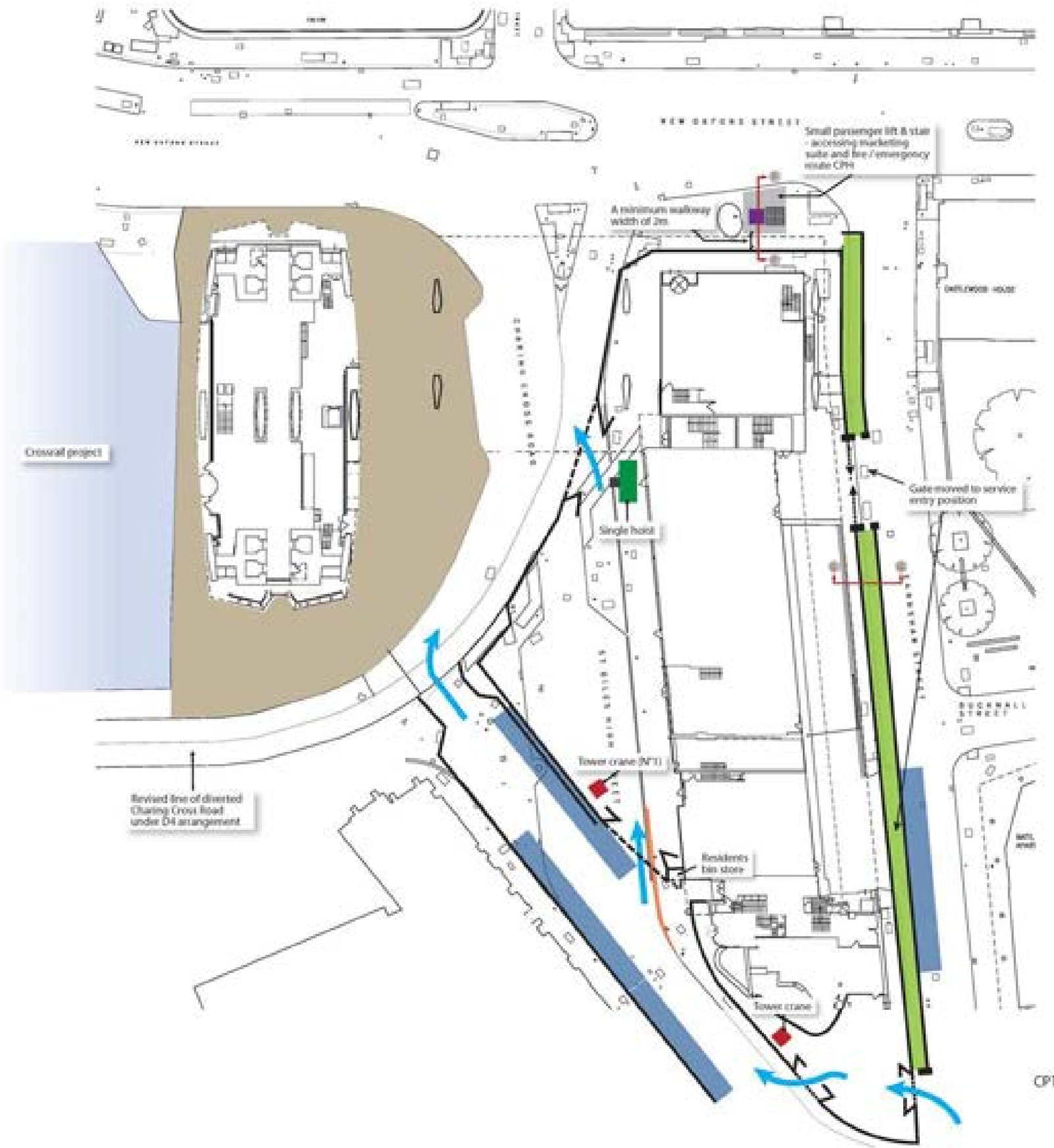
Centre Point Tower

Site Logistics

Jan 2016 - Jun 2016

Sir Robert McALPINE



Note: All site gates will be marshalled

LEGEND

- Site access / egress
- Gantry
- Bus stands
- Completed external works
- Site Hoarding
- Kerb realigned to provide site access adjacent to bus stand
- Tower Crane

