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EUROPEAN
HEALTHCARE DESIGN
RESEARCH • POLICY • PRACTICE

Addressing the Risks of Major Construction Activity on a Working Acute Hospital Site
Three Case Studies

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Agenda

- Defining the challenge
- Three case studies
  - Royal London Hospital, Whitechapel
  - St Bartholomew's Hospital, City of London
  - Great Ormond Street Hospital for Children, Bloomsbury
- Identifying the risks
- Mitigation measures

Defining the Challenge

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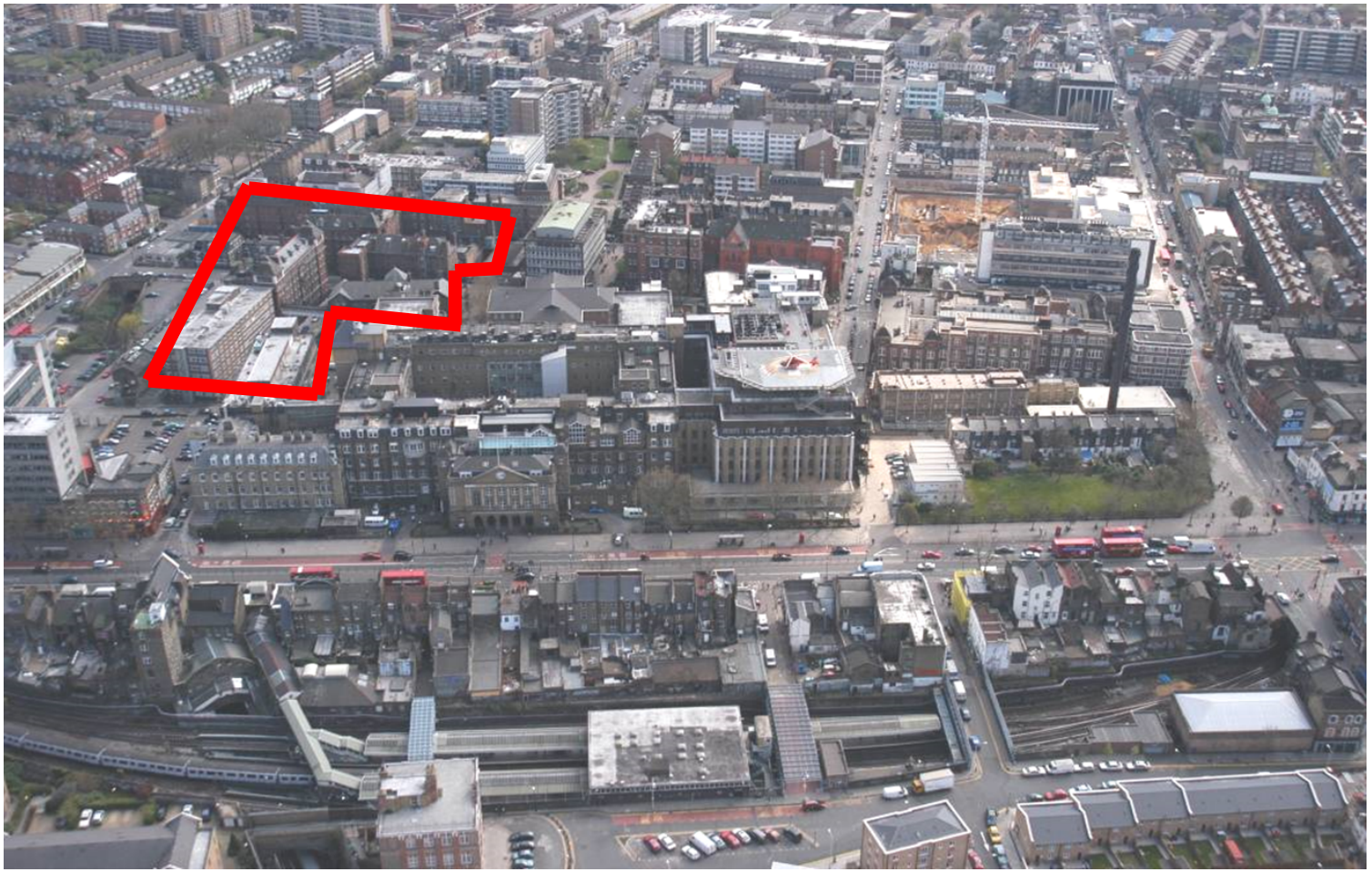

