)	PCH Phase 3 GF & 1st floor Refurb
Estates Priorities	**1. PCH Main Wards**	√	√			
	2. Mtn Ash , Aberdare			√		
	3 St Tydfil's	√	√		√	
	4. PCH G&FF					√
	5. Hollies, SBC				√	

The purpose of the whole scheme is to address the risks relating to Fire Code compliance, and removal of widespread contamination from asbestos containing materials. The project will also improve the efficiency, quality and effectiveness of clinical care provision as set out in the main body of the OBC

The previous North Glamorgan NHS Trust was instructed to address these risks by Welsh Health Estates (Now NWSSP) as a matter of urgency following an extremely critical Fire Officers report in 1997. The needs for capital investment to improve basic infrastructure deficiencies in order to improve compliance with statutory and safety requirements at Prince Charles hospital, specifically in relation to asbestos and fire safety problems, has been well documented.

The Health Boards current level of statutory safety and fire compliance is deteriorating against an improving position for the rest of Wales. The most critical of the remaining essential, safety-improvement schemes (detailed in all previous business cases outlined above) after completion of the ward refurbishment scheme (which was completed in Jan-13), is the residual health and safety improvement (Fire and Asbestos) works to the ground and first floor.

3.9 Major Capital Programme

The proposed outline programme for the Phase 2 works to the ground and first floor is summarised in the following table of key dates:

Submit FBC to Welsh Government – March 2019

Approval of FBC – May 2019

Start on site – June 2019

Project Completion – April 2026

It should be noted that the timing of this project and the start dates associated with it are determined by the need to maintain service continuity and to avoid over-saturation of capital works on the Prince Charles Hospital site.

Overview of Recently completed Major Capital Programme Schemes

Prince Charles Hospital Ward Refurbishment

• **Purpose:** The main purpose of this scheme was to remove the asbestos from the wall and ceiling cavities on the wards in the main ward block and to install compartmentation into the ceiling cavities and undertake all necessary remedial work to comply with fire safely regulations. As part of the scheme, further environmental improvements were made on the wards to improve compliance with current inpatient accommodation standards to improve access to sanitary facilities, improve infection control standards and better protect patient's privacy and dignity. This has been achieved by reducing the total number of beds on each ward from 30 to 24, by increasing the number of single rooms on each ward, by increasing the number of bathrooms on each ward and by having a maximum of 4 (rather than 6) beds on each bay. The scheme also enabled the centralisation of all of acute beds in the main ward block and free up capacity in Rhymney block to accommodate mental health beds that transferred on the closure of St Tydfil's hospital site.

• **Current Status and Timescales:** Works commenced on site in the summer of 2008 and the project was completed in February 2013.

• **Approved Capital Cost:** £53.2m

Emergency Care Centre

• **Purpose:** The main purpose of this scheme was to support a fundamental redesign of 'front of house' emergency services by integrating the Accident & Emergency, out of hours and Medical Assessment Unit (MAU) services into a modern, fit for purpose, Emergency Care department. The front entrance to the main hospital has been re-engineered and refurbished as part of this scheme. The former A&E was functionally inadequate, in a poor physical state and was substantially too small to meet current and future service needs. The former out of hour's dept. was based in a room in the physiotherapy outpatient dept. and was not able to share appropriate diagnostic and support services and facilities with the hospital emergency departments. MAU was currently located on the ground floor of Rhymney block which is the other side of the hospital to A&E – the access route between A&E and MAU is a long corridor along the main thoroughfare of PCH and then down a link corridor to Rhymney block past the entrance to the main hospital restaurant and other outpatient departments. A two theatre Day Surgery Unit (DSU) was also integrated into the first floor.

• **Current Status and Timescales:** Construction commenced in April 2009. The whole project was completed in June 2012

• **Approved Capital Cost:** £27m

Cynon Valley Hospital

• **Purpose:** The purpose of this scheme was to replace the existing community hospitals in Aberdare and Mountain Ash with a new purpose built facility. The limitations imposed by the existing facilities in terms of physical condition, functional flexibility and space, reduce the potential for effective service development and delivery of a better quality of service. The existing location and configuration of services did not support integrated care models that are accessible to the University catchment population. Facilities improvement and redesign were essential. The business case demonstrated the need both to re-provide modern and functionally suitable community hospital facility for the residents of the Cynon Valley and to enable the Health Board to further develop its community healthcare services with other service partners consistent with strategic direction, University needs and future demand. The business case identified a preferred option to close the current community hospital facilities in the Cynon Valley and to provide a new build hospital in Mountain Ash which will provide integrated intermediate care bed, palliative care unit, community mental health services base (including Psychiatry of Old Age beds), a birthing unit, children's centre and a minor injuries unit. The business case also includes provision of the development of Primary Care Dental Unit which will provide a facility to deliver the required capacity for the University Dental Hospital of Wales/School of Dentistry's primary care training requirements and also provide extended University access to primary care dental services.

• **Current Status and Timescales:** Construction commenced in November 2008 and the project was completed early 2012.

• **Approved Capital Cost:** £79m

Kier Hardie Health Park

• **Purpose:** The purpose of this scheme is to replace the previous, publicly-consulted and approved OBC for a community hospital for Merthyr Tydfil in 2002. The revised proposal presents a unique opportunity to co-locate and redesign services across health and social care to optimise the performance of community based services and to provide a flagship service and facility for one of the most deprived populations in Wales. The proposal aims to pull together the development and cross-agency delivery of a raft of services for primary, community and University authority health and social care. The intention is to proactively maintain and support people in the community to improve their health and wellbeing and in doing so to reduce the incidence of hospital admissions and reliance on statutory support services. It will remove previous service boundaries to facilitate fast and efficient access to service in order to maintain and promote the health and wellbeing of the University population. It will provide a purpose built, modern facility which will accommodate all non-inpatient based services from St Tydfil's hospital, all services from the Hollies Health Centre which is an old, very large and functionally inadequate health centre and also the community mental health services from Seymour Berry (another old health centre in Dowlais).

• **Current Status and Timescales:** Construction commenced June 2010 and the project was completed in June 2012.

• **Approved Capital Cost:** £33.4m

Section 4 – Project Design Principles

4.1 Option Definitions
4.2 Preferred Option Architectural Design Principles
4.3 Preferred Option Civil & Structural Engineering Design Principles
4.4 Preferred Option Mechanical & Electrical Engineering Design Principles
4.5 Preferred Option Fire Engineering Design Principles
4.6 Preferred Option - Acoustics
4.7 Preferred Option Energy and Sustainability
4.8 CDM Statement
4.9 Preferred Option Phasing strategy
4.10 Phase 2 Sectional Completion
4.11 Preferred Option Provision of Supplementary Decant Accommodation
4.12 Preferred Option Construction Programme & Sequence

4.1 Option Definitions at OBC

Introduction

During the preparation of the Strategic Outline Case and Outline Business Case a number of constraints and assumptions were determined and these were considered to be applicable across all the design options. These have continued to evolve and now form the basis of the OBC Addendum design development and have informed the scope of the shortlisted OBC Addendum options:

Key Constraints

• The finer details of the Service Model are likely to change throughout the lifetime of the project and therefore a generic and flexible approach to service design and building will be important.

• There is a limit to the extent to which the building can flex to accommodate changes in department locations.
Some compromises will be necessary.

• Physical works will need to be phased in order to have the least possible Clinical Service impact.

• The project will concentrate on the phased compliance with fire regulations, removal of asbestos and the opportunities that it provides for service and departmental modernisation within the footprint of the building.

