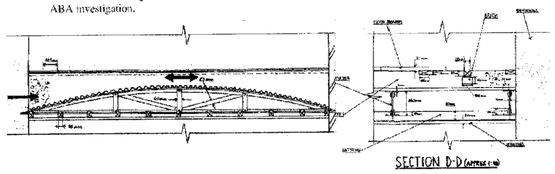
Existing Floor Construction Detail

Extract from drawing 1145/32/17 - Floor detail from ABA investigation.



Floor loads

Dead load (Includes wrought iron work, concrete, floor boards & battens and ceilings)	6 kN/m²
Live loads (Hotel 2.0 plus partitions 1.0)	3 kN/m²
Ultimate load = 13.2 kN/m²	

Floor span = 4m say

Floor overall depth = 150mm lime concrete + 240mm lattice beam depth = 390mm
Assumed arch rise = 390mm – 50mm thrust at top of middle third at midspan
– 100mm thrust centre at support
= 240mm

Thrust = $13.2 \times 4^2 / 8 \times 0.24 = 110$ kN/m

Thrust block depth = 150mm say and assuming triangular stress distribution,
Maximum (ultimate) compressive stress = 2 x 110 / 150 = 1.5 N/mm²

Assuming rectangular distribution and a 100mm thrust block depth, the maximum compressive stress
= 110 / 100 = 1.1 N/mm²

Hotel corridor has higher loads
Live load 5 kN/m²
Ultimate load = 16.4 kN/m²

Floor span = 3.2m approx.

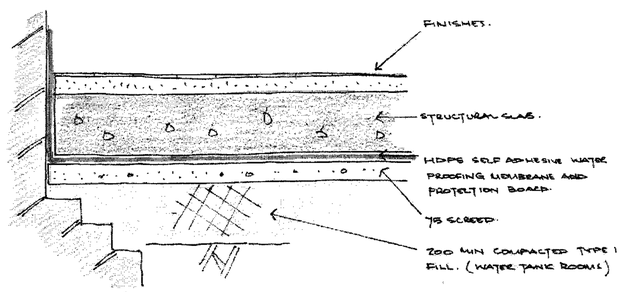
Thrust = $16.4 \times 3.2^2 / 8 \times 0.24 = 88$ kN/m

Assuming triangular stress distribution, the maximum compressive stress
= 2 x 88 / 150 = 1.2 N/mm²

Assuming rectangular distribution, the maximum compressive stress
= 88 / 100 = 0.9 N/mm²

Arch Thrust Calculation

EXISTING BRICK WALL WITH CORBELLED FOOTING.



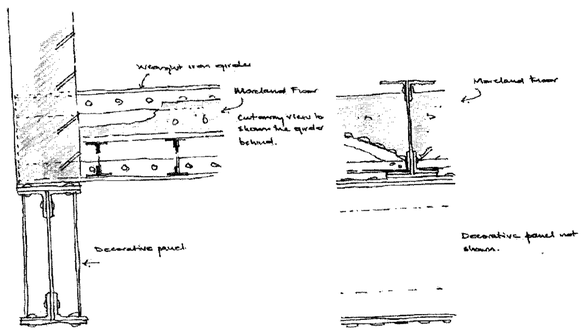
STRUCTURAL SLAB. REINFORCED WITH FULL MAT TOP AND BOTTOM. DESIGNED TO LIMIT SETTLEMENT OVER SOFT AREAS OF GROUND.
200 MM THICK GENERALLY ; 300 MM THICK UNDER WATER TANK ROOMS.

COMPACTED FILL TO BE PLACED IN ALL AREAS OF OVER-EXCAVATION OR WHERE NEW SERVICES INSTALLED IN THE GROUND.

WATERPROOFING SPECIFICATION TO BE COMMENTED BY THE ARCHITECT.

BASEMENT SLAB · INDICATIVE CONSTRUCTION.

Basement Slab – Indicative Structure



Level 1 – Existing Structure

General Notes:

1. Drawings are not to be scaled (images have been scanned).
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3. Connection design forces shown thus : (__kN), acting downwards. All forces are factored. Where such connection forces are only shown at one end of the beam it should be assumed the force is the same at both ends.
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6. For Temporary Works proposals refer to Drg No, 111800/S_1147 & S_1743.
7. Concrete upstand to all levels at front of lift to be provided. Refer to Drg No, 118000/S_1146 Detail 'F'.
8. Locations of Existing W.I. Beams to be confirmed to Engineer prior to demolition.
9. Any descreponcies between Architect's & Engineer's Drawings to be highlighted to both parties.
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11. Lifting beams & secondary lift steelwork to be Contractor designed.
12. Proposed method statement & construction sequence to be agreed with Engineer.

Issue	Date	By	Chkd	Appd
C2	17/03/06	BO'B	JL	BJ
Issued For Construction				
C1	03/03/06	BO'B	JL	BJ
Issued For Construction				

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Client
Manhattan Lofts Corporation Limited

Job Title
St. Pancras Chambers

Drawing Title
Existing Building Information

Scale at A1

Plot ID 567683C5-0438-44C5-8513-C7C29CBF1F1D

Drawing Status
Construction

Job No	Drawing No	Issue
118000	S_2001	C2

J:\118000\118000\4 INTERNAL PROJECT DATA\03 Arup Drawings\07 Structural\PEGS 2006_02_17\S_2001.dwg 17 Mar 2006 15:50:54 john.lange

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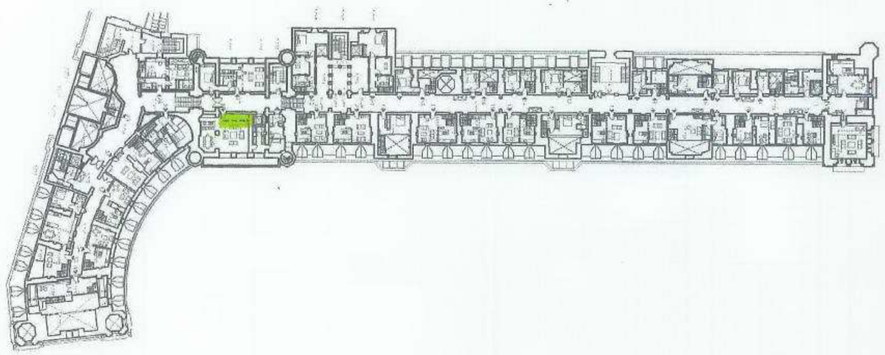
A1

Floor ties detailed as part of the new Core construction works

Ties for the sixth floor construction to be installed in the fifth floor ceiling space
(shown on fifth floor architects GA)

Permanent ties

Temporary ties



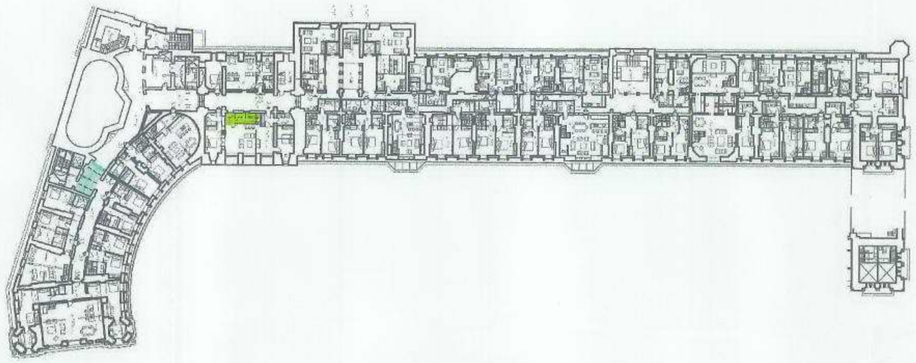
Tie Locations for the Sixth Floor Construction

