Model form of Approval in Principle for the design of bridges and other highway structures where UK National Standards (Eurocodes) are used

WBD | STRUCTURES

2019263-WBD-SW-XX-REP-TW-001

Temporary Works AiP – The Fitzrovia , 247 Tottenham Court Road, W1T 7QZ

ISSUE	DATE	DESCRIPTION	BY	CHECK	STATUS
P01	10.06.2021	First Issue	SP	SL	
P02	13.10.2021	Updated to address comments	SP	SL	

Status: tender (T), proposal (P), approval (A) and construction (C)

Report Issue Date: October 2021
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AIP, CG 300

Name/ Address of project: 247 Tottenham Court Road, W1T 7QZ

Summary:

This AIP covers the elements of temporary works design related to demolition of the existing buildings on site bounded by highways on three elevations up to and including existing basement slabs. The follow on basement excavation and pile installation works will be covered under a separate submission. The need for a Highways AIP has been identified as a planning condition [c.4.2.1(a)].

1 Highway Details

1.1 Type of highway

The site is bounded by highways on three elevations:

Figure 1, site map

Tottenham Court Road (A400) – A - road

Bayley Street – unclassified

Morwell Street – unclassified

1.2 Permitted traffic speed

20mph on all roads

1.3 Existing restriction

N/A

2 Site Details

2.1 Obstacle crossed

N/A

3 PROPOSED STRUCTURE

3.1 Description of structure and design working life

This submission covers demolition works to the existing buildings up to and including demolition of the existing basement slabs. Existing basement retaining walls will we largely retained.

3.2 Structural Type

Top down demolition will be carried out utilizing 13T excavators working on existing concrete slabs. Temporary propping under the loaded slabs will be provided to redistribute the loads from the plant and arisings to the lower floors.

To minimize temporary works requirements to the existing retaining walls the basement will be fully backfilled and compacted using the arising from the top down demolition. Backfill material will provide full lateral restraint to the basement walls before demolition of the ground floor slab commences.

3.3 Foundation type

No temporary foundations are required for the demolition phase of the project.

3.4 Span arrangements

N/A

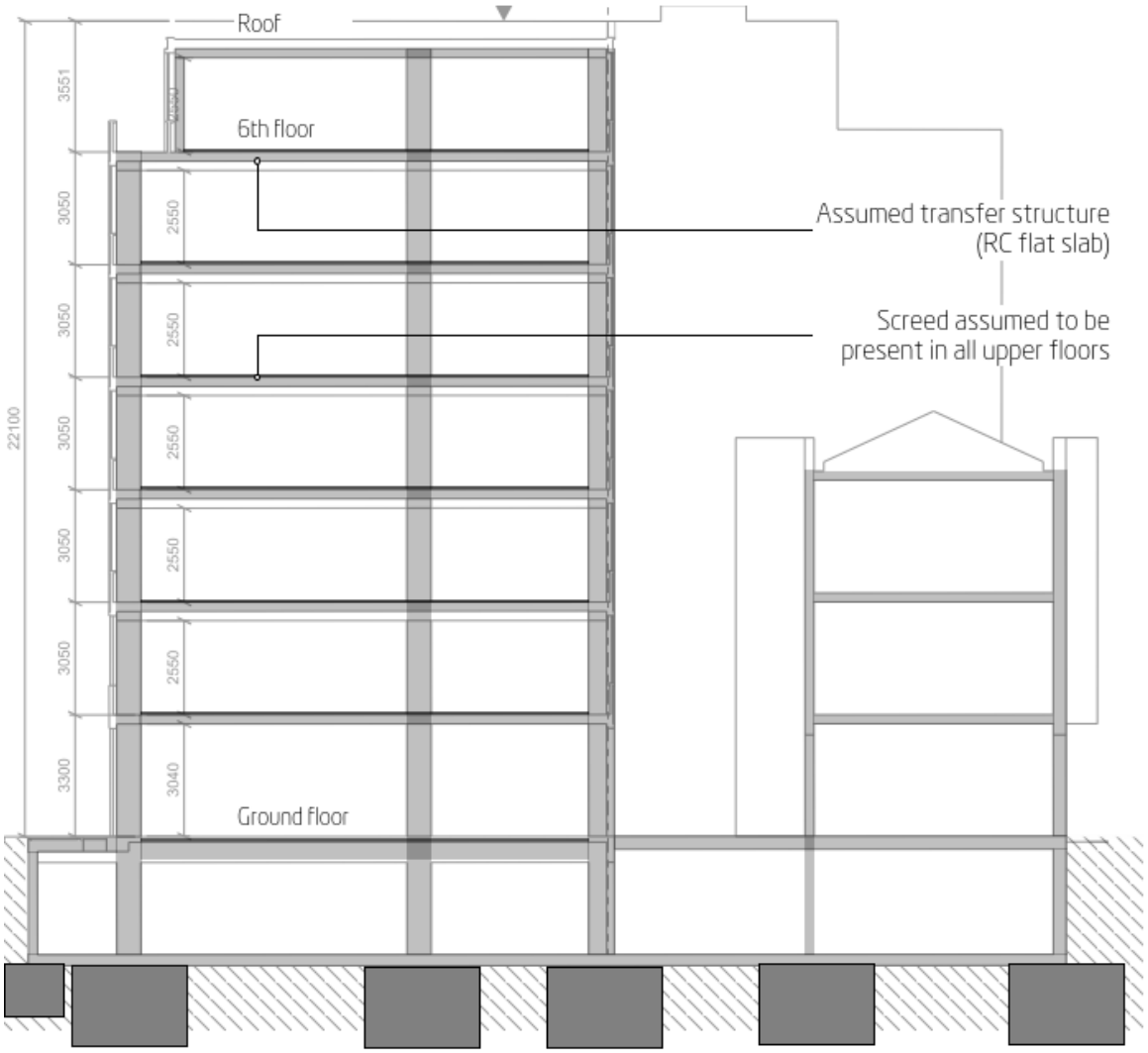


Figure 2: typical existing building section

3.5 Articulation arrangements

N/A

3.6 Classes and levels

3.6.1 consequence class

A proposed consequence class of CC2 (Medium) in accordance with BS EN 1990:2002+A1:2005 Table B1

3.6.2 reliability class

The proposed reliability class for the temporary works is RC2 in accordance with BS EN 1990:2002+A1:2005 Table B2. The corresponding multiplication factor KFI is to be 1.0 as per Table B3 of BS EN 1990 +A1:2005.

3.6.3 inspection level

The inspection level for the permanent structure is IL2 in accordance with BS EN 1990:2002+A1:2005 Table B5.

3.7 Road restraint systems requirements

No temporary vehicle containment barriers are currently proposed..

3.8 Proposals for water management

N/A

3.9 Proposed arrangements for future maintenance and inspection

3.9.1 traffic management

N/A

3.9.2 arrangement for future maintenance and inspection of structure. Access arrangements to structure

N/A

3.9.3 Access arrangement to structure

N/A

3.10 Environment and sustainability

N/A

3.11 Durability - materials and finishes

N/A

3.12 Risks and hazards considered for design, execution, maintenance and demolition. Consultation with and/or agreement from the Overseeing Organisation

The principal designer for the project is:

Francis Hunter, 10-12 Alie Street, London E18DE, 0208 7680 4400

All risks and hazards associated with the demolition are in compliance with CDM Regulations 2015

The risks and hazards considered are:

- Injury from falling materials:
    - Workers and passers-by can be injured by the premature and uncontrolled collapse of structures, and by flying debris.
    - A safe system of work is one that keeps people as far as possible from the risks. This may include:
    - establishing exclusion zones and hard-hat areas, clearly marked and with barriers or hoardings if necessary
    - covered walkways
    - using high-reach machines
    - reinforcing machine cabs so that drivers are not injured
    - training and supervising site workers
- Uncontrolled collapse
    - The structural survey should consider:
        - the age of the structure
        - its previous use
        - the type of construction
        - nearby buildings or structures
        - the weight of removed material or machinery on floors above ground level
        - The method statement for the demolition should identify the sequence required to prevent accidental collapse of the structure.

- Risks from connected services
  Gas, electricity, water and telecommunications services need to be isolated or disconnected before demolition work begins. If this is not possible, pipes and cables must be labelled clearly, to make sure they are not disturbed.

- Traffic management
  Effective traffic management systems are essential on site, to avoid putting workers at risk of being hit by vehicles turning, slewing, or reversing. Where possible, vision aids and zero tail swing machines should be used
- Fire
  Fire is a risk where hot work (using any tools that generate spark, flame or heat) is being done. During structural alteration, the fire plan must be kept up to date as the escape routes and fire points may alter. There must be an effective way to raise the alarm.

- Operations in the adjacent site and the surrounding. Other concurrent structural engineering activities on adjacent site Superstructure works programme has interference with the planned substructure works. These may cause restricted vehicular access and potential hazards to the public workers.

- Falls from height -During demolition and dismantling, workers can be injured falling from edges, through openings, fragile surfaces and partially demolished floors. Dutyholders have a responsibility to assess, eliminate and control the risks of falls from height.

3.13 Estimated cost of proposed structure, together with other structural forms considered

N/A

3.14 proposed arrangements for construction

3.14.1 construction of structure

- Install Vertical Propping under the slabs as required and proceed with top down demolition of the existing building up to ground floor level
- Use demolition arisings to backfill existing basements
- Once basement fully backfilled and compacted proceed with demolition of Ground Floor slab
- Proceed with local excavations and demolition of existing basement slab and foundations to the perimeter of the basement only. Local excavations to be carried out in narrow bays.Following demolition, bay to be immediately backfilled and compacted before moving to another bay
- Complete demolition of perimeter slabs and foundations
- Complete demolition of remaining areas in local excavations
- Demolition completed with fully backfilled basement

Refer to accompanying document - 2016132-WBD-TW-DR-200-203 for indicative demolition sequence.

3.14.2 traffic management

As per The Fitzrovia DMP and associated appendices, agreed via process of public and Camden council formal consultation.

3.14.3 services diversion

N/A

3.14.4 interface with existing structure

The proposed structure is to be constructed within the existing basement retaining walls on the site. The site shares a boundary with the property to the south, No. 248-250 Tottenham Court Road which includes a single story basement.

3.15 Resilience and security

Site is fully surrounded by 2.4m secure hoarding with 24h monitored CCTV.

4 DESIGN/ASSESSMENT CRITERIA

4.1 Actions (Temporary works stages)

4.1.1 permanent action

The permanent actions, densities and load factors will be in accordance with BS EN 1990, BS EN 1991-1-1 and BS EN 1997-1 and corresponding National Annexes.

Permanent (Dead) Loading Actions associated with design proposal:

- Self-weight of the existing reinforced concrete slabs and walls – assumed 24kN/m3 density
- Self-weight of the existing masonry walls – assumed 20kN/m3 density

Partial Safety Loads Factors (for permanent loads) associated with the design proposal:

- ULS_EQU:
  - γsup (unfavourable) = 1.10,
  - γsup (favourable) = 0.90
- ULS_STR: γsup = 1.35
- ULS_GEO: sup/inf = 1.0

4.1.2 snow, wind and thermal action

N/A

4.1.3 actions relating to normal traffic under AW regulations and C&U regulations

Traffic loadings to be in accordance with BS EN 1991-2, NA to BS EN 1991-2 and CD 350.

