

WHITCHURCH ENTERPRISE PARK, BRISTOL  
STAGE TWO REPORT

01/06/2020 2020.00317.000

WEP-AHR-ZZ-RP-A-A3-001



Revision	Date	Produced by	Approved by	Comments
P01	12/05/2020	AS	KB	Client Meeting
P02	21/05/2020	AS	KB	Submission to planning
P03	22/05/2020	LS	AS	Updated to comments
P04	01/06/2020	LS	AS	Issued for RIBA Stage 2

This document has been prepared by:



## Project Brief:

Bristol City Council is proposing to build and operate a new light industrial workspace scheme (planning use class B1 C), which will be co-located with the Bottle Yard Film Studios at an adjacent site – 601 Whitchurch Lane.

The Project is targeting delivery of 2,300m<sup>2</sup> GIA of light industrial work space, comprising of up to 16 high quality units of an average size of 139 sq m and aimed at small to medium-sized start up and growing businesses in a range of sectors (creative, light manufacturing or engineering, construction, food and drink related) which are established or emerging in the South Bristol economy. The project aims to help address a continuing shortage of good quality smaller-sized units in the B1 C use class available to start up or early stage and growing businesses in the local commercial property area of South Bristol.

### Target SME Business Growth:

The new build workspace is mainly orientated towards SMEs in a range of sectors requiring premises at different growth stages post start up. It is expected that up to 16 SMEs are expected to occupy the workspace within 12 months of the completion of the scheme.

The project will focus on local needs and opportunities by:

- building new serviced workspace to address shortage of incubation and expansion space due to high occupancy of local industrial estates and limited supply of small offices in the local area.
- signposting occupiers of the workspace and other enquiries to the South Bristol Enterprise Support project which aims to provide advice and grants tailored to SMEs in both 'traditional' and emerging new sectors of the South Bristol economy.
- supporting start ups and local supply chain creation around planned investments by BCC and WECA in the nationally significant creative / media production and digital technology and facilities at The Bottle Yard Studios and Knowle West Media Centre.
- also potentially supporting the local construction supply chain, including off site modular manufacturing or assembly, linked to new house building in South Bristol, eg. at Hengrove Park.

The project will be linked to the planned expansion of the Bottle Yard Studios over two sites, which will go forward in parallel with this project, with intent that there will be direct access to the existing site for business providing a support function, or to access facilities such as training / meeting space.

These businesses will also have the opportunity to take up support tailored to their sector and development stage. Existing initiatives include small grant assistance during the period Aug 2021 until Dec 2022 which is being provided by other ERDF co-funded projects – principally the South Bristol Enterprise Support Project, but also Scale Up Coaching Grants (Business West), the Low Carbon Challenge Fund (WECA) and the Advanced Engineering and Digital Business Acceleration Hub and CAMERA facility (University of Bath).

With the benefit of this new workspace and the positive business environment and new economic opportunities created by the

expanding Bottle Yard Studios (for example, in the new local supply chains required by film and tv production companies using the facilities), it is expected that the large majority (75%) of the occupying companies will be able to grow successfully and create around 30 new jobs and increased GVA output over a 3 year timescale.

### Demand for Light Commercial Industrial Units in South Bristol:

There are two main streams of evidence underpinning the demand for new build light industrial units

- from business enquiries from local or external SMEs or pre start up entrepreneurs received by BCC Economic Development or via our business centres and partner enterprise agencies; and
- the Bristol Employment Land Study commissioned by BCC during 2018-19, which has assessed the current supply and demand and trends for all types of office and industrial premises city-wide and for the South Bristol area.

According to the Employment Land Study, South Bristol is an active industrial (B2 / B8 . B1C use classes) market with relatively good take-up in recent years, including the estates around Hengrove, Hartcliffe and Ashton Vale, leading to high occupancy levels of ageing stock, and, in a number of cases reviewed by BCC, difficulties for expanding companies to find suitably-sized and higher quality 'grow on' space. However, in recent years there has been very limited new build stock – whether for smaller or larger units - delivered to the market despite the good level of demand boosted by the completion of the South Bristol Link Road improving access to the south west of the area.

Although it is probable that demand for both land and buildings will continue into the future, and potential for certain segments to grow, eg. for small to medium light industrial and 'last mile' logistics centres, there has been little sign of developer appetite speculatively to provide new modern industrial workspace to a high environmental standard. In this context the opening of the Filwood Green Business Park, with its 73 mixed small industrial and office units was a notable exception, as it was entirely financed by the public sector. But its full occupancy and current waiting list of 17 entrepreneurs seeking units has proved there is a latent demand from new and growing SMEs that is still not being met by the market.

The Project will add value by addressing the existing limited provision in the South Bristol Regeneration Area of small to medium sized, serviced light industrial units, which are in high demand and short supply, as evidenced by the waiting lists for space at the Filwood Green Business Park and The Bottle Yard Studios, by providing up to 16 new 'grow on' units of a modern eco-friendly design in a supported location as part of a dynamic business cluster. At the present time, commercial workspace providers are focussed on the city centre and adjacent locations, or the North Fringe and there is little or no development of light industrial incubation or 'grown on' space in this part of the city, despite the investments in new housing and other infrastructure going on in South Bristol. It is expected that this intervention, in parallel with a new area-targeted enterprise support project, will, at the least, serve to reduce the market failure or hesitation to provide new and better quality workspace of this type in the area. In this way, through complementary

interventions, including the investment planned by BCC for the expansion of the Bottle Yard Studios, the local economy of South Bristol will receive a significant stimulus as both new and existing enterprises in a range of sectors take advantage of an improved environment for growth. Without the ERDF and supporting WECA funding of the project, such development would almost certainly be delayed or not happen at all.

### Boundaries and Adjacent Sites:

#### *Bottle Yard Studios*

The site has an open boundary to the east with the Bottle Yard Studios. It is expected that some (but not all) business occupying the units will provide services related to the Studios and will therefore require direct access to provide a complimentary interface with the existing TBYS site. A secure boundary line is required between the two sites, with the access to be managed by the on-site TBYS security. The design needs to ensure the 601 development could be operated independently if TBYS site is redeveloped in the future.

There may be potential to agree a new boundary line, if for instance use of the adjacent TBYS access road is required to satisfy site access requirements from Transport Development Management, or if a minor adjustment is required to accommodate facilities such as cycle storage. This would need approval from Homes England who have an interest in TBYS site as a grant provider for the original purchase. The project should work to as far as possible in the first instance seek to meet all requirements within the existing site boundary.

The Bottle Yard Studios is an active film studio, which includes two studios located in Tankhouse 1 and Tankhouse 2, shown on the below plan. The project's Construction Strategy needs to consider approaches that minimise the impact of construction on these existing Studio spaces, particularly as other parts of the site may be impacted by the Hengrove Housing development at a similar time. The project will consider Modern Methods of Construction, including modular and off-site fabrication. It is proposed that demolition and clearance works will be undertaken as a separate enabling package that can be timed based on filming schedules to minimise disruption.

#### *Hinton Rescue*

Hinton Rescue is located to the east of the site. A new secure fence line will be required to part or all of this boundary, in particular along the line of the existing building.

#### *Hengrove Housing Development Land to North*

Land to the North is due to be developed for Housing as part of the Hengrove Park Housing development. It is expected that the existing palisade boundary will be maintained for the development, with the future housing development being responsible for developing a suitable boundary treatment for the housing use.

#### *Whitchurch Lane Boundary and Highway Access*

Boundary Treatment to Whitchurch Lane to be considered in both providing a welcoming entrance which promotes the business units and

## Project Brief:

the treatment to face existing residential uses. The existing highway access into the site from Whitchurch Lane may require improvements to the adopted highway areas to better separate the two site adjacent site accesses and improve public footpath and pedestrian crossing arrangements. Proposals should be developed for consultation with Transport Development Management as part of a pre-application process. This should consider relationship with adjacent TBYS junction.

### *Bamfield Highway Access*

Any adjustment to the site boundaries over adopted highway will require engagement with the Council's Highways service at an early stage of design development. This can be initiated through pre-application engagement with Transport Development Management.

