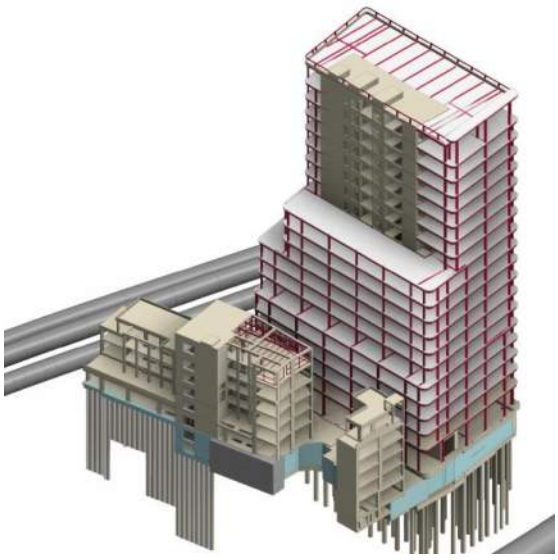
Appendix E: Supplementary Structural Engineer Reports

Labs Selkirk House Ltd

Structural Engineer Report to Supplement BIA

1 Museum Street, Vine Lane and High Holborn
2413-MHT-ST-RP-008

Issue 2 – 16 June 2022



Prepared For:

LABTECH

MEINHARDT

LABS SELKIRK HOUSE LTD

STRUCTURAL ENGINEER REPORT TO SUPPLEMENT BIA

1 MUSEUM STREET, VINE LANE AND HIGH HOLBORN 2413-MHT-ST-RP-008

Quality Assurance Page

Issue	Date	Prepared By	Checked By	Approved By	Remarks
P01	08/02/2021	P. Gajjar C. Marchant D. Staddon	D. Staddon		First draft for comment by project team
P02	23/02/2021	P. Gajjar	D. Staddon		Updated to comments by Planning Consultant
P03	26/06/2022	R. Menendez C. Marchant	D. Staddon		Updated for Stage 2 redesign

Table of Contents

1 Introduction

Meinhardt (UK) Ltd has been appointed as Structural, Civil & Geotechnical Engineering Consultant for the development of Selkirk House, 1 Museum Street, 10-12 Museum Street, 35-41 New Oxford Street and 16A-18 West Central Street, London, WC1A 1JR.

1.1 Purpose of Report

The purpose of this report is to outline the Structural and Civil engineering principles for the proposed development of Selkirk House, from here referred to as 1 Museum Street Site. The report has been produced as a part of the planning application and should be read alongside the Basement Impact Assessment. The engineering principles for 10-12 Museum Street, 35-41 New Oxford Street and 16A-18 West Central Street, from here referred to as the West Central Street site, are outlined in a separate report.

1.2 Project Team

Client:	Labs Selkirk House Ltd
Project Manager:	Gardiner & Theobald LLP
Concept Architect:	DSDHA
Structural Engineer:	Meinhardt (UK) Ltd
Civil Engineer:	Meinhardt (UK) Ltd
Geotechnical Engineer:	A Squared Studio
Services (MEP) Engineer:	Scotch Partners
Cost Consultant:	Gardiner & Theobald LLP
Planning Consultant	Iceni Projects

1.3 Scope of Services

Meinhardt (UK) Ltd will be responsible for Structural, Civil & Geotechnical Engineering Consultancy. Meinhardt (UK) Ltd have appointed A Squared Studio who are responsible for providing the Geotechnical Engineering services.

1.4 Investigations

To date, visual inspections of the buildings, opening up works and trial pits have been carried out. The full ground investigation had not been carried out at the time of writing. Engineering proposals have been produced based on completed investigations and desktop study information, as per A Squared Studio's desk study and technical notes.

2 The Site

2.1 Location

The site is located at Selkirk House, 1 Museum Street, London WC1A 1JR. It is located between Holborn and Tottenham Court Road Tube Stations. Figure 2-1 illustrates the extents of both 1 Museum Street site and West Central Street site, as they will be considered in the engineering reports.

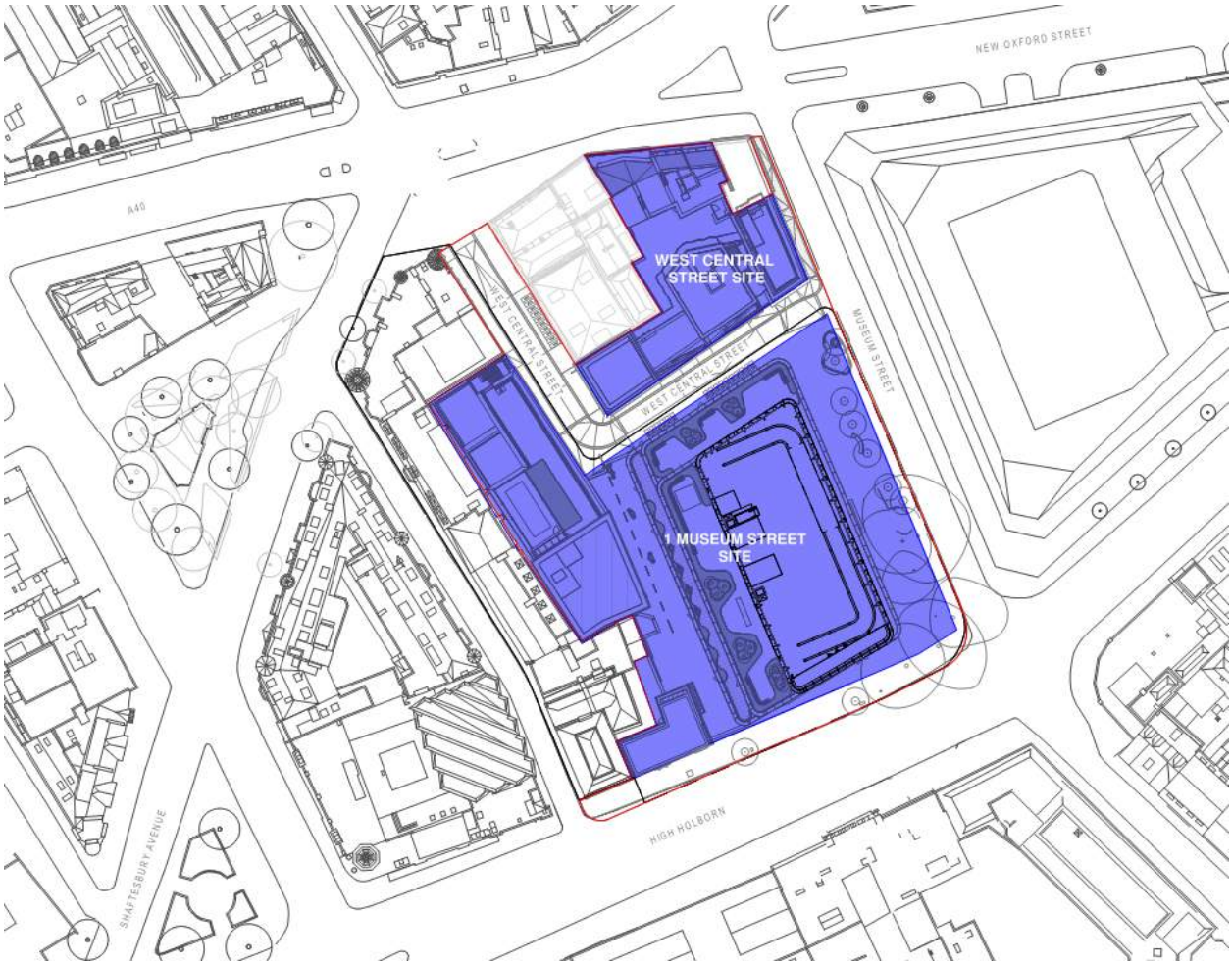


Figure 2-1: Site Location Plan

The 1 Museum Street site is bounded by High Holborn to the South and Museum Street to the East. The Western site boundary is directly adjacent to a row of 4 to 6 storey buildings which are accessed from Grape Street. The blue hatch shown in Figure 2-1 indicates the ownership boundary and the red line indicates the planning application. The Architects plan indicating boundaries is provided within Appendix A.

2.2 Ground Conditions

A squared have produced a preliminary ground model for the site, based on BGS borehole data and nearby site specific ground investigation data. This can be found within the desktop study report and is replicated within Figure 2-2. The preliminary ground model has been used to develop engineering proposals in lieu of site specific ground investigation information.

Table 3.1 Preliminary stratigraphic relationships

Unit	Elevation[1] (mOD)	Depth[1] (mBGL)	Thickness (m)	Description
Made Ground	+24.0	0.0	3.5	Variable anthropogenic deposits
Lynch Hill Gravels	+20.5	3.5	2.5	Medium dense to dense sandy gravel
London Clay	+18.0	6.0	21.0	Stiff brown clay with partings of silt fine sand
Lambeth Group	-3.0	27.0	16.5	Vertically and laterally variable sequences mainly of clay, some silty or sandy, with some sands and gravels, minor limestones and lignites and occasional sandstone and conglomerate
Thanet Sands	-19.5	43.5	6.5	Grey-brown, fine-grained sand that can be silty/clayey
Chalk	-26.0	50.0	>100.0	Chalk with flints

1. Elevation and depth refer to top of stratum.

Figure 2-2: Preliminary ground model from A Squared Studios Desktop Study Report

2.3 Site Hydrology and Hydrogeology

A squared studio have produced a Desk study and technical note regarding ground water considerations. A water level of 20.5mOD has been considered representative of the short term condition, subject to confirmation by a site specific ground investigation.

3 Site Constraints

There are a number of underground obstructions, both beneath the site footprint and within close proximity to the site. Figure 3-1 illustrates the location of the underground tunnels in relation to the site and the paragraphs below provide further details of each and their effect on the development proposals.

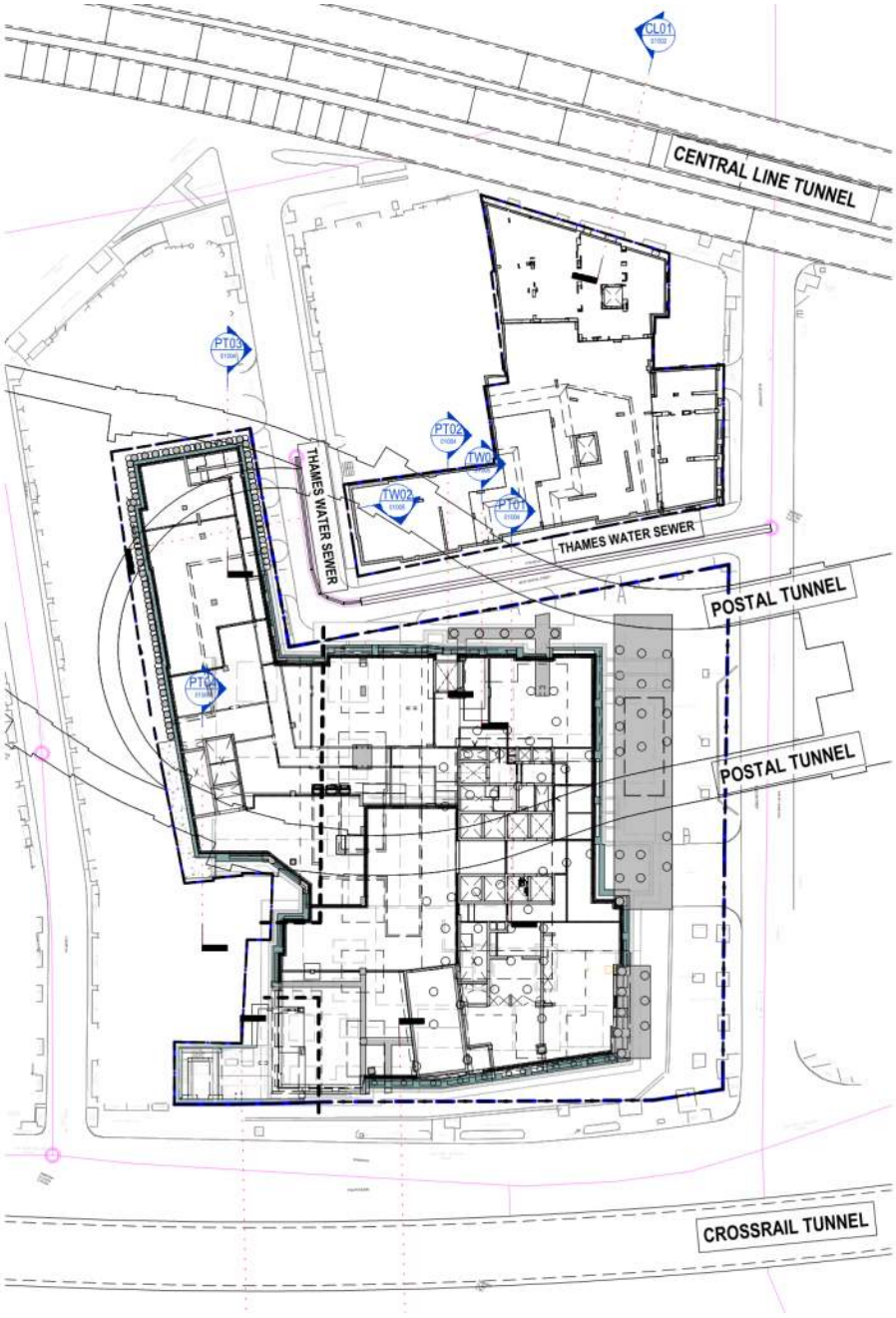


Figure 3-1: Site Constraints Plan Showing Underground Tunnels

3.1 Post Office Tunnels

Post Office tunnels, owned by Royal Mail, are present beneath the site. A line and level survey of the tunnels was carried out for the development in September 2020. The tunnels are of varying diameters where the tunnel crown is located at approximately 13m below ground level and 5m below lowest basement level. It is understood that the existing basement was constructed sometime after the tunnel construction.

The ground movement assessment, produced by A Squared Studio, assess the impact of demolition and construction to the tunnels. The proposed structure adheres to exclusion zones set by Royal Mail which

are stated in their safeguarding guidelines as 2m horizontal clearance for bored piles and 10m horizontal clearance for driven piles. Royal mail request a vertical clearance from toe of pile (or other foundation) to crown of tunnel of 4m for bored piles and 10m for driven piles. Please refer to Appendix B for postal tunnel sections.

3.2 Central Line Tunnel

The Central Line tunnel, owned by London Underground Limited (LUL), is located to the North of the site under New Oxford Street, at approximately 20m below ground level.

Part of the West Central Street site is founded over LULs zone of influence. There is approximately 17m of ground between the base of foundation and tunnel crown. The ground movement assessment, produced by A Squared Studio, assesses the impact of demolition and construction to the tunnels.

Meinhardt have been consulting with LUL who have advised a site specific line and level is not required for this development. The tunnel location is based on LUL asset drawings. Please refer to Appendix B for central line tunnel sections.

3.3 Crossrail Tunnel

The Crossrail tunnel, owned by Crossrail Limited, is located to the South of the site under High Holborn, at an approximate depth of 11m below ground level. The tunnel and exlusion zone is outside of the site footprint and is approximately 12m plan distance away from existing basement perimeter. The proposed structure adheres to exclusion zones set by Crossrail Ltd.

Due to the proximity of tunnel to proposed structure, Crossrail Ltd require to see the ground movement assessment, which assesses the impact of development on the tunnel. Meinhardt have been consulting with Crossrail who have advised a site specific line and level is not required for this development. The tunnel location is based on Crossrail asset drawings. Please refer to Appendix B for Crossrail tunnel sections.

3.4 Thames Water Assets

Thames Water sewers surround the site and are located approximately 4m below ground level. Sewers are shown in Figure 3-1 by the pink line type. Trunk combined sewers are located beneath Museum Street and New Oxford Street. Combined sewers are located beneath all surrounding highways, including beneath West Central Street.

The combined sewer under West Central Street will be retained. A CCTV survey was carried out on this sewer in November 2020 to understand its condition and location, however only part of the sewer length could be surveyed due to the presence of large rocks within the sewer. From the survey information received we anticipate that the sewer is outside of Thames Water exclusion zone and is approximately 4m from both 1 Museum Street and West Central Street developments. Meinhardt have contacted Thames Water to progress a build near agreement. The ground movement assessment assesses the impact to the Thames Water sewer. Please refer to Appendix B for Thames Water sewer sections.

3.5 Protected Trees

There are numerous trees around the site, particularly along the Museum Street boundary. The trees to the south east corner of the site (intersection between High Holborn and Museum Street) are larger and more mature with large root protection zones as shown in Figure 3-3.

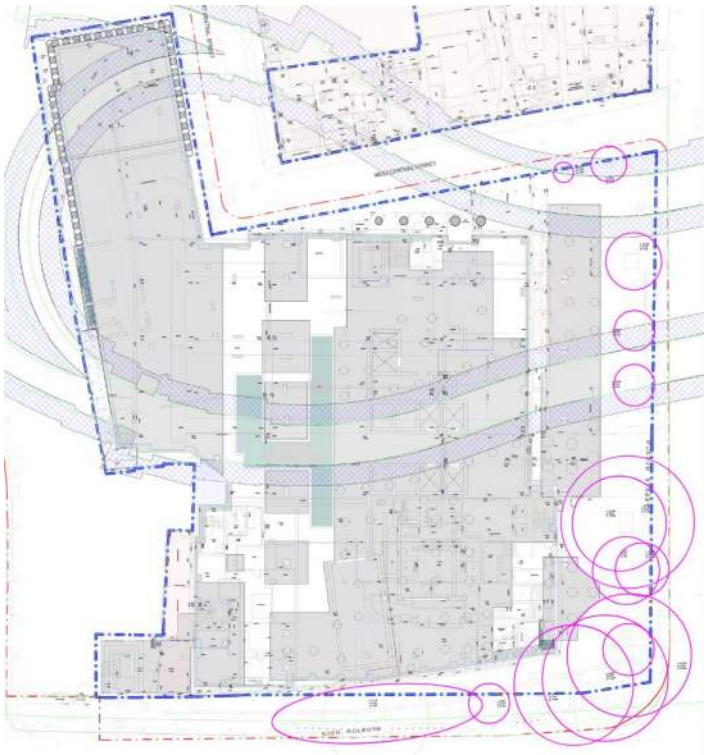


Figure 3-3: Tree root protection zones (pink) in relation to existing basement

Due to the proposed footprint of the new building, piling is required outside of the existing basement line and locally within the root protection zones.

Trial pits completed in this area found large depths of mass concrete outside of the existing basement footprint. The depth of this mass concrete was found to approximately 2m, with the base not proved. It is anticipated that mass concrete fill was used in original basement construction and so is likely to extend to basement level. Therefore the pile installation needs to be capable of penetrating the depth of mass concrete.

The construction strategy has been discussed with A Squared and the project Arboricultural specialist. A reduced height Martello piling rig is proposed to construct piles in this area, minimising any clashes between the piling rig and tree canopies whilst also minimising surcharge loads during construction to existing basement walls. The base of the rig is anticipated to be clear of tree canopies, with some clashes anticipated between branches and the pile mast. Where this occurs, tree branches will need to be tied or cut back locally. Please refer to A Squared Studios technical note “Tree Protection Zone Pile Design and Construction Consideration” found in Appendix G. Drawings illustrating piling proposals around tree root protection zones can be found in Appendix B.

3.6 Party Walls

There are several neighboring properties with shared party walls to the development, which will need party wall approvals. Information about neighboring foundations has been found from historic drawings and trial pits. Trial pits carried out to the existing basement ramp (along the western boundary) uncovered a void beneath the ramp. The extents and depth of the void is to be investigated further and incorporated into the design solution.

To the base of the existing ramp it appears the existing party walls have been underpinned by deep underpins, likely installed when the original basement was built in order to avoid undermining the existing foundations.

Please refer to party wall sketches within Appendix C for more detailed information of each of the conditions and notes where further investigation is required.

3.7 Utilities

A utilities survey was undertaken by MK Surveys in November 2020. This highlights current services within the pavement surrounding the site.

4 Existing Buildings

The existing building was originally built in 1962. Please refer to Figure 4-1 for existing building heights above ground. The building consists of a car park located on the north part of the block, occupying three levels of basement and four levels above ground. The car park utilises a spiralling floor plate arrangement to provide car parking. Access to the car park is via Museum Street.

On the southern part of the site the basement is occupied with amenity space and plant rooms. Above ground, up to level 3, the building presents some retail and plant space at grade and office space above.

On the eastern part of the development, above the offices and the car park, there is a tower with 16 stories, designed for office occupation. Originally there was a plant enclosure on the roof at level 16. Level 4 is a podium transferring the building columns from tower above to accommodate the carpark arrangement.

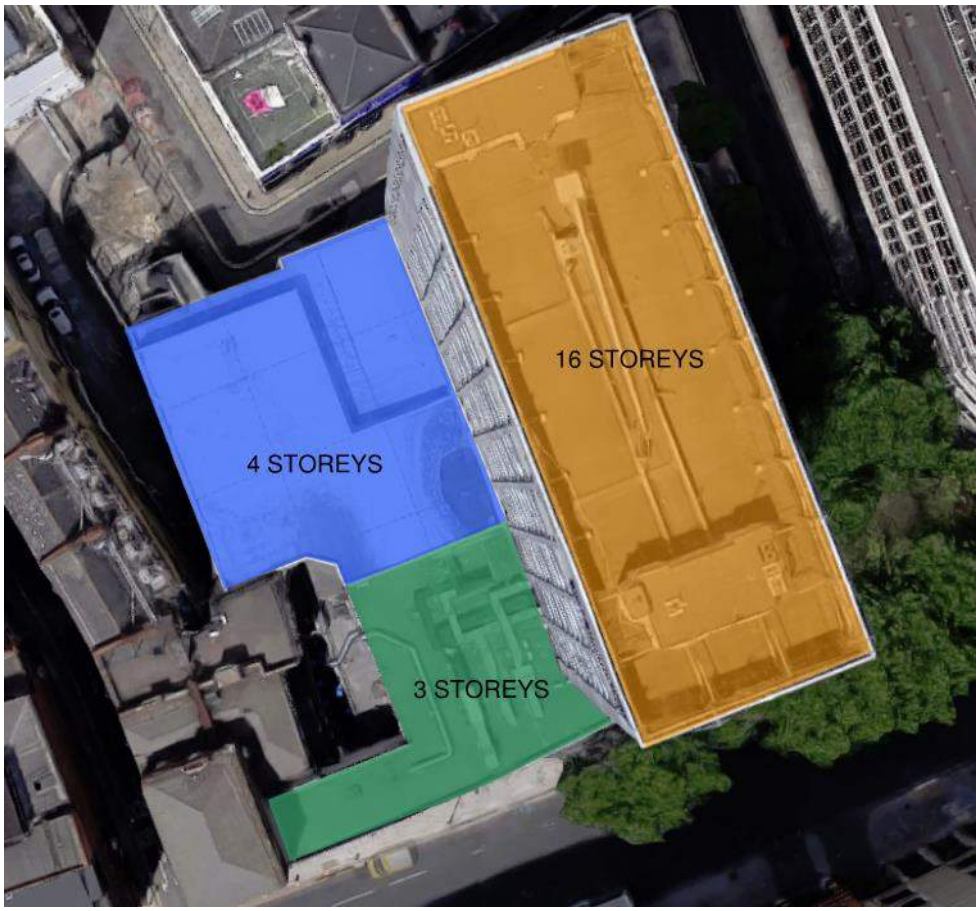


Figure 4-1: Existing Building Heights

The building was converted in 2002 to a Travelodge hotel within the office part of the development.

The 2002 refurbishment did not require major structural works, maintaining the footprint of the floor plates as they were, with only localised structural adjustments. These included:

- Installation of a number of new risers through the slabs to service the hotel rooms. These have been strengthened using carbon fibre strips which will need to be taken into account for any further amendments required to the slabs.
- Over-cladding the original façade. The original concrete façade has been over-clad with a rainscreen system.
- Strengthening works to columns and shear walls.

4.1 Existing Structure

A summary sketch of the existing structure is shown in Figure 4-2 and elevation shown in Figure 4-3.

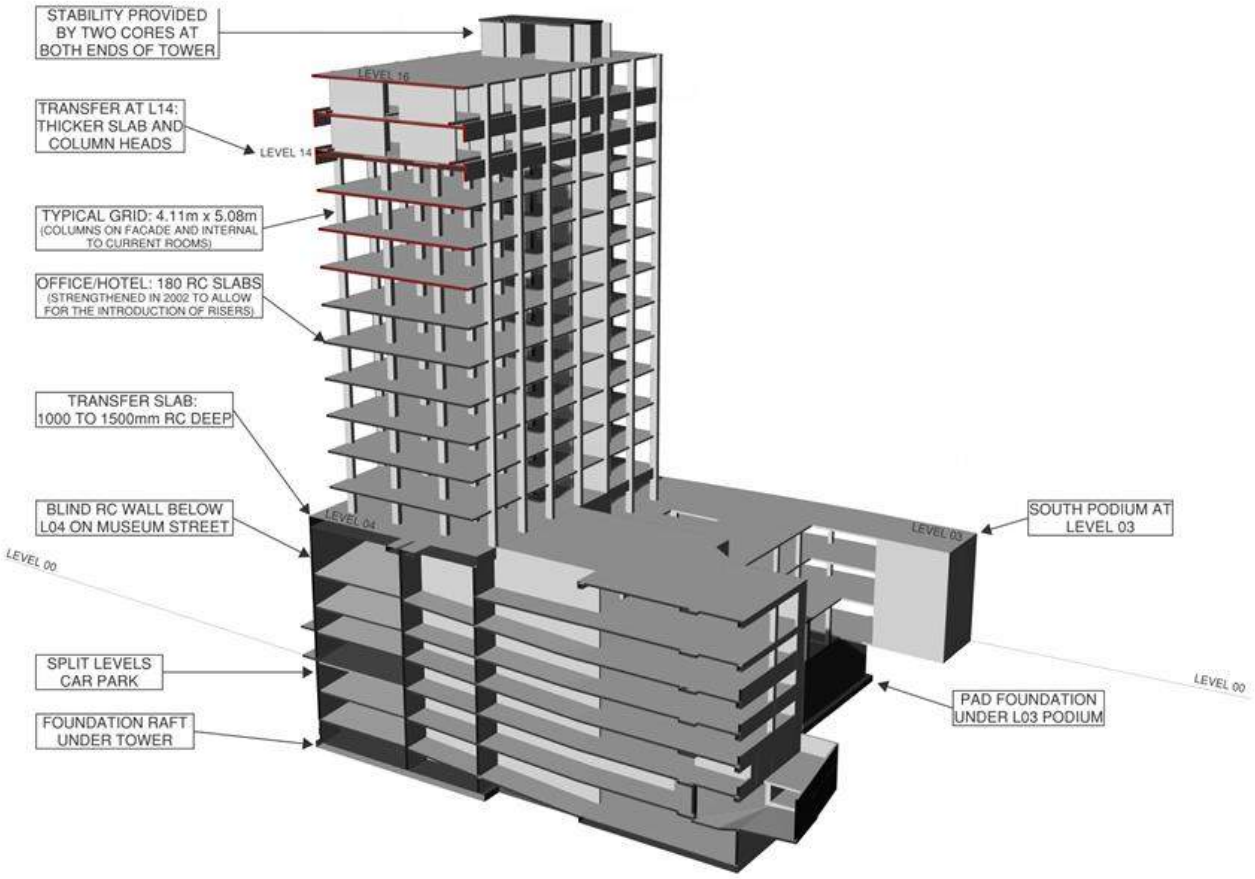


Figure 4-2: Sketch of existing structure

Figure 4-3: Section through the existing building

4.1.1 Materials

The building is reinforced concrete construction throughout utilising 180-200mm flat slabs with RC columns in the tower area and column & beam arrangements in the low-rise block.

An edge beam runs around the perimeter of the tower floor plates which supports to the original concrete cladding and the 2002 over-cladding.

4.1.2 Grid Spacing

Generally the columns are at 13’ 6’’ (4.11 m) x 16’ 8” (5.08 m) centres between level 4 and 14, with the upper two storeys (levels 15 and 16) supported on RC walls, which span onto the columns.

The columns in the lower floors and basement are typically at 7.5 x 4.0 centres in the front part of the building and 9.7 x 8.2m centres towards the rear.

4.1.3 Stability

Current stability above level 4 is achieved by two core systems located at the two ends of the tower, housing the stairs and lifts. A ‘H’ wall and perimeter wall are present below level 4 and continue to the basement levels. These are assumed to contribute significantly to the current stability strategy and support the transfer deck at 4th floor. The southern core also continues to basement level.

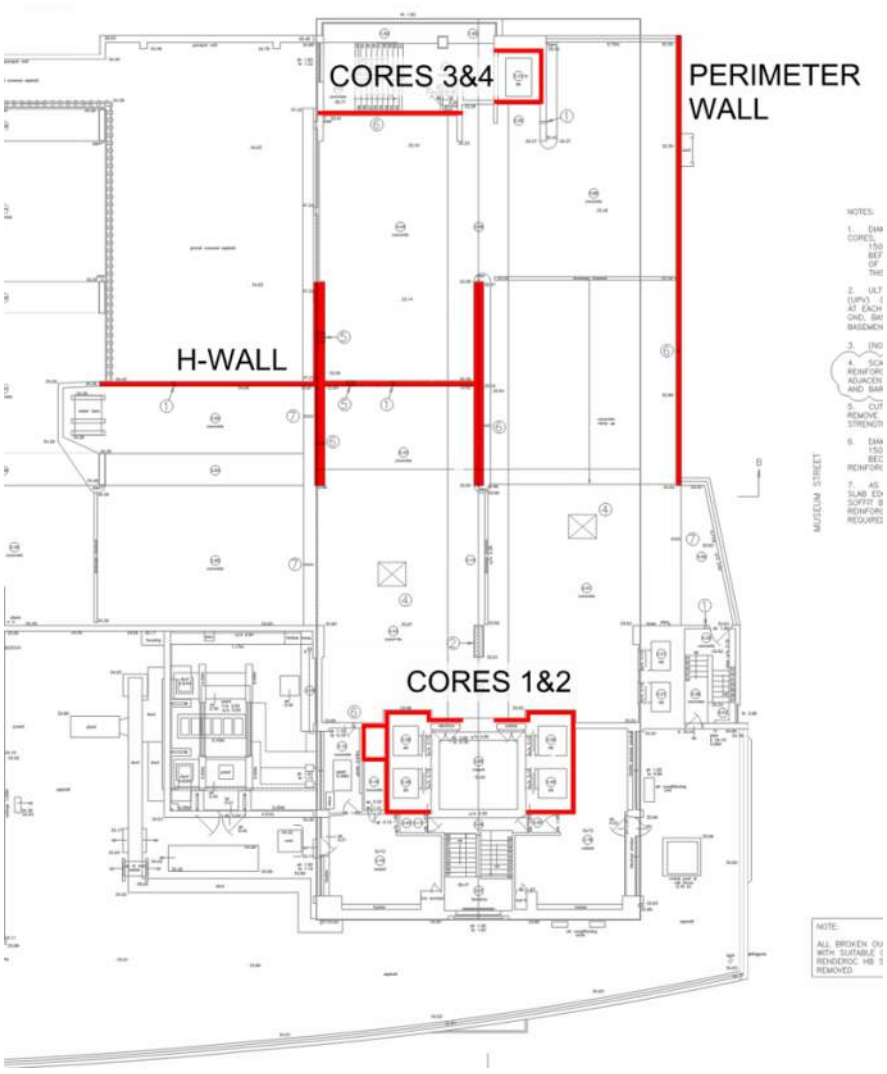


Figure 4-4: Existing stability arrangement below level 4

4.1.4 Load Paths

There are two levels of transfer at high level. At level 15, the 'walled' structure of the top two floors is supported by the slab and transferred onto the column arrangement in the hotel floors.

At level 4 the hotel structure is picked up by a complex transfer system, with an estimated depth of 1000mm to 1500mm, composed of solid slabs and localized downstands. This allows for the change in use between the car parking below and hotel above.

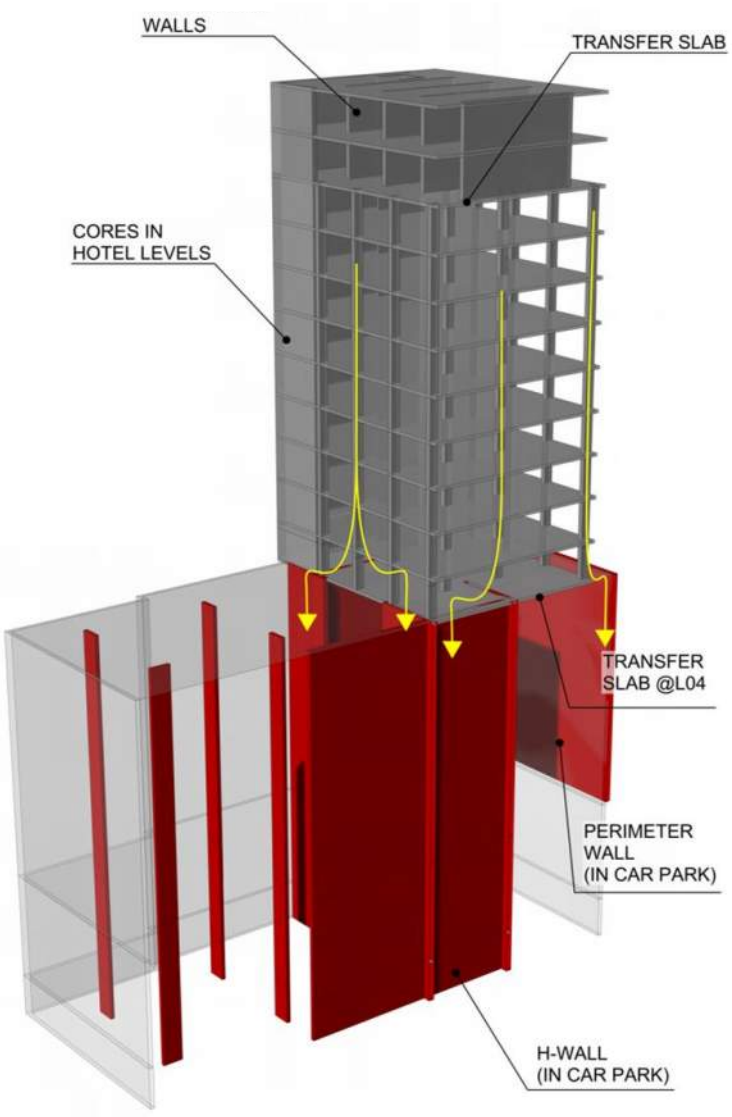


Figure 4-5: Sketch indicating existing load paths

4.1.5 Basement

The existing basement accommodates car parking to the North and plant / office space to the South. The car park has split levels and it is thought the footing levels follow the falls of the car park slabs. Figure 4-6 illustrates the anticipated existing top of slab levels for the lowest basement slab in each area.

