SPECIFICATION
FOR MONITORING

OF

17 PARLIAMENT HILL AND
21 PARLIAMENT HILL
LONDON NW3 2TA

DURING
UNDERPINNING AND CONSTRUCTION
OF
19 PARLIAMENT HILL
LONDON NW3 2TA

Project No. P2957

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INTRODUCTION

1.00 Purpose of Report

It is proposed to underpin the existing property at 19 Parliament Hill to create a new basement beneath the footprint of the house. The basement will extend partly beneath the rear garden and this basement will be formed by augered piling from existing ground level. This report sets out a specification for the proposed monitoring of adjoining structures during the works.

1.01 Document Status

A detailed proposal for monitoring of the adjoining properties will be agreed in due course with the adjoining owners through the Party Wall Agreements. This document is intended to set out the broad scope and type of monitoring proposed, and to define responsibilities should trigger levels be reached.

MEASUREMENT MONITORING OF ADJOINING BUILDINGS AND STRUCTURES

2.01 17 Parliament Hill

The adjoining property, 17 Parliament Hill shall be monitored for line and level during the underpinning, piling, excavation and construction of the basement and ground floor at No.19 Parliament Hill. The monitoring shall be by means of reflective targets, fixed to the adjoining structures, the movements of which shall be measured to an accuracy of +/- 1mm.

2.02 21 Parliament Hill

In the same way the flank wall to 21 Parliament Hill will be monitored during the works.

The main house to 21 Parliament Hill is 2m away from the proposed works however this will also be monitored in the same way as number 17 Parliament Hill.

2.03 Monitoring Points

The Monitoring Points will therefore be positioned on:-

- The front, rear and side elevations to 19 Parliament Hill.
- The front, rear and side elevations to 21 Parliament Hill
- The front and rear walls to 17 Parliament Hill

The location of these structures relative to the existing building at 19 Parliament Hill is shown in **Figure 1** below.

