

85 CAMDEN MEWS, LONDON

TEMPORARY WORKS STRUCTURAL ENGINEER'S NOTES AND SEQUENCE OF WORKS

SE = PERMANENT WORKS ENGINEER:
TEMPORARY WORKS CO-ORDINATOR:

AXIOM STRUCTURES
TBC

READ IN CONJUNCTION WITH TW- SERIES DRAWINGS AND ALL OTHER ENGINEERS AND ARCHITECTS DRAWINGS AND SPECIFICATIONS.

Temporary Works procedures during construction works are to be in accordance with BS5975:2008 Code of practice for temporary works procedures and the permissible stress design of falsework.

- Seek PERMIT TO LOAD / UNLOAD from TWC at critical stages of construction
- TWC = Temporary Works Co-ordinator
- TWS = Temporary Works Supervisor
- TWD = Temporary Works Designer = AXIOM

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1. INTRODUCTION

1.1 The project involves demolition of the existing two story mews house behind retained front façade, side wall along 87 Camden Mews, construction of single level basement (under the main body of the house, rear garden) and reconstruction of the house.

1.2 The existing structure comprises external brick walls with timber floor joists spanning onto spine load-bearing timber or masonry walls.

1.3 Front facade is of solid masonry wall on shallow strip footings.

1.3 An existing roof is duo-pitched of traditional timber framing construction.

1.4 The structural works considered in the report involve:

- Facade retention during the works and until permanent structure is re-constructed.
- Construction of retro-fit basement under main house and rear gardens.

1.5 Background Information:

- Cullinan Studio drawings and details
- Axiom structural drawings and details
- Ground Investigation by Southern Testing Environmental & Geotechnical (date January 2015)
- British Standards Codes of Practice
- Planning portal information about adjacent properties and their basements.
- Walk-over survey (before strip out)

2. LIMITATIONS IN THE EXISTING CONSTRUCTION:

2.1 Limited investigation works were carried out at the design stage (the house is not strip out at this stage). Contact the structural engineer when all finishes are stripped out and the existing structure is exposed to verify assumptions made at the design stage. It is recommended that structural steelwork is not in manufacturing until existing conditions for specific areas are confirmed.

2.2 Temporary works should consider limited movement to the existing structure to avoid any damage to the adjacent buildings and remaining elements as highlighted in section A33 of NBS specification.

2.3 Limited storage of building materials is allowed on the existing floors and this should be reviewed and agreed for particular locations with the temporary works designer.

2.4 The existing building has limited lateral stability or tying between walls and floors and the works will need to consider the lateral stability of the building at all stages of the construction.

2.5 A limited number of trial pits to expose existing foundations were possible at the design stage. The extent of existing foundations depths to the party walls are to be confirmed when existing slab is broken out.

2.6 There are boundary/ front/ party walls to three sides of the proposed development. These walls are to be retained and restrained before new structure is in place. They must be protected in respect to stability and prevention of any movement that might result in visible cracking and/or other signs of movement or distress and in accordance with any relevant clauses in the Party Wall agreements.

2.7 Existing adjacent neighbouring houses are to surcharge on the proposed basement excavation therefore temporary supports are to be adopted to suit.

2.8 Read in conjunction with Axiom Structures CDM Designers Risk Assessment 2015.

3. PROPOSED SEQUENCE OF WORKS

NOTE 1: We highlight the proposed sequence that we feel will be best for site production, safety and programme. It may be that the contractor wishes to change this sequence in certain areas to accommodate what may be found, as the building work progresses. Seek approval from Temporary Works Engineer prior to any change to the above sequence.

NOTE 2: Carry out works in piecemeal application to suit ground conditions finding on site, do not excavate any larger sections of soil than necessary to maintain slope stability.

NOTE 3: Seek permit from TWC at critical stages of construction activities.

A. Enabling and Non-structural Strip-out.

A1.

- Install hoarding and protection to existing garden walls
- Strip-out remove all non-structural elements to expose existing structure.
- After strip out, review condition of the existing fabric, consult temporary works engineers if any discrepancies are noted or if any area requires stabilising to enable underpinning works to the front facade.
- Review bond between existing internal and external walls, install temporary lateral strapping as necessary. (temporary straps are not required if existing wall is a solid wall)
- Locate any underground and above ground services (in addition to CCTV currently undertaken).
- Re-confirm location and depth of adjacent basements, garden levels and depth of existing footings.
- Install structural monitoring system as per SE requirements.
- Temporary welfare site set up.

B. Enabling Demolition Works and Enabling Underpinning Work

B1. Carry out enabling works underpinning (EW1 to EW5) to the existing walls.

- Refer to drawing TW-401 for the enabling works underpinning locations.
- Refer to drawing GA-100 for the underpins construction sequence.
- Refer to drawing TW-400 for typical sequence, back fill on completion.
- Refer to part C for general underpinning notes

B2. Install permanent column pad foundation and enabling works strip foundation in localised trenches.

- Refer to drawing TW-401 for locations.

B3. Install temporary works to restraint the existing wall in temporary stage. The temporary works of the superstructure refer to drawing TW-403.

B4. TWC to inspect the temporary works, give PERMIT TO LOAD before proceeding.

B5. Carry out demolition to the existing structure down to ground floor level. Ground floor slab is to be retained.

C. Basement Construction

Refer to TW-400 for typical sequence illustration, TW-401 and TW-402 for plan

Underpinning / Trench Wall General Temporary Works Notes:

- Underpinning and wall construction adjacent to boundary walls are to be carried out in maximum 1.2m sections in fully shored shaft / trench excavations, as per TW-400. Width of pins to be verified on site and is subject to condition of existing brickwork. Follow procedures as per industry standards - TRADA, CIRIA, HSE guidance (Refer to Shoring table for outline guidance or as per TW-400).
- A minimum of 48 hours will be allowed between the casting and dry-packing of one pin and the excavation to form the adjoining underpin.

