

North Wales Best Practice Club

Ysbyty Glan Clwyd, Bodelwyddan

20th February

ADEILADU
ARBENIGRWYDD
YNG NGHYMRU



CONSTRUCTING
EXCELLENCE
IN WALES

Ysbyty Glan Clwyd Redevelopment (YGC)

Introductions & Housekeeping

- Visitors Instructions
- Fire Alarm
- Toilets
- Mobile Telephones
- PPE



Agenda

- Project Overview
- Project Scope of Works
- Client Objectives
- Key Project Issues
- Stakeholder Engagement
- Masterplanning
- Programme
- Project Initiatives
- DfMA
- How was Building Information Modelling used effectively?
- Implementing Digital Design through BIM
- Project outcomes and achievements
 - What are the lessons learned?
 - The Laing O'Rourke Legacy
 - Site Tour
- Buffet Lunch & Closing Remarks



Project Overview

LOR appointed on the 1st Feb 2011 through The Design For Life Framework as preferred PSCP. The appointment was made by the newly formed **BCUHB, Betsi Cadwaladr University Health Board**, formed by the amalgamation of two (original Welsh Health Board Trust's (Clinical centres being East (Wrexham), Central (YGC) & West (Bangor)

LOR have an established relationship with two of the original Trust's with the successful completion of two previous projects.

1. Bangor infrastructure (18m)(West).
2. Abergele CAMHS Unit (20m)(Central).

YGC Overall Scheme Projected Value – LOR ‘NTBE’ Cost Advice (Feb 2012) – in excess of £120m

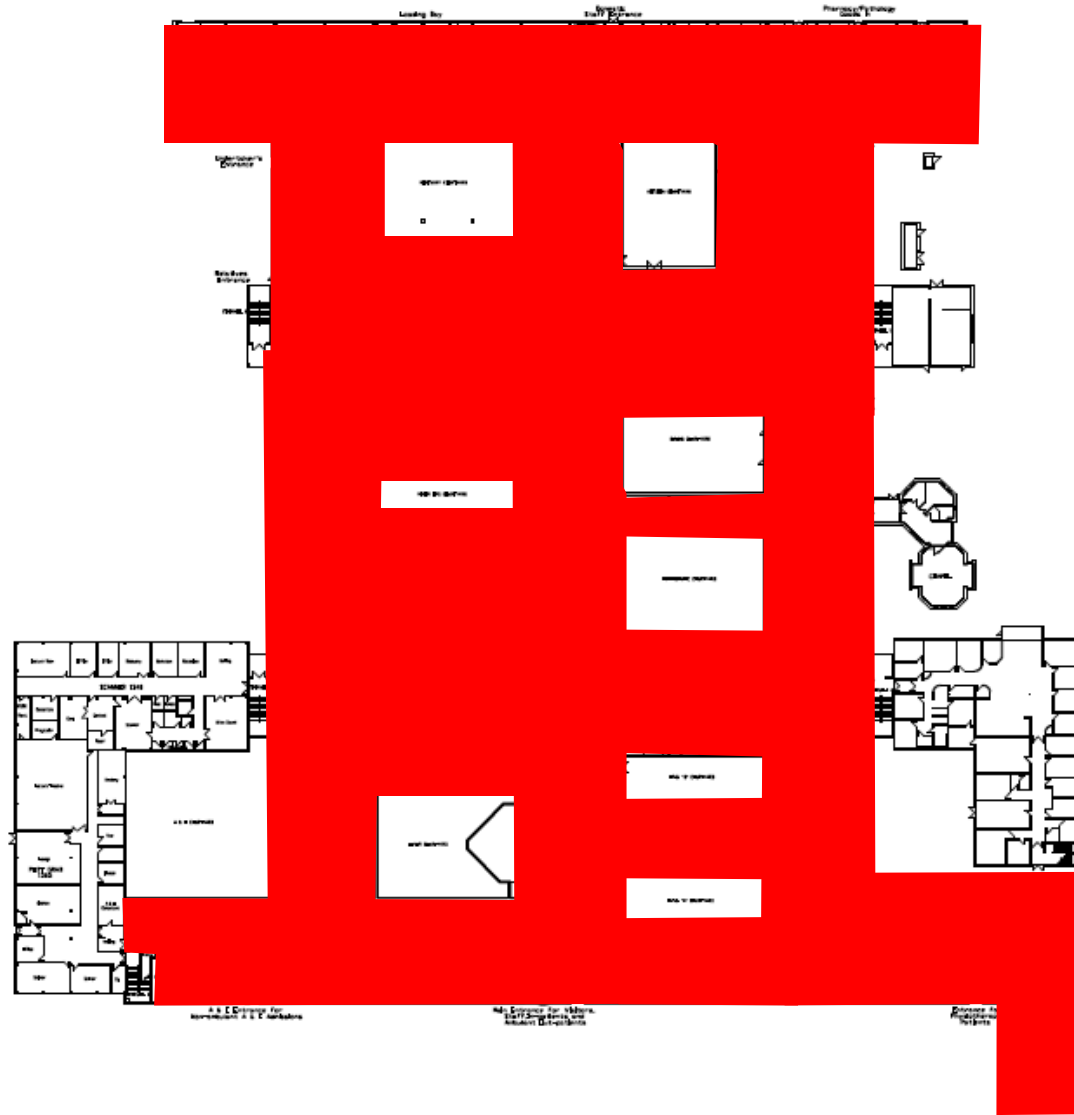
Ongoing Current ‘Stage 4A’ Contract Works value - £46.5m

Background

Designed in late 1960's - opened May 1980

- Asbestos 20th Century wonder product
- Extensive use of asbestos sprayed coating Fire Protection during construction
- Deteriorated over time
- Contaminant migration of ceiling voids
- Risk of contamination to occupied areas
- Difficulties in essential maintenance
- Inability to meet current safety standards for fire safety compliance (HSE Improvement Notices)
- PCI - CDM Regulation.

How Big is the Asbestos Problem?