4.1.4 actions relating to General Order traffic under STGO regulations

SV80 in accordance with BS EN 1991-2, NA to BS EN 1991-2 and CD 350.

4.1.5 footways or footbridge variable actions

The design carried out assumes 20kPa surcharge by pedestrian and vehicle combined at surface level in addition to imposed earth loads.

4.1.6 actions relating to Special Order traffic, provision for exceptional abnormal indivisible; loads including location of vehicle track on deck cross-section

N/A

4.1.7 accidental actions

N/A

4.1.8 actions during construction

Geotechnical actions and construction load to be in accordance with BS EN 1991-1-6, NA to BS EN 1991-1-6 and BS EN 1997-1.

4.1.9 any special action not covered above

N/A

4.2 Heavy or high load route requirements and arrangements being made to preserve the route, including any provision for future heavier loads or future widening.

N/A

4.3 Proposed minimum headroom to be provided

N/A

4.4 Authorities consulted and any special conditions required

London Borough of Camden

4.5 Standards and documents listed in the Technical Approval Schedule (TAS)

4.5.1 List of relevant documents from the Technical Approval Schedule (TAS) –

Refer to Annex B1

• Mandatory to incorporate CDM Regulations 2015 and

• CG 300 – Technical Approval of Highway Structures

4.5.2 Additional relevant Standards and publications

N/A

4.6 Proposed departures from standards concerning methods for dealing with aspects not covered by standards listed in 4.5

N/A

4.7 Proposals for design/assessment of safety critical fixings

N/A

4.8 Proposed safety critical fixings

N/A

5 Structural analysis

5.1 Methods of analysis proposed for superstructure, substructure and foundations

The existing substructure structural elements and proposed temporary works elements will generally be checked using Linear Elastic Analysis method.

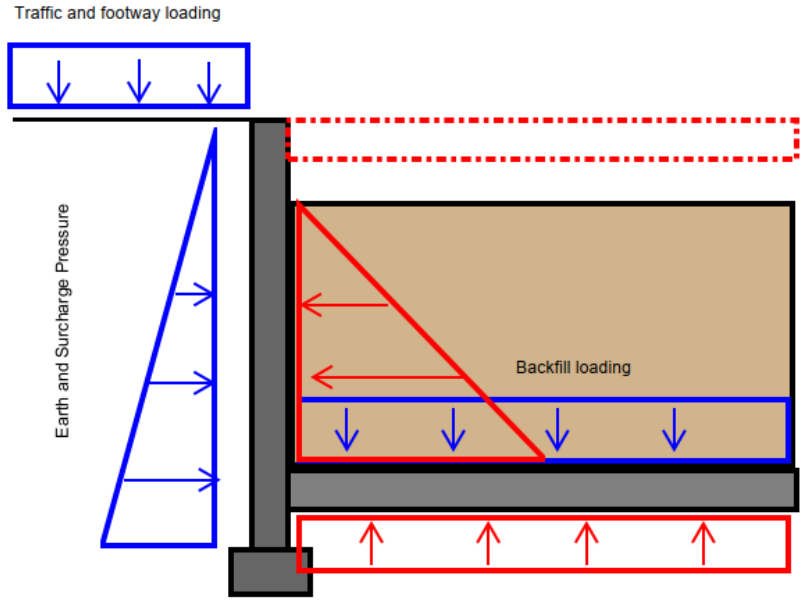
The members will be verified for forces obtained and combined in accordance with the rules given in the Eurocodes listed in Appendix A and associated UK National Annexes.

The structural elements will be check using various analysis and design software as listed below, supplemented by manual calculations as necessary. The main structural programs used for the design are SCIA Engineer (for frame modelling and element design), Trimble Tekla Tedds (for element design)

Detailed explanation of the temporary works design philosophy for each individual check of the demolition phase, including relevant loadings, loads distribution path, types of restraints and reactions are included in section 5.2

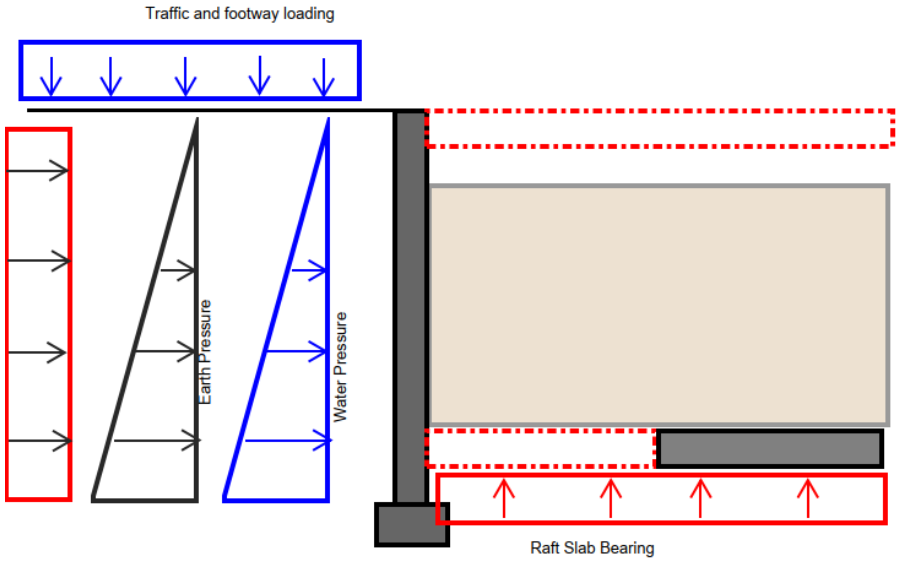
5.2 Description and diagram of idealized structure to be used for analysis

Following Demolition of the upper floors existing basement will be backfilled with demolition arisings.
Existing walls will act as a slab supported by fill and base slab
Sequence 4 on 2019263 -WBD-TW-DR-201 (Appendix B)

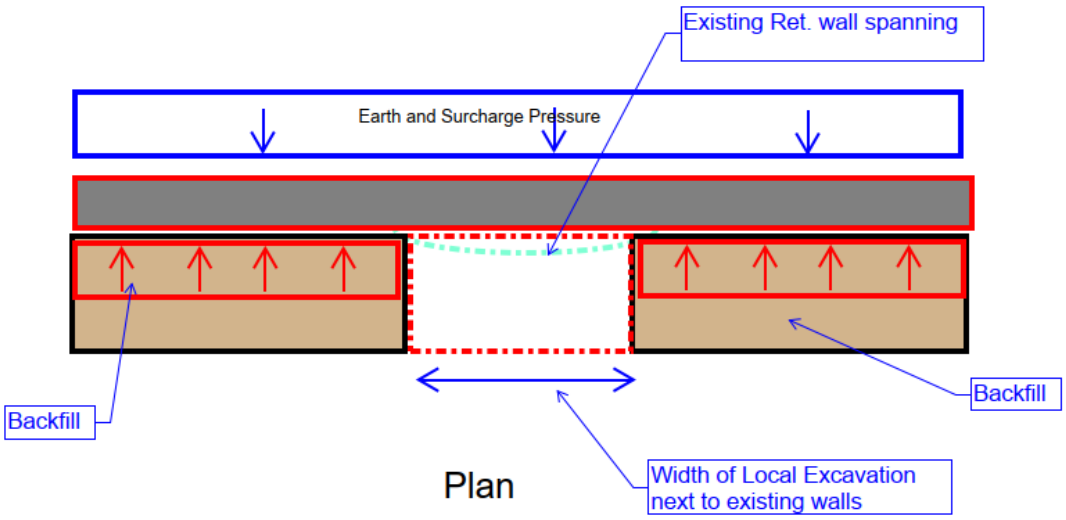


Local excavations in will be carried out in narrow bays in a hit and miss sequence

Sequence 5 on 2019263 -WBD-TW-DR-202 (Appendix B)



Typical Section



5.3 Assumptions intended for calculation of structural element stiffness

Linear elastic analysis using uncracked gross section properties.

5.4 Proposed range of soil parameters to be used in the design/assessment of earth retaining elements

The following soil parameters have been used as recommended in the ground investigation report GEA J20209A 247 TCR (Rev 0) complete

Strata	Level (m) [from site datum +27.2mOD]	Bulk Density (kN/m^3)	Effective angle of shear resistance	k_a	k_p	k_0
Made ground	0.00	18.0	20.0	0.50	2.00	0.66
Gravels and sands	5.00	20.5	35.0	0.27	3.70	0.42
London Clay	8.20	22.0	28.0	0.36	2.77	0.53

6 GEOTECHNICAL CONDITIONS

6.1 Acceptance of recommendations of the ground investigation report to be used in the design/assessment1 and reasons for any proposed changes

The recommendations provided in the ground investigation report GEA J20209A 247 TCR (Rev 0) complete have been followed.

6.2 Summary of design for highway structure in ground investigation report

N/A

6.3 Differential settlement to be allowed for in the design/assessment of the structure

Maximum lateral deflection at the top of the existing wall not to exceed 25mm

N/A

6.4 If the ground investigation report is not yet available, state when the results are expected and list the sources of information used to justify the preliminary choice of foundations

N/A

7 CHECK

7.1 Proposed category

Category 2

Design Supervision Level 2

7.2 If category 3, name of proposed independent checker

N/A

7.3 Erection proposals or temporary works for which types S and P proposals will be required, listing structural parts of the permanent structure affected with reasons

8 DRAWINGS AND DOCUMENTS

8.1 List of drawings (including numbers) and documents accompanying the submission

- Footprint of Scheme (Plan) and Location Plan – scale 1:500
- And other approvals documents accompanying the submission (like - planning consent, temporary hoarding or lane closure).
- Departures
- Relevant correspondence and documents from consultations.
- Drawing size – A1 in pdf format

Drawing No/Report Ref	Drawing Title / Planning Consent / Report	Location	Rev
2019263-WBD-TW-DR-200	Proposed Demolition Sequence Sheet 01	Annex A	P01
2019263-WBD-TW-DR-201	Proposed Demolition Sequence Sheet 02	Annex A	P01
2019263-WBD-TW-DR-202	Proposed Demolition Sequence Sheet 03	Annex A	P01
2019263-WBD-TW-DR-203	Proposed Demolition Sequence Sheet 04	Annex A	P01

8.2 List of construction and record drawings (including numbers) to be used in the assessment

N/A

8.3 List of pile driving or other construction records

N/A

8.4 List of previous inspection and assessment reports

N/A

9 THE ABOVE IS SUBMITTED FOR ACCEPTANCE

We confirm that details of the temporary works design will be/have been passed to the permanent works designer for review.