### Existing Structures:

The existing building has a GIA of 1573 sqm. It is leased with parts of the yard area on a short lease, which would be terminated by the Council at a suitable point in advance of the development. It is proposed that the building will be demolished as part of a separate enabling works package in advance of the main construction works.

The potential for reuse of existing surfacing and/or subbases in the yard area should be considered.

### Design:

The proposed development comprises of approximately up to 2600m<sup>2</sup> of light industrial business units, comprising of 1740sqm ground floor area, with potential for an additional 870sqm of mezzanine space. It is expected that up to 14 light industrial business units will be developed on the site with the potential for tenants to combine multiple units where they require more space. The ground floor area of each business unit typically being 120sqm (excluding mezzanines) but with some units varying between 70m<sup>2</sup> and 160m<sup>2</sup>.

It is proposed that the business units will be developed to a shell-and-core specification with the tenant undertaking the fit-out. The design brief will be developed to define what the shell-and-core specification will include. It is expected that units will be occupied by tenants with differing requirements and there is potential for blocks of units to be developed with variations to reflect this, for instance:

- Consideration of north facing roof windows to some units to provide suitable light for design / creative based activities;
- Consideration of Low Carbon Air Source Heating to some units.

The Council is seeking to minimise its ongoing future management requirements. It is therefore not intended to provide shared facilities that are managed by the Council.

### BREEAM and Sustainability:

The BREEAM Target for the development will be 'Excellent'. The sustainability strategy should consider approaches to achieving this, which will then be developed in the pre-assessment.

The development will design for low energy / natural ventilation and where appropriate good natural light. It will need to meet Bristol Planning Policy on Sustainability, BCS14 on Sustainable Energy: to secure at least a 20% saving in CO<sub>2</sub> emissions from energy use in new development through on site generation of renewable energy.

### Construction Approach:

A traditional Procurement approach will be used for the project. Modern Methods of Construction, including off-site fabrication and modular build will be considered.

### Future Adaptability:

The design of the units will consider the ability to remove internal walls in a proportion of units to combine them into larger units.

Where Mezzanine provision is not developed as part of the construction works, approved designs will be provided to tenants for the purposes of any future tenant fit out to ensure future adaptability and flexibility of the building.

Designs will identify how lifts to the mezzanine floor could be provided in the future if required by the tenant.

### Vehicular Access and Parking:

Development will need to consider and demonstrate how it will encourage travel using cycling; walking and public transport and discourage car use. This will need to be reflected in the number of parking spaces and the facilities provided / or expected that the tenant will fit out. Electric charging points will be provided to a number of the units. A suitable number of Disabled and customer parking spaces to be provided.

Units should have full height roller shutter access (up to 6.5m) to the front suitable for vehicular access.

Designs should consider pro's and con's of one way and two way movements through the site, including junction requirements for both turning in and out of the site.

### Building Services Requirements:

- Above ground drainage to WCs & tea points
- Water services
  - New 25mm MDPE incoming metered supply to each unit.
  - Simple Water Services to WCs
- WCs to be located within each unit
- Gas - New incoming supply, (expected to be rated 6m<sup>3</sup>/hour) capped off for tenant fit out.
- Heating - The option of providing low-carbon space heating to a proportion of the units will be considered.
- Ventilation extract fan to WCs
- Electrical Distribution
  - New 100A 3-phase incoming supply from Western Power for each unit
  - No other electrical installation within units
  - New 100A single phase landlord's electricity supply from Western Power to feeder pillar for external lighting
- Lightning Protection
- CCTV
  - None proposed for individual units
  - CCTV provided to car park and site, linked back to Bristol City Council system
- Access Control and Alarm systems
- Lifts not included, but ability for tenant to fit for mezzanine access to be considered.
- The inclusion of PV arrays on the roofs will be considered. This will need to consider if these and energy produced are included as part of the lease, or retained by the Council, which may depend on how these are funded.
- Electric vehicle charging points - Installation of electric vehicle charging points in the car park is expected to be required.

Site Photographs:



Entrance from Bamfield



View towards the site along Bamfield

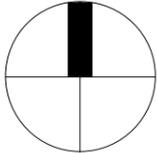


Entrance from Whitchurch Lane



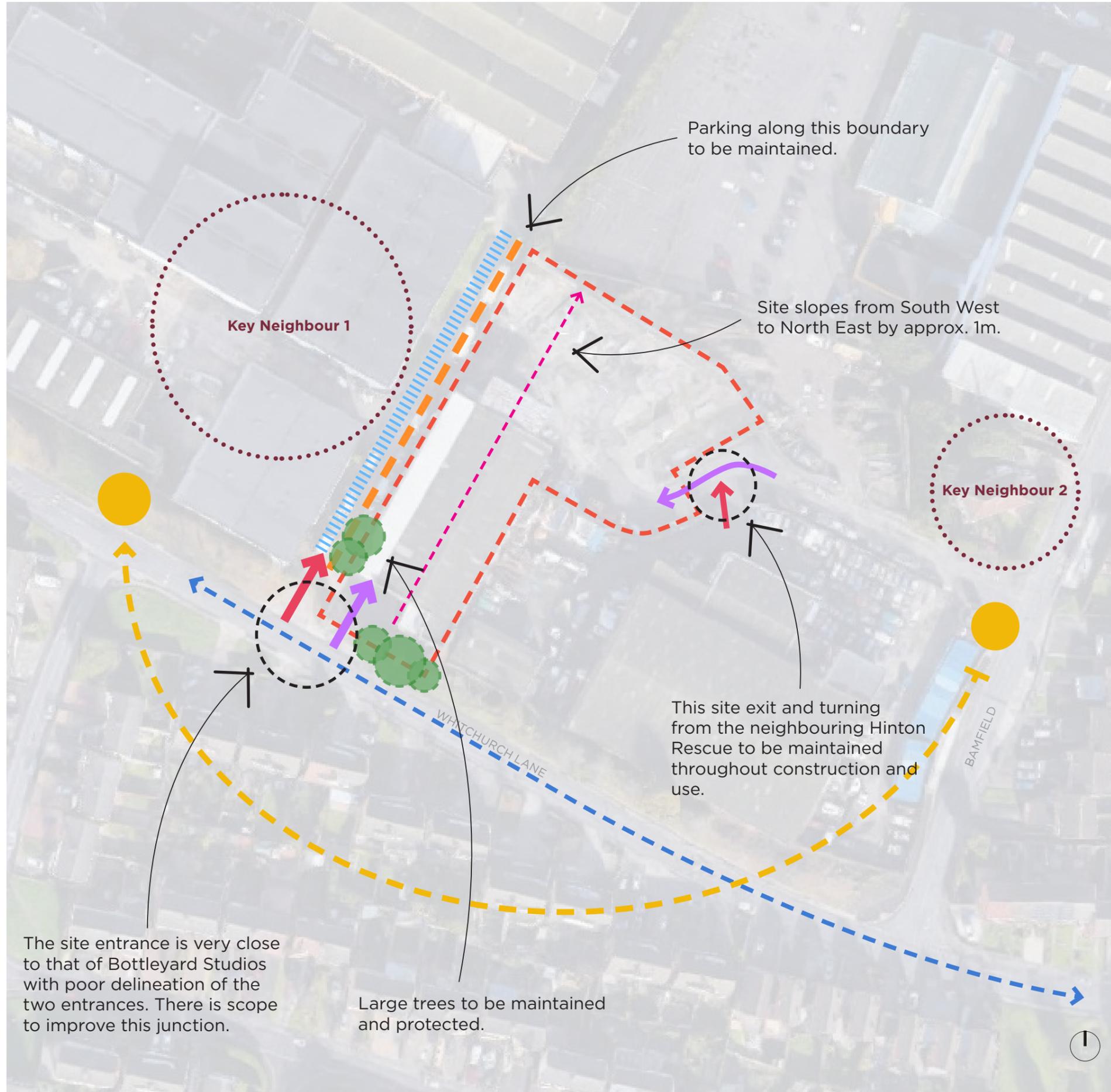
Existing Site Buildings

Site Location / Boundary Plan:



SCALE 1 : 1250





**Site Analysis Key:**

- - - Site Boundary
- - - Sun Path
- ← - - - → Primary Vehicle Route
- Site Entrance
- Nearby Vehicle Entrance
- ||||| Noise Sensitive Boundary
- Key Foliage

Site Analysis Notes:

**Key Neighbour 1** is the Bottleyard studios which is a noise sensitive site. The contractor will be required to manage the noise levels during construction and consideration should be given to the noise produced by site once occupied.

