



**1-1A MS New Flue Planning & Listed Building  
Application Report**

**The British Museum  
1-1A Montague Street**

*October 2018*

**BDP.**

## Executive summary

This application for Planning and Listed Building Consent in addition to the consented applications 2017/4112/P and 2017/4724/L. Through negotiation and agreement between the client, The British Museum and Camden Planning Authority the project scope was altered to remove the VFR heating and cooling system servicing the buildings, and radiator heating was re-introduced. Due to the design development of the associated boilers the heating system requires flues to be introduced externally to the buildings. These have been designed sensitively to re-use existing penetrations where possible and to be visually unobtrusive. This document justifies the requirements for the flues, and sets out the design process for their proposed location.

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**Appendix A - Elevations of the proposed locations**

a Introduction & Justification

The principal aim of the project is to carry out refurbishment works and a number of internal alterations to provide attractive office accommodation with a view to letting the properties over a 10-15 year lease. Whilst the current brief retains connectivity between the properties, it is proposed that the individual properties are serviced separately to retain the capacity for division at a future date.

Both the properties were previously heated with radiators through one single boiler, the flue to which was located on the south elevation of 1A Montague Street and is shown in the (26) series of drawings.

The following document was produced by Frankham's, the M&E consultant in order to illustrate and justify the need for the flues, and their size, shape and locations.

1-1a Montague Street - Boiler Flue Installation

Design Note



Subject:	Boiler Flue Installation		
Prepared by:	Musti Rahman	Date:	08/10/2018
Reviewed by:	Darren Jacobs	Status	For Information
Reference:	DN 001	Revision:	P02

The following design notes, details the reasons why the boiler flue routes for both 1 and 1a Montague Street require discharging to atmosphere in the locations and positions shown on the Mechanical Services and Architectural layout and section drawings.

The flue routes have been designed with careful consideration given to the installation being the least intrusive as possible whilst still meeting the design requirements of the statutory guidance (British Standard) and the good practice guidance given within IGEN/UP/10 Edition 4. As well as the requirements for Building Control approval.

System Design Philosophy

Under the original scheme only circulation spaces and WC areas were served via an Low Temperature Hot Water (LTHW) wet system (including radiators, heating pipework, boilers and associated plant), with a Variable Refrigerant Flow (VRF) systems providing heating and cooling to office spaces.

As part of the planning decision by Camden Council, the VRF scheme was omitted in its entirety and all spaces included offices therefore needed to be serviced by the LTHW heating system. This planning lead change has led to an increase in heating loads of the building required from the LTHW system and therefore the boiler sizes.

Under the new scheme, the boilers at 1-1a Montague Street are now classed as commercial boilers due to the total net input of boilers exceeding 70kW. Therefore the installation of the flue system must comply with the requirements of IGEN/UP/10 and Clean Air Act guidelines as opposed to Building Regulations Approved Document J (which is for a domestic level installation). The following information taken from IGEN/UP/10 Edition 4, given below, are the leading requirements / statements that the flue design has to comply with:

- Any chimney and flue shall be located such that it is not at risk from accidental damage that might be lead to failure and such that it cannot represent an undue hazard to persons.
- The flue systems must terminate a minimum of 3m above a level of general access.
- Where the flue system is within 2.5m of an adjacent taller structure it must discharge above the structure. It must also discharge 500mm above that structure
- Flue discharge risk assessment regarding the flue position must be met

If these criteria are not met, by the flue installation as indicated by our design, then Building Control will not be able to approve the installation as compliant.





## 1-1a Montague Street - Boiler Flue Installation

Design Note



### LTHW Heating System Scope & Specification

The scope of the works shall be to supply and install a new boiler flue system serving two no. 70kW boilers for both 1 and 1a Montague Street.

The specifications for the boiler flues have been developed with a specialist who will also be supplying and manufacturing the flue. The flues themselves comprise of an inner and outer casing made of stainless steel infilled with dense fire rated mineral wool fibre. All joints shall be installed to include proprietary seals where necessary, with cover bands and locking bands. It should be noted that the fire rating for the flue installations is 4 hours. The boiler flues can be painted to a RAL colour of choice should the need arise to make the installation the least intrusive as possible.

### Flue System Summaries

For 1 Montague Street, the flue installations consists of 1No. 200mm outer diameter (with 150mm inner diameter) stainless flue system that shall discharge with an open top stub terminating 500mm above the adjacent existing plant screen (shorter structure) and a minimum of 2.5m away from the adjacent taller structure. Fig.1 below shows the visual image of the proposed flue location.