Signed			
Name	Szymon Lukas	Design/Assessment[1] Team Leader	
Engineering Qualifications	CEng MIStructE 028370967		
Name of Organisation	WBD Group		
Date	08/10/2021		

Signed			
Name	Mark Urbinati	Check Team Leader	
Engineering Qualifications	CEng MIStructE 028396564	[17]	
Name of Organisation	WBD Group		
Date	08/10/2021		

10 THE ABOVE IS REJECTED/xxxxxxxx/AGREED SUBJECT TO THE AMENDMENTS AND CONDITIONS SHOWN BELOW

Signed	Gnatkunan
Name	G Natkunan
Position held	Structures Team Leader
Engineering Qualifications	BSc(Hons)CEng MICE
TAA	LB Camden
Date	14.10.2021

11 Annex A1- technical Approval Schedule (TAS)

Schedule of Documents Relating to Design or Assessment of Highway Bridges & Structures using National Standards (Eurocodes)

British Standards (non –conflicting with Eurocodes)

~~BS 8006; (Date)* Strengthened/Reinforced soils and other fills~~

BS 8500; Part 1; (Date)* Concrete – Complementary British Standard to BS EN 206-1

~~BS EN 1317-1-1998~~

~~Road Restraints Systems – Part 1 Terminology and general criteria and test methods.~~

~~BS EN 1317-2-1998~~

~~Road Restraints Systems – Part 2 Performance classes, impact test acceptance criteria and test methods for safety barriers.~~

~~BS EN 1317-3-2000~~

~~Road Restraints Systems – Part 3 Performance classes, impact test acceptance criteria and test methods for crash cushions.~~

~~DD ENV 1317-4-2002~~

~~Road Restraints Systems – Part 4 Performance classes, impact test acceptance criteria and test methods for crash cushions. Terminals and transitions of Safety Barriers~~

~~BS EN 14388 – (Date) Road traffic noise reducing devices Specifications.~~

~~BS EN 15050 – (Date) Precast concrete products. Bridge elements~~

Eurocodes

BS EN 1990 (2002)*	Eurocode - Basis of structural design (+A1:2005) (incorporating corrigendum December 2008 and April 2010). Establishes principles and requirements for the safety, serviceability and durability of structures, describes the basis for their design and verification.
NA to BS EN 1990 (2004)*	UK National annex for Eurocode - Basis of structural design (incorporating National amendment No. 1). Gives the nationally defined parameters (NDPs) for certain clauses where national choice is allowed. These are applicable to buildings only.
BS EN 1991-1-1 (2002)*	Eurocode 1: Actions on structures. General actions - Densities, self-weight, imposed loads for buildings (incorporating corrigenda December 2004 and March 2009). Offers design guidance and actions for the structural design of buildings and civil engineering works including some ~~geotechnical aspects for the densities of construction materials.~~
~~NA to BS EN 1991-1-1 (2005)*~~	~~UK National annex to Eurocode 1 - Actions on structures. General actions - Densities, self-weight, imposed loads for buildings. Gives the nationally determined parameters (NDPs) for certain sub-clauses where national choice is allowed.~~
~~BS EN 1991-1-2 (2002)*~~	~~Eurocode 1: Actions on structures. General actions - Actions on structures exposed to fire (incorporating corrigendum March 2009).~~ ~~Deals with thermal and mechanical actions on structures exposed to fire - the methods given are applicable to buildings, with a fire load related to the building and its occupancy.~~
~~NA to BS EN 1991-1-2 (2007)*~~	~~UK National Annex to Eurocode 1: Actions on structures. General actions - Actions on structures exposed to fire. Gives the nationally determined parameters (NDPs) for certain sub-clauses where national choice is allowed.~~
~~BS EN 1991-1-3 (2003)*~~	~~Eurocode 1 - Actions on structures. General actions - Snow loads (incorporating corrigenda December 2004~~

~~and March 2009). Gives guidance for determining the values of loads due to snow which can be used in the structural design of buildings and civil engineering works.~~

~~NA to BS EN 1991-1-3 (2005)*~~ ~~UK National annex to Eurocode 1 – Actions on structures. General actions - Snow loads (AMD Corrigendum 17172). Gives guidance for determining the values of loads due to snow which can be used in the structural design of buildings and civil engineering works.~~

~~BS EN 1991-1-4 (2005)*~~ ~~Eurocode 1: Actions on structures. General actions - Wind actions (+A1:2010) (incorporating corrigenda July 2009 and January 2010). Provides guidance on the determination of natural wind actions for the structural design of building and civil engineering works for each of the loaded areas under consideration.~~

~~NA to BS EN 1991-1-4 (2008)*~~ ~~UK National Annex to Eurocode 1: Actions on structures. General actions – Wind actions (+A1:2010) (incorporating National Amendment No. 1). Gives the nationally determined parameters (NDPs) for certain sub-clauses where national choice is allowed.~~

~~BS EN 1991-1-5 (2003)*~~ ~~Eurocode 1 – Actions on structures – Part 1-5: General actions – Thermal actions (incorporating corrigenda December 2004 and March 2009). Details are given for the calculation rules of thermal actions on buildings, bridges and other structures including their structural elements and cladding and other appendages of buildings.~~

~~NA to BS EN 1991-1-5 (2007)*~~ ~~UK National Annex for Eurocode 1 – Actions on structures – Part 1-5: – General actions – Thermal actions. Gives the nationally determined parameters (NDPs) for certain sub-clauses where national choice is allowed.~~

~~BS EN 1991-1-6 (2005)*~~ ~~Eurocode 1: Actions on structures. General actions - Actions during execution (incorporating corrigendum July 2008) Provides principles and general rules for the determination of actions which should be taken into account during the execution of buildings and civil engineering works.~~

~~NA to BS EN 1991-1-6 (2008)*~~	~~UK National annex to Eurocode 1: Actions on structures. General actions - Actions during execution. Gives the nationally determined parameters (NDPs) for certain sub-clauses where national choice is allowed.~~
~~BS EN 1991-1-7 (2006)*~~	~~Eurocode 1: Actions on structures. General actions - Accidental actions (incorporating corrigendum February 2010). Provides strategies and rules for safeguarding buildings and other civil engineering works against identifiable and unidentifiable accidental actions.~~
~~NA to BS EN 1991-1-7 (2008)*~~	~~National annex to Eurocode 1: Actions on structures - Accidental actions. Gives the nationally determined parameters (NDPs) for certain sub-clauses where national choice is allowed.~~
~~BS EN 1991–2 (2003)*~~	~~Eurocode 1: Actions on structures. Traffic loads on bridges (incorporating corrigenda December 2004 and February 2010). Defines imposed loads (models and representative values) associated with road traffic, pedestrian actions and rail traffic which include, when relevant, dynamic effects and centrifugal, braking, etc.~~
~~NA to BS EN 1991-2 (2008)*~~	~~UK National annex to Eurocode 1: Actions on structures. Traffic loads on bridges (incorporating Corrigendum No. 1). Gives the nationally determined parameters (NDPs) for certain sub-clauses where national choice is allowed.~~
~~BS EN 1992–1-1 (2004)*~~	~~Eurocode 2: Design of concrete structures. General rules and rules for buildings (incorporating corrigendum January 2008 and November 2010). Applies to the design of buildings and civil engineering works in plain, reinforced and prestressed concrete.~~
~~NA to BS EN 1992-1-1 (2005)*~~	~~UK National annex to Eurocode 2: Design of concrete structures. General rules and rules for buildings (incorporating National amendment No. 1). Gives the UK decisions for the nationally determined parameters (NDP) for listed sub-clauses.~~

BS EN 1992–1-2 (2004)*	Eurocode 2: Design of concrete structures. General rules - Structural fire design (incorporating corrigendum July 2008). Covers the resistance, serviceability, durability and fire resistance of concrete structures.
~~NA to BS EN 1992-1-2 (2005)*~~	~~UK National annex to Eurocode 2: Design of concrete structures. General rules - Structural fire design. Gives the UK decisions for the Nationally determined parameters (NDP) for listed sub-clauses.~~
~~BS EN 1992–2 (2005)*~~	~~Eurocode 2: Design of concrete structures. Concrete bridges - Design and detailing rules (incorporating corrigendum July 2008). Gives a basis for the design of bridges and parts of bridges in plain, reinforced and prestressed concrete made with normal and light weight aggregates.~~
~~NA to BS EN 1992-2 (2007)*~~	~~UK National Annex to Eurocode 2: Design of concrete structures. Concrete bridges - Design and detailing rules. Gives the nationally defined parameters (NDPs) for certain clauses where national choice is allowed. These are applicable to buildings only.~~
~~BS EN 1992–3 (2006)*~~	~~Eurocode 2: Design of concrete structures. Liquid retaining and containment structures. Covers additional rules for the design of structures constructed from plain or lightly reinforced concrete, reinforced concrete or prestressed concrete for the containment of liquids or granular solid~~
~~NA to BS EN 1992-3 (2007)*~~	~~UK National Annex to Eurocode 2: design of concrete structures. Liquid retaining and containment structures. Gives the UK decisions for the Nationally determined parameters (NDP) for listed sub-clauses~~
BS EN 1993–1-1 (2005)*	Eurocode 3: Design of steel structures. General rules and rules for buildings (incorporating corrigenda February 2006 and April 2009). Gives requirements for resistance, serviceability, durability and fire resistance of steel structures.
~~NA to BS EN 1993-1-1 (2008)*~~	~~UK National Annex to Eurocode 3: Design of steel structures. General rules and rules for buildings. Gives~~

	the nationally determined parameters (NDPs) for certain sub-clauses where national choice is allowed
BS EN 1993–1-2 (2005)*	Eurocode 3: Design of steel structures. General rules - Structural fire design (incorporating corrigenda December 2005, September 2006 and March 2009). Gives requirements for resistance, serviceability, durability and fire resistance of steel structures
NA to BS EN 1993-1-2 (2008)*	UK National Annex to Eurocode 3: Design of steel structures. General rules - Structural fire design. Provides the Nationally determined parameters (NDPs) for certain sub-clauses where national choice is allowed, including partial factors for the fire situation in terms of mechanical and thermal properties.
BS EN 1993–1-3 (2006)*	Eurocode 3: Design of steel structures. General rules - Supplementary rules for cold-formed members and sheeting (incorporating corrigendum November 2009). Gives design requirements for cold-formed members and sheeting, applying to cold-formed steel products made from coated or uncoated hot or cold rolled sheet or strip, that have been cold-formed
NA to BS EN 1993-1-3 (2009)*	UK National Annex to Eurocode 3: Design of steel structures. General rules - Supplementary rules for cold-formed members and sheeting. Gives the nationally determined parameters (NDPs) for certain sub-clauses where national choice is allowed
BS EN 1993–1-4 (2006)*	Eurocode 3: Design of steel structures. General rules - Supplementary rules for stainless steels. Gives supplementary provisions for the design of buildings and civil engineering works covering applications involving austenitic, austenitic-ferritic and ferritic stainless steels.
NA to BS EN 1993-1-4 (2009)*	UK National Annex to Eurocode 3: Design of steel structures. General rules - Supplementary rules for stainless steels. Gives the nationally defined parameters (NDPs) for certain clauses where national choice is allowed.
BS EN 1993–1-5 (2006)*	Eurocode 3: Design of steel structures. Plated structural elements (incorporating corrigendum April