**Key Neighbour 2** is a single resident unit. The contractor will be required to manage the delivery of materials against minimising the disruption against this property.

The orientation of the site as indicated by the **Sun Path** allows for the use of PV panels if required.

The site slope is minimal and does not have a large impact on any proposed design. Block A may result in having slightly taller units at the north end of the block in order that we can maintain a simple level roofline and cost efficient envelope.

Parking to the North West boundary may require enhanced protection during construction such as solid hoarding.



**Developed Stage Two Design:**

Up to 14 units arranged in 3 blocks.

- All blocks are identical 12.5m deep and based on 5m structural grid
- Roads made 6m wide to allow space for large delivery vehicle manoeuvring and accessing parking spaces
- Potential improvements to kerb lines along Whitchurch Road to better separate the two vehicle access points.
- Secure fence line to separate new development from Bottleyard Studios
- 2 parking spaces per unit to Blocks A and B, 1 space per unit to Block C
- Space for delivery vehicle to pull end on to roller shutter to Blocks A and B, space for parallel park delivery to Block C
- Option for mezzanine to rear of all units retaining double height space at the front
- Space for fire escape to the rear of every unit
- Large refuse storage area at the end of Block B with collection from Bamfield Road access meaning refuse vans don't have to drive through the site
- Disabled parking provided at each corner of the development. Disabled spaces are counted outside of the spaces allocated to units

Room Schedule Option A

Name	Area
Unit 01	154 m <sup>2</sup>
Unit 02	121 m <sup>2</sup>
Unit 03	121 m <sup>2</sup>
Unit 04	121 m <sup>2</sup>
Unit 05	121 m <sup>2</sup>
Unit 06	123 m <sup>2</sup>
Unit 07	79 m <sup>2</sup>
Unit 08	121 m <sup>2</sup>
Unit 09	123 m <sup>2</sup>
Unit 10	167 m <sup>2</sup>
Unit 11	121 m <sup>2</sup>
Unit 12	121 m <sup>2</sup>
Unit 13	121 m <sup>2</sup>
Unit 14	123 m <sup>2</sup>

Grand total: 1740 m<sup>2</sup>  
14

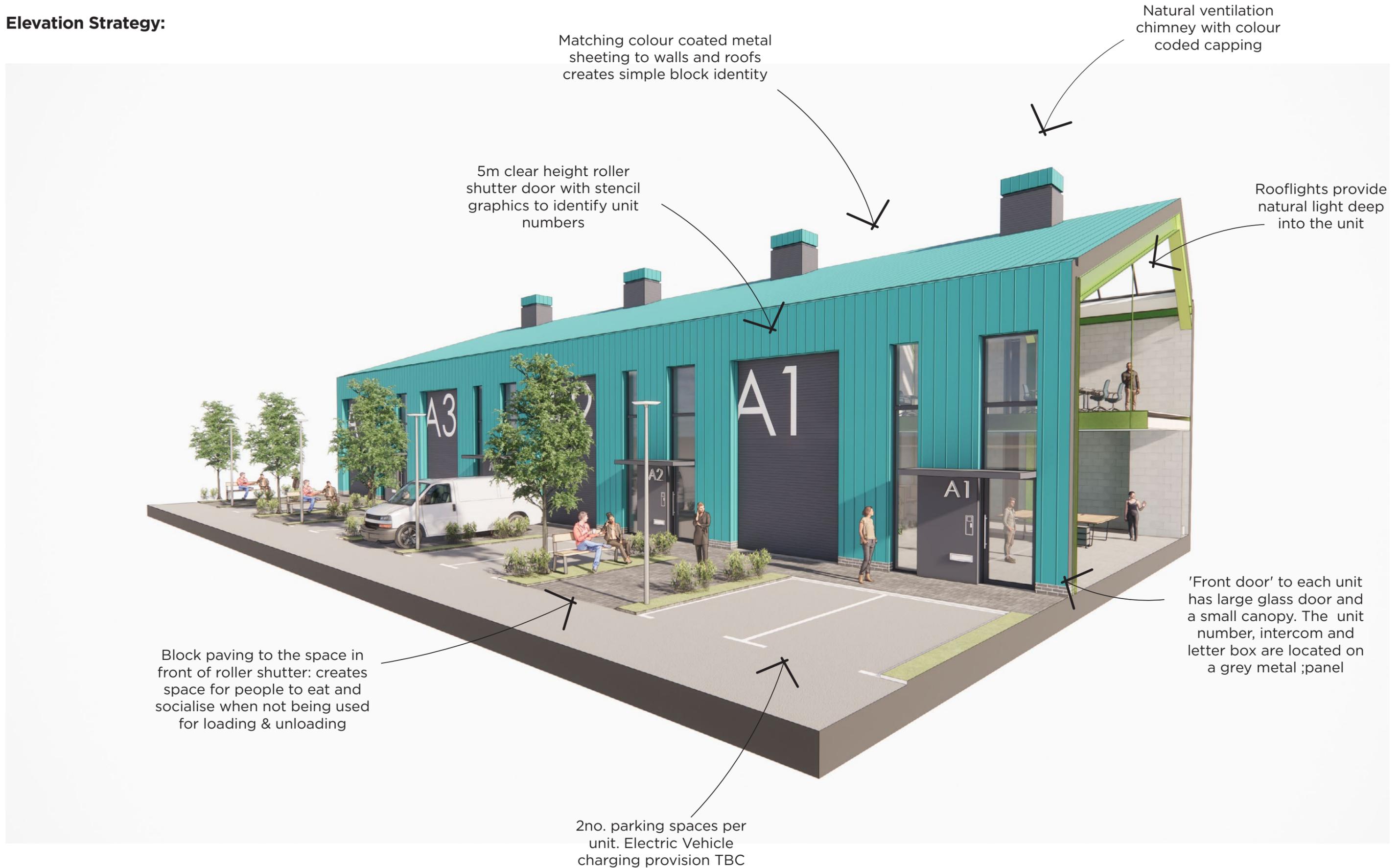
Potential total mezzanine area to 50% of floors = 870sqm

Total GIA including mezzanines: 2610sqm

Typical Cross Section:



Elevation Strategy:





Aerial view from Whitchurch Lane showing existing site access retained from the road. Cycle parking located by site entrance



View from Whitchurch Lane showing existing site access retained from the road. Pavement extended to create safer pedestrian crossings.



Existing gate into Bottleyard Studio access retained along with existing trees and existing parking spaces. New signage provided for the Enterprise Park with cycles behind.



Typical elevation of enterprise units. Bold colour scheme and stencil graphics gives each block identity. Seating and landscaping encourages a social culture between neighbours.



Block B with the largest roof is south facing and so has potential for a large PV array. Quantity of PV to be determined in a future design stage.



Newly aligned entrance from Bamfield Road with potential to lock this access if desired. Large area for bins and service to side of Block B (green).



Aerial view from Bamfield Road (south east) showing service access and relationship between blocks B and C.

## Sustainability Strategy:

The design for the building and site at RIBA Stage 2 has begun to implement sustainable measures as the project works towards BREEAM Very Good as a minimum, with aspirations to achieve BREEAM Excellent.

### BREEAM

Following appointment of the BREEAM Assessor a workshop will be undertaken to identify key early credits which need to be captured. These may include appointment of an acoustician, ecologist, whole life costing consultant, and engagement with the police Designing out Crime Officer.

AHR recommends that the BREEAM process should be used to help reduce the buildings embodied and operational carbon, as well as reducing water usage. These aspirations are in line with the RIBA 2030 Climate Challenge which AHR supports. Specifically, we will work with the BREEAM assessor and MEP Engineer to maximise the number of ENE (energy) credits that can be targeted with the clients cost envelope.

### Orientation

The orientation of the units has been considered to provide appropriate roof space for photovoltaics. The orientation and design of the units also allows for rooflights to be provided which help introduce daylight deep into the buildings whilst minimising solar gain.

