

5.0 THE PROPOSAL

5.8 QVS PHASE 1 & 2 MASTERPLAN

Masterplan view along Friar Street

The key views where the proposal would be visible would be from close range along Friar Street looking east and west. Here the set back two floors are visible and these site above the established height datum of this part of Friar Street.

Following careful massing tests, the setbacks have been designed to allow for the main building and frontage to remain dominant. Additionally the fenestration and materiality have been chosen to provide architectural unity and homogeneity.

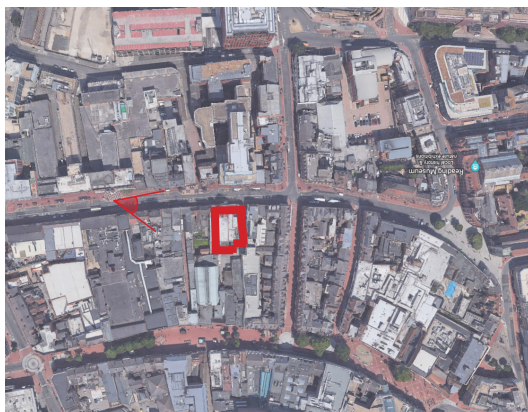
The high quality architecture and resulting appearance of the development add vitality to the character and appearance of the wider area and would enhance the townscape.



This is the long view east view from Friar Street of the proposed design of QVS2 with the existing QVS1.

5.0 THE PROPOSAL

5.8 QVS PHASE 1 & 2 MASTERPLAN



This is the long view west view from Friar Street of the proposed design of QVS2 with the existing QVS1.

5.0 THE PROPOSAL

5.9 HERITAGE AND TOWNSCAPE ASSESSMENT

The proposed scheme of works is based on an understanding of the significance, character, historic development and surviving historic fabric of the locally listed Bugle alongside the other heritage assets within the vicinity. The proposals have been designed to ensure that the scale and design remain homogeneous with the existing street frontage whilst providing a new 21st Century quarter within the area.

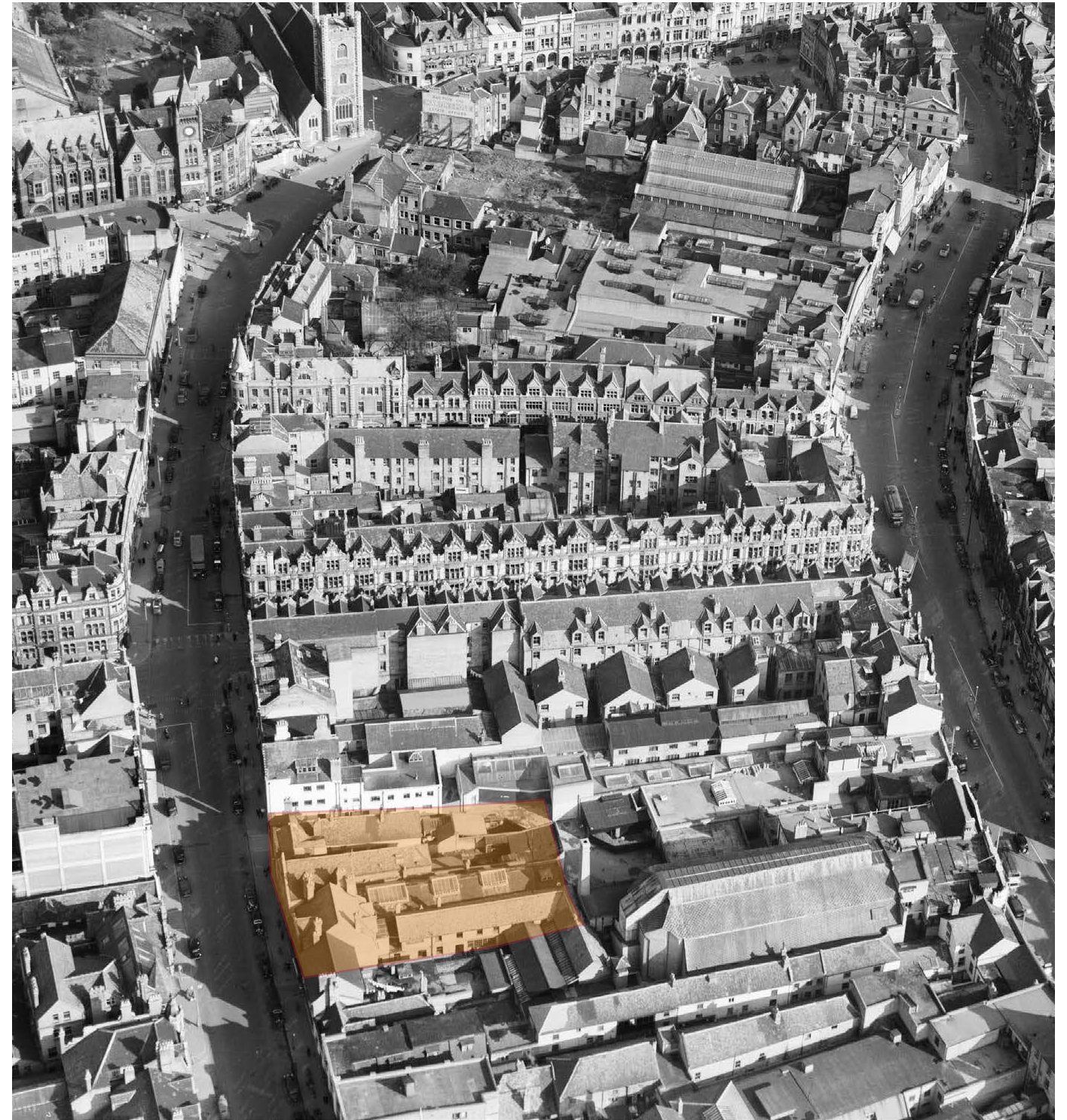
Whilst the loss of some of the fabric at Bugle will be considered to cause some harm, this would be mitigated by the appropriate recording of the building and interpretation provided insitu. Additionally, the new use proposed for the Bugle, its restoration and incorporation within the wider proposal will result in considerable heritage benefits that would easily outweigh the low level of less than substantial harm.

