11 York Street
Manchester

Existing Building Demolition Statement

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1.0 Introduction

1.01 Tier Consult have been appointed by Kier Property to provide a method statement for the safe demolition of the existing building currently occupying the site of the proposed 11 York Street Development, Manchester.

1.02 This report and the methodology contained therein has been informed by discussion with the potential contractor for the new development. The demolition phasing is governed by the proposed construction methodology for the new structure which may be subject to minor alteration as the design for the proposed works is finalised. This report concerns structural matters only, for services information and terminations etc refer to specialist consultant's details.

1.03 This report is prepared for the sole benefit of Kier Property Ltd and must not be reproduced or relied upon by any third party without the written consent of Tier Consult. Tier Consult accept no duty or responsibility (including negligence) whatsoever to any third party with regard to the contents of this report.

2.0 Existing Building

2.01 The existing building occupies an island site in the centre of Manchester. The building is longitudinally aligned to the north west and is bounded to the North by Marble Street, East by Fountain Street, South by York Street and to the West by Milk Street.

2.02 The building is approximately 50m long and 20m wide and comprises a basement storey with a further six storeys above ground. The basement accommodates car parking, plant and a network electrical sub-station serving both this building and neighbouring properties. The sub-station is to be decommissioned and a temporary replacement installation provided adjacent to the site prior to the commencement of demolition. It is assumed that the structure was designed for retail use at ground floor and office use at first floor and above.

2.03 The Marble Street and Fountain Street elevations have a reinforced concrete cantilever canopy at first floor level extending approximately 2.75m from the building, the Milk Street elevation has a similar canopy for part of its extent within the inset section.

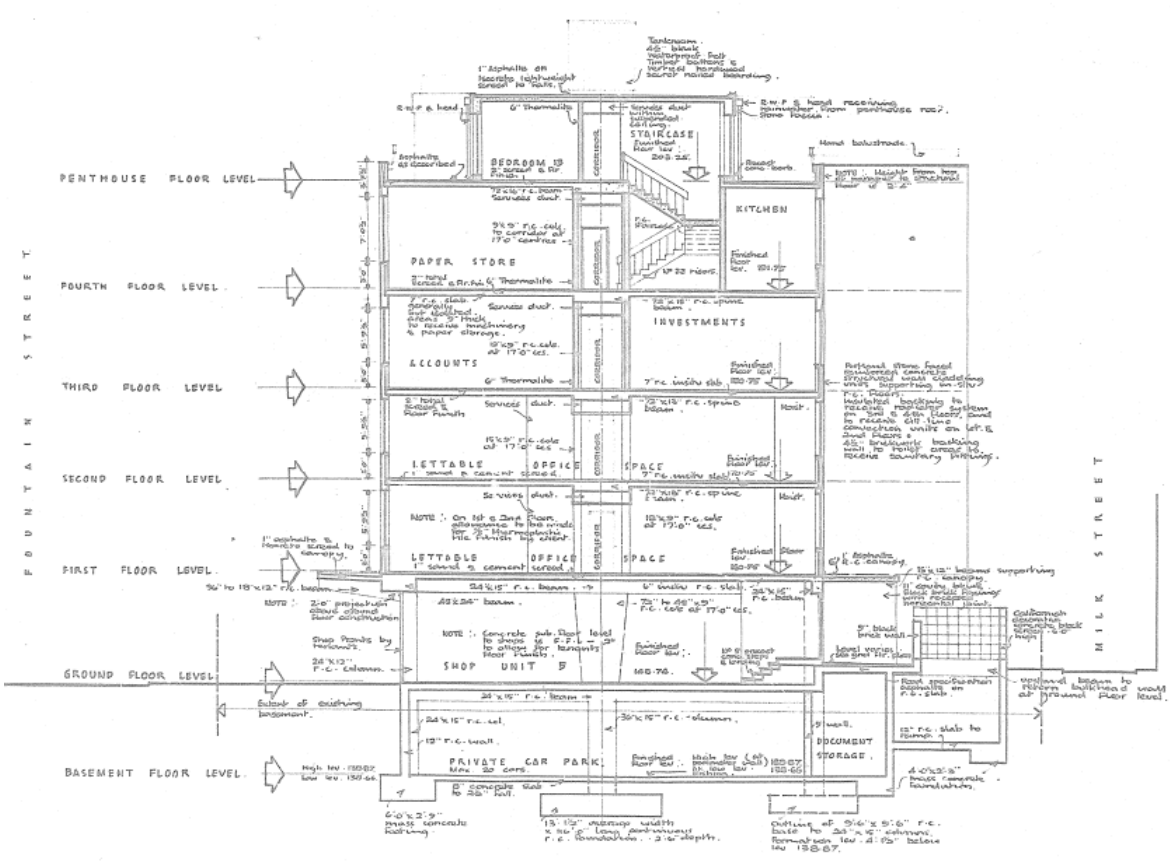


Fig 1 Existing Cross Section

2.04 A number of architectural record drawings are available for the original construction however no structural drawings have been made available. Manchester City Council Building Control have been contacted in order to

access their records however to date no documents have been forthcoming. The structural detail discussed in this report is obtained from both site survey and interrogation of the original Architectural details.