There is a concrete ramp to the North-West of the site. Recent trial pits has revealed the presence of a void beneath part of the ramp slab. Further investigation works are required to understand the depth and extent of the void.

The area of basement to South-West of the plot is 1 storey deep and contains an active UKPN substation. The substation serves the development as well as the surrounding area. It is proposed to decommission

and relocate the substation out of the basement area. The substation will need to be decommissioned prior to the start of demolition.

The basement walls are approximately 300mm thick reinforced concrete propped by the intermediate sloping basement slabs. These basement walls appear to thicken to 450mm thick at B2 level.

Meinhardt have produced drawings and sections of existing basement based on historic drawings. These can be found in Appendix D.

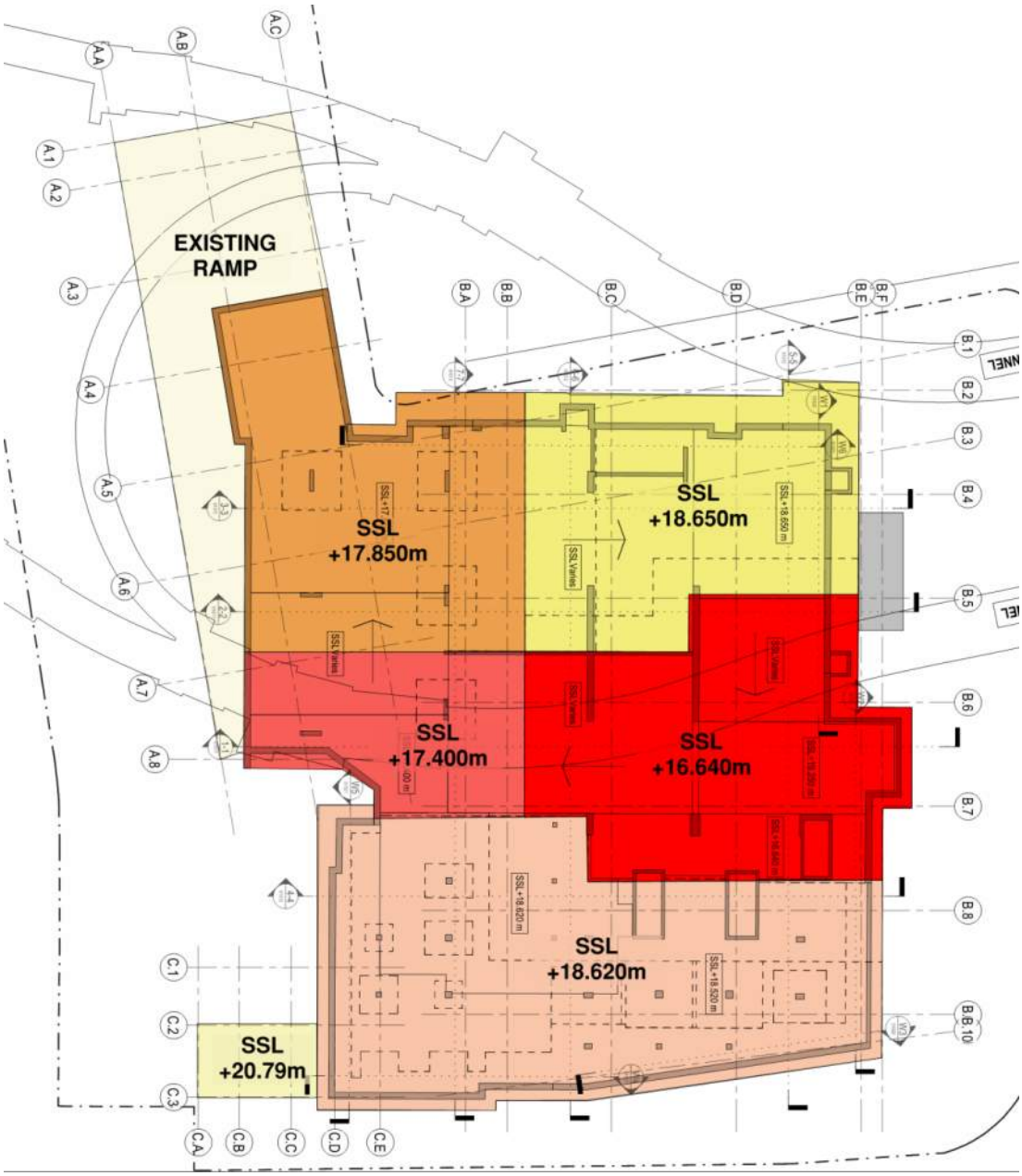


Figure 4-6: Anticipated existing basement slab levels

4.1.6 Foundations

The foundations consist of spread foundations bearing onto the stiff clay strata at approximately 6m below ground level. Available information indicates that there is a RC raft below the tower, thought to be approximately 1m deep, with 750mm to 1m thick pads supporting surrounding columns.

The raft appears to follow the falls of the car park slabs. This will be confirmed via trial pits that have been specified.

5 Proposed Superstructures

This section will detail the above ground structures that are proposed within the 1 Museum Street site, referred to as 1 Museum Street, Vine Lane and High Holborn. The proposed structures bear onto a shared basement structure. The proposed basement comprises of a new basement in the location of existing ramp in addition to the existing basement. Figure 5-1 illustrates the relationship of the proposed basement extent to existing and shows the footprints of structures above ground.

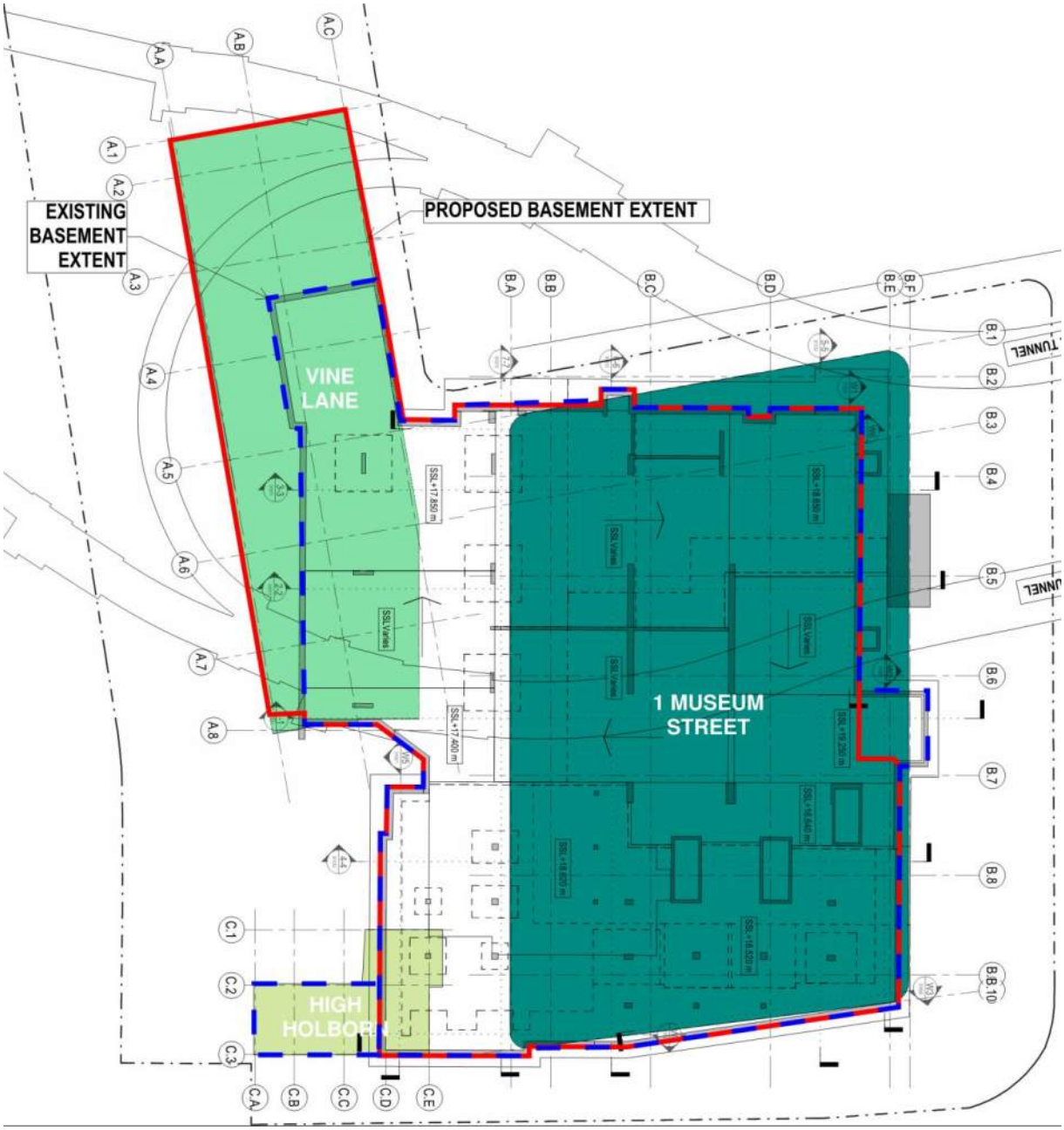


Figure 5-1: Illustration of existing and proposed basement extents with proposed building footprints

5.1 1 Museum Street

This is a single new building rising to 19 storeys, providing office (Class E(g)(i)) accommodation on upper levels and a range of flexible town centre uses (Class E) at ground level. A steel frame with precast planks is proposed.

5.1.1 Frame

A typical structural grid of 10.5m by 7.5m is proposed. Primary beams span 7.5m along the facade and support 10.5m long secondary beams at 3.75m centres. Secondary beams typically span from façade to core.

The typical floor structure is proposed as 100mm thick solid precast planks with a minimum 50mm structural topping, acting compositely with steel beams. Planks are located over the top of steel beams.

Columns are proposed to be RC from basement to ground and the superstructure columns will be steel. These are standard universal column sections and columns reduce in size every two floors to lighter and smaller sections higher up the building. Splices will therefore be required every two levels.

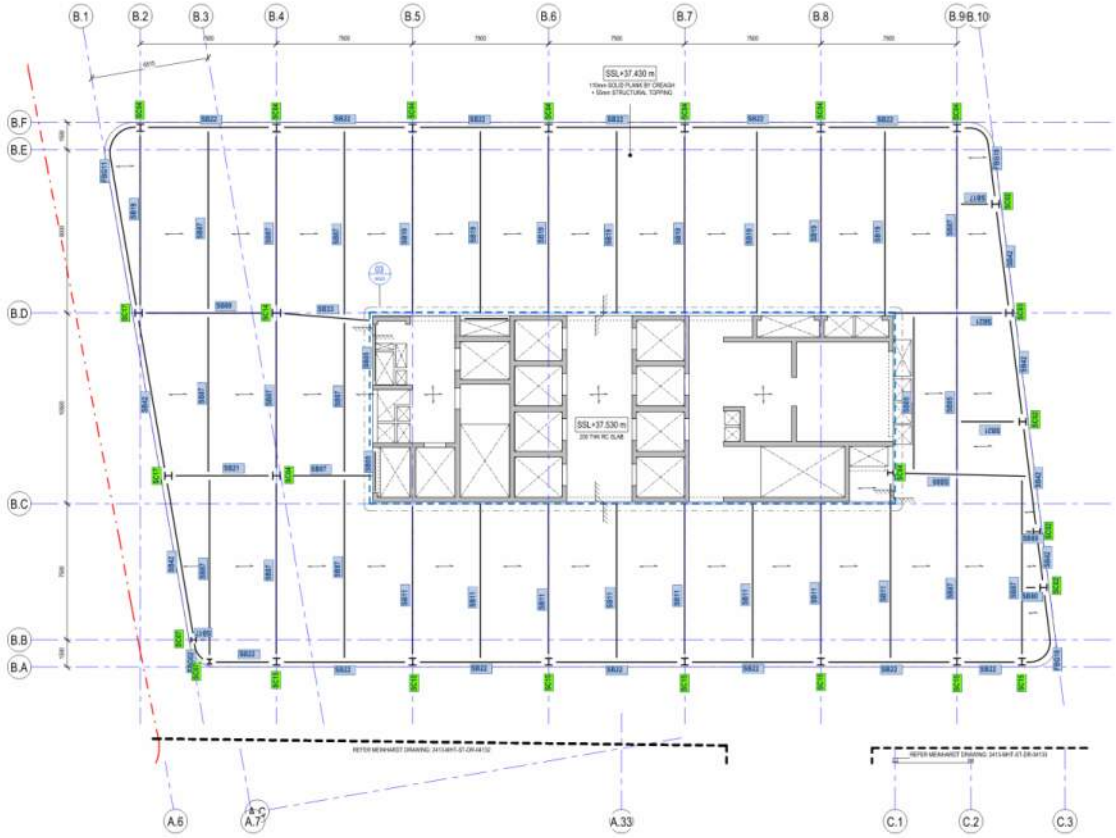


Figure 5-2: Typical floor for 1 Museum Street

5.1.2 Core & Stability

The building is stabilised by 250m thick reinforced concrete shear walls around the lift and stair cores. The walls increase to 300mm thick from basement to ground due to the increased floor height and resultant slenderness.

The sides of the lifts and stair have been kept shear wall free to allow for feature glazing. Beams at floor level have been provided in order to support the façade and provide a couple between adjacent walls. If the core is slip formed, temporary props are likely to be required to some of the walls which are not tied to the walls around them in order to prevent them buckling.

5.1.3 Transfer structures

Transfer structures are required at levels 18, 11, 8 and 5 where the building footprint changes. Transfer structures have been designed to suit a limited structural zone and as such, heavy plated box girders are required.

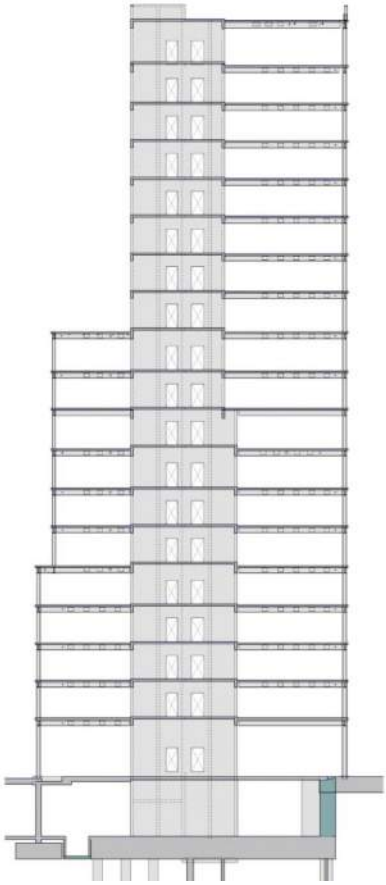


Figure 5-3: Building section showing change in footprint and transfer levels

5.1.4 Façade

Lightweight metal cladding is proposed and will affix to the floor deck at each floor level in accordance with the façade engineers details.

5.2 Vine Lane

This is a single new building rising to 5 storeys, providing office (Class E(g)(i)) accommodation with a flexible town centre use (Class E) at ground level. The office (Class E(g)(i)) floorspace within this building will be operated by LABS as a co-working offer. A reinforced concrete frame is proposed.

5.2.1 Frame

A typical structural grid of 7.2m by 7m is proposed. Typical floors are 275mm thick reinforced concrete flat slabs, supported by 400 x 400mm square RC columns located at grid positions. The frame is proposed to be constructed using insitu concrete. Transfer structures span between the secant piled walls at Ground floor level to support the superstructure columns.

Figure 5-4: Typical floor for Vine Lane

5.2.2 Core & Stability

The building is stabilized by 250mm thick reinforced concrete shear walls around the lift and stair cores. An additional shear wall is provided to the North of the structure to aid in resolving any resulting twist in the structure due to the off-center core. The walls increase to 300mm thick from basement to ground due to the increased floor height and resultant slenderness.

5.2.3 L05 plant enclosure

The level five plant enclosure is proposed to be constructed using RC beams and columns to form a group of moment frames. The RC structure is required to support the façade and acoustic louvre panels to the walls and roof.

5.2.4 Façade

Precast concrete façades are proposed for the majority of the structure. The precast façade will be hung directly from RC columns. Along the West elevation, adjacent to neighboring building, a cavity block wall is proposed and this will be supported from RC flat slabs.

5.3 High Holborn

This is a single new building rising to 6 storeys, providing residential (Class C3) accommodation on upper levels and a flexible town centre use (Class E) at ground level. A reinforced concrete frame is proposed.

5.3.1 Frame

A typical structural grid of 5m x 6m is proposed. Typical floors are 250mm thick reinforced concrete flat slabs, supported by 225 x 900mm RC blade columns located around the building perimeter. The frame is proposed to be constructed using insitu concrete.

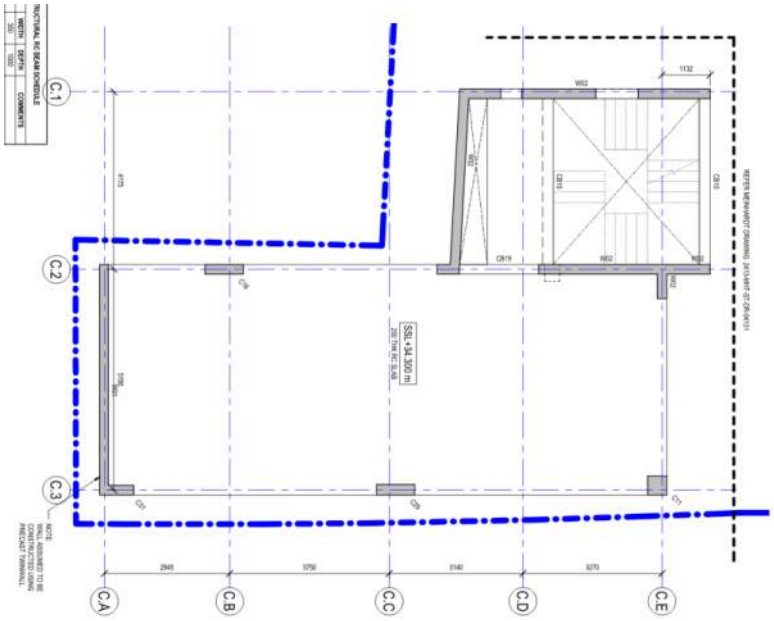


Figure 5-5: Typical floor for High Holborn

5.3.2 Core & Stability

The building is stabilised by using a combination of 225mm thick RC shear walls around the stair core and sway frame action resulting from the RC slabs and blade columns around the building perimeter. The feature stair does not allow for a consistent stair shaft up the building and so rigidity to the building is required from RC columns and slabs.

5.3.3 Transfer structures

A transfer slab is present at fourth floor to accommodate the step back in the structure at the upper level. RC transfer beams are present at various levels to accommodate changing glazing positions within the façade.

The main stair core is proposed to overhang Vine Lane by approximately 1m. The overhang is supported by cantilevered RC walls, supported on RC columns at lower levels.

5.3.4 Façade

Precast concrete facades are proposed and will be supported from RC slabs.

5.3.5 Vibration Isolation

Due to the proximity of the Crossrail tunnel, vibration isolation is required to the residential areas of the building to keep noise and vibration to acceptable levels for residents. Isolation is proposed to occur at ground level.

6 Proposed Substructures

The proposed structures bear onto a shared basement structure. The proposed basement comprises of a new basement in the location of existing ramp in addition to the existing basement. Figure 6-1 illustrates the relationship of the proposed basement extent to existing and shows the footprints of structures above ground. Proposed substructure drawings can be found in Appendix E.

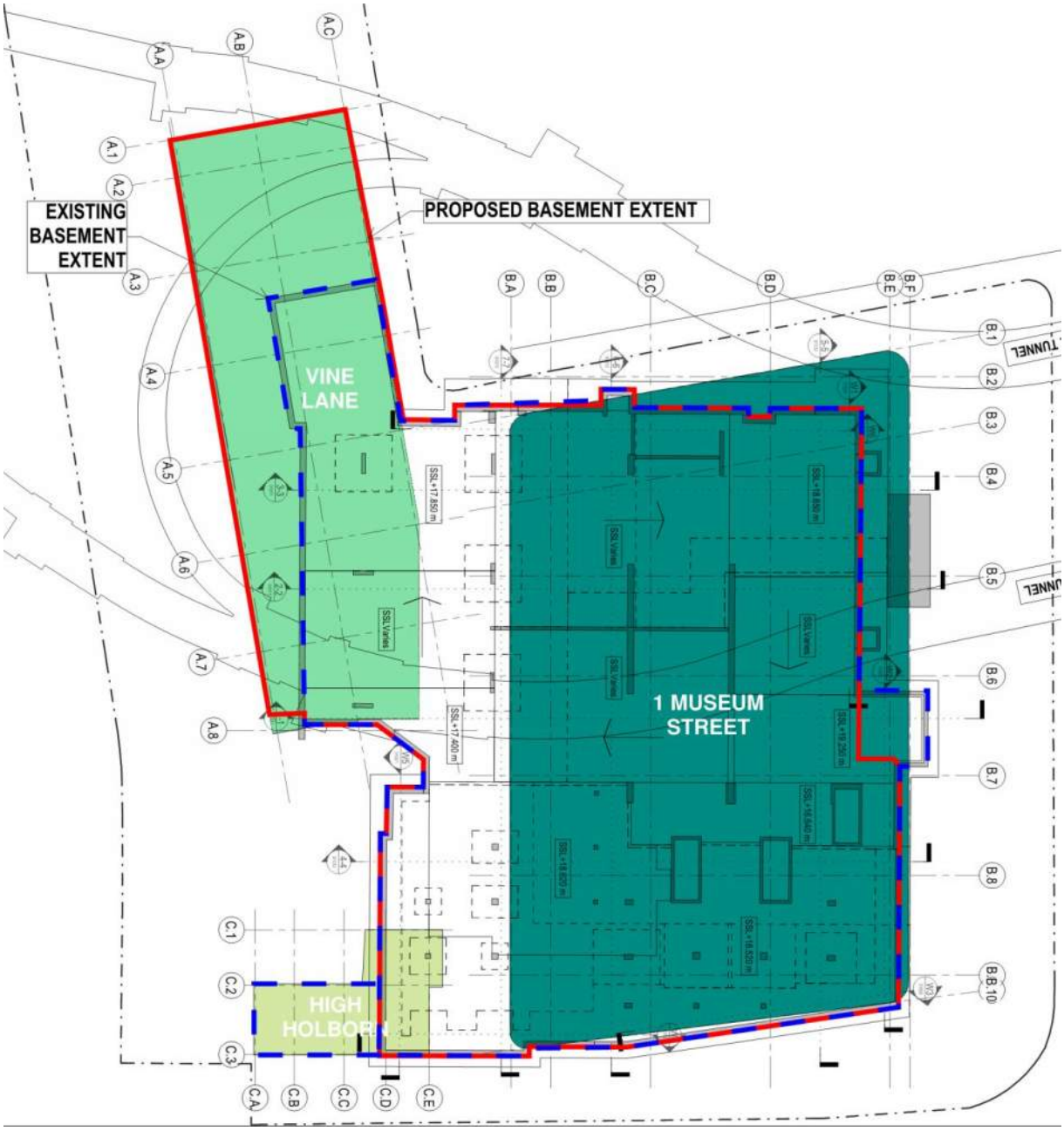


Figure 6-1: Illustration of existing and proposed basement extents with proposed building footprints

6.1 New Basement Proposals

A new basement is proposed in the area of existing ramp, below the Vine Lane block. The new area of basement will provide an extension to the existing basement footprint in the permanent condition. The basement extends approximately 6.4m below ground.

6.1.1.1 Retaining Walls

A 750mm diameter secant piled wall is proposed with 400mm thick RC liner wall, constructed using watertight concrete. A secant piled wall is proposed as made ground and lynch hill gravels are anticipated for the majority of the depth of the basement with perched water anticipated above basement formation level. The secant wall will therefore be embedded into the clay beneath these to provide water cut off.

For secant piled wall design please refer to A Squared Report. The piles will be propped in the permanent condition by ground floor and basement slabs. A mezzanine slab is present along the North and East retaining wall. Lower basement and mezzanine slabs will be connected to secant piles via dowelled connections.

The RC liner wall will be designed to resist hydrostatic pressures and crack widths will be limited to 0.2mm.

At the corner of the basement at the bottom of the current ramp, there are some existing deep underpins that look to have been installed as part of the original basement construction to prevent undermining the surrounding buildings. In these areas, it is proposed to excavate the basement and prop locally, before installing a new raft slab on top of the existing raft slab, then installing a new retaining wall in front of the underpinning.

6.1.1.2 Basement Slab

The new basement slab will be a reinforced concrete raft foundation. A 600mm thick reinforced concrete raft is proposed.

The raft slab will be designed for hydrostatic pressures in accordance with the long term groundwater level.

The highest level of existing ramp is present to the North of the site, in the location of new basement. This will also be the location with greatest heave pressures. As the proposed structure above ground is at its lowest point here, there is net uplift resulting from weight of the structure and anticipated heave pressures. Tension piles are proposed in this area to resist the resultant uplift and the raft slab designed accordingly.

6.1.1.3 Water tightness/ Ingress

The new area of basement will accommodate plant. A Grade 3 basement is proposed by the Architect, driven by the Clients request. The waterproofing strategy will be as specified by the Architect. The RC liner wall and top 300mm of basement raft will be constructed using watertight concrete to provide part of the waterproofing strategy. These structural elements will be designed to limit crack widths to 0.2mm.

6.1.1.4 Construction considerations

The piled wall is to be propped in the temporary case at ground floor level until permanent ground floor and basement slab props have gained adequate strength. The piles will extend approximately four meters into the clay to provide a water cut off in the temporary condition and to avoid protruding into the Post Office tunnel exclusion zone beneath the site.

6.2 Re-use of Existing Basement

The existing basement will be re-supported and re-used. The exception to this is the area of basement beneath High Holborn block, to the South-West of the site. This area of basement will be backfilled for the permanent condition. During the temporary condition, the top of the walls will be propped when the ground floor slab is removed and replaced.

6.2.1.1 Retaining Walls

The existing retaining walls are designed with props at B1 level and ground in the form of the B1 and ground floor slabs. The proposed basement is proposed to be double height in some areas, thus removing the propping action of the B1 slab. The existing retaining walls are proposed to be re-supported by a series of

reinforced concrete piers and waler beams. 700mm x 700mm concrete piers are proposed to be cast in situ at approximately 3m centres around the basement perimeter. Piers will span between basement and ground levels. 650mm wide x 600mm deep RC waler beams will be cast between piers and installed below existing basement slabs, to follow ramped profile and therefore maintain existing propping locations to existing retaining walls. Figure 6-2 is a section illustrating this.

A 250mm thick RC liner infill is proposed between piers and walers which will be designed to resist hydrostatic pressures.

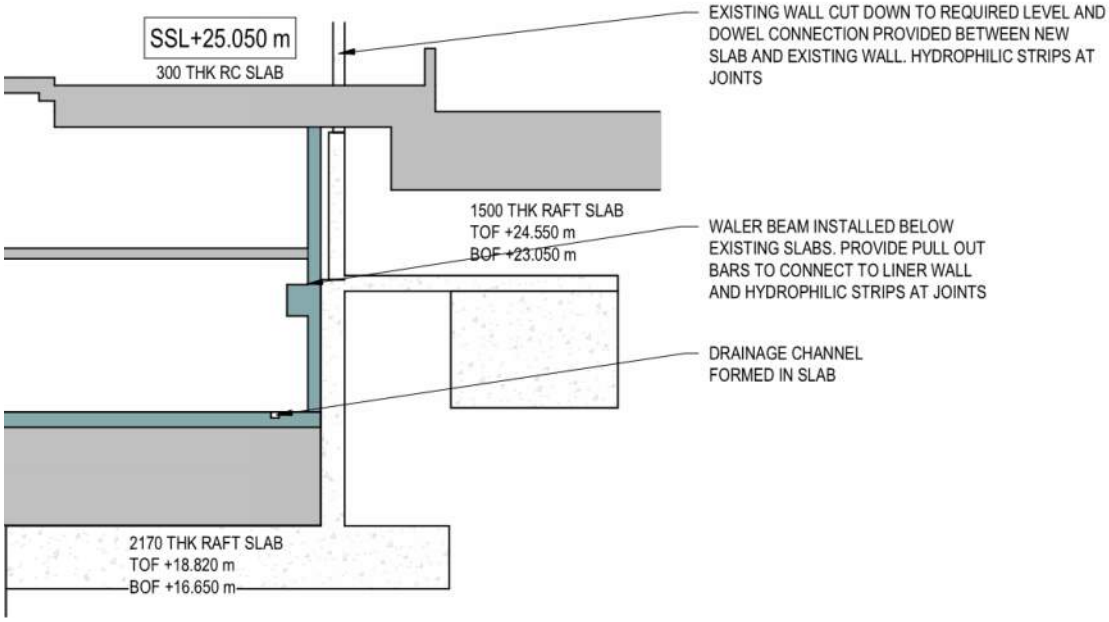


Figure 6-2: Example of retaining wall strengthening

6.2.1.2 Basement Slab

The existing basement slab and raft will be kept in place wherever possible in order to maintain stability of the existing retaining walls and avoid excessive breakout. New foundations in the form of a raft foundation and pad foundations will be built on top of the existing raft foundation. Where the levels do not allow for building on top of the existing foundations, localized areas will be broken out to accommodate new foundations. Any water ingress will be controlled as noted in the technical note on existing basement reuse and groundwater considerations provided by A Squared. Where breaking out occurs close to existing retaining walls, localized propping may be required to the walls until the new foundations are cured. The new foundations will be linked by a basement slab designed for both vertical forces and hydrostatic pressures.

6.2.1.3 Water tightness/ Ingress

The basement will accommodate plant, cycle and bin storage and loading bay. A Grade 3 basement is proposed by the Architect, driven by the Clients request. The waterproofing strategy will be as specified by the Architect. The RC liner wall and top 300mm of basement raft will be constructed using watertight concrete to provide part of the waterproofing strategy. These structural elements will be designed to limit crack widths to 0.2mm.

6.2.1.4 Construction considerations

The sequencing of works for retaining wall strengthening is critical to ensure stability of existing basement in both the permanent and temporary condition. This will be discussed and developed with the Contractor in the next stages.

6.3 Foundations

The foundations consist of spread foundations bearing onto either existing basement slab structure or the stiff clay strata at approximately 6m below ground level. Existing basement also bears onto the stiff clay strata. An acceptable bearing pressure of 250kN/m2 has been assumed for design, to be used in accordance with Eurocode 7 Design Approach 1 Combination 2 and in accordance with the A Squared technical notes and desk study. Settlement and movement control piles have been provided under the main footprint of the tower in order to control overall settlements and movements of the Post Office tunnels below the site.

7 Construction sequence

The proposed construction sequence at this stage is as noted below and illustrated in sketches within Appendix F.

All works are to be carried out to minimise noise and vibration to neighboring properties and surrounding third party assets.

7.1 Phase 1

1. Decommission existing substation prior to demolition.
2. Soft strip all floors, including basement.
3. Install Scaffold above level 04 (on Western facade) and level 00 (on North, South and Eastern facade). Scaffold on Western facade is supported on slab, thus temporary works may be required to spread load at that level. Scaffold on other elevations will be supported at grade, and may need to be coordinated with services within pavement. On the Eastern facade, part of the scaffold will be located above the petrol tank, thus internal propping at that location through the tank may be required to support the scaffold.
4. Remove facade panels installed during 1990's works.
5. Locally demolish existing B2 slab and B1 slab where required to install movement control piles around the Post Office tunnel and footprint of the basement, leaving a doughnut to prop the existing retaining walls or temporary props. Prop retaining walls / columns horizontally locally where required and prop slabs vertically where required.
6. Install the movement control piles around the Post Office tunnel using a low headroom pile rig before demolition reaches 4th floor transfer slab level.
7. Demolition of tower structure commences / has already commenced.

7.2 Phase 2

1. Demolition of the tower can continue to / past level 04 now that the movement control piles have been installed around the Post Office tunnel.
2. Install settlement reducing piles and bearing piles within the footprint of the existing basement using a low headroom pile rig whilst demolition of the tower continues. Note that the piles are not required to be installed at the same time as the movement control piles.
3. Remove existing ramp slab and backfill existing ramp void area with demolition rubble and use as a pile mat at grade (subject to survey or existing void under ramp to establish what is there). The existing retaining wall footprint would likely need to be propped ahead of piling works. Surrounding underpins to also be propped (tbc on survey works).