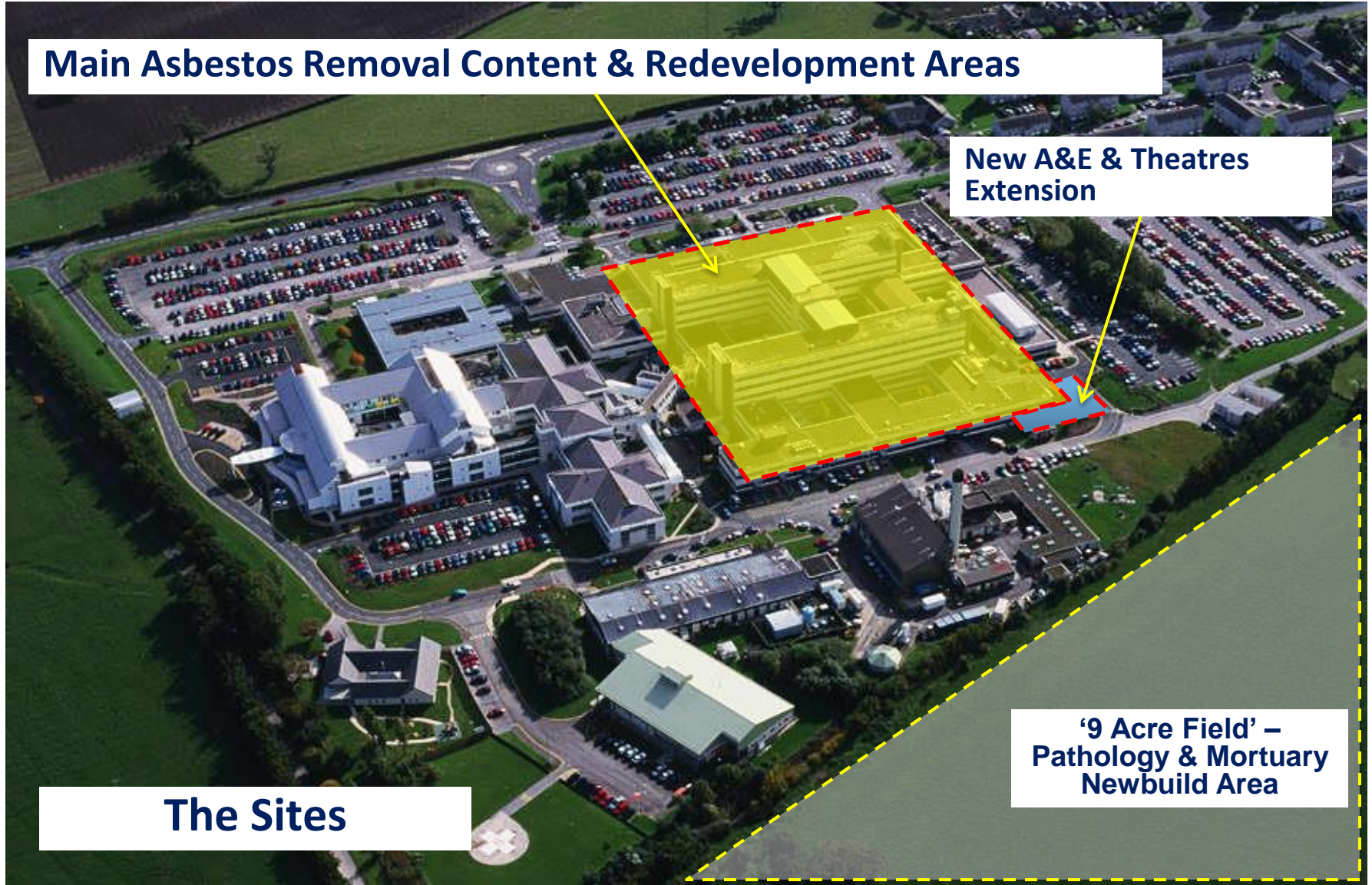
**Ground floor original
Asbestos content
Approx 10,000m2 Asbestos
Contaminated Area/Floor**

Main Asbestos Removal Content & Redevelopment Areas

New A&E & Theatres Extension

'9 Acre Field' –
Pathology & Mortuary
Newbuild Area

The Sites



Key Project Issues (1)



Asbestos Management and Removal.
Ongoing progressive issue of HSE Improvement Notices.
Mitigate ongoing Risk of exposure to Patients, Public & Staff.
Threat of Closure & Client Prosecution.
‘Dogged Attention’ of HSE Inspectorate.
Masterplan management – Multiple Phasing & Decant Strategies for both Asbestos Removal & Remodelling.

HSE Improvement Notices Discharged to Date

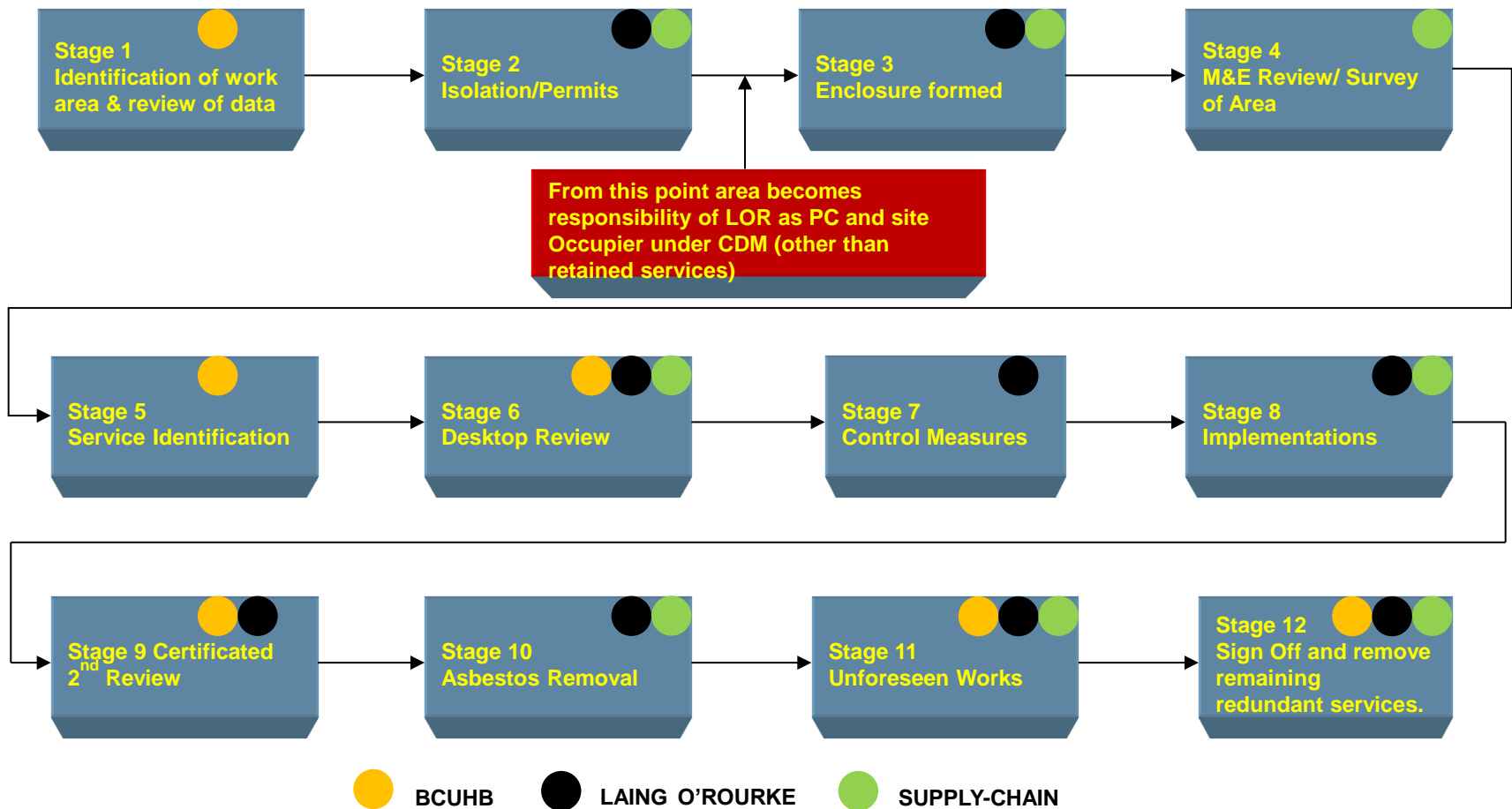
No	Date received	Area	Planned date	Closed out: Actual date
30243003	03/02/10	Wards 11 &12	30/04/10	30/04/10
302430074	03/02/10	Ceiling voids	11/06/10	11/06/10
4234550	20/12/10	1 st Floor Theatres	31/10/11	31/10/11
303223447	11/04/11	Overall Redevelopment asbestos removal plan	30/07/11	30/07/11
304013491	29/05/12	GF Theatres 7 & 8	01/10/12	03/08/12
304013500	29/05/12	GF Central Core	30/11/12	Sept 12
304013520	29/05/12	Existing Mortuary	28/02/13	Feb 13
304013537	29/05/12	Catering Phase 7A	31/07/13	Nov 12
304013554	29/05/12	Existing Pathology	31/03/14	Jan 2014