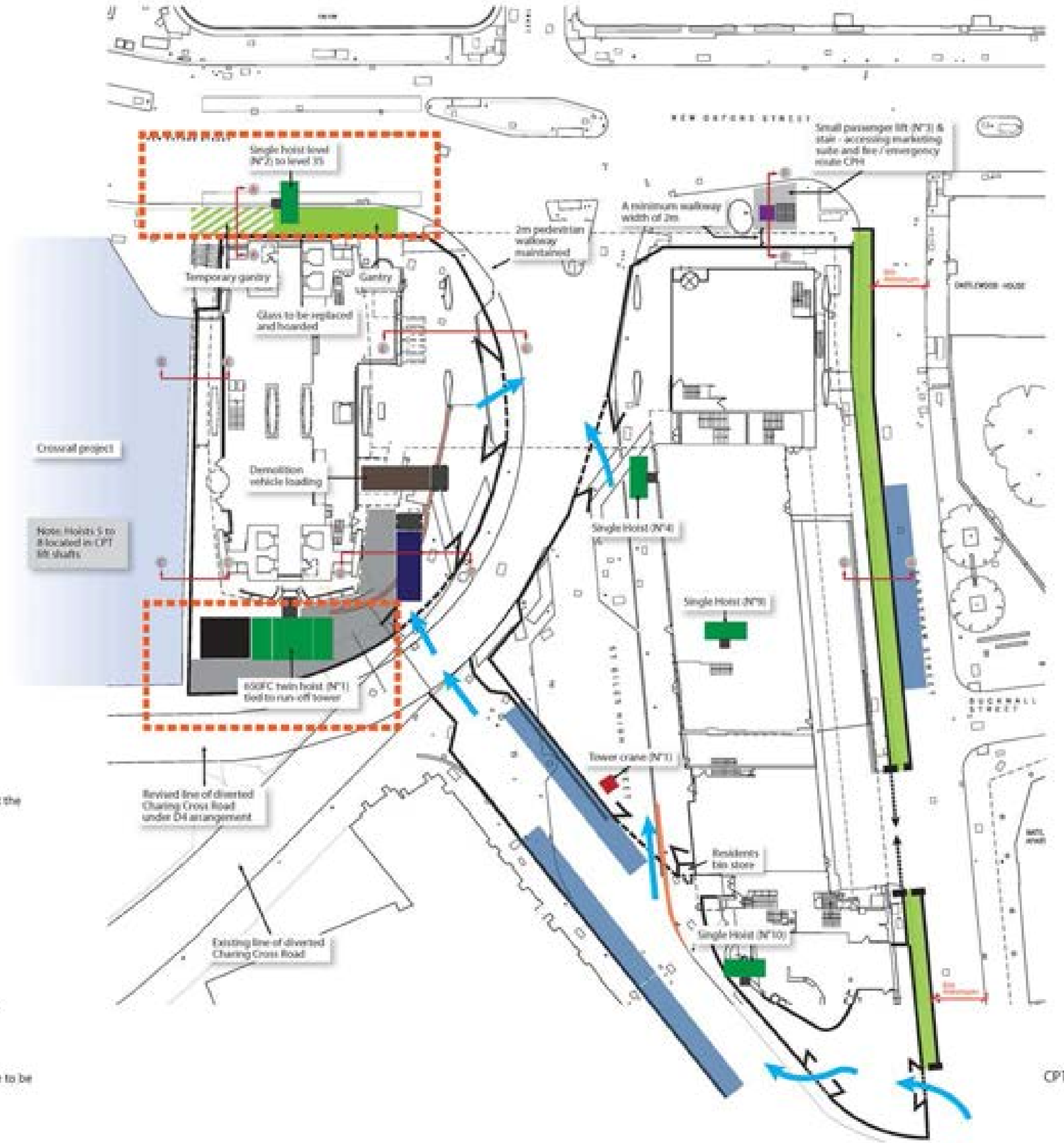
CPT/McA/PC/002 Rev F

Centre Point Tower

Site Logistics

Jan 2014 - Dec 2015

Sir Robert McALPINE



Note: All site gates will be marshalled

LEGEND

- Site stairs & fence to be removed at earliest opportunity
- Site access / egress
- Temporary gantry to be removed to allow Crossrail works at the appropriate time
- Gantry (for the duration of Centre Point redevelopment)
- Bus stands
- Loading out platform
- Site Hoarding
- Kerb realigned to provide site access adjacent to bus stand
- Tower Crane
- Crossrail interface - exact interfaces, details and programme to be agreed as per on-going meetings

CPT/McA/PC/001 Rev F

Appendix G – Demolition Contractor's Method Statements

Demolition Method Statement			QA35
Site Name:	Centre Point	Site Address:	New Oxford St, London W1
Site Contract Manager:	Nick Ward	Manager for Work Area:	Colin Burley
Work Start Date:	7th April	Work Duration:	7 months
Work Days	mon – fri sat	Work Times:	0800 - 1800 0800 – 1300
Scope of Works	asbestos removal, soft strip, structural demolition to ground floor, stitch drilling and concrete cutting, temporary works to basement level, removal of basement slab and obstructions below, backfill to ground level and formation of piling mat.		
Document Approval Information			
Document written by:	Nick Ward	Issue Date:	
Issued To: (Company)	SRM	Company Role:	main contractor
Person Issued to:	John Ridout	Job Function:	Project Engineer
Approval Date:		Approval Signature:	
Approval Assessment Comments			
Document Ref	CP/NW/CPW/	**Revision Ref**	00

Work Area Risk Management (List the identified hazards with these works, then the provided Risk Assessments)	
Identified Work Related Hazards	List Provided Risk Assessments (Insert in Appendix A)
	RA 06 Manual Handling - Moving Site Debris
	RA 08 Preventing Falls from Height
	RA 10 Working with Hand Tools
	RA 20 Access to Demolition Work Area
	RA 25 Strip out of Buildings
	RA 29 Dust Controls on Site
	RA 37 Loading bins with strip out materials
	RA 42 Managing Slips, Trips and Falls
	RA 73 Working with Hand held Power Tools
	RA 75 Wearing PPE On Sites
	RA 69 Managing the risk of Hand Arm Vibration
	RA 12 Breaking Concrete Using Excavator
	RA 31 Locating On site hidden Live services
	RA 40 Site Excavation Works
	RA 43 Sheet piling management
	RA 150 CC Diamond Saw Cutting Concrete Materials
	RA 106 Lifting Operations Using Waste skips
	RA 109 Manual Handling - Scaffolding
	RA 151 CC Breaking Concrete using Brokk Machine

Work Area COSHH Risk Management

(List the identified COSHH hazards with these works, then the provided COSHH Risk Assessments)

Are hazardous substances to be used in the work? YES / NO	Are hazardous substances to be found in the workplace? YES / NO
Identified Work Related COSHH Hazards	List Provided COSHH Risk Assessments (Insert in Appendix B)
	RA 200 COSHH RA - Diesel Fuel
	RA 201 COSHH RA - Airborne Nuisance Dust
	RA 203 COSHH RA - Tool Grease
	RA 204 COSHH RA - Hydraulic Oils
	RA 205 COSHH RA - Oxygen

ASBESTOS

Prior to these works commencing, all asbestos containing materials must have been identified within an Asbestos Refurbishment & Demolition Survey and removed so far as reasonably practicable before these works commence. If licensable asbestos has been removed from this work area this must be confirmed by an issued Certificate of Reoccupation before these works commence.

Any unrecorded asbestos containing materials found during these works must be reported to site management immediately and all work in the area shall halt and not continue until the risk has been eliminated.