Floor ties detailed as part of the new Core construction works

Ties for the fifth floor construction to be installed in the fourth floor ceiling space
(shown on fourth floor architects GA)

Permanent ties

Temporary ties



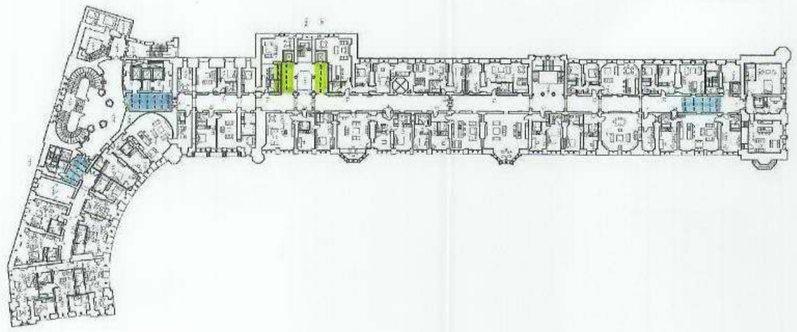
Tie Locations for the Fifth Floor Construction

Floor ties detailed as part of the new Core construction works

Ties for the fourth floor construction to be installed in the third floor ceiling space
(shown on third floor architects GA)

Permanent ties

Temporary ties



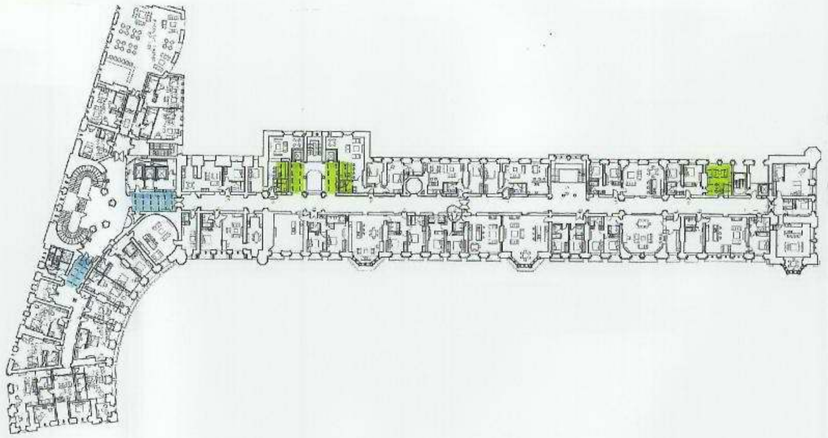
Tie Locations for the Fourth Floor Construction

Floor ties detailed as part of the new Core construction works

Ties for the third floor construction to be installed in the second floor ceiling space
(shown on second floor architects GA)

Permanent ties

Temporary ties



Tie Locations for the Third Floor Construction

General Notes:

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For further details refer to individual core drawings

J:\118000\118000\4 INTERNAL PROJECT DATA\03 Arup Drawings\07 Structural_PFCS 2006_02_17\S_2011.dwg 17 Mar 2006 16:50:39 john.lange

Issue	Date	By	Chkd	Appd
C2	17/03/06	BO'B	JL	BJ
	Issued For Construction			
C1	03/03/06	BO'B	JL	BJ
	Issued For Construction			

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Client
Manhattan Lofts Corporation Limited

Job Title
St. Pancras Chambers

Drawing Title
Floor Tie Locations

Scale at A1

Plot ID
52301075-CF50-4EF0-AA08-FCBEBEA13594

Drawing Status
Construction

Job No	Drawing No	Issue
118000	S_2011	C2

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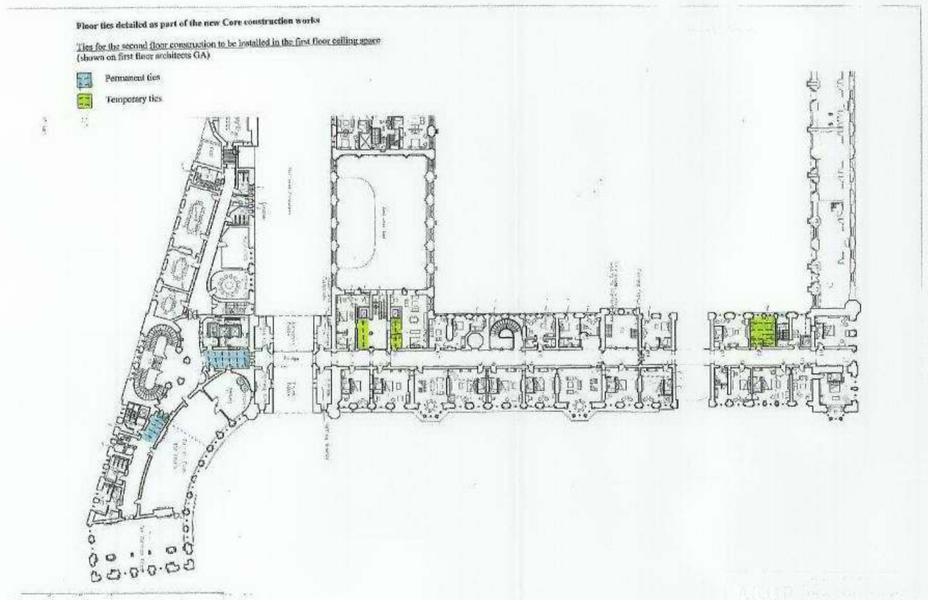
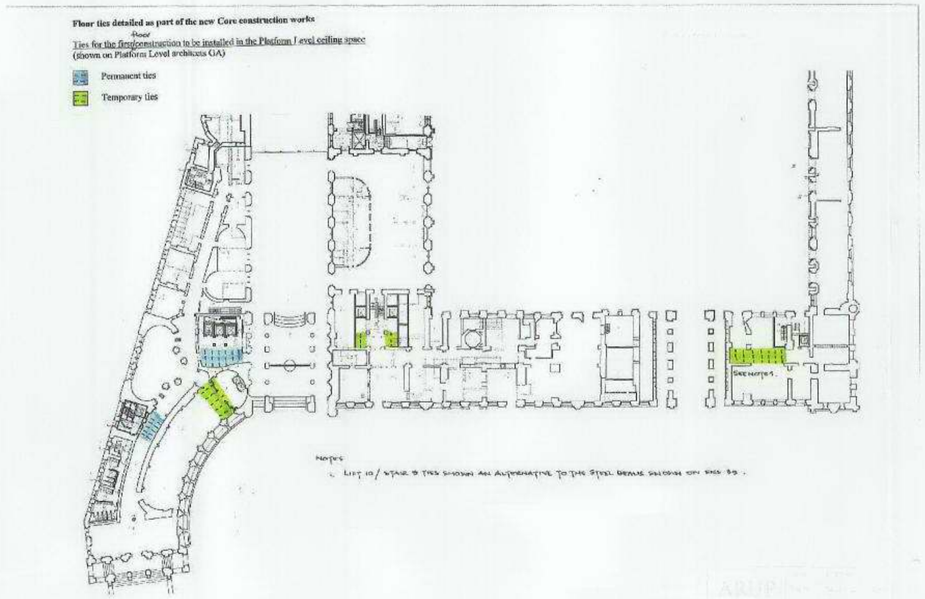
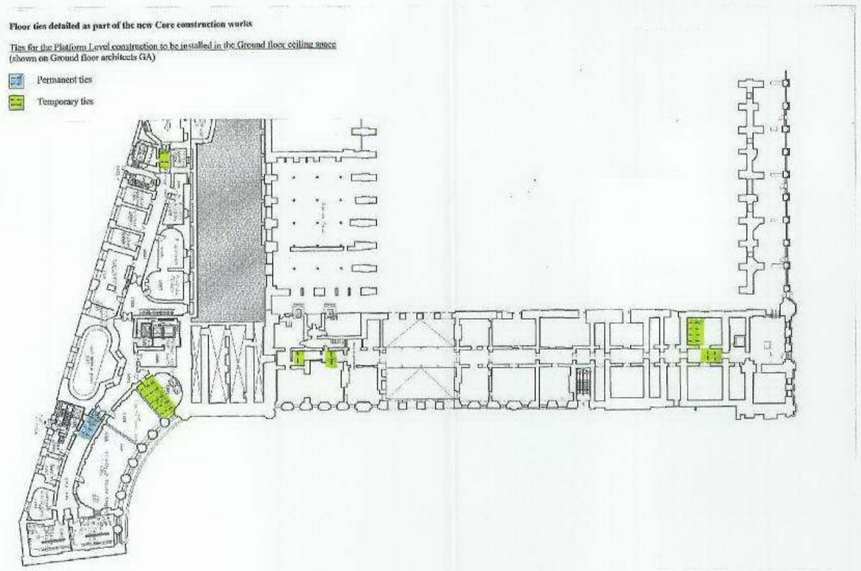


