## CONSTRUCTION METHOD STATEMENT FOR

Proposed development of Nos 4-10 and 1-3 Ferdinand Place

August 2015

CMS 304

## Glass Light and Special Structures Limited Structural Engineers Façade engineers Glass engineers

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## **1.0 Introduction**

Glass Light and special Structures have been appointed by Messrs Leverton and Sons Limited to act as structural engineers for the proposed development of their existing properties in Ferdinand place

The proposed development includes the creation of a single storey basement and LBH Wembley have been commissioned to carry out a site investigation and produce a Basement Impact Study to submit with the planning application. This report will describe the proposed method of construction for creating the basement and constructing the in-situ four and five storey structures to create residential accommodation and a new facility for Leverton's undertaking business.

## 2.0 Existing Site

Leverton's undertaking business occupies two sites in Ferdinand place – Nos 4-10 (site A) and on the opposite side of the street Nos 1-3 (site B) Site A is constructed as a single storey garage / storage building with solid stock brick enclosing walls with a pitched roof over 50 percent of the site and flat roofs over the remainder. The pitched roof is clad with asbestos cement corrugated sheeting supported on steel purlins and steel trusses. The flat felt covered roofs are supported on timber joists and steel beams. The enclosure walls are bounded by gardens on all sides with the exception of sections of the West and East boundaries where the site abuts the 3 storey brick built structure of 1A Harmood Street to the East and the four storey brick structure of No 2 Ferdinand Place to the West. There is also a single storey structure abutting the West boundary between No 2 Ferdinand Place and the South West corner of the site.

There are four trees between 1 and 6 meters away from the East boundary wall- two ash trees one pine and one corkscrew willow

Historical records suggest that the garage structure was the first building to be constructed on the site. There is a record drawing from the archives which gives the position of a buried oil tank and provides sections through the East boundary wall. The section shows a brick culvert running along the base of the boundary wall indicating that it has been plugged with concrete along some of its length. Thames Water Authority has no record of the culvert and we have assumed it is no longer in use. The brick stepped foundations to the East

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Boundary wall were shown on the sections extending to around 1.5 below ground floor level. It was not possible at this stage to excavate trial holes to confirm the section on the drawings as it would have been too disruptive to the business however judging from the similarity in construction of the boundary walls we have assumed that the foundations to them all will be similar

The geological map indicates London clay close to the surface which has been confirmed by the soil investigation. Boreholes across both sites confirmed London clay at 0.5m below ground level overlain with made ground. Images 1-8 have been taken at various points on the boundary walls

Site B is a two storey office /embalming building with timber floors and pitched roof with some single storey block / brick additions at the rear.

There is a young oak tree within 4 metres of the North boundary and a wild cherry tree within 3 metres.

There is a recent four storey residential block on the east boundary of the site (10 Ferdinand Street)

As for Site A no trial holes were possible as it would have disrupted the business. Given the age of the property and the size of the walls it is probably reasonable to assume that the external walls are founded on brick step or mass concrete strip foundations.

There was no record of prior use of the site and ground conditions are as for site A.

Images 9-11 show three of the four boundary conditions- access to the East boundary was not possible.

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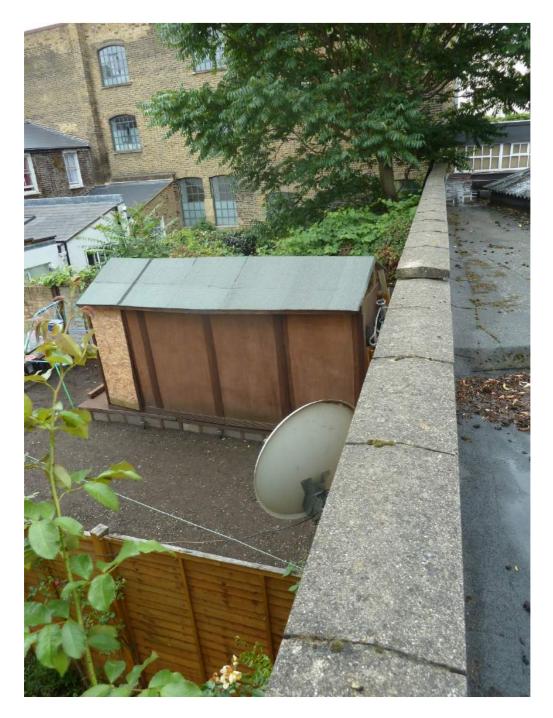


Image 1 site A East Boundary wall with Ash tree 3 Storey Building in background abuts wall

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Image 2 site A East boundary wall at Junction with North wall showing corkscrew willow with pine tree in the background

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## Image 3 East Boundary wall at junction with 3 storey building (1A Harmood Street)

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Image 4

South Boundary Wall (ivy covered) backing on to rear yards of Chalk Farm Road buildings

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Image 5 West wall Boundary at junction with South wall (obscured by planting) adjacent to single storey structure

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### Image 6

West wall boundary - external wall of four storey brick building (2 Ferdinand Place

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Image 7 View along East boundary with four storey building (2 Ferdinand Place) and with Ferdinand Place

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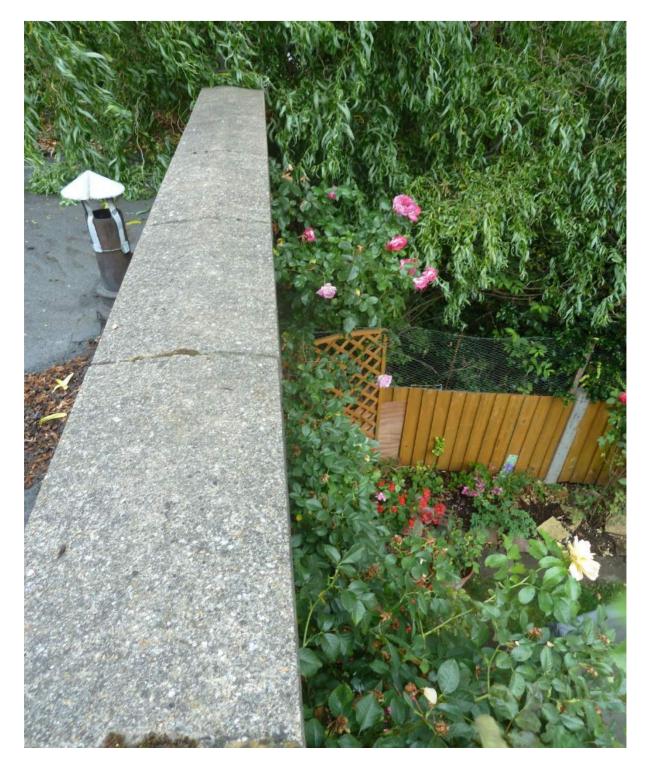


Image 8 View over North Boundary wall into gardens of Collard Place

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Image 9 North Wall to Site B at junction with No 10 Ferdinand Street

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Image 10 East elevation Wall site B

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Image 11 North elevation wall site B- Oak tree and Wild Cherry tree in foreground

## 3. Proposed Construction

### Site A

None of the boundary walls with the exception of possibly a short section of the Eastern boundary wall at its Southern corner are serving as external envelopes to the neighbouring properties. Therefore when the roof is removed the walls will not need to be provided with weather protection except perhaps for the short length of the East Wall mentioned above. The boundary walls are up to 4m high and it is anticipated that these walls will be demolished and rebuilt in similar London stock facing bricks to provide the boundary/party walls to the new development.

There is a concrete ground slab 300mm thick over the whole area of the garage and external car park area. This slab will be broken out and removed from site. The asbestos roof panels to the pitched roof will need to be removed by a specialist contractor as will any contaminated ground found during the excavation of the top 500mm of made ground.

There is a buried oil tank below the existing external parking area which should be removed. The retaining wall to the proposed basement will be formed with sheet piles and the intention is to use the Zero pile machine as it can carry the work out with minimal noise and disruption. See figure 1 and Figure 2 for details. A mechanical digger will explore the ground directly ahead of the sheet pile machine to remove any obstructions and to confirm the projection of the boundary wall foundation.

The piles will be anchored in the clay to a suitable depth to allow the sheet piles to be un-propped during the excavation for all boundary conditions with the exception of the short lengths of wall on the east and West boundaries adjacent to the three and four storey structures (2 Ferdinand Place and 1A Harmood Street) The foundations to these buildings have not yet been established but it has been assumed that they would exert an active pressure on the sheet piling which would in turn need to be propped until such time that the ground floor slab is installed. Excavation of the clay would then proceed down to formation level – approximately 3.5m below ground floor level. No Ground water was recorded during the site investigation and any surface water that accumulates during the excavation would be pumped to

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Structural Engineers Façade engineers Glass engineers surface water drains.

A 300mm reinforced concrete raft slab will be installed with local thickening below the heavier loaded columns. The sheet piles will form the external walls to the basement and a drained cavity, delta drain or similar, will be installed against the sheet piles together with insulation and an internal block lining wall. Columns and internal loadbearing walls will be cast to ground floor level and the ground floor flat slab will be supported on the columns and a reinforced concrete capping beam to the sheet piling.

A lightweight steel frame building with Metsec floors and metal stud framed walls will be constructed up to fourth floor level.

## Site B

The buildings on site B will be entirely demolished to ground floor level and any existing foundations dug up.

Sheet piling will be installed to create the new basement structure and following excavation of the clay a 300mm thick RC raft will be cast. A capping beam will be cast on the top of the sheet piling and pad foundations or piled foundations will be cast to support the remaining RC columns. The RC frame for the new four storey structure will then be completed. There are two trees close to the North boundary of the site. If we can manage to get permission to take down the trees we will use pad foundations for the new columns otherwise we will use augured concrete piles

## Conclusions

Both sites for this development have very good access for construction activities and the ground conditions are favourable for the structural solution proposed. From a study of the site history there is unlikely to be any major surprises in the ground.. The Method of piling chosen is quiet as the piles are pushed into the ground rather than driven or vibrated into place.

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#### **JZ100 Silent Piler System**



#### **Description:**

The "Zero" Piler is a nonpolluting method with the effective use of the total land area being achieved by driving adjacent to structures.