7.3 Phase 3

1. Demolish tower down to Ground floor.
2. Temporary works will be required to support the existing thick transfer slab during demolition in the form of a hung deck below the level 04 beams).
3. Install scaffold over ramp area, now filed with demolition rubble
4. Install Foundation bases / ground beams and part of the new raft to support the retaining wall strengthening
5. Form pockets in slabs to install wall strengthening piers where required. Form wall strengthening piers and beams, leaving pull out bars for liner wall to be installed later
6. Upon demolition of levels above ground and removal of scaffold, infill petrol tank, vents and zone south of existing petrol tank within existing basement with demolition rubble and / or engineered piling mat
7. Install engineered piling mat / spreader plates for piling outside the footprint of the building and around the tree root protection areas

7.4 Phase 4

1. Demolish the rest of the basement slabs and ground floor slab. Prop at ground floor level at top of wall and also where required around areas to be piled at grade.
2. Cast 1 Museum Street raft foundation and pad foundations along with below ground drainage and attenuation tank.
3. Install secant piled wall, remove piling mat and install capping beam in ramp area.
4. Install bearing piles north and east of existing basement.
5. Demolish High Holborn building, install props at ground floor before demolishing ground floor slab and cast new foundations on top of existing.

7.5 Phase 5

1. Install temporary props at capping beam level to support piled wall. Install raking props to existing underpins / walls.
2. Remove demolition fill down to basement formation level.
3. Demolish existing building and retaining wall within new basement area.
4. Install new raft foundation to new basement and liner wall and install pile caps to foundations outside the basement footprint.
5. Install B2 level slab throughout basement.
6. Slip / jump form core.

7.6 Phase 6

1. Install verticals and B1 slabs.
2. Install ground floor slab and then remove temporary props.
3. Continue with core construction and construct superstructure.

8 Monitoring Strategy

8.1 Post Office Tunnels Monitoring

An appropriate monitoring regime will be implemented to ensure the deformations of the Post Office tunnels do not exceed predictions from the ground movement assessment. The exact requirements of the regime will be finalised with the Royal Mail Group asset protection team, but will include the following as a minimum:

- Three months of baseline monitoring pre-demolition, including in advance of any soft stripping.
- Monitoring during demolition, excavation and construction works at a frequency agreed with the Royal Mail Group asset protection team.
- Post-construction monitoring until the tunnel movements reduce to approximately 2mm/year.

8.2 Surrounding Buildings Monitoring

A detailed structural monitoring strategy will be developed to control construction works and maintain movements / damage impacts that are within the predicted limits and tolerances. This will include the following:

- A structural monitoring layout plan of instrumentation / survey points / critical sections, especially for the Grade II listed 43-45 New Oxford Street, Bloomsbury Public House and Queen Alexandra Mansions in close proximity to the site.
- Monitoring of the earth retention systems (West Central Street underpins, Vine Lane secant pile wall and existing underpins, and Selkirk House reinforced concrete retaining walls) to enable continuous review of vertical and lateral deflections.
- Programme / frequency of monitoring.
- Trigger values derived for each of the structures within the zone of influence of the proposed works.
- Contingency actions and project team lines of responsibility in the management of the monitoring works.

9 Civil Engineering

9.1 External Drainage, Primary Drainage Routes, and SuDS Strategy

The proposed development does not include any major works to the public sewer network, except for new 150mmØ sewer connection from the developed site. Therefore the external public sewer network surrounding the site is to remain as existing.

The Thames Water asset records indicate there are existing public combined sewers surrounding both the West Central and the Museum Street sites. The CCTV drainage survey for the site has confirmed that the existing developments are draining foul and surface water into the Thames Water combined sewers located in West Central Street, High Holborn, and New Oxford Street. The proposed development will provide new private drainage routes within the site boundary, however, will not later the Thames Water sewer drainage routes.

The proposed SuDS strategy for the Museum Street and West Central Street developments will include a combination of blue and green roofs draining into below ground attenuation tanks. The proposed SuDS strategy will allow both the West Central Street and the Museum Street sites to discharge surface water at the restricted rate of 5l/s per site, as per the agreement with Camden Borough Council.

The proposed SuDS strategy does not include any infiltration drainage, nor will the site discharge to a water course. By restricting the surface water discharge rate to 5l/s per site a combined volume of circa 250m³ of surface water attenuation will be provided onsite.

9.2 Surface Water, Sewer, and Ground Water Flood Risk

The proposed development is located within Flood Zone 1, an area that will not flood in a 1,000 year fluvial event, therefore, the Flood Risk to the site is considered to be very low. Figure 9-1 below, has been taken from the Environment Agency (EA) Flood Mapping for Planning, which shows the site is located within Flood Zone 1.

Figure 9-1 Environment Agency Flood Mapping for Planning

The EA flood maps indicate that there is la low to very low risk of surface water flooding onsite or in his vicinity, see Figure 9-2 below.

On review of the Strategic Flood Risk Assessment (SFRA) for the London Borough of Camden, the proposed development is shown to be located within a critical drainage area (Camden specific area Group3_005). However, the SFRA shows there has been no recorded surface water flooding events near the proposed development. Therefore, the risk of surface water flooding is considered to be low.

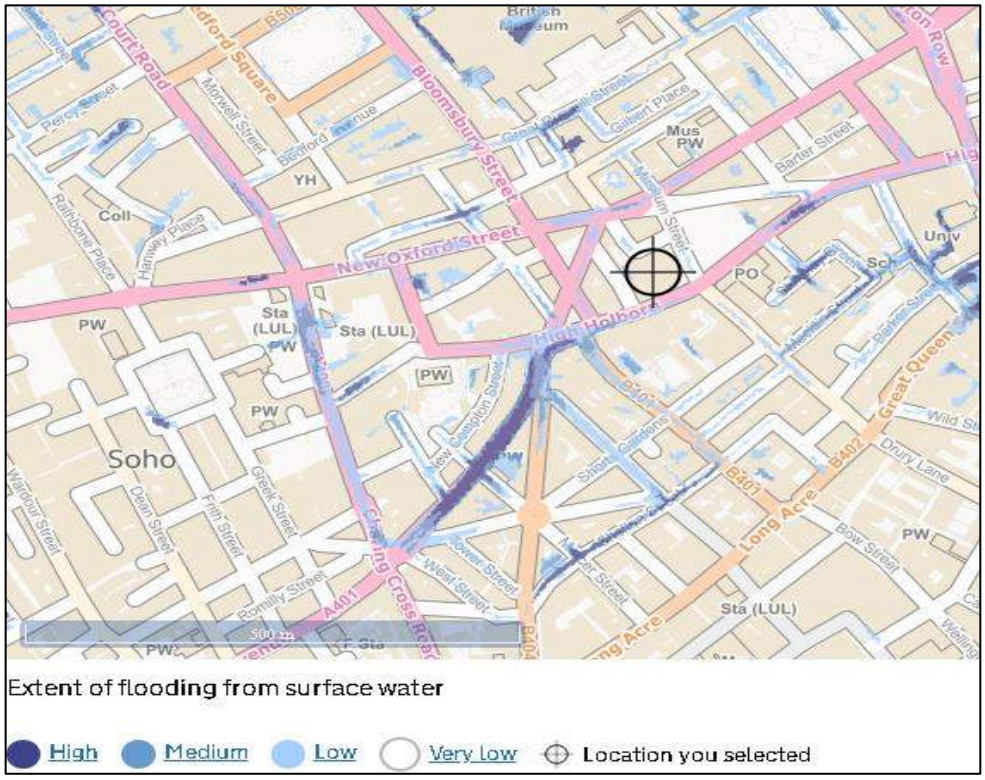


Figure 9-2 EA Surface Water Flood Risk Mapping

Ona review of the Site Investigation Report for the development, the presence of groundwater was note. However, this presence is likely to comprise of a perched groundwater table, located within the more permeable materials of Made Ground and Lynch Hill gravels overlying the low permeability London Clay formation.

The groundwater identified in the soils surrounding the site is thought to be seasonal above the London clay soil formation at a depth of 3.5m below ground. The proposed drainage networks will be designed to accommodate the potential presence of seasonal perched groundwater to ensure no groundwater is drained into the public sewer.

The perched groundwater does not pose a Flood Risk to the site in the final condition. However, could present a potential issue during the construction of the development and works beneath the basement. The contractor is to be made aware of the potential presence of groundwater and is to ensure the health and safety requirements are incorporated onsite.

9.3 Utility Plans

9.3.1 Thames Water Sewers

The Thames Water asset records have been obtained for the proposed development, and a snippet of the asset records is shown in Figure 9-3 below. The asset records show the public sewers surrounding the proposed development and show that there are no public Thames Water sewers crossing the site.

The proposed excavation works onsite are located outside of the 3m build over easement zone enforced by Thames Water and therefore it is not envisioned that the proposed basement works will affect the Thames Water sewer assets.

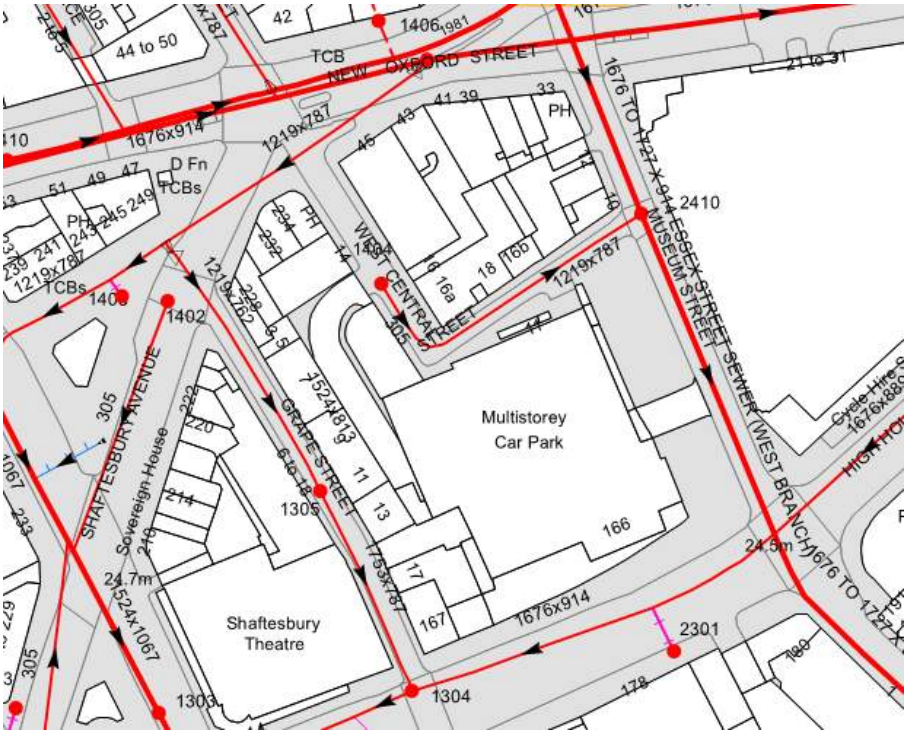


Figure 9-3 Snippet of the Thames Water Asset Records

10 Design Criteria

10.1 Design Life

The structure will be designed for a minimum design life of 50 years. This is based on UK practice and as per both BS EN 1990:2002+A1:2005 (Clause 2.3 (1), Table 2.1) and the UK National Annex (Clause NA.2.1.1, Table NA.2.1), design working life to be 50 years (design working life category 4).

10.2 Robustness

1 Museum Street structure is categorised within the Building Regulations and BS EN 1991-1-7:2006 as Class 3. Both Grape Street and High Holborn structures are categorised as Class 2B (residential buildings and offices exceeding 4 stories but not exceeding 15 stories).

Adequate horizontal and vertical ties will be provided, or demonstration that removal of load bearing elements does not result in disproportional collapse of the building. If the area of collapse is greater than permitted, the element will be designed as a key element for a design load of 34kN/m^2. A systematic risk assessment will be completed for 1 Museum Street structure.

10.3 Fire rating

The fire rating for structural elements within basement and 1 Museum Street is to be 120min.

Four hours fire resistance is required for elements adjacent or within the substations at ground floor.

The fire rating for structural elements within Grape Street and High Holborn is to be 60min.

Fire protection to the concrete elements will be achieved by providing adequate cover to the reinforcement and minimum concrete section sizes as recommended in BS EN 1992-1-1.

Fire protection to the steel elements will be achieved by intumescent paint coatings.

10.4 Movements

Typical deflection limits used for design are summarised in the table below.

Criteria	Limit
Total long term vertical deflection in slabs and beams	SPAN / 250
Total post-construction vertical deflection of slabs and beams supporting facade	MAX 10mm.
Horizontal inter-storey drift	STOREY HEIGHT / 400
Horizontal building sway	BUILDING HEIGHT / 500

Table 1: Deflection Limits for Design

Movements and tolerances will be discussed in more detail in Meinhardt's Movements and Tolerances report to accompany Stage 3 design.

10.4.1 Foundation Settlements

A Squared have carried out analysis of foundation settlements in the GMA and have included technical notes on the piled raft design. In general, absolute raft settlements are limited to 50mm, with maximum differential settlements between any column / core limited to 1/500. Impacts on below ground assets are assessed in the ground movement assessments produced by A Squared.

11 Investigations

11.1 Completed Investigations

A series of investigations have been completed to date, including:

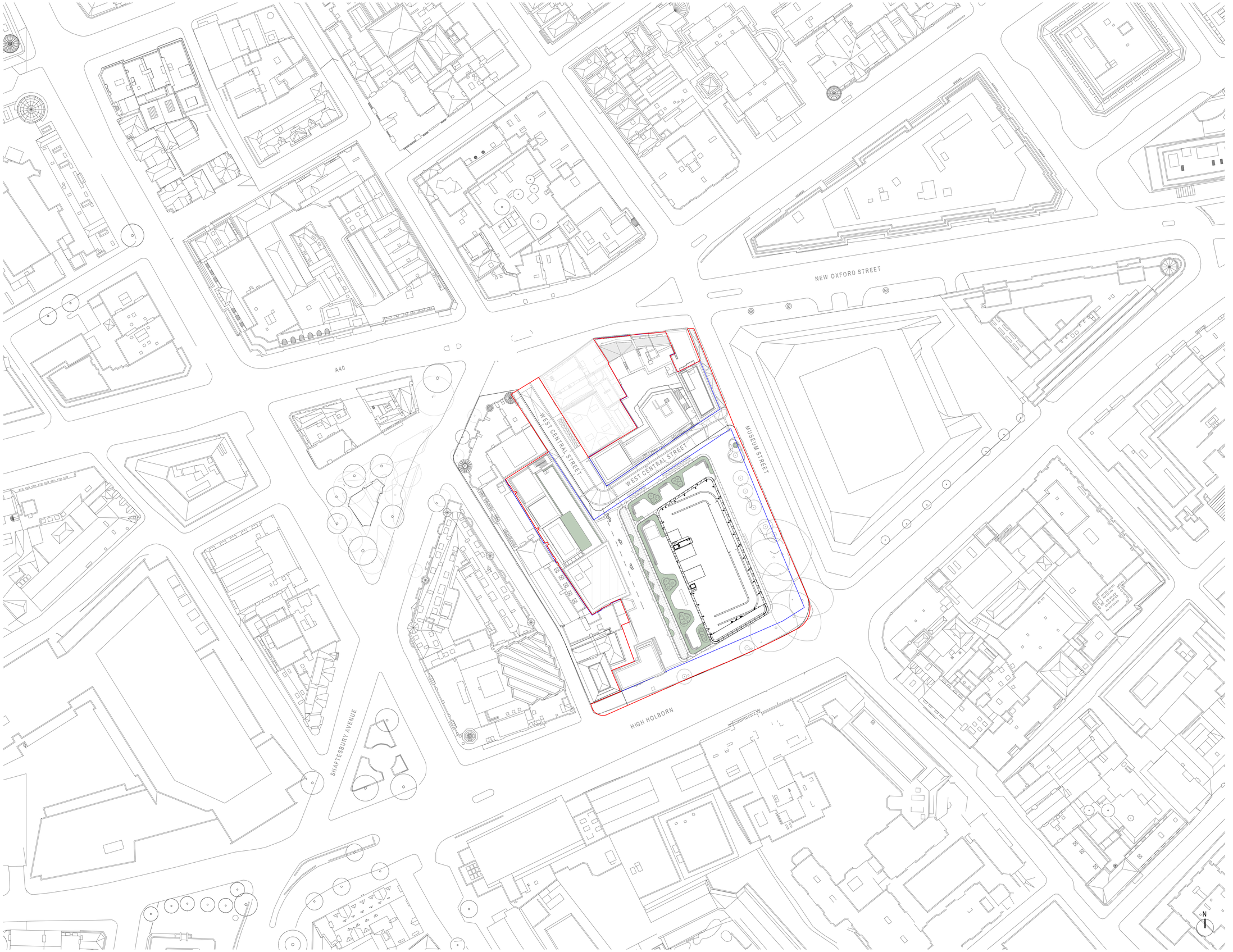
- Geotechnical desk study
- Trial pits / cores within the existing basement footprint to verify existing foundation and slab depths
- Measured surveys of the existing building and UKPN substation
- Trial pits to the perimeter of the existing basement at ground level to establish the ground buildup and as to whether historical sheet piles (or similar) exist around the basement footprint
- Utilities survey
- CCTV survey of Thames Water beneath West Central Street

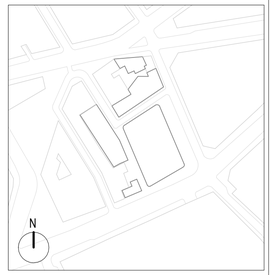
11.2 Further Investigations Required

The following investigations are required to better understand the site. Development proposals will be reviewed against investigation data.

- Site-specific ground investigation, including boreholes, gas and groundwater monitoring.
- Understanding of void extent and depth beneath existing ramp.
- Understanding of purpose of basement Vent to West of site.
- Additional trial pits to establish:
    - Verification of underpinning detail to neighbouring structures along Grape Street western boundary
    - Existing foundation to neighbouring property to the North of Grape Street block.
- Opening up works to establish:
    - Thickness, concrete strength and condition of existing basement walls and footings
    - Verification of assumptions for existing structure

Appendix A – Site Boundary





GENERAL NOTES:

The internal layouts within residential apartments and ancillary areas of buildings will be subject to design development.

The precise location of walls, internal doors, columns, risers and the detailed layout of bathroom and kitchen areas will be the subject of non-material changes and may vary from the internal layouts set out in these plans.

These minor alterations will not affect the position and arrangements of external doors and windows nor will they affect the relative relationship between habitable rooms and windows.

Landscape proposals are indicative only, refer to Landscape Architect information for details.

Plant layouts are indicative only.

All materials shown or highlighted are indicative only and may be subject to changes made during detailed design development.

KEY

Site Boundary

Ownership Boundary

A	25.01.21	LR	STAGE 3 DESIGN FREEZE
-	14.09.20	RPJ	Stage 2 Issue

COORDINATION

rev	date	author / check	comments

DSDHA
357 Kennington Lane London SE11 5QY
T 020 7703 3555
F 020 7703 3890
E info@dsdha.co.uk
W www.dsdha.co.uk

project

Museum Street
1 Museum Street

Labtech

drawing title

Proposed Site Plan

drawn	size	date	scale
DSDHA	A1	28/08/20	As indicated

drawing number	revision
295 -DSD -SITE -ZZ --DR -A --20.003	A

Appendix B – Constraints Drawings

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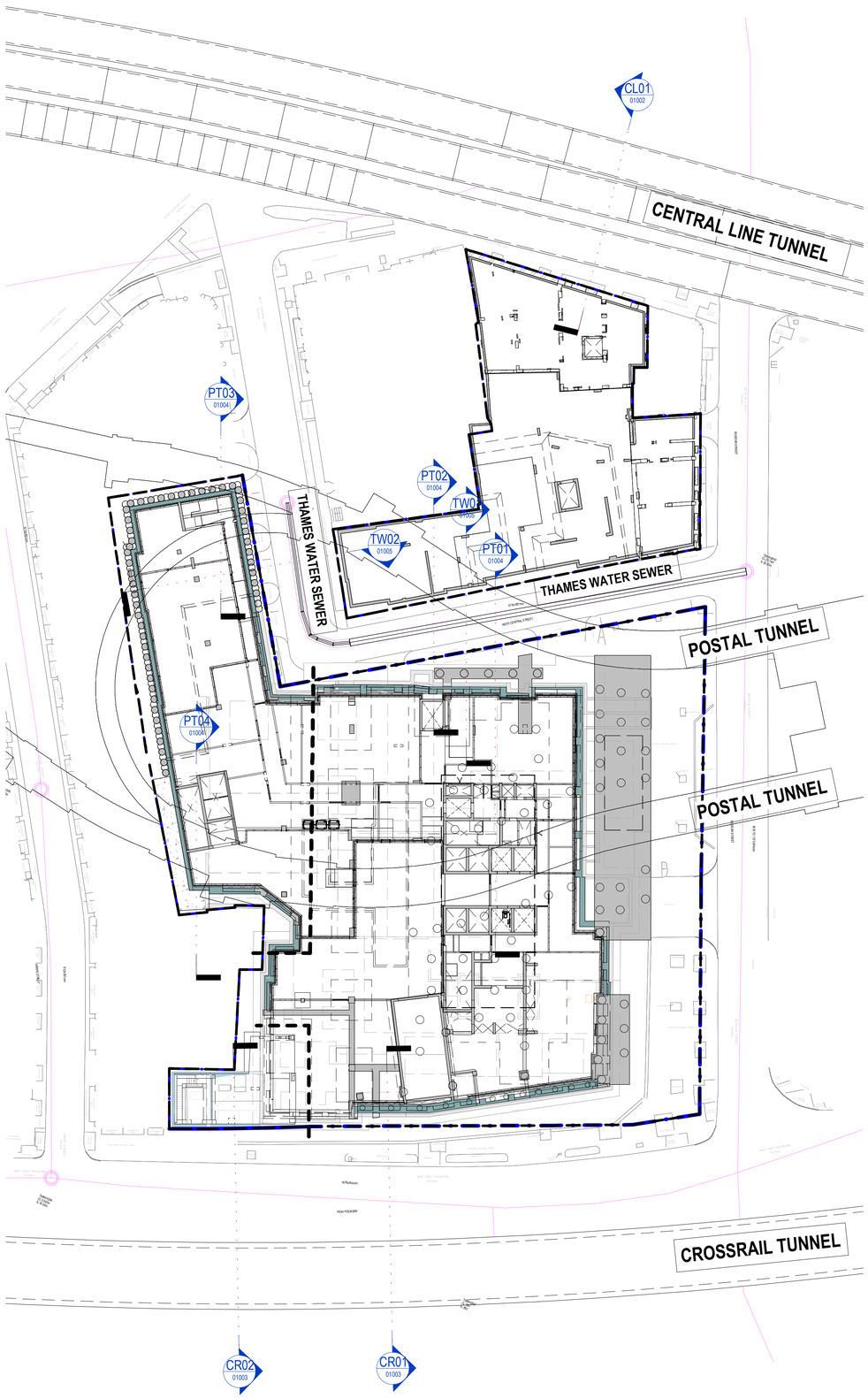

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P02	STAGE 3 ISSUE	LM	26/01/2021
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LABTECH

TITLE
EXISTING TUNNEL PLAN AND BELOW GROUND ASSET PLAN

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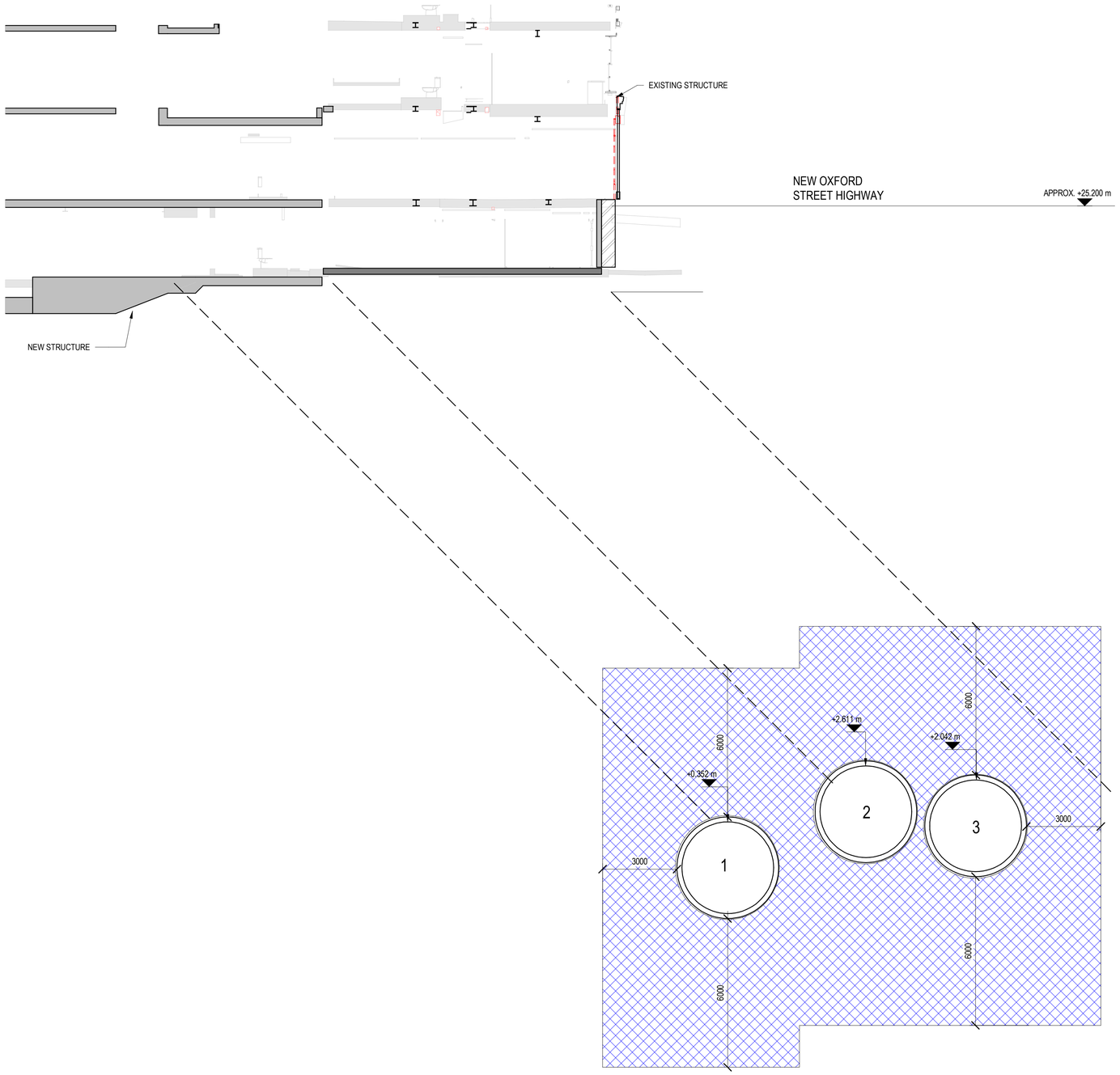

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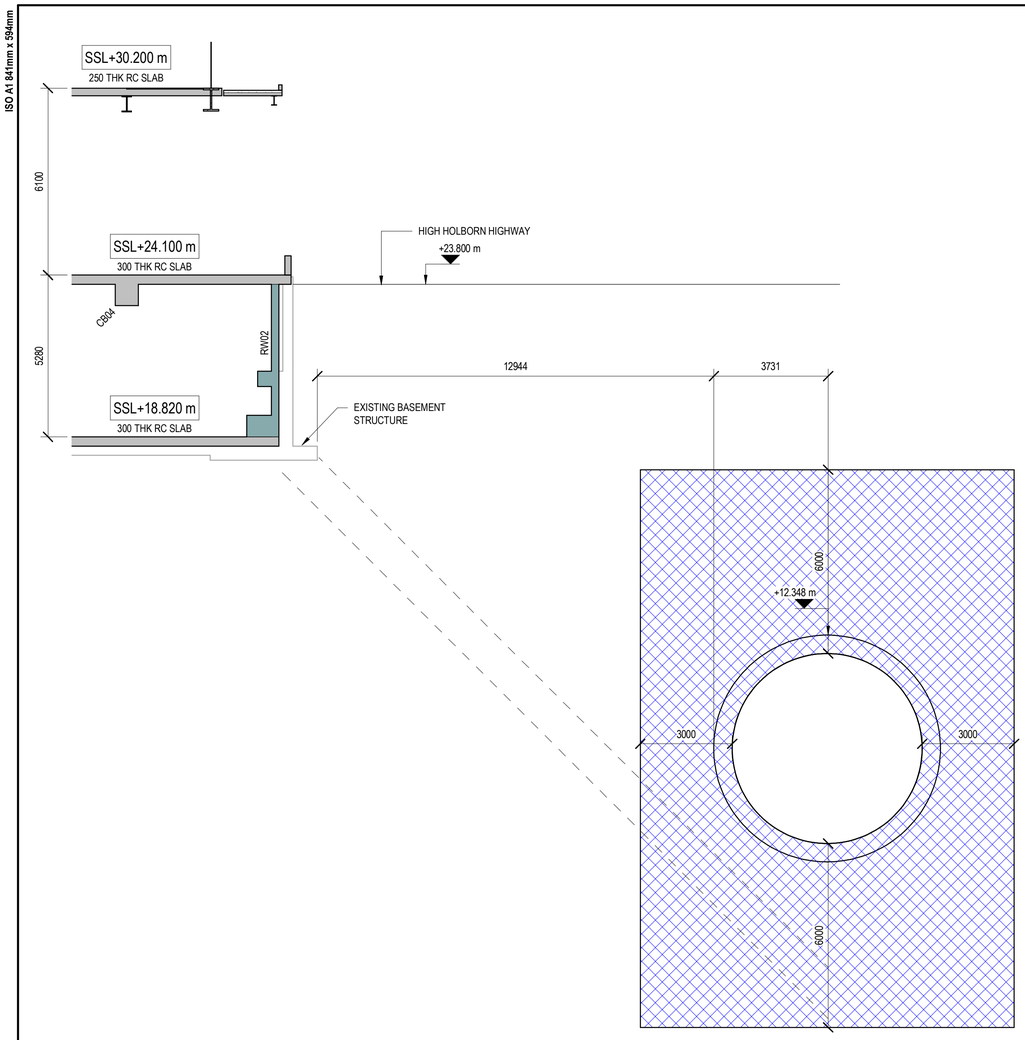

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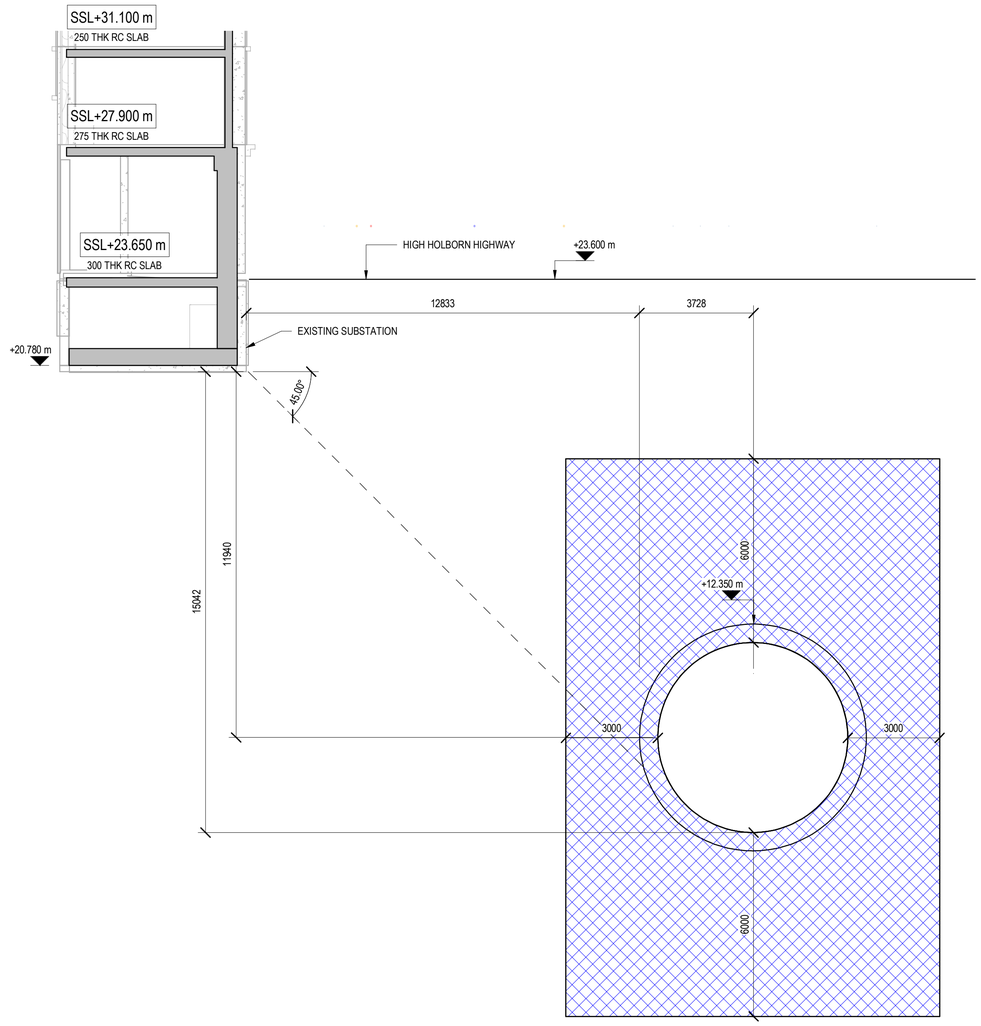