For 1a Montague Street, the flue installation consists of 1No. 200mm outer diameter (with a 150mm inner diameter) stainless flue system that shall discharge with an open top stub terminating 500mm above the lower adjacent wall. The flue system shall run at a 45 degree angle to maintain a minimum distance of 2.5m away from the adjacent taller structure and shall discharge horizontally to direct the flue gases away from the building. For the flue system to discharge vertically the flue would need to be routed to above roof level to comply with regulations. Fig.2 below shows the visual image of the proposed flue location.



**Fig 1:** 1 Montague Street Proposed Flue Installation



**Fig 2:** 1a Montague Street Proposed Flue Installation

**b** Considering the location

As a design team we considered various locations for these flue in order to decide upon the most discrete installation, while complying with the Building Regulations. The location of the flue and it's shape are inter-related. As stated by Frankhams the considerations for the flues were:

- Flues must be a minimum of 3000mm about ground level and 2500mm distance from the adjacent taller structure.
- A straight flue which is against a building must rise to above the tallest structure by at least 500mm
- Relative locations of the boilers in the plant rooms.
- 45 degree angle required for flue bends

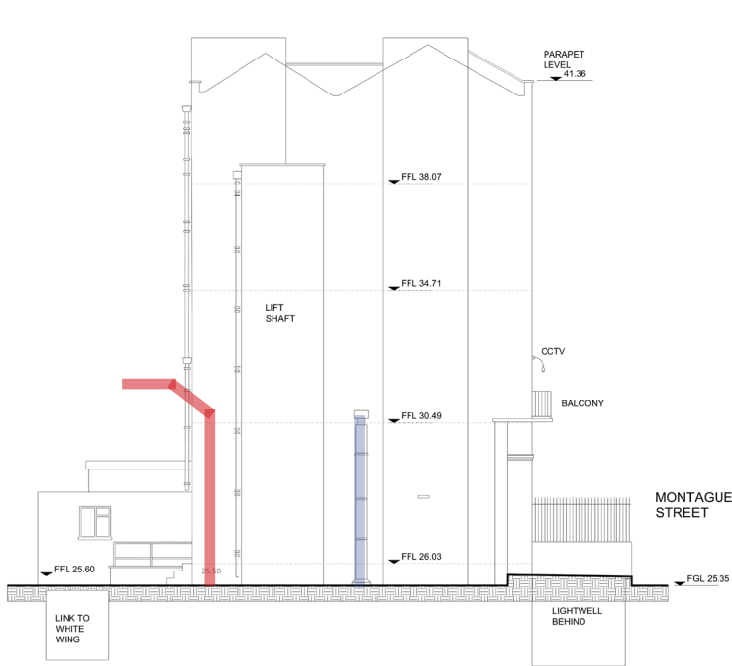
The boilers are located in the lower ground floors of the plant room for each building. The plant rooms run in below ground rooms, which enable vertical access to the external areas without running through historically sensitive areas of the buildings.

**1A Montague Street**

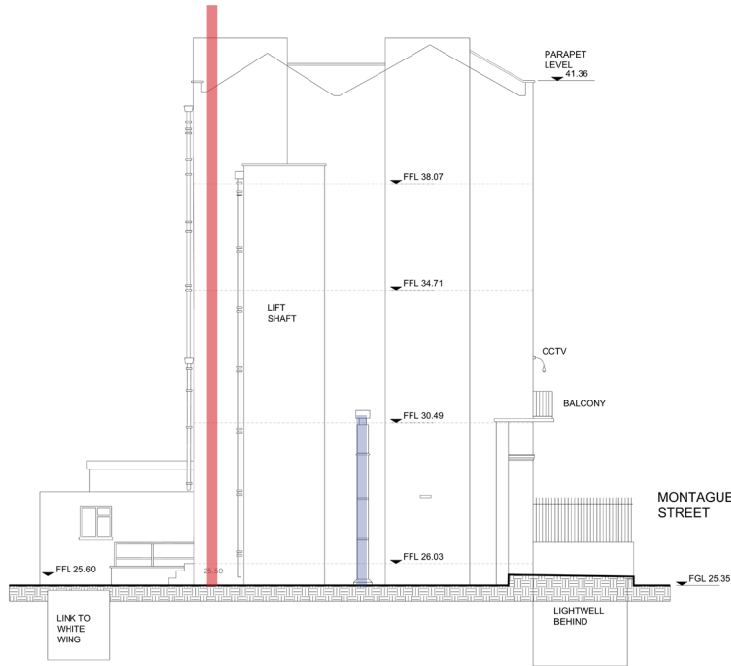
In order to minimise the intrusive works, the flue for the boilers in 1A Montague street can re-use the same opening from the plant room to the external yard to the south of the building.