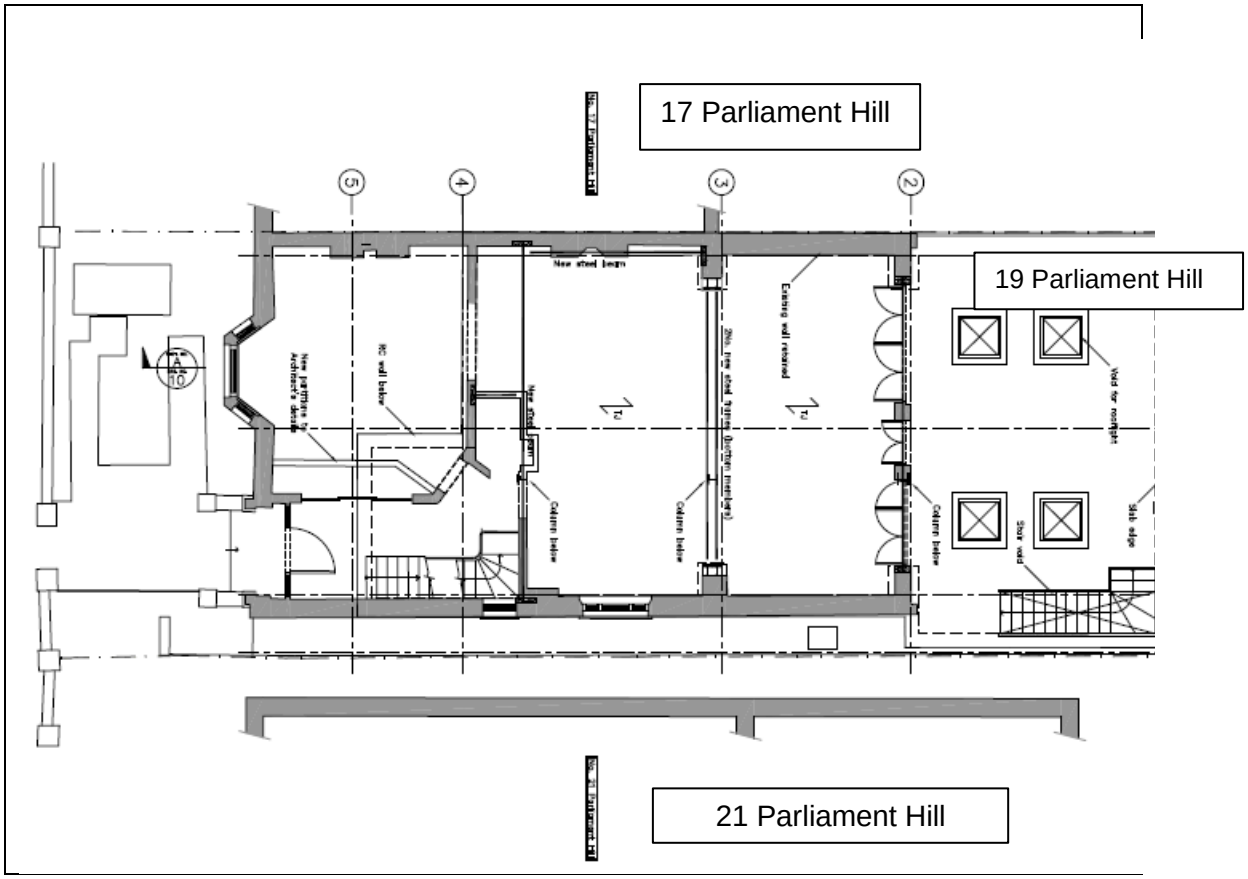

Figure 1
Annotated Existing Plan
(Extract from Michael Alexander drawing P2957BIA 02 P1)

2.04 Monitoring Points to 17 Parliament Hill

- The proposed locations of monitoring points are shown in **Figures 2, 3 & 4** below. These locations are to be agreed and confirmed as acceptable by the Monitoring Contractor, Michael Alexander and the Adjoining Owner. Position of targets shall take into consideration the monitoring information requirements and the access available to fix and 'sight' the targets. All interested parties shall meet on site and agree exact target locations when the time comes so that all logistical aspects in terms of sight lines and access can be taken into account.