2.05 A Type 2 asbestos survey has been carried out on the building which has detected both licensable and non-licensable materials. These materials are to be removed from the building in strict accordance with The Control of Asbestos Regulations current edition, prior to the commencement of demolition.

2.06 The existing structure comprises a reinforced concrete frame. Reinforced concrete floor slabs span across the building from the external envelope to a central wide reinforced concrete spine beam. The external precast concrete cladding supports the floor structures and carries the load down to reinforced concrete 'transfer' beams at first floor level which in turn are supported by discrete columns at ground floor. The external precast concrete cladding is formed from an assembly of structural 'H' profile panels, staggered in elevation with infill spandrel panels (Fig 2). The 'H' panels are spliced at mid-storey height with the spandrel section directly supporting the floor slab (fig 3).

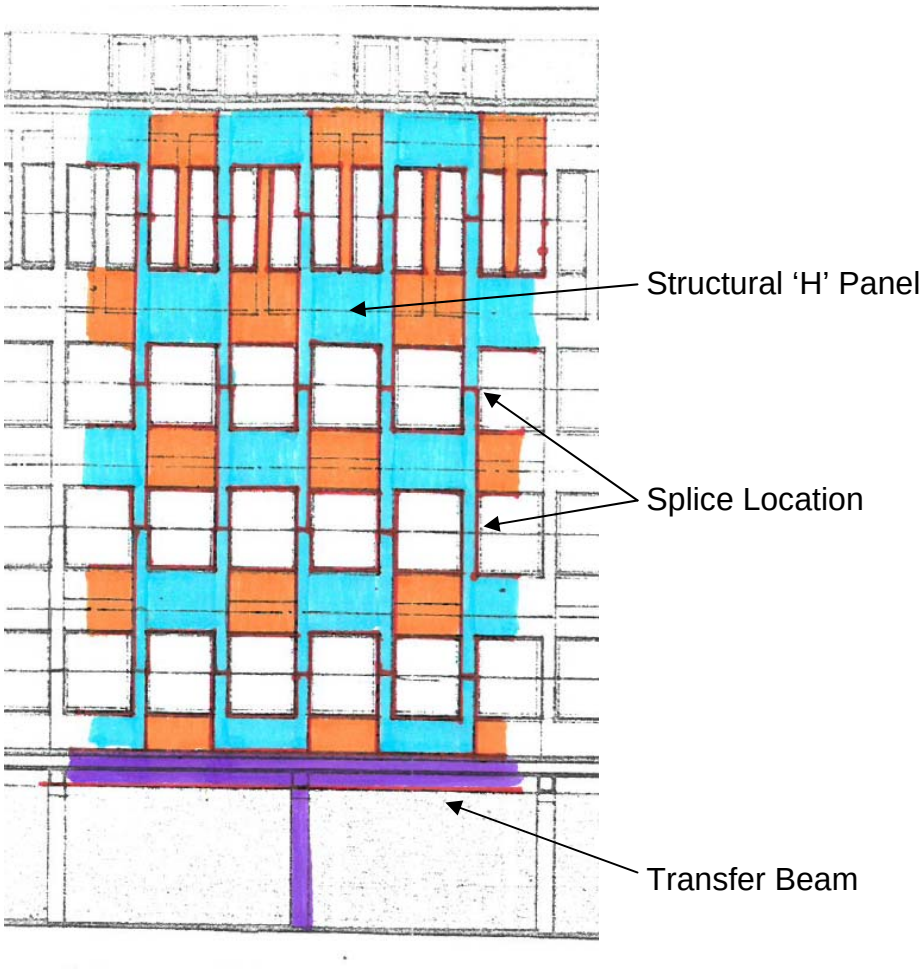


Fig 2 PCC External Panels

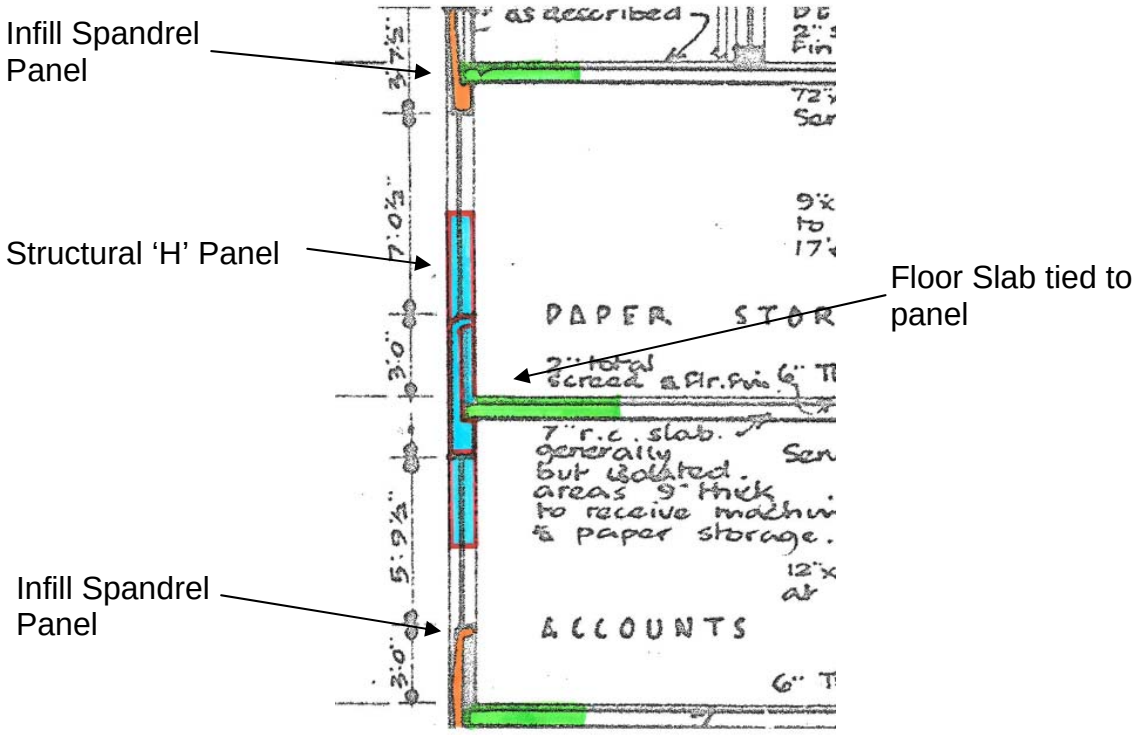


Fig 3 Section Through External Panels

2.07 Above first floor the central spine beam is supported by a pair of reinforced concrete columns either side of a central 'corridor', commensurate with office layouts at the time of construction. Between basement and first floor the column pairs are supported by a single larger column which splays out from its base to its head at ground floor. The ground floor slab spans longitudinally between beams spanning across the building.

2.08 The existing basement is formed with reinforced concrete perimeter retaining walls propped at ground floor level by the existing reinforced concrete slab and beams. The architectural drawings indicate that the base of the wall is integral with the slab, however on site investigation have shown that the as-built condition differs in so far as there is a flexible joint between the basement slab and the wall face indicating a ground bearing slab with a separate wall footing beneath. Core samples have been taken through the walls which indicated a reinforced concrete thickness of approximately 300mm, no waterproofing material was present on the retained face of the wall. The record drawings also indicate the presence of relic foundations and walls outside the footprint of the existing basement.

2.09 The perimeter of the building is surrounded by paved foothpaths at ground floor level. There are extensive live services beneath the footpaths which have been the subject of detailed investigation.

2.10 The structure appears to have been constructed of traditional reinforced concrete and therefore there does not appear to be any elements of pre or post stressed concrete or any other forms of construction containing embodied energy.

2.11 The building has 2 vertical circulation cores, a stair and lift core to the south and an escape stair core in the north west corner. The main stair and lift core is enclosed with reinforced concrete walls which provide lateral stability to the structure, the escape staircase has an adjacent longitudinal concrete wall again providing stability in that direction.