Another location was considered however the area of the plant room to the west of the lift shaft (option 1 and 2) doesn't provide safe enough access for the boilers to be easily maintained. So the flue is required to be to the east of the lift shaft (Preferred option) The alternative arrangement for the flue would be for it to rise to the 500mm above the parapet of the building, where it would be clearly visible from the street (option 3).

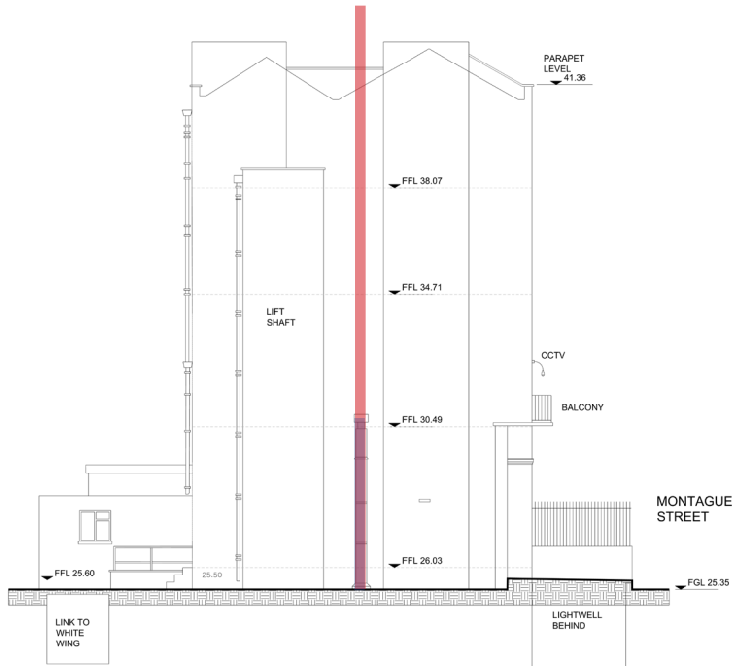
- Existing boiler flue route
- New boiler flue route



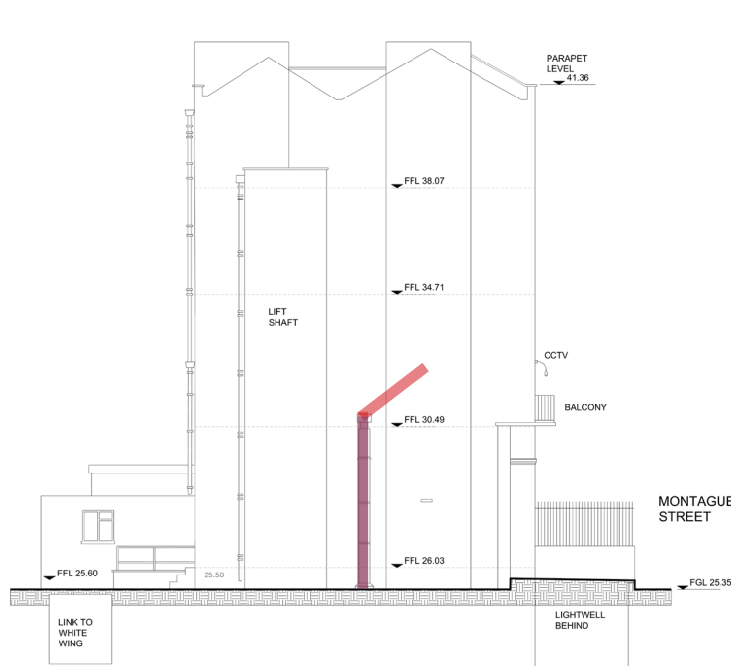
1A MS - Option 1 - Flue at west, 2.5 m distance from taller structure with 45° bend.



1A MS - Option 2 - Flue at west, straight 500 mm higher than adjacent taller structure.



1A MS - Option 3- Flue at east, straight 500 mm higher than adjacent taller structure.