Considering the increase in speed and safety associated with this method, using high quality steel piles allows the user to complete the task in a shorter time span and thus reduce costs

#### **Benefits:**

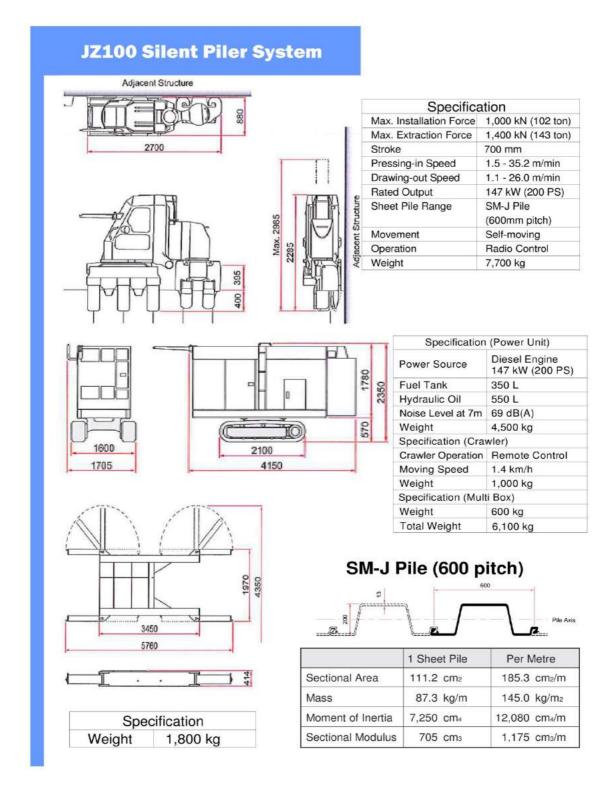
The benefits of the JZ100 are numerous. As well as the reduction in noise and vibration due to the piler's ability to *push* piles into the ground, working close to the ground without the need of trestles and wailings and working adjacent to an existing building, greatly reduces the risk of injury. Additionally the piler's capacity to move itself along the top of the first piles installed reduces the need for heavy craneage and brings the total cost of construction down.



#### Fig 1 Sheet piling equipment

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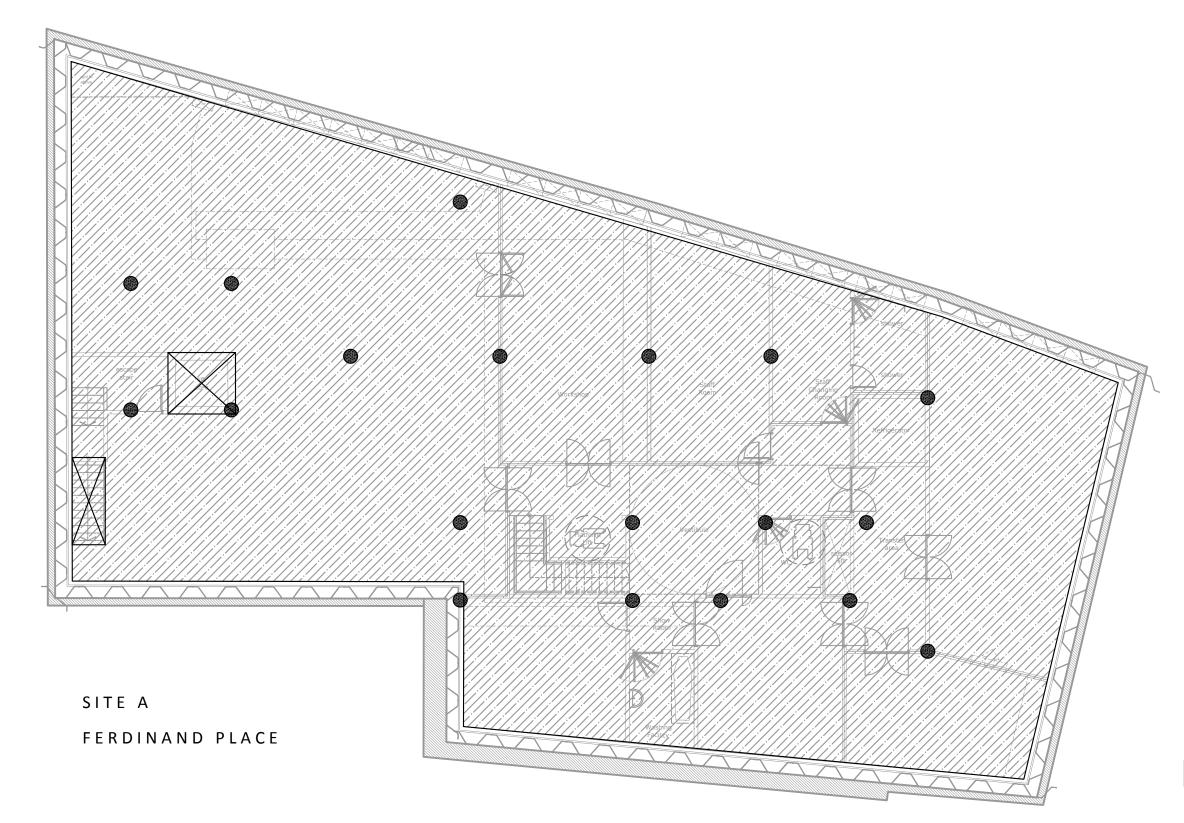
#### Fig 2 Sheet piling equipment

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Report prepared by:

Tim Mafele.

Tim Macfarlane C Eng Director



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	00	09/11/15	GM	Issued For Information		Drawing Status Information
	Rev No	Date	Ву	Revision		Drawing Status Information



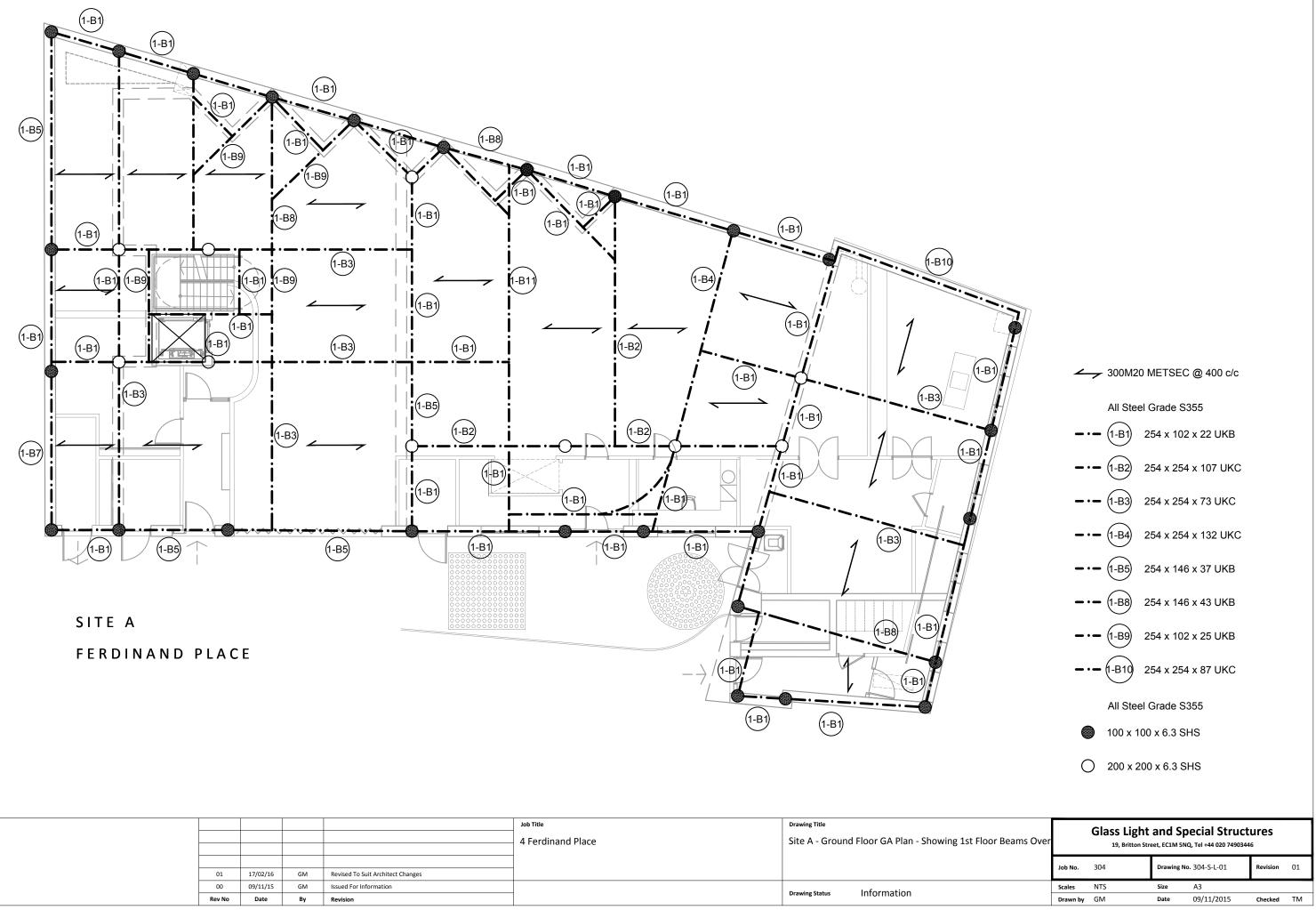
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300 x 300 RC Columns