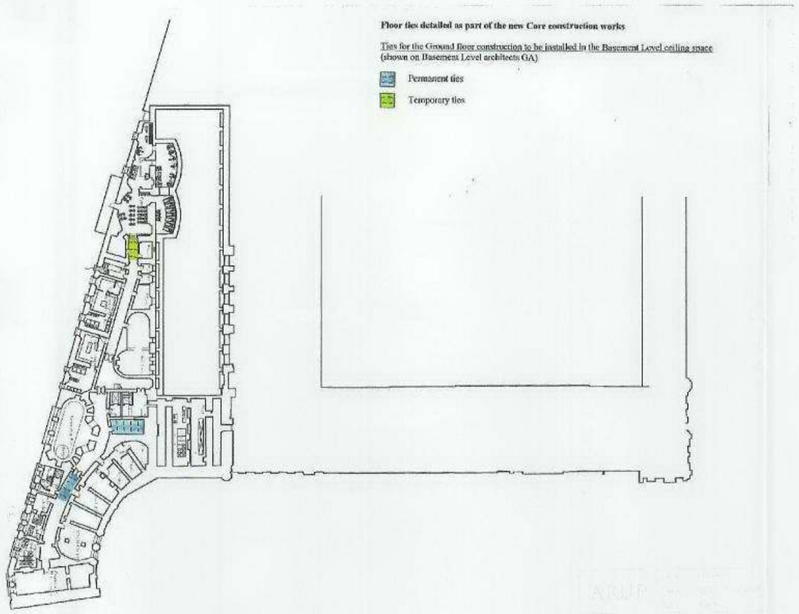
Tie Locations for the Second Floor Construction



Tie Locations for the First Floor Construction



Tie Locations for the Platform Floor Construction



Tie Locations for the Ground Floor Construction

General Notes:

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For further details refer to individual core drawings

Issue	Date	By	Chkd	Appd
C2	17/03/06	BO'B	JL	BJ
Issued For Construction				
C1	03/03/06	BO'B	JL	BJ
Issued For Construction				

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Client
Manhattan Lofts Corporation Limited

Job Title
St. Pancras Chambers

Drawing Title
Floor Tie Locations

Scale at A1

Plot ID
AE858E87-DF63-4F7E-A88A-0216800F1F4E

Drawing Status
Construction

Job No	Drawing No	Issue
118000	S_2012	C2

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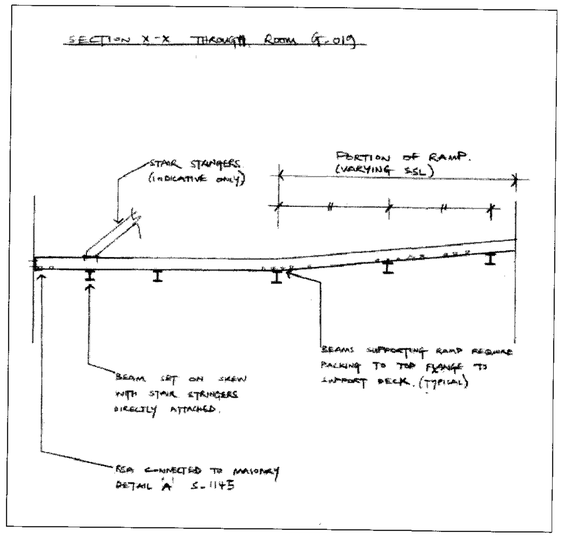
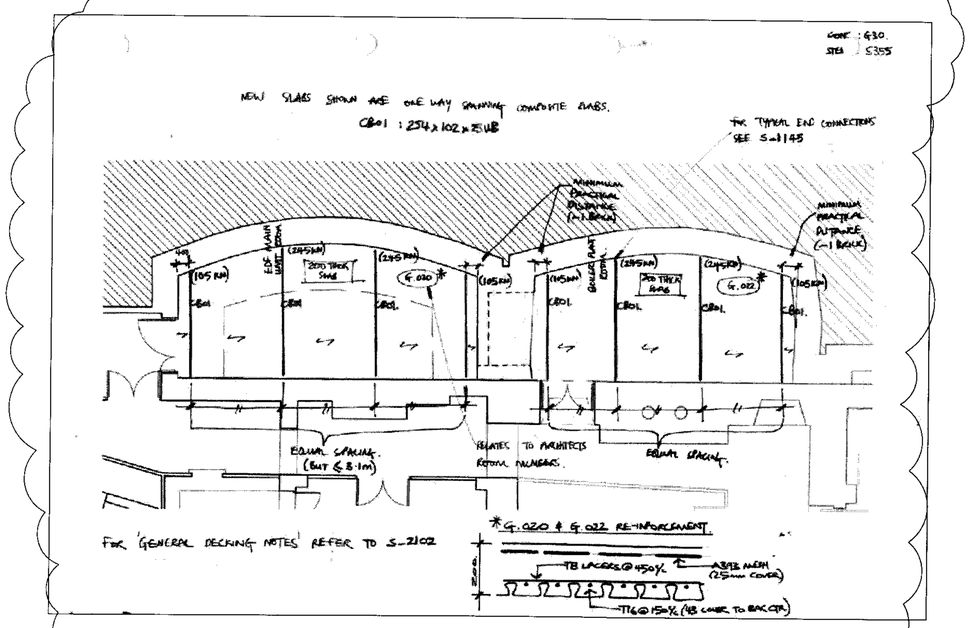
J:\118000\118000\4 INTERNAL PROJECT DATA\03 Arup Drawings\07 Structural\JPFG\S 2006_02_17\S_2012.dwg 17 Mar 2006 18:50:18 john.bange