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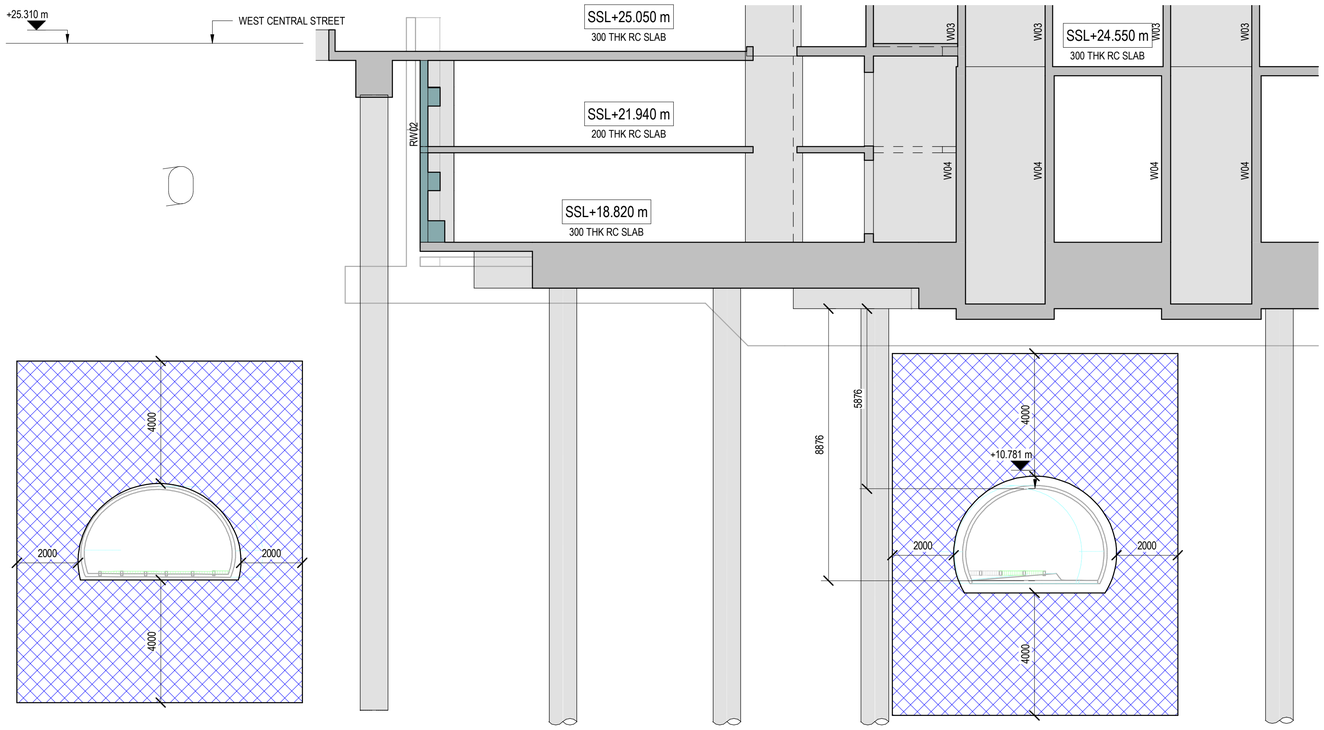

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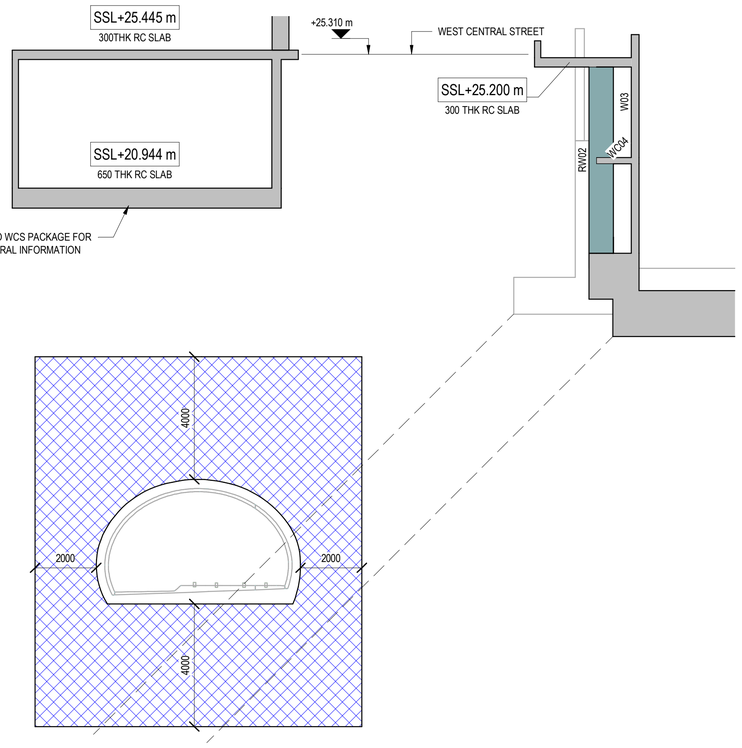

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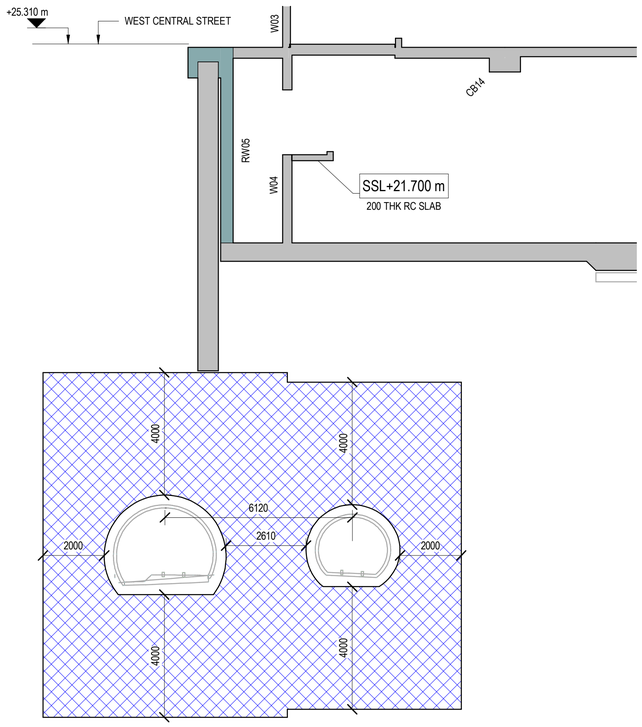

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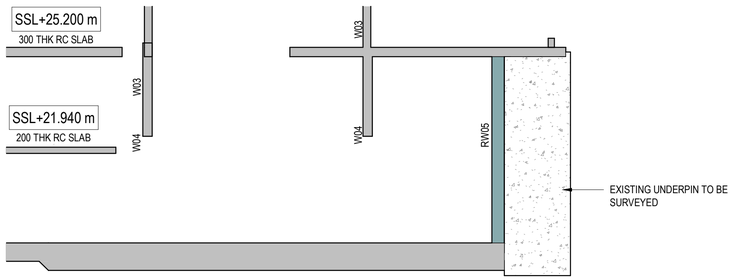

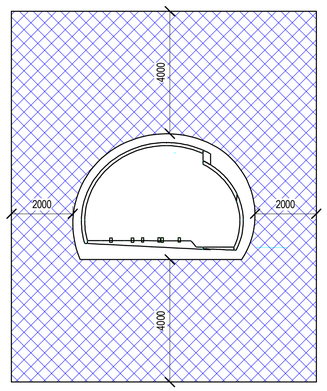

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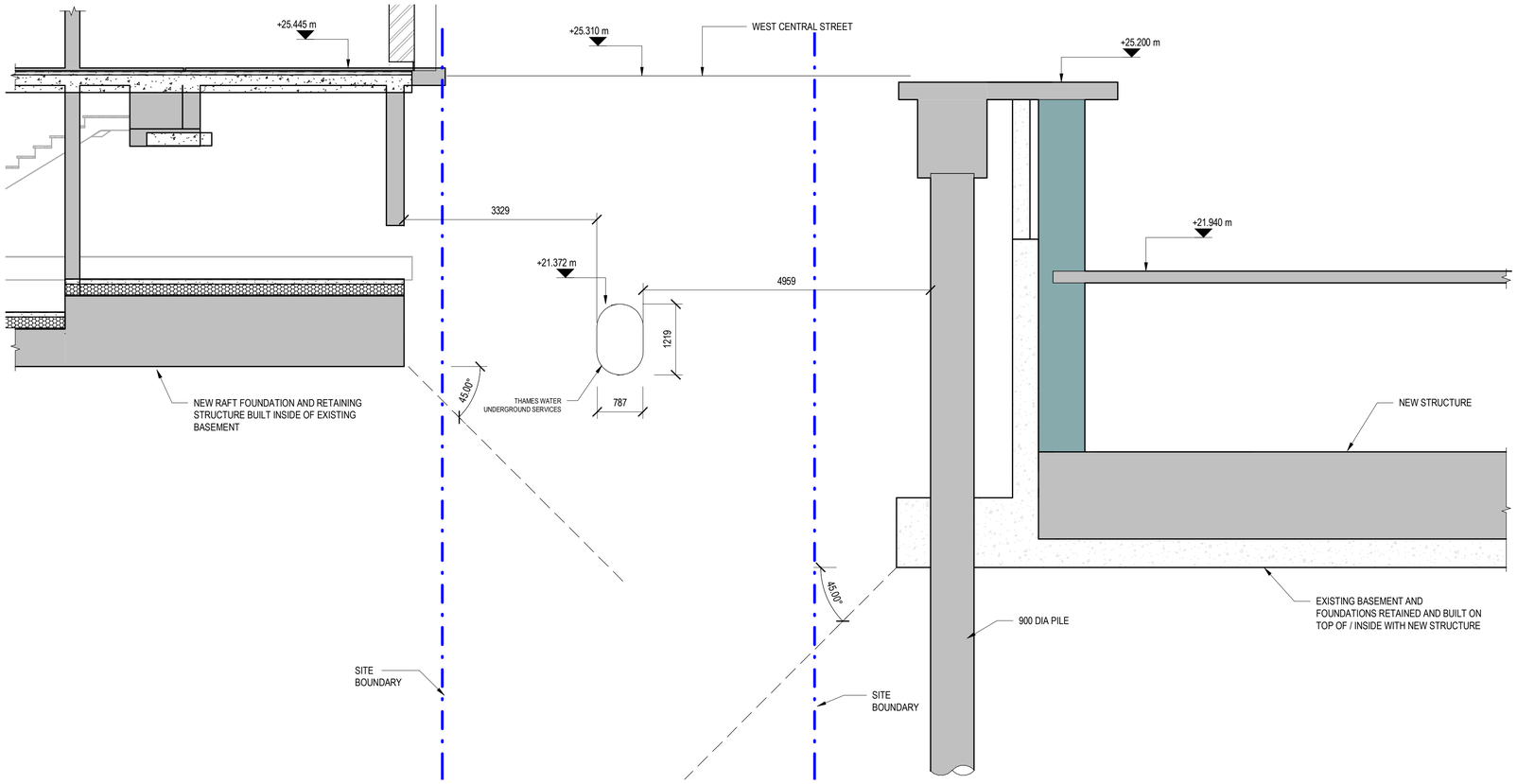

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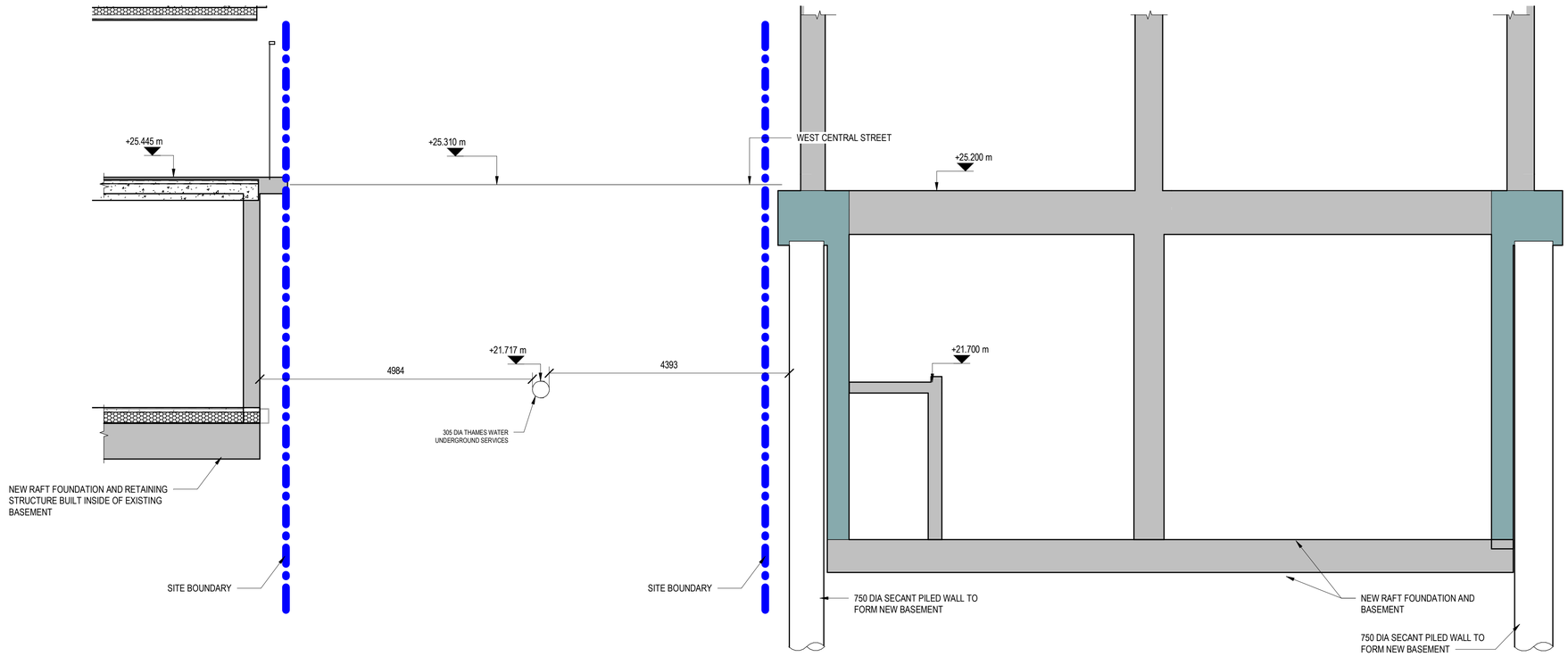

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Telephone: +44 (0)20 7831 7969
www.meinhardt.co.uk

PROJECT
LABS HOLBORN

CLIENT
LABTECH

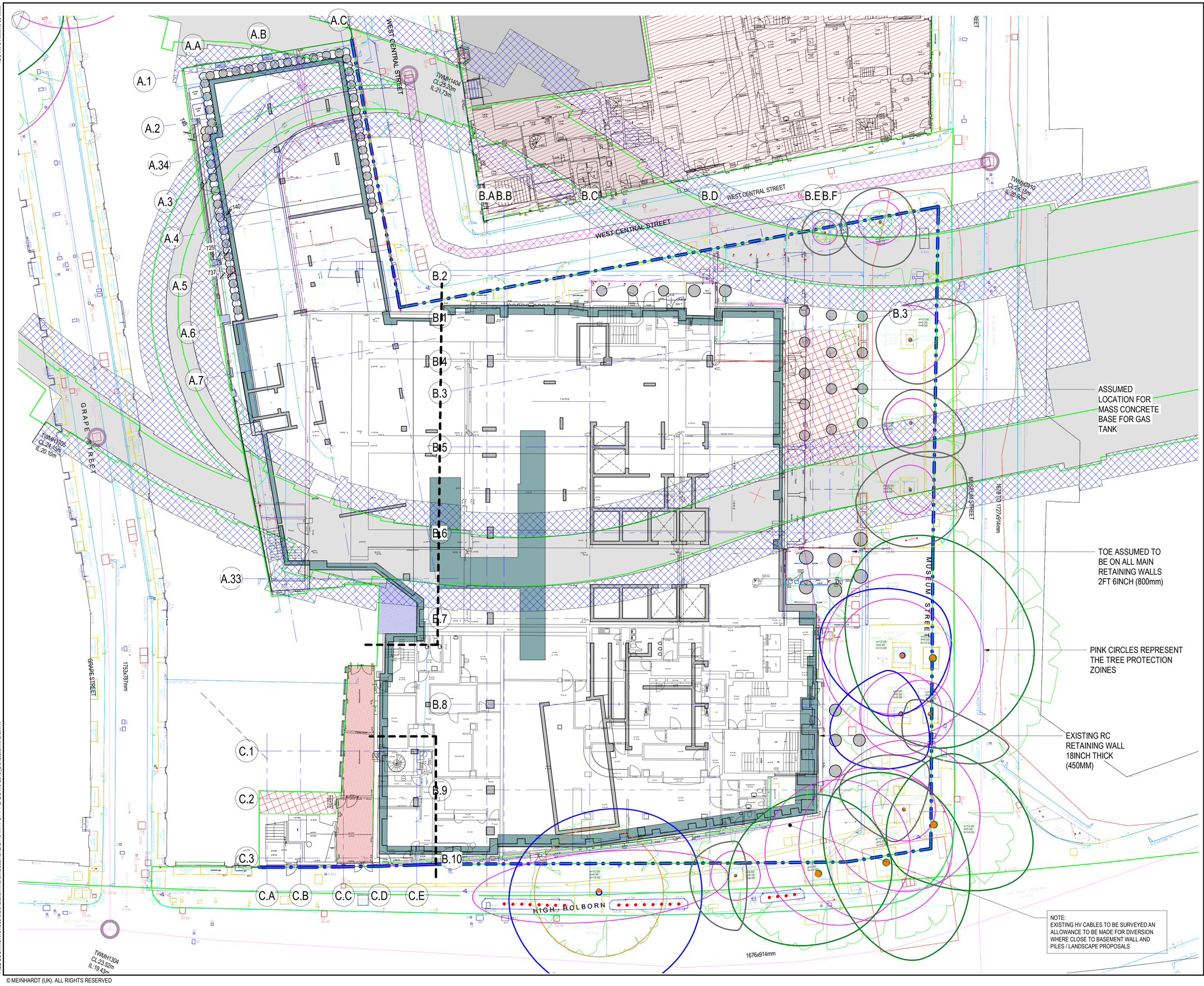
TITLE
THAMES WATER SECTIONS - SHEET 1

DISCIPLINE				SCALE @ A1
STRUCTURAL				1 : 50
MHT REF	DRAWN	DESIGNED	CHECKED	APPROVED
2413	LM	DS	DS	AC
DRAWING No				ISSUE
2413-MHT-ST-DR-01005				P03

ISO A1 841mm x 594mm

DATE:01/02/2021 19:15:48
FILE LOCATION:D:\Revit User\Local Revit Files\2413-MHT-ST-P1-LABS-M3-2019_LiamMeisinger.rvt

ISO A1 841mm x 594mm



STAGE 2
NOT FOR CONSTRUCTION

REV	DESCRIPTION	BY	DATE
P01	STAGE 2 ISSUE	DM	16/06/22

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PROJECT
LABS HOLBORN

CLIENT
LABTECH

TITLE
SITE CONSTRAINTS PLAN

DISCIPLINE				SCALE @ A1
STRUCTURAL				1 : 150
MHT REF	DRAWN	DESIGNED	CHECKED	APPROVED
2413	LM	DS	DS	AC
DRAWING No				ISSUE
2413-MHT-ST-DR-01101				P01

DATE: 16/06/2022 14:26:10
FILE LOCATION: C:\Users\Donatella.Minarelli\Documents\2413-MHT-ST-P1-LABS-M3-2019_Donatella.Minarelli.rvt

ISO A1 841mm x 594mm

REFER TO DRAWINGS 2413-MHT-ST-DR-02101 FOR PILE RIG POSITIONS TO INSTALL PILES AROUND TREES

3NO PILES INSTALLED FROM GROUND LEVEL

PILES WITHIN EXISTING BASEMENT INSTALLED FROM B2 LEVEL

STAGE 2
NOT FOR CONSTRUCTION

REV	DESCRIPTION	BY	DATE
P01	STAGE 2 ISSUE	DM	16/06/22

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PROJECT
LABS HOLBORN

CLIENT
LABTECH

TITLE
PILING AROUND TREE ROOT PROTECTION ZONES - SHEET 1

DISCIPLINE				SCALE @ A1
STRUCTURAL				1 : 150
MHT REF	DRAWN	DESIGNED	CHECKED	APPROVED
2413	LM	DS	DS	AC
DRAWING No				ISSUE
2413-MHT-ST-DR-02100				P01

DATE: 16/06/2022 14:26:22
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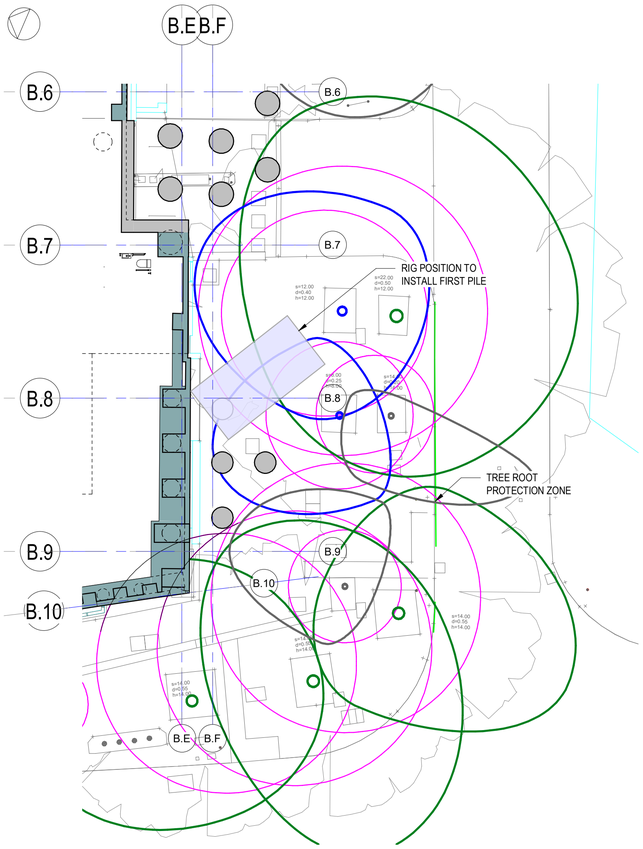
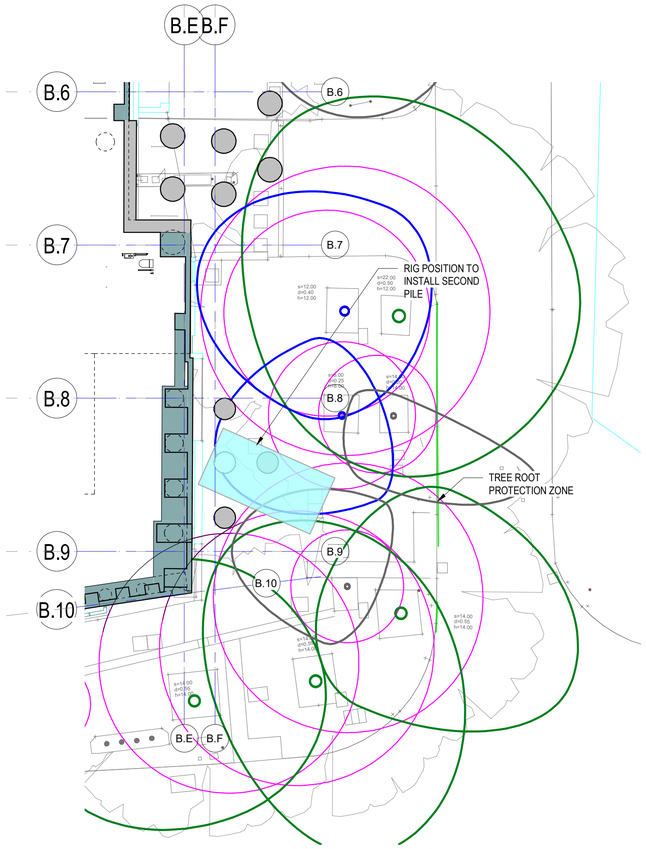
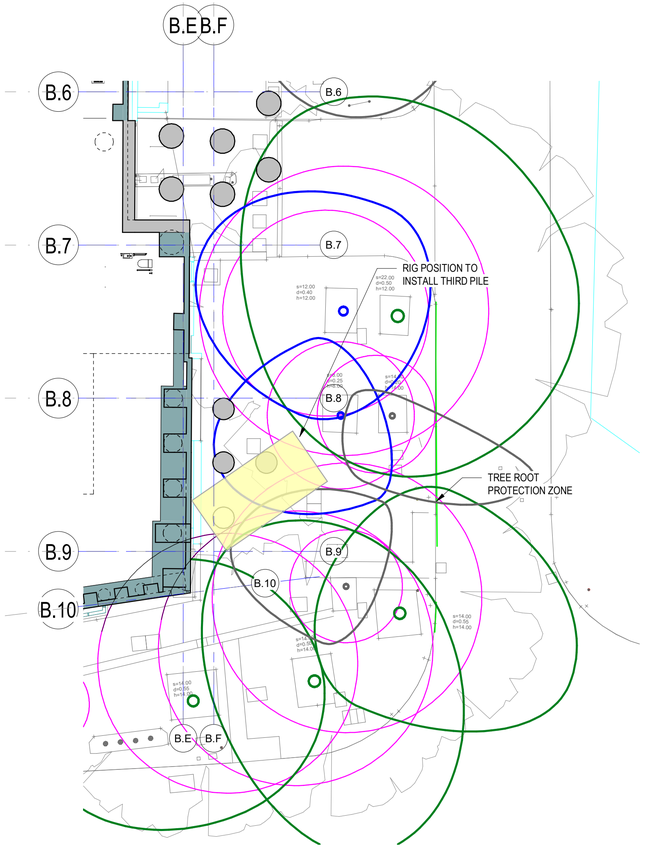
ISO A1 841mm x 594mm



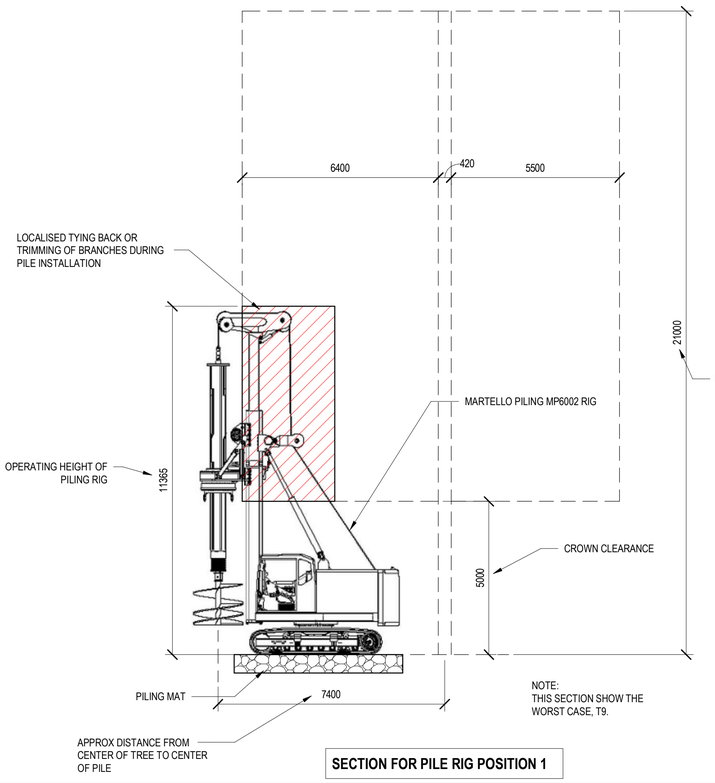
PILE RIG POSITION 1
1 : 150



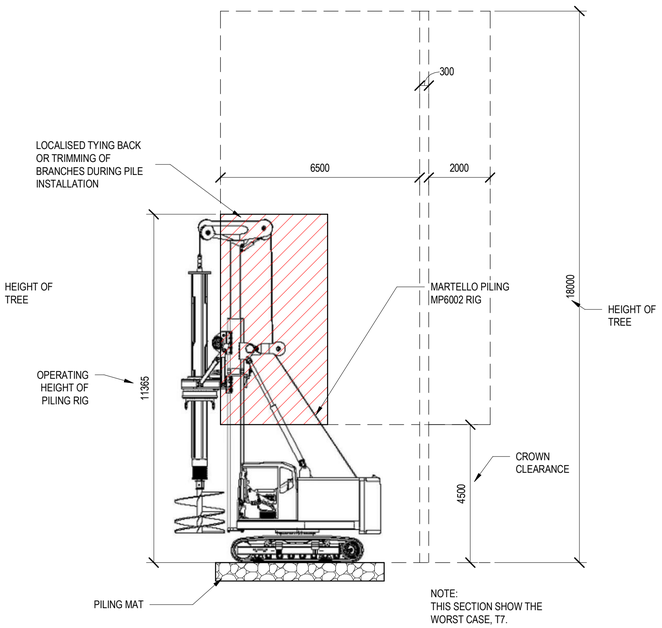
PILE RIG POSITION 2
1 : 150



PILE RIG POSITION 3
1 : 150



SECTION FOR PILE RIG POSITION 1



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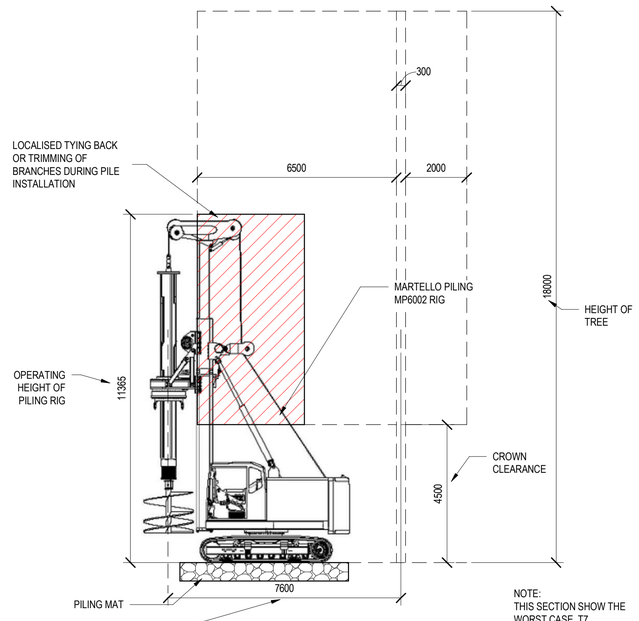

SECTION FOR PILE RIG POSITION 3

STAGE 2
NOT FOR CONSTRUCTION

REV	DESCRIPTION	BY	DATE
P01	STAGE 2 ISSUE	DM	16/06/22

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PROJECT
LABS HOLBORN

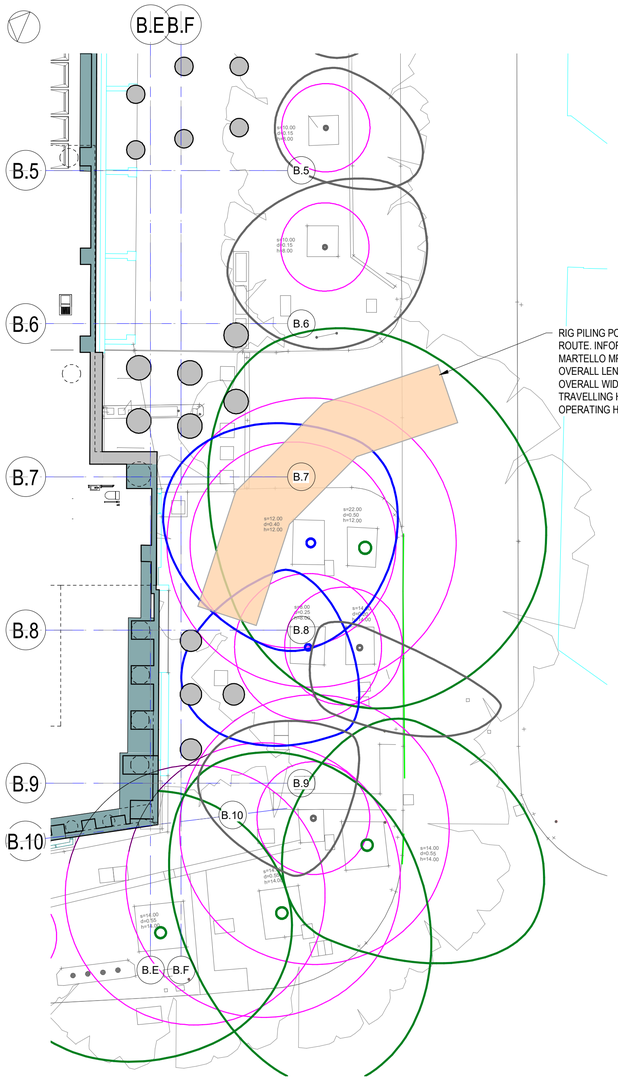
CLIENT
LABTECH

TITLE
PILING AROUND TREE ROOT PROTECTION ZONES - SHEET 2

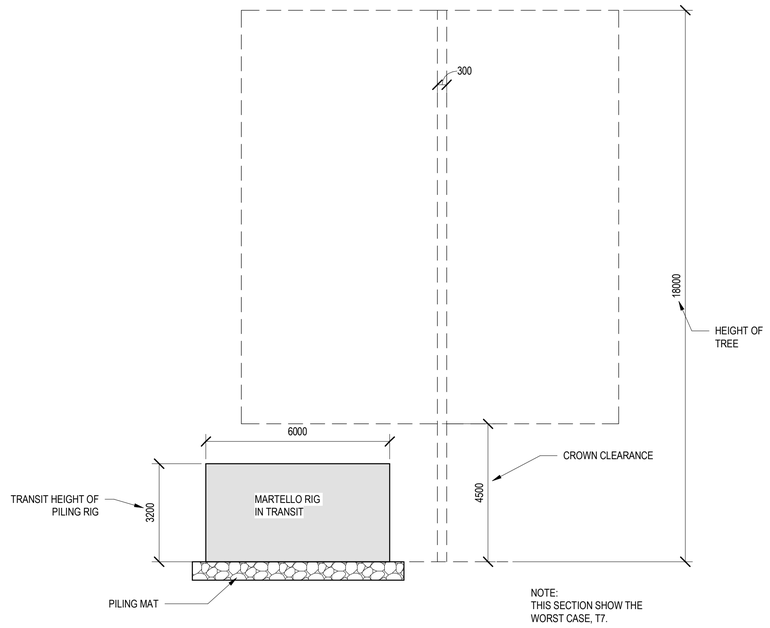
DISCIPLINE				SCALE @ A1
STRUCTURAL				As indicated
MHT REF	DRAWN	DESIGNED	CHECKED	APPROVED
2413	LM	DS	DS	AC
DRAWING No				ISSUE
2413-MHT-ST-DR-02101				P01