Figure 2
Monitoring Point Locations on 17 and 21 Parliament Hill
Front Elevation

Figure 3
Monitoring Point Locations on 17 and 21 Parliament Hill
Rear Elevation

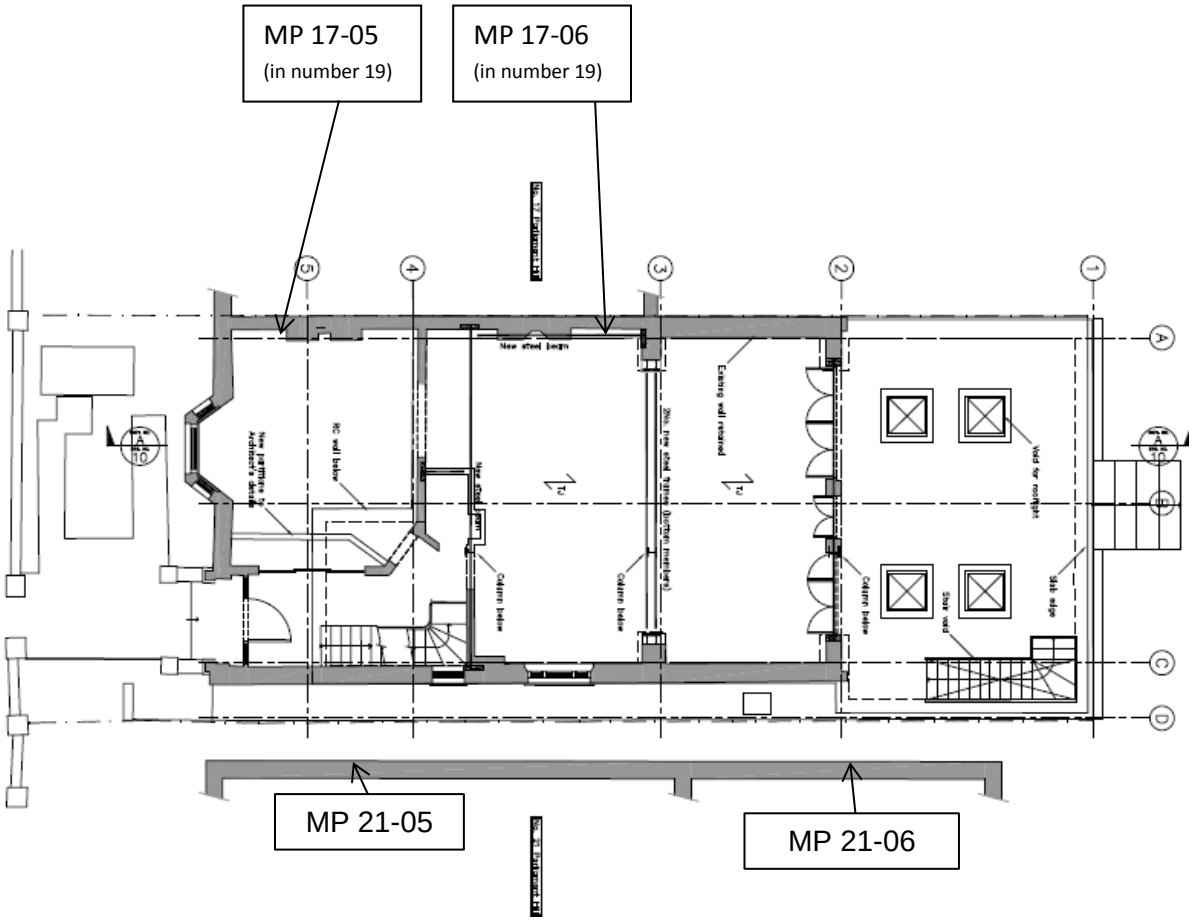

Figure 4

Monitoring Point Locations on 17 and 21 Parliament Hill

Side Elevation of both Main Houses

3.00 RECORDING OF RESULTS

3.01 All readings shall be presented in an electronic format on drawings and schedules and emailed to all interested parties, within 24 hours of taking the reading. The presentation shall provide an absolute value, as well as the relative movement to the previous reading and cumulative movement to the initial reading. Refer to **Table 1** for a suggested format for illustrating monitoring results.

The monitoring results shall also be clearly presented on relevant graphs with axes clearly identified and units displayed. These graphs will illustrate the trigger value limits, to enable quick reading of the monitoring results.

All monitored displacements will be displayed in millimetres.

Monitoring Point	Original Coordinate Readings (m)	Current Coordinate Readings (m)	Difference Between Current and Original Readings (mm)	Difference Between Current and Previous Readings (mm)	Axes
	Date: *DD/MM/YY*	Date: *DD/MM/YY*			
MP 17-01					X
					Y
					Z
MP 17-02					X
					Y
					Z
MP xx-xx					X
					Y
					Z

Table 1
Suggested Format for Monitoring Records

3.02 If a cumulative movement of any of the monitoring points reaches the “Trigger Value”, Works shall be stopped and appropriate Action shall be taken. The Action will be dependent on the direction of movement and the activity being carried out at the time.

3.03 An initial set of monitoring readings shall be taken following installation of all target points.

A second set of monitoring readings shall be taken prior to commencement of excavation. The second set of readings will establish the differences which can be attributed to the accuracy of readings, seasonal variation in the ground conditions, and thermal/moisture movement in the buildings, when no significant works have been carried out.

Subsequent monitoring readings shall be taken at intervals stated in Clause 4.03, which correspond to the relevant construction works occurring at that period of time.

3.04 The monitoring results shall be forwarded by Michael Alexander to the Building Owner's Surveyor, Adjoining Owner's Surveyor and his Advising Structural Engineer, within 21 hours of recording.