2.12 Existing storey heights are generally 4.0m floor to floor.

2.13 The structure is supported on reinforced concrete spread foundations bearing onto the underlying clay sub soil.

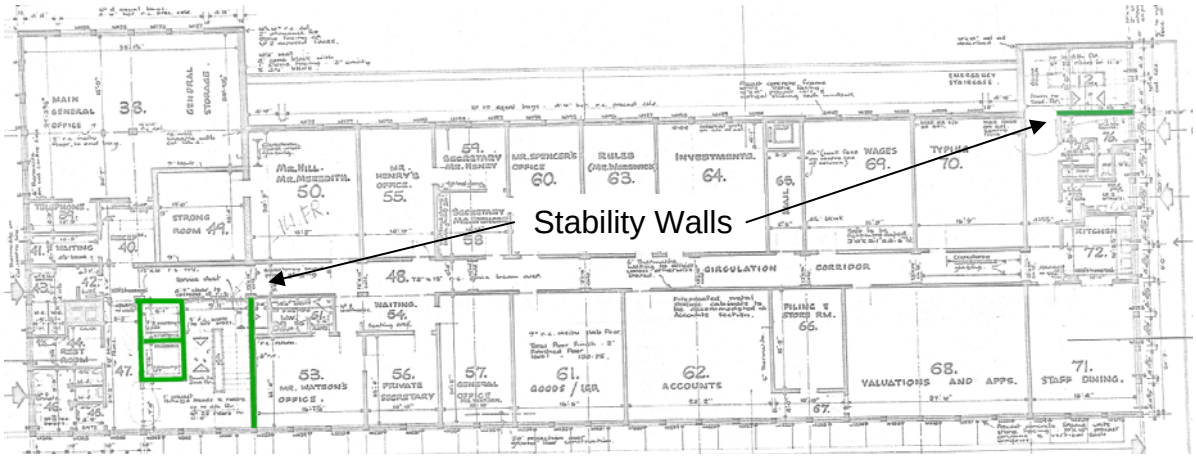


Fig 4 Typical Floor

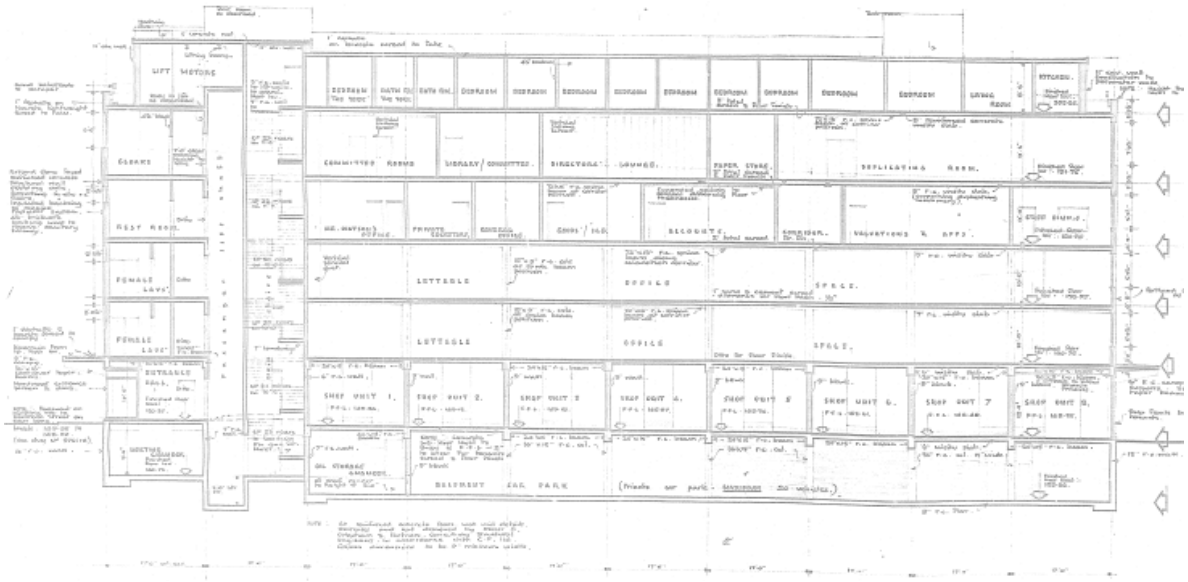


Fig 5 Long Section

3.0 Demolition Methodology

3.01 Prior to demolition a suitable secure solid hoarding is to be provided to the full perimeter of the building in a location to be agreed with the Local Authority. The hoarding is to contain vehicle gates to allow for waste lorries to be loaded within the confines of the hoarding. In addition to the hoarding, protective cantilever 'fan' scaffolds are to be erected where deemed necessary at a suitable level to prevent debris falling from the building from reaching ground level. At the end of the demolition process the hoarding is to remain to provide protection to the permanent construction works, adapted as necessary to suit the ongoing construction works. As noted previously there are considerable below ground services around the building and therefore all necessary protective measures are to be taken to avoid damage to them.

3.02 The location of the building prevents the use of explosive demolition techniques therefore the structure should be demolished in a traditional piecemeal top down manner in either a storey by storey sequence or a bay by bay sequence using hydraulic / pneumatic breaking or cutting equipment.