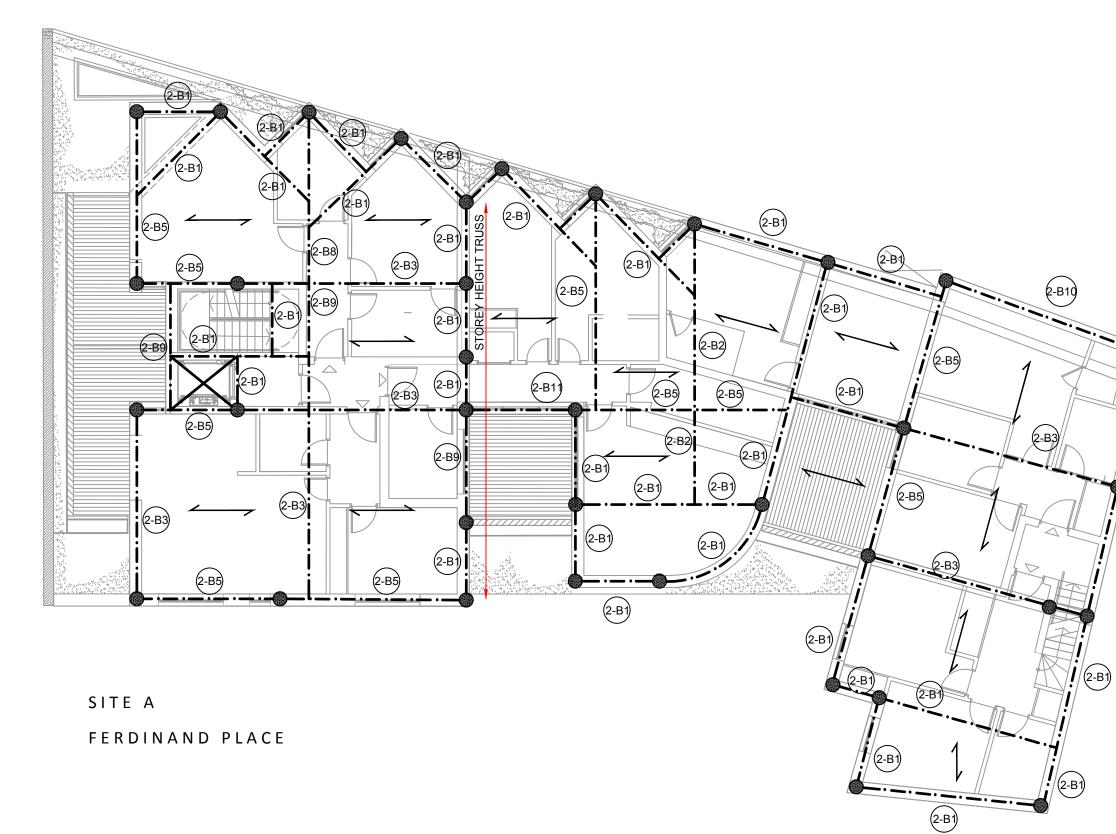
\_\_\_\_\_ Sheet Pile Wall

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Drawn by	GM	Date	09/11/2015	Checked	TM



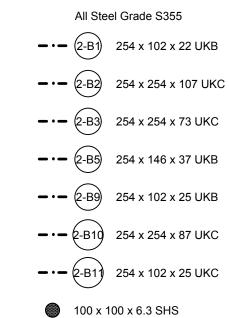
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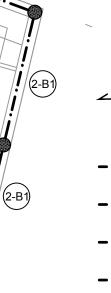
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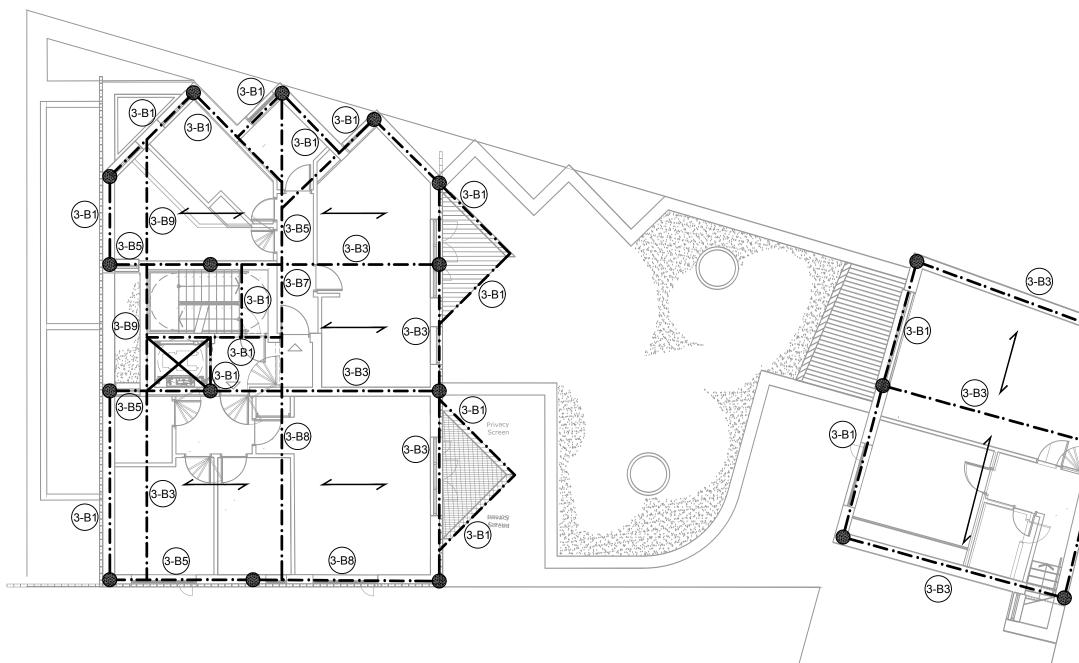


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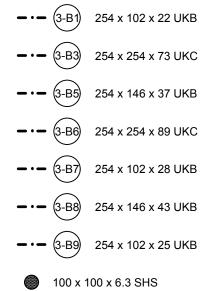




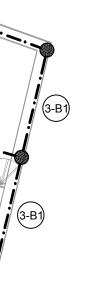
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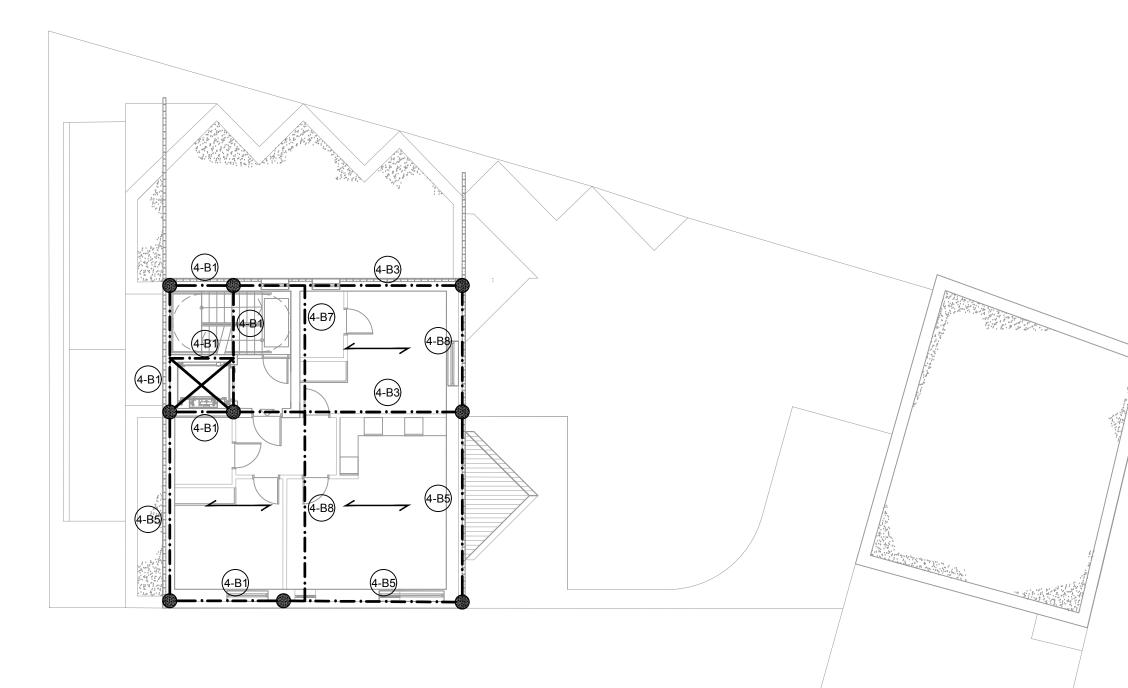
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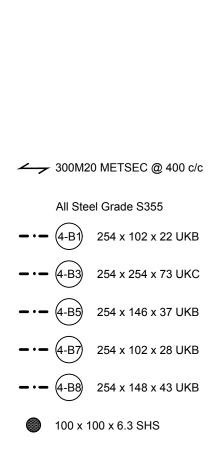


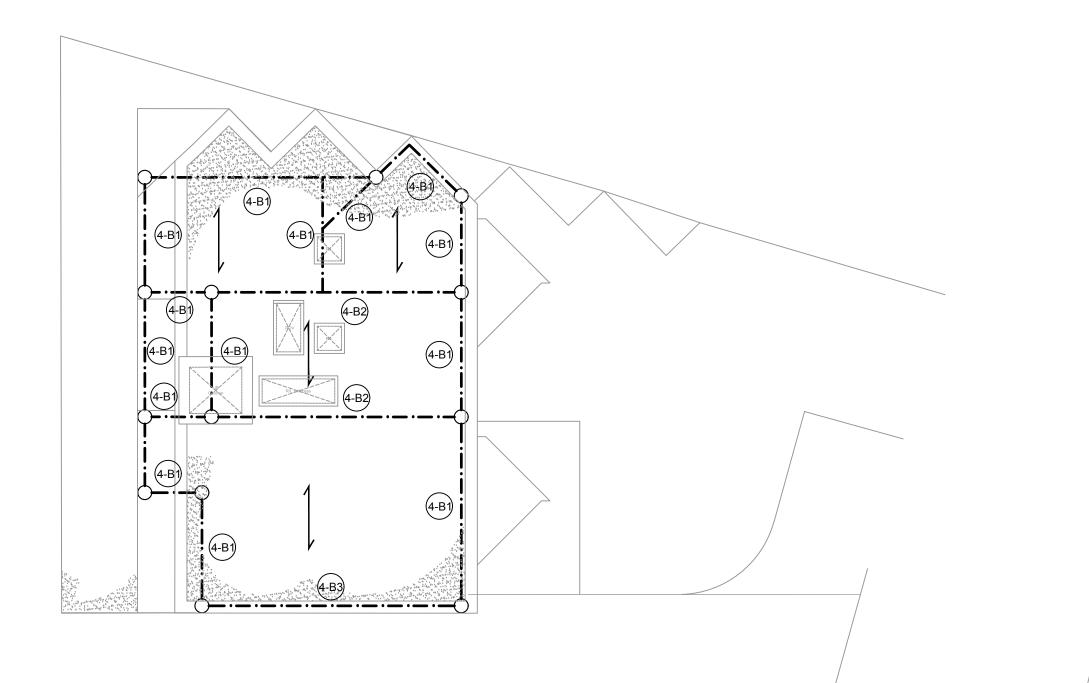


SITE A

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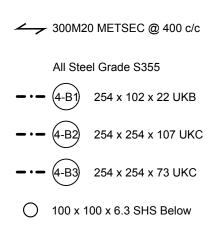