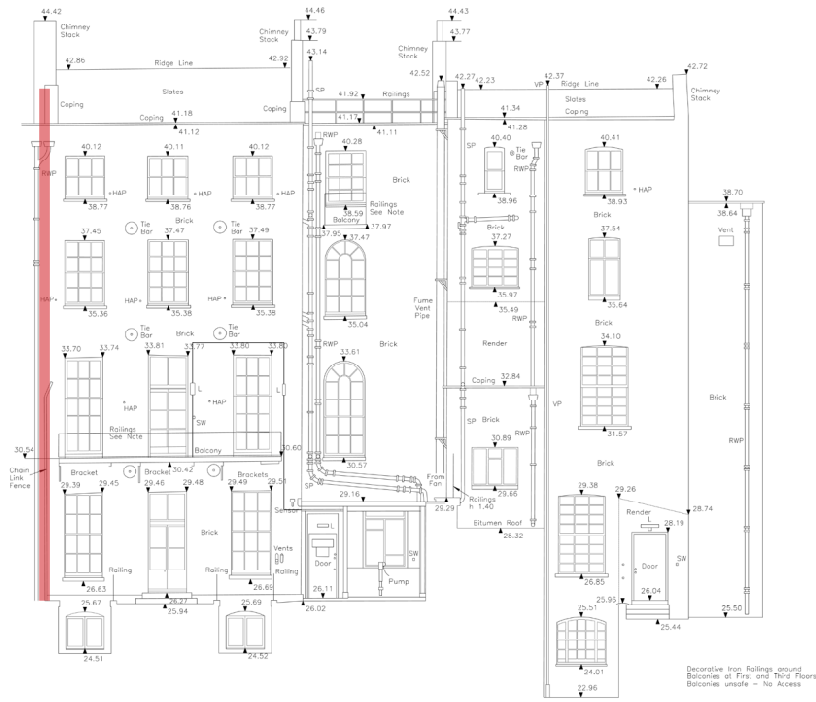


**1A MS - Preferred option** - Flue at est, 2.5 m distance from taller structure with 45° bend and higher 500 mm from adjacent wall. Ref. to (15)AE003 drawing.

