

<b>Barrett Mahony Consulting Engineers</b> Civil . Structural . Project Management 95A Westminster Bridge Road, London SE1 7HR Tel: (0044) 207 922 1402 Email: bmce@bmce.ie Web: www.bmce.ie	<b>DOCUMENT</b>  <b>LEAD</b>  <b>SHEET</b>	<b>PAGE</b> <b>1</b> <b>OF</b> <b>20</b>
--	--	---

**PROJECT:**                   **No.20 John's Street, LONDON, WC1N 2DR**

**PROJECT NO.**               **L13.729**

---

**DOCUMENT TITLE:**   **Structural methodology report for 20 John Street, London, WC1N 2DR**

**DOCUMENT NO:**       **L12.729-RP-02**

Issue	Date	Description	Orig.	PE	PD	Issue Check
Final	05/03/2013	Issued for Planning	RT	RT	VB	

barrett mahony

## **CONTENTS**

1.0 Introduction

2.0 Existing structure

3.0 Structural Methodology

Appendix 1 General arrangement Drawings and sections.

Appendix 2 Photos

## **1.0 Introduction**

### **1.1 Brief**

Barrett Mahony Consulting Engineers (BMCE) has been commissioned by GFZ Investments Ltd to prepare a structural methodology for the proposed development at 20 John Street, in conjunction with the project architects, Marek Wojciechowski. This document provides a description of how the proposed works will be achieved from a structural engineering perspective.

### **1.2 General**

The existing property at No.20 John Street, consists of a four storey terraced structure over a part basement.

It is proposed to carry out a refurbishment of the property which includes returning the property to a residential usage from the current office use. The works also include construction of a new basement below the footprint of the building to the rear section of the property. (mews building) This report considers the structural methodology proposed to realise this work.

## **2.0 Existing structure**

### **2.1 General**

The existing structure at No.20 John Street consists of an end of terraced four-storey Georgian era property. The property is bounded one side by Roger Street and shares a party wall with No. 19 John Street, and its front facade faces out onto John Street.

### **2.2 Existing building structural form**

Based on our visual inspection it appears that the existing property consists of load-bearing perimeter and internal masonry walls supporting suspended timber floors at each level. The top storey is a set back mansard roof with slate facing.

The rear of the building is a two storey structure with a flat roof, and as per the rest of the property appears to share a party wall with the adjacent building, No. 19.

There is an existing basement which covers approximately 60% of the site area and extends back from a light well at John Street to about half way along the Roger Street elevation. Roger Street falls away on a gradient from the junction with John Street. The existing ground floor level is slightly above the level of John Street and access to No. 20 is via a door on the Roger Street elevation with an internal stepped access to ground floor level.

The rear area of the property has no basement and the ground floor is a suspended timber floor supported on concrete beams and columns taken down to foundation level.

The adjacent property (No. 19), that forms the party wall to this rear section of the property, is almost a full story lower than No. 20. It is not known if the adjacent building, No.19 has a basement over this section of the shared boundary, but it appears unlikely. Although to date, no site investigation works have been carried out it has been possible to view the void below the suspended ground floor in the rear section of the property.

From an internal and external visual inspection the structure appears in good condition with no visible evidence of cracking or distress.

### **2.3 Structural form of adjacent property**

The adjacent property is also a four storey over basement structure but is almost a full storey higher than No. 20 due to greater floor to floor heights. The property is of the same construction type as No. 20 and shows no visible external signs of damage or structural distress.

## **2.4 Site investigation**

At this point no site investigation works have been commissioned. However based on local knowledge and previous experience of the geology of this part of London and review of previous bore holes undertaken in the near vicinity it is expected that the sub-soils comprise fill over brown silty sandy Clay and terrace gravels overlying stiff London Clay at depth. Trial holes will be excavated, prior to commencement to confirm the ground conditions and the details of the existing footings.