- No more than 25% of any wall will be undermined at any one time.
- Excavation sheeting propping. Sacrificial back-shutters will be used to the rear face of the excavation (i.e. underneath the wall) only when ground is not stable and subject to TWC review. The sacrificial back shutters will be made of non-degradable stiff board of a man made material of greater strength than 18mm plywood. Possible voids behind the sacrificial back shutter are to be filled with high flow grout, the board to be kept low to achieve say 75mm gap at the top. Moreover 60dia holes to be cut at 600crs (vertical and horizontal centers) to allow concrete flow to fill possible voids.
- In the event that the existing foundations to the wall are found to be unstable, sacrificial steel jacks will be installed underneath the foundation to prop the bottom few courses of bricks. These steel jacks will be left in place and will be incorporated into the concrete stem.

Multi-drive Wall Construction Notes.

- The wall will be formed in multi-drives, vertical joints between the drive pins will be staggered on plan. A thickening will be formed at the back of the first drive, width of thickening not to extend beyond existing foundation corbel above.
- Continuity reinforcement will be fixed into the sides of the form. Reinforcement will be driven into the side of the form to provide reinforcement continuity to the adjacent section to be cast later. See Engineers details for continuity reinforcement details.
- The concrete to the stem of the upper drive underpin will be poured up to within 50 – 75mm of the underside of the existing wall foundations. On the following day, the gap between the concrete and the underside of the existing foundation will be dry packed with a mixture as per SE specification.
- The horizontal construction joint between the first and second reinforced concrete underpin drives will be formed by the concrete of the following level of underpins being placed by flooding up to the underside of the preceding level underpins.
- The underside of the preceding level underpin will be broken away to give a slight angle inwards and the following drive underpins using a bird beak chute to increase pressure of the concrete during placement.
- A proprietary concrete waterproofing product will be applied to the underside of the first drive underpins. This product seals construction joints by reacting with water ingress through cracks or joints to grow waterproof crystals. This produce will seal cracks of 0.5mm width.
- The upper 30mm of the exposed vertical reinforcement from the first drive will have high build waterproof black paint applied to protect the reinforcement from rusting. Vertical reinforcement shall continue across all horizontal joints as described on the drawings. Continuity reinforcement will be same diameter and spacing as shown on the drawings and shall have minimum lap lengths of 45 bar diameters.

C1. Construct Perimeter first stage wall in narrow and short trenches:

- Construct wall in hit and miss sequence 1-5
- Refer to proposed sequence numbering on plan GA-100, subject to agreement with TWC on site

C1.1 Install trench sheeting, struts and walings as excavation proceeds in individual trenches.

C1.2 Cast RC stem.

C1.3 Back prop with trench props as soon as underpins are constructed (keep back props until main shores are in place). Consider individual pins to be backfilled with well compacted ground in layers.

C1.4 Continue perimeter wall construction until all are completed and backpropped.

C2. Install TW-01, TW-02, TW-01-1 and TW-02-1 cross shoring in localised trenches. Refer to drawing TW-402.

C3. DIG1. TWC to inspect the works and give permit to excavate. Excavate to 1.0m below high level props.

C4. Construct Perimeter second stage wall (underpinning) in narrow and short shafts:

- Construct wall in hit and miss sequence 1-5
- Refer to proposed sequence numbering on plan GA-100, subject to agreement with TWC on site

C4.1 Install trench sheeting, struts and walings as excavation proceeds in individual shafts.

C4.2 Cast RC underpins.

- Excavation for the bottom one meter will be dug in a day, concrete blinding cast at base, then reinforcement installed (included the temporary work reinforcement refer to drawing TW-401) and the concrete to the base poured by the end of the same day.
- The concrete to the stem of the underpin will be poured the following day.
- Refer to notes above for further details.
- Allow for dewatering bottom of the excavation using localised pumps with required filters to prevent taking out fines from the ground.
- Provide continuous reinforcement between section of foundation bases to create horizontal ground beams.

C4.3 Dry pack to be rammed in hard on the following day of pouring individual concrete stem.

C4.4 Back prop with trench props as soon as underpins are constructed (keep back props until main shores are in place). Consider individual pins to be backfilled with well compacted ground in layers.

C4.5 Continue perimeter wall construction until all are completed and backpropped.

C5. Remove TW-02 and TW-02-1.

C6. Install proposed steel columns and permanent ground floor steel beams as drawing TW-402.

C7. DIG2. TWC to inspect the works and give permit to excavate. Reduce level ground to formation level.

C8. Blind the ground at formation level and install the heave former to control short term heave effect.

C9. Install below ground drainage and sump pits (additional underpinning or shaft construction, where required, to be carried out in similar manner to stage above and shaft shoring table – see drawings).

C10. Cast remaining basement raft.

C11. Install metal decking ground floor slab.

C12. When ground floor concrete cured for at least 7 days (compressive strength of 25N/mm²), remove horizontal basement shores TW-01 & TW-01-1

- TW co-ordinator to inspect the works before shoring is removed, give PERMIT TO UN-LOAD before proceeding.

D. Remaining Superstructure Works

Remaining Structural Works are to be carried out in conventional manner, construct from bottom to top. Consult TWD if any temporary works designs are required.

E. Remove Facade Retention Structure

Remove temporary facade retaining structure only after the existing has been tied to the new primary structure and inspected by permanent works engineer and TWC.

- TW co-ordinator to inspect the works before TW temporary works are removed, give PERMIT TO UN-LOAD before proceeding

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