	2009). Gives design requirements of stiffened and unstiffened plates which are subject to in-plane forces. Also covers the effects due to shear lag, in-plane load introduction and plate buckling for I-section
NA to BS EN 1993-1-5 (2008)*	UK National annex to Eurocode 3: Design of steel structures. Plated structural elements. Gives the nationally determined parameters (NDPs) for certain sub-clauses where national choice is allowed.
BS EN 1993–1-6 (2007)*	Eurocode 3: Design of steel structures. Strength and stability of shell structures (incorporating corrigendum April 2009). Provides basic design rules for plated steel shell structures, in particular design against buckling, fatigue and cyclic plasticity.
BS EN 1993–1-7 (2007)*	Eurocode 3: Design of steel structures. Plated structures subject to out of plane loading (incorporating corrigendum April 2009). For structural design of unstiffened and stiffened plates which form part of plated structures such as silos, tanks or containers. Details given for design, properties, durability, structural analysis
BS EN 1993–1-8 (2005)*	Eurocode 3: Design of steel structures. Design of joints (incorporating corrigenda December 2005, September 2006, July 2009 and August 2010). Gives design methods for the design of joints subject to predominantly static loading using steel grades S235, S275, S355, S420, S450 and S460.
NA to BS EN 1993-1-8 (2008)*	UK National Annex to Eurocode 3: Design of steel structures. Design of joints. Provides the Nationally determined parameters (NDPs) for certain sub-clauses where national choice is allowed, including group 6 rivets, partial safety factors for joints, types of bolt class
BS EN 1993–1-9 (2005)*	Eurocode 3: Design of steel structures. Fatigue (incorporating corrigenda December 2005, September 2006 and April 2009). Gives methods for the assessment of fatigue resistance of members, connections and joints subjected to fatigue loading.

~~NA to BS EN 1993-1-9 (2008)*~~	~~UK National annex to Eurocode 3: Design of steel structures. Fatigue. Gives the nationally determined parameters (NDPs) for certain sub-clauses where national choice is allowed.~~
~~BS EN 1993–1-10 (2005)*~~	~~Eurocode 3: Design of steel structures. Material toughness and through-thickness properties (incorporating corrigenda December 2005, September 2006 and March 2009). Contains design guidance for the selection of steel for fracture toughness and for through thickness properties of welded elements where there is a significant risk of lamellar tearing during fabrication.~~
~~NA to BS EN 1993-1-10 (2009)*~~	~~National annex (informative) to Eurocode 3 - Design of steel structures. Material toughness and through thickness properties. Gives the nationally determined parameters (NDPs) for certain sub-clauses where national choice is allowed.~~
~~BS EN 1993–1-11 (2006)*~~	~~Eurocode 3 - Design of steel structures. Design of structures with tension components (incorporating corrigendum April 2009). Gives design rules for structures with tension components made of steel, which, due to their connections with the structure, are adjustable and replaceable~~
~~NA to BS EN 1993-1-11 (2008)*~~	~~UK National Annex to Eurocode 3 - Design of steel structures. Design of structures with tension components.~~
~~BS EN 1993–1-12 (2007)*~~	~~Eurocode 3 - Design of steel structures. Additional rules for the extension of EN 1993 up to steel grades S 700 (incorporating corrigendum April 2009).~~
~~NA to BS EN 1993-1-12 (2008)*~~	~~UK National annex to Eurocode 3: Design of steel structures. Additional rules for the extension of EN 1993 up to steel grades S 700. Gives the nationally determined parameters (NDPs) for certain sub-clauses where national choice is allowed~~
~~BS EN 1993–2 (2006)*~~	~~Eurocode 3: Design of steel structures. Steel bridges (incorporating corrigendum July 2009). Provides a general basis for the structural design of steel bridges,~~

	~~steel parts of composite bridges and also steel temporary works in bridges.~~
~~NA to BS EN 1993-2 (2008)*~~	~~UK National annex to Eurocode 3: Design of steel structures. Steel bridges (+A1:2012). Gives the nationally determined parameters (NDPs) for certain sub-clauses where national choice is allowed~~
~~BS EN 1993–3-1 (2006)*~~	~~Eurocode 3 - Design of steel structures. Towers, masts and chimneys - towers and masts (incorporating corrigendum July 2009). Applies to the structural design of lattice towers and guyed masts, and the structural design of this type of structures supporting prismatic, cylindrical or other bluff elements.~~
~~NA to BS EN 1993-3-1 (2010)*~~	~~UK National Annex to Eurocode 3: Design of steel structures. Towers, masts and chimneys - towers and masts. Gives the nationally defined parameters (NDPs) for certain clauses where national choice is allowed.~~
~~BS EN 1993–5 (date)*~~	~~Eurocode 3 – Design of steel structures – Part 5: Piling~~
~~NA to BS EN 1993-5 (date)*~~	~~UK National Annex for Eurocode 3 - Design of steel structures – Part 5: Piling~~
~~BS EN 1994–2 (date)*~~	~~Eurocode 4 – Design of composite steel and concrete structures – Part 2: General rules and rules for bridges~~
~~NA to BS EN 1994-2 (date)*~~	~~UK National Annex for Eurocode 4 - Design of composite steel and concrete structures – Part 2: General rules and rules for bridges~~
~~BS EN 1995–1-1 (date)*~~	~~Eurocode 5 – Design of timber structures – Part 1-1: General – Common rules and rules for buildings~~
~~NA to BS EN 1995-1-1 (date)*~~	~~UK National Annex for Eurocode 5 - Design of timber structures – Part 1-1: General – Common rules and rules for buildings~~

~~BS EN 1995–2 (date)*~~	~~Eurocode 5 – Design of timber structures – Part 2: Bridges~~
~~NA to BS EN 1995-2 (date)*~~	~~UK National Annex for Eurocode 5 - Design of timber structures – Part 2-Bridges~~
~~BS EN 1996–1-1 (date)*~~	~~Eurocode 6 – Design of masonry structures – Part 1-1: General rules for reinforced and unreinforced masonry structures~~
~~NA to BS EN 1996-1-1 (date)*~~	~~UK National Annex for Eurocode 6 - Design of masonry structures – Part 1-1: General rules for reinforced and unreinforced masonry structures~~
~~BS EN 1996–2 (date)*~~	~~Eurocode 6 – Design of masonry structures – Part 2: Design considerations, selection of materials and execution of masonry~~
~~NA to BS EN 1996-2 (date)*~~	~~UK National Annex for Eurocode 6 - Design of masonry structures – Part 2: Design considerations, selection of materials and execution of masonry~~
~~BS EN 1996–3 (date)*~~	~~Eurocode 6 – Design of masonry structures – Part 3: Simplified calculation methods for unreinforced masonry structures~~
~~NA to BS EN 1996-3 (date)*~~	~~UK National Annex for Eurocode 6 - Design of masonry structures – Part 3: Simplified calculation methods for unreinforced masonry structures~~
BS EN 1997–1 (2004)*	Eurocode 7: Geotechnical design. General rules (incorporating corrigendum February 2009) Intended to be used as a general basis for the geotechnical aspects of the design of buildings and civil engineering works.
NA to BS EN 1997-1 (2007)*	UK National annex to Eurocode 7: Geotechnical design. General rules (incorporating Corrigendum No. 1). Gives the nationally defined parameters (NDPs) for certain clauses where national choice is allowed~~.~~

~~BS EN 1997–2 (date)* Eurocode 7 – Geotechnical design – Part 2: Ground investigation and testing~~

~~NA to BS EN 1997-2 (date)* UK National Annex for Eurocode 7 - Geotechnical design – Part 2: Ground investigation and testing~~

~~BS EN 1998–1 (date)* Eurocode 8 – Design for structures for earthquake resistance – Part 1: General rules, seismic actions and rules for buildings~~

~~NA to BS EN 1998-1 (date)* UK National Annex for Eurocode 8 - Design for structures for earthquake resistance – Part 1: General rules, seismic actions and rules for buildings~~

~~BS EN 1998–2 (date)* Eurocode 8 – Design for structures for earthquake resistance – Part 2: Bridges~~

~~NA to BS EN 1998-2 (date)* UK National Annex for Eurocode 8 - Design for structures for earthquake resistance – Part 2: Bridges~~

~~BS EN 1998–5 (date)* Eurocode 8 – Design for structures for earthquake resistance – Part 5: Foundations, retaining structures and geotechnical aspects~~

~~NA to BS EN 1998-5 (date)* UK National Annex for Eurocode 8 - Design for structures for earthquake resistance – Part 5: Foundations, retaining structures and geotechnical aspects~~

~~BS EN 1999–1-1 (date)* Eurocode 9 – Design of aluminum structures – Part 1-1: General – common rules~~

~~NA to BS EN 1999-1-1 (date)* UK National Annex for Eurocode 9 - Design of aluminum structures – Part 1-1: General – common rules~~

~~BS EN 1999–1-3 (date)* Eurocode 9 – Design of aluminum structures – Part 1-3: Additional rules for structures susceptible to fatigue~~

~~NA to BS EN 1999-1-3 (date)*~~	~~UK National Annex for Eurocode 9 - Design of aluminum structures – Part 1-3: Additional rules for structures susceptible to fatigue~~
~~BS EN 1999–1-4 (date)*~~	~~Eurocode 9 – Design of aluminum structures – Part 1-4: Cold-formed structural sheeting~~
~~NA to BS EN 1999-1-4 (date)*~~	~~UK National Annex for Eurocode 9 - Design of aluminum structures – Part 1-4: Cold-formed structural sheeting~~

BSI Published Documents (PD)

~~PD 6688-1-1 (2011)*~~	~~Recommendations for the design of structures to BS EN 1991-1-1. Gives non-contradictory complementary information to BS EN 1991-1-1 and its UK National Annex.~~
~~PD 6688-1-2 (2007)~~	~~Background paper to the UK National Annex to BS EN 1991-1.2 (AMD Corrigendum 17225). Gives complementary information to BS EN 1991-1.2 and its National Annex.~~
~~PD 6688-1-4 (2009)*~~	~~Background information to the National Annex to BS EN 1991-1-4 and additional guidance.~~
~~PD 6688-1-5 (date)*~~	~~Background paper to the UK National Annex to BS EN 1991-1-5~~
~~PD 6688-1-7 (2009)*~~	~~Recommendations for the design of structures to BS EN 1991-1-7. Gives non-contradictory complementary information for use in the UK with BS EN 1991-1.7:2006 and its UK National Annex.~~
~~PD 6688-2 (2011)*~~	~~Background paper to the UK National Annex to BS EN 1991-2 Traffic loads on bridges. Gives non-contradictory complementary information to BS EN 1991-2 and its UK National Annex.~~