C3: North West New Corridor Sketch Moved To S_2110. Section X-X Added

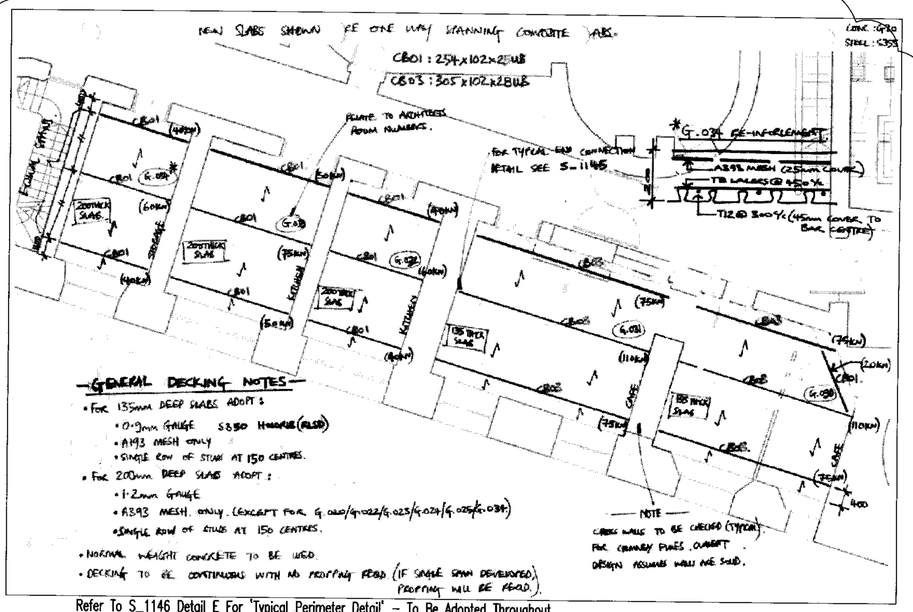


Section X-X – Through Room G.019

C3: Rebar Detail Added and Cantilever Distances Re-defined



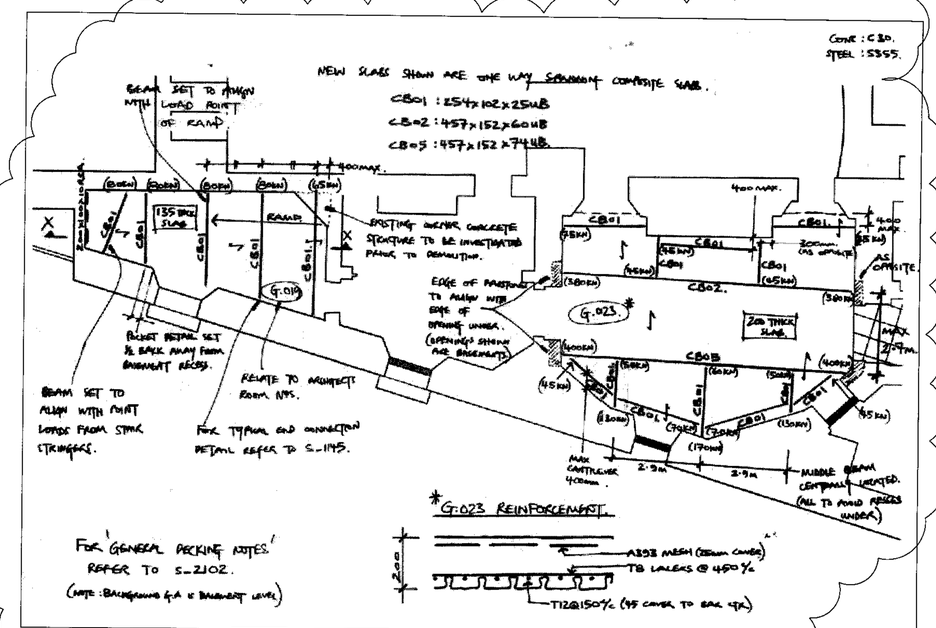
Back of House Areas – New Slab at Ground Level



Refer To S_1146 Detail E For 'Typical Perimeter Detail' – To Be Adopted Throughout
Decking perpendicular to beams to provide lateral restraint during construction phase
Decking to be Richard Lees Holorib (S350)
Where The Edge Distance To Perimeter Beams Is Less Than 300mm T10 U-Bars To Be Provided As Specified In BS5950-3.1 Figure 8

Back of House Areas – New Slab at Ground Level

C3: Rebar Detail Added and Notes Up-dated



Back of House Areas – New Slab at Ground Level

C3: Room G.019 Up-dated To Suit Staircase and Ramp. Room G.023 Up-dated and Rebar Detail Added

General Notes:

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Issue	Date	By	Chkd	Appd
C3	11/09/06	JL	JB	BJ
Issued For Construction				
C2	17/03/06	BO'B	JL	BJ
Issued For Construction				
C1	03/03/06	BO'B	JL	BJ
Issued For Construction				

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Client
Manhattan Lofts Corporation Limited

Job Title
St. Pancras Chambers

Drawing Title
New Slabs

C3: Updated

Scale at A1

Plot ID
845540C2-3D35-480D-8D23-0029AAAB4BB1

Drawing Status
Construction

Job No	Drawing No	Issue
118000	S_2102	C3

J:\118000\118000\4 INTERNAL PROJECT DATA\03 Arup Drawings\07 Structural\PEGS 2006_02_17\S_2102.dwg 13 Sep 2006 17:10:46 john.lange
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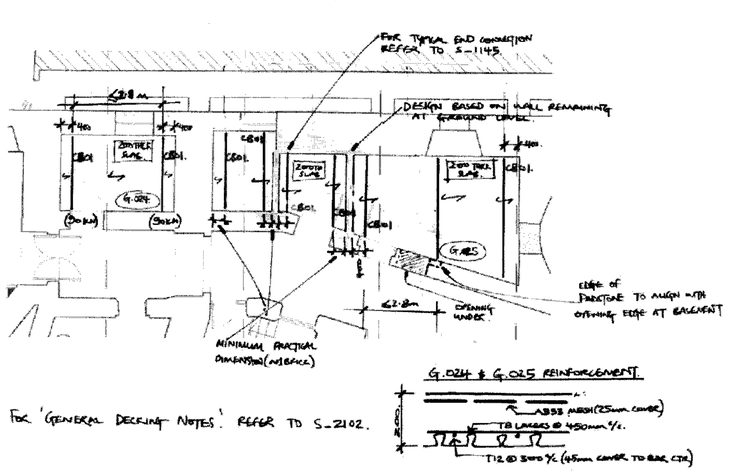
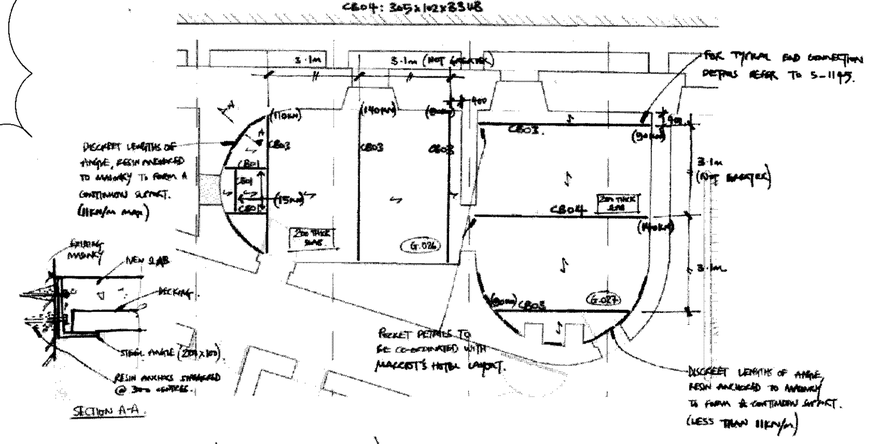
C3: Design Up-dated To Be Integral With Basement Walls In Room G.025



FOR 'GENERAL DECKING NOTES' REFER TO S_2102.

Back of House Areas – New Slab at Ground Level

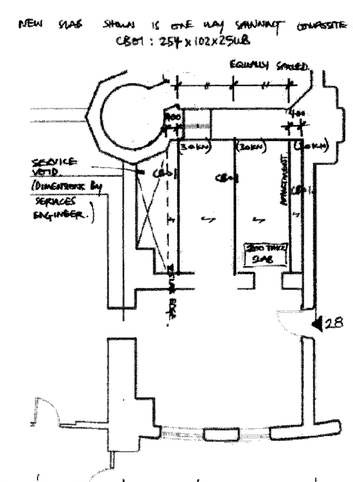
C3: Notes Up-dates



FOR 'GENERAL DECKING NOTES' REFER TO S_2102.