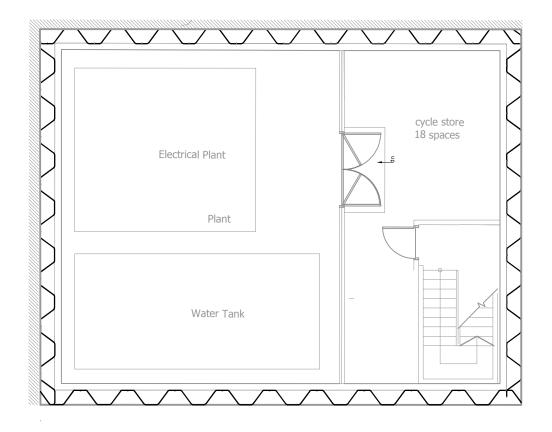
SITE A

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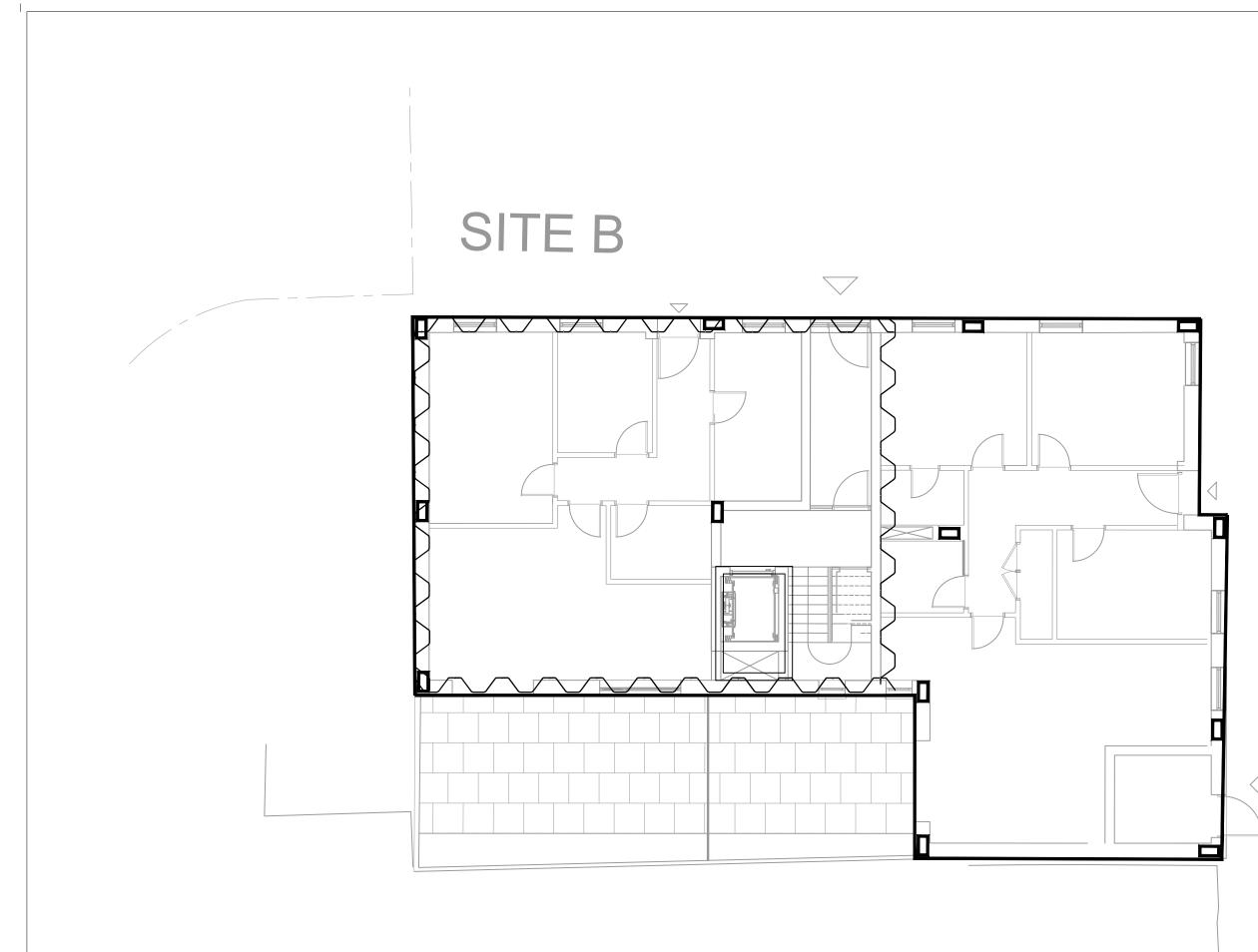






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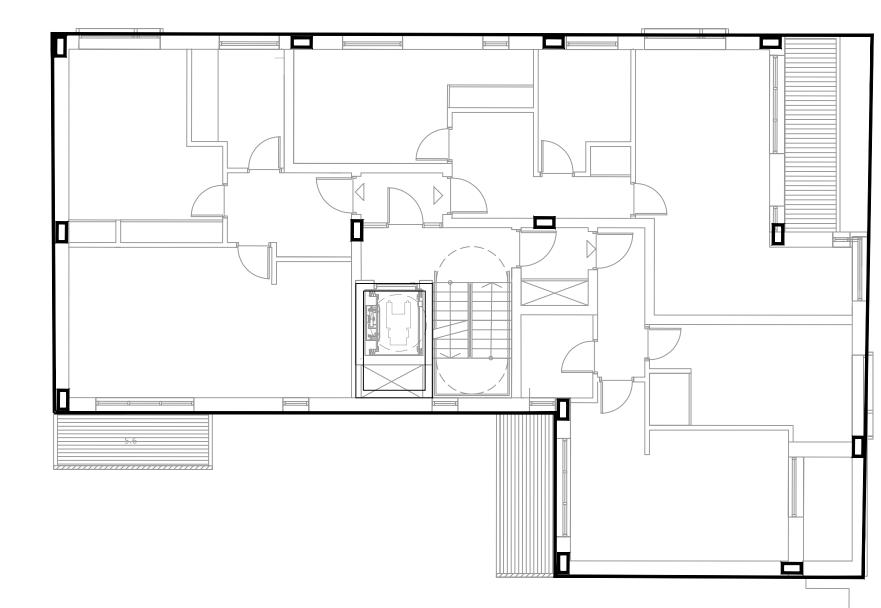


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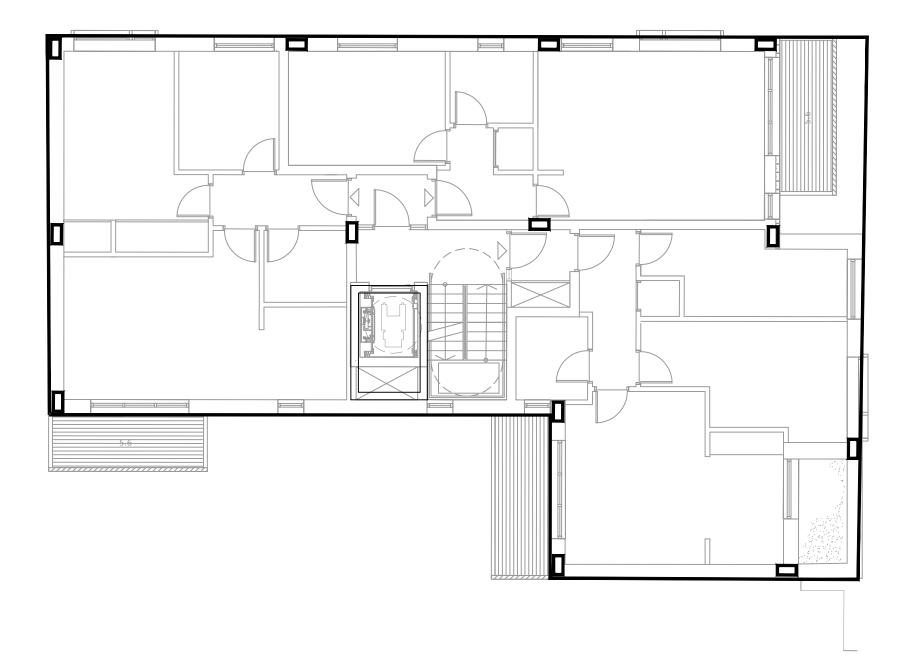