## **3.0 Proposed development**

### **3.1 Basement**

- (i) Part of the proposed architectural scheme involves forming a new basement under the existing two storey mews structure at the rear of the site. This basement will be independent and not linked to the existing basement at the front of the site. It will be served via a stepped access from ground level along Roger Street and internally via a new stair case.

As both John Street and Roger Street fall in gradient across the front elevation and gable elevation of No. 20, the existing ground floor level is over 2m above external pavement level at the rear of the property along Roger Street. As such, it is very likely that the existing wall foundations along the Roger Street façade are already set low enough to achieve the new basement level while avoiding underpinning this wall. This will need to be verified by trial pit excavation.

Along the rear wall of No. 20, facing on to an existing concrete paved car park/access area, the level difference is such that there is have a full storey between the existing suspended ground floor level and external ground levels. Again it is anticipated that no underpinning will be necessary to achieve the required basement levels along this perimeter.

With respect to the foundation to the internal concrete columns supporting ground floor level it is very likely that they are founded at a level below the lowest ground level externally at the rear of No. 20 and as such we would anticipate that underpinning will not be necessary to achieve the required basement levels. The existing foundations are likely to be founded on the terrace gravels.

Finally as the external ground levels are approximately 2.3m below the suspended ground floor level at the junction between the rear wall of No. 20 and the party wall between No. 20 and 19 we do not anticipate that this party wall will have to be underpinned.

It is proposed that the new basement slab will consist of a 150mm thick concrete slab on HD insulation on a minimum of 225mm of well compacted granular fill.

- (ii) A new platform lift is proposed for the light well along John Street but as this lift does not require a lift pit no structural modifications are likely to be required.
- (iii) It is proposed to reinstate the original light well at the junction of John/Roger Street. Given that this is a reinstatement it is likely that the existing retaining walls to the line of the original well may still be in place. If this is the case then the excavation of this area should be straightforward. However it may be necessary to install a new RC retaining wall, 200mm thick, to form the outer wall of this light well. This work would involve the installation of temporary propped sheet piles to allow the excavation to be carried out.

The same will be true of the light well to be installed along the rest of the building on Roger Street. If no existing wall is in place a new 200mm thick RC retaining wall will have to be formed to provide the outer line of the proposed light well.

- (iv) The provision of bedroom and kitchens within the existing basement area will necessitate forming new trenches in the basement slab to allow the new drainage to be installed. It is envisaged that the existing sewers on John Street are deep enough to allow the new basement drainage to be connected by gravity.

## **3.2 Ground Floor Level**

- (i) The internal conversion to a residential property involves the installation of new internal partitions. Some strengthening to existing timber floor joist may be necessary depending on the weight of the new partitions. This may be achieved by doubling up of timber joists below the location of new partitions. However, in general, the conversion from office space to residential will reduce the imposed loads on the existing floors.
- (ii) The provision of the new access stairs to basement level within the mews building at the rear will necessitate cutting and providing support steelwork to the existing suspended timber ground floor in this area. The walls of the staircase may be formed in block work or load bearing steel stud; in either case a new 300mm thick strip/pad footings will be provided at basement level to support these walls.

### **3.3 First floor Level**

- (i) There are a number of new internal partitions at first floor level. No structural works other than joist strengthening below new partitions or in areas of heavy floor finishes should be necessary. In the case where new masonry block walls are required to between flats it may be necessary to provide a steel UC section within the depth of the existing floor to support these heavier partitions. Opening works will be required to confirm the size and span of existing timber floor joists and it is recommended that a timber specialist is engaged to confirm the condition of existing timber elements.

### **3.4 Second Floor level**

- (i) No structural works other than joist strengthening below new partitions/heavy floor finishes should be necessary.

### **3.5 Third floor/roof level.**

- (i) Mews Building: It is proposed to convert part of the existing flat roof to a terrace area and as such a new screen/balustrade will be installed along the edge of the existing roof and fixed back to the outer perimeter masonry wall. A new roof light will be provided above the stairs below to provide access and the existing roof structure will cut to accommodate this. It may be necessary to consider strengthening to the existing roof depending on the weight of the proposed terrace finishes.
- (ii) Main building: No structural works other than joist strengthening below new partitions/heavy floor finishes should be necessary.