Back of House Areas – New Slab at Ground Level

C3: New Detail



FOR 'GENERAL DECKING NOTES' REFER TO S_2102

New Slab at Fifth Level – Apartment 28

General Notes:

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C3	11/09/06	JL	JB	BJ
Issued For Construction				
C2	17/03/06	BO'B	JL	BJ
Issued For Construction				
C1	03/03/06	BO'B	JL	BJ
Issued For Construction				

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Client
Manhattan Lofts Corporation Limited

Job Title
St. Pancras Chambers

Drawing Title
New Slabs

Scale at A1

Plot ID
D85C9D3A-D71B-44CB-8226-798084C5D0AB

Drawing Status
Construction

Job No	Drawing No	Issue
118000	S_2103	C3

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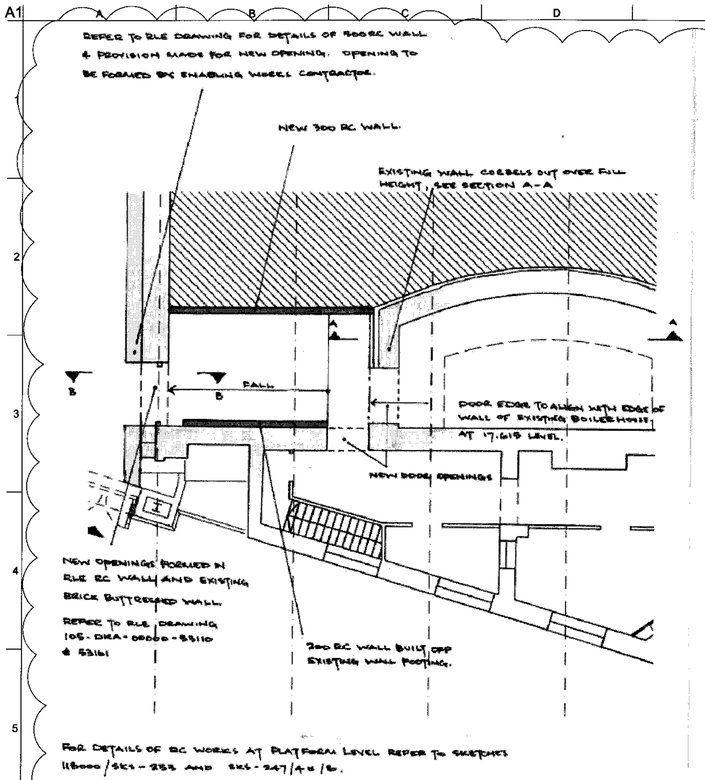
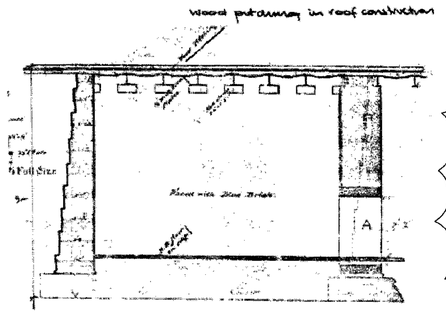
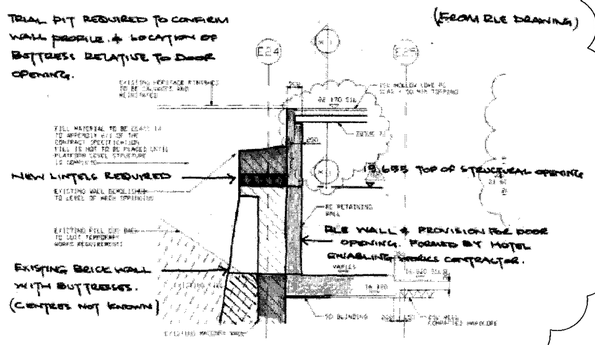
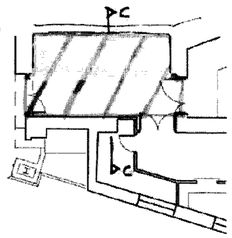




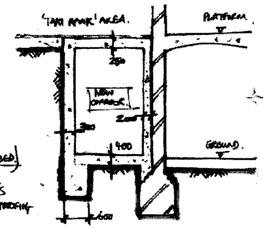
SECTION A-A



SECTION B-B

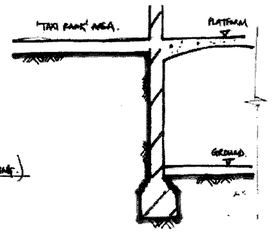


: EXTENT OF NEW COFFOCK TO BE FORMED AT GROUND LEVEL.



SECTION C-C (PROPOSED)

* REFER TO ARCHITECT'S DRWGS. FOR WATERPROFING DETAILS.



SECTION C-C (EXISTING)

For Further Details Relating To The R.C Slab At Platform Refer To 118000/SKS/247 Pgs 4 and 8 and SKS/253

North West New Corridor –
Plan and Section C–C

C1: Moved From S_2102 and Up-dated

North West New Corridor –
Plan and Sections A–A and B–B

C1: New Drawing

General Notes:

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Issue	Date	By	Chkd	Appd
C1	11/09/06	JL	JB	BJ
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Client
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Job Title
St. Pancras Chambers

Drawing Title
Noth West New Corridor

Scale at A1

Plot ID D1F26A22-699B-421E-AFD8-F0F39D0AC822

Drawing Status
Construction

Job No	Drawing No	Issue
118000	S_2110	C1

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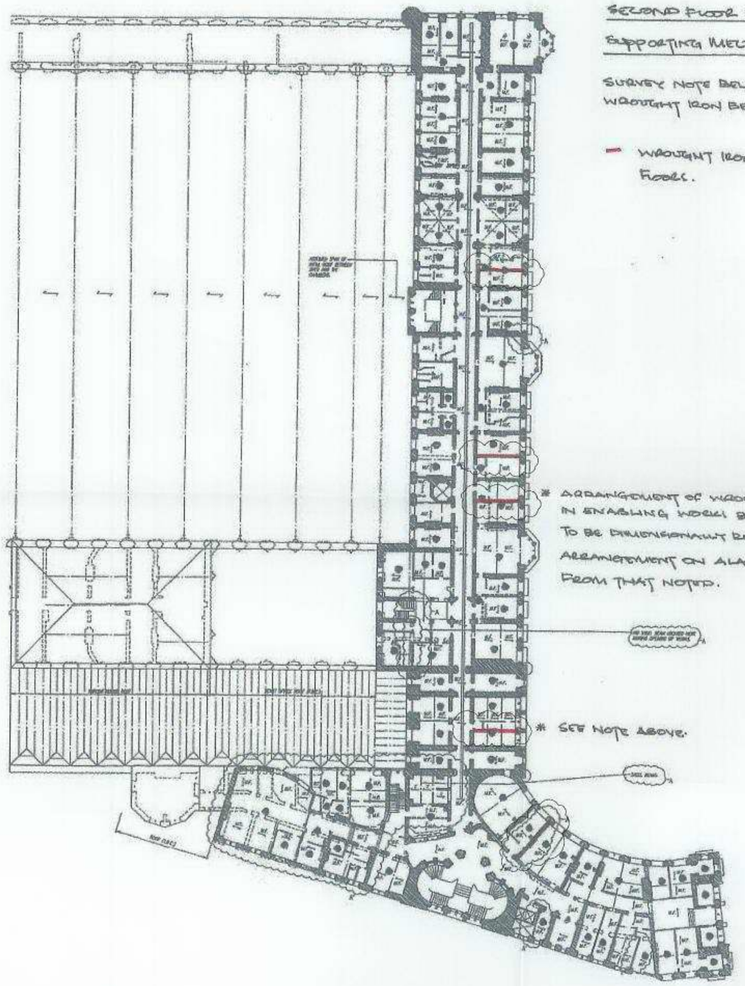
SECOND FLOOR WROUGHT IRON BEAMS SUPPORTING MEZZANINE FLOORS.