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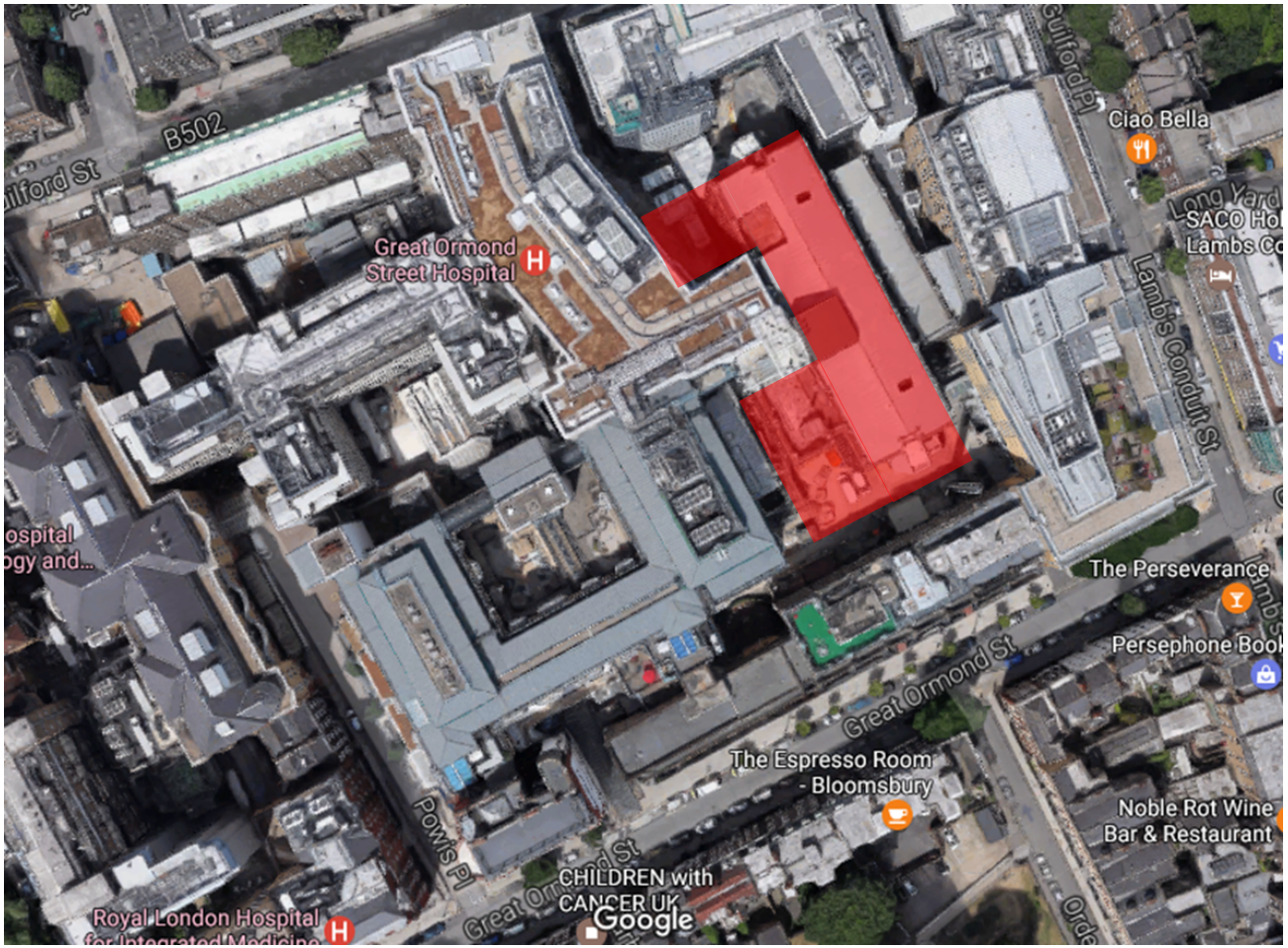


