

Alan Blissett & John Rowland

SHARD project London Bridge



Environment Planning Management

Construction: Coordination in the Environment & Shard Development, London Bridge Presentation to



Alan Blissett, London Borough of Southwark

John Rowland, Temple Group Limited

8th February 2010

...intelligent strategy, responsible delivery

London Boroughs

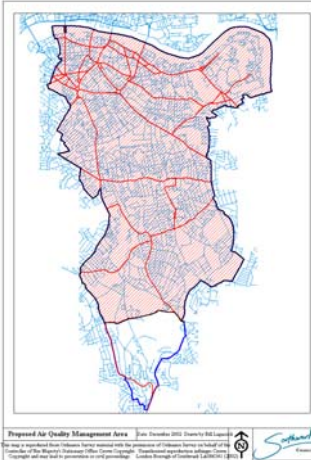
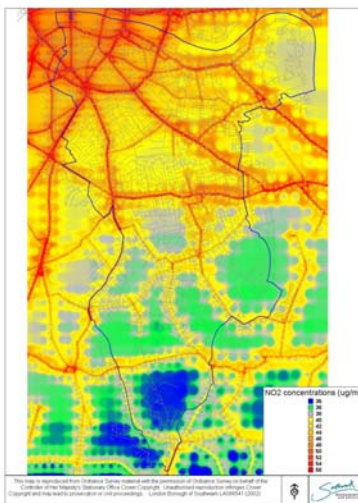


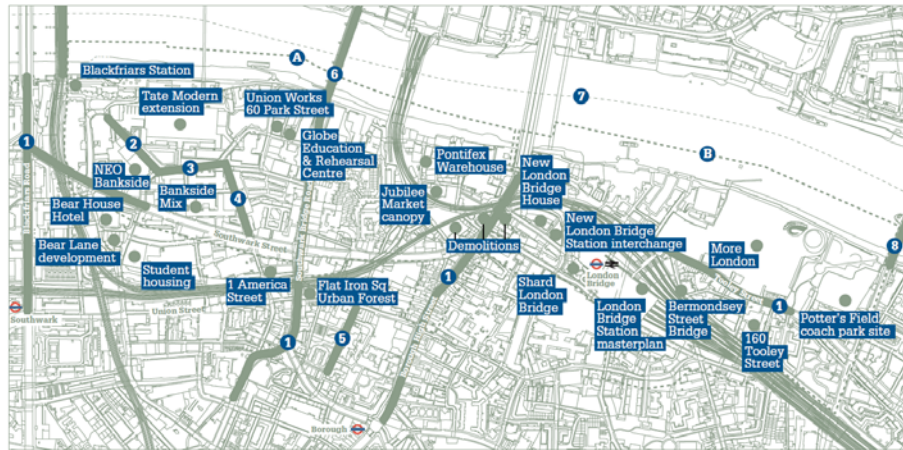
Southwark is

- 1 of 33 London Boroughs – on south bank of the Thames facing the City
- Landmarks include :
 - Tower Bridge, London Bridge, HMS Belfast, Shakespeare's Globe, Tate Modern
 - Elephant & Castle : Old Kent Road
 - Millwall, Crystal Palace, The Oval and of course.....



Southwark's Air Quality Management Area





Map information provided by Southwark Council

New London Bridge House



London Bridge Station Concourse



Blackfriars Bridge



Tate Modern





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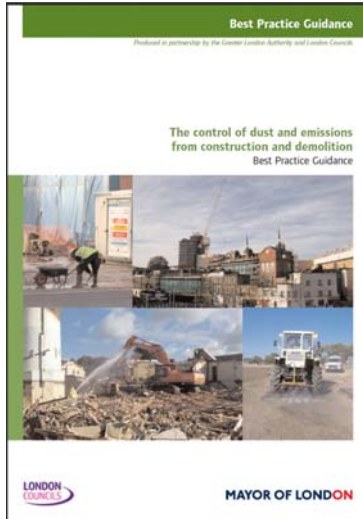
Construction Impacts: Sensitive Uses