Work Area Safety Management (Tick the relevant boxes)								
Work Area Mechanical Services	Water Supply	Live		Isolated	x	None	
	Gas Supply	Live		Isolated	x	None	
	Gases on Site	Live		Isolated	x	None	
Work Area Electrical Supplies	110 Volt Supply	Live		Isolated		None	x
	240 Volt Supply	Live		Isolated	x	None	
	415 Volt Supply	Live		Isolated		None	x
Services which are to remain Live and Location	• **Sub station within basement area to west side**						
M & E Services required (tick)	Work Area Water Supply	x	Work Area Power	x	Work Area Lighting	x	
Work area main access location	Pedestrian Access Point	**via the pedestrian point in hoarding**		Vehicle access Point	**southern access point from St Giles High St.**		
Means of access to work area	• Ground Level	x	• Scaffolding	x	• Podium Steps	x	
	• Staircase	x	• Mechanical Plant		• Ladders	x	
			• Access Tower		• Others		
Nearest Fire Point Locations to Works	1. tbc 2.						
First Aid	Site First Aiders:	Mr Nick Ward Mr Colin Burley					
	First Aid Equipment location:	**SRM site office, Level 14 & 27**					
Local A & E Hospital	**University College London, Gower St, London W1**						

Site Emergency Procedures

Fire:	In the event of a fire on site, switch off all plant, make all equipment, tools and work areas safe, leave the area and notify the Project Manager and Demolition Manager immediately. **Only the Project Manager shall dial 999 for Fire Service**
First Aid:	In the event of a site accident, the injured party must contact first aiders and get treated. If the injured person cannot move, they should be made comfortable, the area made safe, then notify the first aider and the project manager immediately. All accidents **must** be recorded in the Site Accident Book
Site Evacuation:	For fire and any site evacuation, leave the work area and assemble at the Site Muster Point - Site Main Entrance

Method of Work

Introduction

This demolition method statement is to provide an overall description of the scope of works and the process to be used by those undertaking the works.

During the progress of the works, it may be necessary to carry out additional works, alter the method of work, or clarify tasks within this document. This will be confirmed by the use of "Task Sheets", (QA35A) which will be appended to this documentation within Appendix D.

A record of all "task Sheets" will be recorded within the method Statement Amendment Record on Page 16.

1. Preliminary Demolition Works

The existing public house, was formerly the White Lion Pub and is mentioned in the Tender Document as such. The pub is now called the Intrepid Fox.

Drawing A12504/VAA/450 shows the main building between G.L. 13-14 to be demolished.

Due to the permanent works required, the basement slab is to be removed in the areas shown. Using the Site Investigation Report, by Concept Site Investigations, drawing 132542/fr03 has the location of bore holes in the basement to be removed. The Borehole logs show the existing concrete to be between 2m and 2.27m below basement slab level.

Our Sketch no 1 (attached) shows the plan and section through the work, using the information on the Tender drawings. From this sketch we can see that the top of the basement slab is 2.4m below ground level; this will then give us a maximum depth of 4.67m below the ground.

Now that we have established the level and condition of the ground, we can produce a method statement that will show how the following items are dealt with.

1. Temporary Works to support the excavation and avoiding disturbance of the ground that could undermine other structures or the Highway.
2. Kepping within agreed noise, dust and vibration levels
3. Avoiding underground services and Party Wall issues.
4. Protection of the UKPN sub station
5. Protection of the Highway
6. Avoidance of disturbing Underground train services or tunnels
7. Avoidance of damage to services
8. Protection to the public and Highway users, maintaining safe access routes.

Preliminary Demolition Works (cont/..)

With vacant possession of the building we will undertake the outstanding R & D survey to assess the extent of the remaining asbestos contaminated areas, and any other hazardous items.

Whilst this report is being complied we will continue with the erection of the perimeter protection scaffolding adjacent to the noise protective shroud that is being erected below the neighbouring resident block. Our specialist scaffold contractor will produce their specific RAMS for this activity which will detail the tying, process of erection and dismantling and also contain the design calculations & drawings, etc.

The noise, dust and vibration monitoring locations will have been established by the main contractor prior to these works commences and the levels established within the planning award, we will also install localised monitoring equipment to actively record at source the levels of each activity and react accordingly when close to each set level, ensuring that none are breached during the works. This is also relevant for the neighbouring UKPN sub-station within the current basement.

Below the basement level and outside of the site are the new Crossrail tunnels extending from the Tottenham Court Station re-development, these are not affected by our works as the depth and method of break out create minimal levels of vibration and / or movement, well within permitted levels.

The existing services within the basement will be isolated back to the current incoming location / meter point, whilst the termination of supplies will be processed by the main contractor, this is essential for the demolition below ground to be achieved.

The hoarding of the site will be erected on the agreed site boundary, this will include the closure of the current footpath around the southern boundary, and pedestrians will be re-directed accordingly to the agreed Camden Council policy. A logistics plan has been established as part of the overall scheme with vehicle access gates for the removal of site debris and delivery of required plant and scaffold.

The removal of the ACM denoted in the survey will then be undertaken before the commencement of the main demolition works so that the building is safe to demolish and after the loose furniture has been removed from the building allowing the areas to be tented according to current regulation. On completion of these works and the issue of clearance certs the main demolition will begin.

The remaining soft strip items will then be removed from the building using a combination of hand tools, to remove door frames, floor coverings, ceilings, partitioning, etc. The items will be broken down into manageable section sizes so that they can be safely transported through the building to ground level, where they can be loaded into a waste bin using the attendant excavator. Operatives will wear the correct PPE to ensure that dust and small debris is prevented from causing eye injury throughout the works.

Our structural engineer will have analysed the drawings of the existing structure to asses the requirements for backpropping of the demolition plant during this preliminary period, and designed proposals according to our requirements, which we will install during the soft strip period.

Method of Work (Contd)

2. Main Demolition Works

The first activity of hard demolition will be to create the ground level working space for the crane and subsequent lorry movements, a mid size excavator will be delivered via Earnshaw St and un-loaded under the control of the traffic marshals, it will track through the site gates and begin to reduce the current raised terrace area and glazed canopy area using a pulverising / cracker attachment to reduce the possible noise levels of the activity, this will also include the removal of the tree so that the appropriate crossover can be constructed..
The resultant debris will be separated into the appropriate waste streams and loaded into roll on off bins or tippers. Consignment note will be raised for each load from site and the details entered in the SWMP for the project.

Due to the small footprint of the public house it is our intention to demolish the upper floors of the structure using a small remote control BROKK excavator or similar sized regular mini excavator. Utilising the scaffold, operatives we will strip the roof level and pass the arisings down through the building, allowing them to stockpile at ground level. Openings formed through the building will be secured with scaffold handrail and tagged accordingly, operatives will wear harnesses until suitable edge protection is handed over and throughout their construction.

The plant will be lifted to roof level using a small City crane positioned in the access roadway, a lifting plan will be developed by the supplier in conjunction with SRM, to ensure that no loads are passed down through the newly formed tunnels, and that clear access is provided around the work zone.

With the plant safely positioned on the roof level we will then demolish the remaining structure floor by floor down to the 1st floor level. The construction of the public house is a reinforced concrete frame with pot and beam floors, typical 1960's design. This lightweight construction is easier to demolish and does not require the use of hydraulic hammers and can be quietly demolished by comparison with cracking attachments.