### **3.6 Main roof level.**

- (i) No structural works envisaged.

## **Appendix 1: Preliminary Drawings**



**NOT FOR CONSTRUCTION**

## NOTES

1. THE COMPANY IS TO BE HELD IN COMPLIANCE WITH ALL CURRENTLY EXISTING ENVIRONMENTAL PROTECTION ACTS AND REGULATIONS TO BE ENACTED WHERE A VIOLATION OF ENVIRONMENTAL PROTECTION ACT IS ANY VIOLATION - 25%.

[illegible]

**GAL- FULL HEIGHT SECTION 1**

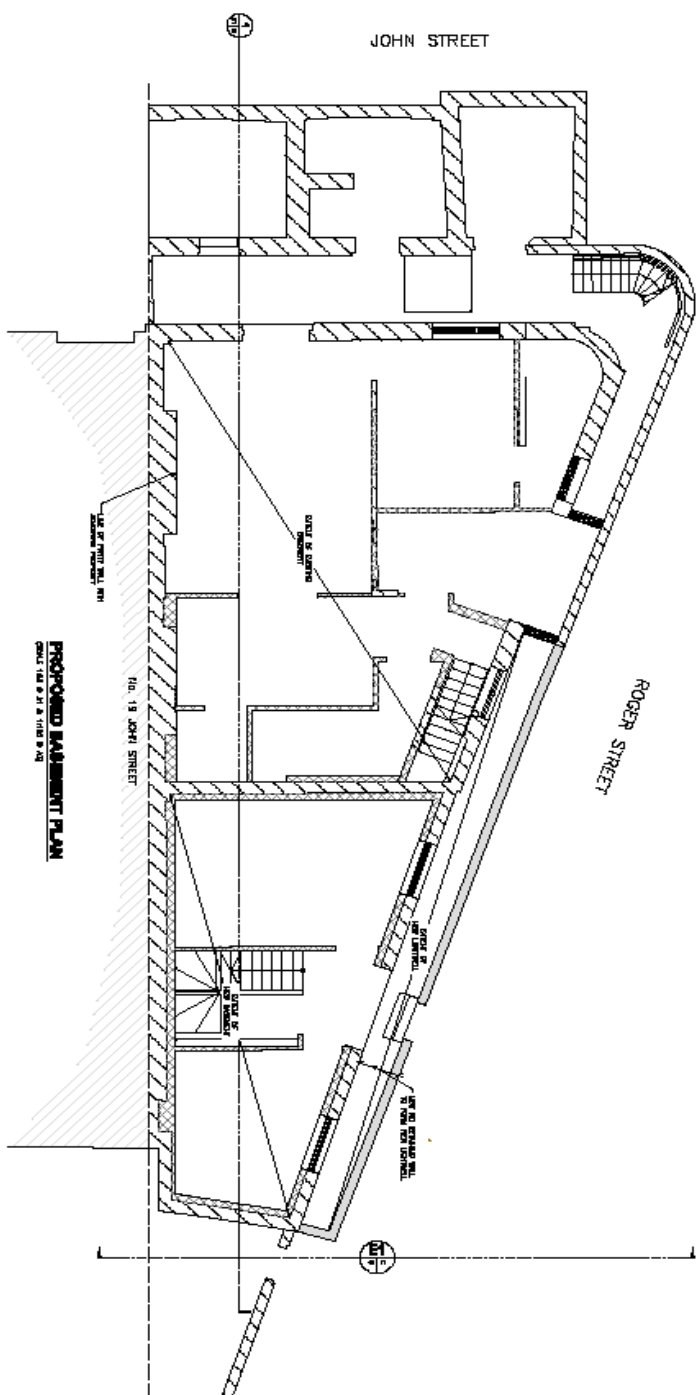
NO. 10	10	P-1
--------	----	-----

**NOT FOR CONSTRUCTION**

## NOTES

1. THEORETICAL BASIS OF THE MODEL OF CONFLICTS BETWEEN ALL CLASSES OF RESISTING CIVILIAN POPULATIONS BASED ON THE DATA RELATING TO THE LEVELS OF A CORRELATION OF RESISTANCE ON THE ONE HAND AND ON THE OTHER - "SEE".