DATE: 16/06/2022 14:26:42
FILE LOCATION: C:\Users\Donatella.Minarelli\Documents\2413-MHT-ST-P1-LABS-M3-2019_Donatella.Minarelli.rvt

ISO A1 841mm x 594mm



PILE RIG TRANSIT
1 : 150



MARTELLO RIG IN TRANSIT
1 : 100

STAGE 2
NOT FOR CONSTRUCTION

REV	DESCRIPTION	BY	DATE
P01	STAGE 2 ISSUE	DM	16/06/22

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PROJECT
LABS HOLBORN

CLIENT
LABTECH

TITLE
PILING AROUND TREE ROOT PROTECTION ZONES - SHEET 3

DISCIPLINE				SCALE @ A1
STRUCTURAL				As indicated
MHT REF	DRAWN	DESIGNED	CHECKED	APPROVED
2413	LM	DS	DS	AC
DRAWING No				ISSUE
2413-MHT-ST-DR-02102				P01

DATE: 16/06/2022 14:26:51
FILE LOCATION: C:\Users\Donatella.Minarelli\Documents\2413-MHT-ST-P1-LABS-M3-2019_Donatella.Minarelli.rvt

Appendix C – Party Wall Drawings

ISO A1 841mm x 594mm

TUNNEL EXLUSION ZONE

TUNNEL EXLUSION ZONE

TUNNEL EXLUSION ZONE

TUNNEL EXLUSION ZONE

B.1 B.2 B.4 B.5 B.6 B.7 B.8 B.9 B.10

B.F B.E B.D B.C B.B B.A

A.C A.B A.A A.1 A.2 A.3 A.4 A.5 A.6 A.7 A.8

C.E C.D C.C C.B C.A C.1 C.2 C.3

6-5 08002

6-6 08002

7-7 08002

3-3 08001

4-4 08001

TOF +18.650 m
BOF +17.650 m

TOF +18.820 m
BOF +17.820 m

TOF +18.820 m
BOF +17.820 m

TOF +18.820 m
BOF +17.820 m

TOF +18.820 m
BOF +17.820 m

PC02
TOF +18.520 m
BOF +17.520 m

W04

C02 C03 C04 C05 C07 C12 C15

Awaiting trial pit / survey information to establish void found underneath raft

Awaiting vent survey to establish depth and potential ownership

Trial pits required to prove information on zinn archive drawings

STAGE 3

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PROJECT
1 MUSEUM STREET

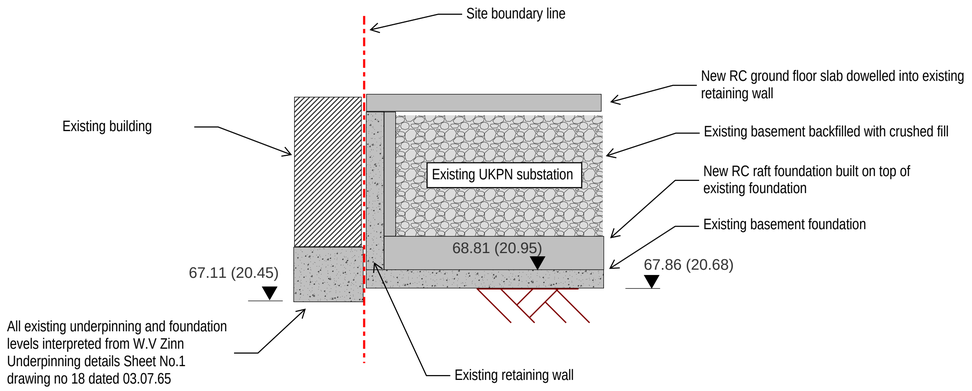
CLIENT
LABTECH

TITLE
PARTY WALL KEY PLAN

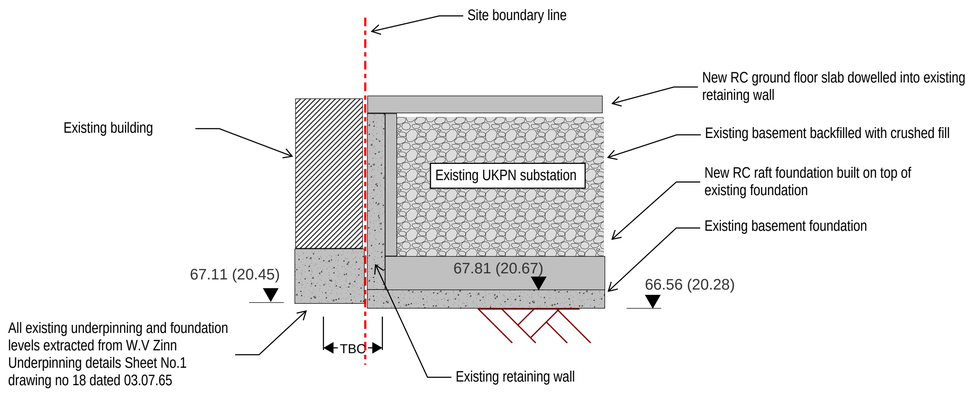
DISCIPLINE		DATE	SCALE @ A3
STRUCTURAL		18/01/21	
DRAWN	DESIGNED	CHECKED	APPROVED
DS			
2413-S-SK-246			ISSUE P01

DATE: 15/01/2021 17:50:05
FILE LOCATION: D:\Revit User\Local Revit Files\2413-MHT-ST-P1-LABS-M3-2019_LiamMeisinger.rvt

ISO A1 841mm x 594mm



Section 1 -1



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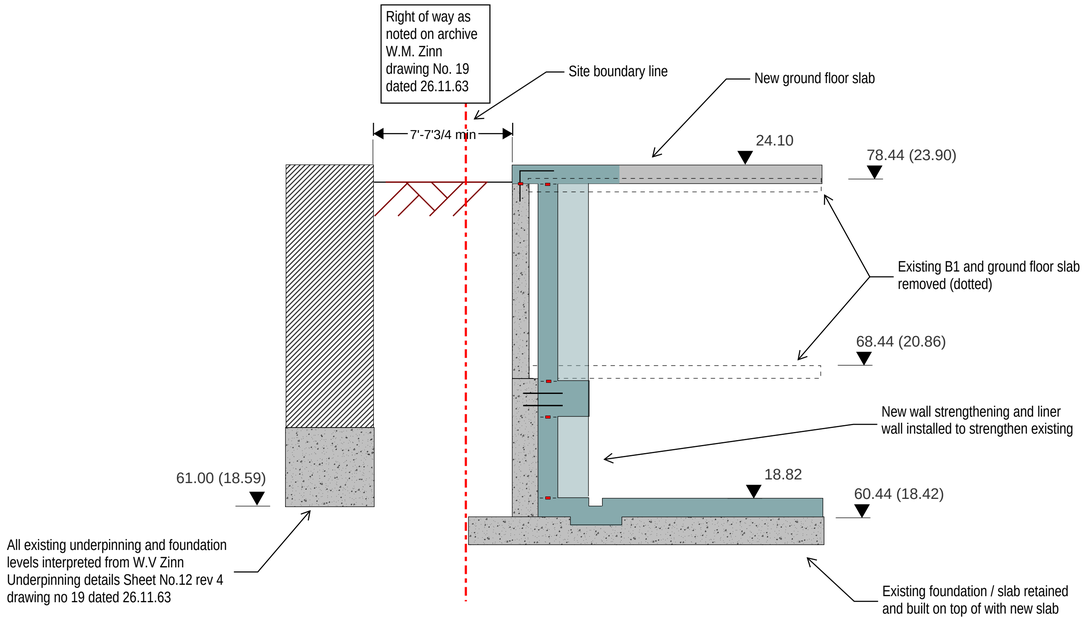

Section 3-3

Section 4-4 in abeyance. Awaiting vent survey

Section 4-4

Note: Existing Information based on archive plans and extrapolated where information is not available. All TBC on site

STAGE 3

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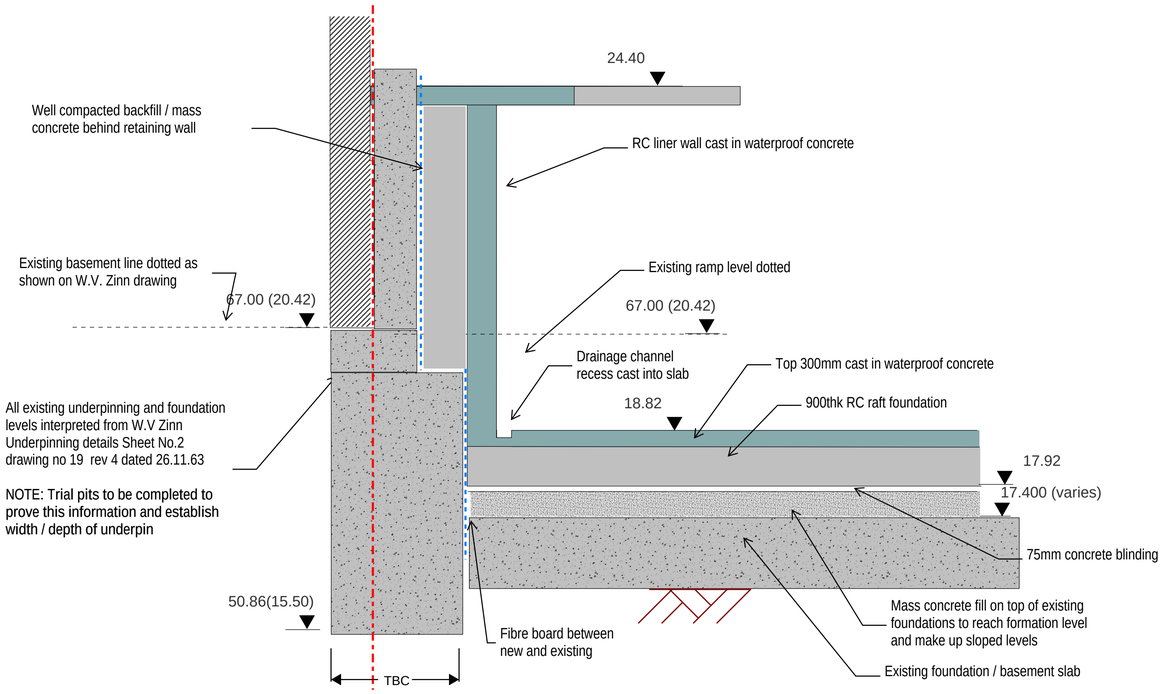
PROJECT
1 MUSEUM STREET

CLIENT
LABTECH

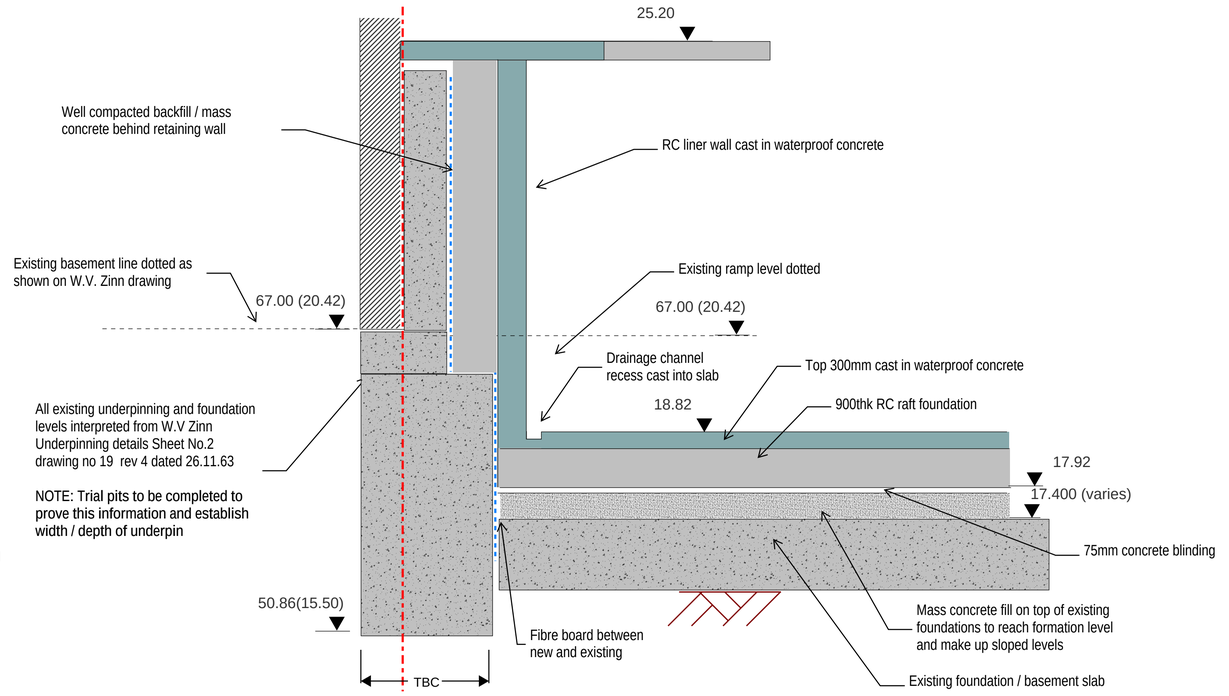
TITLE
PARTY WALL BASEMENT AND FOUNDATION SECTIONS SHEET 1

DISCIPLINE		DATE	SCALE @ A1
STRUCTURAL		18/01/21	NTS
DRAWN	DESIGNED	CHECKED	APPROVED
DS			
DRAWING No			ISSUE
2413-S-SK-246a			P01

ISO A1 841mm x 594mm



Section 5-5



Section 6-6

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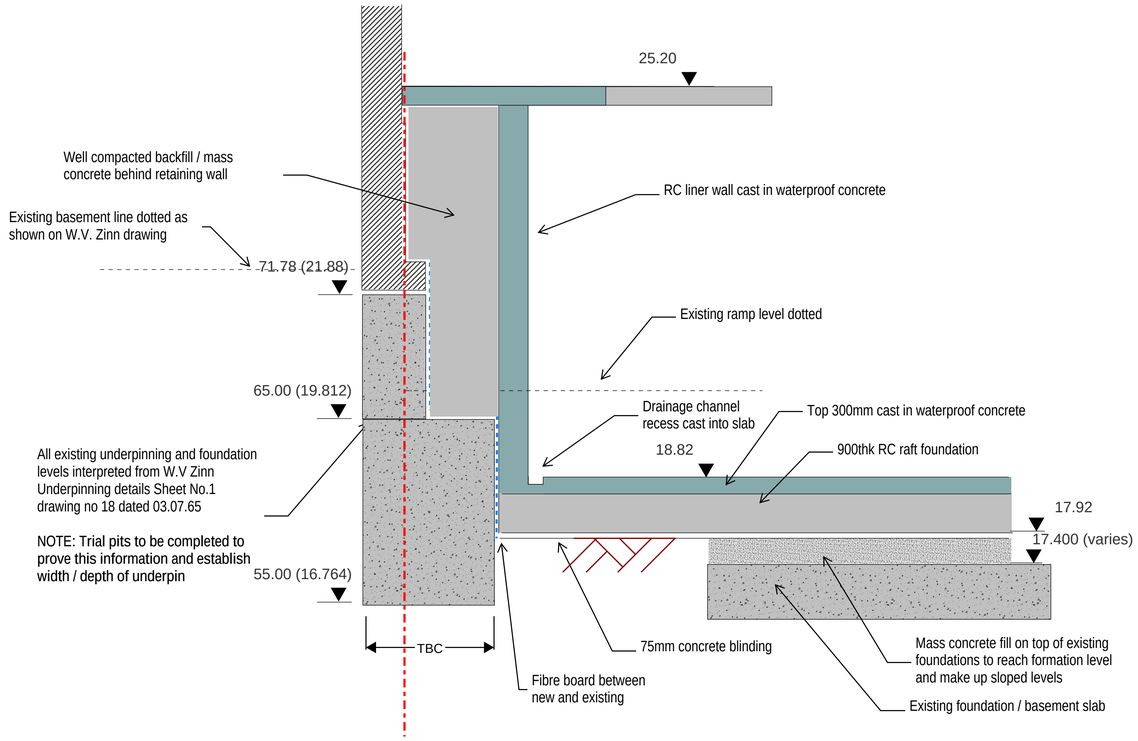
PROJECT
1 MUSEUM STREET

CLIENT
LABTECH

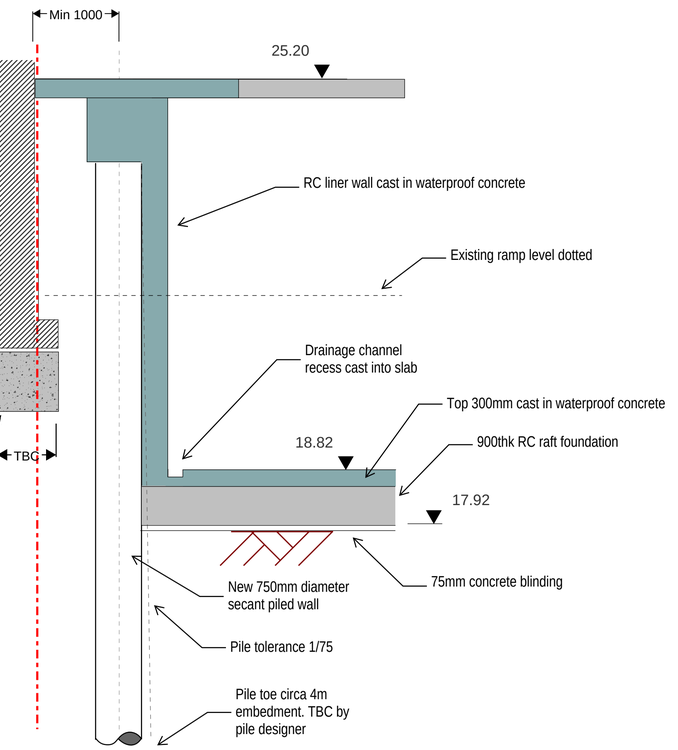
TITLE
PARTY WALL BASEMENT AND FOUNDATION SECTIONS SHEET 2

DISCIPLINE		DATE	SCALE @ A1
STRUCTURAL		18/01/21	NTS
DRAWN	DESIGNED	CHECKED	APPROVED
DS			
DRAWING No			ISSUE
2413-S-SK-246b			P01

ISO A1 841mm x 594mm



Section 7-7



Section 8-8

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STAGE 3

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PROJECT
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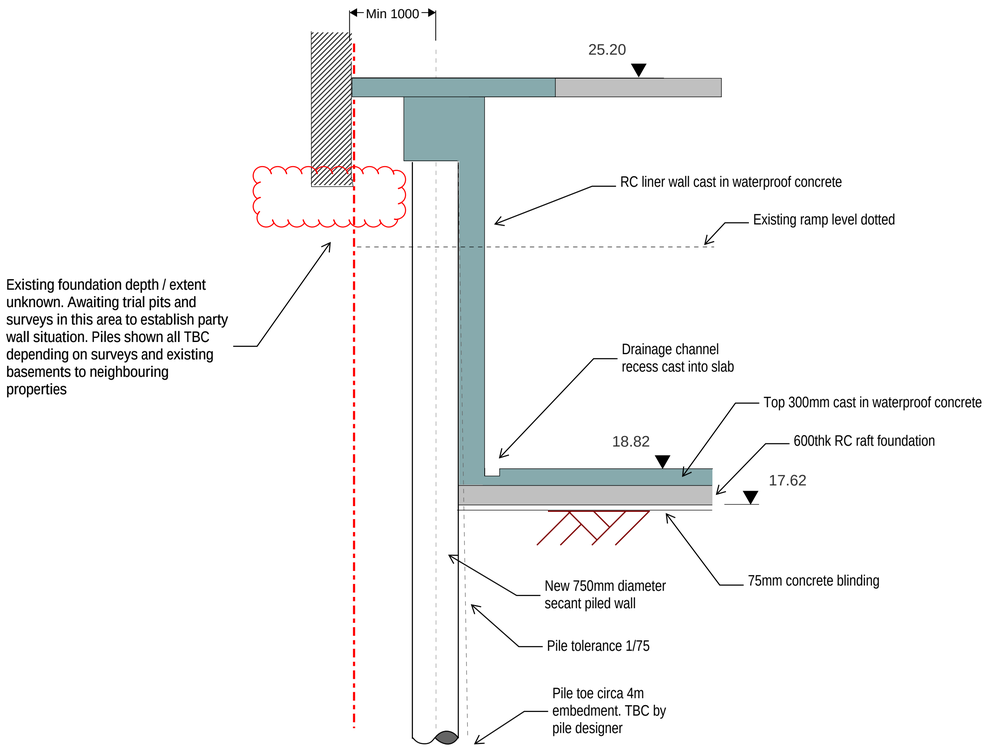
CLIENT
LABTECH

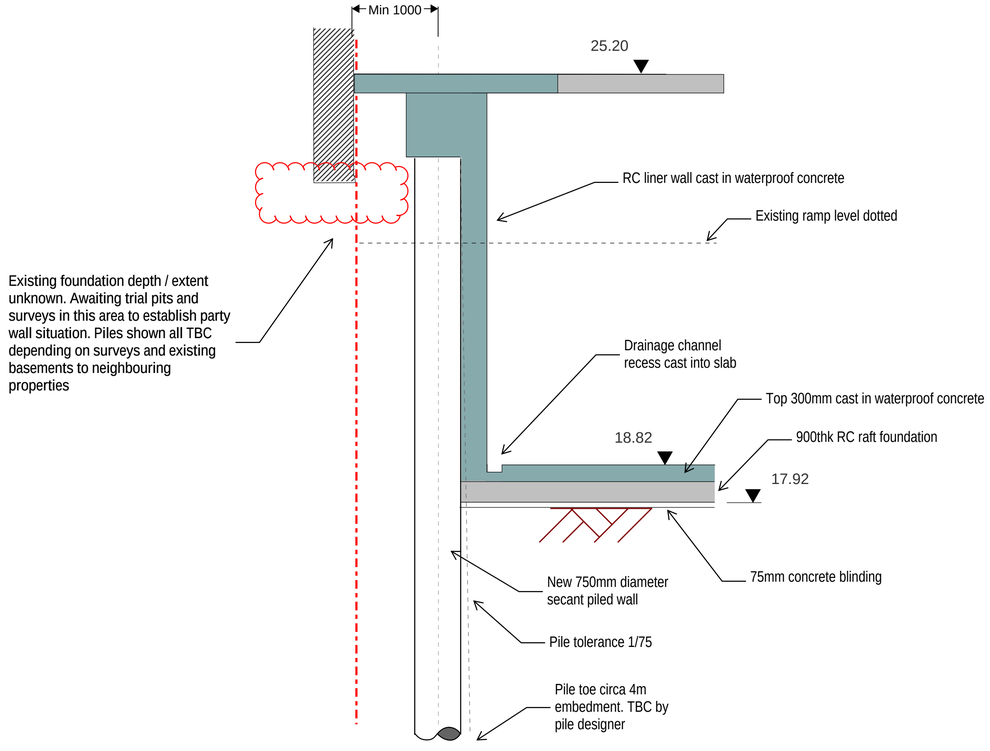
TITLE
PARTY WALL BASEMENT AND FOUNDATION SECTIONS SHEET 3

DISCIPLINE		DATE	SCALE @ A1
STRUCTURAL		18/01/21	NTS
DRAWN	DESIGNED	CHECKED	APPROVED
DS			
DRAWING No			ISSUE
2413-S-SK-246c			P01

ISO A1 841mm x 594mm



Section 9-9



Section 10-10

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STAGE 3

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PROJECT
1 MUSEUM STREET

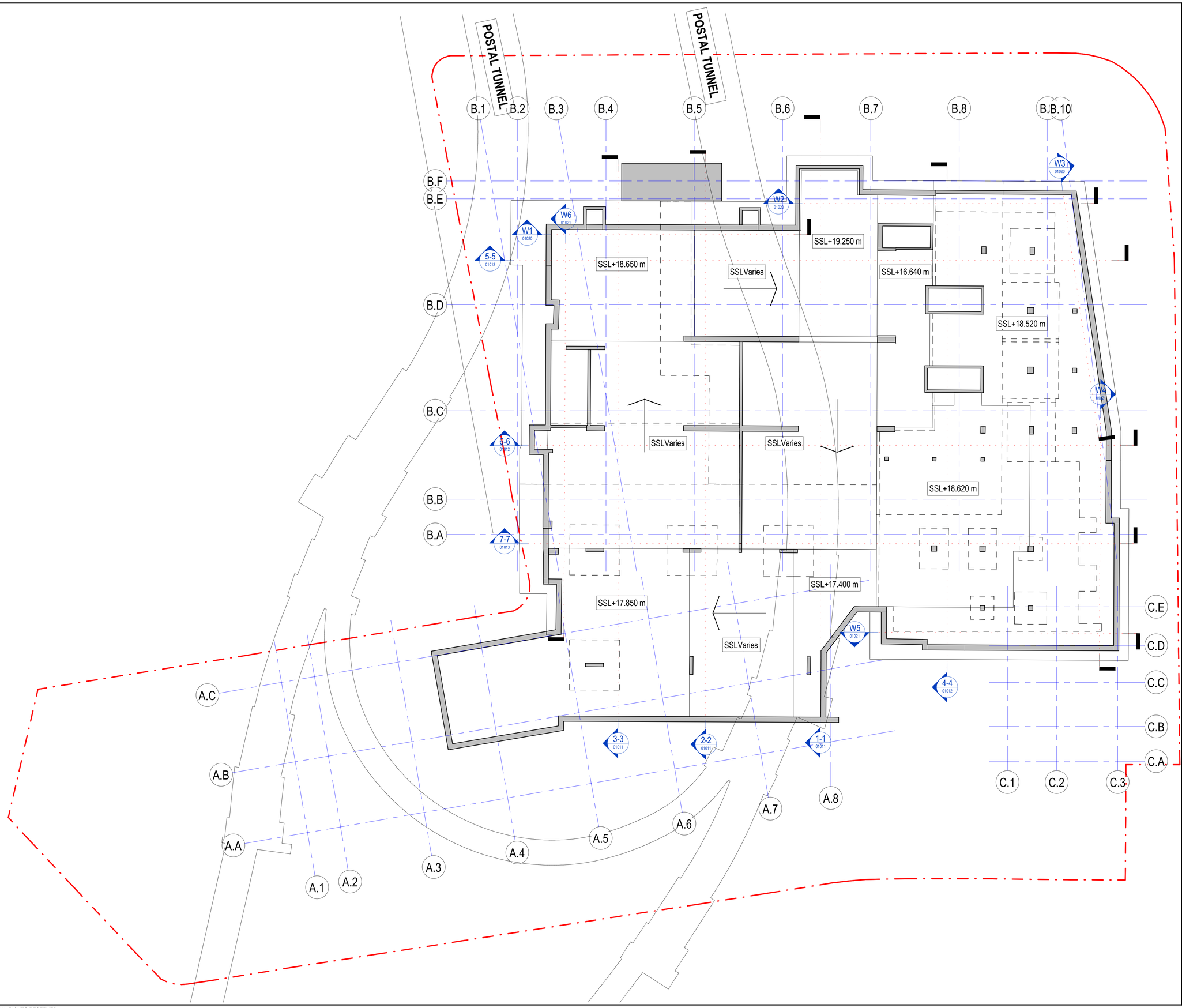
CLIENT
LABTECH

TITLE
PARTY WALL BASEMENT AND FOUNDATION SECTIONS SHEET 4

DISCIPLINE		DATE	SCALE @ A1
STRUCTURAL		18/01/21	NTS
DRAWN	DESIGNED	CHECKED	APPROVED
DS			
DRAWING No			ISSUE
2413-S-SK-246d			P01

Appendix D – Existing Structure

ISO A1 841mm x 594mm



STAGE 3
NOT FOR CONSTRUCTION

REV	DESCRIPTION	BY	DATE
P01	STAGE 3 ISSUE	LM	01/02/2021
P02	POST STAGE 3 ISSUE	LM	12/02/2021

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PROJECT
LABS HOLBORN

CLIENT
LABTECH

TITLE
EXISTING BASEMENT PLAN

DISCIPLINE				SCALE @ A1
STRUCTURAL				1 : 150
MHT REF	DRAWN	DESIGNED	CHECKED	APPROVED
2413	LM	DS	DS	AC
DRAWING No				ISSUE
2413-MHT-ST-DR-01010				P02

DATE: 12/02/2021 15:40:34
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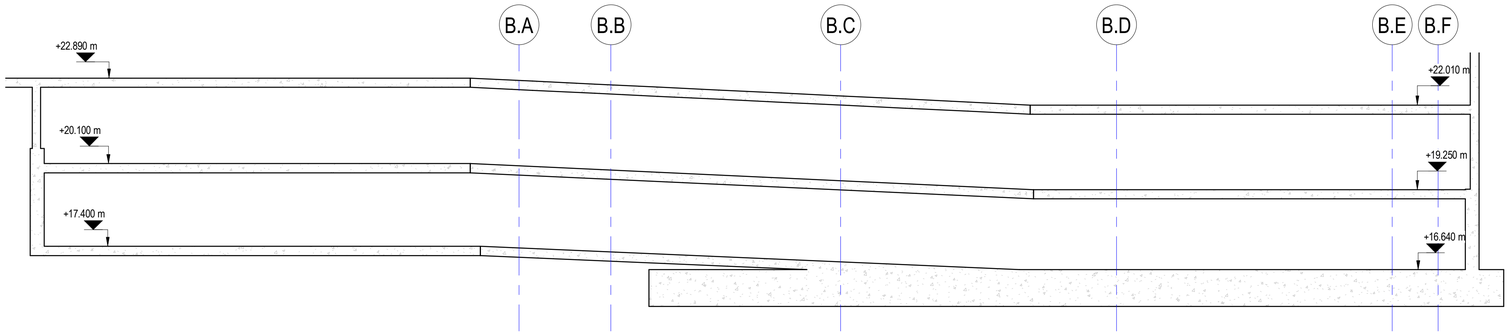

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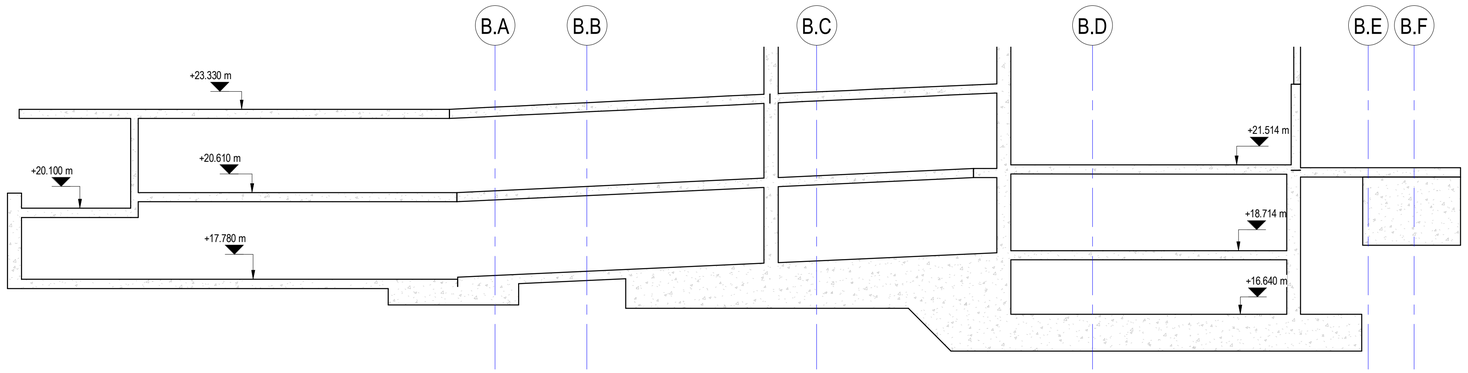

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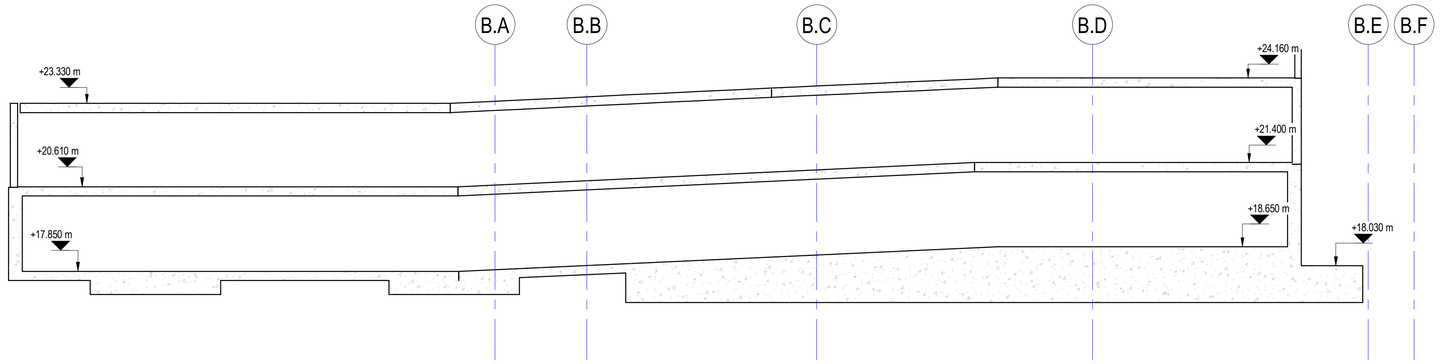

EXISTING SECTION :3-3
1 : 100

STAGE 3
NOT FOR CONSTRUCTION

REV	DESCRIPTION	BY	DATE
P01	STAGE 3 ISSUE	LM	01/02/2021
P02	POST STAGE 3 ISSUE	LM	12/02/2021

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CDM RESIDUAL CIVIL / STRUCTURAL DESIGN RISKS

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2. CURRENT DESIGN AND GROUND MOVEMENT ASSESSMENT BASED ON MEINHARDT ASSUMED CONSTRUCTION SEQUENCE ILLUSTRATED IN SKETCHES SK-253 TO SK-258. FINAL DEMOLITION AND CONSTRUCTION STRATEGY BY CONTRACTOR WHICH MUST BE COORDINATED WITH DESIGN.