- Guys Hospital & London Hospital
- Network Rail 4th Busiest Terminus
- London Underground Jubilee & Northern Lines
- Bus & Taxi station
- Pedestrian footbridge to Guys Hospital
- Southwark Cathedral
- Borough Food Market
- Globe Theatre Outdoor Performances
- Tourists & Late night economy
- Strategic Road Network and River Crossings
- Local Business (deliveries) & residents

Regulatory Process

- Planning Application process
 - Section 106 Agreement / Condition [PPS23 1.48]
- Environmental Management Plan: demolition & construction protocol:
 - Work methods statements / mitigation measures / environmental monitoring regime / community engagement complaints protocol
- COPA 74 Section 61 regime each phase
- Phase end briefings/ compliance reports/ next stage briefings.

London Councils Best Practice



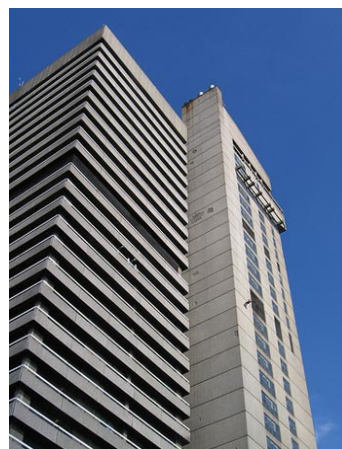
Shard

- Tallest Building in Europe
- Limit of Civil Airspace
- 310 metres tall / 1016 ft
- 87 floors
- 127,137m² (gross)
- 83,500m² (nett)
- Mixed use
- Occupancy 8000+



Sensitive Receptors – Guy's Hospital

- Tallest hospital building in the World
- Directly adjacent to the Shard site
- Many in-patients
- Immuno-suppressed patients
- Sensitive equipment :
 - Electron microscopes
 - Gait Laboratory
 - Micro surgery procedures



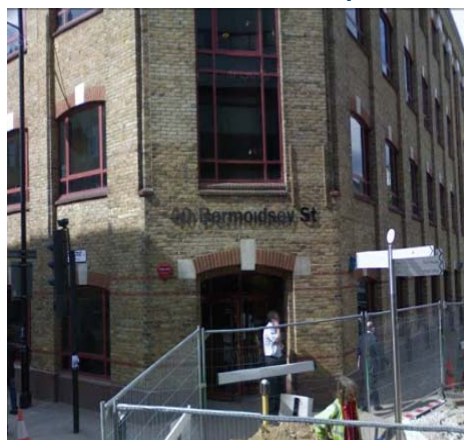
Sensitive Receptors – London Bridge Station

- Fourth busiest station in London - over 54 million people p.a.
- Structurally connected to the existing PWC building
- To remain fully operational throughout the Shard works
- Bus Terminal
- Underground interchange
 - Jubilee & Northern Lines



Sensitive Receptors – The Wider Community

- A number of offices
- Residential buildings
- Pedestrians
- Places of Worship
- Kings College London
- Hotels/Restaurants
- Entertainment venues



Key Risks

- Environmental impacts – noise, vibration, dust, air quality
- Waste Management & Materials Delivery
- Delays to programme
- Costs of such delays - additional mitigation measures
- Client reputation and team members
- Relationship with stakeholders

Temple Objectives

- Ensure minimal environmental impacts
- Avoid delays to programme and/or litigation
- Create a responsible and responsive approach to environmental management
- Maintain and enhance the reputation of all parties involved

Potential Impacts – Noise

Adverse noise impacts may give rise to:

- sleep disturbance
- interference with speech intelligibility
- interference with task performance (commercial & social activities)
- annoyance
- Intensity of traffic movements



Potential Impacts – Vibration

Adverse vibration impacts may give rise to:

- the potential for structural damage
- perceptible vibration/annoyance
- interference with sensitive equipment
- interference with London Bridge Station
- groundborne (or re-radiated) noise