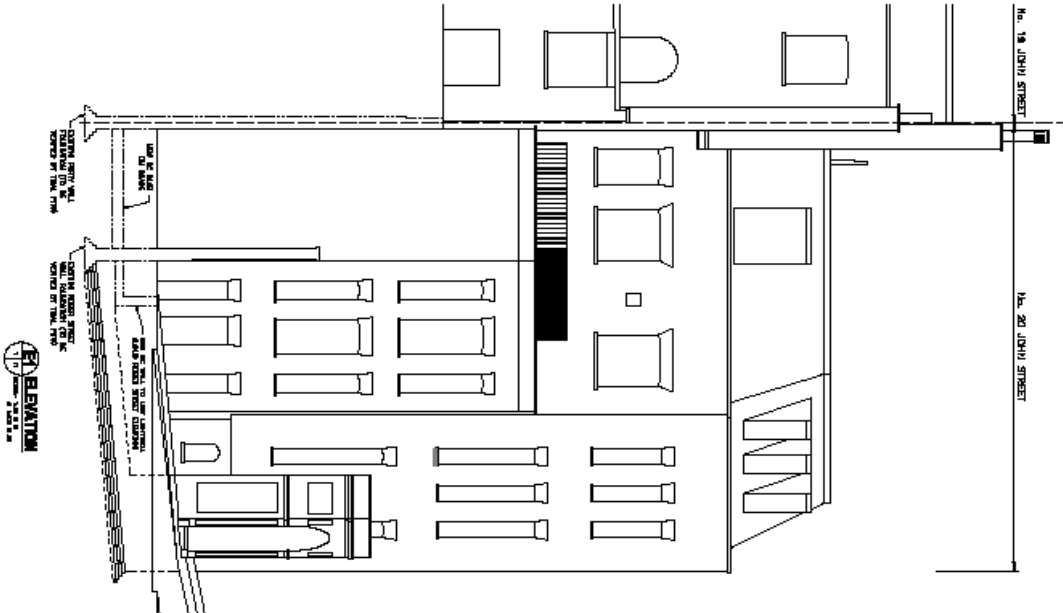
2. DATA RELATING TO THE LEVELS OF RESISTANCE OF THE MAIN CIVILIAN POPULATIONS BASED ON THE RESEARCH.

[illegible]

NOT FOR CONSTRUCTION

NOTES

1. THE DRAWING IS TO BE USED IN CONJUNCTION WITH ALL  
OTHER DRAWINGS TO BE SUBMITTED, WHICH WILL  
FORM A PART OF THE CONTRACT. THE CONTRACTOR SHALL  
BE RESPONSIBLE FOR THE CORRECT INTERPRETATION OF THE  
DRAWING.



G.F.Z. INVESTMENTS LTD			
10, 20 JOHN STREET			
LONDON			
G.F.Z. REAR ELEVATION E1			
Scale	1:100	Sheet No.	11
As shown	L18720	Scale	P1

## **Appendix 2: Site Photographs**



**Corner elevation at junction of Roger Street and John Street (note falling gradients)**



**Suspended ground floor structure to rear of existing property (area of new basement)**



**Elevation along John Street**





**Existing Light well along John Street**





**View along Roger Street (note falling gradient and line of possible original filled-in light well)**



**Elevation at rear of property (note height of ground floor level windows above external levels)**





**End of property line along Roger Street (note gradient along footpath)**



**Junction between front and rear sections of property along Roger Street**