Defining the Challenge

Defining the Challenge

Case Study 1: The Royal London Hospital

- June 2002: Invitation to negotiate
- December 2003: Skanska Innisfree selected as preferred bidder
- April 2006: Financial close
- September – December 2011: Phase 1 completion
- January 2014: Phase 2 completion

Case Study 1: The Royal London Hospital

- Phase 1:
  - 144,000 square metres of new space
  - Three towers: two of 17 storeys and 1 of 10 storeys
  - Required the demolition of 13 hospital buildings
- Phase 2
  - Front elevation of the Phase 1 building
  - Refurbishment of retained estate
  - Required the demolition of 7 hospital buildings

Case Study 1: The Royal London Hospital

- Demolition (deconstruction) in close proximity to operational clinical departments
- No reduction of clinical activity
- Primary risks:
  - Dust
  - Noise
  - Vibration
  - Patient experience
  - General health and safety

Case Study 1: The Royal London Hospital

Case Study 1: The Royal London Hospital

Case Study 2: St Bartholomew's Hospital

- Part of the same £1.1bn PFI project as The Royal London Hospital
- Similar challenges and risks arising from demolition and construction activity in close proximity to clinical departments
- Phased construction from 2006 to 2016

Case Study 2: St Bartholomew's Hospital

Case Study 2: St Bartholomew's Hospital

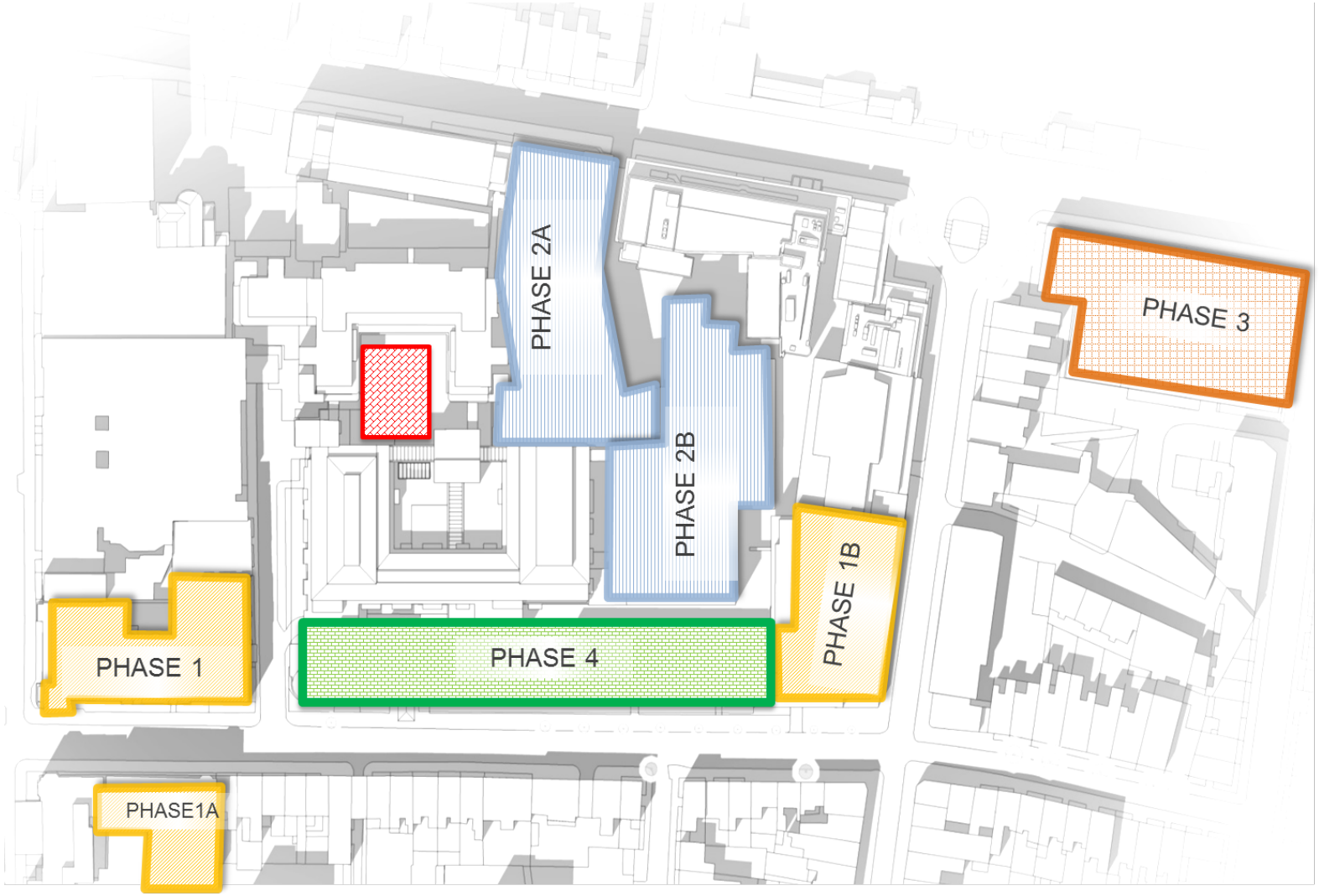
- £30m variation to create the Barts Heart Centre:
  - Fit out of shell and core floor
  - Reconfiguration of departments on other floors