If the tower crane is available / has suitable jib length, we will utilise it to lift larger sections of structure such as staircases to avoid the demolition insitu and load these directly into awaiting lorries for processing off site, further reducing noise, duct and vibration from the works.

As each level is demolished the scaffold will be reduced behind it, whilst always being 2m above the highest level, to maintain protection from the works. At 1st floor level the small demolition plant will be lifted clear and the remaining structure will then be demolished using the mid excavator situated at ground floor, after the southern elevation scaffold has been struck allowing access. Throughout the process operatives will be in attendance with water sprays to minimise the effect of the works at source, whilst the monarflex sheeting will shroud the works.

Protection to the UKPN sub-station will be considered throughout the works, the reinforced concrete box that currently houses the transformers is detailed on original construction drawings and as such is sufficient in strength to tolerate the works that we are undertaking, as a pre-caution our structural engineer will asses the drawing and devise a scheme, where applicable for the protection / retention of this and any other retained item throughout the works.

Method of Work (Contd)

Main Demolition Works-(Cont/…)

With the building demolished to ground level and the debris cleared we will begin the works to reduce to basement slab level, our engineer will have considered the retention of the basement wall on the east elevation, for the duration of the works whilst understanding the piling scheme and removal of further sections of ground to the southern elevation.

The removal of the basement slab will be considered for the use of diamond drilling equipment to create the necessary isolations from the retained items and also reduce the noise and vibration potential of the works.

Stitch drilling will be undertaken to the perimeter of the basement slab along each elevation to create the initial isolation from the neighbouring structures, the stability of the walls will be maintained initially by leaving the ground floor slab in place and the internal walls at basement level. The perimeter core will then be filled with compacted crushed material to maintain the lateral support at the toe of the walls.

The ground slab can be broken out between the beams to provide access for the drilling equipment and for the delivery of the infilling crushed material, whilst the beams provide the plan bracing to the basement. Edge protection will be installed by the incumbent scaffolding contractor prior to the break out to ensure that edges are protected before break out.
The internal walls will also remain until the sections of basement slab are to be removed so as to avoid the early introduction of additional temporary works.

Once the basement perimeter has been stitch drilled, the core will be removed and the void filled with compactable fill material to provide temporary lateral restraint, after further pile probing within each section to an agreed depth.

Our engineer will have assessed / designed the works to provide maximum working space at basement level, but it maybe necessary to install raking props to the wall on GL – V as a pre-caution.

We will then stitch the remaining slab into a checker board formation so that we can remove section of the slab and foundation below in an agreed sequence whilst still maintaining support to the basement walls.

A small section of the basement slab may need to be maintained to provide the support to the raking props, and these will be co-ordinated with the new pile locations.

The size of the squares will be determined by the engineer so that each section can be lifted by the attendant crane calibrated excavator. As each square is removed it will then backfilled and compacted with suitable fill material as per the perimeter holes, using a wacker plate or similar.

For the removal of the re wall on GL 14 we need to install a line of sheet piling at ground level to maintain the stability of the area, again the size of the sheets will have been calculated to minimise deflection and allow for the their removal on completion of the backfilling to ground level of the basement area.
A specialist sub-contractor will be employed for this section of works and will generate a site specific method statement prior to attending site for their installation and removal.

Method of Work (Contd)

Main Demolition Works-(Cont/…)

The wall will then be removed once the drilling and basement slab removal works are completed, so that the safety of the operatives is not compromised in the small working space. The excavator will progressively reduce the height of the wall from the ground level utilising the attachment to break down between the line of sheet piling and wall to expose the top of the rc section. The cracker attachment will then work across the top of the wall reducing the height and allowing the debris to fall within the basement area, periodically the excavator will switch to its bucket attachment to clear the debris to a waiting tipper as the resultant debris will not be suitable piling fill material. The soil and smaller material from behind the wall will be allowed to remain. The excavator will continue the reduce the wall down to below the basement slab level clearing the section of foundation, before commencing the backfilling sequence.

The existing sub-station on the west elevation of the basement will remain in service throughout the works, and the stability issues from the core drilling at the junction will not materialise due to the floor level of the sub station being of a greater depth that the basement area that we break out, and also by back filling progressively as each section is removed.

On completion of the break out and pile probing works we will then begin the process of backfilling the basement void with suitable fill material in progressive layers and compacting back to ground level. An assessment of the loads imposed on the sub station will be undertaken, and if necessary further temporary works will be installed along this elevation during / prior to backfilling.

Personal Protective Equipment Required for Works

(Tick the relevant boxes)

Mandatory		By Risk Assessment	
• Safety Hat	x	• Eye Protection	
• Safety Boots	x	• Coveralls	
• High Viz Jacket (Vest)	x	• Hearing Protection	x
• Gloves	x	• R.P.E. Ori Nasal	
• Eye protection	x	• R.P.E. – Full Face	
		• Safety harness	x
		• Wellington Boots	
		• Waterproof Clothing	x

Welfare Facilities

Location of site facilities:	**within link building at 1st floor level**

The following welfare facilities are available for those undertaking these works (Tick)

Site Toilets	x	Site Canteen Facilities	x
Site Shower Facilities	x	Site Changing Rooms	x
Site Washing Facilities	x	Site Drying Room	x

Safety Auditing

To ensure the described work is compliant, the following Safety & Environment Inspections will be undertaken by the following persons: - (please tick)

Company Safety & Environment Management Representatives	x
External Safety Consultants	x
External Environmental Consultants	x
Scaffolding Safety Auditor	x

Plant & People Associated with Works	
List Plant to be used	List Equipment & Tools to be used
14t excavator + attachments sheeting piling plant 3t excavator + attachments 180 BROKK + attachments cranes	**diamond drilling plant scaffold hand tools Asbestos removal plant & equipment, etc.**

Trained Personnel associated with the works (Tick relevant boxes)			
Plant Operator(s) (CPCS Card)	x	Crane Lifting Manager	x
Demolition Operatives (CCDO Card)	x	Lifting Supervisor	x
Demolition Labourers (CCDO Card)	x	Slinger / Signaller(s)	x
Training First Aider(s)	x	Traffic Banksman	x
Fire Marshal(s)		Burner(s)	x
IPAF Trained		PASMA Trained	x