3.03 Plant loads and loads from the stockpiling of arisings is to be limited to 5kN/m^2 to prevent overloading of the existing slabs, This restriction is likely to require that all arisings be lifted to ground floor level for processing and disposal. The basement slab is ground bearing and therefore the loading available at this level is considerable and can be taken as in excess of 50kN/m^2

3.04 It is recommended that demolition is commenced at the gable ends progressing towards the centre of the building. The sequencing of the demolition should be such that, to avoid instability of the retained structure, there is only one storey above the level of the intact stability walls at any time.

3.05 The external envelope provides structural support to the floor slabs therefore the contractor must demonstrate a method of removal of these panel which maintains the stability of the floor structure and also stability of the wall panel following removal of the floor. It is anticipated that the external wall panel will be demolished down to slab level and the remainder down to slab soffit level demolished with the slab. This sequence will leave a short section of panel unrestrained above the mid-storey splice position however it is assumed that this joint will be robust enough to restrain the retained section prior to demolishing down to the next slab level.

3.06 The construction of the permanent works requires a level working platform at ground floor level therefore the ground floor slab is to be broken out and the basement backfilled with demolition arisings consolidated by machine tracking where possible. Tier Consult are to arrange further intrusive investigation into the construction of the basement walls and provide suitable

demonstration of the ongoing stability (or otherwise) of these with the ground floor prop removed.

3.07 Following the initial phase of the permanent works the filled basement is to be excavated and the basement slab broken out. Where necessary the existing foundations are also to be removed. Tier Consult are undertake check calculations based upon the further intrusive investigations to investigate the stability of the retained walls in this condition.

3.08 If necessary a system of temporary support to the basement retaining walls will need to be provided, this will need to be co-ordinated with the contractor for the permanent works in order that ongoing access is not compromised.

3.09 It is proposed that the permanent works re-use the existing drainage connection from beneath the basement at the north end of the building discharging into the public sewer with marble Street. Care is therefore to be taken to protect this drain from damage during demolition.

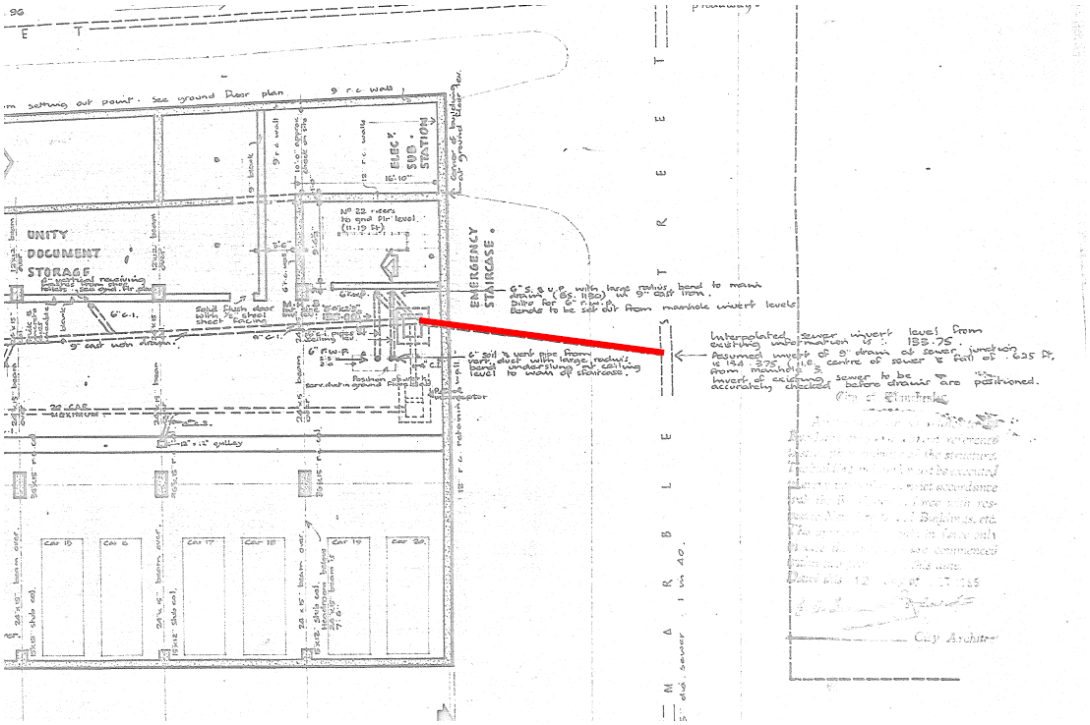


Fig 4 Existing Drainage Connection