  Post occupation
- Challenges and risks included:
  - Relocation of VIE plant
  - Plant upgrades e.g. vacuum, medical air, UPS
  - Services diversions
  - Noise
  - Patient and visitor experience impacts
  - Rerouting primary circulation and department access

Case Study 3: Great Ormond Street Hospital (GOSH)

- GOSH is midway through a redevelopment masterplan that commenced in 1990 and is projected to conclude around 2030
- Phase 2B will open in Autumn 2017
- Congested Central London site

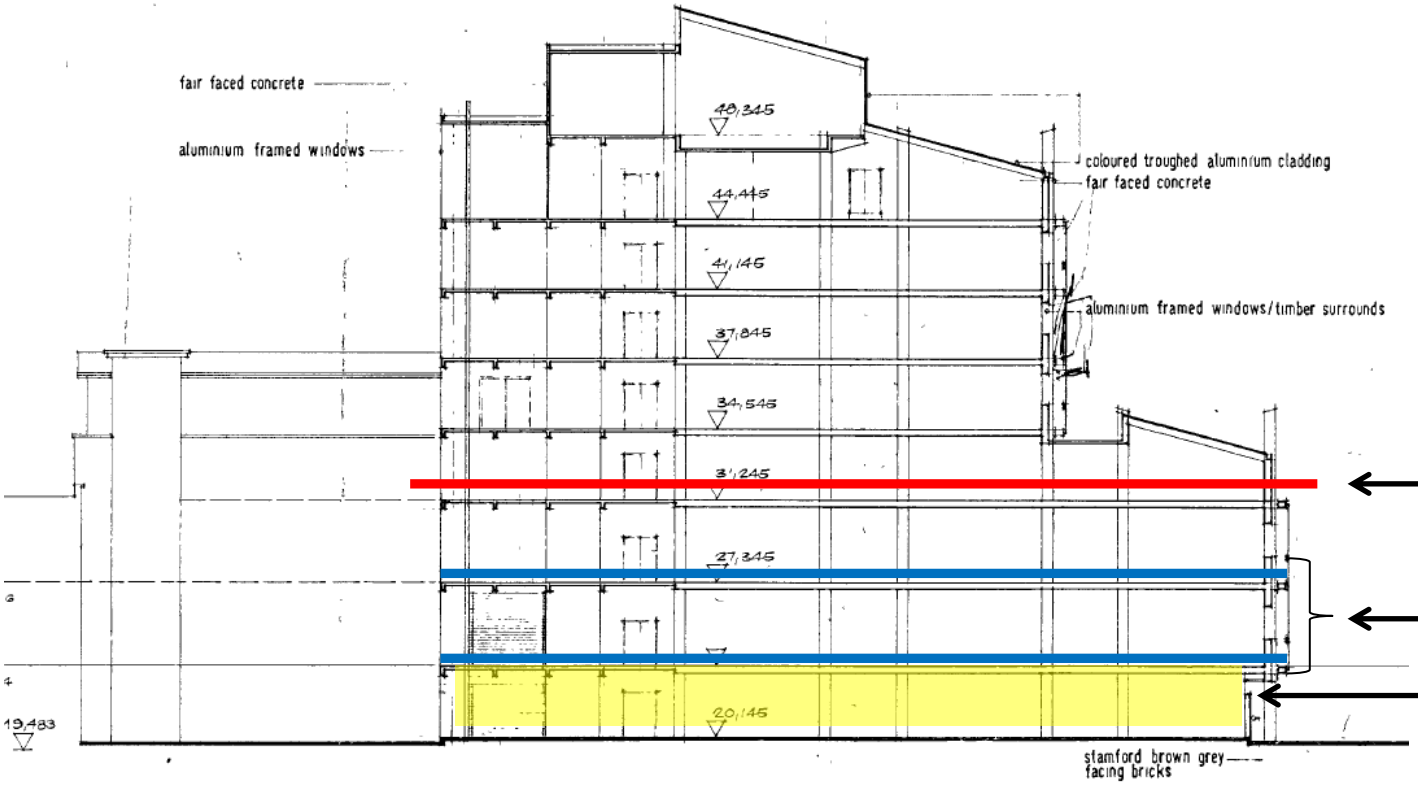
Case Study 3: Great Ormond Street Hospital (GOSH)



Case Study 3: Great Ormond Street Hospital (GOSH)

- Phase 2B
  - Built on the site of the 1980s Cardiac Wing
  - Building deconstructed to Level 4 slab (2nd floor)
  - Cladding removed at all levels
  - Cross-sectional imaging department remained operational at basement level throughout the works

Case Study 3: Great Ormond Street Hospital (GOSH)



Cut line (Level 4)

Waterproof seal (Levels 2 and 3)

MRI Scanners

Case Study 3: Great Ormond Street Hospital (GOSH)

Identifying the Risks

- Safety of:
  - Patients
  - Staff
  - Visitors
- Trust Reputation
  - Patient experience
  - Staff experience
- Contractor Reputation
- Preventing programme delays

Mitigation Measures

- Deconstruction Methodology to limit and contain dust:
  - Scaffolding and wrapping of buildings
  - Gentle deconstruction methods
  - Damping down

Mitigation Measures

- Monitoring Dust Levels
  - Closing windows during site working hours
  - At The Royal London PM10 dust monitors were linked to the UK Air Quality Network, and real-time text and email alerts were received when dust limits were breached
  - Location of dust monitors

Mitigation Measures

- Managing Noise:
  - Acoustic screening
  - Acoustic screen at The Royal London was the largest used on any Construction project in the UK (at time of install)
  - Agreed working hours and rest periods