~~PD 6687-1 (2010)*~~	~~Background paper to the UK National Annex to BS EN 1992-1 and BS EN 1992-3. Provides background information and non-contradictory complementary information for use in the UK with BS EN 1992-1-1:2004, BS EN 1992-1-2:2004, BS EN 1992-3:2006 and their UK National Annexes.~~
~~PD 6687-2 (2008)*~~	~~Recommendations for the design of structures to BS EN 1992-2:2005. Provides background information relating to decisions for the Nationally Determined Parameters (NDPs) in the National Annex of BS EN 1992-2~~
~~PD 6695-1-9 (date)*~~	~~Recommendations for the design of structures to BS EN 1993-1-9~~
~~PD 6695-1-10 (date)*~~	~~Recommendations for the design of structures to BS EN 1993-1-10~~
~~PD 6695-2 (date)*~~	~~Recommendations for the design of structures to BS EN 1993~~
~~PD 6696-2 (date)*~~	~~Background paper to BS EN 1994-2 and the UK National Annex to BS EN 1994-2~~
~~PD 6694-1 (2011)*~~	~~Recommendations for the design of structures subject to traffic loading to BS EN 1997-1:2004. Gives non-contradictory complementary information. Covers geotechnical aspects of bridges and other structures subject to traffic loading designed to BS EN 1997-1.~~
~~PD 6698 (date)*~~	~~Recommendations for the design of structures for earthquake resistance to BS EN 1998~~
~~PD 6703 (date)*~~	~~Structural bearings – Guidance on the use of structural bearings~~
~~PD 6705-2 (2010)*~~	~~Structural use of steel and aluminium. Recommendations for the execution of steel bridges to BS EN 1090-2. Provides non-contradictory complementary information (NCCI) and guidance for use of BS EN 1090-2, focusing on selection of options and alternative information.~~

Execution Standards

~~BS EN 1090-1~~	~~Execution of steel structures and aluminium structure. Requirements for conformity assessment of structural components~~
~~BS EN 1090-2~~	~~Execution of steel structures and aluminium structure. Technical requirements for the execution of steel structures~~
~~BS EN 1090-3~~	~~Execution of steel structures and aluminium structure. Technical requirements for the execution of aluminium structures~~
~~BS EN 13670~~	~~Execution of concrete structures~~
BS EN 1536	Execution of geotechnical work-Bored piles: 1999

Miscellaneous

~~Circular Roads No 61/72 – Routes for heavy and high abnormal loads~~

~~Traffic Management Act 2004~~

~~Construction (Design and Management) Regulation 2007~~

The Manual of Contract Documents for Highway Works (MCDHW)

~~Volume 1: Specification for Highway Works (Date)*~~

~~Volume 2: Notes for Guidance on the Specification for Highway Works (Date)*~~

~~Volume 3: Highway Construction Details (Date)*~~

The Design Manual for Roads and Bridges (DMRB)

(Non conflicting with Eurocodes)

General Requirements, Standards (GD Series)

~~GD 01 (Date): Introduction to the Design Manual for Roads and Bridges (DMRB)~~

~~GD 02 (Date): Quality Management System for Highway Design~~

~~GD 03 (Date): Implementation and Use of the Standards Improvement System~~

Bridges and Structures, Advice Notes (BA Series)

~~2 Evaluation of Maintenance Costs in Comparing Alternative Design for Highway Structures~~

~~BA 41/98 The Design and Appearance of Bridges~~

~~BA 43/03 Strengthening, Repair and Monitoring of Post-tensioned Concrete Bridge Decks~~

~~BA 47/99 Waterproofing and Surfacing of Concrete Bridge Decks~~

~~BA 57/01 Design for Durability~~

~~BA 67/96 Enclosure of Bridges~~

~~BA 82/00 Formation of Continuity Joints in Bridge Decks~~

~~BA 83/02 Cathodic Protection for use in Reinforced Concrete Highway Structures~~

~~BA 84/02 Use of Stainless Steel Reinforced Concrete in Highway Structures~~

~~BA/85/04 Coatings for Concrete Highway Structures & Ancillary Structures~~

~~BA 86/06 Advice Notes on the Non-destructive testing of Highway Structures~~

~~BA 92/07 The Use of Recycled Concrete Aggregates in Structural Concrete~~

Bridges and Structures, Standards (BD Series)

~~BD 2/12 Technical Approval of Highway Structures~~

~~BD 21/2 HIGHWAY STRUCTURES: APPROVAL PROCEDURES AND & GENERAL DESIGN APPROVAL PROCEDURES~~

~~BD 7/01 Weathering Steel for Highway Structures~~

~~BD 10/97 Design of Highway Structures in Areas of Mining Subsidence~~

~~BD 29/04 Design Criteria for Footbridges~~

~~BD 35/06 Quality Assurance Scheme for Paints and Similar Protective Coatings~~

~~BD 36/92 Evaluation of Maintenance Costs in Comparing Alternative Designs for Highway Structures~~

~~BD 43/03 The Impregnation of Reinforced and Prestressed Concrete Highway Structures using Hydrophobic Pore-Lining Impregnants.~~

~~BD 47/99 Waterproofing and Surfacing of Concrete Bridge Decks.~~

~~BD 51/98 Design Criteria for Portal and Cantilever Sign / Signal Gantries~~

~~BD 57/01 Design for Durability~~

~~BD 67/96 Enclosure of Bridges~~

~~BD 78/99 Design of Road Tunnels~~

~~BD 91/04 Unreinforced Masonry Arch Bridges~~

~~BD 94/07 Design of Minor Structures~~

Bridges and Structures, Technical Memoranda (BE Series)

~~BE 7/04 Departmental Standard (Interim) Motorway Sign / Signal Gantries~~

Traffic Engineering and Control, Standards (TD Series)

~~TD 9/93 Road Layout and Geometry. Highway Link Design~~

~~Amendment No. 1 (Feb. 2002)~~

~~TD 19/06 Requirement for Road restraint Systems~~

~~TD 27/05 Cross - Sections and Headroom~~

~~TD 36/93 Subways for Pedestrians and Pedal Cyclists, Layout and Dimensions~~

~~TD 89/(Date) Use of Passively Safe Signposts, lighting Columns & Traffic Sign Posts to BS EN 12767~~

Highways, Advice Notes (HA Series)

~~HA 59/(Date) Mitigation against Effects on Badgers~~

~~HA 66/95 Environmental Barriers – Technical Requirements~~

~~HA 80/(Date) Nature Conservation Advice in Relation to Bats~~

~~HA 81/(Date) Nature Conservation Advice in Relation to Otters~~

~~HA 84/(Date) Nature Conservation and Biodiversity~~

~~HA 97/(Date) Nature Conservation Management Advice in Relation to Dormice~~

~~HA 98/(Date) Nature Conservation Management Advice in Relation to Amphibian~~

Highways, Standards (HD Series)

~~HD 22/08 Managing Geotechnical Risk~~

Interim Advice Notes Standards (IAN Series)

~~IAN 123/10 Use of Eurocodes for the design highway structures~~

Chief Highway Engineer Memoranda

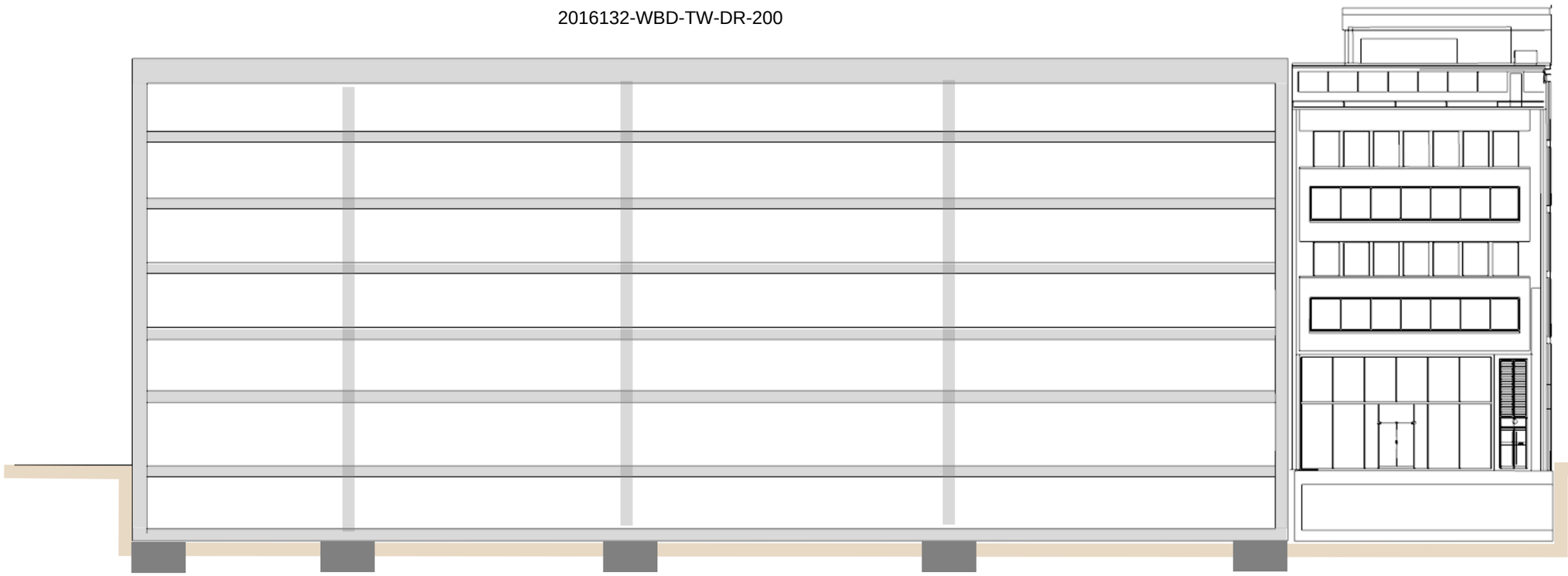
~~CHE239/09 The Implementation of Eurocodes~~

***** *The compiler of the AIP should insert the current date of publication of the asterisked British Standards. MCHW and DMRB Standards and Advice Notes. This should be in the form of the year of publication for British Standards, the month and year of publication for MCHW, and the last two digits of the year of publication for DMRB Standards and Advice Notes. The dates of any Amendments should also be included.*