Sub Contract Trades associated with works (Tick relevant boxes)			
Asbestos Removal Work	x	Drainage Work	
Mechanical Services		Waterproofing Work	
Electrical Services		Tank Cleaning	
Scaffolding	x	De-Gassing Contained Gases	x
Craneage	x	Fencing/Hoarding	x
Temporary Works	x	Asbestos Consultant/Surveyor	x
Remediation Works		Environmental Consultants	x
Mechanical Access Plant Hire	x	Structural Engineer(s)	x
Designers	x	Waste Haulier & Disposal	x

Environmental Management Requirements (Tick relevant boxes)					
Is Environmental Monitoring required? (Circle)		If Yes, tick the relevant box			
Noise Monitoring	Yes	Continuous	X	Spot Checks	
Vibration Monitoring	Yes	Continuous	X	Spot Checks	
Asbestos Monitoring	Yes	Continuous	X	Spot Checks	
Dust Monitoring	Yes	Continuous	X	Spot Checks	
Confined Space Air Testing	No	Continuous		Spot Checks	
Hand Arm Vibration	No	Continuous		Spot Checks	

Waste Management

Hazardous Wastes YES / NO. If yes, provide details of type

- **tbc**
-
-

Non Hazardous Wastes YES / NO. If yes, provide details of type

- **tbc**
-
-

Waste Haulier: Hazardous Waste:
Name: tbc

Non-hazardous Waste:

tbc

Legislation

- The Health & Safety at Work etc. Act 1974
- The Management of Health and Safety at work Regulations 1999 (amended 2006)
- The Construction (Design and Management) Regulations 2007
- The Work at Height Regulations 2005
- The Control of Vibration at Work Regulations 2005
- The Control of Noise at Work Regulations 2005
- The Lifting Operations and Lifting Equipment Regulations (LOLER) 1998
- The Provision and Use of Work Equipment Regulations (PUWER) 1998
- The Control of Substances Hazardous to Health Regulations (COSHH) 2005
- The Personal Protection Equipment at Work Regulations 1992
- BS6187:2011 Code of Practice for Demolition

Environmental Legislation

- The Environmental Protection Act 1990
- The Control of Pollution Act 1974
- Site Waste Management Plans Regulations 2008 (April 2008)
- The Hazardous Waste Regulations 2005
- The Waste (England & Wales) Regulations 2011
- BS5228 Code of Practice for Noise Control on Construction and Demolition Sites

Asbestos Legislation

- The Control of Asbestos Regulations 2012
- L143 The Control of Asbestos Regulations ACOP
- HSG247 Asbestos: The Licensed Contractors Guide
- The Management of Asbestos in non-domestic premises (Approved Code of Practice – 4th Edition) L127

Legislation

- HSG 264 Asbestos: The Survey Guide
- HSE ALG Issued Memos
- ARCA Code of Practice
- **John F Hunt Limited Documents**

  All works will be undertaken in accordance with the following company documentation:

  - Health and Safety Policy
  - Asbestos Waste Management Policy
  - Environmental Management Policy
  - Company Safety Standards

Method Statement Safety Talk Register		
Method Statement Safety Talk given by whom:		
Date of Safety Talk:	Numbers Attending:	
Persons Attending **(This register must be completed before works commence on site)**		
Name (Print Name)	Company (Print Details)	Signature

Method Statement Amendment Record
(Task Sheet Record)
(Task sheets to be inserted in Appendix D)

Task Sheet Ref	Date Produced	Task Sheet Author	Task Details	Work Start Date	Works Duration

APPENDIX A

RISK ASSESSMENTS
(TO BE INSERTED AFTER THIS PAGE)

APPENDIX B

COSHH RISK ASSESSMENTS
(TO BE INSERTED AFTER THIS PAGE)

APPENDIX C Documentation		
The following documentation supports this Demolition Method Statement (Tick relevant boxes)		
Asbestos Refurbishment/Demolition Survey (on site before any works commence)		
Asbestos Certificate of Re-occupation ***(After all licensable asbestos has been removed)***		
Construction drawings		
M & E Services Condition Report		
Structural/Temporary Works Survey		
Hot Work Permit		
Demolition Permit		
Confined Space Permit		
Permit to Dig (Excavate)		
Lifting Plan		
Scaffold H/O Certificate		
Hazardous Substances/Waste Survey		
Gas Free Certification		
M.E. Utilities termination certificates		
Surrounding Areas condition Survey		
Ecology Survey		
Sub Contractors Method Statements & Risk Assessments (Which have been Approved)		

APPENDIX D

TASK SHEETS
(TO BE INSERTED AFTER THIS PAGE)

Appendix H – Demonstration of Crossrail Compliance Requirements Record

Crossrail Comments on Developer's Safeguarding Submission:Development:centrepoint – Intrepid Fox received 02.10.13

Crossrail comments on Developer's Safeguarding Submission: Development: Centrepoint – Intrepid Fox
Doc. No: A12504-VAA-RP-005 rev A, (CDS) Rec'd 29/08/2013
Doc No: PF-12504-VAA-TS-008 Rev 0, (Preliminary Monitoring Plan), rec'd 19/08/2013
Comment Date: 04 Sept 2013
Response Date: 02/10/2013
Status: No objection at current stage

Demonstration of Compliance with requirements:

1	Avoidance of Protective Envelope?	✓
2	Mitigation of Ground Movement from Tunnelling?	✓
3	Imposition of acceptable ground movement on Crossrail Tunnels?	✓
4	Curtailment of Surcharge Loading?	✓
5	Concurrent working: Construction Management Plan acceptable?	✓ Subject to confirmation of construction access/ egress arrangements
6	Mitigation of Groundbourne Noise & Vibration?	? TBC

Comments Prepared by Geoff Rankin				Reviewed by Geoff Rankin
No.	**Ref.**	**Comment**	**Response**	**Response OK? Y/N**
1	**Doc. No A12504-VAA-005 Rev A** Dwg A12504/VAA/501 rev	The 'Notes' depicting clearance from Crossrail tunnels do not strictly reflect Figure 1 of Crossrail's Information for developers Guide – March 2012. Please confirm the correct interpretation is adhered to in the design and that no misinterpretation can arise. Please advise the distance of the nearest pile to the tunnel. It would appear to be the case but please confirm pile construction tolerances do not encroach inside the exclusion zone.	Further to our telephone conversation – noted. We have checked the plan drawing and find its drawn dimensions reflect Crossrails requirements. We will amend drawing notes accordingly. However as per note below we require digital CAD information from Crossrail to finalise tunnel location. Digital Crossrail drawing information required to verify design and relative distances.	Y