SURVEY NOTE BELOW APPLIES AT ALL HIGHLIGHTED - WROUGHT IRON BEAM LOCATIONS.

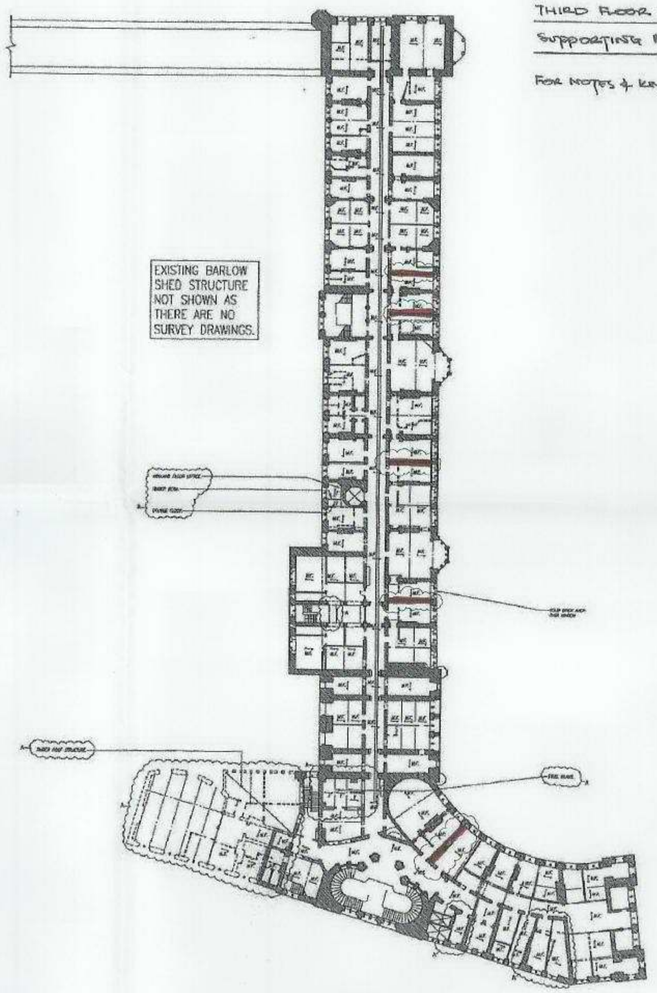
— WROUGHT IRON BEAMS SUPPORTING MEZZANINE FLOORS.



Second Floor Wrought Iron Beams Supporting Mezzanine Floor – Investigation Required

THIRD FLOOR WROUGHT IRON BEAMS SUPPORTING MEZZANINE FLOORS

FOR NOTES & KEY SEE SECOND FLOOR PLAN.



Third Floor Wrought Iron Beams Supporting Mezzanine Floor – Investigation Required

General Notes:

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Issue	Date	By	Chkd	Appd
C2	17/03/06	BO'B	JL	BJ
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C1	03/03/06	BO'B	JL	BJ
	Issued For Construction			

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Job Title
St. Pancras Chambers

Drawing Title
Mezzanine Levels

Scale at A1

Plot ID
0855DF57-3933-4B0A-B6C6-11668CF4A147

Drawing Status
Construction

Job No	Drawing No	Issue
118000	S_2201	C2

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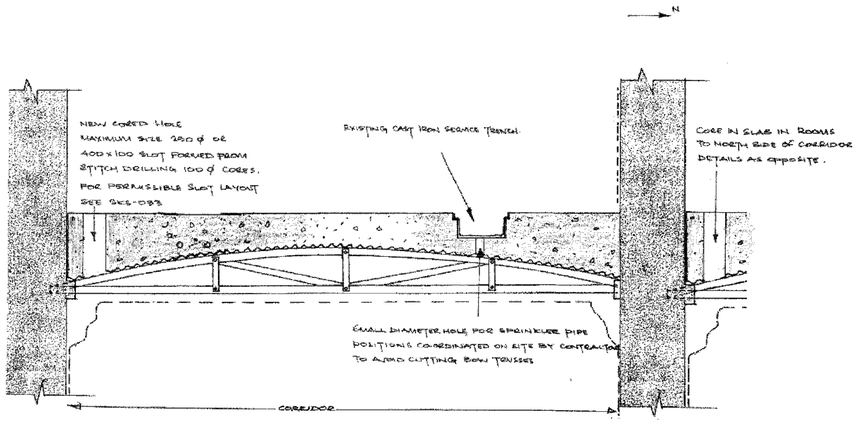
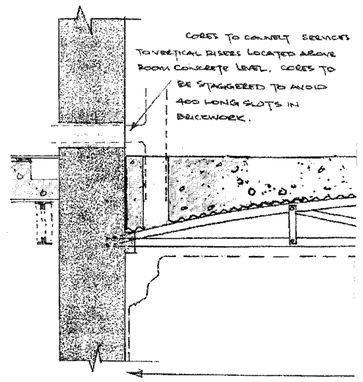


THE LOCATION OF ALL CORES SHALL BE CO-ORDINATED ON SITE BY THE CONTRACTOR

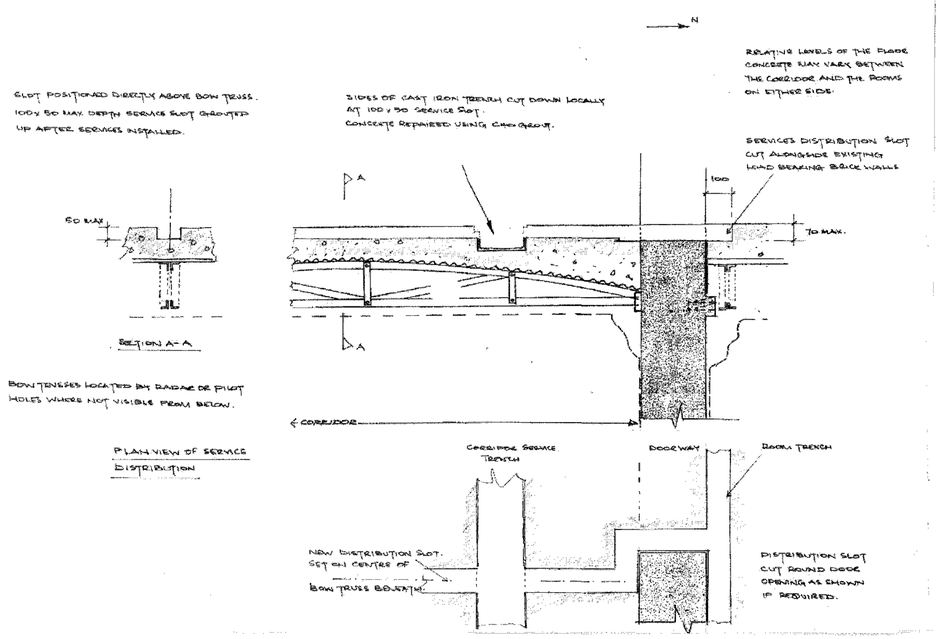
NO IRON GIRDER OR BOW TRUSS SHALL BE CUT

THE CONTRACTOR SHALL IDENTIFY THE LOCATIONS OF GIRDERS AND BOW TRUSSES PRIOR TO ANY CORING, USING RADAR SURVEY OR PILOT DRILLING SMALL HOLES WHERE THE STRUCTURE IS NOT VISIBLE.