### Ventilation

The initial design uses a mixture stack and cross ventilation to provide natural ventilation to the units. Each unit is provided with louvers with internal opening doors within the walls and a ventilation chimney within the roof to encourage air to flow through the building and provide ventilation.

The exposed thermal mass of the concrete walls and floors will also help cool the building by utilising night-time cooling.

### Wellbeing

The existing foliage has been retained as a way to provide large mature trees on the site.

Each unit also has a small external space that will have additional tree planting as well as other foliage and grass. This external space provides additional areas of biodiversity within the site and access to greenery for the occupants of the buildings.

### Other sustainable measures considered

- Construction on a Brownfield Site
- Provide Business Adaptability
- Provision of Cycling Storage

The following elements are to be considered further after the appointment of Engineers, the BREEAM Assessor and design development.

### Embodied Carbon

Embodied carbon in the materials used for construction can also be significantly reduced, as conventional concrete and steel contain a lot of embodied carbon:

- A low carbon or carbon neutral concrete that is suitable for foundations and floor slabs for this type of building, such as Vertua Classic, could reduce embodied carbon by up to 50%.
- Engineered timber framing such as CLT in place of steel framing will store the carbon in the wood, making it net carbon positive – it contains less than zero embodied carbon. It would also speed up construction, improve air tightness and remove the need for blockwork internally.
- Consider alternatives to conventional concrete blocks with superior insulating properties.

### Recycled Materials

The requirement for the use of recycled materials is likely to be driven by the required BREEAM credits. The recycled content of materials should be considered when specifying products during RIBA Stage 3.

The reuse of rubble or waste from the demolition of existing structures will also be considered when the appropriate engineer is appointed. The waste management plan should also include the demolition phase, not just the construction and operational phases.

Sustainability Strategy:



**Material Precedents:**

The material strategy for the entirety of the site is to provide a simple cladding solution using the same vertical seam cladding for both the walls and roofs.

This will create a relationship across the proposed developments on site creating homogenous blocks which are then differentiated through colour.

Other key elements of the design are:

- Rooflights
- Curtain Walling
- Roller Shutter inc. Large Format Graphics
- Clean and Modern Wayfinding



**Outline Specification:**

Whitchurch Enterprise Park  
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**Stage 2 Outline Specification**



**Whole Building Performance**

**Sustainability targets:**

BREEAM 'Excellent' rating

**Building Lifespan:**

All materials and structure used to be in accordance with BS7543:2015 Guide to durability of buildings and building elements, products and components.

**U-Value Requirements (W/m<sup>2</sup>.K):**

- 0.00 External Wall
- 0.00 Floor
- 0.00 Roof
- 0.00 External Glazing (incl rooflights)
- 0.00 External doors
- 0.00 Roller shutter/ delivery doors

Glazing Values:  
00% Light transmittance  
00% G-value

Air Permeability Target = 5m<sup>3</sup>/hr/m<sup>2</sup>

Awaiting MEP input for  
building performance values

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## Stage 2 Outline Specification



Please note this specification is to be read in conjunction with the rest of the stage 2 report and architectural drawings.

## External Wall Types

Ref	Name/Location	System Description - Outside face to inside face.	Sustainability / Safety - System requirements	Additional Notes/images
EW1	Metal Seam Cladding	<p>Blue engineering brick plinth to all elevations.</p> <p>Aluminium standing seam cladding to all walls and roofs to provide a homogenous envelope. Hidden gutter detail with minimal verge flashings. All cills to finish in line with the standing seams.</p> <ul style="list-style-type: none"> <li>• Euroclad Vieo aluminium colour coated standing seam panels fixed to RocBar which is fixed back to structural steel deck which spans between primary steels.</li> <li>• Euroclad Rokslab Insulation (to meet u-values TBC)</li> <li>• Fair-faced dense concrete midi blocks 290L x 215H x 140W mm. To be laid in running stretcher bond.</li> <li>• Wall is to be fairfaced painted.</li> <li>• Deflection heads and wind posts as required to S. engineers requirements.</li> </ul>		
EW2	Aluminium Flat Cassette Panels	<p>High gloss PPC aluminium cassette panels with concealed fixings as feature cladding to the side of all main entrance doors. Fixed on helping hand steel bracket system with mineral wool insulation behind.</p> <p>Stainless steel unit number (to be extruded lettering) to side of door with intercom and s/s letter box, all fixed within EW2 wall panel.</p>		

## Doors &amp; Window Types

Ref	Name/Location	System Description -	Sustainability - System requirements	Additional Notes/images
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**Stage 2 Outline Specification**



<b>External doors (ED)</b>	Glazed steel doors (doors not within curtain wall)	<p>Aluminium framed doors, fully glazed with safety glass to meet Secure by Design standards. PPC RAL colour tbc by Architect.</p> <p>Security will be required to meet the following minimum standards:</p> <ul style="list-style-type: none"> <li>● PAS 24:2012</li> <li>● LPS 1175 Issue 7 SR2</li> <li>● STS 201 or STS 202 BR2</li> </ul> <p>Manifestation if required, design to be confirmed by Architect to coordinate with overall branding strategy.</p> <p>Doors on a maintenance / delivery routes will be sized to be wide and high enough to accommodate any necessary equipment and plant.</p> <p>Fittings and ironmongery are to be of a high quality, robust stainless steel. Lock cylinders to be europrofile.</p> <p>Doors must not have 'lips': They create a barrier to wheelchairs, trolleys etc. and can be a trip hazard.</p> <p>The factory applied colour is to be resistant to fading.</p> <p>Allowance to be made for dual colour – i.e. different colour to the external frame and leaf face than the internal frame and face.</p> <p>Rear fire escape doors to have push bar ironmongery.</p>	<p>Manufacturer to have Environmental Management System in accordance with ISO 14001, Min 80% recycled content, Environmental product declaration in accordance with ISO 14025 preferred.</p> <p>To meet required u-values and glazing values.</p>
<b>Roller Shutter</b>	External roller shutter.	<p>Powered and lockable (security key switch) external thermally broken roller shutter, similar to Hag Armourguard Industrial F1.</p> <p>Solid PPC steel shutter, to be sized and have a suitable durability rating to suit regular industrial delivery applications. Shutter is to meet security requirements of PAS 24.</p> <p>With counter balanced spring to ensure controlled raising and lowering with a key lock in-built at the bottom of the</p>	To meet required u-value

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shutter for security. Electric operation with security key switch and manual override in the event of a power failure.

**W1** Curtain Wall

Curtain wall system to include fully glazed powered door to front entrance (doors to be by same manufacturer as curtain wall system). PPC aluminium.

Minimum 'BRE Green Guide to Specification Online' rating: A.

Curtain wall to be mullion drained. UV resistant weatherproofing silicone sealant to be used for sealed glass to glass joint, no visible face caps.

To meet required u-values and glazing values.

System tested and certified in accordance with BSEN 13830 and CWCT Sequence B

Barrier loading requirements to any glazing above first floor level (to accommodate the future installation of a mezzanine floor).

Manifestation as required to suit building regulations.

Door fittings and ironmongery are to be of a high quality, robust stainless steel. Lock cylinders to be europrofile. Door security to meet PAS 24.

Allowance to be made for system and doors to be dual colour – i.e. different colour external to internal.

600mm wide x 6m high vents to rear of units: Fixed external louvers within a curtain wall system. Provided with inward opening ventilation door to both ground and first floor at rear of unit. Doors to be controlled by actuators with automatic temperature controls and override switches.