Potential Impacts – Air Quality

Key Issues

- Human health risks; respiratory diseases, reducing life expectancy
- Nuisances - annoyance, increase in dust-related complaints
- Potential to delay compliance with PM10 objective
- Dust causing mechanical or electrical faults to equipment and increasing abrasion of moving parts in plant and clogging of filters



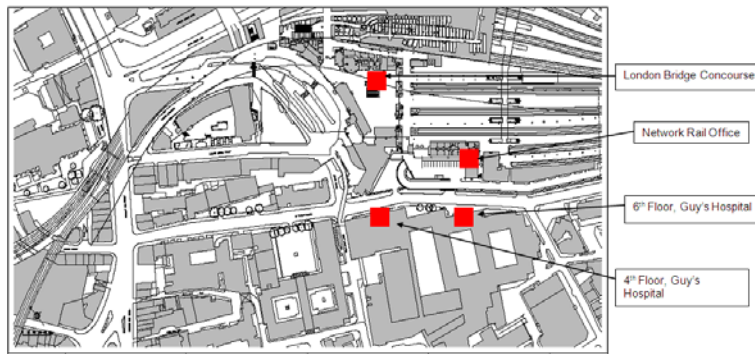
Potential Impacts – Aspergillus

- *Aspergillus fumigatus*: a fungal organism which is propagated by spores
- Can be found in bricks and concrete
- Potential for spores to be dispersed during the demolition process, particularly earthworks
- Inhalation can lead to Aspergillosis, a potentially fatal disease
- Certain groups more vulnerable e.g. immuno-suppressed patients



Baseline Monitoring

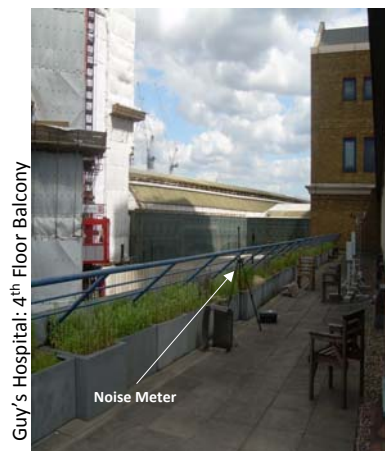
- Extensive baseline monitoring programme
- Nine months duration at strategic locations



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Monitoring Regime – Noise

- Several noise monitors at Guys' Hospital and LB Station
- Continuous, 24hr monitoring
- With GSM modem for:
 - remote access of data
 - text triggering



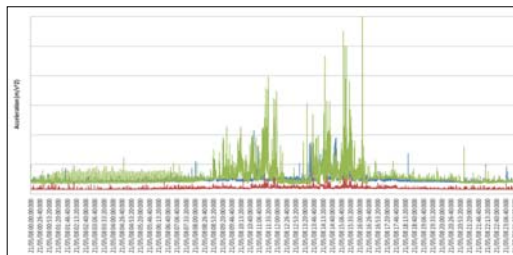
Guy's Hospital: 4th Floor Balcony

Noise Meter

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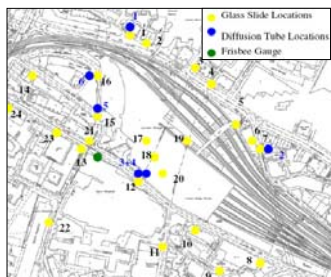
Monitoring Regime – Vibration

- Several vibration monitors at Guys' Hospital and LB Station
- Vibration monitor at Guys' has complex trigger functions
- Continuous, 24hr monitoring
- With GSM modem for:
 - remote access of data
 - text triggering



Monitoring Regime – Air Quality and Dust

- Several Osiris meters at LB and Guy's
- Frisby gauges
- Diffusion tubes
- Glass Slides


 Guy's Hospital: 4th Floor Balcony

Monitoring Regime – Aspergillus

- 12 Weeks Monitoring Study
- Internal and external locations
- 40 minute samples taken daily at all locations
- Utilised expert laboratory support from Leeds University
- Significant liaison with Guy's and St Thomas' NHS Foundation Trust