Key Project Issues - Complexity





Asbestos Removal initiatives '12 Point Protocol'



Asbestos Clearance - Results



Project Scope of Works

Client Brief “Take the Asbestos out and put something back”

Development of an extensive phased decant strategy, to allow the removal of existing limpet and envelope asbestos fire protection

Develop a fully modernised model of care.

Devise a programme of works enabling the re-provision of clinical bed replacement. (Over 90 departmental moves)

Create decant space.

Refurbish over 30,000m² of decommissioned space Shell and Core.

Do it without disrupting any clinical service.

Masterplanning Sustainable Infrastructure – Client Objectives

Capacity

Compliance

Carbon

Risk – resilience; H&S; adaptability

Phasing

Strategies:-

- Energy
- Water
- Waste

This is the 'silent transformation' that will enable the realisation of the overall Healthcare Master plan

Helpu Cymru i leihau ei Hŷl Troed Carbon
Help Wales reduce its Carbon Footprint

Llywodraeth Cymru
Welsh Assembly Government

One Wales: One Planet
The Sustainable Development Scheme
of the Welsh Assembly Government
May 2009

Department Health
Department with

THE ELECTRICAL SYSTEMS
CLINICAL RISK CATEGORY 3
CLINICAL RISK CATEGORY 4
CLINICAL RISK CATEGORY 5

33 KV OH CABLES
VIEW LOCATION OF SUPPORT SERVICES
GYNAE THEATRE
NEW 2ND ROOF PR C.C.U. EXTENSION
WCTC BUNKER EXPANSION
ORTHOPEDIC O.P.D. RELOCATION
ABLETT UNIT
9AF
SAIN LANE

Client Objective

- Provide Modernised facilities and service delivery.
- Maximise Clinical and business efficiency.
- Upgrade & Improve the resilience of the Mechanical Infrastructure - CIBSE TM22 & TM39.



Key Project Issues (2)

- **Maintain Operational Services throughout works with minimum impact and disruption.**
- **Develop End User Stakeholder engagement.**
 - Changing clinical and critical care standards
 - Collaborative culture to avoid adversarial relationships
 - Multiple stakeholders with vested and statutory interests
- **Local Supply Chain Engagement.**
- **Logistics.**
- **Early knowledge exchange, develop a jointly structured Implementation plan. (Soft landings protocol)**
- **Unforeseen Works due to Survey restrictions.**



Ground Floor Asbestos Condition

Key Project Issues (3)

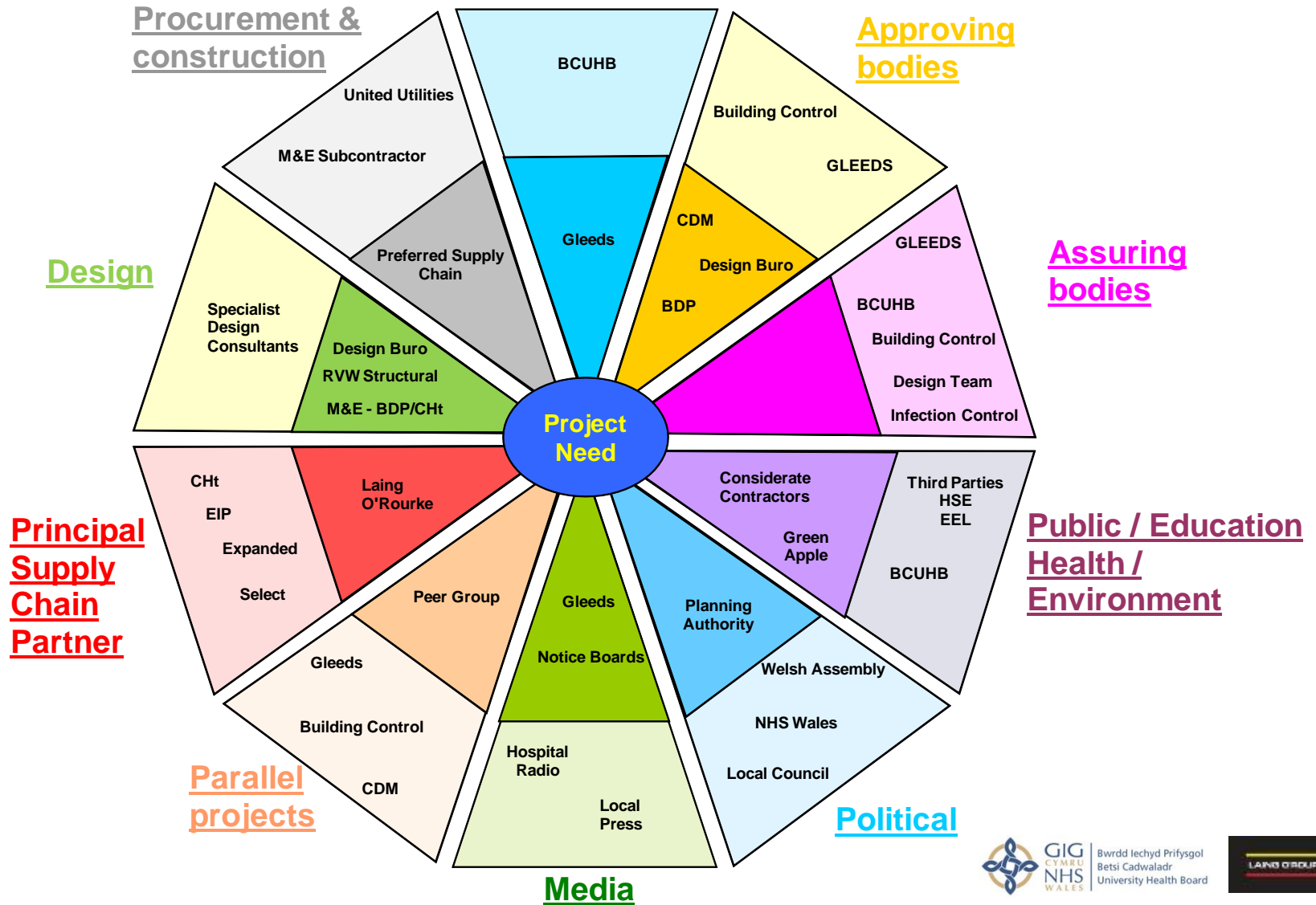
- Unforeseen Structural Deficiencies.
- Aspergillus and Legionella Awareness.
- Environmental conditions relating to the proposed Newbuild developments.
- Client driven development of collaborative communication, working practices and initiatives:- Digital Engineering (BIM)
- Compliance with Government Directives offsite Manufacture & Assembly Initiatives