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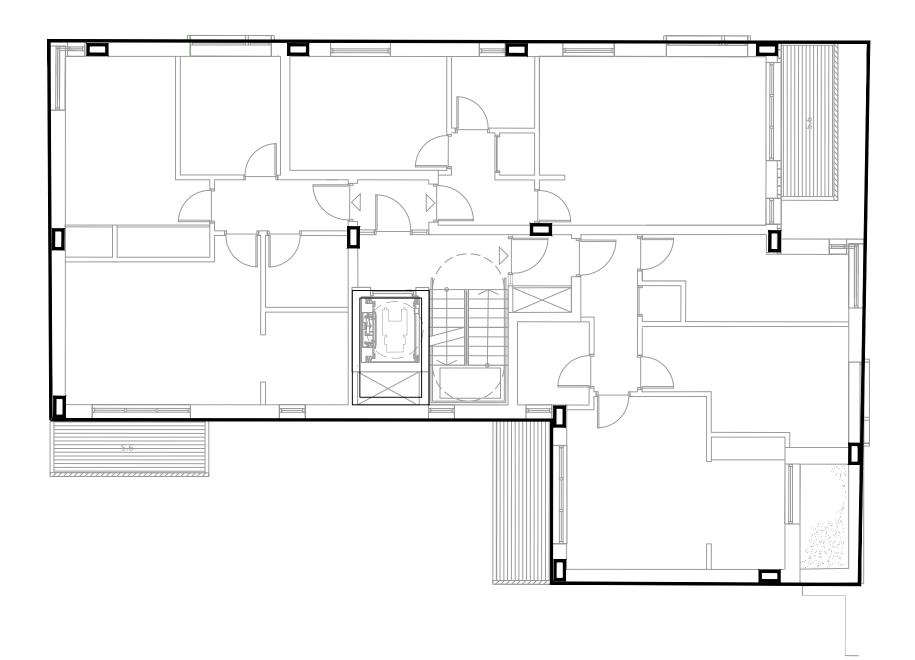




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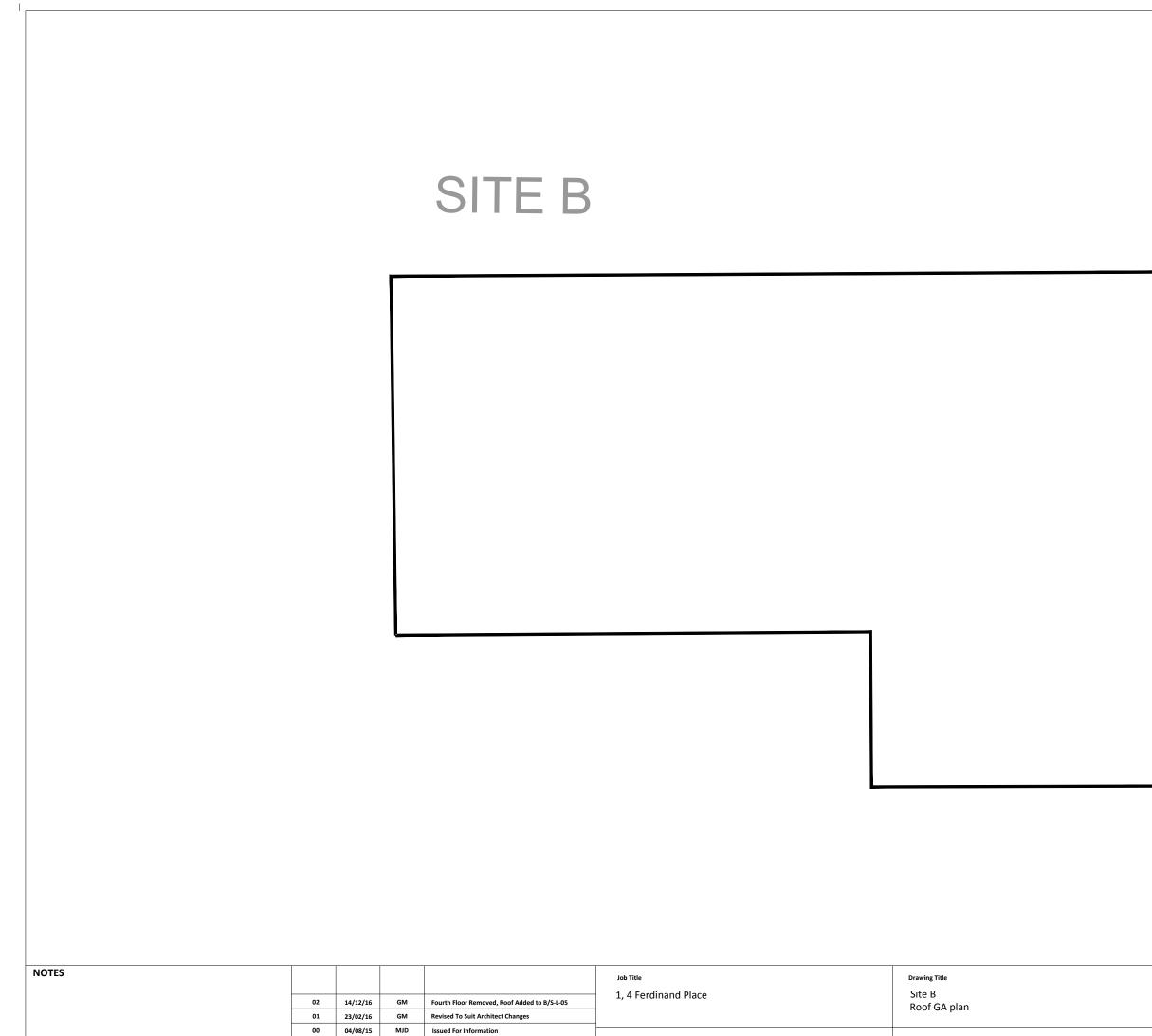
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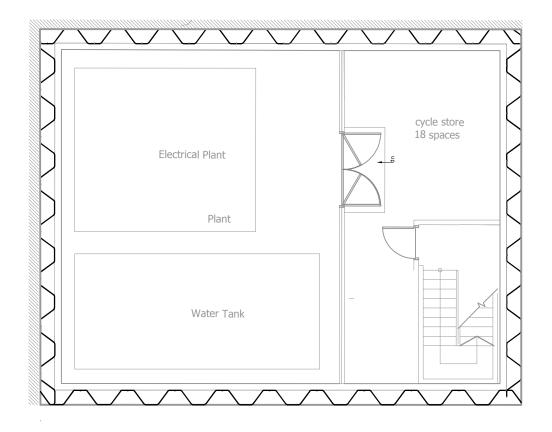
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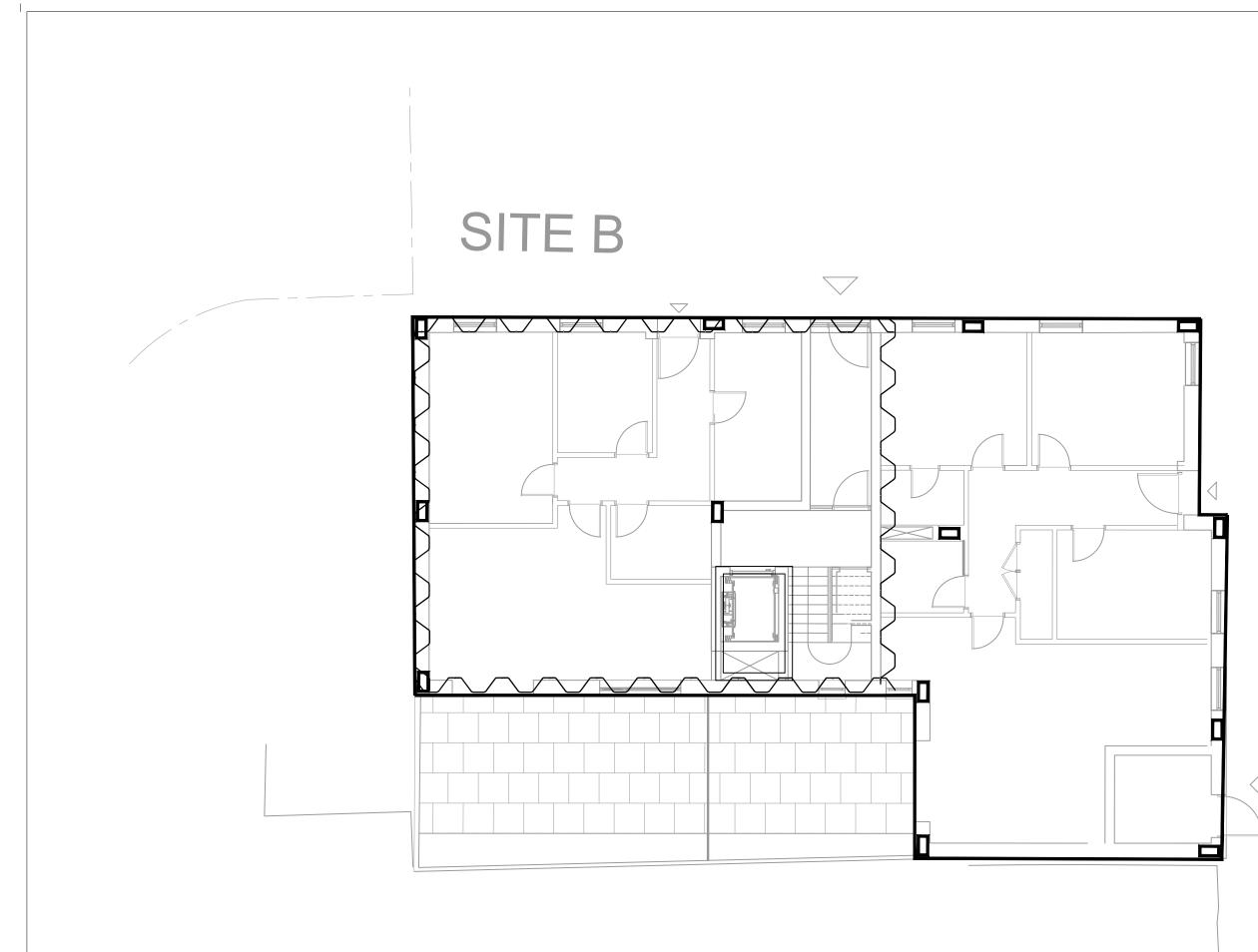
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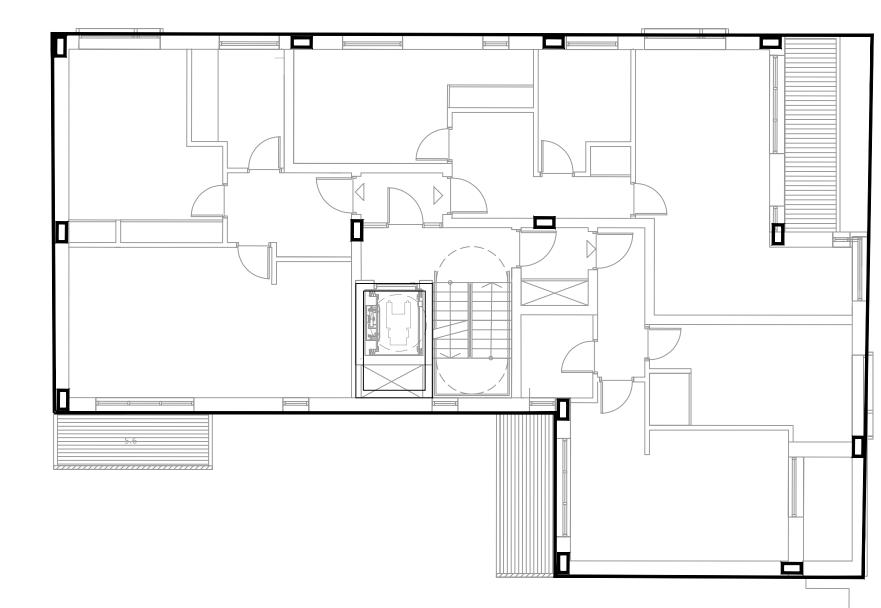