Corridor Services Structural Details -1



Corridor Services Structural Details -2



Corridor Services Structural Details -3

General Notes:

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Refer to Faber Maunsell drawings for location of corridor trenches and risers in corridor and rooms.

Issue	Date	By	Chkd	Appd
C2	17/03/06	BO'B	JL	BJ
Issued For Construction				
C1	03/03/06	BO'B	JL	BJ
Issued For Construction				

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Job Title
St. Pancras Chambers

Drawing Title
Structure/Service Interface

Scale at A1

Plot ID B5C5E4A9-EB84-422D-9F5D-21E5A1935B12

Drawing Status
Construction

Job No	Drawing No	Issue
118000	S_2301	C2

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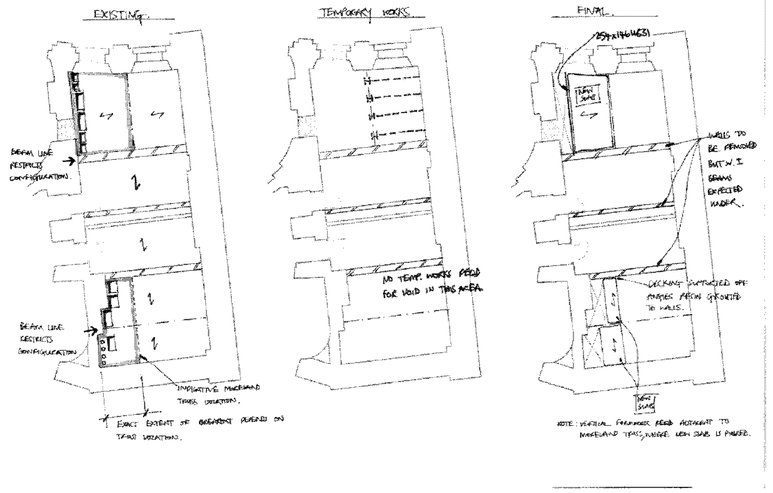
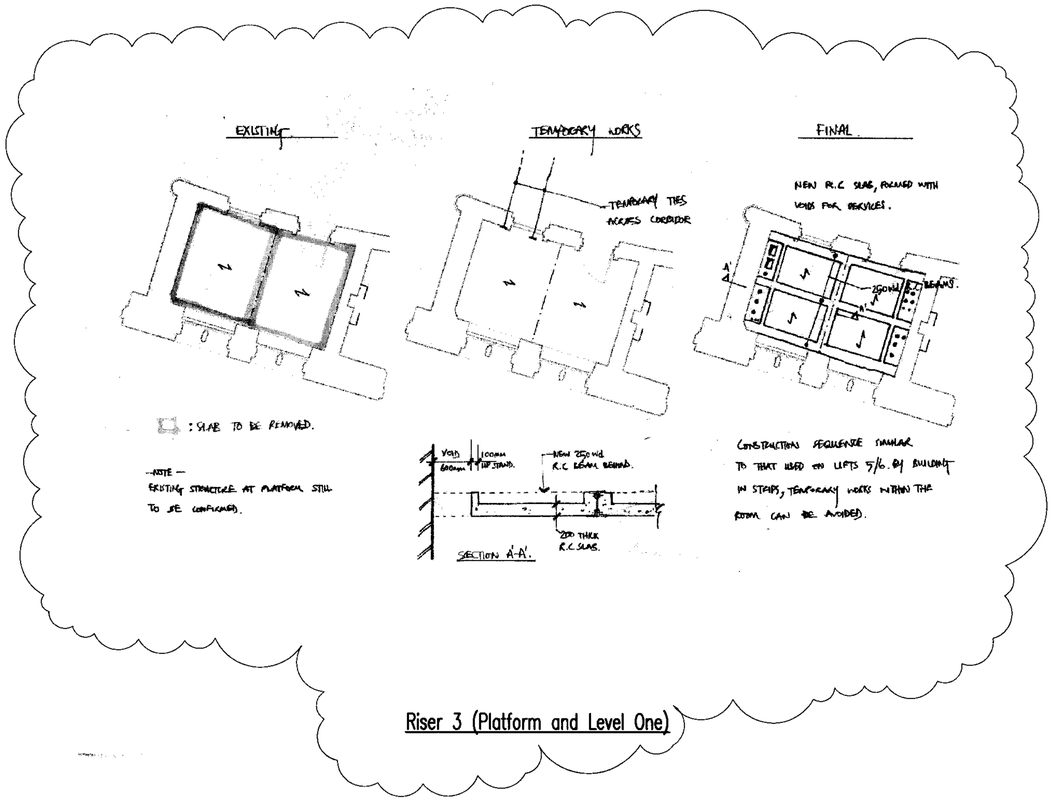


Riser 6 (Ground Floor)



Riser 3 (Platform and Level One)

General Notes:

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C2	17/03/06	BO'B	JL	BJ
	Issued For Construction			
C1	03/03/06	BO'B	JL	BJ
	Issued For Construction			

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Job Title
St. Pancras Chambers

Drawing Title
Structure/Service Interface

Scale at A1

Plot ID FF7650F4-6715-4A70-BF78-C4FE65E41FC1

Drawing Status
Construction

Job No	Drawing No	Issue
118000	S_2302	C2

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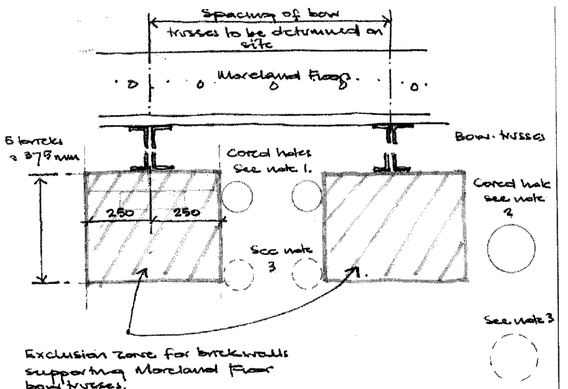


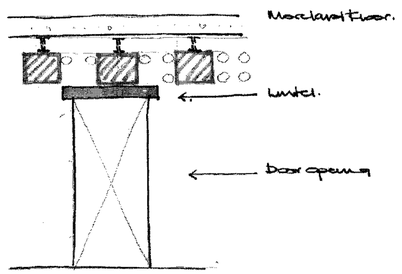
Cored holes notes

1. Pair of small diameter holes with 1.5 x diameter clear spacing between holes
2. Single larger diameter hole. Max. 300 mm ϕ.
3. Additional holes kept in line with higher holes. Minimum clear space between holes 1.5 x diameter. But not permitted above door openings (new or existing).
4. No holes through door lintels.

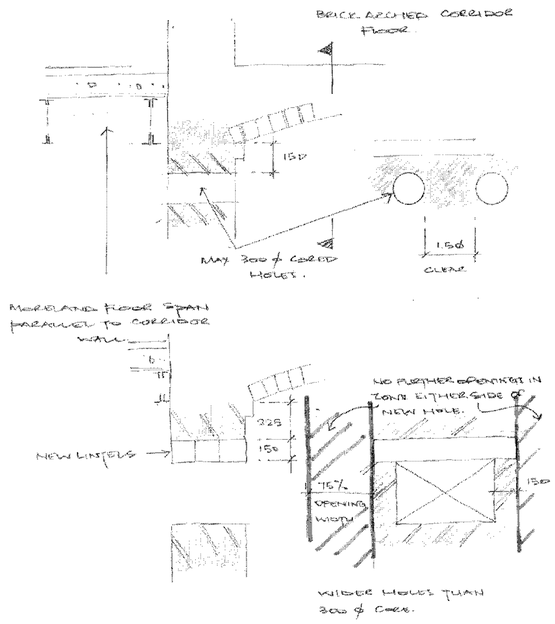
Detail 'A' – Setting Out Principles For Horizontal Holes

C1: New Drawing

Indicative arrangement of new services holes at door openings.