12 Annex B – Indicative Demolition Sequence Drawings

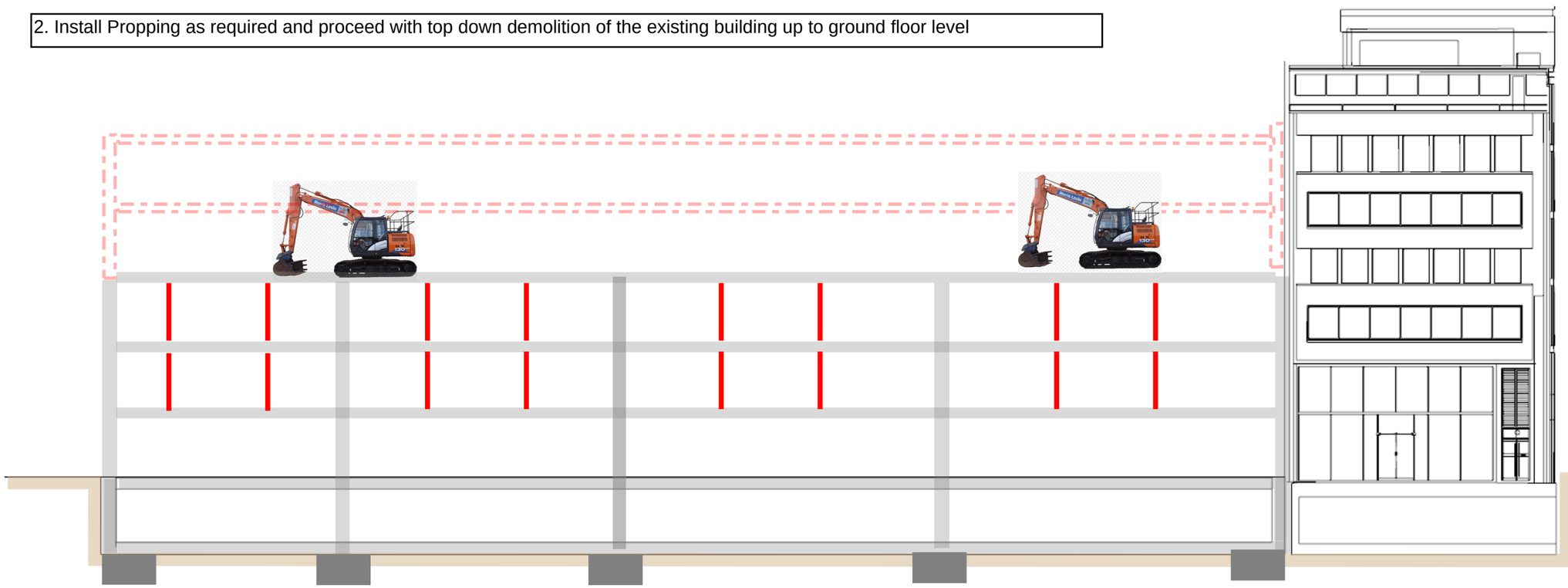
1. Existing Condition

2016132-WBD-TW-DR-200



2016132-WBD-TW-DR-200

2. Install Propping as required and proceed with top down demolition of the existing building up to ground floor level



Project Name: The Fitzrovia, Tottenham Road

Sketch Title: Proposed Demolition Sequence

Project No: 2019263

2019263-WBD-TW-DR-200

Date: 07/10/21

By: MU

Checked: SL

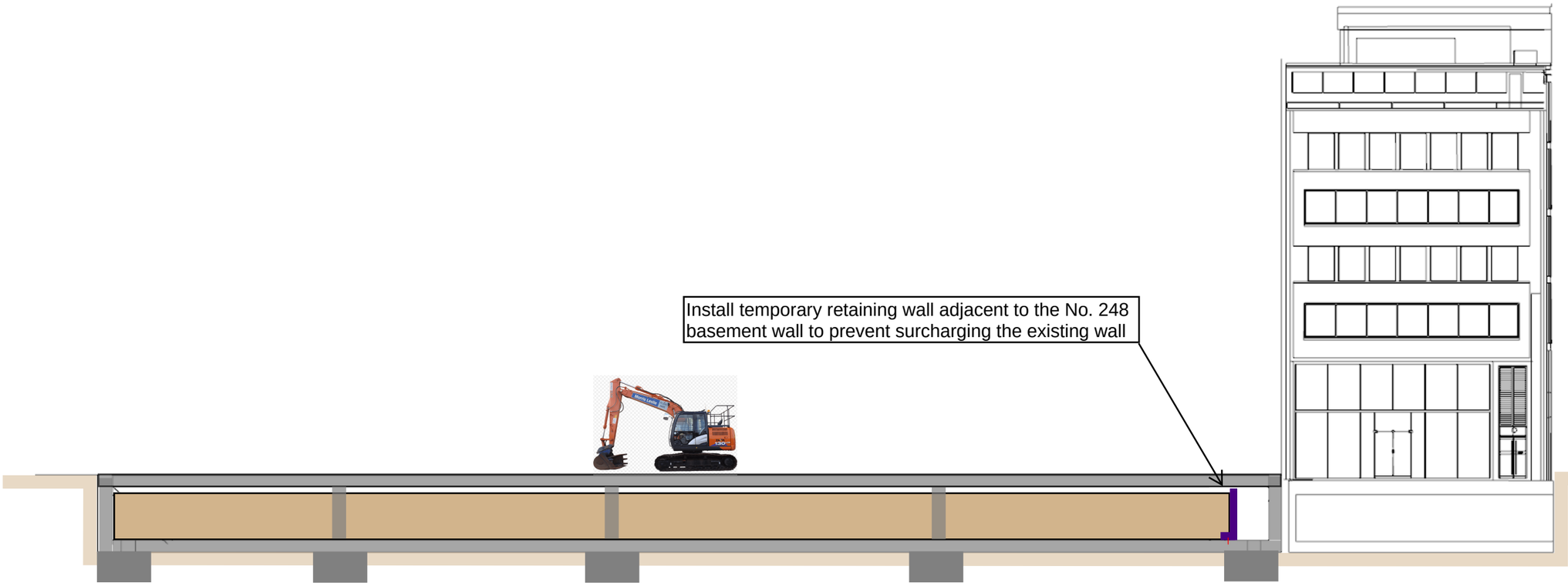
Scale: NTS

STRUCTURES

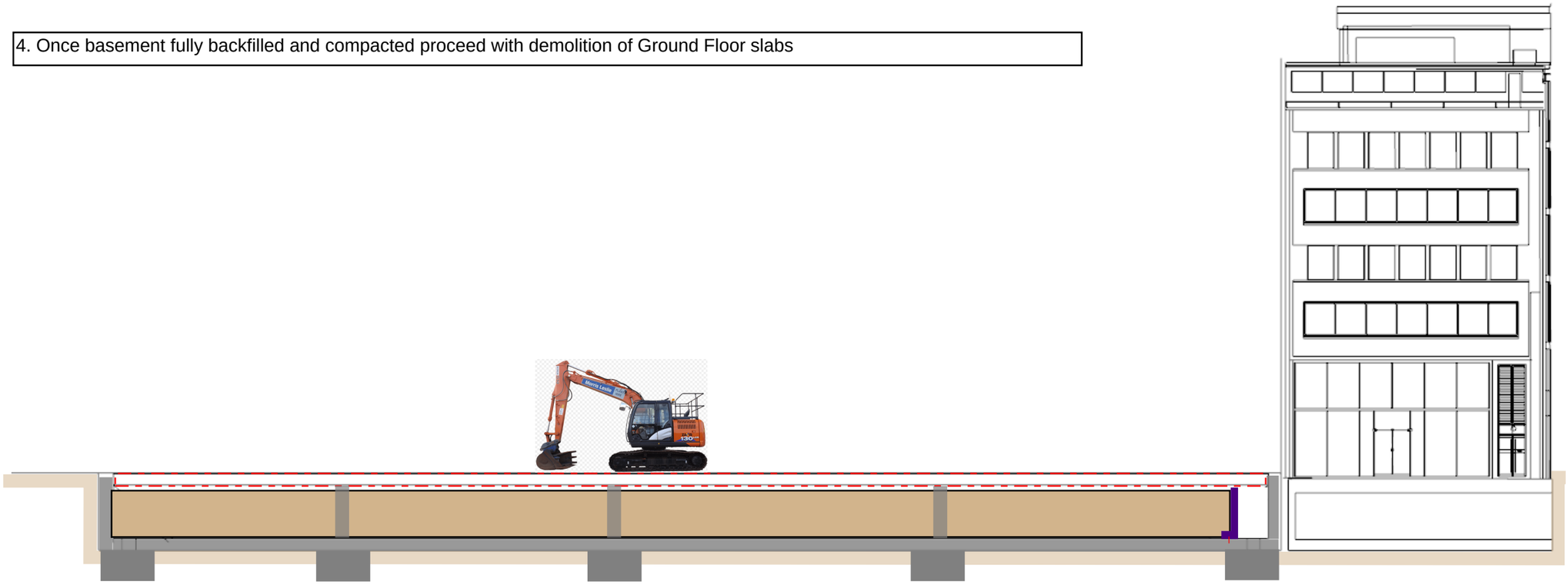
WBD

www.wbdgroup.com | 160 Fleet Street, London EC4A 2DQ

3. Use demolition arisings to backfill existing basements



4. Once basement fully backfilled and compacted proceed with demolition of Ground Floor slabs



Project Name: The Fitzrovia, Tottenham Road

Sketch Title: Proposed Demolition Sequence

Project No: 2019263

2019263-WBD-TW-DR-201

Date: 07/10/21

By: MU

Checked: SL

Scale: NTS

STRUCTURES

WBD

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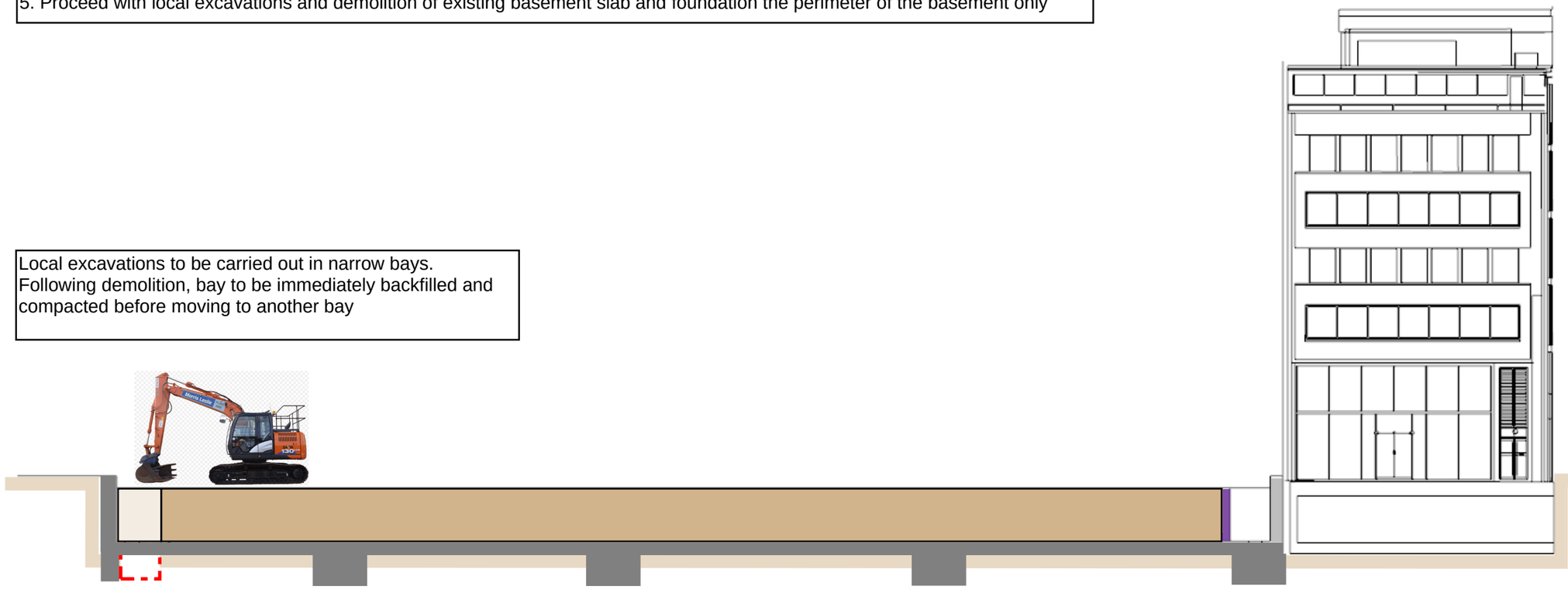
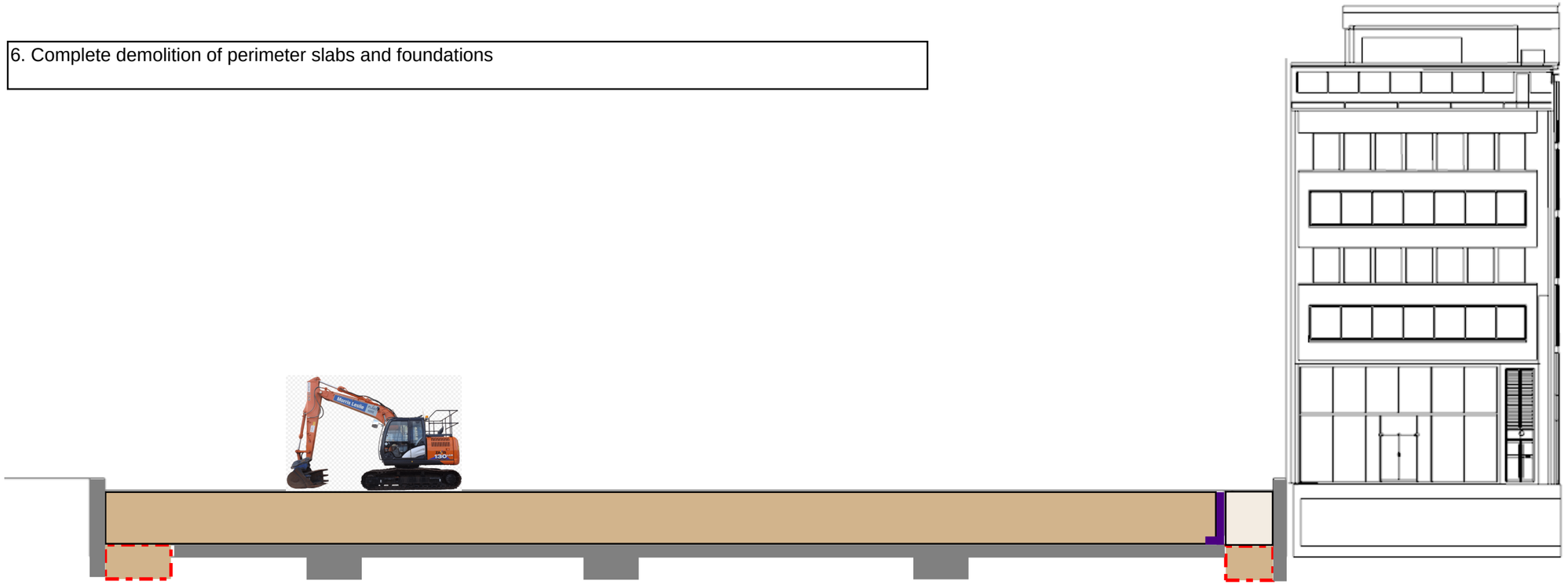
5. Proceed with local excavations and demolition of existing basement slab and foundation the perimeter of the basement only

Local excavations to be carried out in narrow bays.
Following demolition, bay to be immediately backfilled and compacted before moving to another bay