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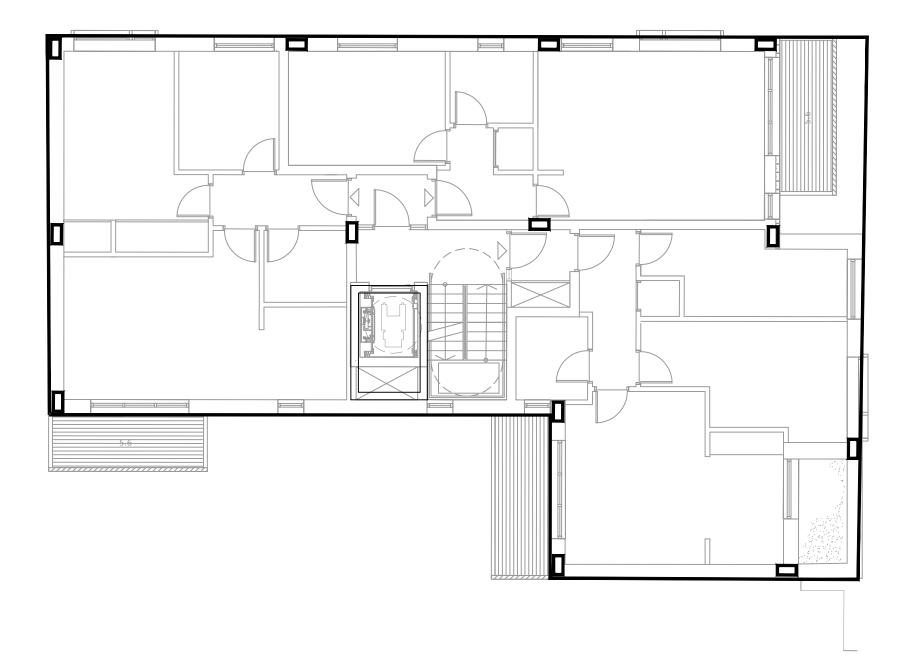


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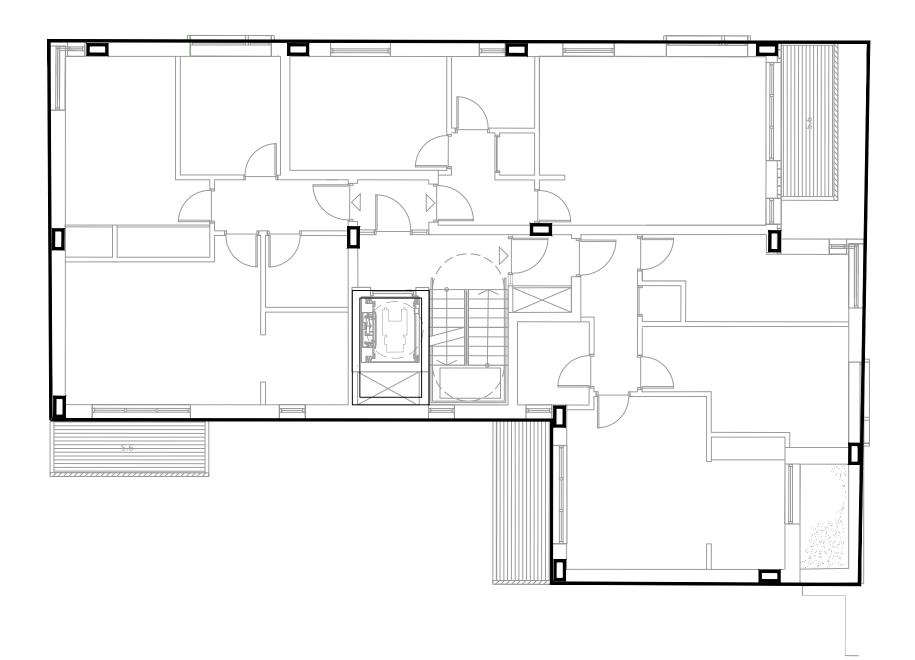