• It is possible that some current departments may have to expand to meet current activity and space standards to comply with current practice and guidance. Other areas or accommodation will have to become leaner to accommodate this.

• The project funding is to comply with Fire Regulations, remove the asbestos, and refurbish the building. The project will not address perceived or actual service or staffing deficiencies.

• Any service expansion would be subject to review and be subject of a separate business case. The actual site has limits to expansion.

There are also key estates constraints, in that the locations of the following are fixed:

• Lifts & stair core locations

• Main corridor communication routes.

• Radiology & Imaging has to remain with direct horizontal links to Emergency Care, Fracture Clinic and the Inpatient Bed lift core – and its location is therefore fixed.

In summary, the definition of the original 4 shortlisted OBC options is:

'Do Nothing'	The CTUHB is addressing the implications of this option and has not asked the SCP to address this.
'Do Minimum'	Ground, First floors and Basement distribution corridor to be made fire compliant throughout the total GIFA of the Merthyr Block (Excluding recent buildings and LOR Works). Work only required to reinstate existing layout, i.e. no remodelling or departmental changes. Work includes removing all partitions, ceilings and replacing; asbestos strip of beams in ceiling void; fire protection to underside of slab and beams; fire compartmentation in ceilings – bulkheads and cavity barriers; installing all new services in ceilings; redecorating new partition walls. Remove remaining asbestos i.e. around windows and within external walls (Remove wall lining to external walls, clean, replace following installation of new thermal insulation); new flooring ,new underlayment, following additional screed works on the ground floor; new internal doors and ironmongery; new sanitaryware; new FF+E (Excluding Group 3); primary engineering plant replaced with new. All existing windows and external doors replaced. Includes works to accommodate temporary decant within Cynon and Rhymney.
'Preferred'	Specification of work follows the description of Do- Minimum above with additional remodelling including all new M+E installations and adopts the Preferred option SOA to reconfigure departments as they are reinstated. The work is primarily within the Merthyr Block footprint with additional minor new build floor space and works to accommodate temporary decant within Cynon and Rhymney.
Preferred Option: Alternative	This Option is for the full scope works as included in the preferred option with a variation on the MDTU Building; taking forward a temporary modular option for seven year duration and then decommissioning the unit and civilising the external works and parking back to its present arrangements.

Consideration has been given to consequential improvements as defined under Building Regulations in relation to all Options and the detailed assumptions and cost allowance commentary provides further information on the extent of this work.

In all options the extent of external works and landscaping to be included is consistent – I.E. in all options the provision of an increased number of car parking spaces, rationalisation of the parking layout and access roads and resurfacing, bay marking, lighting, and CCTV coverage, is the same.

4.2 Preferred Option Architectural Design Principles

Client Brief

The principal investment objectives for the proposals are:

• Statutory fire compliance to satisfy current fire enforcement notice served on the Health Board.
• Asbestos removal
• Improved service efficiency
• Future proofing of clinical areas - re-designing to meet HTM & HBN requirements; and to provide a new model of care.

Key project objectives are:
• Flexible, safe & welcoming accommodation
• Fit for purpose
• More energy efficient
• Better coordinated services

The fundamental driver for the proposed development is the urgent need to resolve fire safety and asbestos issues at the hospital site. Essential upgrade works are vital to addressing these issues and ensuring a safe and secure environment for the provision of local health care services at PCH.

Alongside these most urgent issues, it is recognized that there is an opportunity to improve the hospital efficiency and patient experience, addressing issues with the size, layout and adjacencies within the existing hospital accommodation. Most of this will be addressed within the existing fabric of the hospital which will be refurbished, together with the removal of temporary buildings, infilling and extensions where necessary to provide efficient and quality modern hospital accommodation with requisite clinical adjacencies. There is a need to ensure the continuity of operation whilst works are taking place to minimize disruption through the phasing of works.

A series of options have been considered through the OBC process for differing degrees of intervention at the PCH site, each of which addresses the core fire safety and asbestos issues in the Martyr Block but provide varying degrees of additional improvements to the existing healthcare facilities.

This FBC addresses several extensions to create the space required to provide an efficient service along with plantrooms and the remodeling of the ground and first floor.

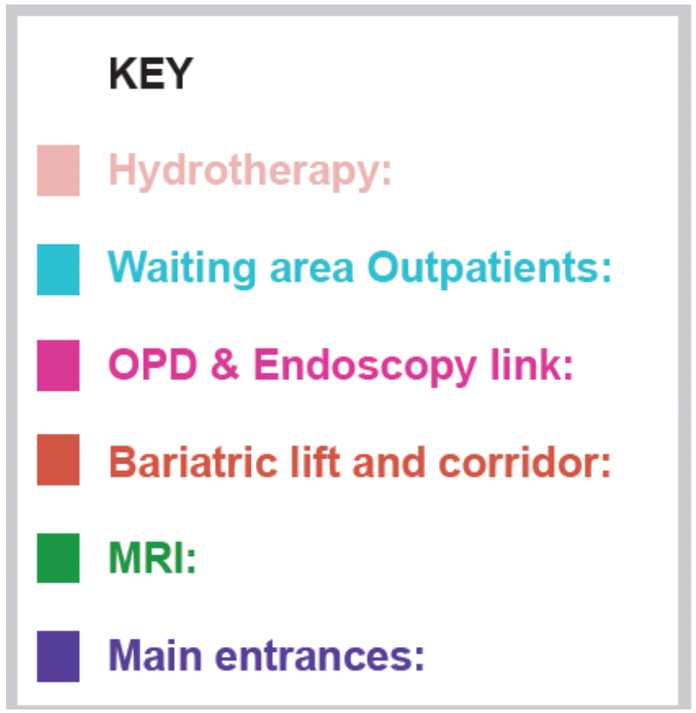
Remodeling works:

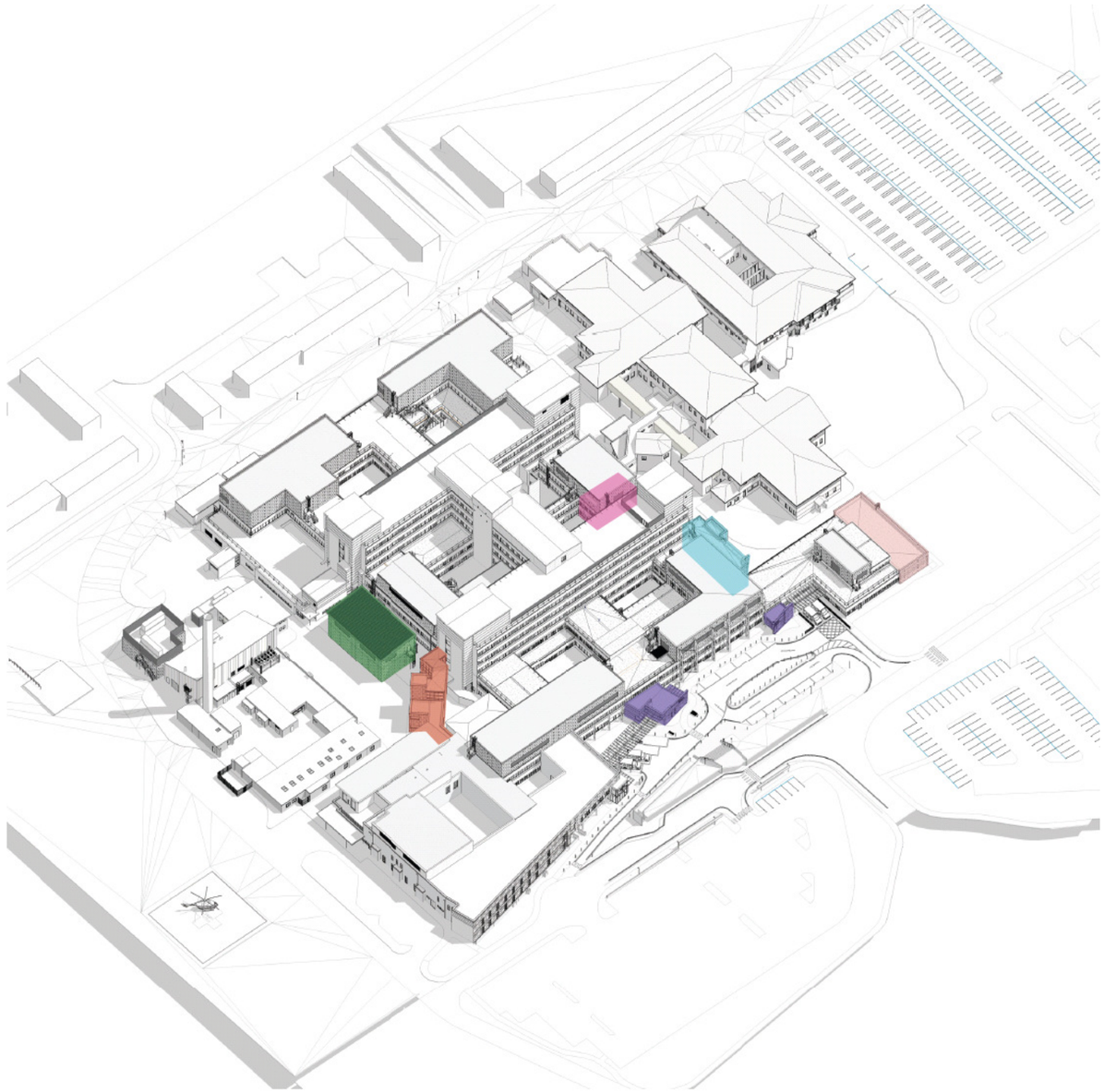
Much of the ground and first floor will be remodeled to create an efficient layout, providing a modern healthcare service. The departments being provided are Outpatients, Physiotherapy, Maxillofacial, Endoscopy, , Radiology, Critical Care, Theatres, 23.59, Bulk stores along with the support services for each area. During the works asbestos and fire issues will be resolved. To gain the U-value required to comply with modern building regulations and to achieve a BREEAM rating of " Good+", the external walls will be insulated internally and the roofs will be replaced with new insulation being introduced.

Extensions:

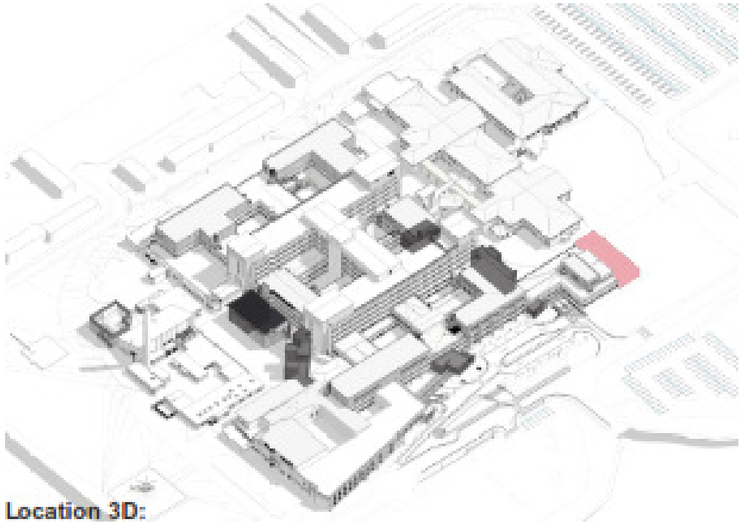
Over the following pages the extensions have been described using elevations and 3D images .

The Architects Document register is included in Appendix A.9. A complete set of drawings detailing the plans, sections and elevations showing the existing hospital and the proposed scheme are Included on the disc.





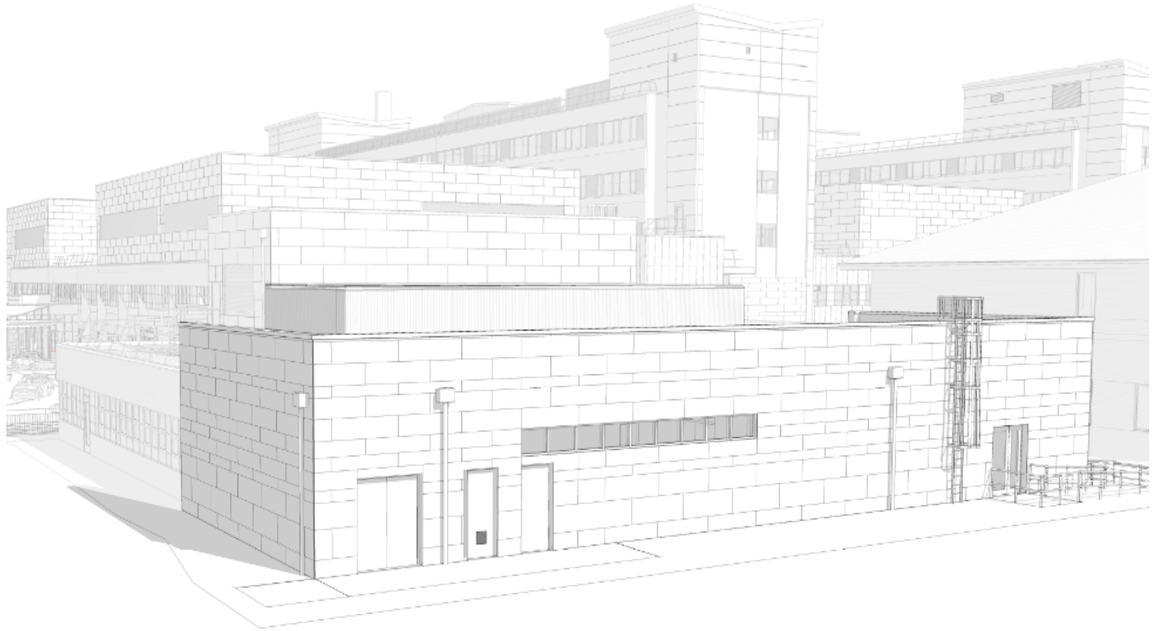
Hydrotherapy: Hydrotherapy pools are a key tool in the rehabilitation process, so it was important to incorporate one into the design. To create the space required and to give the opportunity to excavate for the pool the extension was introduced

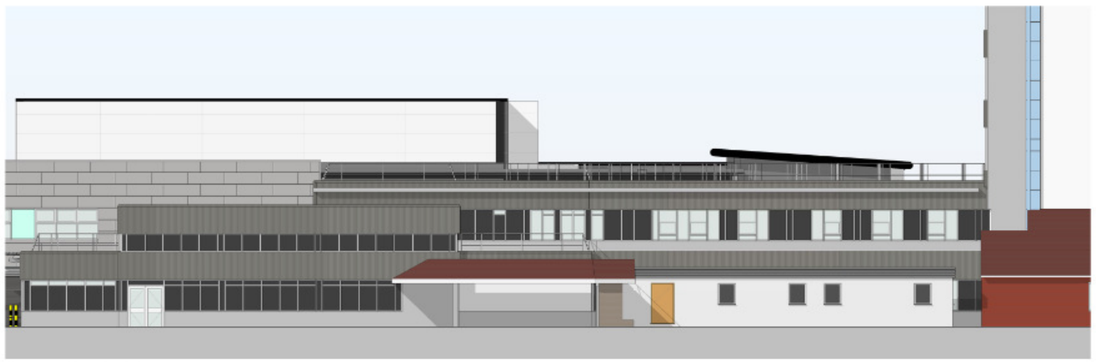


Location 3D:

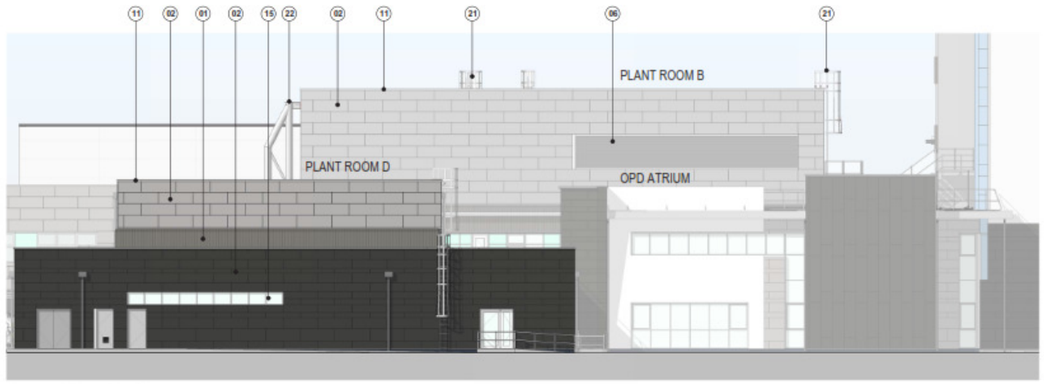
Elevation Key

01 Existing Concrete cladding to be retained
02 Trespa Meton rainscreen panel system (or similar). Light silver finish
04 PPC Aluminium framed curtain wall system
05 Facing brickwork
06 Weather proof louvres
07 Existing window system to remain
08 New PPC Aluminium framed window system to replace existing
09 Composite cladding panel
10 External Steel frame to support plant room
11 PPC Pressed metal parapet capping
13 New galvanised steel fall protection barrier
14 Existing Building to be demolished
15 New PPC Aluminium framed window system
16 New Concrete cladding to match existing
17 Existing Steel framed canopy
18 Existing concrete panels to be retained
19 Existing facing brickwork to be retained
20 Painted Steel Doorset
21 Galvanised mild steel access ladder to new plant rooms
22 Steelwork support structure
23 Powder coated aluminium bull nose eave profile
24 Galvanised mild steel access stair
25 Aluminium rainscreen system - Charcole colour or similar finish
26 Insulated composite panel roof to falls



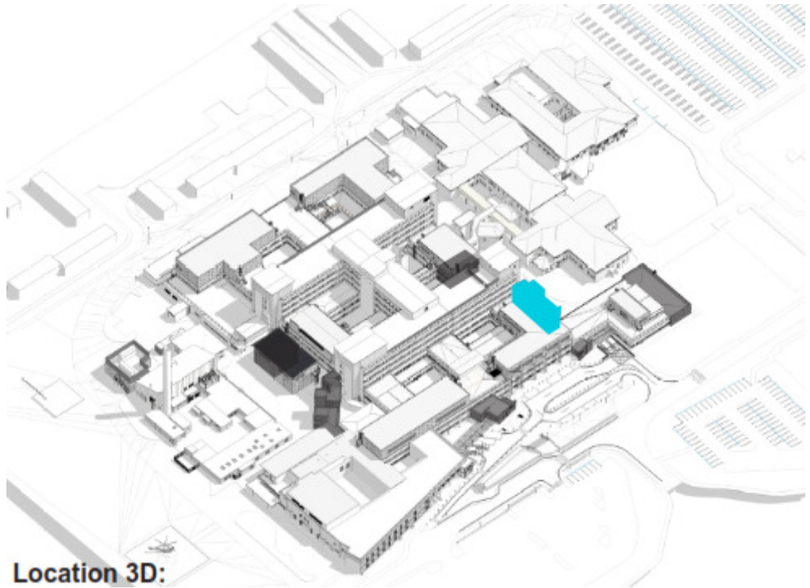


Existing Elevation 04



Proposed Elevation 04

Waiting area Outpatients: This extension was introduced to create space for the waiting area and the circulation needed to make outpatients run in a more efficient manner..



Location 3D:

Elevation Key

01 Existing Concrete cladding to be retained
02 Trespa Meton rainscreen panel system (or similar). Light silver finish
04 PPC Aluminium framed curtain wall system
05 Facing brickwork
06 Weather proof louvres
07 Existing window system to remain
08 New PPC Aluminium framed window system to replace existing
09 Composite cladding panel
10 External Steel frame to support plant room
11 PPC Pressed metal parapet capping
13 New galvanised steel fall protection barrier
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24 Galvanised mild steel access stair
25 Aluminium rainscreen system - Charcole colour or similar finish
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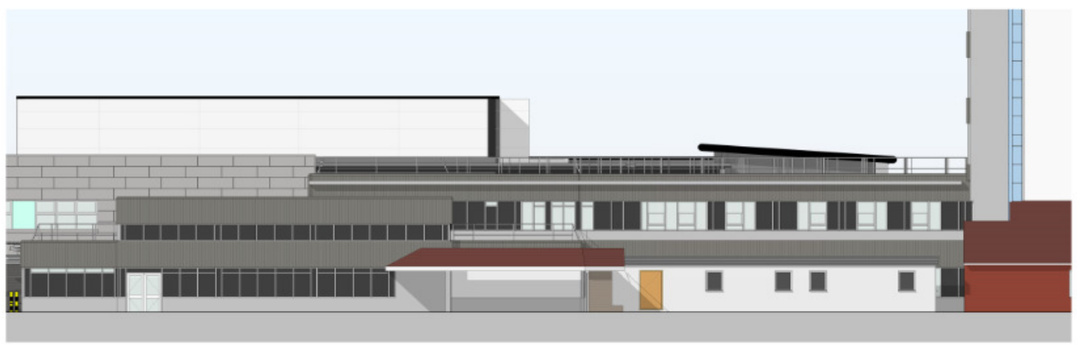
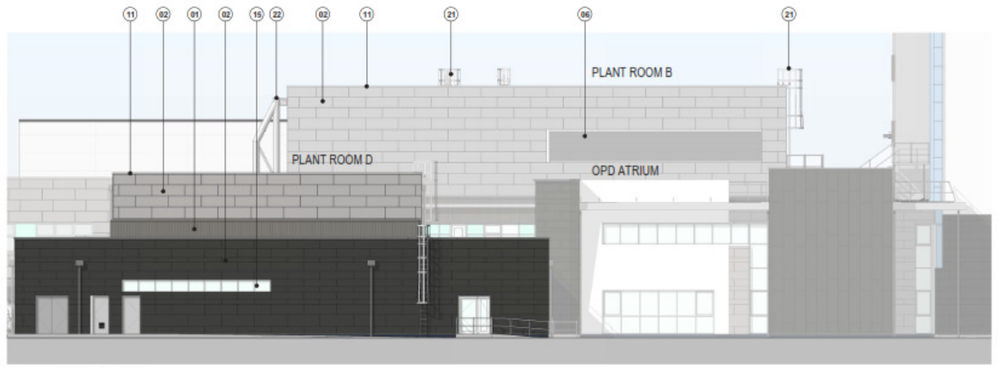
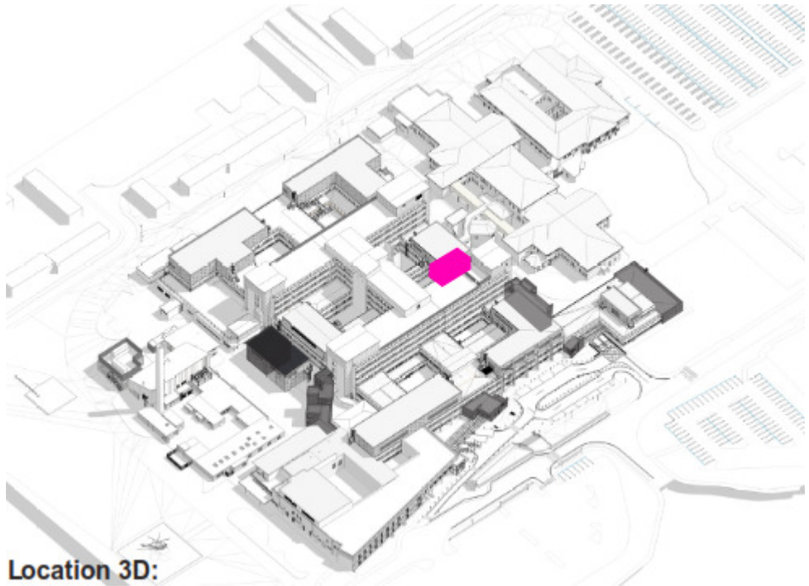