Mitigation Measures

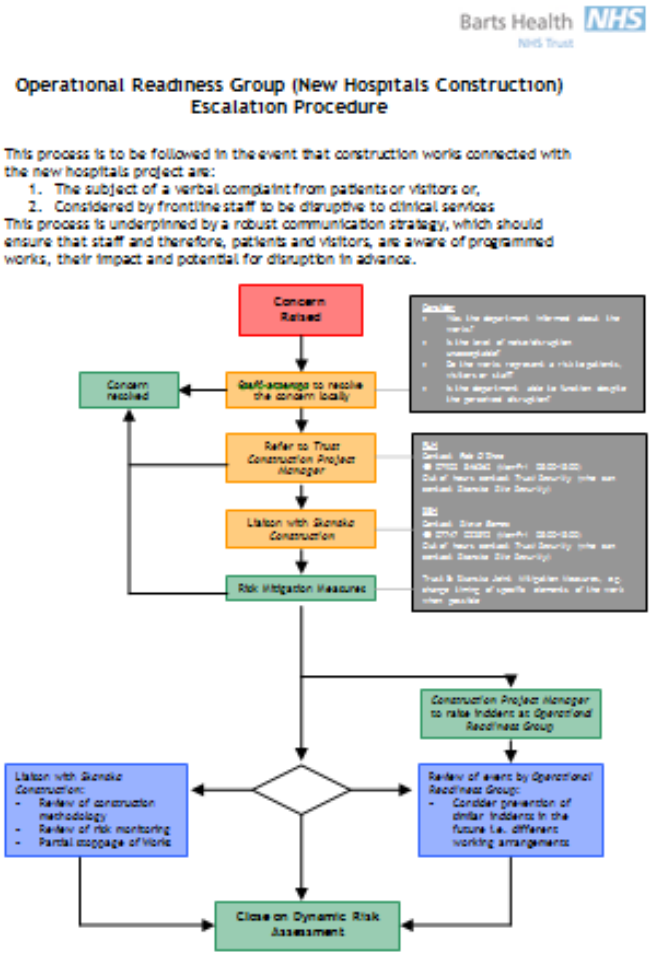
- Contractual agreements
  - Deconstruction and construction methodology
  - Agreed limits for noise, dust and vibration
  - Specific mitigation measures
- Trust/Contractor relations
  - Construction Liaison Group
  - Client Liaison role
  - Collaboration with Trust operational leads
- Communications
  - Sharing information by multiple methods
  - Managing expectations

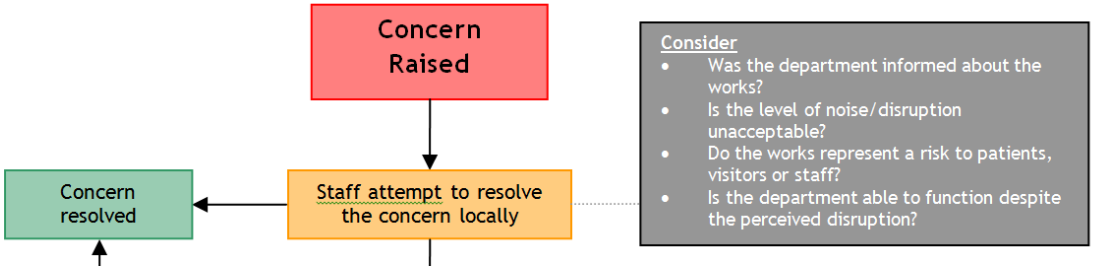
Mitigation Measures

- Construction/operational interface:
  - Construction Liaison Group – Trust project and operational teams with Contractor
  - Notification of works
  - Specific mitigation measures
  - Communications:
    - Face to face
    - Flyers
    - Newsletter/E-mail