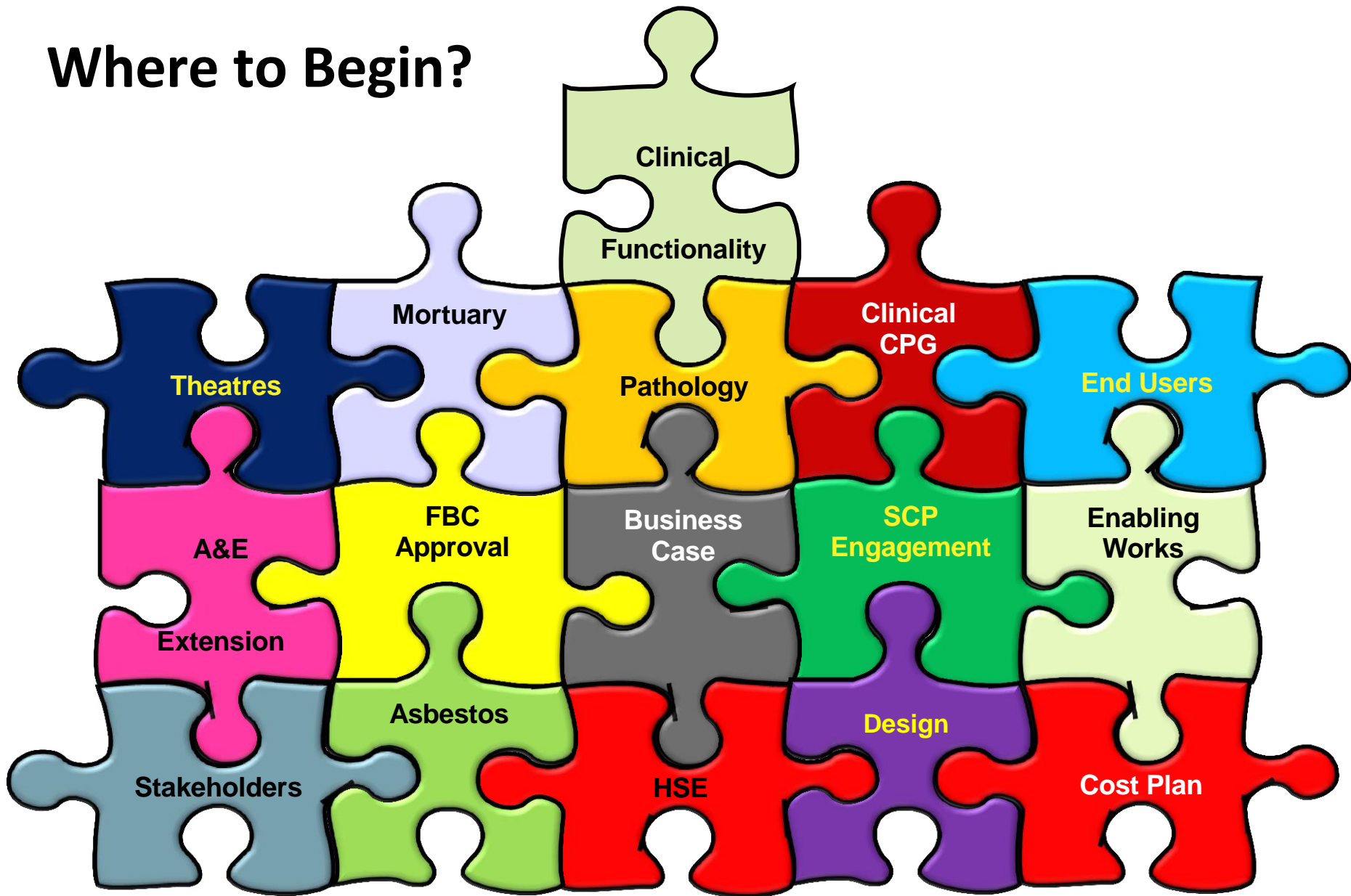
First Floor Asbestos Condition 

YSBYTY GLAN CLWYD/ STAKEHOLDER MAP

Client / Funder



Where to Begin?



Stakeholder Engagement

- All key Stakeholders engaged in Laing O'Rourke led development of '**1st Draft Model of Care**' review.
- Laing O'Rourke facilitated workshops in March and May 2011 followed up by Sept 13 for residual Masterplan areas.
- Individual Departmental User groups set up to develop Design proposals to 'sign-off'



We'll move A&E from the front to the back

By GARETH HUGHES

THE busy accident and emergency unit at one of North Wales's largest hospitals is to be moved.

Consultants involved in Nigdy Glan Clwyd at Budebyddan will be taken to a new Emergency Quarter at the rear of the building.

Patients arriving for outpatient or surgery appointments will still walk past the front of the hospital, away from the Blue Light, or emergency route.

It's one of the changes planned under the £75m revamp of the hospital, which is moving a key closer to becoming a reality.

In May Welsh Assembly Health Minister Lesley Griffiths announced the move had been given the go-ahead to remodel the hospital at Budebyddan. The seven-year project replaces the original proposal to demolish the existing building, which was prompted by the need to remove asbestos from the premises, which were

EMERGENCY QUARTER IS PLANNED AT GLAN CLWYD



All change 'Nigdy Glan Clwyd' A&E

designed in the 1970s.