6. Complete demolition of perimeter slabs and foundations



Project Name: The Fitzrovia, Tottenham Road

Sketch Title: Proposed Demolition Sequence

Project No: 2019263

2019263-WBD-TW-DR-202

Date: 07/10/21

By: MU

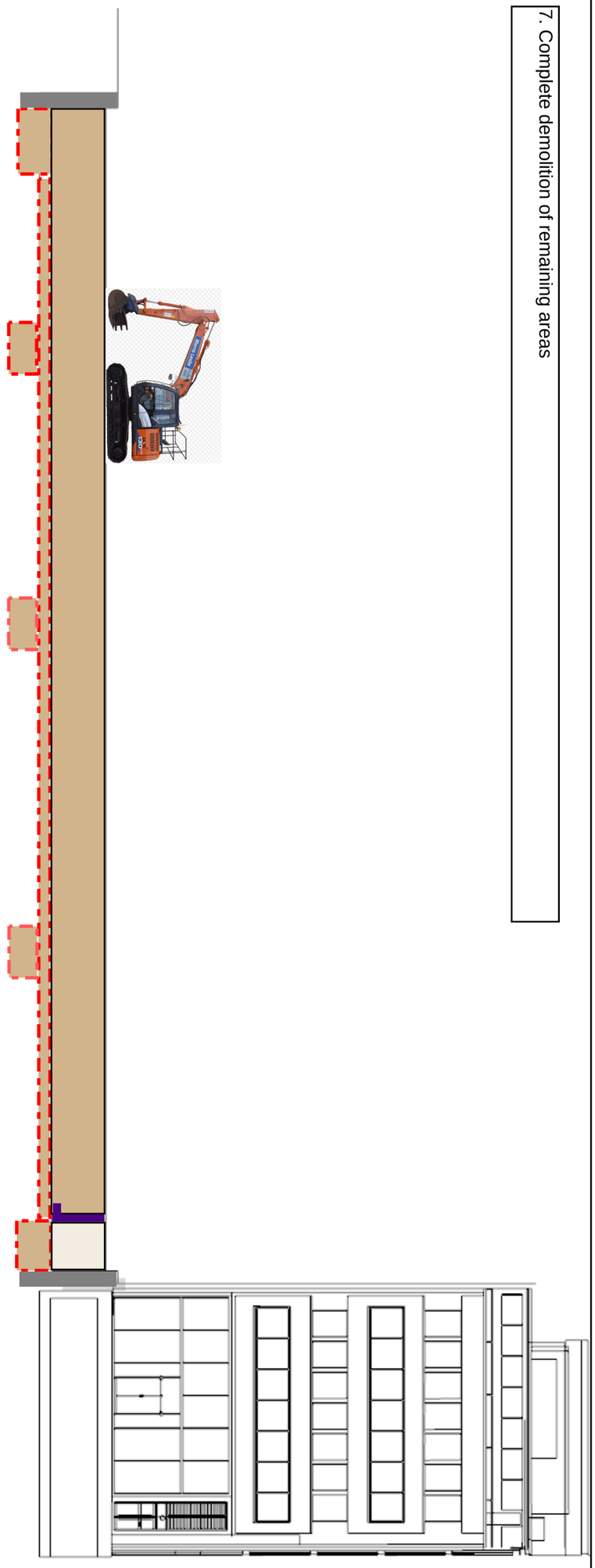
Checked: SL

Scale: NTS

WBD | STRUCTURES

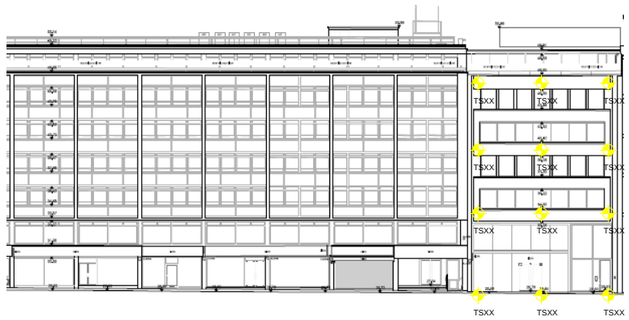
www.wbdgroup.com | 160 Fleet Street, London EC4A 2DQ

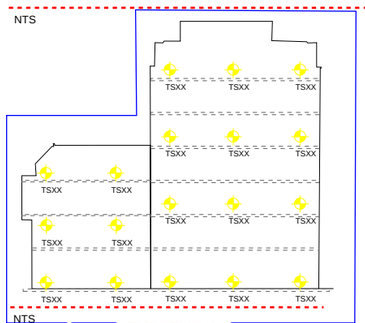
7. Complete demolition of remaining areas

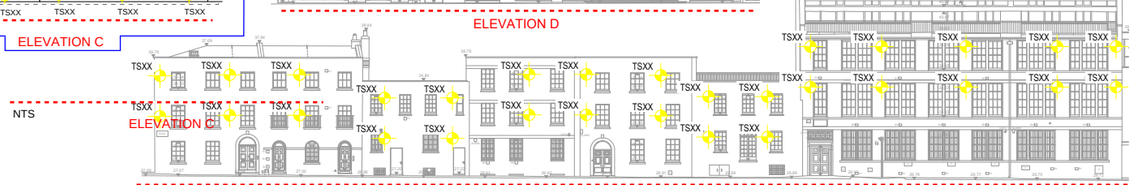


WBD STRUCTURES	**Project Name:** The Fitzrovia, Tottenham Road		
	Sketch Title: Proposed Demolition Sequence		
	Project No: 2019263	2019263-WBD-TW-DR-203	Date: 07/10/21
www.wbdgroup.com | 160 Fleet Street, London EC4A 2DQ	By: MU	Checked: SL	Scale: NTS

13 Annex C - Preliminary monitoring strategy







MONITORING PLAN NOTES

1. CONDITION SURVEY OF EXISTING BUILDINGS AND STRUCTURES

BEFORE STARTING WORK: SURVEY STRUCTURE. RECORD AND TAKE PHOTOGRAPHS OF DAMAGED OR DEFECTIVE AREAS.ITEMS TO BE RECORDED; LOCATION, EXTENT AND MAGNITUDE OF CRACKS, SPALLING, INDICATIONS OF MOVEMENT, PREVIOUS REPAIRS, MODIFICATIONS AND OTHER IRREGULARITIES OF THE FABRIC. ADDITIONAL INVESTIGATIONS: INSPECT WALLS FOR EVIDENCE OF BONDING TIMBERS, INSPECT WALLS FOR EVIDENCE OF HAZARDOUS MATERIALS. PROPOSE ANY FURTHER INVESTIGATIONS REQUIRED TO VALIDATE PROPOSED METHODOLOGY.