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RL	Rooflights	<p>Vitral A74 aluminium fixed rooflights in 2500mm length modules. Double glazed with low-e coatings to blocks A and C, clear to block B.</p> <p>Internal electric roller blinds to blocks A and C (where rooflights are south facing).</p>	<p>Roofs which are partially or entirely glazed should be designed to prevent breakages or a fall.</p> <p>Upstands and non-fragile surfaces should be used to prevent people inadvertently walking or falling onto (and falling through) glazed roofing. Maintenance access to control gear and operators for roof lights or vents should be accessible from a place of safety (e.g. on a protected roof, with no risk of falls).</p> <p>To meet required u-values and glazing values.</p>	
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L1	Louvers	PPC aluminium louvers installed to rear of unit to
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**Roof Types**

Ref	Name/Location	System Description - Outside face to inside face.	Sustainability - System requirements	Additional Notes/images
R1	Main building roof – metal seam cladding	<p>Euroclad Vieo aluminium colour coated standing seam panels fixed to RocBar which is fixed back to structural steel deck which spans between primary steels. All by Euroclad.</p> <p>Hidden gutter to be included as part of roof build-up. Rainwater pipes to be located internally within the steel column zone.</p> <p>Note: the roof structure shall be designed and installed in accordance with the wind loadings and exposure conditions. Weather tightness, high insulation and vapour</p>	<p>Minimum 'BRE Green Guide to Specification Online' rating: A (to suite BREEAM requirements, TBC)</p> <p>Build up to achieve required target U-Value</p>	<p>(note: image above to show insulation and metal standing seam only. The substrate proposed is metal deck not timber joists)</p>

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control performance will be maintained across all roofs, including interfaces with external walls.

Roof profile and size to be determined to suit span and wind loads. Standing seam sheet to be PVdF colour coating (minimum decorative life is in excess of 20 years), RAL colour tbc.

Structural decking to be white polyester coated on hot-dip galvanized substrate. This finish is highly durable and resists scratching.

Matching coated aluminium flashings required.  
Roof build-up on the rooflights to be able to support and allow for fixings from PV panels.

<b>R2</b>	PPC Aluminium Canopy	Steel framed thermally broken structure clad with PPC aluminium.
<b>Roof Chimney</b>	Natural ventilation chimney	Chimney that is louvered to 4 sides with feature aluminium colour clad 'lantern' (not illuminated). Internal horizontal actuated damper fitted across base of chimney with link to manual control and temperature sensor - allows ventilation when high temperatures or purge vent needed.  PPC Aluminium louvers.



**Internal wall types**

Ref	Name/Location	System Description -	Sustainability - System requirements	Additional Notes/images
<b>IW1</b>	SFS/Jumbo Stud Internal Party Walls	SFS or jumbo-stud internal party walls with acoustic insulation between studs.  To be finished with 24mm plywood.		

**Stairs & Balustrades**

Ref	Name/Location	System Description -	Sustainability - System requirements	Additional Notes/images
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<b>SC1</b>	Steel Staircase	Painted steel stair with vertical balusters and expanded steel mesh infill panels		
<b>Floor finishes</b>				
<b>Ref</b>	<b>Name/Location</b>	<b>System Description -</b>	<b>Sustainability - System requirements</b>	<b>Additional Notes/images</b>
<b>F1</b>	Floated concrete	Power floated concrete slab.		
<b>F2</b>	Raised Floor	Heavy duty raised floor system to first floor mezzanines with PPC aluminium bulkhead edge trims to close off the floor void at edges.		
<b>External Works</b>				
<b>Ref</b>	<b>Name/Location</b>	<b>System Description -</b>	<b>Sustainability - System requirements</b>	<b>Additional Notes/images</b>
<b>P1</b>	Paving Roadways	Marshalls Keyblok paving (basic 200x100 blocks suitable for roadways and parking spaces)  Road markings and parking bays delineated using contrasting blocks  Kerbs 50mm high concrete kerbs throughout to facilitate vehicle overrun of pavements		
<b>P2</b>	Paving Footpath	Marshalls Mistral to pavements and the 'driveway' up to the roller shutter  Road markings and parking bays delineated using contrasting blocks  Kerbs 50mm high concrete kerbs throughout to facilitate vehicle overrun of pavements		
<b>P3</b>	External Bollards	External PPC aluminium bollards to 1 side of all doors (front and rear)		
<b>Paints, sealants and varnishes</b>				
<b>Ref</b>	<b>Name/Location</b>	<b>System Description -</b>	<b>Sustainability - System requirements</b>	<b>Additional Notes/images</b>
<b>P1</b>	Concrete Sealant	Clear painted sealant to all concrete surfaces.		
<b>P2</b>	Intumescent Paint	To all steel that supports a floor.		
<b>P3</b>	External signage paint	Painted stencil unit number on each roller shutter		

**Outline Specification:**

Whitchurch Enterprise Park  
**WEP-AHR-WL-XX-SP-A-A2-001**

**Stage 2 Outline Specification**



Structural Notes (in advance of Structural Engineer appointment):

- Steel portal frame on typically 5m grid
- Steel trimmers for rooflights and around external wall openings
- Powerfloat ground floor slab with insulation
- Clear painted sealant to slabs
- Feature colour paint to all exposed steelwork
- Intumescent paint to all steel that supports a floor (so if the mezzanine is hung then we would need to fire protect the whole frame).
- Stair – painted steel stair with vertical balusters and expanded steel mesh infill panels. We could potentially change to horizontal rails at 300mm centres if we agree with building control that no under 5s will be present in the building.
- Balustrade to mezzanine – vertical flat steel posts with painted steel handrail and expanded mesh infills to match stair.

MEP Notes (in advance of MEP Engineer appointment):

- Drainage point at rear for WC/tea point
- Electric heating/cooling through local chiller located on the escape footpath to the rear. Delivered through high level fan coil unit with galv ducts to white ppc swirl grilles. Second smaller one under the mezzanine
- Gas supply to rear of each unit for specialist equipment
- Lighting – TBC by client if this is to be part of base build
- Alarm – TBC by client

**Safety and Maintenance Strategy:**

An initial Hazard Identification Schedule has been produced alongside plans and sections to begin highlighting and managing risk. The PD role and CDM requirements will be continued as below.

PD Role:

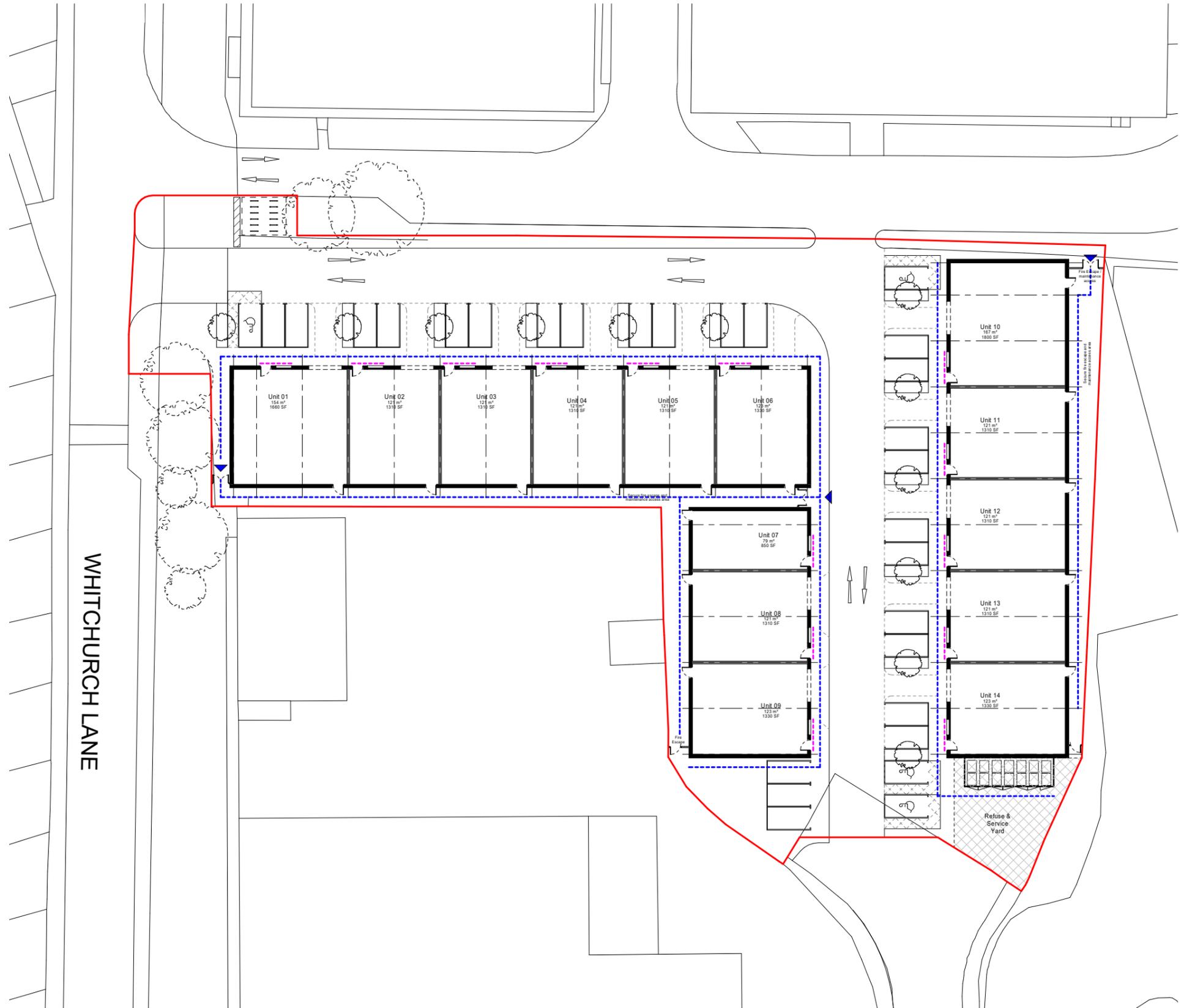
- Plan, manage, monitor and coordinate health and safety in the pre-construction phase.
- Review and record all relevant information, such as existing health and safety files that might affect design work carried out both before and after the construction phase.
- Help and advice in combining of pre-construction information, provide this information to any designers and contractors.
- Provide advice on survey works.
- Engage with all relevant parties, review existing documentation and carry out thorough checks to mitigate any potential risks, including design risks for the future use of the building.