MEINHARDT
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Telephone: +44 (0)20 7831 7969
www.meinhardt.co.uk

PROJECT
LABS HOLBORN

CLIENT
LABTECH

TITLE
EXISTING BASEMENT SECTIONS - SHEET 1

DISCIPLINE				SCALE @ A1
STRUCTURAL				1 : 100
MHT REF	DRAWN	DESIGNED	CHECKED	APPROVED
2413	LM	DS	DS	AC
DRAWING No				ISSUE
2413-MHT-ST-DR-01011				P02

DATE: 12/02/2021 15:40:38
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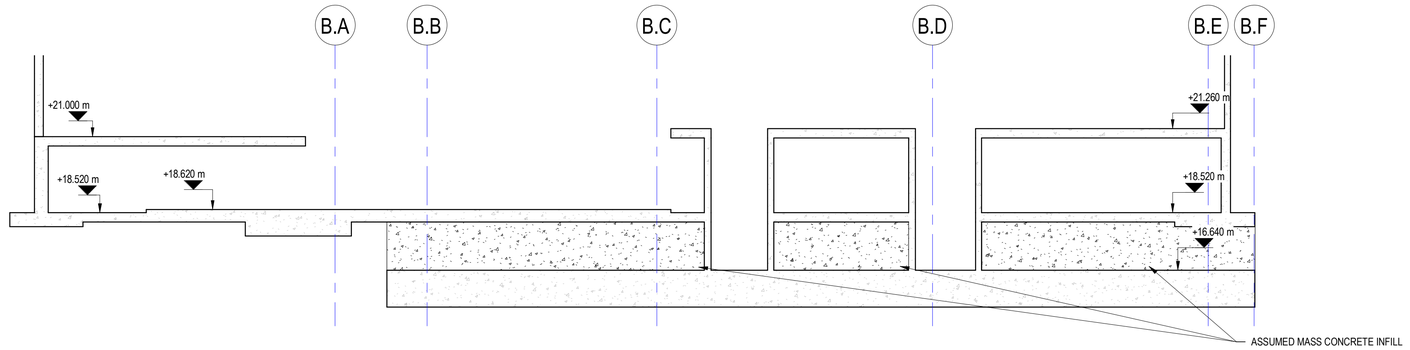
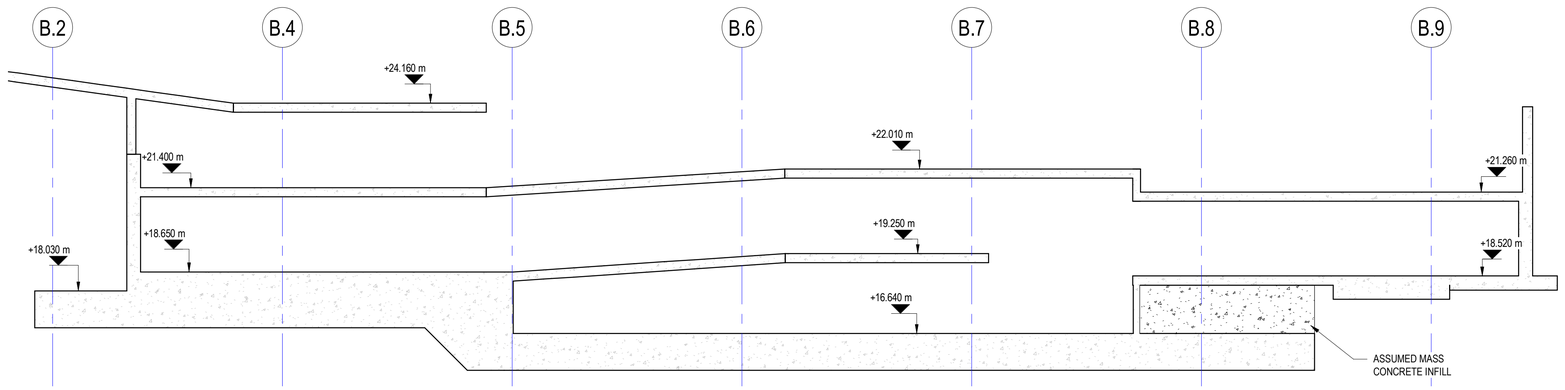


EXT 4-4
1 : 100



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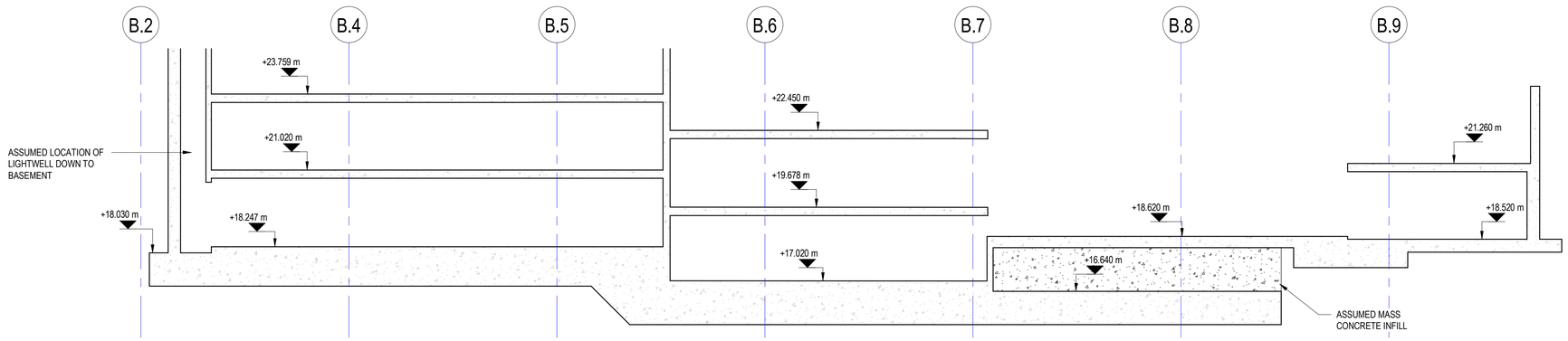
1 : 100



EXT 6-6
1 : 100

STAGE 3
NOT FOR CONSTRUCTION

REV	DESCRIPTION	BY	DATE
P01	STAGE 3 ISSUE	LM	01/02/2021
P02	POST STAGE 3 ISSUE	LM	12/02/2021

NOTES:
1. DO NOT SCALE FROM THIS DRAWING. ONLY WRITTEN DIMENSIONS SHALL BE USED.
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NOTE:
INFORMATION EXTRAPOLATED FROM SURVEY AND ZINN ARCHIVE DRAWINGS. ALL DIMENSIONS TO BE CONFIRMED ON SITE

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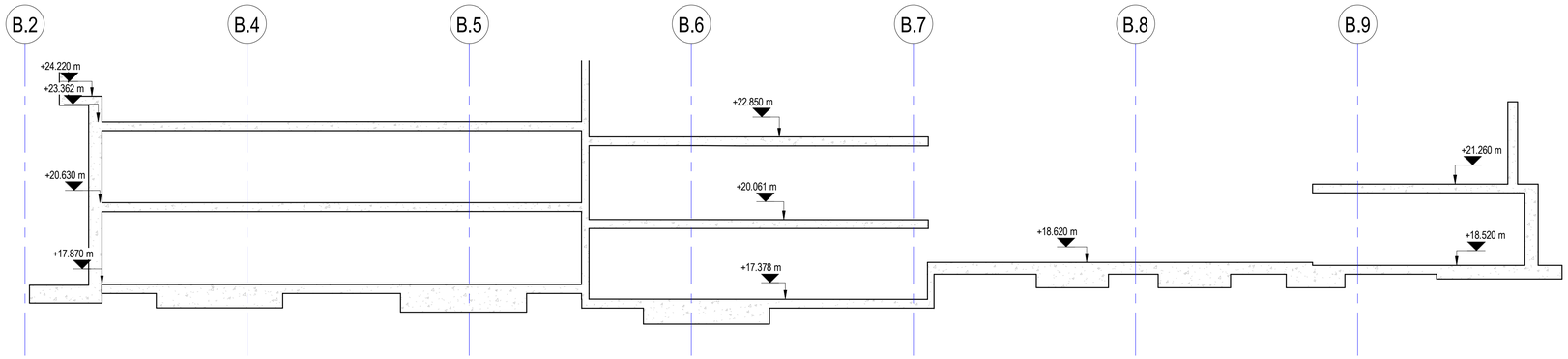
PROJECT
LABS HOLBORN

CLIENT
LABTECH

TITLE
EXISTING BASEMENT SECTIONS - SHEET 2

DISCIPLINE				SCALE @ A1
STRUCTURAL				1 : 100
MHT REF	DRAWN	DESIGNED	CHECKED	APPROVED
2413	LM	DS	DS	AC
DRAWING No				ISSUE
2413-MHT-ST-DR-01012				P02



EXT 7-7
1 : 100

STAGE 3
NOT FOR CONSTRUCTION

REV	DESCRIPTION	BY	DATE
P01	STAGE 3 ISSUE	LM	01/02/2021
P02	POST STAGE 3 ISSUE	LM	12/02/2021

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PROJECT
LABS HOLBORN

CLIENT
LABTECH

TITLE
EXISTING BASEMENT SECTIONS - SHEET 3

DISCIPLINE				SCALE @ A1
STRUCTURAL				1 : 100
MHT REF	**DRAWN**	**DESIGNED**	**CHECKED**	**APPROVED**
2413	LM	DS	DS	AC
DRAWING No				**ISSUE**
2413-MHT-ST-DR-01013				P02

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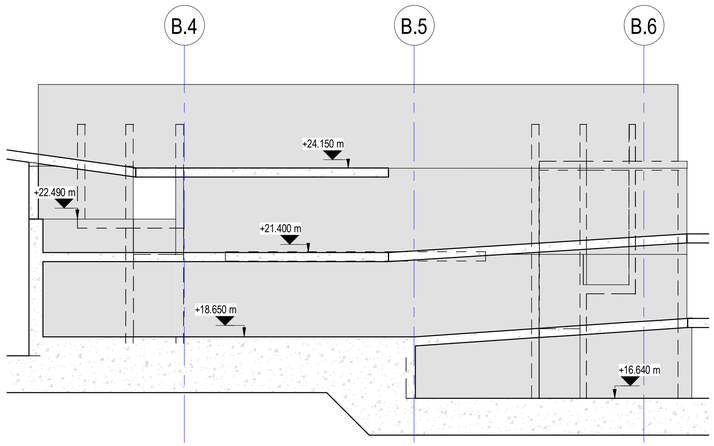
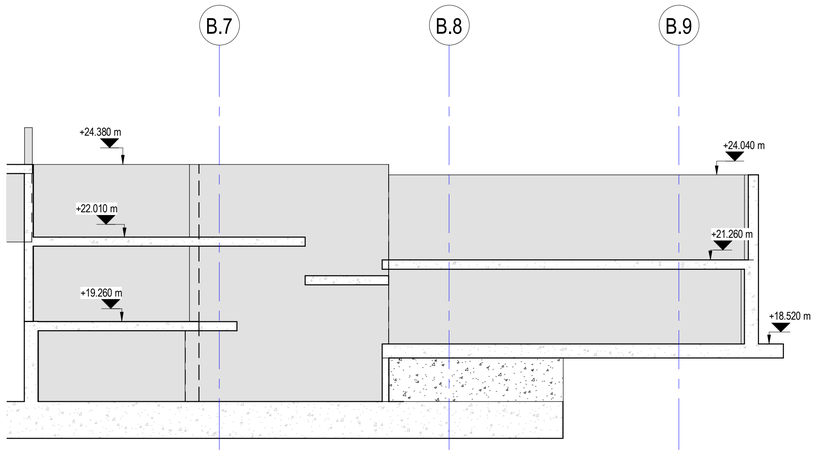
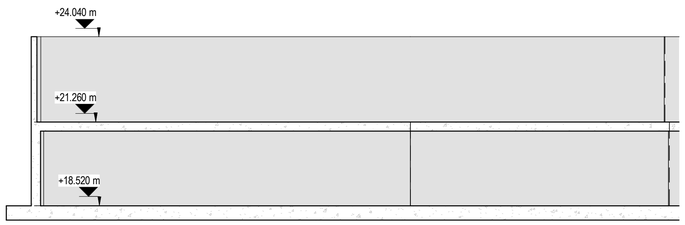


EXISTING WALL ELEVATION 01 :W1
1 : 100



EXISTING WALL ELEVATION 02 :W2
1 : 100



EXISTING WALL ELEVATION 03 :W3
1 : 100

STAGE 3
NOT FOR CONSTRUCTION

REV	DESCRIPTION	BY	DATE
P01	STAGE 3 ISSUE	LM	01/02/2021
P02	POST STAGE 3 ISSUE	LM	12/02/2021

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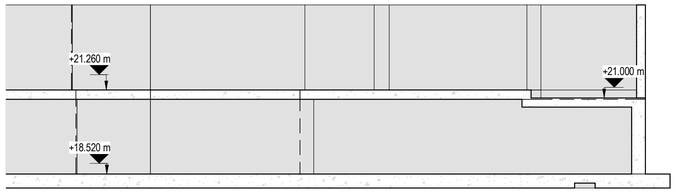
PROJECT
LABS HOLBORN

CLIENT
LABTECH

TITLE
EXISTING RETAINING WALL ELEVATIONS - SHEET 1

DISCIPLINE				SCALE @ A1
STRUCTURAL				1 : 100
MHT REF	DRAWN	DESIGNED	CHECKED	APPROVED
2413	LM	DS	DS	AC
DRAWING No				ISSUE
2413-MHT-ST-DR-01020				P02



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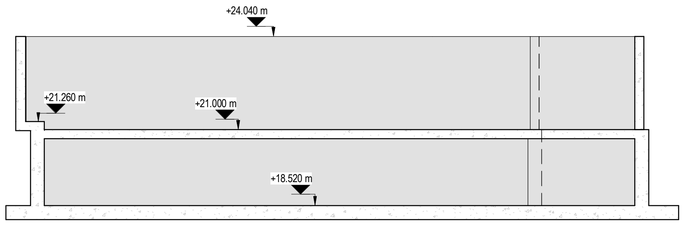
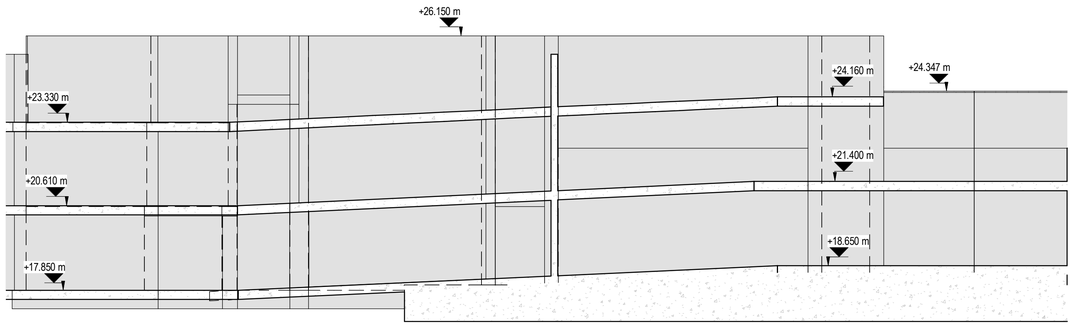
1 : 100



EXISTING WALL ELEVATION 05 :W5
1 : 100



EXISTING WALL ELEVATION 06 :W6
1 : 100

STAGE 3
NOT FOR CONSTRUCTION

REV	DESCRIPTION	BY	DATE
P01	STAGE 3 ISSUE	LM	01/02/2021
P02	POST STAGE 3 ISSUE	LM	12/02/2021

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PROJECT
LABS HOLBORN

CLIENT
LABTECH

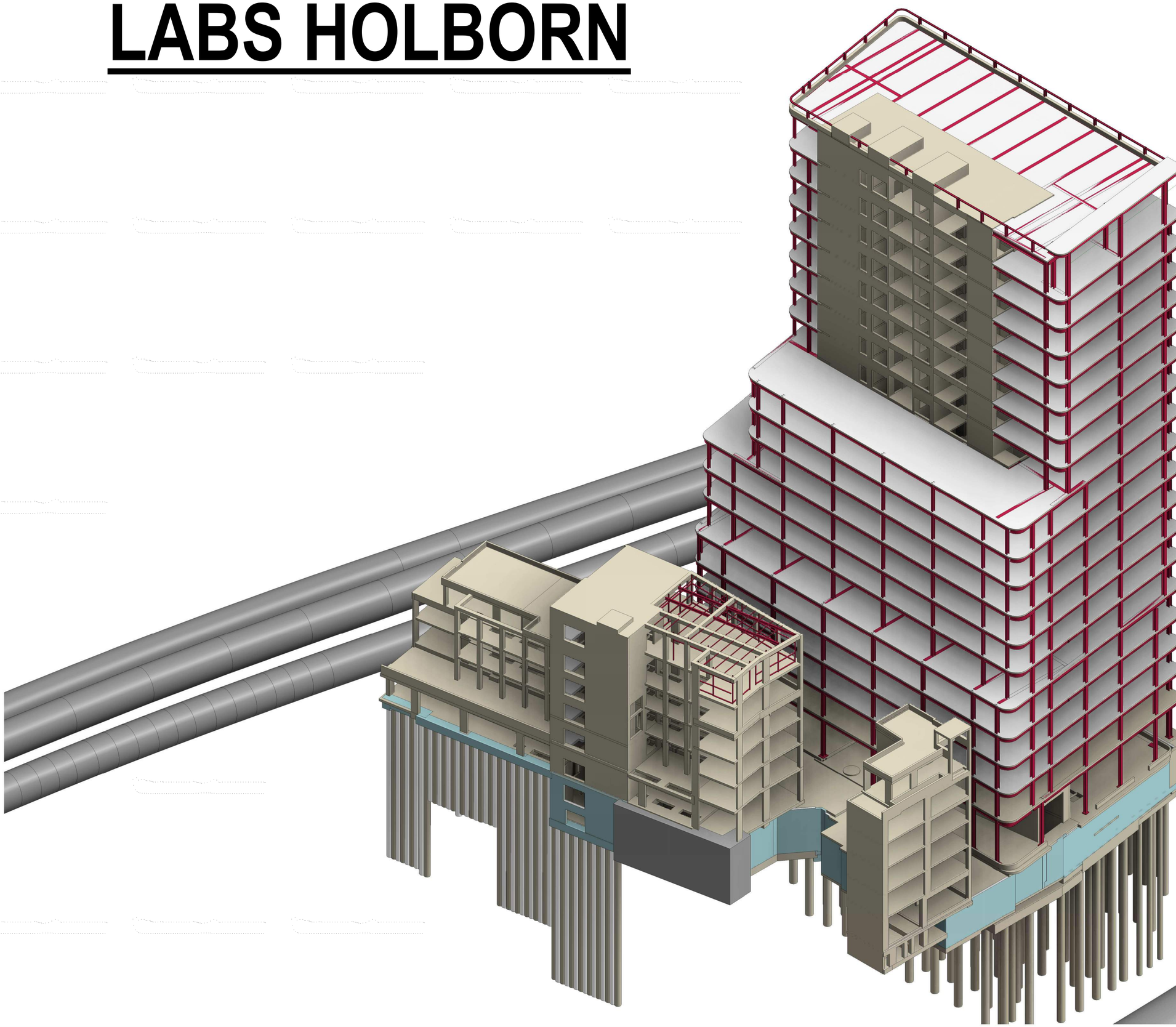
TITLE
EXISTING RETAINING WALL ELEVATIONS - SHEET 2

DISCIPLINE				SCALE @ A1
STRUCTURAL				1 : 100
MHT REF	DRAWN	DESIGNED	CHECKED	APPROVED
2413	LM	DS	DS	AC
DRAWING No				ISSUE
2413-MHT-ST-DR-01021				P02

Appendix E – Proposed Structure

ISO A1 841mm x 594mm

LABS HOLBORN



STAGE 2
NOT FOR CONSTRUCTION

REV	DESCRIPTION	BY	DATE
P01	STAGE 2 ISSUE	DM	16/06/22

NOTES:
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PROJECT
LABS HOLBORN

CLIENT
LABTECH

TITLE
COVER SHEET

DISCIPLINE				SCALE @ A1
STRUCTURAL				
MHT REF	DRAWN	DESIGNED	CHECKED	APPROVED
2413	LM	PG	DS	AC
DRAWING No				ISSUE
2413-MHT-ST-DR-00001				P01

DATE: 16/06/2022 14:25:31
FILE LOCATION: C:\Users\Donatella.Minarelli\Documents\2413-MHT-ST-P1-LABS-M3-2019_Donatella.Minarelli.rvt

ISO A1 841mm x 594mm

TUNNEL EXLUSION ZONE

TUNNEL EXLUSION ZONE

TUNNEL EXLUSION ZONE

TUNNEL EXLUSION ZONE

B.1 B.2 B.3 B.4 B.5 B.6 B.7 B.8 B.9 B.10

B.F B.E B.D B.C B.B B.A

TW01 01005

TW02 01005

A.C A.B A.A A.1 A.2 A.34 A.3 A.4 A.5 A.6 A.7 A.33

C.E C.D C.C C.B C.A C.1 C.2 C.3

PILE LOADING

- 1200 DIAMETER EC7 DESIGNED PILES FOR COMPRESSION LOAD OF 3300kN
- 1050 DIAMETER EC7 DESIGNED PILES FOR COMPRESSION LOAD OF 2800kN
- 900 DIAMETER EC7 DESIGNED PILES FOR COMPRESSION LOAD OF 2350kN
- 900 SETTLEMENT REDUCING PILES AS PART OF PILED RAFT DESIGN TOED AT A LEVEL OF AT LEAST -2.5MOD. LOADING AS PER GEOTECHNICAL ANALYSIS FOR 5750kN COMPRESSION
- 900 DIAMETER MOVEMENT CONTROL PILES AS PART OF PILED RAFT DESIGN TOED AT A LEVEL OF AT LEAST -7.5MOD. LOADING AS PER GEOTECHNICAL ANALYSIS FOR 7500kN COMPRESSION, 2600kN TENSION
- 600 DIAMETER EC7 DESIGNED PILES FOR COMPRESSION LOAD OF 1460kN

NOTE:
PILE SLEEVING NOT CURRENTLY REQUIRED BASED ON GEOTECHNICAL ANALYSIS AND OUTLINE DISCUSSIONS WITH ROYAL MAIL ASSET PROTECTION TEAM AND CROSSRAIL ASSET PROTECTION TEAM. THIS WILL BE CONFIRMED FOLLOWING APPROVAL OF THE GMA BY THESE THIRD PARTIES

NOTE:
RETAIN ALLOWANCE FOR 9NO.900 DIAMETER TENSION PILES UNDER GRAPE STREET RAFT.

STAGE 2
NOT FOR CONSTRUCTION

REV	DESCRIPTION	BY	DATE
P01	STAGE 2 ISSUE	DM	18/05/22

NOTES:
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PROJECT
LABS HOLBORN

CLIENT
LABTECH

TITLE
PROPOSED - PILE LAYOUT - PLAN - OVERALL

DISCIPLINE				SCALE @ A1
STRUCTURAL				1:100
MHT REF	DRAWN	DESIGNED	CHECKED	APPROVED
2413	LM	PG	DS	AC
DRAWING No				ISSUE
2413-MHT-ST-DR-04060				P01

DATE: 18/05/2022 14:38:25
FILE LOCATION: C:\Users\Sergio.Abreu\Documents\2413-MHT-ST-P1-LABS-M3-2019_Sergio.Abreu.rvt

ISO A1 841mm x 594mm

TUNNEL EXLUSION ZONE

TUNNEL EXLUSION ZONE

TUNNEL EXLUSION ZONE

TUNNEL EXLUSION ZONE

B.1 B.2 B.3 B.4 B.3.5 B.6 B.7 B.8 B.B.10

B.F B.E B.D B.C B.B B.A B.3

A.C A.B A.A A.1 A.2 A.34 A.3 A.4 A.5 A.6 A.7 A.33

C.E C.D C.C C.B C.A C.1 C.2 C.3

TW01 01005

TW02 01005

FP02 TOF +18.170 m BOF +16.650 m

FP03 TOF +18.170 m BOF +16.650 m

FP22 TOF +18.170 m BOF +16.650 m

FP04 TOF +18.170 m BOF +17.170 m

FP06 TOF +18.520 m BOF +18.020 m

RW02 RW05

W03

BOF Varies

STAGE 3
NOT FOR CONSTRUCTION

REV	DESCRIPTION	BY	DATE
P02	STAGE 3 ISSUE	LM	01/02/2021

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PROJECT
LABS HOLBORN

CLIENT
LABTECH

TITLE
PROPOSED - SECOND BASEMENT LEVEL - PLAN - OVERALL

DISCIPLINE				SCALE @ A1
STRUCTURAL				1 : 150
MHT REF	DRAWN	DESIGNED	CHECKED	APPROVED
2413	LM	PG	DS	AC
DRAWING No				ISSUE
2413-MHT-ST-DR-04080				P02

DATE: 18/05/2022 14:44:26
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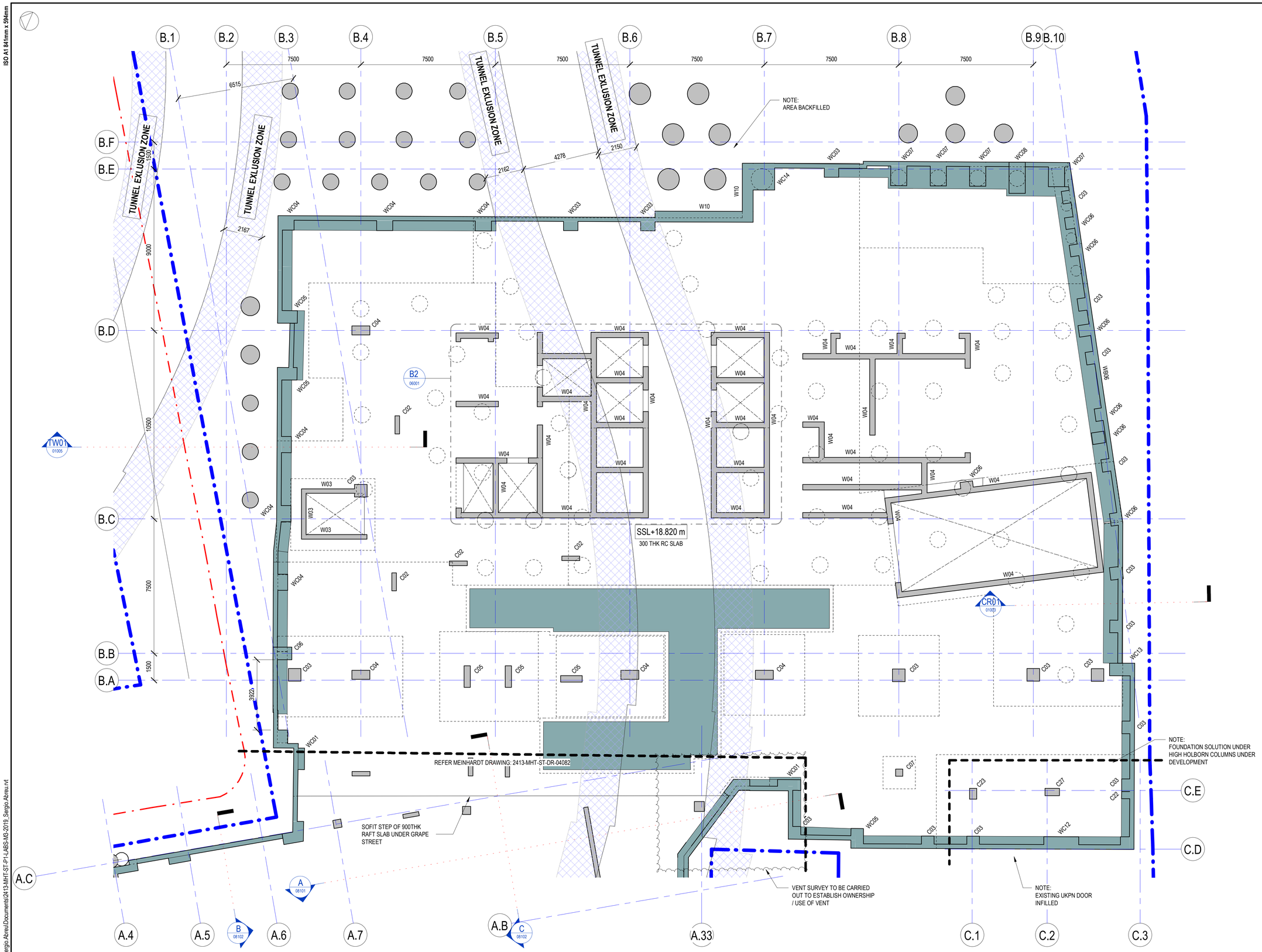
ISO A1 841mm x 594mm



STAGE 2
NOT FOR CONSTRUCTION

REV	DESCRIPTION	BY	DATE
P01	STAGE 2 ISSUE	DM	20/04/22
P02	STAGE 2 ISSUE	DM	27/04/22
P03	STAGE 2 ISSUE	SA	18/05/22

NOTES:
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CONTRACTOR TO REFER TO A SQUARED STUDIO TECHNICAL REPORTS:
- EXISTING BASEMENT REUSE GROUNDWATER CONSIDERATIONS
- TREE PROTECTION ZONE PILING DESIGN AND CONSTRUCTION CONSIDERATIONS
- PILED RAFT FOUNDATION DESIGN SUMMARY

FOR COLUMN, BEAM AND WALL SCHEDULE REFER TO DRAWING NUMBER 2413-MHT-ST-DR-10002

LEGEND

- DENOTES LOCATION OF 5% FLOOR PLATE WITH HIGHER LOADING ALLOWANCE TO BCO STANDARDS.
- DENOTES LOCATION OF AREA ALLOWED FOR HEAVIER LANDSCAPING LOADING
- THERMAL BREAK CONNECTION (FARAT TBF OR EQUIVALENT APPROVED)
- 75x125UKA x8mm TO SUPPORT DECK
- MOMENT CONNECTION
- INSITU RC SLAB
- PRECAST PLANKS WITH TOPPING
- ASSUMED LOCATIONS FOR BMU SUPPORT STUBS. POSITION TO BE CONFIRMED BY SPECIALIST SUBCONTRACTOR. REFER TO DETAIL.
- DENOTES WATERPROOF CONCRETE

CDM RESIDUAL CIVIL / STRUCTURAL DESIGN RISKS

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PROJECT
LABS HOLBORN

CLIENT
LABTECH

TITLE
PROPOSED - SECOND BASEMENT LEVEL - PLAN - BLOCK MS

DISCIPLINE				SCALE @ A1
STRUCTURAL				1:100
MHT REF	DRAWN	DESIGNED	CHECKED	APPROVED
2413	LM	PG	DS	AC
DRAWING No				ISSUE
2413-MHT-ST-DR-04081				P03