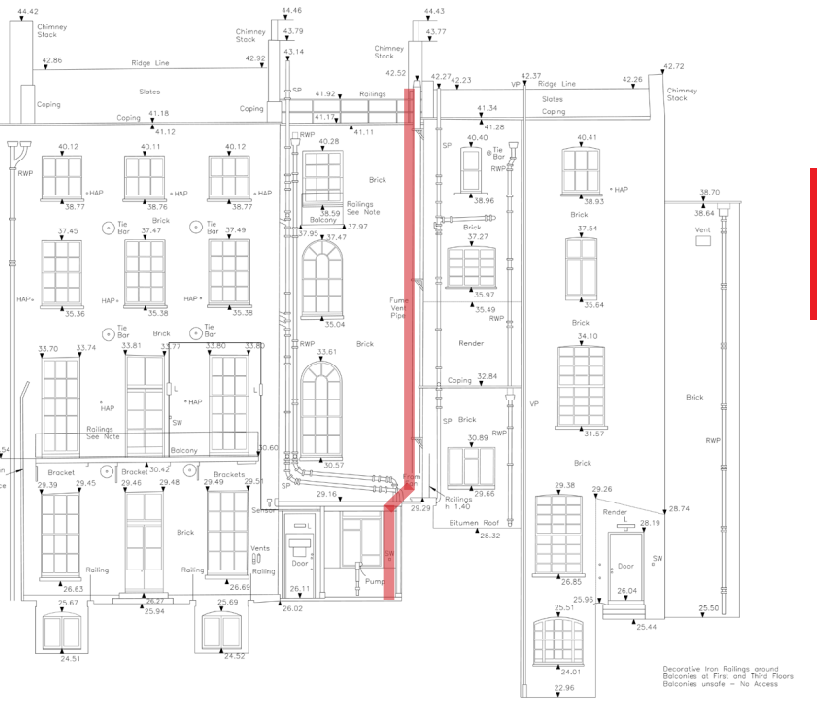


1 Montague Street

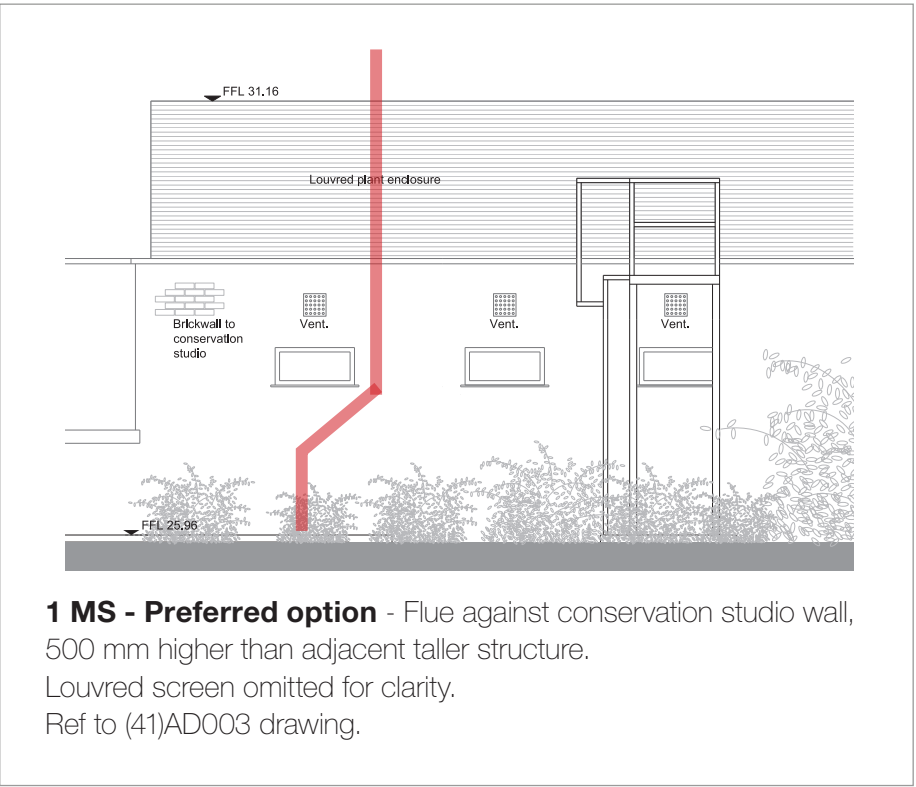
As 1 and 1A Montague Street previously had combined services no boiler or flue was previously installed in 1 Montague Street. The boiler is located in a vault towards the rear of the building, allowing the flue to penetrate vertically through to the garden. The flue has two alternative routes, either raising against the rear of 1 Montague Street against the historic facade (Option 1 and 2) or up the side of the adjacent building Hirayama Conservation Studio, which is a single storey building with a plant area with a louvred screen (Preferred option). The flue rising up the rear of the building would have to terminate 500mm above the parapet line, where as the flue on the Hirayama Studio would only need to rise 500mm above the level of the louvred plant room. In addition, the flue can run behind the plant screen in the garden.