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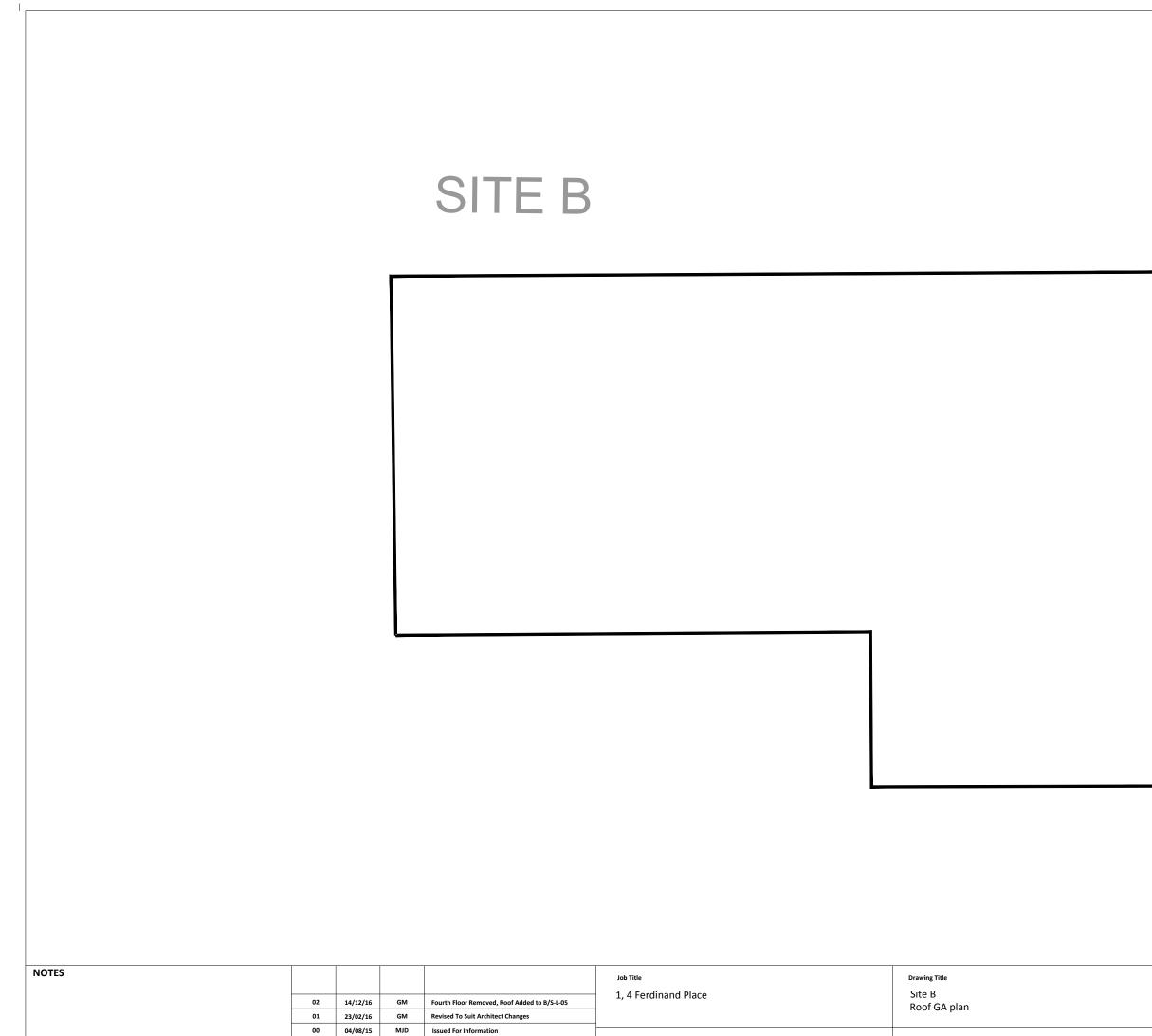
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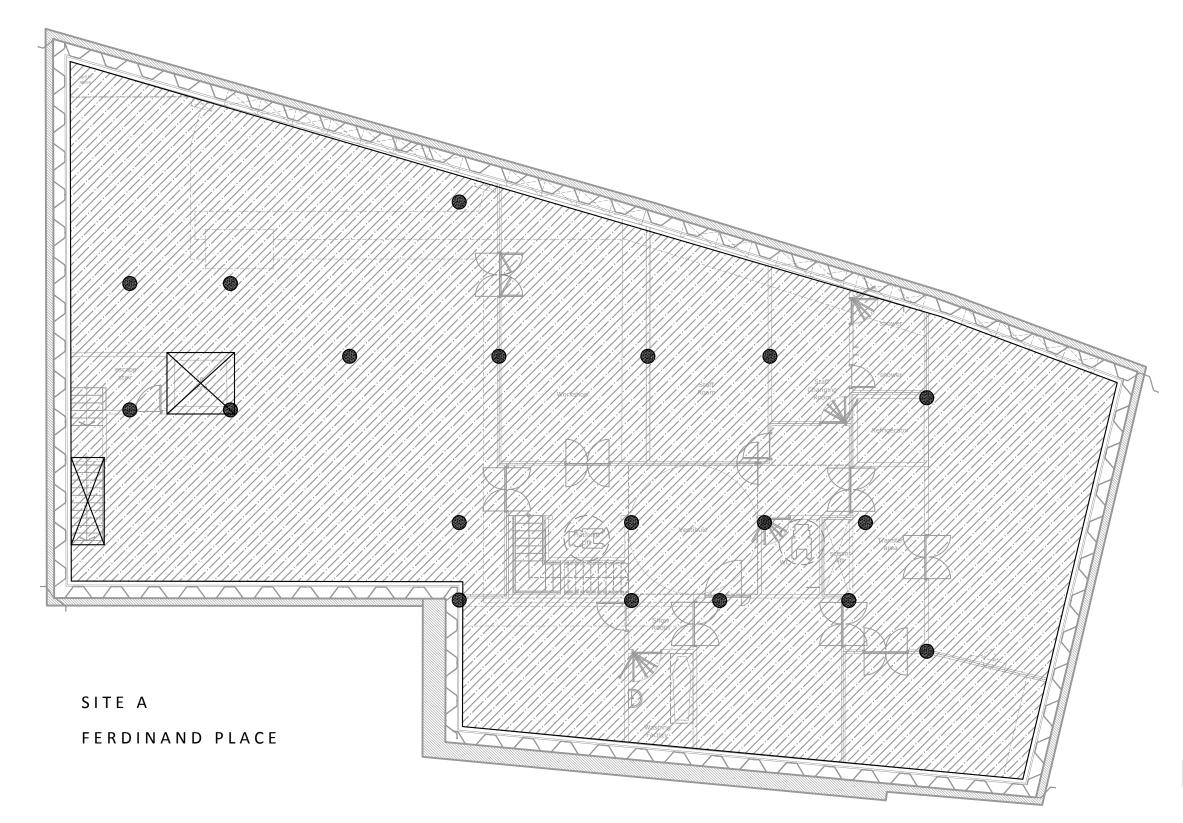
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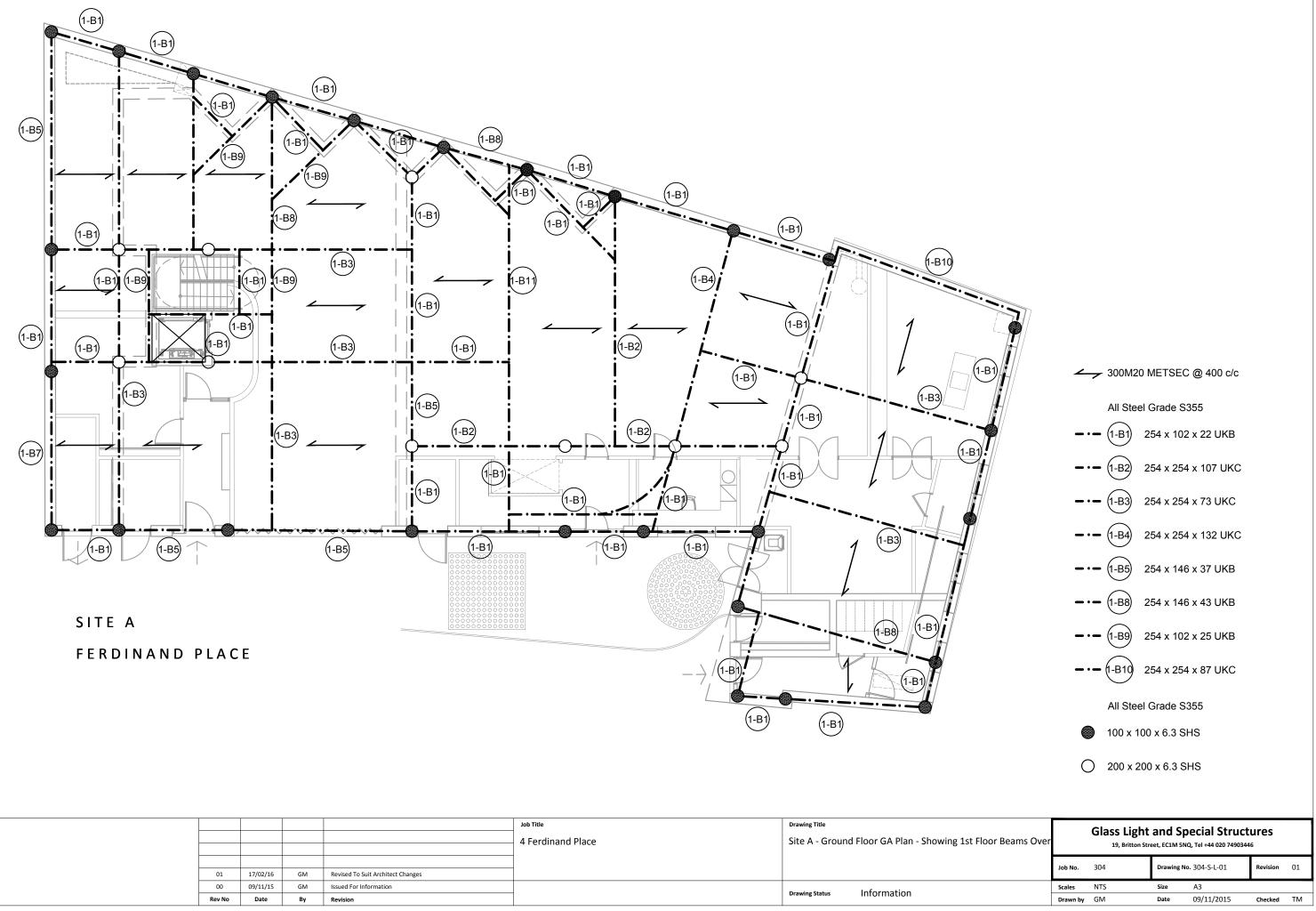
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300 x 300 RC Columns

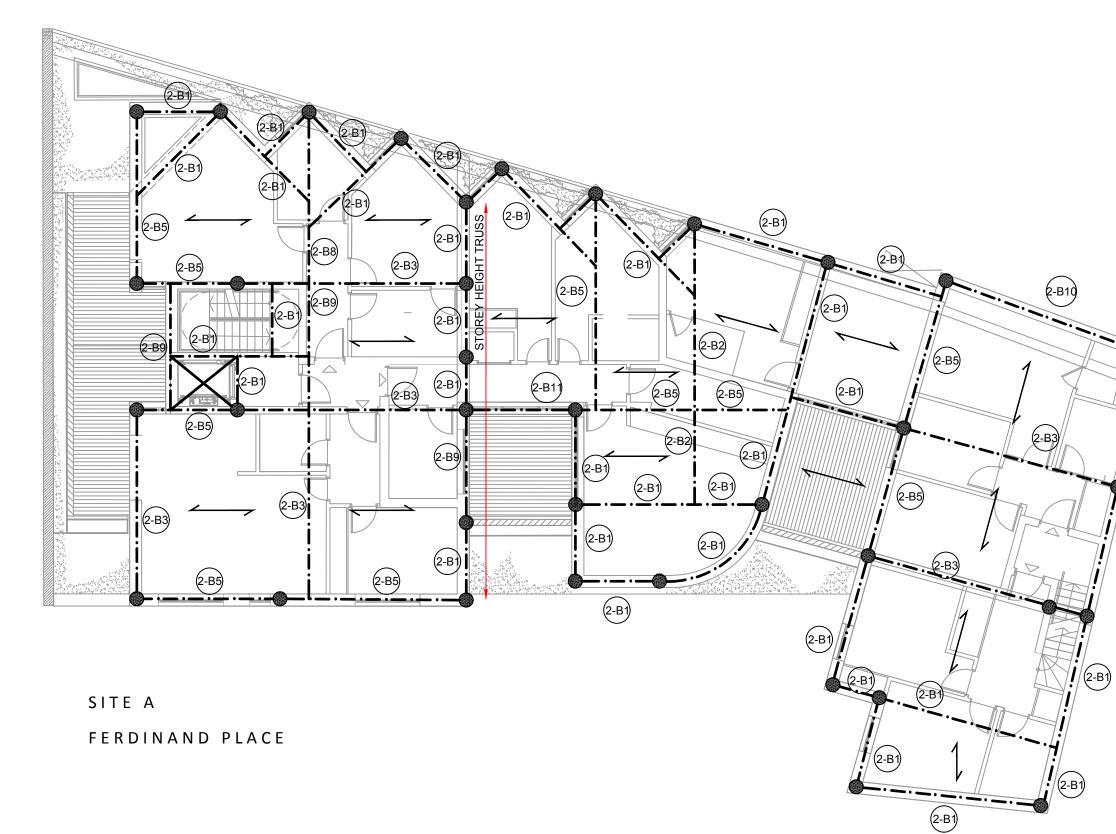
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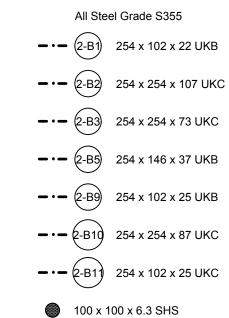
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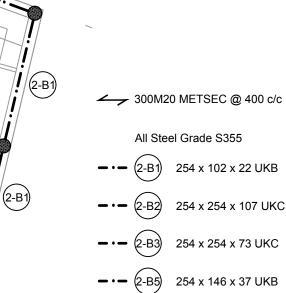
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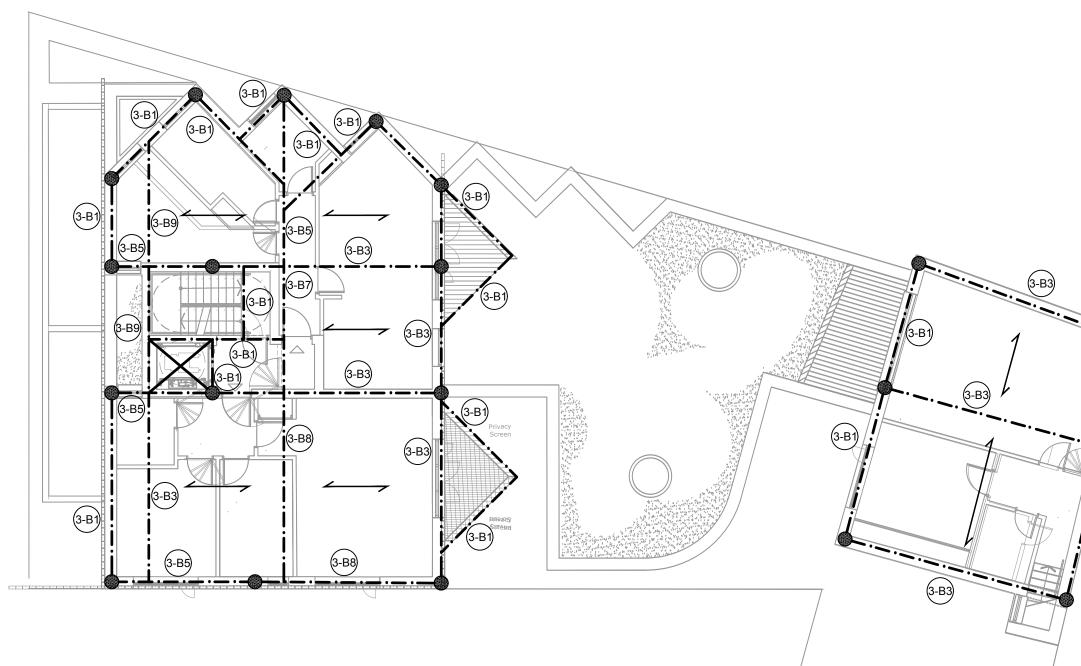