Post RIBA Stage 2 CDM Duties:

- Set out a protocol or template for all designers to review and identify construction and maintenance in use risks. To provide designers with a consistent and aligned approach to hazard identification, recording and communicating risk and use of graphics and symbols on drawings.
- Attend design team meetings and ensure that health and safety is on the agenda at DTM's and progress meetings with the PM.
- Ensure that end of stage reports for RIBA stages have a section on health and safety.
- Undertake dialogue with your health and safety officers to make sure the design outcomes are shared and meet their approval.
- Work with other designers also appointed to the project to eliminate foreseeable health and safety risks and, where that is not possible, plan and act to reduce or limit those risks.
- Liaise with the principal contractor (once appointed) in order to keep them informed of any risks that need to be managed during the construction phase.

Safety and Maintenance Key

- ▲ MEWP Maintenance Zone Entry Point
- Facades Accessible via MEWP
- Glazing Cleaned via Long Reach Pole





## CDM Hazard Identification Schedule:

Ref No.	Date Issue Raised	Stage Of activity	Raised by	Specific description/image of Hazard	Design measures to be taken to eliminate or reduce the hazard as far as reasonably possible	Action required by (name)	Action information, closed or residual information about the hazard
<b>Wider Site</b>				<b>e.g. Deliveries, site access, management of vehicle traffic, pedestrian routes, site hoarding, surrounding, site preparation,</b>			
A01	01/06/2020	Construction	AHR	Construction site is in close vicinity to active film studio and other industrial sites.	Solid hoarding to be used to minimise overlooking. Management of dust levels, times of operations, noise etc. to be considered by contractor.	MC	
<b>Site</b>				<b>e.g. Ground conditions, Ground works, Landscape,</b>			
B01	01/06/2020	Construction	AHR	Possible disruption to wildlife during construction. Especially important with the surrounding trees.	Undertake works to trees outside of nesting season.	MC	
B02	01/06/2020	Construction	AHR	Possible damage to trees within close vicinity to the construction site.	Contractor to protect all existing trees and put in measures to ensure they survive through the construction period.	MC	
B03	01/06/2020	Construction	AHR	Maintaining a secure site during construction.	Use of solid hoarding to prevent unauthorised access.	MC	
B04	01/06/2020	Construction	AHR	Tower crane fly over zone.	Contractor to give special consideration to sequencing of construction and crane location.	MC	
B05	01/06/2020	Construction	AHR	Earthworks to produce excessive dust, noise and offsite vehicle movements.	Contractor to put in place mitigation methods.	MC	
B07	01/06/2020	Construction	AHR	The Root Protection Areas of trees may be affected by the building structure and perimeter footway construction. Further design work is required to mitigate the impact on these trees.	Where construction may interfere with root protection it is recommended that Air Spade trench excavations are made to establish root extents by an Arboricultural contractor and the results inspected by an Arboriculturalist.	MC	
B08	01/06/2020	Construction	AHR	Unexplored ordinance.	No previous knowledge of UXO.	SE	SI Survey to be commissioned
B09	01/06/2020	Construction	AHR	Buried services - risk of electricution or gas explosion.	Radar survey undertaken.	MC	Contractor to monitor during groundworks

CDM Hazard Identification Schedule:

Ref No.	Date Issue Raised	Stage Of activity	Raised by	Specific description/image of Hazard	Design measures to be taken to eliminate or reduce the hazard as far as reasonably possible	Action required by (name)	Action information, closed or residual information about the hazard
B10	01/06/2020	In Use	AHR	Roadway is shared by vehicles and cyclists.	Signage to specified and traffic calming measures used if appropriate	End User	
<b>Building envelope - Facades</b>				e.g. External envelope, roof, cladding, construction, structure			
C01	01/06/2020	Construction	AHR	Large Steel Sections - Manual handling.	Lifting procedure to be appropriate for steel sizes. No manual handling allowed.	MC	
C02	01/06/2020	In Use	AHR	Maintenance of Curtain Walling and Windows.	Cleaning is to be done via long reach pole as per Safety and Maintenance Strategy. If glazing replacement is required then this is done via MEWP or Scaffolding Tower only. Safe and secure access operated by a trained professional only.	Client	
C03	01/06/2020	In Use	AHR	Maintenance of soffit lights and installed blinds.	Specify LED lights with long operating hours. Lights/blinds to be maintained from scaffold tower / small MEWP from internal space.	AHR	
<b>Building envelope - Roof</b>				e.g. External envelope, roof, cladding, construction, structure			
D01	01/06/2020	Design / In Use	AHR	No access to roof.	Visual inspection of roof, rooflights and rainwater outlet via camera or drone only.  Maintenance via MEWP or scaffold tower only.	Client	
D02	01/06/2020	Design	AHR	Heavy & Long span structural elements - transportation and erection risks.	Highlight members greater than 16m or element weights greater than 1.5 tonnes. MC to consider route to site.	SE / MC	
D03	01/06/2020	Design / In Use	AHR	PV is being considered for installation.	Visual inspection of PV via camera or drone only.  Maintenance via MEWP or scaffold tower only.	Client	
<b>Building Internal - Generally</b>				e.g. Finishes, access,			
E01	01/06/2020	Design / Construction	AHR	Concrete blockwork - manual handling.	Ensure minimum size / weight is specified appropriate to the requirements.	MC	