The third and final business plan, the full business plan, is expected to be submitted to the Assembly Government in November but in the meantime the scheme is being outlined to staff, the League of Friends and other interested groups.

The emergency department and admission and assessment units will move from their current position next to the

main public entrance to a new location to the rear of the building, creating the Emergency Quarter, with close links with the theatres and critical care.

The main foyer will lead from the front entrance into a 'main street' while corridors, which have been built into 1993 the year, will be opened up to the light again.

Extra corridors will create by-passes and shortcuts for emergency patients to

be closer to X-rays and stop the out-patient department being used as a through route.

Patients arriving for day case operations will go straight to an arrivals area on the first floor before moving to the theatre suite.

That, says the consultation paper, will give more privacy than walking through the hospital wearing a surgical gown and dressing gown.

Finding enough office space for the 600 staff within the confines of the hospital has proved difficult, especially with more space being sought for patients.

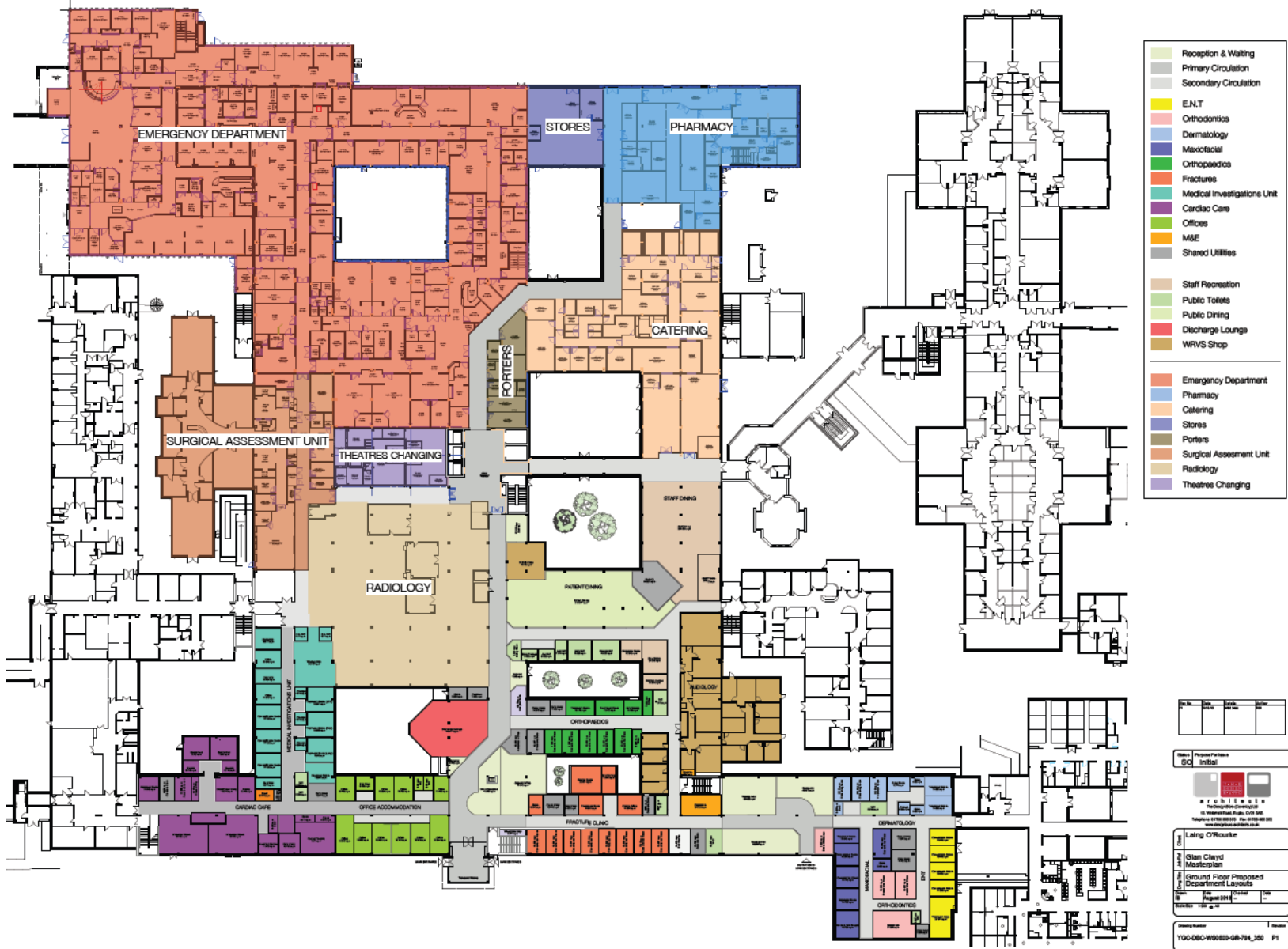
The project team was also told it was important for consultants and their secretaries to be housed in the building, so offices are to be redesigned to give as many people as possible space within the building. Some computer offices and functions will be moved away from the building.