DATE: 18/05/2022 14:38:35
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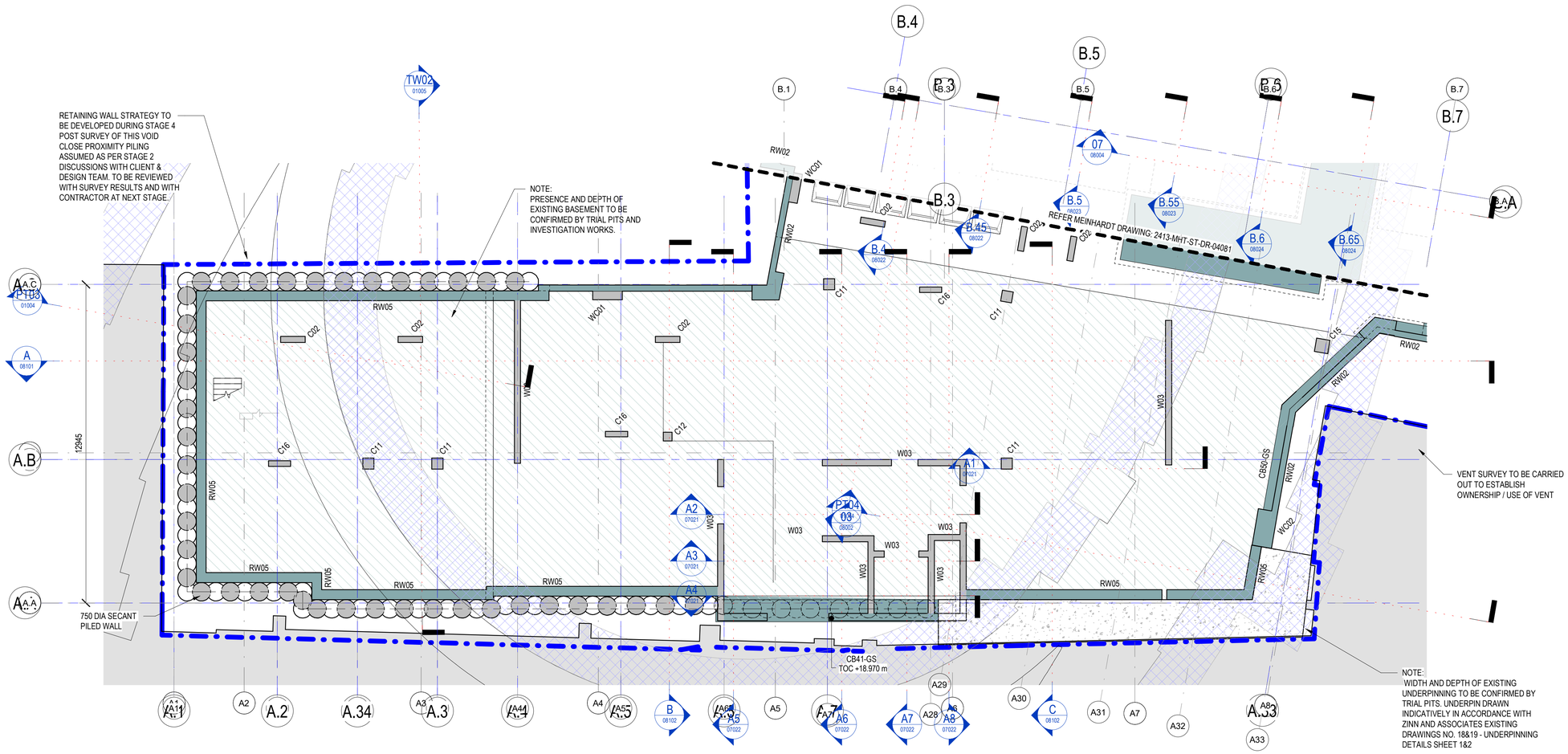
ISO A1 841mm x 594mm



STRUCTURAL RC BEAM SCHEDULE

TYPE REF	WIDTH	DEPTH	COMMENTS
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CB15	425	450	
CB16	400	450	
CB25	200	300	
CB27	250	500	
CB37	450	400	
CB41	1050	1000	
CB44	1000	600	
CB45	1000	800	
CB46	250	600	
CB47	1000	1000	
CB49	350	840	
CB50	600	650	

STRUCTURAL RC COLUMN SCHEDULE

TYPE REF	WIDTH	LENGTH	DIA	COMMENTS
C02	250	1000		
C03	700	700		
C04	500	1000		
C05	350	1200		
C06	700	1050		
C07	400	400		
C10	300	1200		
C11	450	450		
C12	350	350		
C14	425	425		
C15	550	550		
C16	900	225		
C17	500	700		
C18	2200	385		
C19	450	1000		
C20	300	900		
C22	450	400		
C23	600	400		
C27	400	800		
C28	350	400		
C29	900	250		
C30	1275	225		
C31	800	225		
C33	650	700		
C34	300	500		
C35	450	900		

STRUCTURAL RC WALL SCHEDULE

TYPE REF	WIDTH	COMMENTS
W01	200	
W02	225	
W03	250	
W04	300	
W05	400	
W07	350	
W08	275	
W09	600	

STRUCTURAL RETAINING RC WALL SCHEDULE

TYPE REF	WIDTH	COMMENTS
RW02	250	
RW05	400	

STRUCTURAL RC WAILER COLUMN SCHEDULE

TYPE REF	WIDTH	LENGTH	COMMENTS
WC01	600	1200	
WC02	1500	800	
WC03	750	800	
WC04	900	800	
WC05	700	1100	
WC06	650	700	
WC07	1350	900	
WC08	1730	900	
WC11	1000	800	
WC12	1950	445	
WC13	700	1350	
WC14	1490	1200	

FOR STEEL COLUMN, BEAM SCHEDULE REFER TO DRAWING NUMBER 2413-MHT-ST-DR-10002

LEGEND

- THERMAL BREAK CONNECTION (FARAT TBF OR EQUIVALENT APPROVED)
- DENOTES TRENCH FOR UKPN SUBUSTATION SERVICES
- DENOTES WATERPROOF CONCRETE
- DENOTES BOUNDARY LINE

STAGE 2
NOT FOR CONSTRUCTION

REV	DESCRIPTION	BY	DATE
P01	STAGE 2 ISSUE	DM	27/04/22

NOTES:
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CONTRACTOR TO REFER TO A SQUARED STUDIO TECHNICAL REPORTS:
- EXISTING BASEMENT REUSE GROUNDWATER CONSIDERATIONS
- TREE PROTECTION ZONE PILING DESIGN AND CONSTRUCTION CONSIDERATIONS
- PILED RAFT FOUNDATION DESIGN SUMMARY

CDM RESIDUAL CIVIL / STRUCTURAL DESIGN RISKS

1. REFER TO MEINHARDT CDM RISK ASSESSMENT DOCUMENT
2. CURRENT DESIGN AND GROUND MOVEMENT ASSESSMENT BASED ON MEINHARDT ASSUMED CONSTRUCTION SEQUENCE ILLUSTRATED IN SKETCHES SK-253 TO SK-258. FINAL DEMOLITION AND CONSTRUCTION STRATEGY BY CONTRACTOR WHICH MUST BE COORDINATED WITH DESIGN.

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Telephone: +44 (0)20 7831 7969
www.meinhardt.co.uk

PROJECT
LABS HOLBORN

CLIENT
LABTECH

TITLE
PROPOSED - SECOND BASEMENT LEVEL - PLAN - BLOCK GS

DISCIPLINE				SCALE @ A1
STRUCTURAL				1:100
MHT REF	DRAWN	DESIGNED	CHECKED	APPROVED
2413	LM	PG	DS	AC
DRAWING No				ISSUE
2413-MHT-ST-DR-04082				P01

DATE: 18/05/2022 14:44:37
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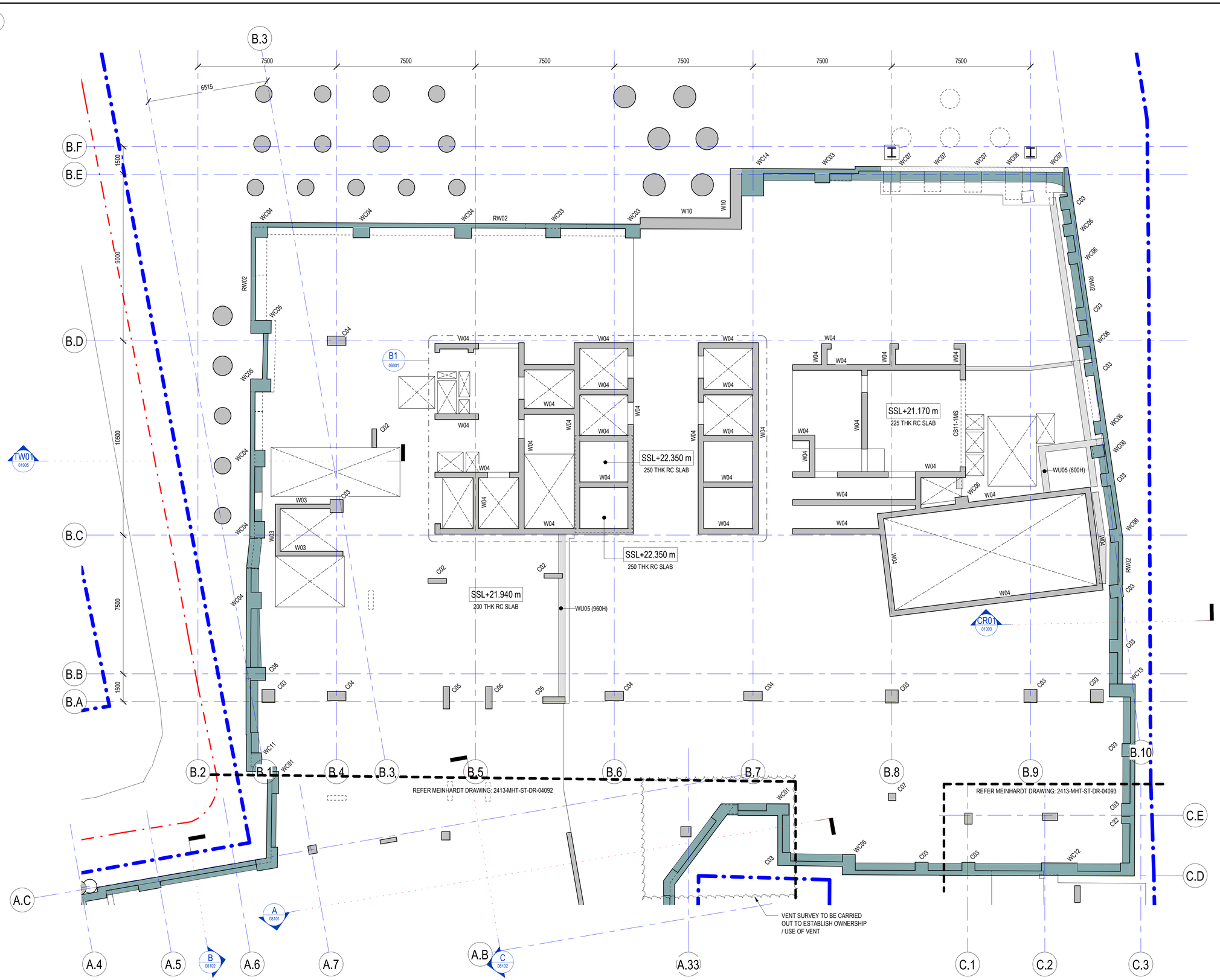
ISO A1 841mm x 594mm



STAGE 2
NOT FOR CONSTRUCTION

REV	DESCRIPTION	BY	DATE
P01	STAGE 2 ISSUE	DM	20/04/22
P02	STAGE 2 ISSUE	DM	27/04/22
P03	STAGE 2 ISSUE	SA	18/05/22

NOTES:

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- TREE PROTECTION ZONE PILING DESIGN AND CONSTRUCTION CONSIDERATIONS
- PILED RAFT FOUNDATION DESIGN SUMMARY

FOR COLUMN, BEAM AND WALL SCHEDULE REFER TO DRAWING NUMBER 2413-MHT-ST-DR-10002

LEGEND

- DENOTES LOCATION OF 5% FLOOR PLATE WITH HIGHER LOADING ALLOWANCE TO BCO STANDARDS.
- DENOTES LOCATION OF AREA ALLOWED FOR HEAVIER LANDSCAPING LOADING
- THERMAL BREAK CONNECTION (FARAT TBF OR EQUIVALENT APPROVED)
- 75x125UKA x8mm TO SUPPORT DECK
- MOMENT CONNECTION
- INSITU RC SLAB
- PRECAST PLANKS WITH TOPPING
- ASSUMED LOCATIONS FOR BMU SUPPORT STUBS. POSITION TO BE CONFIRMED BY SPECIALIST SUBCONTRACTOR. REFER TO DETAIL.
- DENOTES WATERPROOF CONCRETE

CDM RESIDUAL CIVIL / STRUCTURAL DESIGN RISKS

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www.meinhardt.co.uk

PROJECT
LABS HOLBORN

CLIENT
LABTECH

TITLE
PROPOSED - FIRST BASEMENT LEVEL - PLAN - BLOCK MS

DISCIPLINE				SCALE @ A1
STRUCTURAL				1:100
MHT REF	DRAWN	DESIGNED	CHECKED	APPROVED
2413	LM	PG	DS	AC
DRAWING No				ISSUE
2413-MHT-ST-DR-04091				P03

DATE: 18/05/2022 14:38:39
FILE LOCATION: C:\Users\Sergio.Abreu\Documents\2413-MHT-ST-P1-LABS-MS-2019_Sergio.Abreu.rvt

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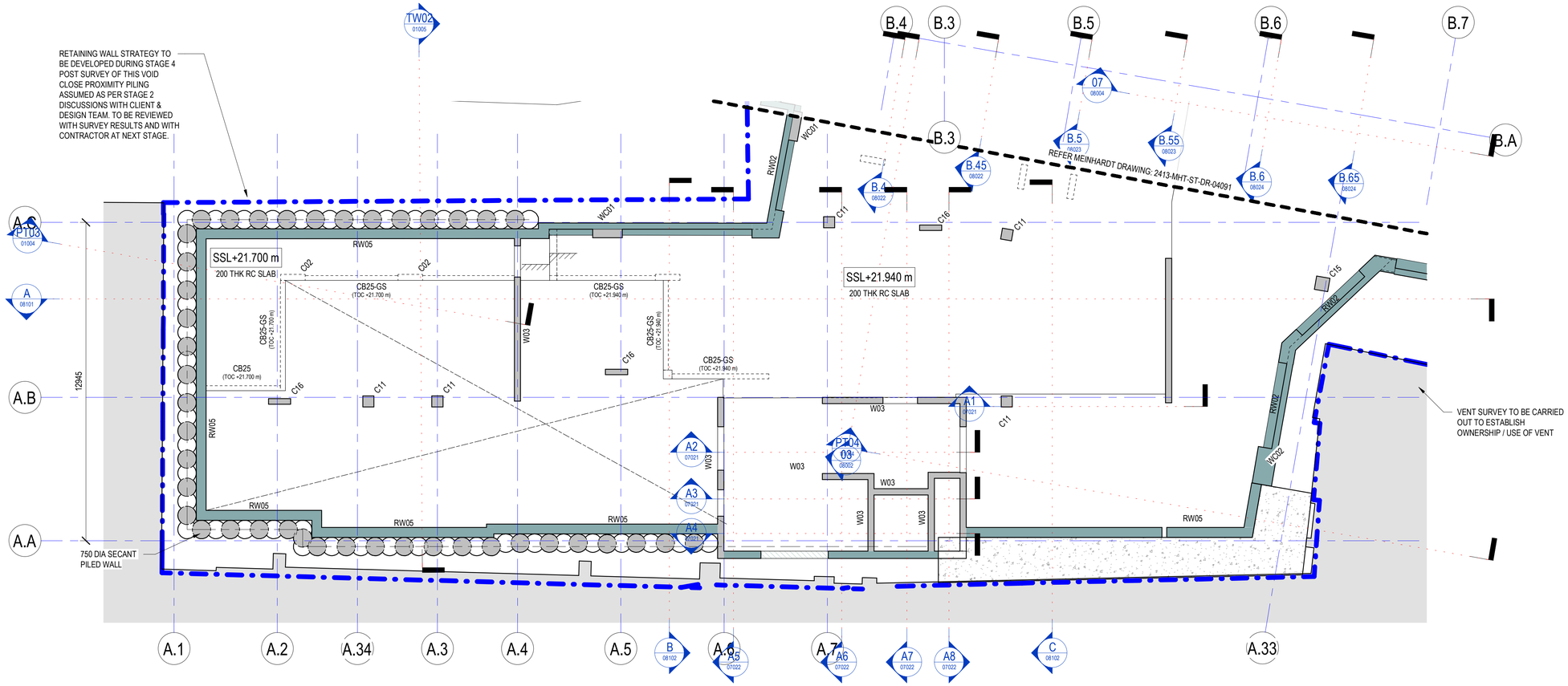

STRUCTURAL RC BEAM SCHEDULE

TYPE REF	WIDTH	DEPTH	COMMENTS
CB14	1000	800	
CB15	425	450	
CB16	400	450	
CB25	200	300	
CB27	250	500	
CB37	450	400	
CB41	1050	1000	
CB44	1000	600	
CB45	1000	800	
CB46	250	600	
CB47	1000	1000	
CB49	350	840	
CB50	600	650	

STRUCTURAL RC COLUMN SCHEDULE

TYPE REF	WIDTH	LENGTH	DIA	COMMENTS
C02	250	1000		
C03	700	700		
C04	500	1000		
C05	350	1200		
C06	700	1050		
C07	400	400		
C10	300	1200		
C11	450	450		
C12	350	350		
C14	425	425		
C15	550	550		
C16	900	225		
C17	500	700		
C18	2200	385		
C19	450	1000		
C20	300	900		
C22	450	400		
C23	600	400		
C27	400	800		
C28	350	400		
C29	900	250		
C30	1275	225		
C31	800	225		
C33	650	700		
C34	300	500		
C35	450	900		

STRUCTURAL RC WALL SCHEDULE

TYPE REF	WIDTH	COMMENTS
W01	200	
W02	225	
W03	250	
W04	300	
W05	400	
W07	350	
W08	275	
W09	600	

STRUCTURAL RETAINING RC WALL SCHEDULE

TYPE REF	WIDTH	COMMENTS
RW02	250	
RW05	400	

STRUCTURAL RC WAILER COLUMN SCHEDULE

TYPE REF	WIDTH	LENGTH	COMMENTS
WC01	600	1200	
WC02	1500	800	
WC03	750	800	
WC04	900	800	
WC05	700	1100	
WC06	650	700	
WC07	1350	900	
WC08	1730	900	
WC11	1000	800	
WC12	1950	445	
WC13	700	1350	
WC14	1490	1200	

FOR STEEL COLUMN, BEAM SCHEDULE REFER TO DRAWING NUMBER 2413-MHT-ST-DR-10002

LEGEND

- THERMAL BREAK CONNECTION (FARAT TBF OR EQUIVALENT APPROVED)
- DENOTES TRENCH FOR UKPN SUBUSTATION SERVICES
- DENOTES WATERPROOF CONCRETE
- DENOTES BOUNDARY LINE

STAGE 2
NOT FOR CONSTRUCTION

REV	DESCRIPTION	BY	DATE
P01	STAGE 2 ISSUE	DM	27/04/22

NOTES:

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- PILED RAFT FOUNDATION DESIGN SUMMARY

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www.meinhardt.co.uk

PROJECT
LABS HOLBORN

CLIENT
LABTECH

TITLE
PROPOSED - FIRST BASEMENT LEVEL - PLAN - BLOCK GS

DISCIPLINE				SCALE @ A1
STRUCTURAL				1:100
MHT REF	DRAWN	DESIGNED	CHECKED	APPROVED
2413	LM	PG	DS	AC
DRAWING No				ISSUE
2413-MHT-ST-DR-04092				P01

DATE: 18/05/2022 14:44:51
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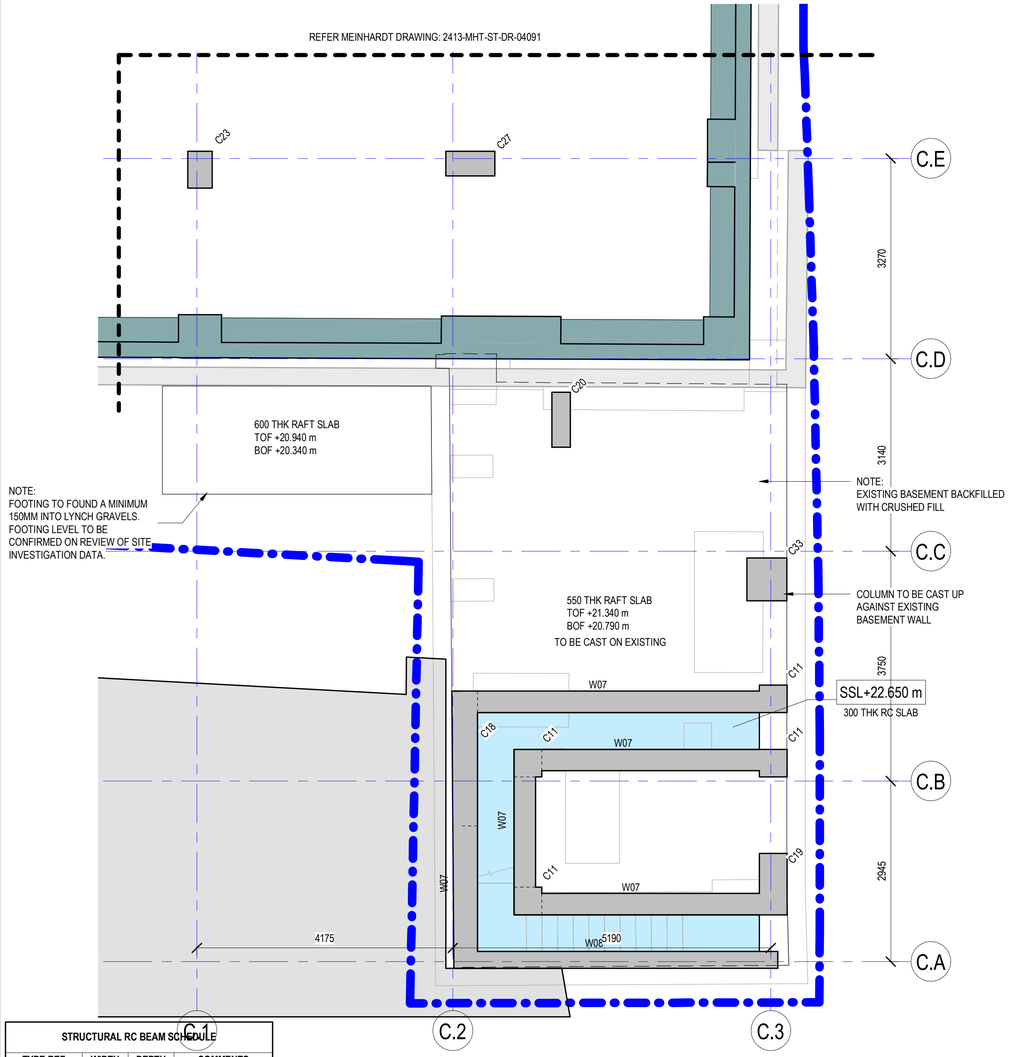
ISO A1 841mm x 594mm



NOTE:
REFER TO SKETCH SK-264 & SK-264a FOR GROUND BOURNE VIBRATION ISOLATION OPTIONS AND OUTLINE ALLOWANCES TO BE MADE FOR STRUCTURE AT GROUND FLOOR. TO BE DEVELOPED IN STAGE 4 WITH A SPECIALIST AND THE DESIGN TEAM DUE TO LATE STAGE 3 DESIGN FIX.

STRUCTURAL RC BEAM SCHEDULE

TYPE REF	WIDTH	DEPTH	COMMENTS
CB02	350	1000	
CB04	750	1000	
CB05	1500	1500	
CB06	250	400	
CB07	250	800	
CB08	325	400	
CB10	250	450	
CB11	250	1050	
CB12	250	700	
CB13	250	300	
CB14	1000	800	
CB15	425	450	
CB16	400	450	
CB17	400	475	
CB18	600	750	
CB19	225	450	
CB21	1500	400	
CB22	250	750	
CB23	350	650	
CB24	225	400	
CB25	200	300	
CB26	500	895	
CB27	250	500	
CB28	250	425	
CB30	600	350	
CB31	350	350	
CB32	900	1000	
CB33	600	550	
CB34	700	600	
CB35	450	600	
CB36	2000	1200	
CB37	450	400	
CB38	500	450	
CB39	250	1200	
CB40	300	500	
CB41	1050	1000	
CB42	350	900	
CB43	650	500	

STRUCTURAL RC COLUMN SCHEDULE

TYPE REF	WIDTH	LENGTH	DIA	COMMENTS
C02	250	1000		
C03	700	700		
C04	500	1000		
C05	350	1200		
C06	700	1050		
C07	400	400		
C08	500	500		
C09	1200	300		
C10	300	1200		
C11	450	450		
C12	350	350		
C13	250	1400		
C14	425	425		
C15	550	550		
C16	900	225		
C17	500	700		
C18	2200	385		
C19	450	1000		
C20	300	900		
C22	450	400		
C23	600	400		
C24	550	1200		
C27	400	800		
C28	350	400		
C29	900	250		
C30	1275	225		
C31	800	225		
C32	300	1260		
C33	650	700		

STRUCTURAL RC WALL SCHEDULE

TYPE REF	WIDTH	COMMENTS
W01	200	
W02	225	
W03	250	
W04	300	
W06	325	
W07	350	
W08	275	
W09	600	

STRUCTURAL RETAINING RC WALL SCHEDULE

TYPE REF	WIDTH	COMMENTS
RW02	250	
RW05	400	

STRUCTURAL RC WAILER COLUMN SCHEDULE

TYPE REF	WIDTH	LENGTH	DIA	COMMENTS
WC01	600	1200		
WC02	1500	800		
WC03	750	800		
WC04	900	800		
WC05	700	1100		
WC06	650	700		
WC07	1350	900		
WC08	1730	900		
WC09	1490	900		
WC11	1000	800		
WC12	1950	445		
WC13	700	1350		

FOR STEEL COLUMN, BEAM SCHEDULE REFER TO DRAWING NUMBER 2413-MHT-ST-DR-10002

LEGEND

- THERMAL BREAK CONNECTION (FARAT TBF OR EQUIVALENT APPROVED)
- DENOTES TRENCH FOR UKPN SUBSTATION SERVICES
- DENOTES WATERPROOF CONCRETE
- DENOTES BOUNDARY LINE

STAGE 3
NOT FOR CONSTRUCTION

REV	DESCRIPTION	BY	DATE
P01	STAGE 3 ISSUE	LM	26/01/2021
P02	STAGE 3 ISSUE	LM	01/02/2021
P03	POST STAGE 3 ISSUE	LM	12/02/2021

NOTES:
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- PILED RAFT FOUNDATION DESIGN SUMMARY

CDM RESIDUAL CIVIL / STRUCTURAL DESIGN RISKS

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www.meinhardt.co.uk

PROJECT
LABS HOLBORN

CLIENT
LABTECH

TITLE
PROPOSED - FIRST BASEMENT - PLAN - BLOCK HH

DISCIPLINE				SCALE @ A1
STRUCTURAL				1:50
MHT REF	DRAWN	DESIGNED	CHECKED	APPROVED
2413	LM	PG	DS	AC
DRAWING No				ISSUE
2413-MHT-ST-DR-04093				P03

DATE: 12/02/2021 15:42:54
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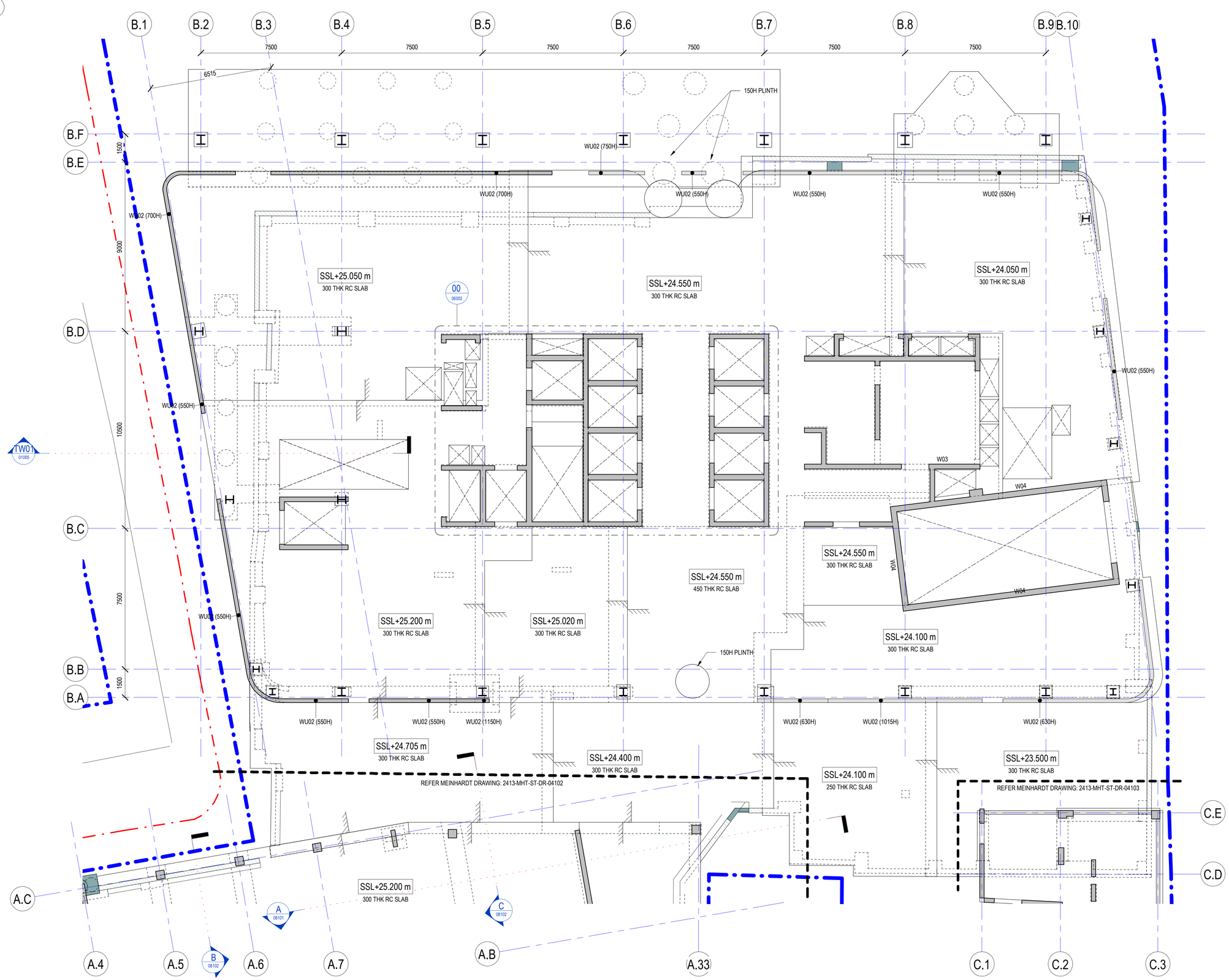

STAGE 2
NOT FOR CONSTRUCTION

REV	DESCRIPTION	BY	DATE
P01	STAGE 2 ISSUE	DM	20/04/22
P02	STAGE 2 ISSUE	DM	27/04/22
P03	STAGE 2 ISSUE	SA	18/05/22

NOTES:

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FOR COLUMN, BEAM AND WALL SCHEDULE REFER TO DRAWING NUMBER 2413-MHT-ST-DR-10002

LEGEND

- DENOTES LOCATION OF 5% FLOOR PLATE WITH HIGHER LOADING ALLOWANCE TO BCO STANDARDS.
- DENOTES LOCATION OF AREA ALLOWED FOR HEAVIER LANDSCAPING LOADING
- THERMAL BREAK CONNECTION (FARAT TBF OR EQUIVALENT APPROVED)
- 75x125UKA x8mm TO SUPPORT DECK
- MOMENT CONNECTION
- INSITU RC SLAB
- PRECAST PLANKS WITH TOPPING
- ASSUMED LOCATIONS FOR BMU SUPPORT STUBS. POSITION TO BE CONFIRMED BY SPECIALIST SUBCONTRACTOR. REFER TO DETAIL.
- DENOTES WATERPROOF CONCRETE

CDM RESIDUAL CIVIL / STRUCTURAL DESIGN RISKS

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PROJECT
LABS HOLBORN

CLIENT
LABTECH

TITLE
PROPOSED - LEVEL 00 - PLAN - BLOCK MS

DISCIPLINE				SCALE @ A1
STRUCTURAL				1:100
MHT REF	DRAWN	DESIGNED	CHECKED	APPROVED
2413	LM	PG	DS	AC
DRAWING No				ISSUE
2413-MHT-ST-DR-04101				P03