## CDM Hazard Identification Schedule:

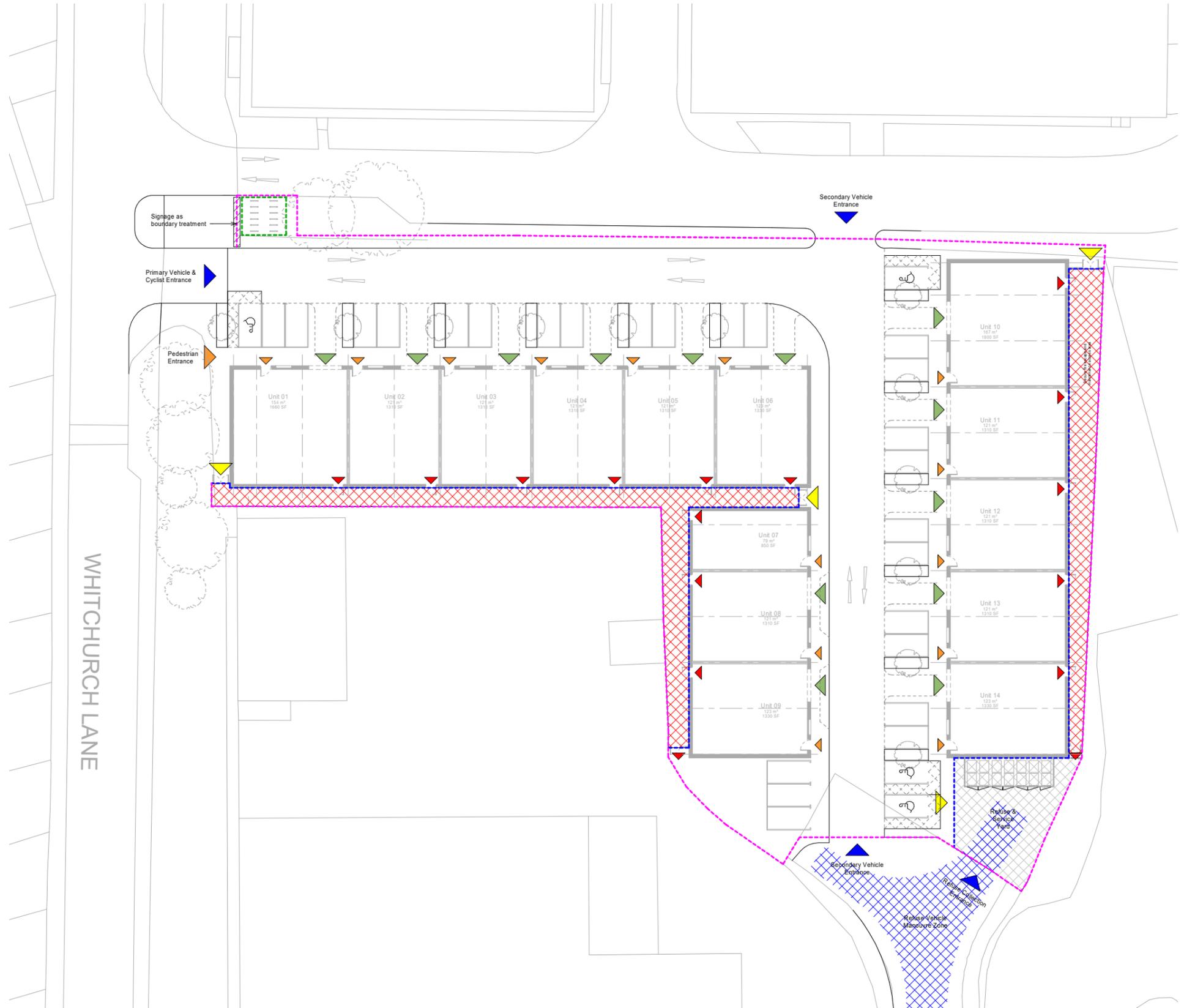
Ref No.	Date Issue Raised	Stage Of activity	Raised by	Specific description/image of Hazard	Design measures to be taken to eliminate or reduce the hazard as far as reasonably possible	Action required by (name)	Action information, closed or residual information about the hazard
E02	01/06/2020	Design / Construction	AHR	Installing equipment above head height such as ductwork and luminaires.	Where possible mount services on the walls and/or in the protected zones.	MC	
E03	01/06/2020	Construction	AHR	Working at height to install services.	Where possible mount services on the walls and/or in the protected zones. Access from scaffolding or tower platforms correctly secured and with safe access ladders to be used only.	MC	
E04	01/06/2020	Construction	AHR	Making holes in walls and floors for services; chasing walls.	Minimised need for chased services by having surface mounted and dado.	MC	
E05	01/06/2020	Construction	AHR	Working with floor sections removed.	Minimised need for risers/holes through floor by having services drops from ceiling.	MC	
E06	01/06/2020	Construction	AHR	Working from height.	MC to monitor requirement for edge protection and temporary platforms.	MC	

**Access Strategy:**

- The design has been developed with inclusively in mind.
- Separate pedestrian and vehicle access points at the main entrance have been provided.
- Level access is provided across the site and each unit has a level threshold.
- Wide pedestrian routes which are separated from the road through car parking spaces are provided to the front of the majority of units.
- Surface level disabled car parking spaces are provided across the site to allow access in and around each unit to be as simple as possible.
- Disable car parking spaces are provided in addition to those for each individual unit.

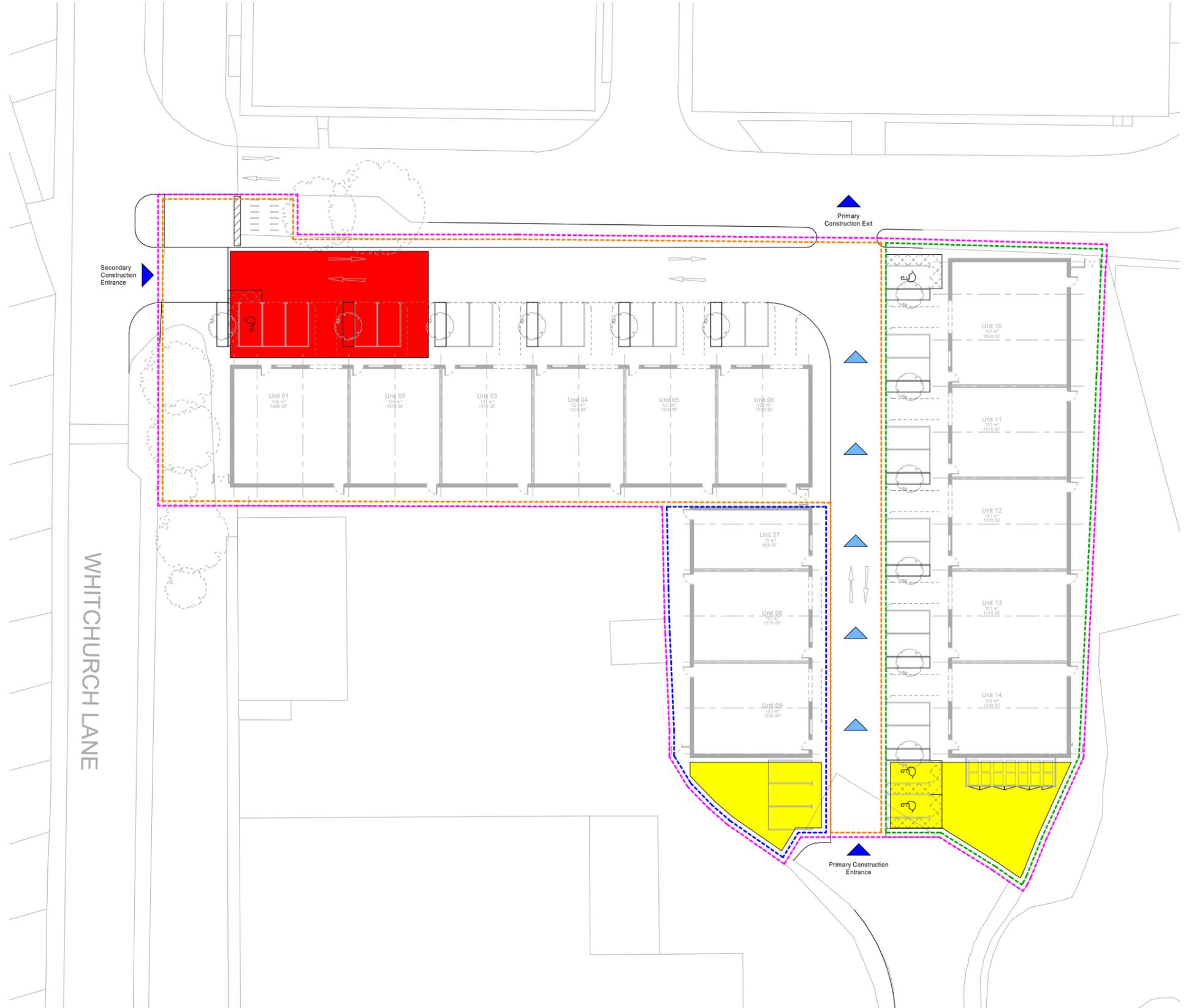
**Access and Security Key**

-  Vehicle Site Access Point
-  Vehicle Building Access Point
-  Pedestrian Access
-  Fire Escape Only
-  Maintenance Access and Fire Escape
-  Refuse & Service Yard
-  Refuse Vehicle Manouvre Zone
-  Secure Maintenance and Fire Escape Zone
-  Secure Boundary Treatment
-  Secure Maintenance Zone Line
-  Cycle Storage Location



**Construction Strategy:**

- The site could be constructed in a single phase or broken down into several phases depending upon the chosen contractors requirements and preference.
- A one way system is proposed for construction traffic to allow the efficient delivery of construction materials whilst also minimising traffic movement on site and thus increasing safety.
- Indicative locations for the site compound and material lay-down area have been provided.