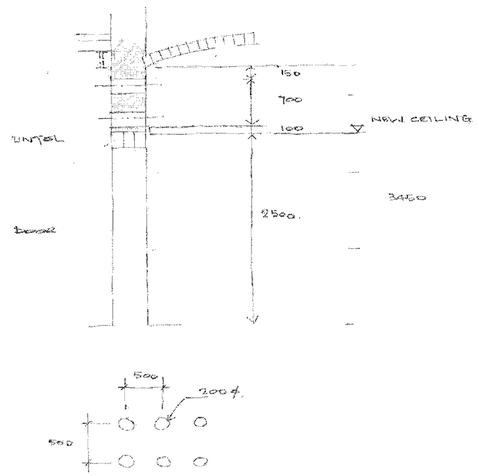


Detail 'B' – Setting Out Principles For Horizontal Holes



Detail 'C' – Setting Out Principles For Horizontal Holes

INDICATIVE SECTION WITH 2 LEVELS OF 200 ϕ HOLES.



Detail 'D' – Setting Out Principles For Horizontal Holes

General Notes:

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Issue	Date	By	Chkd	Appd
C1	11/09/06	JL	JB	BJ
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Job Title
St. Pancras Chambers

Drawing Title
Structure/Service Interface

Scale at A1

Plot ID
4CBE3BD8-694E-454D-99E3-6EBAEFBDC61C

Drawing Status
Construction

Job No	Drawing No	Issue
118000	S_2321	C1

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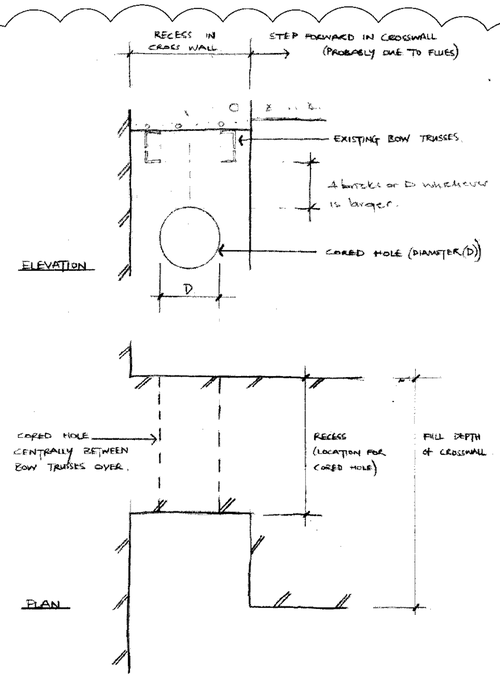
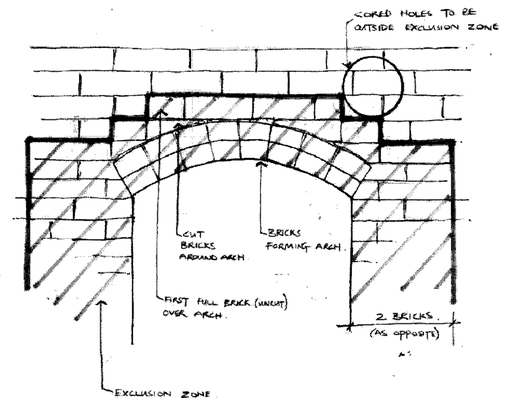


CORED HOLES IN RECESSES OF CROSSWALLS

Detail 'E' – Setting Out Principles For Horizontal Holes



C1: New Drawing

THE EXCLUSION ZONE OVER BRICK ARCHES IS DEFINED AS BEING ONE FULL BRICK DEPTH OVER ARCH (AS SHOWN ABOVE)

CORED HOLES ABOVE BRICK ARCHES

Detail 'F' – Setting Out Principles For Horizontal Holes

General Notes:

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Issue	Date	By	Chkd	Appd
C1	18/12/06	JL	JB	BJ

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Job Title
St. Pancras Chambers

Drawing Title
Structure/Service Interface

Scale at A1

Plot ID
954D350F-49A3-404F-8613-9C017BBC376F

Drawing Status
Construction

Job No	Drawing No	Issue
118000	S_2322	C1

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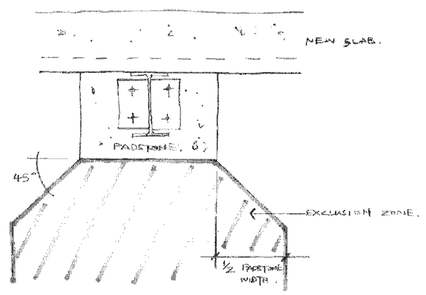
SETTING OUT ADJACENT TO NEW STRUCTURE

(DETAIL IS GENERIC BUT MOST TYPICAL TO GROUND FLOOR & CORES)

CONNECTION TYPE B (OR D)



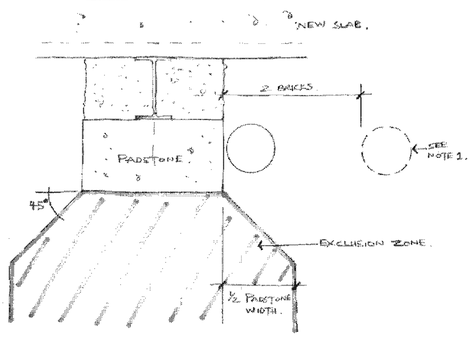
FOR CONNECTION TYPE 'D', TAKE PADSTONE AS WIDTH OF CONCRETE BEAM.

Detail 'J' – Setting Out Principles For Horizontal Holes

SETTING OUT ADJACENT TO NEW STRUCTURE

(DETAIL IS GENERIC BUT MOST TYPICAL TO GROUND FLOOR & CORES).

CONNECTION TYPE C

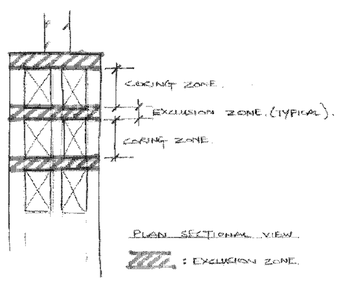


NOTES

1. IF BEAM IS CARRYING LOCAL LOAD FROM ADJACENT TRIANGULAR AREA (AS IN SOME CORES) HOLES TO BE SET A DISTANCE OF 2 BRICKS FROM PADSTONE.

Detail 'K' – Setting Out Principles For Horizontal Holes

CORES THROUGH FLOOR



MIN CORED HOLES SPACING = 1·5D. (WHERE D IS ϕ OF CORE)

CORING THROUGH FLOOR TO BE AVOIDED WHENEVER POSSIBLE.

Detail 'L' – Setting Out Principles For Horizontal Holes

C1: New Drawing

General Notes:

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Issue	Date	By	Chkd	Appd
C1	18/12/06	JL	JB	BJ

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Job Title
St. Pancras Chambers

Drawing Title
Structure/Service Interface

Scale at A1

Plot ID
FB39433E-424C-4A2D-B80F-446FA8B60F1F

Drawing Status
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Job No	Drawing No	Issue
118000	S_2323	C1

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