Existing Elevation 04



Proposed Elevation 04

OPD & Endoscopy link: The demolition of existing prefabricated buildings will create space for the new extension. It is required to connect the Endoscopy and Outpatients to the Pharmacy and Pathology so medicine and samples can be transported efficiently throughout the building. It also recreates the space lost from demolishing the prefabricated building in a more efficient layout



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25 Aluminium rainscreen system - Charcole colour or similar finish
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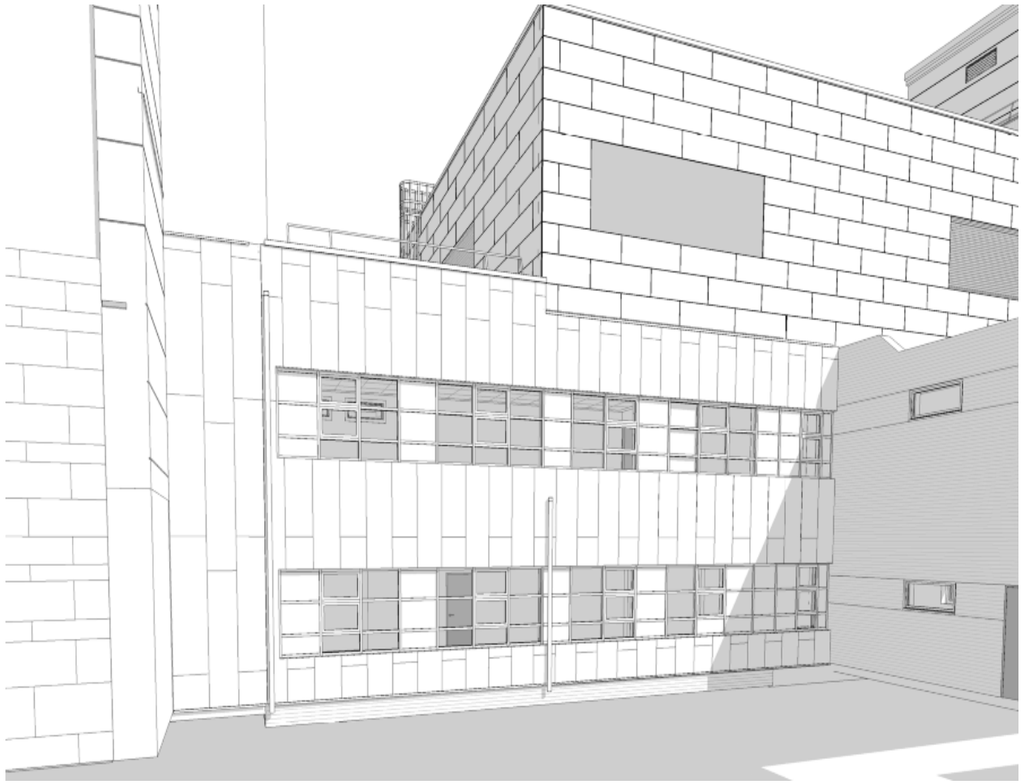
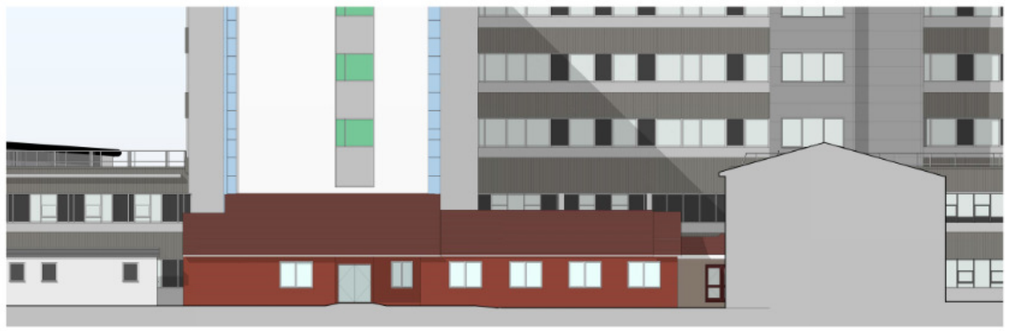
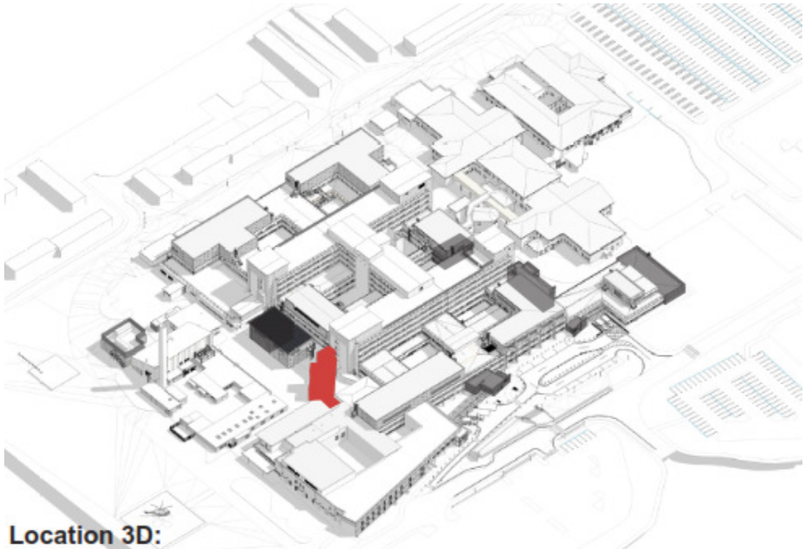




Existing Elevation 05

Proposed Elevation 05

Bariatric lift and corridor: To provide a service to bariatric patients in the vicinity, a suitable lift and corridor, capable of taking the weight and manoeuvrability of the wheelchairs/beds, will be introduced.