Mitigation Measures

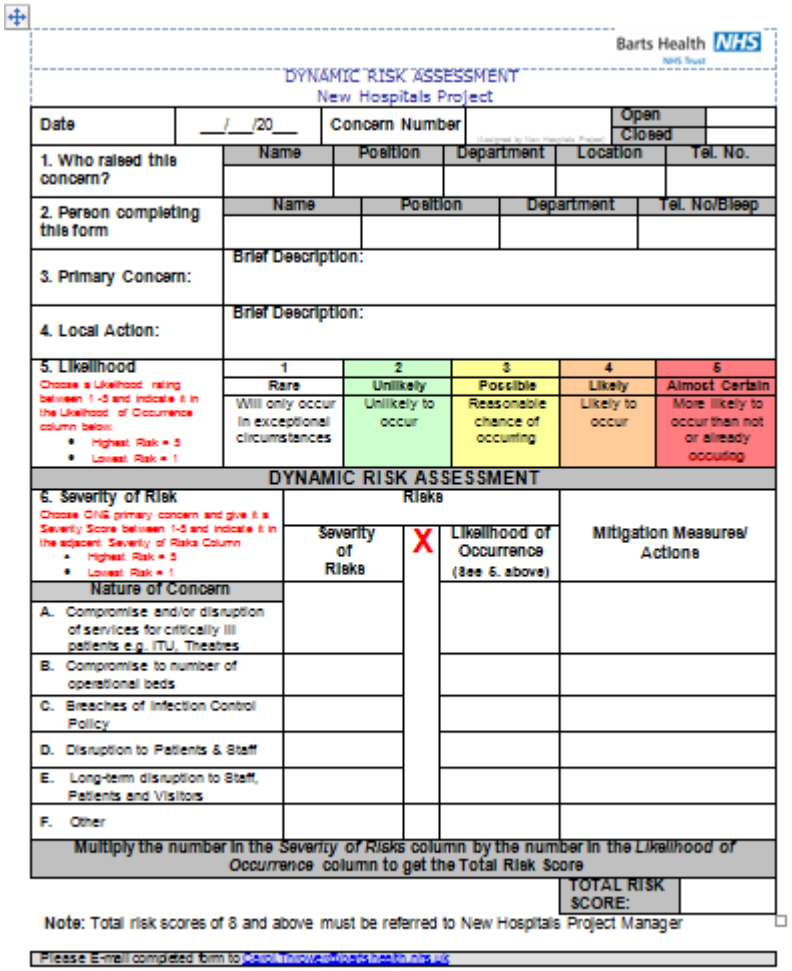
- Escalation Procedure
  - Identified contacts within Trust operational/project teams and contractor





Mitigation Measures

- Dynamic Risk Assessment (DRA)
  - A live process undertaken at the time the risk is identified
  - Key Trust staff require training



Barts Health NHS

DYNAMIC RISK ASSESSMENT
New Hospitals Project

Date	__/__/20__	Concern Number		Open / Closed	

	Name	Position	Department	Location	Tel. No.
1. Who raised this concern?					

	Name	Position	Department	Tel. No/Bleep
2. Person completing this form				

3. Primary Concern:	Brief Description:
4. Local Action:	Brief Description:

5. Likelihood Choose a Likelihood rating between 1 -5 and indicate it in the Likelihood of Occurrence column below: • Highest Risk = 5 • Lowest Risk = 1	1 Rare Will only occur in exceptional circumstances	2 Unlikely Unlikely to occur	3 Possible Reasonable chance of occurring	4 Likely Likely to occur	5 Almost Certain More likely to occur than not or already occuring

DYNAMIC RISK ASSESSMENT

6. Severity of Risk Choose ONE primary concern and give it a Severity Score between 1-5 and indicate it in the adjacent Severity of Risks Column • Highest Risk = 5 • Lowest Risk = 1	Risks: Severity of Risks	X	Likelihood of Occurrence (See 5. above)	Mitigation Measures/ Actions
Nature of Concern				
A. Compromise and/or disruption of services for critically ill patients e.g. ITU, Theatres				
B. Compromise to number of operational beds				
C. Breaches of Infection Control Policy				
D. Disruption to Patients & Staff				
E. Long-term disruption to Staff, Patients and Visitors				
F. Other				

Multiply the number in the *Severity of Risks* column by the number in the *Likelihood of Occurrence* column to get the Total Risk Score

TOTAL RISK SCORE:	

Note: Total risk scores of 8 and above must be referred to New Hospitals Project Manager

Please E-mail completed form to [redacted]

The Four Cs

- Communication
- Collaboration
- Cooperation
- Community

- Flowers & Friendship

Thank you