		Is the tunnel alignment shown extrapolated from the final design CAD model or the issued route plan & profile pdf? Crossrail can provide a model in microstation if required.	The piles have been positioned such that they remain outside the Crossrail exclusion zone. The positioning of the piles has been based on a +/-75mm positional tolerance at piling mat level and an inclination tolerance of 1:75. This results in a maximum offset of approximately 75mm + 325mm = 400mm Tunnel alignment based on pdf currently. We require digital CAD information.	
2	5.1.2.3	What is the likelihood that the proposed pile toe level (94.5m) will be lifted, and if so are the calculated tunnel stresses sensitive to the likely range of lift?	This is unlikely based on the loads and geotechnical information we have used to undertake this design. Final pile design will be undertaken by the main contractor. We will set down a restriction in the ER setting a maximum height to the pile toe	Y
3	5.1.2.3	Please confirm that as-built pile logs will be free-issued to Crossrail for information shortly after their construction.	Yes	Y
4	5.1.2.3	Please advise the design (diameter, x, y cords) and construction method for installation of the piles and walls. Please note Crossrail's concern that if the pile bores are left open for any length of time without concreting this could give rise to relaxation of horizontal stress and movement of the tunnel lining. What steps will be taken to mitigate this risk?	Coordinates will be provided on all subsequent drawing issues. The construction method of the piles and walls is currently being finalised. This concern is noted and will be incorporated into specification requirements for the construction of the building. This method of working will be developed in detail with the Main Contractor	Y
5	6 And Document PF-12504-VAA-TS-008 Rev 0	It can be seen from inspection of Drawing A12540/VAA/501 rev A that the width of the excavation of the new basement is relatively narrow, short in length and also offset from the tunnel alignment, and hence unlikely to generate significant heave.	Calculation approach enclosed in the developers impact assessment 12504-VAA-RP-005-C. Detail of FE analysis available upon request.	Y

		Therefore subject to receiving calculations confirming the magnitude of predicted in-tunnel movements, Crossrail would be receptive to considering a reduced monitoring regime, comprising: • Surface or shallow monitoring as the Developer deems necessary to control its ground movement during its excavation of the basement (with monitoring results to be free-issued for information to Crossrail if requested), • pre- and post-construction in-tunnel surveys. It is suggested that just a visual/ photographic inspection and laser cloud survey, within +-50m of the development may suffice. Please comment on this plan.	• Monitoring proposals outlined in Pell Frischmann report 12504-SP-M01-Rev A • Monitoring proposals outlined in Pell Frischmann report 12504-SP-M01-Rev A	
6	Not yet covered in CDS submission	Generally this document considers the addendum but not the main body of the guide Information for Developers – March 2012. The following appear not yet to have been included in the CDS submission • Assessment of resilience to the effects of groundbourne Noise & Vibration • Details of assumed ground conditions and the GI basis for the foundation design. Please note that Crossrail believes there to be evidence of faulting and variation in the depth of the Lambeth/ Thanet boundary in this area. • Developers project contact details • Outline Project programme • Confirmation of construction access and egress arrangements	Noted. • Commentary enclosed in the developers impact assessment 12504-VAA-RP-005-C • Excerpt of the Concept Ground investigation report enclosed • Enclosed in the developers impact assessment 12504-VAA-RP-005-C • Enclosed in the developers impact assessment 12504-VAA-RP-005-C • Enclosed in the developers impact assessment 12504-VAA-RP-005-C	Y

Appendix I – Monitoring Plan

Ref: PF-12504-AA-SP-M01 revision A dated 21.02.14

Pell Frischmann

excellence through innovation

Centre Point

Monitoring Plan

21st February 2014

PF-12504-VAA-SP-M01
Revision A

Submitted to Almacantar Centre Point LP

REVISION RECORD Report Ref: P:\125-\A12504-VAA CENTRE POINT - STRUCTURES-(MH)\GEOTECH\CROSSRAIL MONITORING\A12504-VAA-TS-008 REV A.DOCX					
Rev	**Description**	**Date**	**Originator**	**Checked**	**Approved**
0	Draft for comment	Aug 2013	KS	HON	HON
A	Document reference amended. Issue for Crossrail Approval	21.02.14	KS	AM	HON

Prepared for:

Almacantar Centre Point LP
3 Quebec Mews
London
W1H 7NX

Prepared by:

Pell Frischmann
5 Manchester Square
London
W1U 3PD

CONTENTS

APPENDICES

1. Introduction

The recommendations of this document are as a result of Developer's Impact Analysis (Doc. No. A12504-VAA-RP-005) undertaken by Pell Frischmann which assessed the impact of construction activities associated with the Centre Point refurbishment project on nearby Crossrail infrastructure.

The assessment demonstrated that the impact of load changes, as a result of the development of the Intrepid Fox public house on Crossrail assets was likely to be insignificant. In particular, the only asset where any potential interaction was identified was the east bound running tunnel which passes in close proximity to the southern end of the site

2. Anticipated movements

This evaluation undertaken in the Developers Impact Analysis (DIA) concluded that the construction activities associated with the redevelopment of the Intrepid Fox will result in a nominal vertical stress reduction at the crown of the tunnel (approx. 13kPa) which would have a negligible effect on the Crossrail tunnel lining with minimal deformation occurring.

In accordance with the requirements outlined by the Crossrail document 'Addendum to the Crossrail Safeguarding Guide: Information for Developers – March 2012' it is necessary to establish the likely magnitude of tunnel deformation in order to establish an appropriate monitoring regime. The DIA demonstrated that the likely movements, as the result of the excavation, are of the order of 2-3mm.

3. Proposed Monitoring

The recommendations of this document are as a result of Developer's Impact Analysis (Doc. No. A12504-VAA-RP-005) undertaken by Pell Frischmann which assessed the impact of construction activities associated with the Centre Point refurbishment project on nearby Crossrail infrastructure.

3.1 Surface level

A number of survey stations will be established at ground level to monitor the impact of the Centre Point refurbishment works on the behaviour of the ground. These are indicated on Figure 1 in Appendix B.

These points will be surveyed on a monthly basis to monitor their actual movement against anticipated calculated movement estimates to ensure they are within acceptable limits.