withnewydd@yppart.co.uk

Handyman
Nick drops

JAMIE'S COURSE GETS TASTY RESULTS

Masterplan – Ground Floor Areas



Masterplan – 1st Floor Areas



No.	Date	Issue	Author

Scale: Proposed Floor Area
 SC: Initial

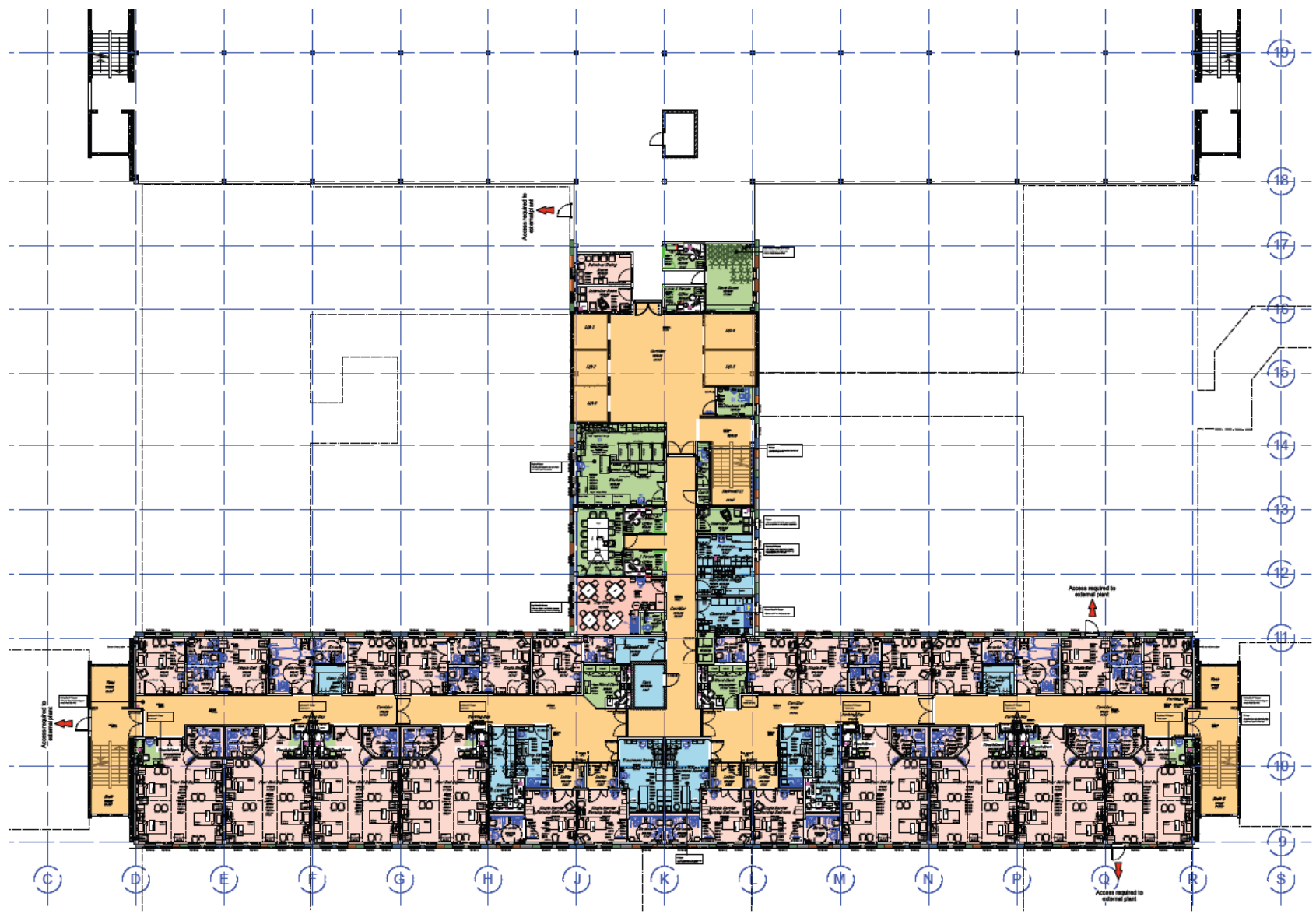


Lang O'Rourke	
1	Lang O'Rourke
2	Glan Clwyd
3	Masterplan
4	First Floor
5	Overall Plan
DATE	18th June 2015
SCALE	1:100
DATE	18th June 2015
SCALE	1:100

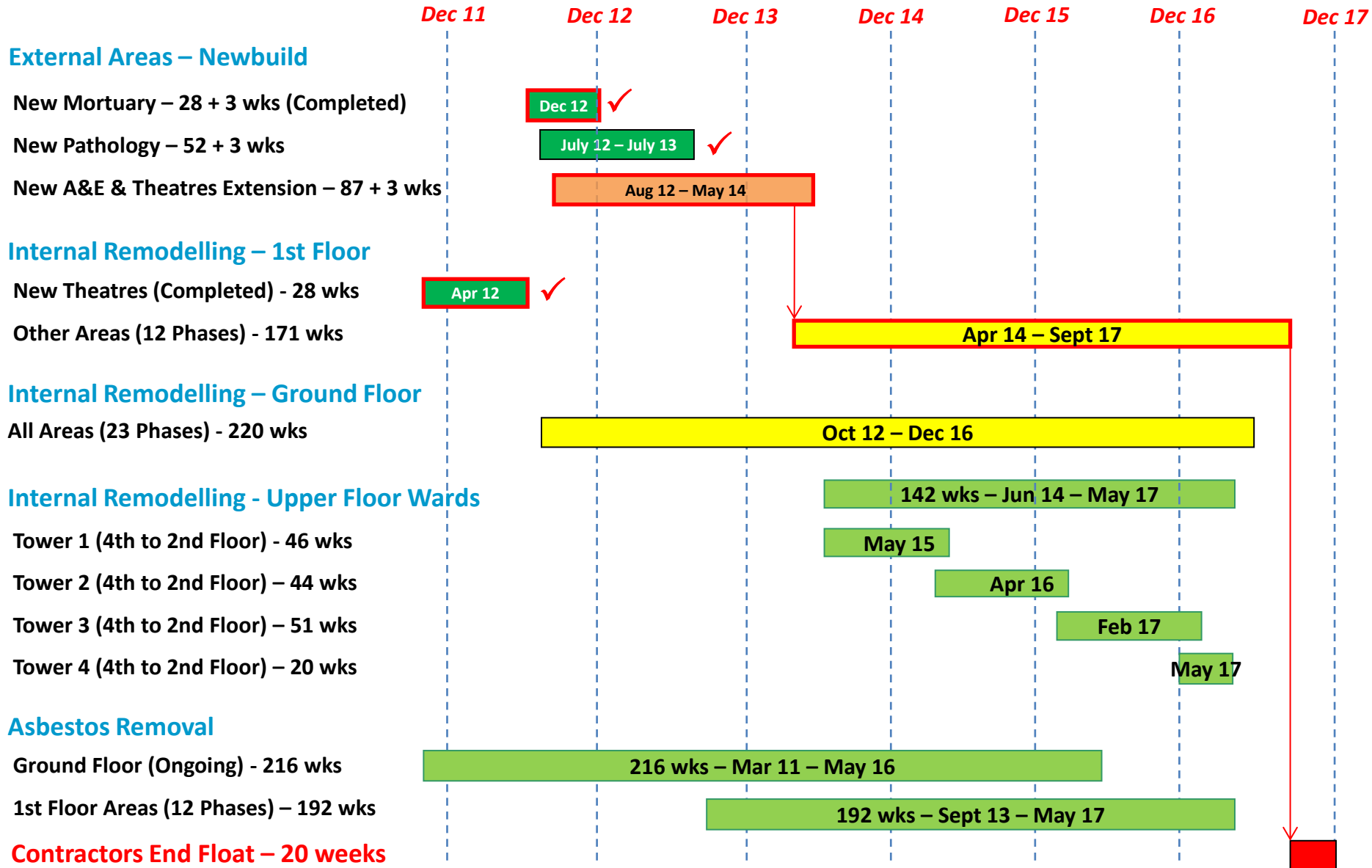
Working Number: Y10-080-18/0900-05-754_251



Masterplan – 2nd , 3rd & 4th Floor Ward Areas Layout



Overall Strategic Programme (Feb 2014) - Key Work Sections & Approx Timescales



How was Building Information Modelling used effectively?

- BIM, more than just 3D, a hands on tool for all the team
- Integrated design solution maximising stakeholder engagement to deliver design excellence
- Hosted online with collaborative tool Asite.



- Ongoing client and supply-chain training programme.
- Evolving solution to offer BIM Level 2 solutions to Clients 2 years ahead of Welsh Government targets.