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 Rev No	Date	Ву	Revision			Drawn b	y GM	Date	09/11/2015	Checked TM





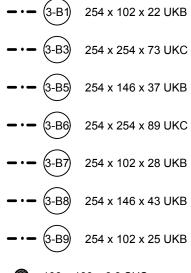


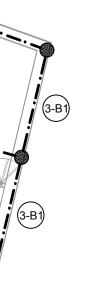
SITE A

NOTES 1.

FERDINAND	PLACE
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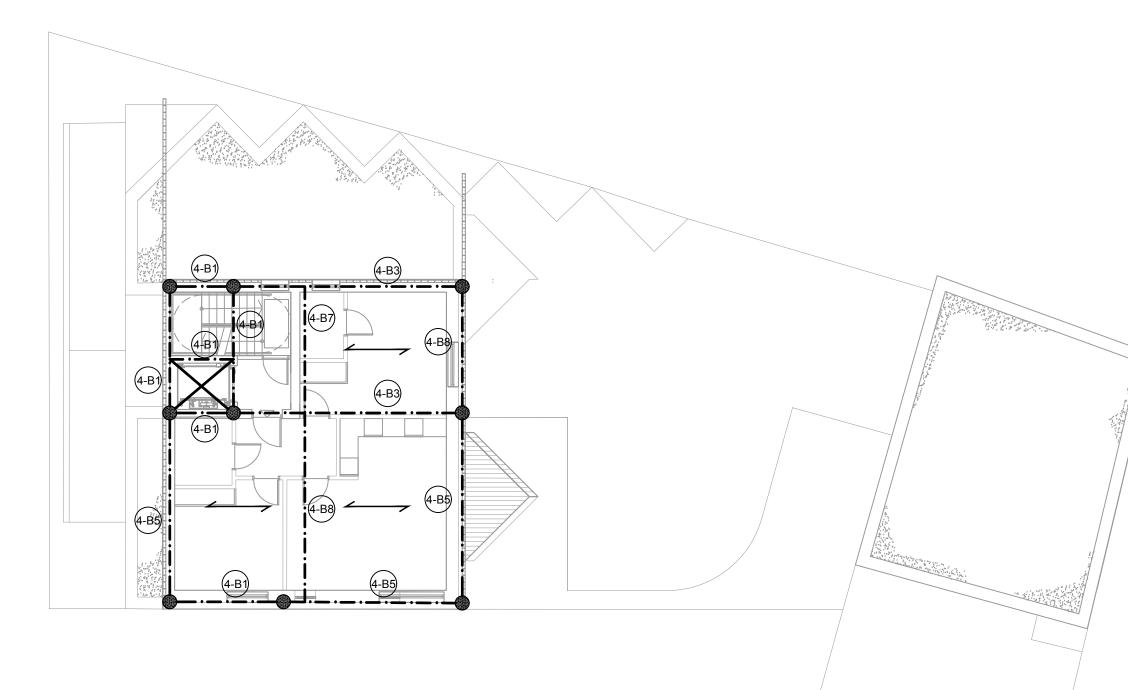
	03	14/12/16	GM	Architect's Latest Plan Added	Job Title 4 Ferdinand Place	Drawing Title Site A - Second Floor GA Plan - Showing 3rd Floor Beams Over		-	Glass Light and Special Structures 19, Britton Street, EC1M SNQ, Tel +44 020 74903446		
	02	04/04/16	GM	Column Added To Suit Architect Design			Job No.	304	Drawing No. 304-S-L-03	Revision 03	
—	01	22/02/16	GM	Revised To Suit Architect Changes			JOD 140.	304	Drawing No. 304-3-L-03	Revision 05	
	00	09/11/15	GM	Issued For Information		province the Information	Scales	NTS	Size A3		
	Rev No	Date	Ву	Revision		Drawing Status Information	Drawn b	No. 304 Drawing No. 304-S-L-03 Revision les NTS Size A3	Checked TM		





All Steel Grade S355

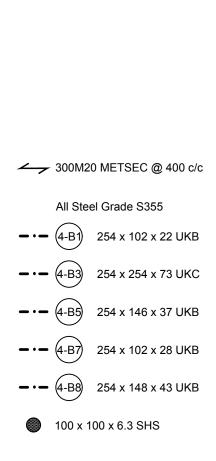
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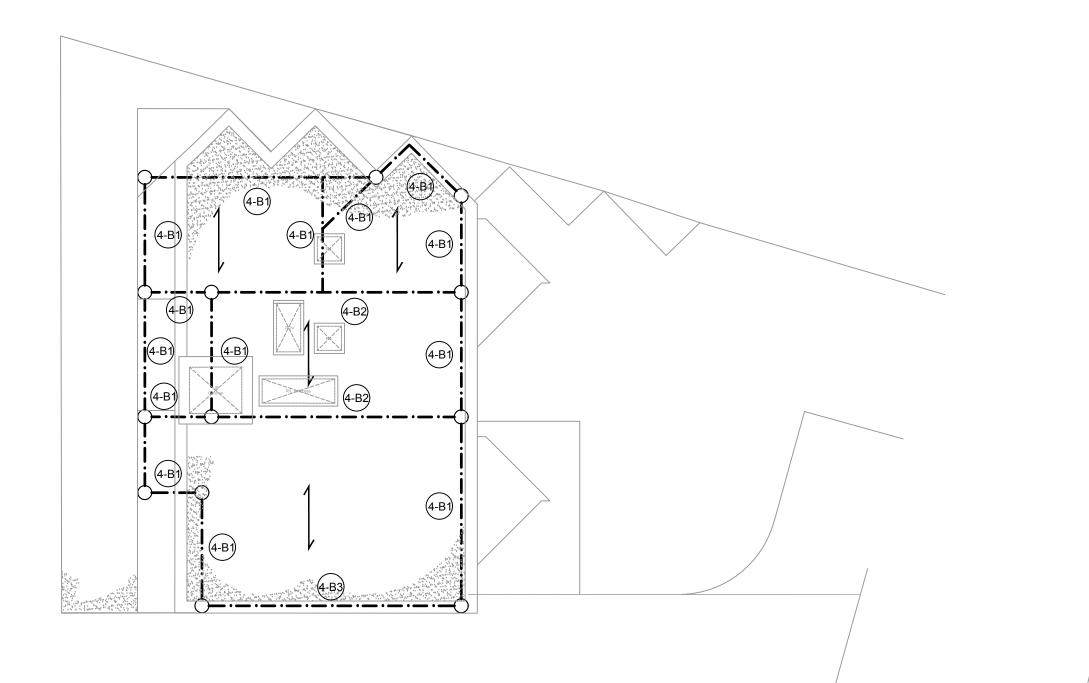


SITE A

FERDINAND	PLACE
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 03	14/12/16	GM	Architect's Latest Plan Added	Job Title 4 Ferdinand Place	Drawing Title Site A - Third Floor GA Plan - Showing 4th Floor Beams Over		-	and Special Structo	
03	14/12/10	GIVI	Architect's Latest Plan Added						
02	04/04/16	GM	Beams Removed & Column Added To Suit Architect Design			Job No	304	Drawing No. 304-S-L-04	Revision 03
01	22/02/16	GM	Revised To Suit Architect Changes			100 110	JOB NO. 504		
00	09/11/15	GM	Issued For Information	Drawing Status Information	Scales	NTS	Size A3		
Rev No	Date	Ву	Revision			Drawn	by GM	Date 09/11/2015	Checked TM





SITE A

FERDINAND PLACE

			Job Title 4 Ferdinand Place	Drawing Title Site A - Fourth Floor GA Plan		Glass Light and Special Structures 19, Britton Street, ECIM 5NQ, Tel +44 020 74903446		
01 17/02/16	GM	Revised To Suit Architect Changes	-		Job No.	304	Drawing No. 304-S-L-05	Revision 01
00 09/11/15	GM	Issued For Information	Draw	Drawing Status Information	Scales	NTS	Size A3	
Rev No Date	Ву	Revision			Drawn by	GM	Date 09/11/2015	Checked TM