This monitoring will also serve to inform the Centre Point and Crossrail teams as to whether the subsurface monitoring regime requires enhancement or indeed may be reduced in scope.

3.2 Sub-surface

In light of section 2.0 above, and the minimal anticipated lining deformation, it is proposed that monitoring of the tunnel integrity will be undertaken by carrying out a pre-construction condition survey, followed by two further condition surveys, one following exaction of the new basement construction and a final survey approximately three months after completion of the building structure and cladding. This is outlined on the programme presented in Appendix A.

4. Response to Monitoring

The intention of this monitoring regime is to demonstrate that there is no detectable effect on the Crossrail tunnel lining resulting from the Centre Point refurbishment works.

Should the ongoing monitoring regime identify ground movement resulting in unacceptable overall movement or deformation of the tunnel lining the impact of these movements and their possible cause should be identified. Should this be attributable to the works being undertaken at the Intrepid Fox public house then associated construction activities will be put on hold until such time that a remedial solution is identified to prevent further future movements.

5. Reporting

The surveys will consist of a visual inspection of the tunnel. It is proposed that the section of the tunnel to be inspected should extend approximately 25m in each direction from a datum point consistent with the closest point between the tunnel and the extended basement excavation, (see Figure 2 in Appendix B)

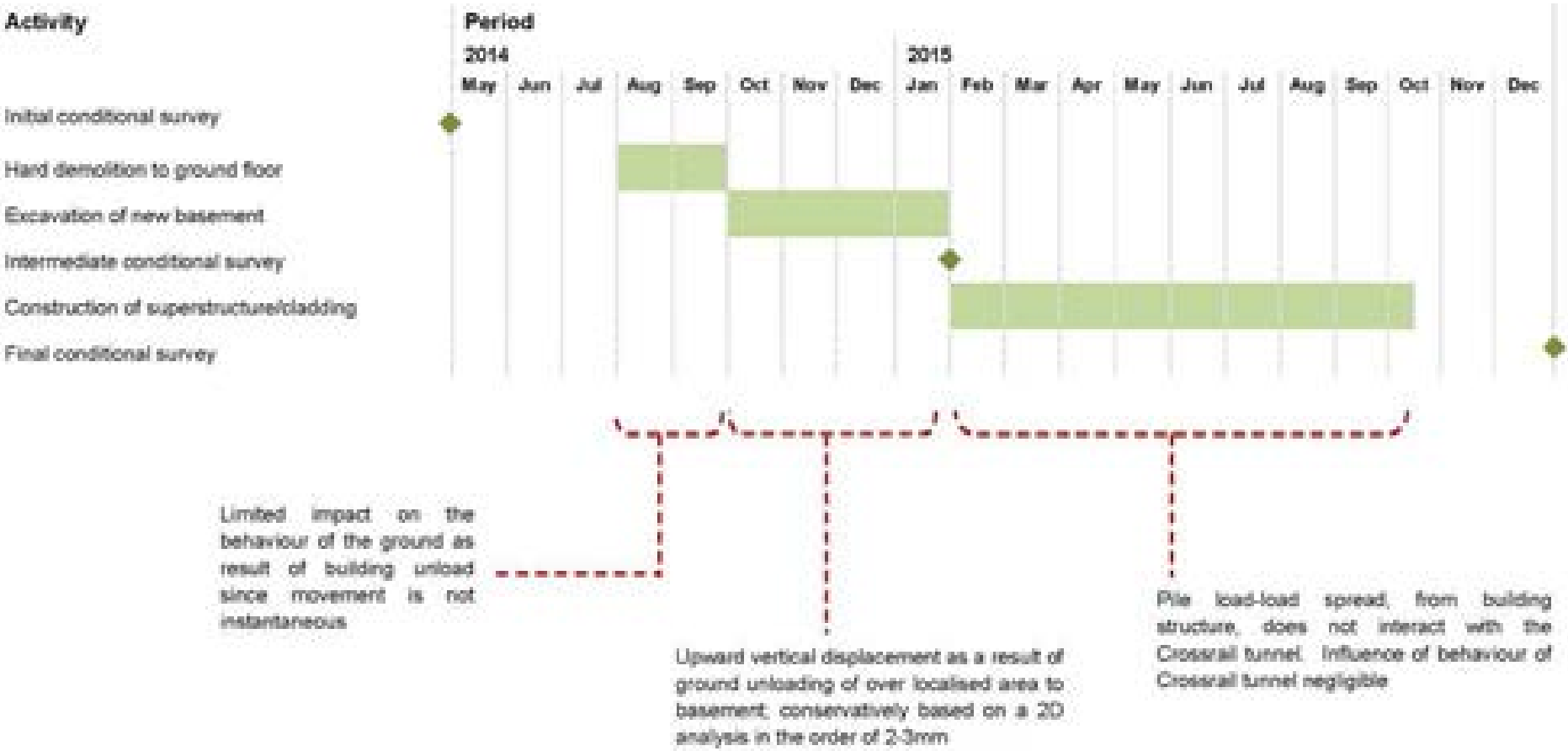
The condition surveys will be undertaken by Crossrail (or their nominated Contractor) in conjunction with Pell Frischmann Engineer. Following each survey, Crossrail or their Contractor will issue a report for approval by Pell Frischmann.

The contents of the report will consist of photographs and descriptions as required to record the condition of any defects or otherwise over the surveyed tunnel section. This report will be freely available to the following nominated parties:

Organisation	Role/Responsibility	Contact
Crossrail	3rd Party Developments Manager.	Geoff Rankin
Pell Frischmann	Engineer	Kevin Stone
Almacantar Centre Point LP	Client	Geoff Taylor
Sir Robert McAlpine	Main Works Contractor	Nigel Taylor

Appendix A – Monitoring Programme

Monitoring proposals as a result of Centre Point White Lion House construction activities