How was Building Information Modelling used effectively?

Pathology, Energy Centre & Mortuary Bereavement Centre developments



Project Initiatives – BIM 2016 & DfMA

The following DfMA initiatives have been deployed to date on Glan Clwyd

- Modular 'Turnkey' Delivery of new Mortuary & Bereavement Centre
- Precast to New Pathology & A&E Extension developments
- CHt Modular wiring
- CHt Modules to new build areas
- CHt Rooftop service ways
- CHt Risers
- CHt Plantroom skids
- Electronic Operational Manuals informed with digital information and in house training.

Implementing digital design through BIM

- Integrated within digital design solution is iPad snagging app – ‘Snagmaster’
- ‘Snagmaster’ centrally manages all snagging, testing and commissioning data, coordinating data with entire delivery team
- Provides real time ‘Walk and certify’ capability



Ysbyty Glan Clwyd Redevelopment (N3095)

Snagmaster_Example

Created: 14/05/2013 15:18:02
Number Of Snags:94



ID	Date	Due	AREA	LEVEL	ROOM/LOC CODE	DESCRIPTION	Detail	TC	Plg	Sign	Typ	Fnd	CM
518	09-12-12	09-12-12	MORTUARY	LEVEL 1	MOR-0.15	Female Change	Mechanical: shower extension cover required to cover pipe work	MTX	0950	Michael Smehurst	None	None	<input type="checkbox"/>
519	09-12-12	09-12-12	MORTUARY	LEVEL 1	MOR-0.14	Male Change	Mechanical: shower extension cover required to cover pipe work	MTX	0950	Michael Smehurst	None	None	<input type="checkbox"/>
522	11-12-12	14-12-12	MORTUARY	ELEVATION	MOR-E-B	Elevation B - South East	Stairs: require repainting to handrails, steps	MTX	0950	Michael Smehurst	None	None	<input type="checkbox"/>
564	13-12-12	20-12-12	MORTUARY	LEVEL 1	MOR-0.18	Post Mortem Room	Electrical: voice to voice switch required within pm room as currently cannot control from pm	MTX	0950	Michael Smehurst	None	None	<input type="checkbox"/>
579	07-01-13	17-01-13	PATHOLOGY	FIRST	PAT-R-01	Pathology Roof	Floor levels out of spec	EXPS	2400	Dave Watson	None	None	<input type="checkbox"/>
580	07-01-13	17-01-13	PATHOLOGY	FIRST	PAT-R-01	Pathology Roof	Top surface of concrete breaking up ?	EXPS	2400	Dave Watson	None	None	<input type="checkbox"/>
589	07-01-13	17-01-13	PATHOLOGY	GROUND	PAT-E-0N	North Elevation	Mastic to all ground beam pints	EXPS	2400	Dave Watson	None	None	<input type="checkbox"/>
599	25-01-13	08-02-13	MORTUARY	EXTERNALS	MOR-EX-E	East Area	External works - Ground levels around lighting bollards are lower than ducts	EXPS	0951	Michael Smehurst	None	None	<input type="checkbox"/>
600	25-01-13	08-02-13	MORTUARY	EXTERNALS	MOR-EX-N	North Area	Fencing - Paint touch up to frame poor colour match	MTX	0950	Michael Smehurst	None	None	<input type="checkbox"/>
601	25-01-13	08-02-13	MORTUARY	EXTERNALS	MOR-EX-E	East Area	External works - Gully's to car parks to be checked for falls	EXPS	0951	Michael Smehurst	None	None	<input type="checkbox"/>
607	25-01-13	08-02-13	MORTUARY	ELEVATION	MOR-E-B	Elevation B - South East	Cladding - Fixing bolts to plant room star to be cut & treated before painting of star	MTX	0950	Michael Smehurst	None	None	<input type="checkbox"/>

- Evidence of defect free solution and quality
- Zero defects,
- Reduced waste
- Improved end-user/client satisfaction



Bwrdd Iechyd Prifysgol
Betsi Cadwaladr
University Health Board



What have been the outcomes and achievements?

- All HSE Improvement Notices issued to date successfully discharged on time.
- Considerate Constructors National site Award nomination.
- Awarded a Green Apple Gold Award for Sustainability.
- Awarded Green Apple global ambassadors status.
- 5no new 1st Floor Theatre suites delivered ahead of Programme & within Budget.
- New Mortuary & Bereavement Centre delivered ahead of Programme & within Budget - **Awarded LABC Building Control County and Regional Award for Healthcare 2013.**
- Shortlisted in 3 categories of the Constructing Excellence in Wales 2013 awards.