DATE: 18/05/2022 14:38:43
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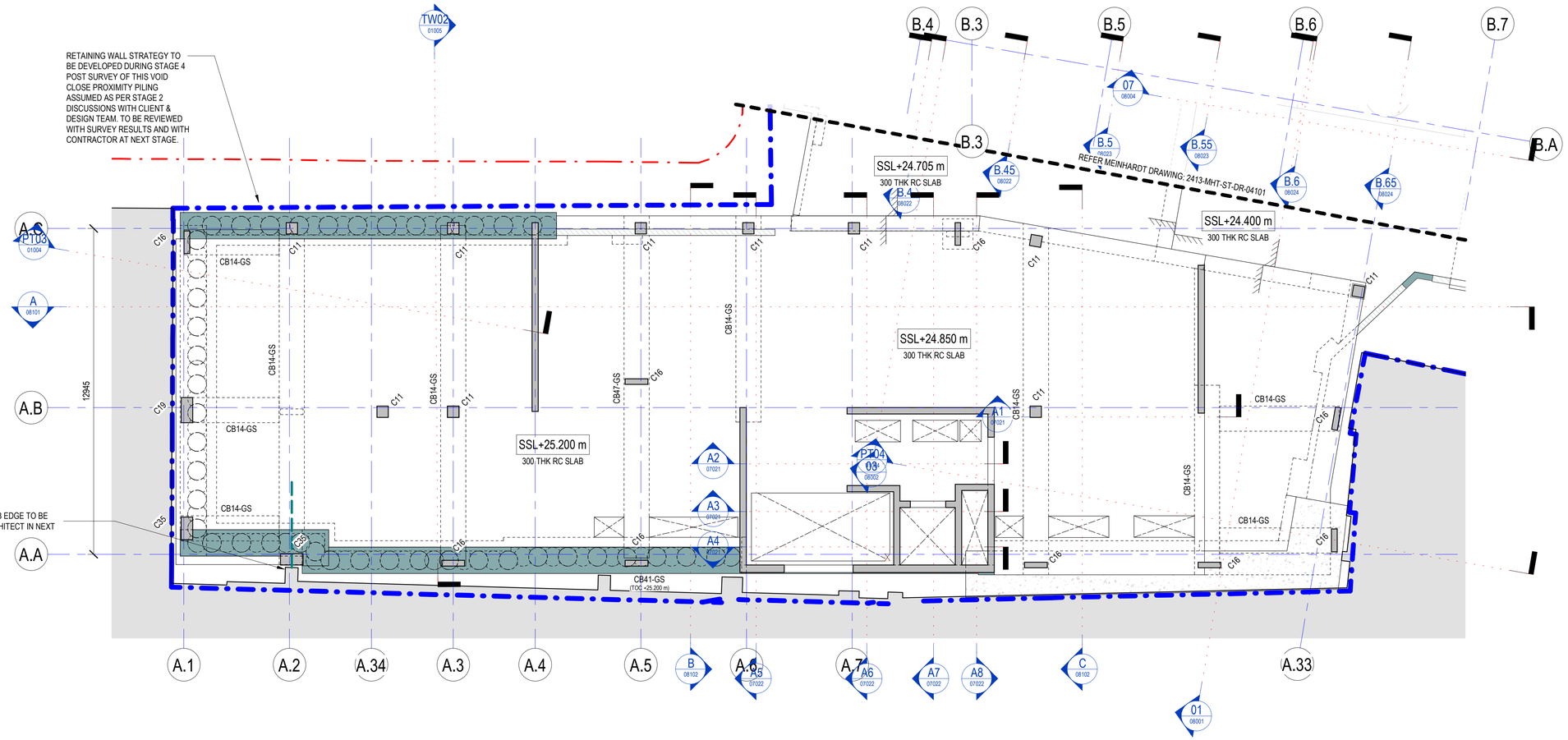

STRUCTURAL RC BEAM SCHEDULE			
TYPE REF	WIDTH	DEPTH	COMMENTS
CB14	1000	800	
CB15	425	450	
CB16	400	450	
CB25	200	300	
CB27	250	500	
CB37	450	400	
CB41	1050	1000	
CB44	1000	600	
CB45	1000	800	
CB46	250	600	
CB47	1000	1000	
CB49	350	840	
CB50	600	650	

STRUCTURAL RC COLUMN SCHEDULE				
TYPE REF	WIDTH	LENGTH	DIA	COMMENTS
C02	250	1000		
C03	700	700		
C04	500	1000		
C05	350	1200		
C06	700	1050		
C07	400	400		
C10	300	1200		
C11	450	450		
C12	350	350		
C14	425	425		
C15	550	550		
C16	900	225		
C17	500	700		
C18	2200	385		
C19	450	1000		
C20	300	900		
C22	450	400		
C23	600	400		
C27	400	800		
C28	350	400		
C29	900	250		
C30	1275	225		
C31	800	225		
C33	650	700		
C34	300	500		
C35	450	900		

STRUCTURAL RC WALL SCHEDULE		
TYPE REF	WIDTH	COMMENTS
W01	200	
W02	225	
W03	250	
W04	300	
W05	400	
W07	350	
W08	275	
W09	600	

STRUCTURAL RETAINING RC WALL SCHEDULE		
TYPE REF	WIDTH	COMMENTS
RW02	250	
RW05	400	

STRUCTURAL RC WAILER COLUMN SCHEDULE			
TYPE REF	WIDTH	LENGTH	COMMENTS
WC01	600	1200	
WC02	1500	800	
WC03	750	800	
WC04	900	800	
WC05	700	1100	
WC06	650	700	
WC07	1350	900	
WC08	1730	900	
WC11	1000	800	
WC12	1950	445	
WC13	700	1350	
WC14	1490	1200	

FOR STEEL COLUMN, BEAM SCHEDULE REFER TO DRAWING NUMBER 2413-MHT-ST-DR-10002

LEGEND

- THERMAL BREAK CONNECTION (FARAT TBF OR EQUIVALENT APPROVED)
- DENOTES TRENCH FOR UKPN SUBUSTATION SERVICES
- DENOTES WATERPROOF CONCRETE
- DENOTES BOUNDARY LINE

STAGE 2
NOT FOR CONSTRUCTION

REV	DESCRIPTION	BY	DATE
P01	STAGE 2 ISSUE	DM	27/04/22

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www.meinhardt.co.uk

PROJECT
LABS HOLBORN

CLIENT
LABTECH

TITLE
PROPOSED - LEVEL 00 - PLAN - BLOCK GS

DISCIPLINE				SCALE @ A1
STRUCTURAL				1:100
MHT REF	DRAWN	DESIGNED	CHECKED	APPROVED
2413	LM	PG	DS	AC
DRAWING No				ISSUE
2413-MHT-ST-DR-04102				P01

DATE: 18/05/2022 14:45:14
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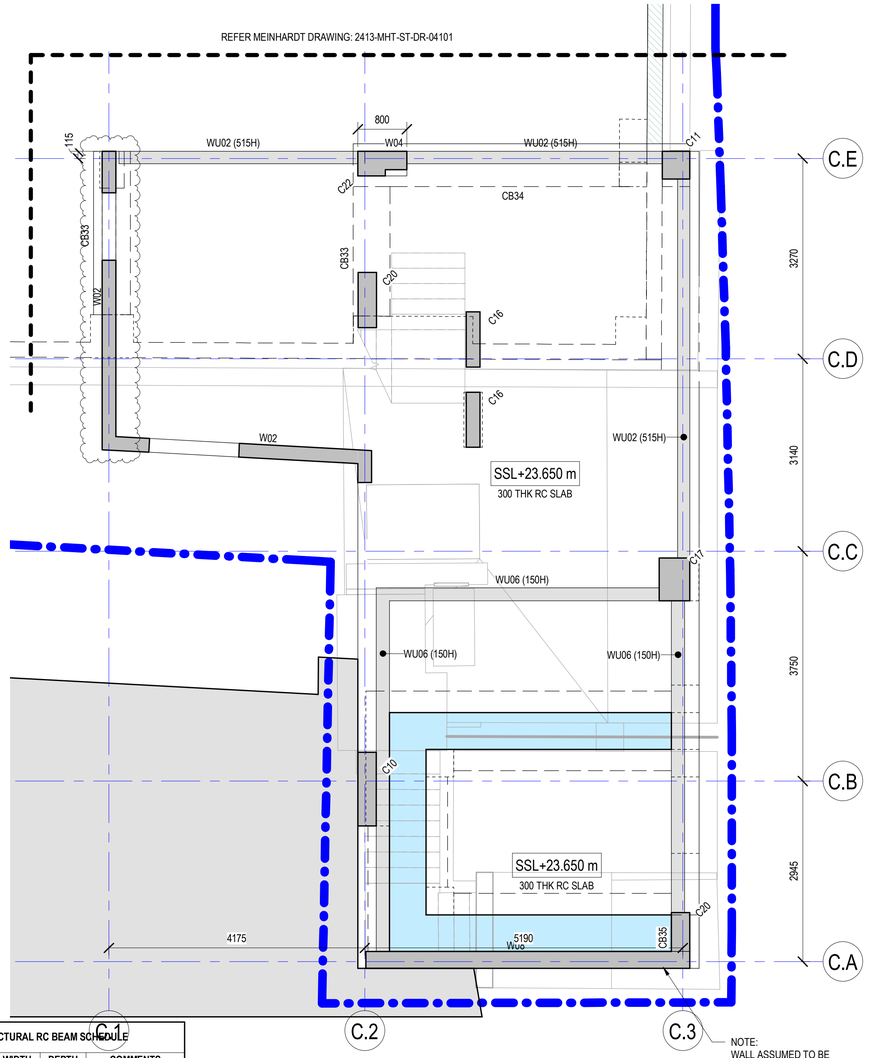
ISO A1 841mm x 594mm



NOTE:
WALL ASSUMED TO BE CONSTRUCTED USING PRECAST TWINWALL

NOTE:
REFER TO SKETCH SK-264 & SK-264a FOR GROUND BOURNE VIBRATION ISOLATION OPTIONS AND OUTLINE ALLOWANCES TO BE MADE FOR STRUCTURE AT GROUND FLOOR. TO BE DEVELOPED IN STAGE 4 WITH A SPECIALIST AND THE DESIGN TEAM DUE TO LATE STAGE 3 DESIGN FIX.

STRUCTURAL RC BEAM SCHEDULE

TYPE REF	WIDTH	DEPTH	COMMENTS
CB02	350	1000	
CB04	750	1000	
CB05	1500	1500	
CB06	250	400	
CB07	250	800	
CB08	325	400	
CB10	250	450	
CB11	250	1050	
CB12	250	700	
CB13	250	300	
CB14	1000	800	
CB15	425	450	
CB16	400	450	
CB17	400	475	
CB18	600	750	
CB19	225	450	
CB21	1500	400	
CB22	250	750	
CB23	350	650	
CB24	225	400	
CB25	200	300	
CB26	500	895	
CB27	250	500	
CB28	250	425	
CB30	600	350	
CB31	350	350	
CB32	900	1000	
CB33	600	550	
CB34	700	600	
CB35	450	600	
CB36	2000	1200	
CB37	450	400	
CB38	500	450	
CB39	250	1200	
CB40	300	500	
CB41	1050	1000	
CB42	350	900	
CB43	650	500	

STRUCTURAL RC COLUMN SCHEDULE

TYPE REF	WIDTH	LENGTH	DIA	COMMENTS
C02	250	1000		
C03	700	700		
C04	500	1000		
C05	350	1200		
C06	700	1050		
C07	400	400		
C08	500	500		
C09	1200	300		
C10	300	1200		
C11	450	450		
C12	350	350		
C13	250	1400		
C14	425	425		
C15	550	550		
C16	900	225		
C17	500	700		
C18	2200	385		
C19	450	1000		
C20	300	900		
C22	450	400		
C23	600	400		
C24	550	1200		
C27	400	800		
C28	350	400		
C29	900	250		
C30	1275	225		
C31	800	225		
C32	300	1260		
C33	650	700		

STRUCTURAL RC WALL SCHEDULE

TYPE REF	WIDTH	COMMENTS
W01	200	
W02	225	
W03	250	
W04	300	
W06	325	
W07	350	
W08	275	
W09	600	

STRUCTURAL RETAINING RC WALL SCHEDULE

TYPE REF	WIDTH	COMMENTS
RW02	250	
RW05	400	

STRUCTURAL RC WAILER COLUMN SCHEDULE

TYPE REF	WIDTH	LENGTH	DIA	COMMENTS
WC01	600	1200		
WC02	1500	800		
WC03	750	800		
WC04	900	800		
WC05	700	1100		
WC06	650	700		
WC07	1350	900		
WC08	1730	900		
WC09	1490	900		
WC11	1000	800		
WC12	1950	445		
WC13	700	1350		

FOR STEEL COLUMN, BEAM SCHEDULE REFER TO DRAWING NUMBER 2413-MHT-ST-DR-10002

LEGEND

- THERMAL BREAK CONNECTION (FARAT TBF OR EQUIVALENT APPROVED)
- DENOTES TRENCH FOR UKPN SUBUSTATION SERVICES
- DENOTES WATERPROOF CONCRETE
- DENOTES BOUNDARY LINE

STAGE 3
NOT FOR CONSTRUCTION

REV	DESCRIPTION	BY	DATE
P01	STAGE 3 ISSUE	LM	26/01/2021
P02	STAGE 3 ISSUE	LM	01/02/2021
P03	POST STAGE 3 ISSUE	LM	12/02/2021

NOTES:
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CDM RESIDUAL CIVIL / STRUCTURAL DESIGN RISKS

1. REFER TO MEINHARDT CDM RISK ASSESSMENT DOCUMENT
2. CURRENT DESIGN AND GROUND MOVEMENT ASSESSMENT BASED ON MEINHARDT ASSUMED CONSTRUCTION SEQUENCE ILLUSTRATED IN SKETCHES SK-253 TO SK-258. FINAL DEMOLITION AND CONSTRUCTION STRATEGY BY CONTRACTOR WHICH MUST BE COORDINATED WITH DESIGN.

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PROJECT
LABS HOLBORN

CLIENT
LABTECH

TITLE
PROPOSED - LEVEL 00 - PLAN - BLOCK HH

DISCIPLINE				SCALE @ A1
STRUCTURAL				1:50
MHT REF	DRAWN	DESIGNED	CHECKED	APPROVED
2413	LM	PG	DS	AC
DRAWING No				ISSUE
2413-MHT-ST-DR-04103				P03

DATE: 12/02/2021 15:43:17
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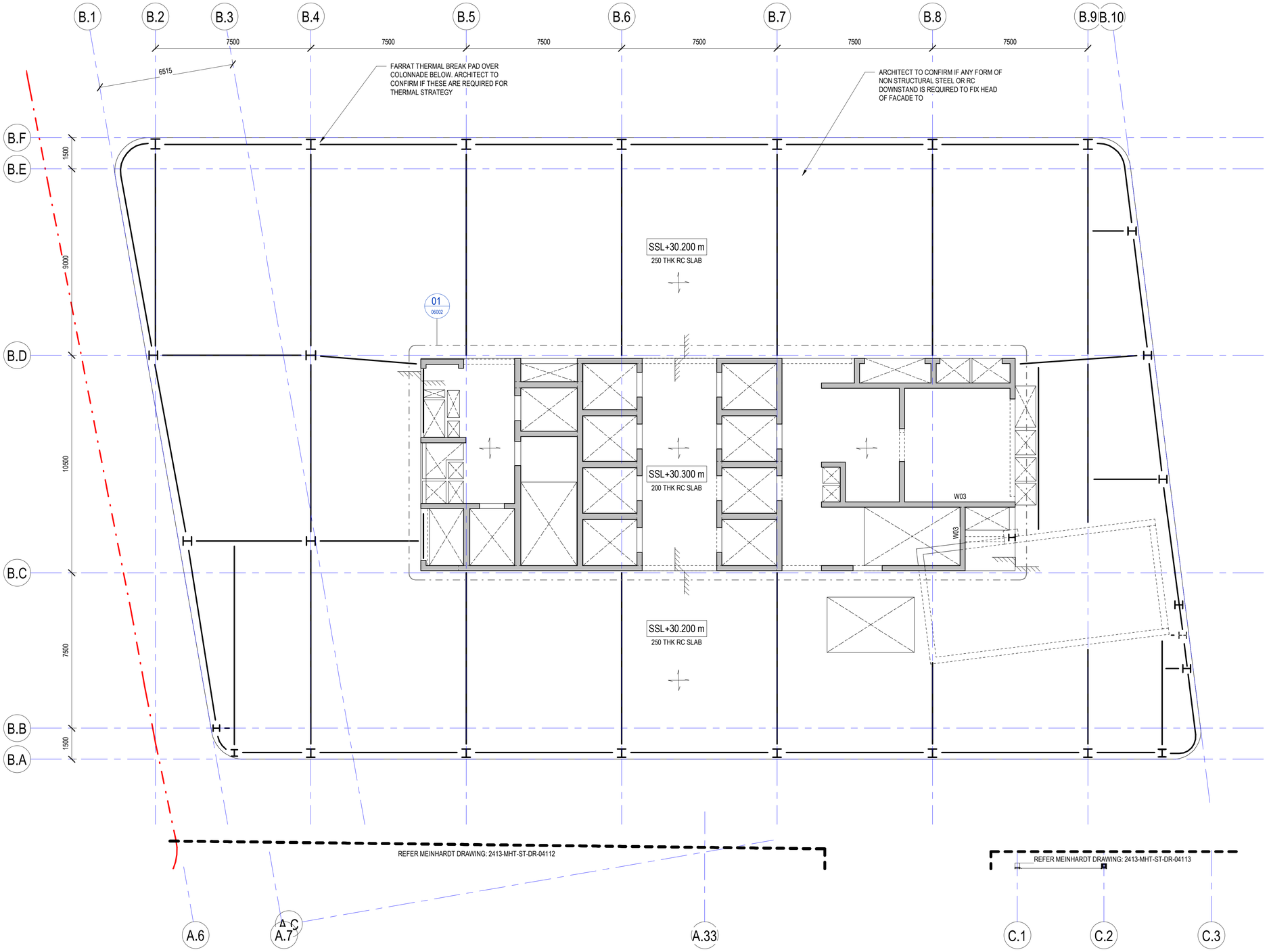
ISO A1 841mm x 594mm



STAGE 2
NOT FOR CONSTRUCTION

REV	DESCRIPTION	BY	DATE
P01	STAGE 2 ISSUE	DM	20/04/22
P02	STAGE 2 ISSUE	DM	27/04/22
P03	STAGE 2 ISSUE	SA	18/05/22

NOTES:

1. DO NOT SCALE FROM THIS DRAWING. ONLY WRITTEN DIMENSIONS SHALL BE USED.
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NOTE:

1. DEFLECTIONS IN FACADE BEAMS TO BE COORDINATED WITH THE FACADE ENGINEER AT THE NEXT STAGE AS AN INCREASED DEFLECTION HEAD MAY BE REQUIRED IN SOME AREAS.
2. TYPICALLY 350mm DP x 500mm WD SERVICE PENETRATIONS ARE REQUIRED WITHIN INTERNAL STEEL BEAMS AT 1500mm CENTERS. TO BE COORDINATED AT NEXT STAGE - REFER TO PREVIOUS STAGE 3 SCHEME FOR MORE INFORMATION.
3. ALL BEAMS EXCEPT TRANSFER BEAMS TO HAVE 130 HIGH 19 DIAM SHEAR STUDS AT 150c/c.
4. PLANKS TO BE DESIGNED FOR 2 HOURS FIRE AND TO HAVE A TYPE B PLAIN SOFFIT FINISH.

FOR COLUMN, BEAM AND WALL SCHEDULE REFER TO DRAWING NUMBER 2413-MHT-ST-DR-10002

LEGEND

- DENOTES LOCATION OF 5% FLOOR PLATE WITH HIGHER LOADING ALLOWANCE TO BCO STANDARDS.
- DENOTES LOCATION OF AREA ALLOWED FOR HEAVIER LANDSCAPING LOADING
- THERMAL BREAK CONNECTION (FARAT TBF OR EQUIVALENT APPROVED)
- 75x125UKA x8mm TO SUPPORT DECK
- MOMENT CONNECTION
- INSITU RC SLAB
- PRECAST PLANKS WITH TOPPING
- ASSUMED LOCATIONS FOR BMU SUPPORT STUBS. POSITION TO BE CONFIRMED BY SPECIALIST SUBCONTRACTOR. REFER TO DETAIL.
- DENOTES WATERPROOF CONCRETE

CDM RESIDUAL CIVIL / STRUCTURAL DESIGN RISKS

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PROJECT
LABS HOLBORN

CLIENT
LABTECH

TITLE
PROPOSED - LEVEL 01 - PLAN - BLOCK MS

DISCIPLINE				SCALE @ A1
STRUCTURAL				1:100
MHT REF	DRAWN	DESIGNED	CHECKED	APPROVED
2413	LM	PG	DS	AC
DRAWING No				ISSUE
2413-MHT-ST-DR-04111				P03

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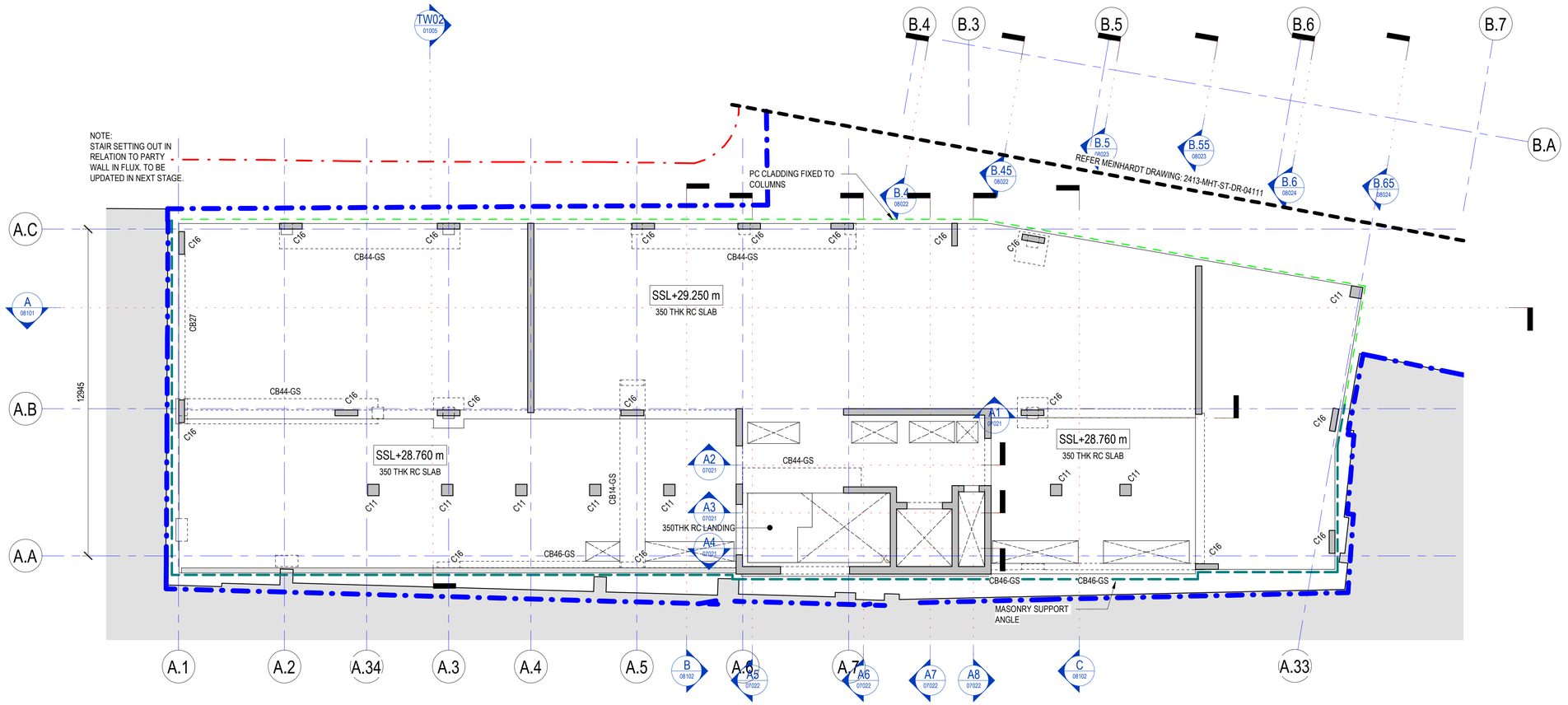

STRUCTURAL RC BEAM SCHEDULE

TYPE REF	WIDTH	DEPTH	COMMENTS
CB14	1000	800	
CB15	425	450	
CB16	400	450	
CB25	200	300	
CB27	250	500	
CB37	450	400	
CB41	1050	1000	
CB44	1000	600	
CB45	1000	800	
CB46	250	600	
CB47	1000	1000	
CB49	350	840	
CB50	600	650	

STRUCTURAL RC COLUMN SCHEDULE

TYPE REF	WIDTH	LENGTH	DIA	COMMENTS
C02	250	1000		
C03	700	700		
C04	500	1000		
C05	350	1200		
C06	700	1050		
C07	400	400		
C10	300	1200		
C11	450	450		
C12	350	350		
C14	425	425		
C15	550	550		
C16	900	225		
C17	500	700		
C18	2200	385		
C19	450	1000		
C20	300	900		
C22	450	400		
C23	600	400		
C27	400	800		
C28	350	400		
C29	900	250		
C30	1275	225		
C31	800	225		
C33	650	700		
C34	300	500		
C35	450	900		

STRUCTURAL RC WALL SCHEDULE

TYPE REF	WIDTH	COMMENTS
W01	200	
W02	225	
W03	250	
W04	300	
W05	400	
W07	350	
W08	275	
W09	600	

STRUCTURAL RETAINING RC WALL SCHEDULE

TYPE REF	WIDTH	COMMENTS
RW02	250	
RW05	400	

STRUCTURAL RC WAILER COLUMN SCHEDULE

TYPE REF	WIDTH	LENGTH	COMMENTS
WC01	600	1200	
WC02	1500	800	
WC03	750	800	
WC04	900	800	
WC05	700	1100	
WC06	650	700	
WC07	1350	900	
WC08	1730	900	
WC11	1000	800	
WC12	1950	445	
WC13	700	1350	
WC14	1490	1200	

FOR STEEL COLUMN, BEAM SCHEDULE REFER TO DRAWING NUMBER 2413-MHT-ST-DR-10002

LEGEND

- THERMAL BREAK CONNECTION (FARAT TBF OR EQUIVALENT APPROVED)
- DENOTES TRENCH FOR UKPN SUBSTATION SERVICES
- DENOTES WATERPROOF CONCRETE
- DENOTES BOUNDARY LINE

STAGE 2
NOT FOR CONSTRUCTION

REV	DESCRIPTION	BY	DATE
P01	STAGE 2 ISSUE	DM	27/04/22

NOTES:

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PROJECT
LABS HOLBORN

CLIENT
LABTECH

TITLE
PROPOSED - LEVEL 01 - PLAN - BLOCK GS

DISCIPLINE				SCALE @ A1
STRUCTURAL				1:100
MHT REF	DRAWN	DESIGNED	CHECKED	APPROVED
2413	LM	PG	DS	AC
DRAWING No.				ISSUE
2413-MHT-ST-DR-04112				P01

DATE: 18/05/2022 14:45:34
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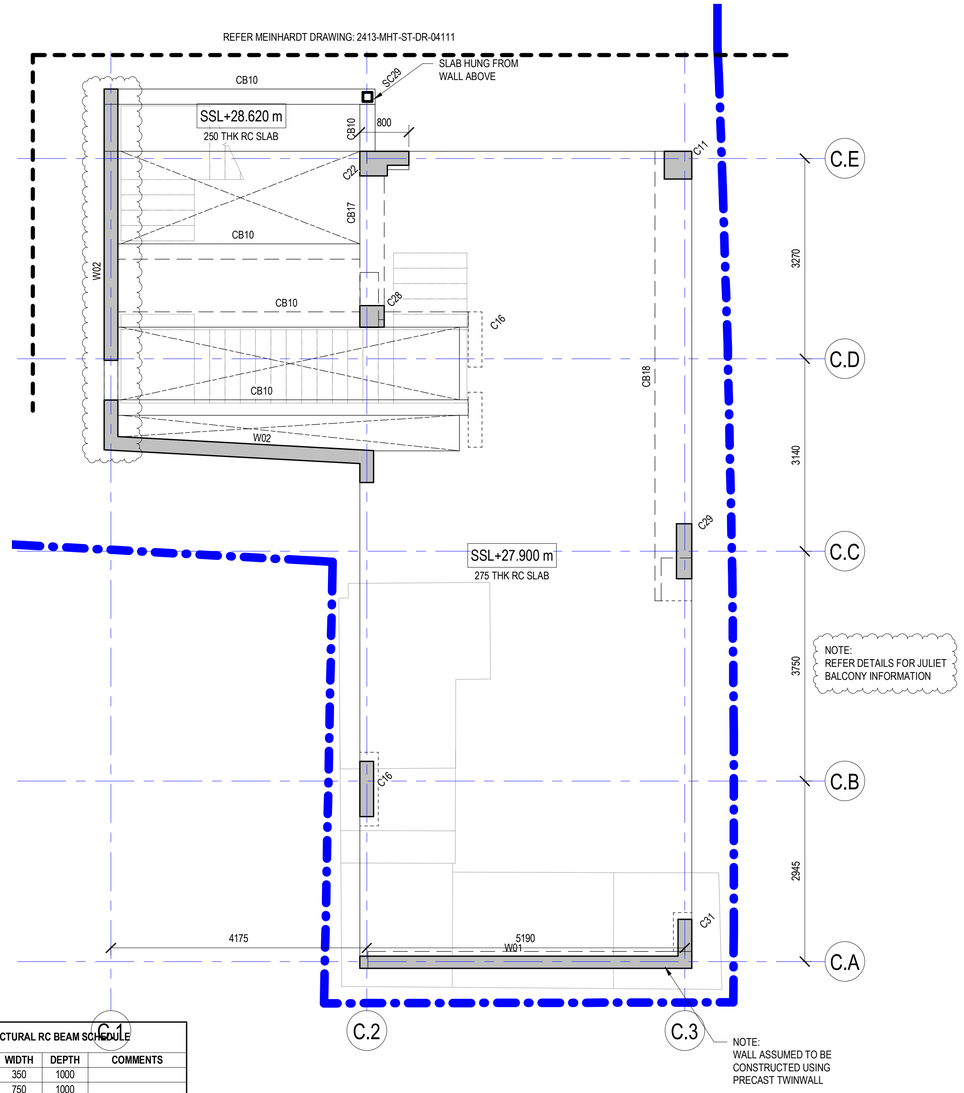

STRUCTURAL RC BEAM SCHEDULE

TYPE REF	WIDTH	DEPTH	COMMENTS
CB02	350	1000	
CB04	750	1000	
CB05	1500	1500	
CB06	250	400	
CB07	250	800	
CB08	325	400	
CB10	250	450	
CB11	250	1050	
CB12	250	700	
CB13	250	300	
CB14	1000	800	
CB15	425	450	
CB16	400	450	
CB17	400	475	
CB18	600	750	
CB19	225	450	
CB21	1500	400	
CB22	250	750	
CB23	350	650	
CB24	225	400	
CB25	200	300	
CB26	500	895	
CB27	250	500	
CB28	250	425	
CB30	600	350	
CB31	350	350	
CB32	900	1000	
CB33	600	550	
CB34	700	600	
CB35	450	600	
CB36	2000	1200	
CB37	450	400	
CB38	500	450	
CB39	250	1200	
CB40	300	500	
CB41	1050	1000	
CB42	350	900	
CB43	650	500	

STRUCTURAL RC COLUMN SCHEDULE

TYPE REF	WIDTH	LENGTH	DIA	COMMENTS
C02	250	1000		
C03	700	700		
C04	500	1000		
C05	350	1200		
C06	700	1050		
C07	400	400		
C08	500	500		
C09	1200	300		
C10	300	1200		
C11	450	450		
C12	350	350		
C13	250	1400		
C14	425	425		
C15	550	550		
C16	900	225		
C17	500	700		
C18	2200	385		
C19	450	1000		
C20	300	900		
C22	450	400		
C23	600	400		
C24	550	1200		
C27	400	800		
C28	350	400		
C29	900	250		
C30	1275	225		
C31	800	225		
C32	300	1260		
C33	650	700		

STRUCTURAL RC WALL SCHEDULE

TYPE REF	WIDTH	COMMENTS
W01	200	
W02	225	
W03	250	
W04	300	
W06	325	
W07	350	
W08	275	
W09	600	

STRUCTURAL RETAINING RC WALL SCHEDULE

TYPE REF	WIDTH	COMMENTS
RW02	250	
RW05	400	

STRUCTURAL RC WAILER COLUMN SCHEDULE

TYPE REF	WIDTH	LENGTH	DIA	COMMENTS
WC01	600	1200		
WC02	1500	800		
WC03	750	800		
WC04	900	800		
WC05	700	1100		
WC06	650	700		
WC07	1350	900		
WC08	1730	900		
WC09	1490	900		
WC11	1000	800		
WC12	1950	445		
WC13	700	1350		

FOR STEEL COLUMN, BEAM SCHEDULE REFER TO DRAWING NUMBER 2413-MHT-ST-DR-10002

LEGEND

- THERMAL BREAK CONNECTION (FARAT TBF OR EQUIVALENT APPROVED)
- DENOTES TRENCH FOR UKPN SUBUSTATION SERVICES
- DENOTES WATERPROOF CONCRETE
- DENOTES BOUNDARY LINE

STAGE 3
NOT FOR CONSTRUCTION

REV	DESCRIPTION	BY	DATE
P01	STAGE 3 ISSUE	LM	26/01/2021
P02	STAGE 3 ISSUE	LM	01/02/2021
P03	POST STAGE 3 ISSUE	LM	12/02/2021

NOTES:
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PROJECT
LABS HOLBORN

CLIENT
LABTECH

TITLE
PROPOSED - LEVEL 01 - PLAN - BLOCK HH

DISCIPLINE				SCALE @ A1
STRUCTURAL				1:50
MHT REF	DRAWN	DESIGNED	CHECKED	APPROVED
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DRAWING No				ISSUE
2413-MHT-ST-DR-04113				P03

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