**Construction Strategy Plan**

- Site Compound Location
- Material Laydown Area
- Secure Boundary Location
- Construction Traffic Route

If phasing of the project is required, then the below boundaries indicate proposals for a phasing strategy.

- Phase 1 Area
- Phase 2 Area
- Phase 3 Area

Note: The final construction strategy plan will be produced by the contractor. The phasing and site compound locations are indicative only.

## Handover Strategy:

It is proposed that the base build consists of a simple shell and core unit with service termination points provided internally. There is scope for several additions which will be priced at tender and could be included in every unit, certain units, or for tenant fit out only.

The following could be provided as additions by the contractor or fitted out separately by the tenant.

- Mezzanine Floor - - - - -
  - An additional floor could be provided as a structure hung from the steels above. If not provided as part of the handover strategy, then the building structure would be sized to ensure that any future tenant is able to retrofit the mezzanine floor at a later date.
  - The proposed mezzanine floor would not include a lift at handover. But the ability to provide one as part of tenant fit out would be enabled through the construction of the shell and core unit.
- Toilet and Teapoint Facilities - - - - -
  - The shell and core will provide terminated services within each individual unit. This could be extended to provide both toilet and/or teapoint facilities at handover if desired by the client.
- Phased Handover
  - The development could be constructed in either 1, 2 or 3 phases.
  - Dependant upon the construction plan proposed by the contractor there is possibility of a phased handover of units as and when each block is completed.



## Modern Methods of Construction (MMC):

Modern Methods of Construction (MMC) is a wide ranging terms that describes a variety of offsite manufacturing and onsite techniques that provide alternatives to traditional building.

Typical examples include:

- Panellised units produced in a factory and assembled on-site to produce a three-dimensional structure
- Volumetric construction to produce three-dimensional modular units in controlled factory conditions prior to transport to site (such as room pods)
- Hybrid techniques that combine both panellised and volumetric approaches
- Offsite Components: Floor or roof cassettes, pre-cast concrete foundation assemblies, pre-formed wiring looms, mechanical engineering composites etc (i.e. any component which is pre-fabricated off site)

We are reviewing the potential for utilising MMC in the Whitchurch Enterprise project in order to provide an improvement to programme, or to reduce the noise and vibration impact on the adjacent Bottleyard Studios.

MMC doesn't typically offer large cost savings unless the project is of a very large scale where the overall programme can be substantially reduced - that is unlikely to be the case on this project.

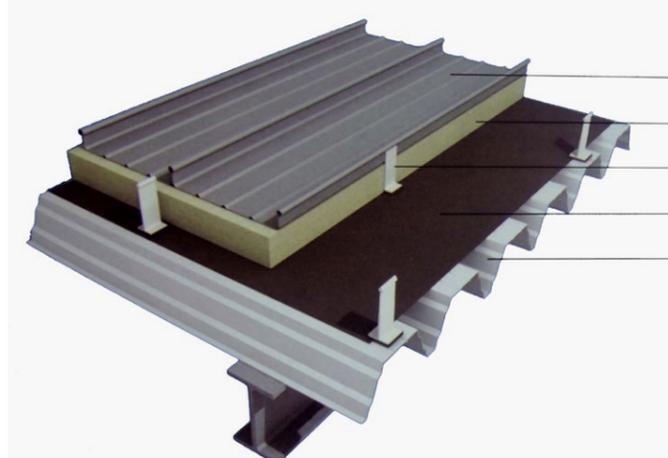
**Volumetric:** The business units proposed for the Whitchurch project consist of large scale open volumes that don't lend themselves to offsite volumetric production. This is not considered to be a viable option for this project.



**Panellised units:** The wall and roof panels which fix to the primary steel frame can be manufactured off site for quick installation however a prefinished panel (such as a Kingspan metal composite panel) wouldn't meet the environmental or quality aspirations of the project.

There is potential for using panellised units to speed up the construction and reduce site noise though. The options are set out below:

1. Steel profile decking (typically 160mm deep): This is what is currently proposed, the steel deck will span from primary steel to primary steel removing the need for metal Z purlins. The deck is quick to install and cheap however it will involve some site cutting and noise during installation. The walls will need an additional skin of blockwork to create a robust finish.



2. Cross Laminated Timber (typically 200mm deep): CLT is a solid timber panel made up of layers of 25mm spruce planks that are layered up to form a solid timber unit. They are precision cut and fit together exactly on site using large screws. They have excellent air tightness, are quick and quiet to install and have very low embodied carbon. They would also not require an internal blockwork leaf. Subject to costing this would be a very attractive solution that would create a pleasant internal environment and make a strong statement about sustainability on the project.

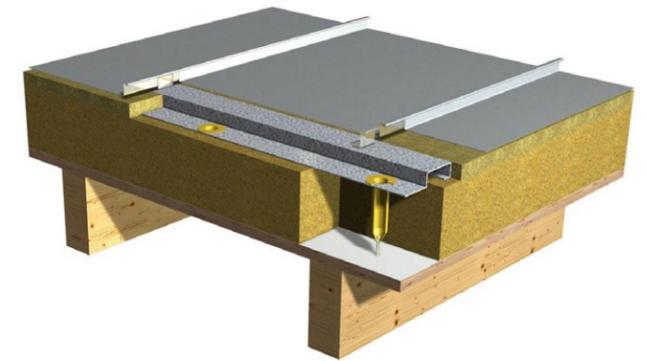


3. SIPS Panels: These typically consist of expanded polystyrene insulation sandwiched between 2 layers of oriented strand board (OSB). They offer very good speed of construction, good air tightness and are cost effective. However, AHR does not recommend the use of SIPS panels due to the flammability of both the insulation core, and the OSB panels. EPS insulation is also not environmentally low impact.
4. SIPS Panels with Mineral Wool Core: This is a new technology which is developing as a more sustainable alternative to SIPS. They are identical but use mineral wool instead of EPS which is non-flammable and more sustainable. However, this is a new product, there are very few manufacturers and it is untested. Details available here: <https://www.innovaresystems.co.uk/blog/i-fast-sip-technology/>

Offsite Components: Because the building is mostly shell and core there are very few components that could be manufactured offsite but items that we will consider in the next stage include:

- Ventilation chimneys
- Mezzanine structure
- MEP systems such as distribution boards, plumbing etc. - in reality though, there is so little on this project that it's unlikely it will be worthwhile for the MEP subcontractor

**Cladding:** We have proposed a seamed metal sheet system for both walls and roofs. Each metal panel will be offsite fabricated and then simply 'zipped' together on site. The panel installation will be reasonable fast and not generate lots of noise, unlike for example brickwork which would require mixing of cement or timber cladding which is often nailed in place.



### MMC Conclusions

The main opportunity for speeding up construction is the assembly of the envelope. We have already proposed a deep structural steel deck rather than purlins with shallow deck. This will reduce the roof structure thickness and speed up construction with less site fixings.

We would propose to investigate a cross laminated timber structure during RIBA 3 & 4 to see if this is affordable. It would significantly improve the project environmental credentials and by focusing on reducing embodied carbon (in addition to the energy efficiencies that will already be targeted as part of the BREEAM requirements) it would go a long way to meeting the RIBA 2030 Climate Challenge which AHR has committed to investigate with our clients wherever possible.

## Next Steps:

Immediate actions:

- Completion of site topographical survey and review of levels
- Appointment of MEP Engineer, S&C Engineer, BREEAM Consultant
- Initial Stage 2 cost plan review
- Review feedback from planners obtained from Pre-App submission

Actions to be undertaken in RIBA 3+:

- Develop sustainability brief in collaboration with MEP and BREEAM consultants
- Review potential for CLT / steel hybrid structure to improve programme, reduce noise on site and significantly improve sustainability achievements
- Develop envelope detail strategy in collaboration with Euroclad and recommended subcontractors



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