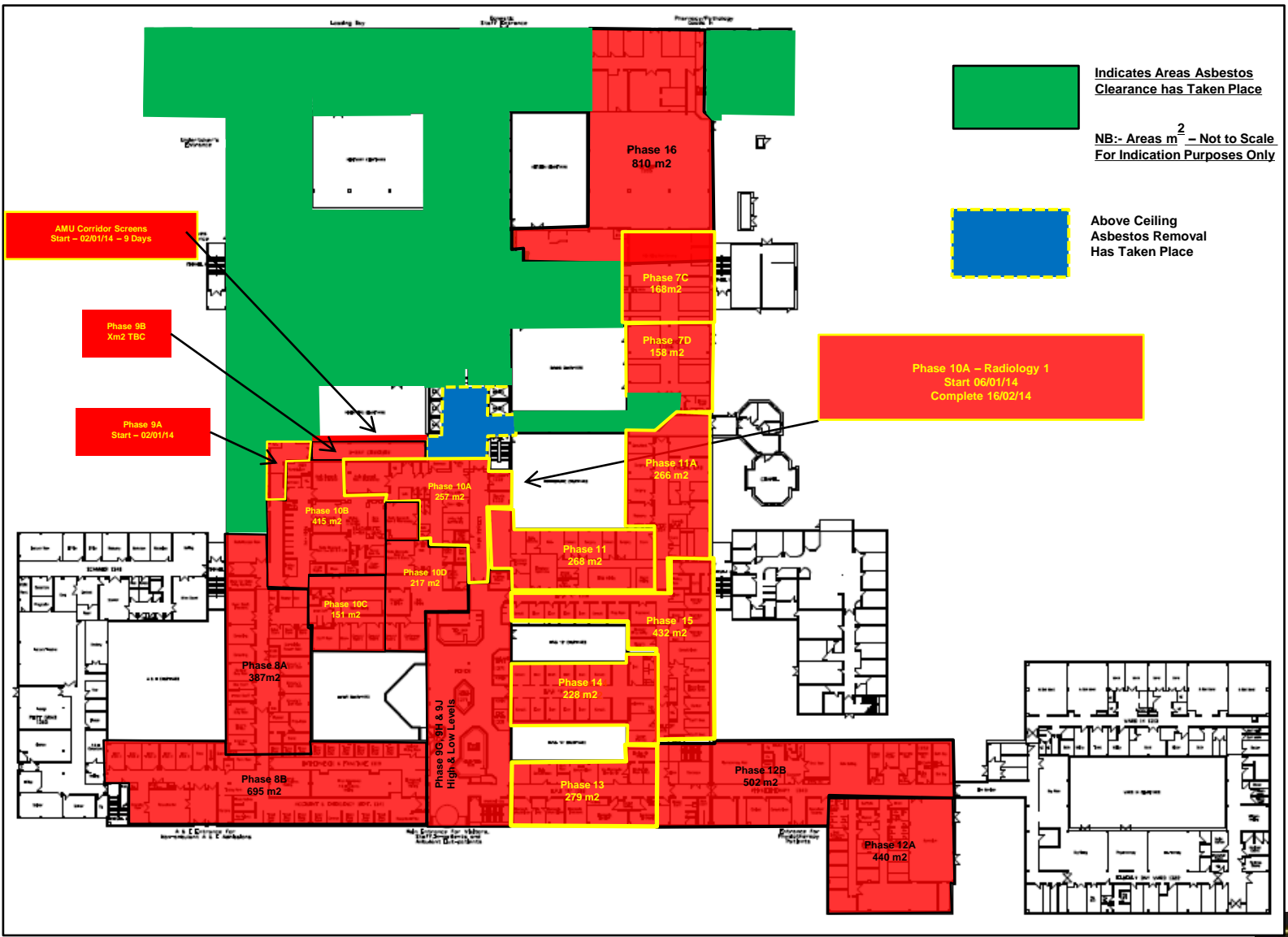
The Laing O'Rourke Legacy

- Up-skilling through programme of training to bring new skills and experience in offsite manufacture assembly.
- Ongoing engagement with Coleg Menai and local Christ Church school, including study visits, work experience and competitions.
- Engagement with North Wales Working Well Together group



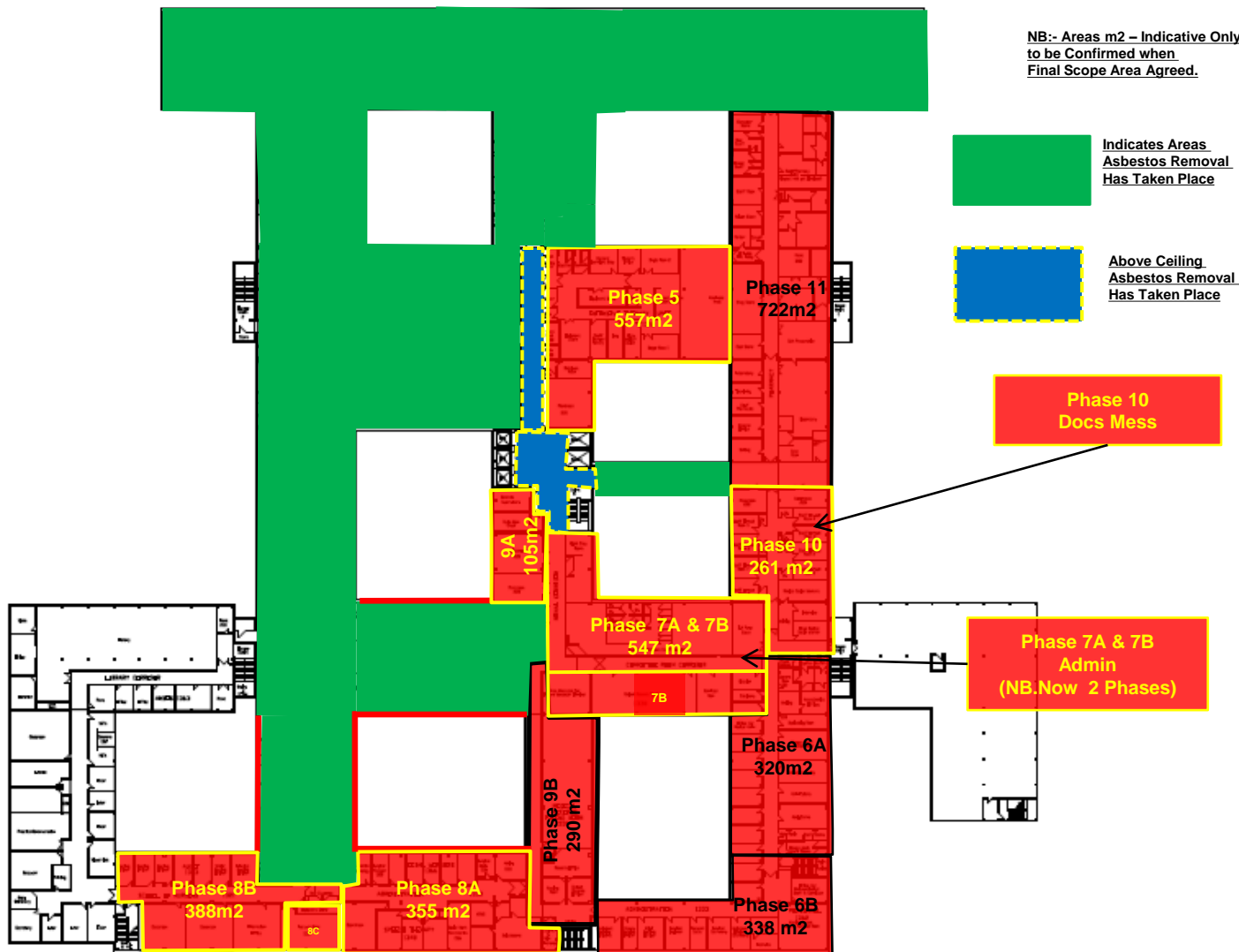
- Support supply-chain to match Laing O'Rourke 'Mission Zero' health and safety commitment.
- Help to develop ISO standards and compliance for local SME businesses – ISO9000/9008/9014
- Access to Laing O'Rourke buying power to support local SME businesses

GROUND FLOOR ASBESTOS REMOVAL PROGRESS



FIRST FLOOR ASBESTOS REMOVAL PROGRESS

BCUHB Update – 13/01/14



Lessons Learnt Continuous improvement and next steps

- Work at Glan Clwyd Hospital is a journey, constantly evolving to suit changing project circumstances and incorporate best practices and innovations.
- Not capable under more traditional JCT route.
- Collaborative Partnering process (NEC)
- Improve KPIs and performance standards that highlight success.
- What is next?? Identify series of stepping stones for improving solution both Laing O'Rourke and BCUHB.
- Production of 'e' O&M Manuals along with programme of client and supply-chain training to ensure future management capabilities.
- CE Wales Exemplar Status?

Q&A Site Tour Buffet Close





