Appendix B – Drawings

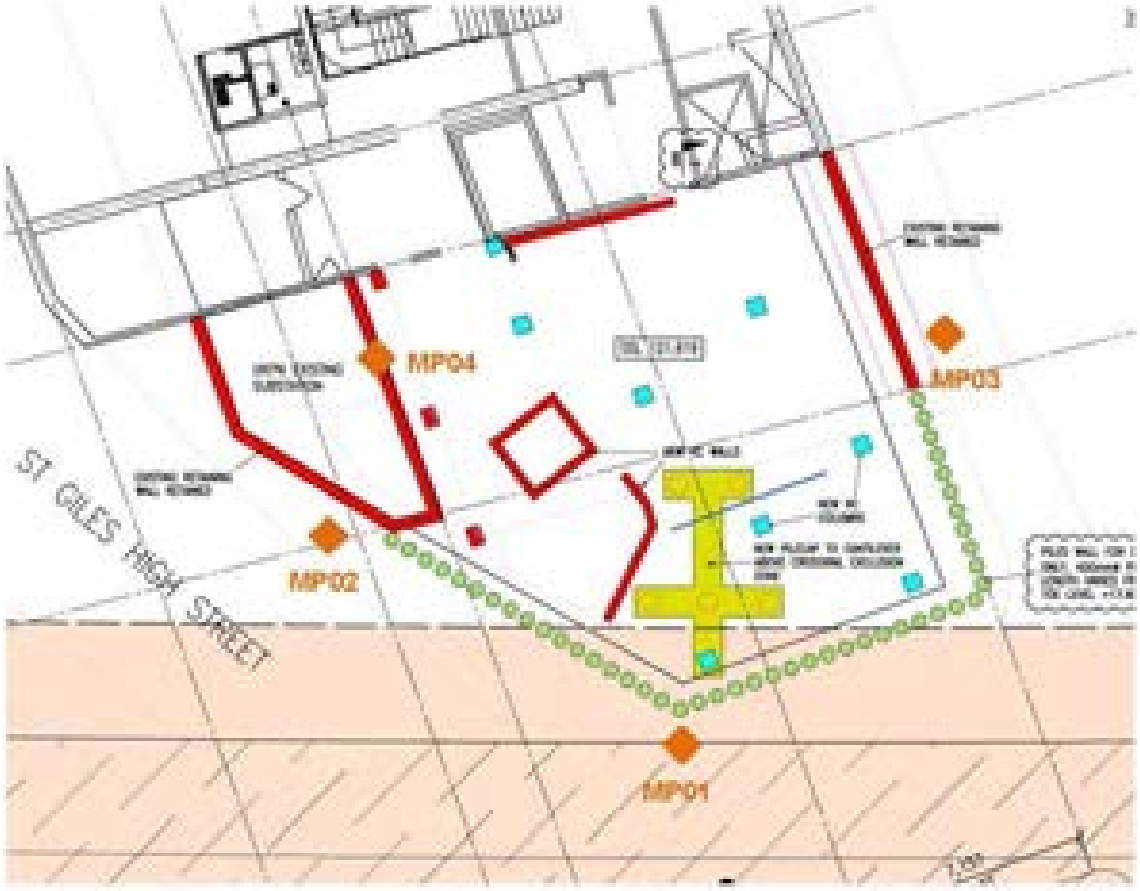


Figure 1 Ground level monitoring survey stations

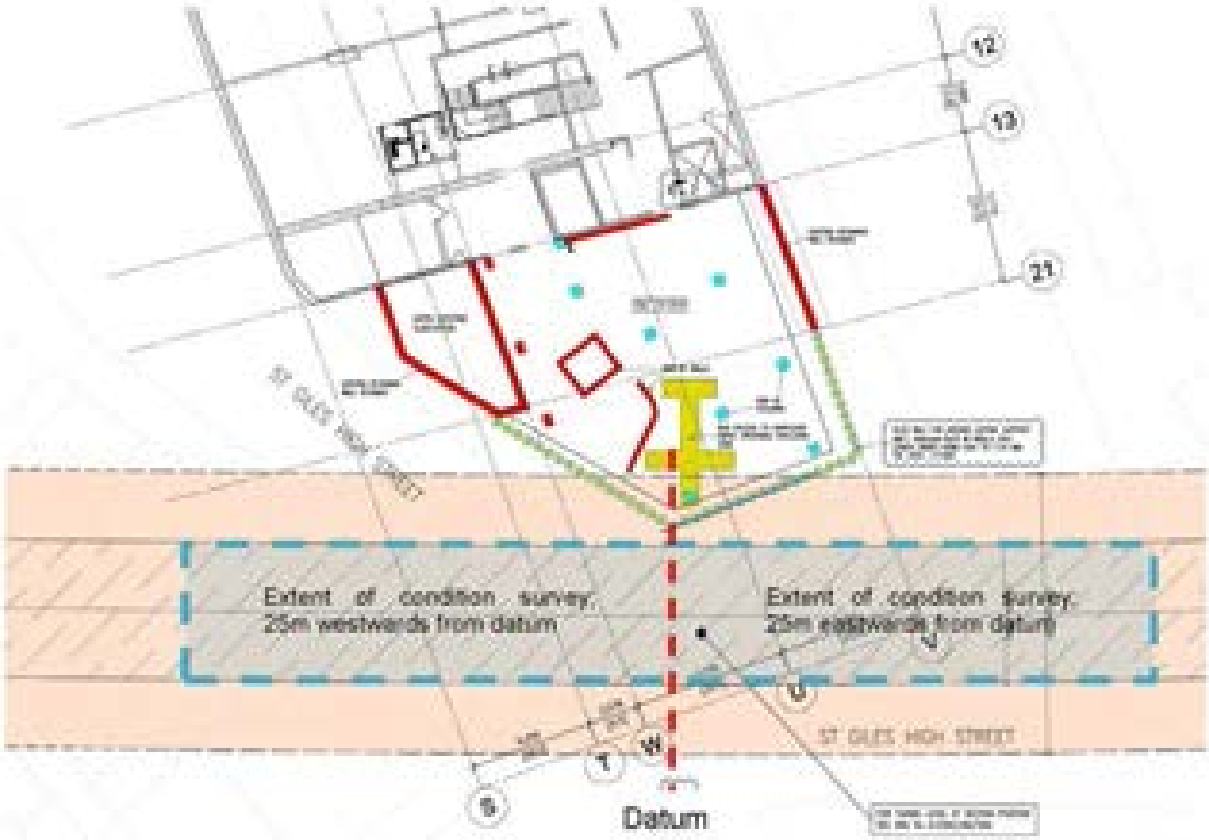


Figure 2 Proposed extent of tunnel condition survey

Appendix C

References:

Britto AM and Gunn MJ (1981) Critical State Soil Mechanics, Ellis Horwood Ltd. ISBN 0853129371.

CRISP User's Guide. The Crisp Consortium. Available at www.mycrisp.com