4.00 CONSTRUCTION PROGRAMME & MONITORING FREQUENCY

4.01 Construction Programme

The main Programme items are summarised in the Table below. The dates will be added when the Construction Programme is received from the Contractor.

ACTIVITY	START DATE	END DATE
1) Preparation of Piling Platform	TBC	TBC
2) Piling	TBC	TBC
3) Underpinning	TBC	TBC
4) Capping Beam and Installation of Props to Capping Beam	TBC	TBC
4) Excavation	TBC	TBC
5) Basement Level 1 Prop 1st Stage Underpin	TBC	TBC
6) Basement Level 2 Prop 2nd Stage Underpin	TBC	TBC
7) Basement Slab	TBC	TBC
8) Ground Floor Slab	TBC	TBC

Construction Programme

4.02 Interim Review of Results

Following completion of stage 2) and 3) above – Piling and Underpinning Works – the monitoring results will be reviewed by the Structural Engineer in conjunction with their geotechnical advisors. The response of the ground to the piling works will be compared against predictions. On the basis of these results the arrangement of propping or the construction sequence may be modified to ensure ground movements are effectively limited. If ground movements during the pile installation are less than expected then the trigger levels may be reduced accordingly for the excavation phase.

4.03 Proposed Frequency of Readings of Monitoring Points on Adjoining Properties

During Construction (commencement of Piling and Underpinning to completion of Ground Floor Slab)

- The readings shall be taken at weekly intervals.

Post Construction:

- A final set of readings shall be taken 4 weeks after completion of construction of ground floor slab. Further readings will be taken two and three months after cpmpletion to allow for further ground movement or settlement during this period.

Monitoring of the proposed capping beam will be carried out twice daily by the contractor's site engineers at beginning and end of shift, when any significant item of excavation is being carried out.

5.00 INTERPRETATION & ACTION

5.01 Trigger Levels

The following system of control shall be employed. The Trigger value, at which the appropriate action shall be taken, for each section, is given in Clause 5.03

AMBER: Increase monitoring frequency and undertake a detailed review of construction methods. Prepare a revised method of working.

RED: Stop any further excavation. Make safe the excavation. Review monitoring regime and implement revised plan of works.

5.02 Contingency Planning

On appointment of the Contractor, contingency plans will be developed so they can be enacted should trigger levels be exceeded. This might include the provision of additional props, changes to construction sequence, or applying additional force to the props.

5.03 The Trigger Levels shall be as follows:

X-axis (along the plane of the wall)	**Amber:**	+/- 7 mm
	Red:	+/- 10 mm

Y-axis (perpendicular to the wall)	**Amber:**	+/- 7 mm
	Red:	+/- 10 mm

Z-axis (level vertically)	**Amber:**	+/- 7 mm
	Red:	+/- 10 mm

Capping Beam

X-axis (along the plane of the capping beam)	**Amber:**	+/- 7 mm
	Red:	+/- 10 mm

Y-axis (perpendicular to the capping beam)	**Amber:**	+/- 7 mm
	Red:	+/- 10 mm

Z-axis (level vertically to the capping beam)	**Amber:**	+/- 7 mm
	Red:	+/- 10 mm

5.04 Action

Any movements which exceed the **Amber** Trigger Levels shall be immediately reported to Michael Alexander.

In the event of movements exceeding the **Amber** Trigger Levels, the proposed frequency of readings of Monitoring Points on the Adjoining Property shall be increased.

Representatives from Michael Alexander and the Adjoining Owner Representatives' shall then meet on site, as soon as practicable, to review the works being carried out, to inspect the property and to decide and agree on the appropriate Action to be taken.

Any movements which exceed the **Red** Trigger Levels shall be immediately reported to Michael Alexander and appropriate action will be agreed and a meeting will be convened with the Adjoining Owners' Representatives.

5.05 Cessation of Works due to Unforeseen Circumstances

If the programme is revised significantly, the Monitoring Regime will be re-evaluated in conjunction with Michael Alexander and the Adjoining Owners' Representatives.