NOTE: INVESTIGATIONS TO SURROUNDING BUILDINGS WITH CONSENT OF OWNER ONLY. INFORMATION SUPPLIED: GIVE NOTICE OF ANY AREAS OF VARIANCE TO CONTRACTORS CONDITION SURVEY AS PER ITEM 1 ABOVE. REPORT: SUBMIT FOR COMMENT. INCLUDE RECOMMENDATIONS: FOR REPAIR OR MONITORING OF DEFECTS THAT COULD ADVERSELY AFFECT THE STRUCTURAL ADEQUACY OF THE EXISTING BUILDINGS AND FACADES WHILE TEMPORARILY SUPPORTED AND FOR MONITORING CRACK WIDTHS.

2. MONITORING GENERALLY

OUTLINED ON THE RELEVANT AKT II DRAWINGS. ALL PERMANENT MONITORING TO BE INSTALLED A MINIMUM OF 4 WEEKS PRIOR TO COMMENCEMENT OF CONSTRUCTION. AT LEAST 3 CONSISTENT BASE READINGS TO BE ESTABLISHED AND MAY REQUIRE A PERIOD OF 2 TO 4 WEEKS PRIOR TO COMMENCEMENT OF MONITORING DUE TO DAILY THERMAL EFFECTS. THIS MONITORING SHALL INCLUDE:

IXX: ELECTRONIC LEVELLING (3D) OF TARGETS ON PERIMETER WALLS WITH FREQUENCY AS OUTLINED TO INCLUDE VERTICALITY/TILT, LATERAL MOVEMENT, LEVEL AND LONGITUDINAL MOVEMENT.

CXX: ELECTRONIC LEVELLING (3D) OF TARGETS SET IN CAPPING BEAM POSITIONED TO BE ACCESSIBLE THROUGHOUT THE WORKS, TOTAL STATION MONITORING XYZ SPACIAL COORDINATES.

VXX: VIBRATION TRANSDUCER INSTALLED AS NEAR AS PRACTICABLE TO FOUNDATION LEVEL

TSXX: TOTAL STATION MEASUREMENTS WITH RETROFLECTIVE TARGETS OR MINI PRISMS

SXX: GROUP OF SETTLEMENT POINTS (MINIMUM OF 3 BEHIND THE WALL AT THE LOCATIONS OF CXX AND IXX) SURVEYED BY PRECISE LEVELLING

3. MOVEMENT MONITORING

REFER TO TABLE

4. VIBRATION OF EXISTING STRUCTURES (M4)

TO BE READ IN CONJUNCTION WITH AKT II DRAWINGS: STRUCTURAL VIBRATION LIMITS, BUILDING CLASSIFICATION. MEASUREMENT PROCEDURE: THE GENERAL GUIDANCE WITH RESPECT OF VIBRATION IMPACT AND MONITORING PROCEDURES GIVEN IN BS7385 PART 2 AND BS 5228-2:2009 SHOULD BE OBSERVED WHERE APPROPRIATE.

LOCATION OF VIBRATION TRANSDUCRES: AS CLOSE AS PRACTICABLE TO LOCATION INDICATED WITH FINAL LOCATIONS TO BE AGREED WITH AKT II ON SITE. TRANSDUCERS TO BE ADJUSTED FOR ATTENUATION AS NECESSARY. IN ADDITION TO THE LOCATIONS IDENTIFIED WHERE CONTINUOUS MONITORING WILL BE CARRIED OUT, THE SAME THRESHOLDS WOULD APPLY TO OTHER PROPERTIES WITHIN 30 METRES OF THE WORKS.

MONITOR VIBRATION WITHIN BOUNDARY OF 0-7mm/s PPV AS PER UKPN DOCUMENTATION WITH A THRESHOLD VALUE OF 4.5mm/s PPV.

ACTION VALUES (RED)	INTERMITTENT VIBRATION	CONTINUOUS VIBRATION
<8hz	7mm/s (10mm/s for TW)	7mm/s (10mm/s for TW)
8-30hz	7mm/s (10mm/s for TW)	7mm/s (10mm/s for TW)
>30hz	7mm/s (10mm/s for TW)	7mm/s (10mm/s for TW)
THRESHOLD VALUES (AMBER)	INTERMITTENT VIBRATION	CONTINUOUS VIBRATION
<8hz	4.5mm/s (6mm/s for TW)	4.5mm/s (6mm/s for TW)
8-30hz	4.5mm/s (6mm/s for TW)	4.5mm/s (6mm/s for TW)
>30hz	4.5mm/s (6mm/s for TW)	4.5mm/s (6mm/s for TW)

LESS THAN 4.5mm/s: GREEN (<6mm/s for TW)

GREEN: VIBRATION LEVEL CONSIDERED SAFE
AMBER: WORKS SHALL BE STOPPED AND RE-ASSESSED ON SITE TO CONTROL VIBRATION PEAKS
RED: WORKS SHALL BE STOPPED IMMEDIATELY AND A UKPN/ TW REPRESENTATICE SHALL BE CALL TO SITE TO ASSESS IF THE OPERATION OF THE EQUIPMENT IS SAFE.

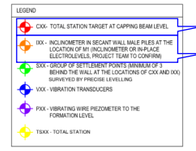
5. FREQUENCY OF MONITORING

A SET OF A MINIMUM OF 4NO. CONSISTENT BASE READINGS IS REQUIRED.
ALLOW FOR A PERIOD OF 2 TO 4 WEEKS FOR BASELINE READINGS.

PERIOD BETWEEN SETS OF READINGS: ONE WEEK. FREQUENCY OF SUBSEQUENT MONITORING: WEEKLY, UNTIL 4 WEEKS AFTER COMPLETION OF EXCAVATION, THEREAFTER FORTNIGHTLY. REDUCTION IN FREQUENCY ONLY WHEN AGREED WITH PM.

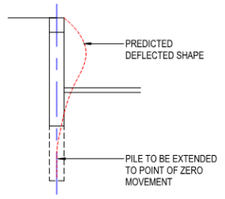
INCREASE FREQUENCY OF READINGS:
- IF MOVEMENTS ARE ACCELERATING.
- IF THE TREND OF MOVEMENTS CHANGES UNEXPECTEDLY.
- WHILE EXCAVATING ADJACENT TO THAMES WATER ASSETS. ADDITIONAL MONITORING: TAKE A SET OF READINGS IMMEDIATELY FOLLOWING: - UNAUTHORIZED OR SIGNIFICANT AUTHORIZED AMENDMENT OF RETENTION STRUCTURE. IF TEMPORARY RETAINING STRUCTURES ARE INTRODUCED TO ENABLE REMOVAL OF EXISTING STRUCTURES ADDITIONAL TARGETS WILL NEED TO BE INSTALLED AND A BASELINE READING ESTABLISHED BEFORE REMOVAL OF EXISTING STRUCTURE. THIS IS TO ENSURE THE CONTINUITY OF READINGS.
ACCURACY OF TOTAL STATIONS TO BE NO GREATER THAN +/- 2mm
INCLINOMETERS: WALL PILES RECEIVING INCLINOMETERS TO BE EXTENDED TO POINT OF ZERO HORIZONTAL MOVEMENT.

PREDICTED DEFLECTED SHAPE
PILE TO BE EXTENDED TO POINT OF ZERO MOVEMENT
INCLINOMETERS TO BE COORDINATED AND ALIGNED WITH WALL PILES EXTENDED FOR VERTICAL LOADS TO MINIMISE PILES WHICH REQUIRE TO BE EXTENDED.

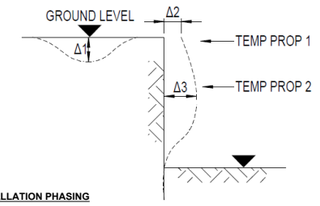


IT IS RECOMMENDED THAT MONITORING POINTS ARE INSTALLED ONTO BUILDINGS THAT FALL WITHIN THE PARTY WALL BOUNDARY SUBJECT TO CONFIRMATION WITH NEIGHBOURING PROPERTIES.

NOTE: THE MONITORING DEVICES SHOULD NUMBERED APPROPRIATELY.



INCLINOMETERS TO BE COORDINATED AND ALIGNED WITH WALL PILES EXTENDED FOR VERTICAL LOADS TO MINIMISE PILES WHICH REQUIRE TO BE EXTENDED.



6. INSTALLATION PHASING

PHASE 1 PRIOR TO START ON SITE (NOT HIGHLIGHTED FOR CLARITY)
PHASE 2 DURING DEMOLITION (TIMING TO BE COORDINATED WITH DEMOLITION CONTRACTOR)
PHASE 3 DURING SECANT PILE INSTALLATION
PHASE 4 FOLLOWING CONSTRUCTION OF CAPPING BEAM

7. SETTLEMENT/ MOVEMENT LIMITS FOR PAVEMENTS

DIFFERENTIAL SETTLEMENT WILL BE LIMITED TO 1/1000 AS PER UKPN DOCUMENT.

WALL TYPE A			SETTLEMENT	LATERAL DISPLACEMENT	
				AT CAPPING BEAM LEVEL	AT MID SPAN
			Δ1 (mm)	Δ2 (mm)	Δ3 (mm)
SINGLE BASEMENT	GREEN	- CARRY ON THE WORKS	<10	<5	<10
	AMBER	- CONTRACTOR TO NOTIFY PM AND STRUCTURAL ENGINEER THE SAME DAY. - CONTRACTOR TO SET UP A MEETING AND PROPOSE MITIGATION MEASURES	10	5	10
	RED	- STOP THE WORK. CONTRACTOR TO NOTIFY PM, STRUCTURAL ENGINEER AND LOL ON THE SAME DAY. - CONTRACTOR TO SET UP A MEETING ON SITE WITH CLIENT REPRESENTATION AND THIRD PARTY REPRESENTATIVE TO AGREE MITIGATION MEASURES	>15	>7	>12

WALL TYPE B			SETTLEMENT	LATERAL DISPLACEMENT	
				AT CAPPING BEAM LEVEL	AT MID SPAN
			Δ1 (mm)	Δ2 (mm)	Δ3 (mm)
DOUBLE BASEMENT	GREEN	- CARRY ON THE WORKS	<12	<5	<12
	AMBER	- CONTRACTOR TO NOTIFY PM AND STRUCTURAL ENGINEER THE SAME DAY. - CONTRACTOR TO SET UP A MEETING AND PROPOSE MITIGATION MEASURES	12	5	12
	RED	- STOP THE WORK. CONTRACTOR TO NOTIFY PM, STRUCTURAL ENGINEER AND LOL ON THE SAME DAY. - CONTRACTOR TO SET UP A MEETING ON SITE WITH CLIENT REPRESENTATION AND PARTY WALL REPRESENTATIVE TO AGREE MITIGATION MEASURES	>17	>7	>16

akt II

PROJECT THE FITZROVIA		TITLE MONITORING ACTION PLAN	
DATE 06/05/2021	SCALE NTS	CAD FILENAME -	STATUS FOR INFO
DRAWN LK	CHECKED DS	PROJECT No. 4190	DRAWING No. 4190-S-HSK-055
			REV T1