1 MS - Option 1 - Flue at north-west against rear facade, straight 500 mm higher than adjacent taller structure



1 MS - Option 2 - Flue at north against rear facade, straight 500 mm higher than adjacent taller structure

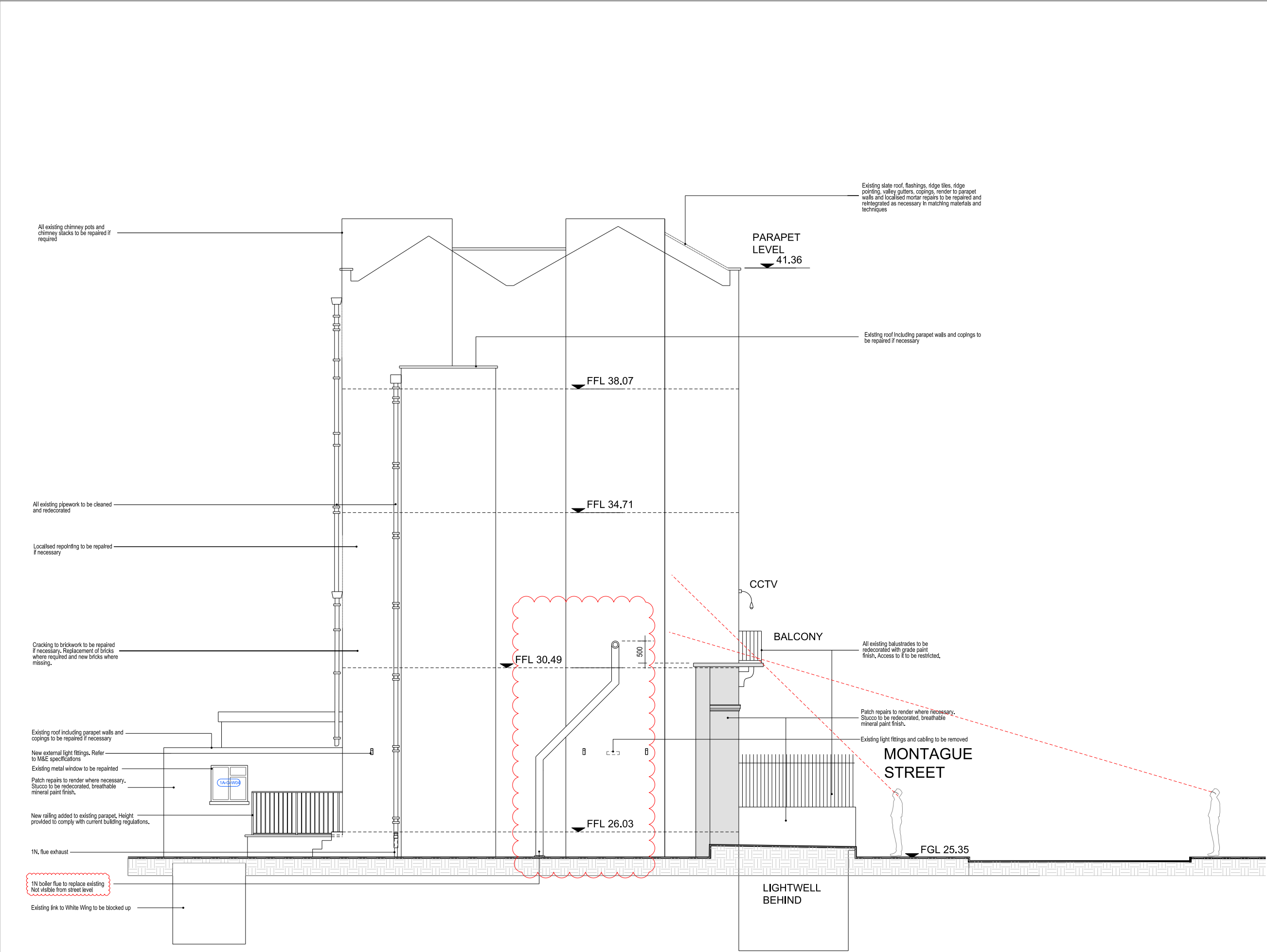


New boiler flue route

## C Proposed Location

The following drawings illustrate the proposed location of the flue. These have been determined by the client and the design team to be the most discrete and least intrusive of all the options for the necessary installation of the boiler flues for the buildings.





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NOTES

REVISION/DESCRIPTION	DRAWN	CHECKED	DATE
E - For Planning and Listed Building Consent Application	MF	AC	08/10/18
D - For Planning and Listed Building Consent Application	MF	AC	24/06/18
C - For Planning and Listed Building Consent Application	LBE	MB	23/06/17
B - For Planning and Listed Building Consent Application	LBE	MB	01/06/17
A - For comments	LBE	MB	12/05/17

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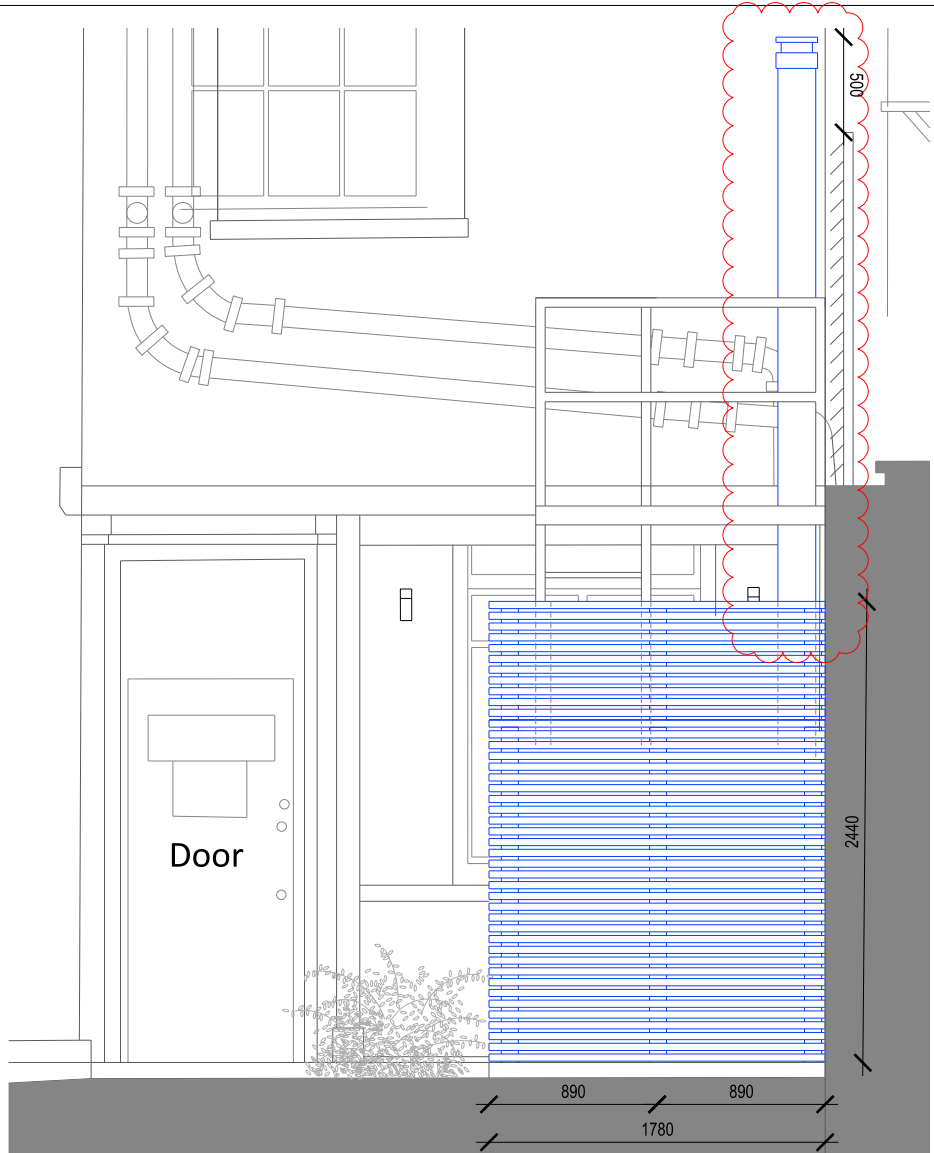
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British Museum  
Perimeter Properties Refurbishment