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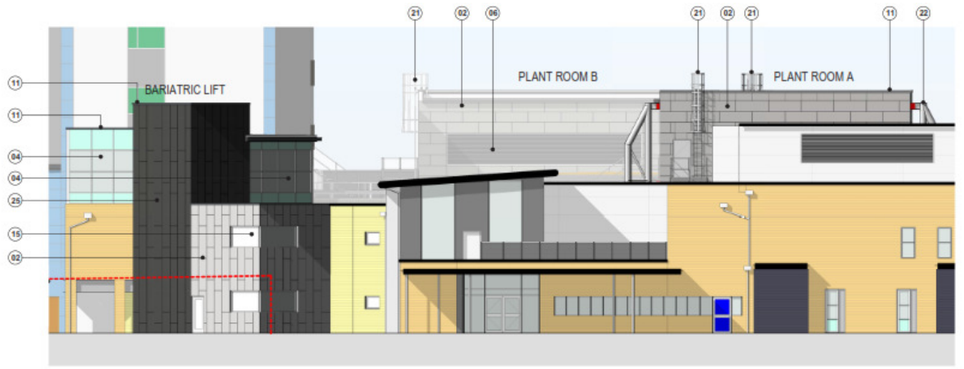
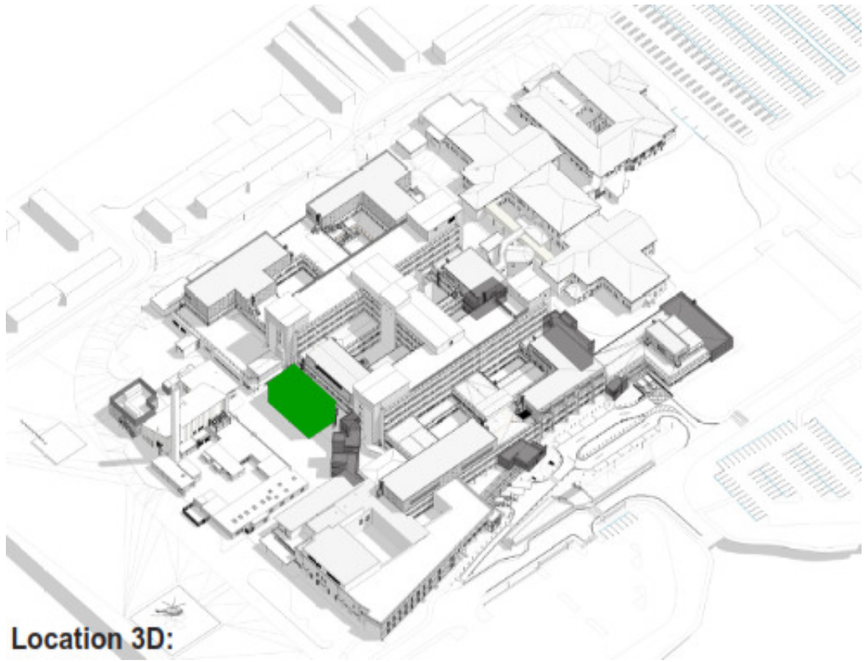
24 Galvanised mild steel access stair
25 Aluminium rainscreen system - Charcoal colour or similar finish
26 Insulated composite panel roof to falls

Existing Elevation 09
Scale: 1 : 100



Proposed Elevation 09
Scale: 1 : 100

MRI: The nature of the electromagnetic field generated from the MRI machine made it very difficult to fit into the existing fabric, as did the existing physical space combined with the need for regular maintenance creating an extension was an obvious choice. The extension will be constructed in two phases to allow for the relevant funding and operational procedures to be put into place



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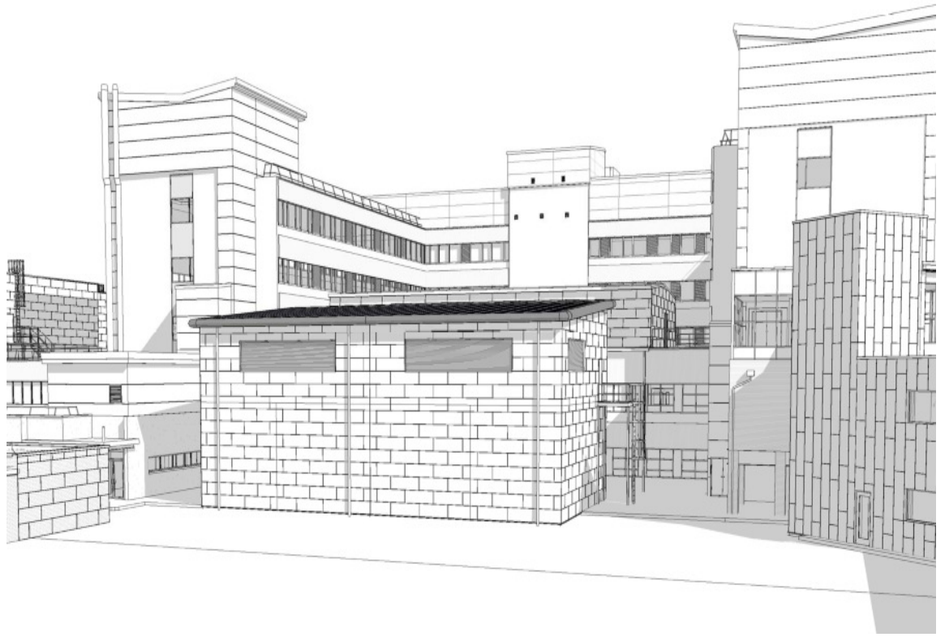
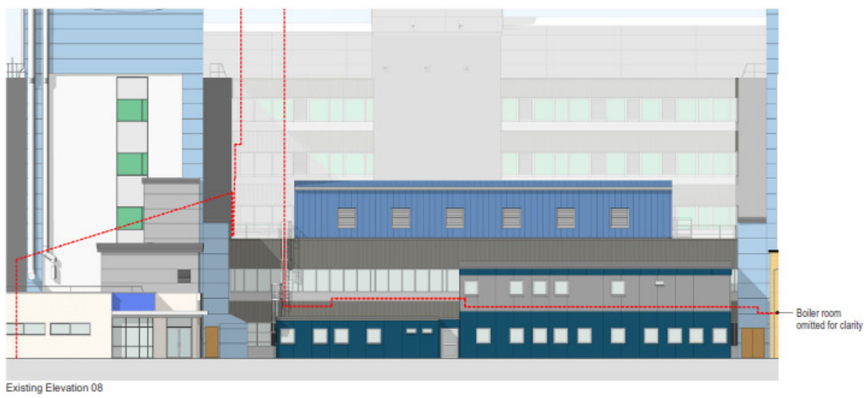
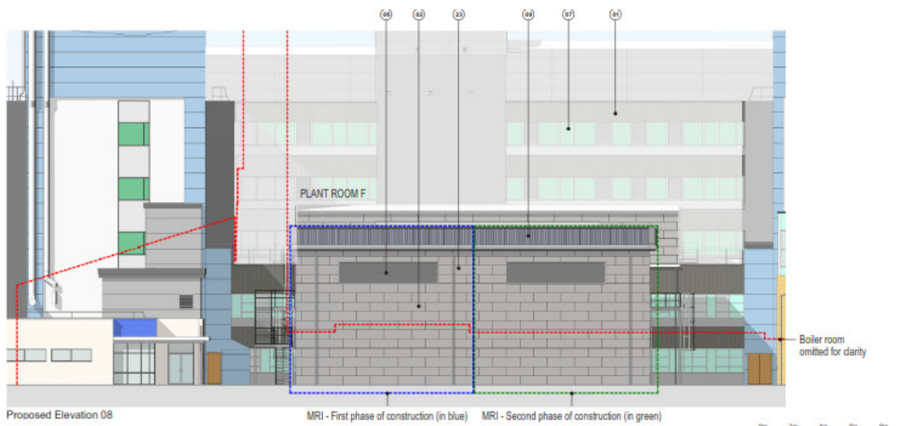