Trials to ascertain potential risks

- Temple also carried out additional trials during demolition of Southwark Towers
- Aims of trials were to measure potential noise and vibration impacts of demolition techniques employed on PWC building, in a controlled environment
- Predict potential impact of future demolition phases



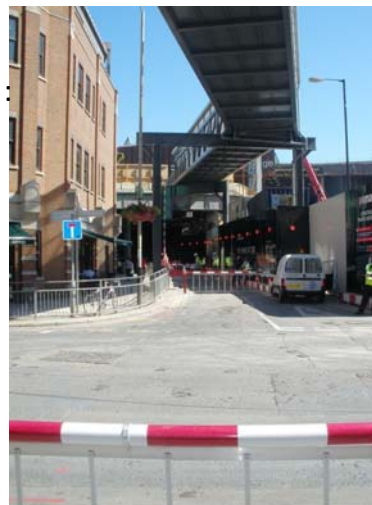
Trials to ascertain potential risks

- Concrete blasting - innovative technique proposed and used for demolition of concrete slab of Southwark Towers



Logistics

- Significance of Traffic Management :
 - Avoiding congestion pollution
 - Avoiding delivery delays – slippage to programme – maximising efficiencies
 - Avoiding cumulative effects with other developments & public transport



Logistics

- Traffic Management Rehearsal



Section 61 Process

CoPA Section 61 process has been adopted
 Significant consultation with Local Authority
 (and ongoing) in determining:

- Hours, duration and nature of works
- Prediction of levels for construction periods
- Work methods & adoption of BPM
- Compliance monitoring
- Audit/Assurance
- Stakeholder engagement

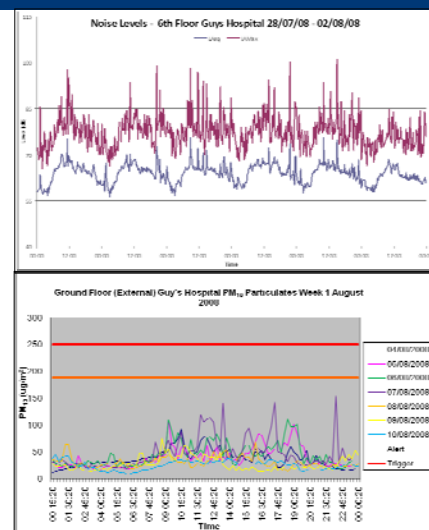


Environmental Trigger Action Plan

- Bespoke action plan based on measurements and predictions
- Trigger level thresholds have been set/agreed with stakeholders and have buy-in from all parties
- Much of the monitoring equipment has GSM text triggering capability, allowing for instantaneous action
- The ETAP sets out a plan of action if trigger levels are exceeded:
 - Investigative procedures & response times
 - Trigger incident & close out reporting

Ongoing Reporting

- Monthly monitoring reports:
 - Levels presented over entire month
 - Analysis of levels
- Trigger exceedence reports:
 - Peak levels shown
 - Investigation into what caused exceedence



Stakeholder Engagement - Coordinating Construction

- Stakeholder engagement at all stages of development
- Regular Guys' liaison meetings
- Noise training sessions for Network Rail
- Regular meetings with Southwark Council officers/politicians
- No surprises approach - open & transparent engagement



Resources and future funding options

- 100 + Schemes in progress / process
- Co-ordinated Logistics – [Bankside brief]
- FTE 1.5+ principal officers [£75k]
- Section 61 is non-fee based process !
- Section 106 PPS23 Annex 1 para 1.50 AQ measures [£]
- Section 2 Local Government Act 2000 [£]
- Environmental Protection Act 1990 - A2 processes
 - Why not include largescale Major Developments in permitting process ?
 - Major development defined T&CP- GDPO 1995 :
200+ dwellings or 10,000+sq.m commercial or mixed equiv.
- Control Of Pollution Act 1974
 - Why only noise and not all environmental impacts ?



Environment Planning Management



Thanks for Listening

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