P2007246	
DRAWING TITLE	SCALE
1-1A Montague Street Proposed Side Elevation 1A MS	1:50@A1
DATE	REVISION
Planning and LBC Application	Apr17
(15)AE003	E

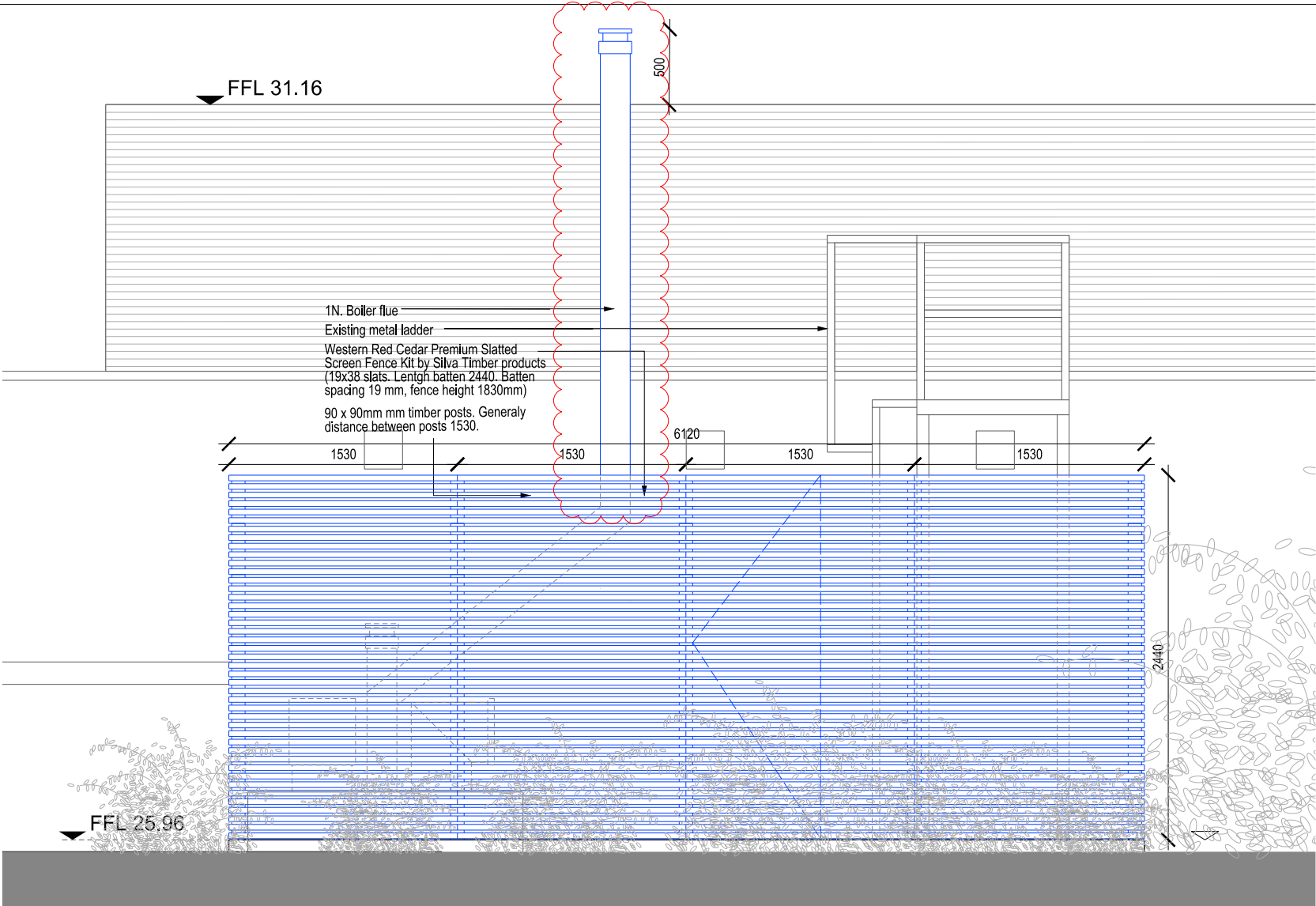




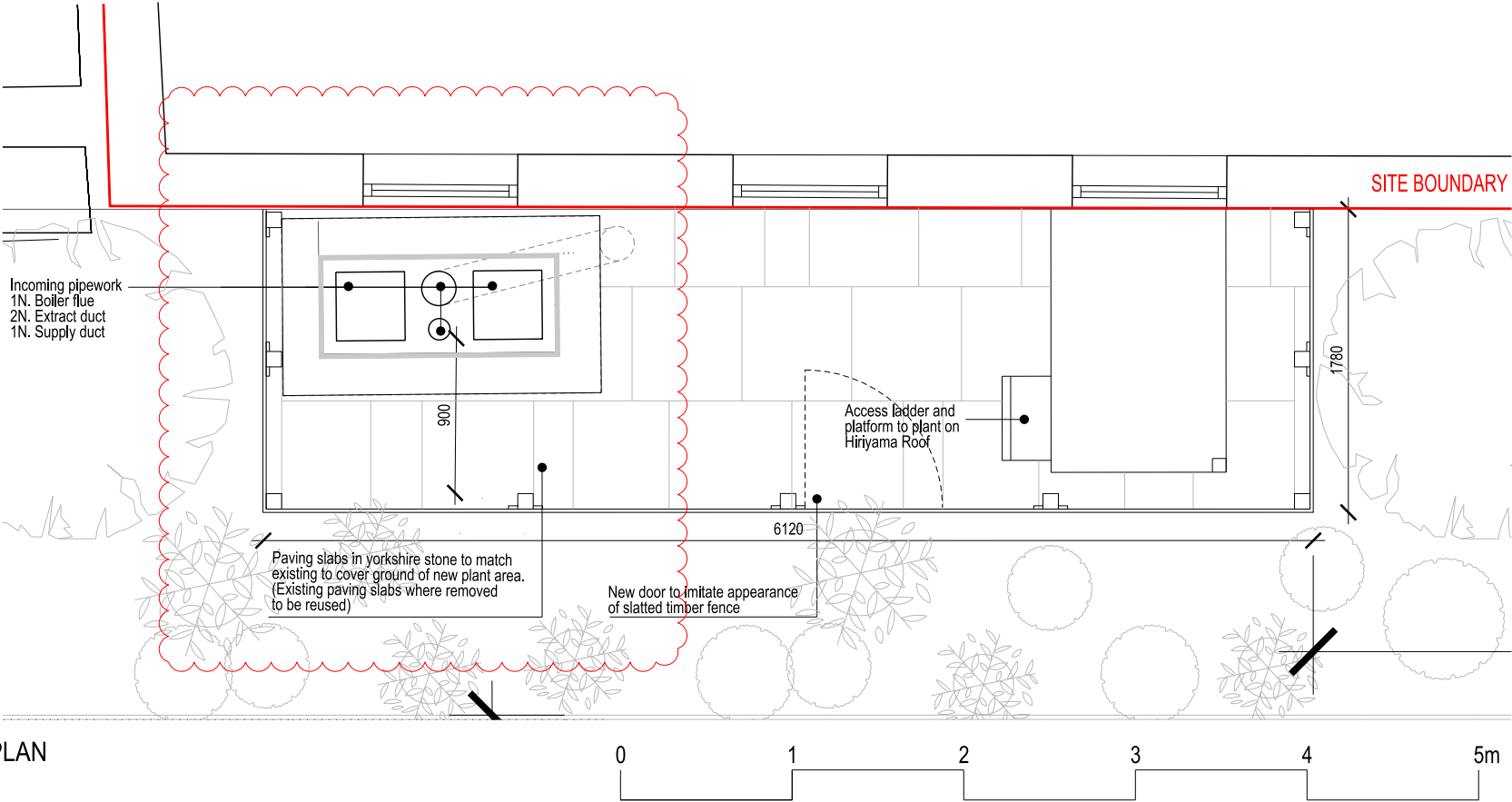
FRONT ELEVATION



PRECEDENT IMAGE



SIDE ELEVATION



PLAN

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### NOTES

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C - For Planning and Listed Building Consent Application	MF	AC	08/10/18
B - For Planning and Listed Building Consent Application	MF	AC	24/04/18
A - For Planning and Listed Building Consent Application	LBE	MB	23/06/17
For Planning and Listed Building Consent Application	LBE	MB	01/06/17

KEY PLAN

CLIENT LOGO

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P2007246

DRAWING TITLE: 1-1A Montague Street Proposed External Plant Enclosure Planning and LBC Application

SCALE: 1:20@A1

DATE: April '17

REVISION: (41)AD003

C