Existing Elevation 08

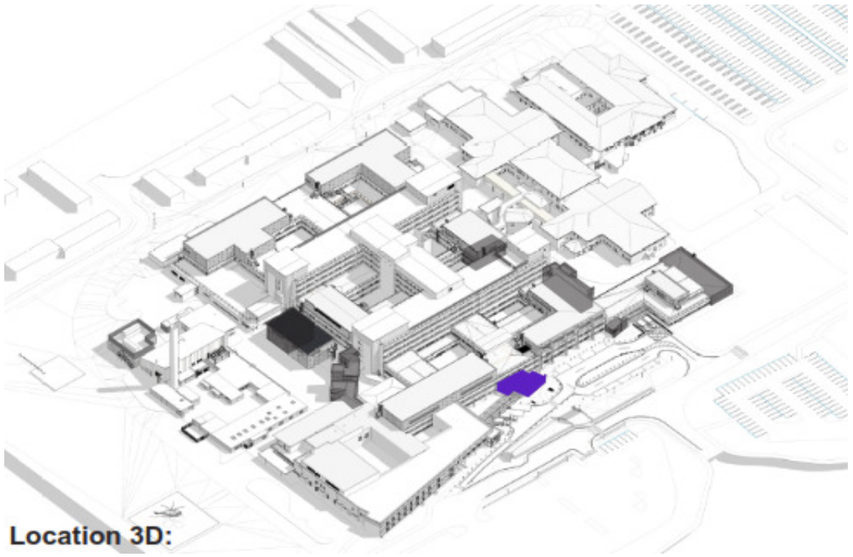


Proposed Elevation 08

MRI - First phase of construction (in blue) MRI - Second phase of construction (in green)

Entrance A

Main entrances: Upon first arrival at the existing site, it is unclear which entrance is to be used for which department with several signage strategies having been introduced though the site's piecemeal development. As part of our overall strategy, we are proposing two lobbied entrances with clear simplified signage highlighting the routes required to the desired departments. The existing entrances cause drafts through the scheme so the entrances will be lobbied to negate this,



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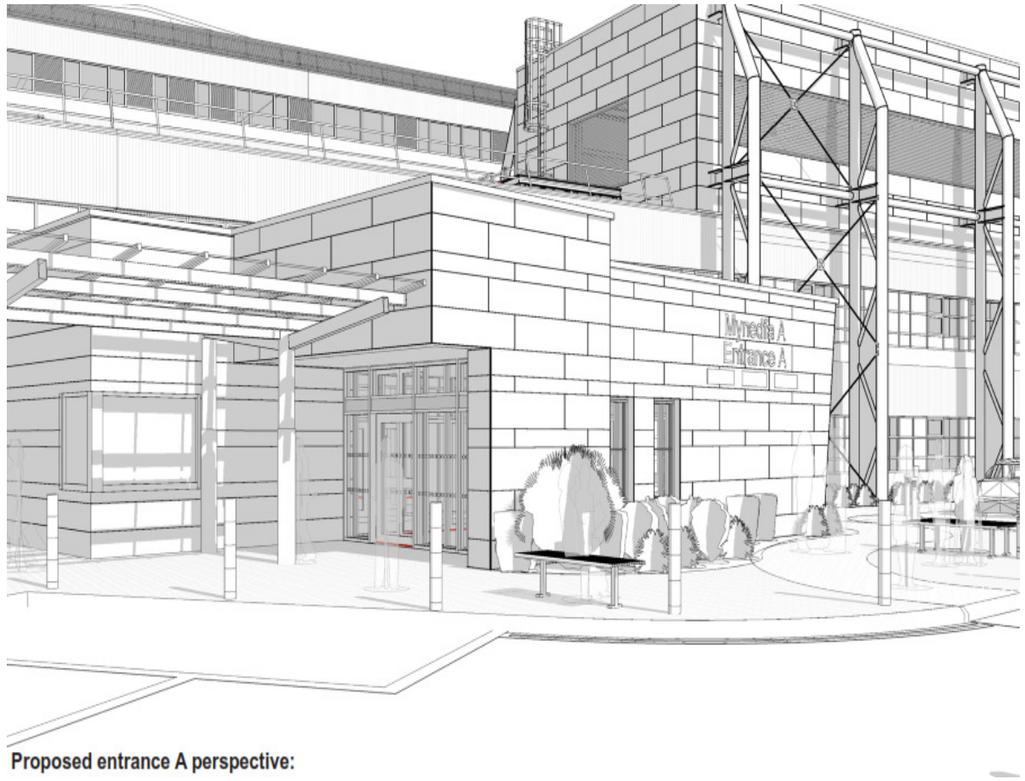
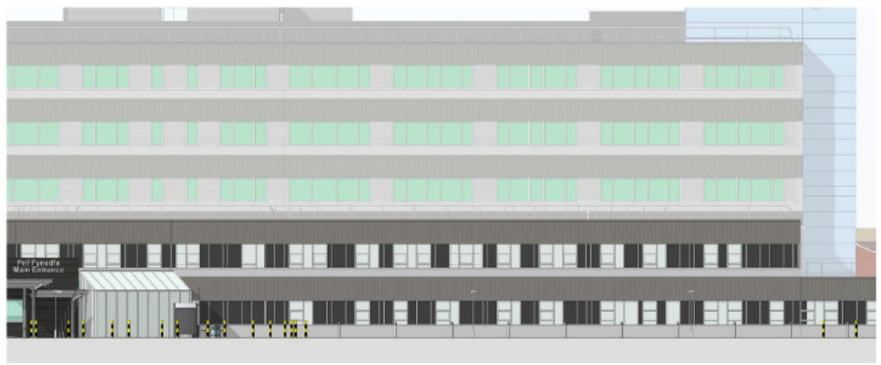
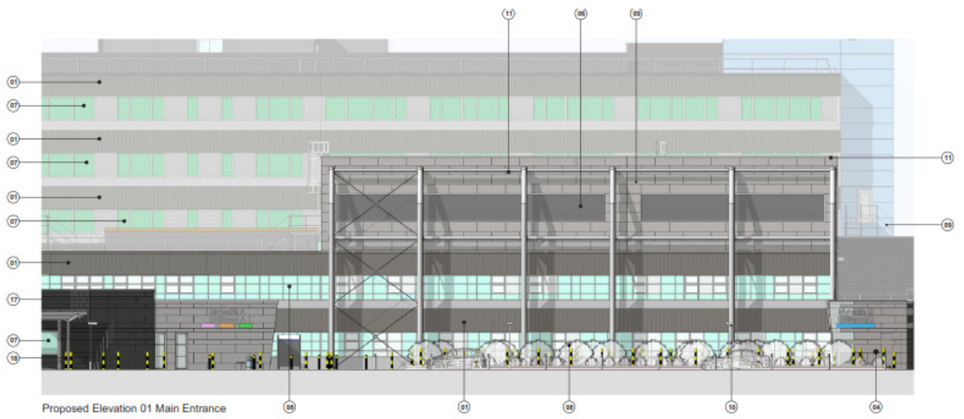


Proposed entrance A perspective:

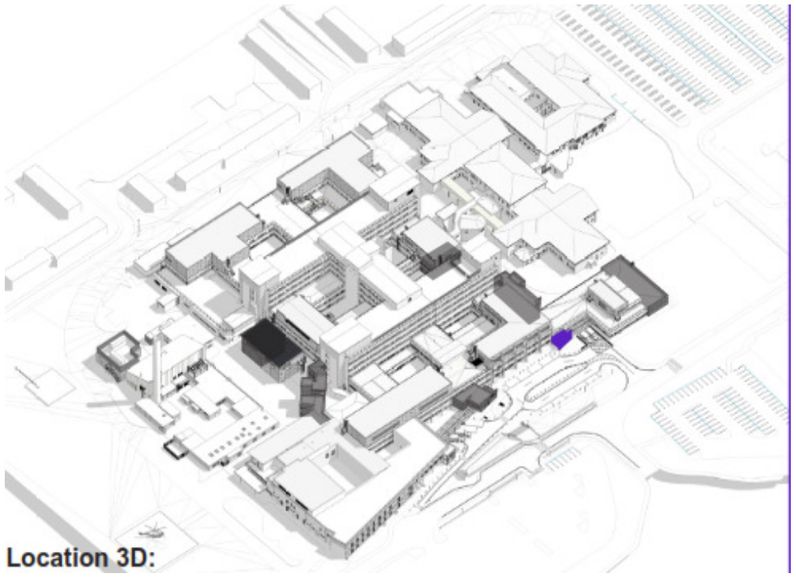


Existing Elevation 01 Main Entrance



Proposed Elevation 01 Main Entrance

Entrance B



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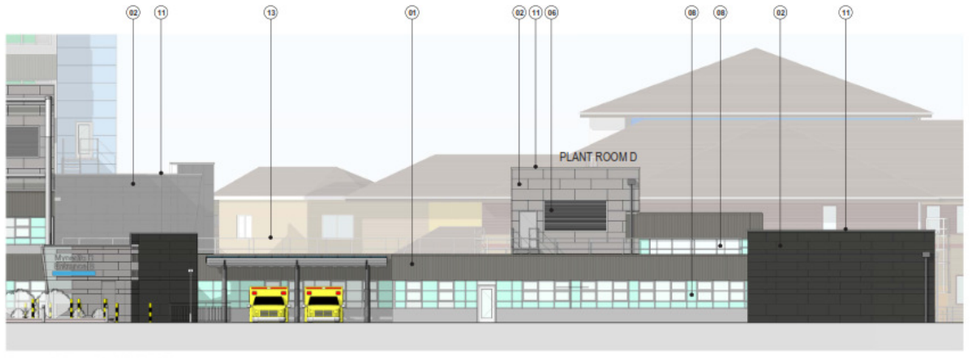
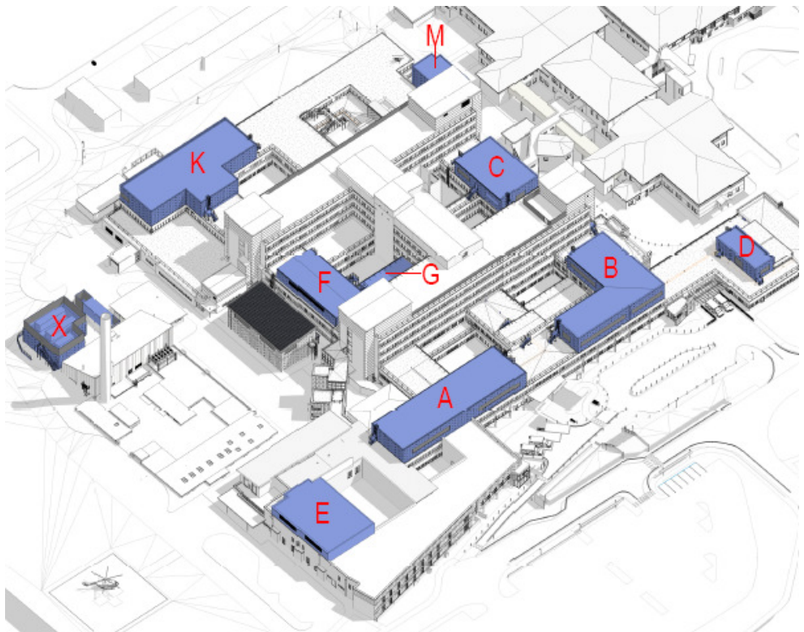
Proposed entrance B perspective:

Existing Elevation 02 Main Entrance



Proposed Elevation 02 Main Entrance



Proposed Plant rooms

Plant room A - Theatres - Plantroom A is required to enable the new theatre department to be operated and serviced in an energy efficient manner, in accordance with HBN 26, HTM 03-01 and HTM 06-01.

The Plantroom will contain air handling units serving each theatre, secondary heating and cooling pumps, medical gas plant, IPS/UPS plant and electrical switchgear.

Plant room B - Above Maxillofacial Endoscopy and OPD - Plantroom B is required to enable the new Maxillofacial and Outpatients department to be operated and serviced in an energy efficient manner, in accordance with HBN 12, HTM 03-01 and HTM 06-01.
The Plantroom will contain air handling units serving each department, secondary heating and cooling pumps, medical gas plant, IPS/UPS plant and electrical switchgear.

Plant room C – Pathology - Plantroom C is required to enable the new Endoscopy department to be operated and serviced in an energy efficient manner, in accordance with HBN 52, HTM 03-01 and HTM 06-01.
The Plantroom will contain air handling units serving each department, secondary heating and cooling pumps, medical gas plant, IPS/UPS plant and electrical switchgear and Pneumatic Tube central plant.

Plant room D – Hydrotherapy pool - Plantroom D is required to enable the new Therapies department to be operated and serviced in an energy efficient manner, in accordance with HBN 08, HTM 03-01 and HTM 06-01.
The Plantroom will contain air handling units serving the Therapies department, secondary heating and cooling pumps, medical gas plant, IPS/UPS plant and electrical switchgear.

Plant room E (Existing) – Above A&E Plantroom E is an existing plantroom that primarily contains mechanical plant that serves the existing Day Surgery Unit. The mechanical services within this plantroom will be re-configured to suit the new department layout on the first floor.
To improve maintenance within this plantroom a new lifting beam is to be provided to assist with the removal of large plant items.

Plant room F (Existing) – Above ICU & RAD Plantroom F is an existing plantroom currently serving the Theatres department. The mechanical and electrical services will be fully removed from this plantroom.
New mechanical ventilation plant will be provided along with secondary heating and cooling pumps, medical gas plant, IPS/UPS plant and electrical switchgear to serve the Intensive Care department.
This is required to enable the new Intensive Care department to be operated and serviced in an energy efficient manner, in accordance with WHBN 04-02, HTM 03-01 and HTM 06-01.

Plant room G – Radiology - Plantroom G is required to enable the new Radiology department to be operated and serviced in an energy efficient manner, in accordance with HBN 06, HTM 03-01 and HTM 06-01.
The Plantroom will contain air handling units serving this department.

Plant room K – Plantroom K is required to enable the new Medical Records, Facilities Management and CSSD department to be operated and serviced in an energy efficient manner, in accordance with HBN 13, HTM 03-01 and HTM 06-01.
The Plantroom will contain air handling units serving each department, secondary heating and cooling pumps, medical gas plant, IPS/UPS plant and electrical switchgear and Pneumatic Tube central plant.

Plant room M - Plantroom M is required to enable the new Pathology, Pharmacy and Catering department to be operated and serviced in an energy efficient manner, in accordance with HBN 15, WHBN 14-01, HTM 03-01 and HTM 06-01.
The Plantroom will contain air handling units serving each department, secondary heating and cooling pumps, medical gas plant, IPS/UPS plant and electrical switchgear and Pneumatic Tube central plant.

Plant room X – Plantroom X is required to primarily facilitate the site electrical infrastructure to be upgraded to comply with HTM 06-01.
The plantroom will contain transformers, Low Voltage switchgear and Emergency Generator switchgear.
The roof of the plantroom will be utilised to house new energy efficient chillers to enable the site chilled water system to be upgraded.