The revised scheme will result in enhancement in heritage and townscape terms by optimising use of the heritage assets within town centre as well as considerably improving their commercial frontages and would be in compliance with relevant local plan policies- EN1, EN4 and EN 6.

In accordance with NPPF paragraph 203, the proposal takes a balanced judgment against the limited loss of significance against the significance heritage benefits.

As such, the scheme is found to be compliant with local and national planning policy in so far as the heritage impacts are concerned.

SOURCE: Heritage Report | Revise & Tailor



Aerial view of Site looking towards St Laurence Church
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5.0 THE PROPOSAL

5.10 THE BUGLE FACADE RETENTION

Structural Strategy for Retention of Structural Beams within the Bugle Public House

Following our recent conversations, you have asked that we formally write to you regarding the proposed strategy for retaining the existing structural beams within the Bugle Public House within the proposed hotel development.

The existing structure consists of timber beams with a suspended timber floor joists, these are supported off a traditional solid masonry walls located around the perimeter of the building. The roof consists of a tiled roof supported by cut timber roof rafters and existing timber beams spanning between the existing perimeter masonry walls.

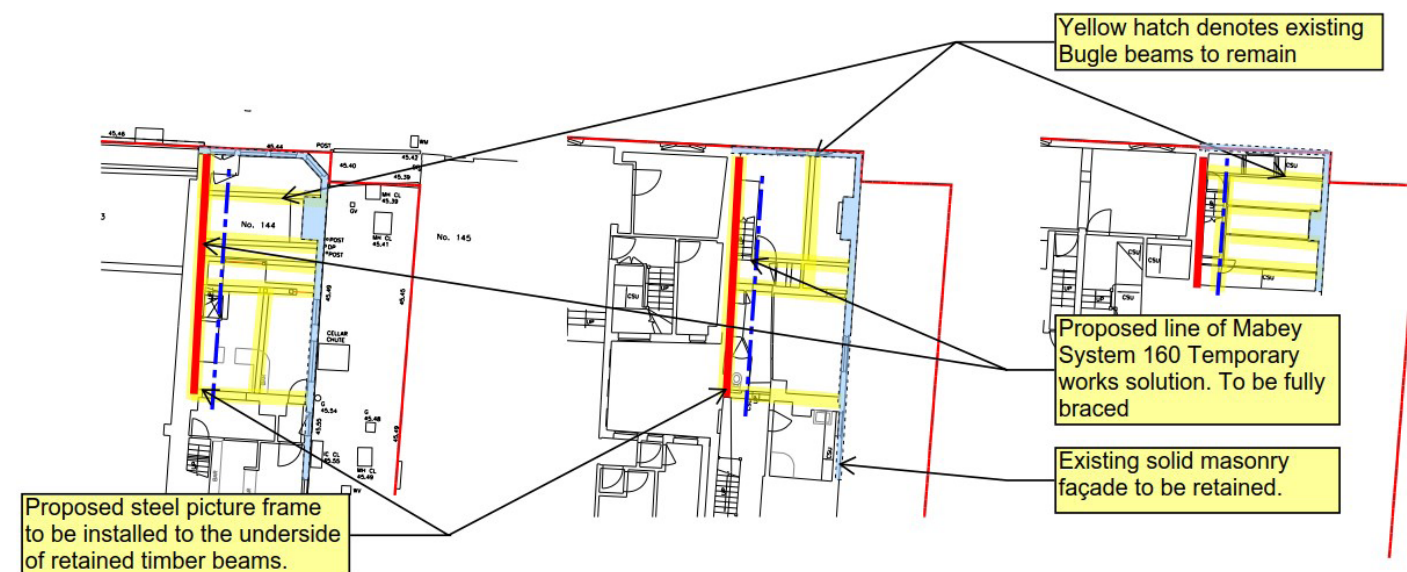
The proposal for maintaining the existing timber beams will involve installing a steel picture frame along the existing party wall of the Bugle Public House and No. 144 Friar Street. This steel picture frame will be installed directly below the existing timber beams which are bed into the existing masonry party wall. This will avoid damaging the existing historic fabric of these beams.

During the building works, the Main Contractor will need to install a row of Mabey System 160 props with a new strip foundation to temporarily support the beams while the new steel picture frame installed. This Mabey System 160 should be adequately braced to provide stability to the building structure as a whole. The proposed line of these Mabey System 160 temporary works is indicated on the structural sketches.

The sequence of works for the installation of the picture frame will be:

1. Installation of Mabey System 160 Temporary Works Solution.
2. Demolish existing masonry party wall to expose the ends of the historic timbers
3. Form new foundation for steel picture frame.
4. Install new steel picture frame to the underside of the existing retained timber beams.
5. Remove the temporary works and make good any existing connections.

Given that the existing façade to the Bugle Public House is being retained, then maintaining the installation of the existing suspended timber floor and timber beams will negate the need for a complex façade retention system. The existing floor structure will provide diaphragm action to stabilise the building while the works are being undertaken.



5.0 THE PROPOSAL

5.11 DAYLIGHT AND SUNLIGHT ASSESTMENT

The technical assessments that underpin this daylight and sunlight study have been carried out in accordance with the assessment methodology recommended in the BRE guide.

Daylight and sunlight to neighbouring properties

We assessed the daylight and sunlight levels to the neighbouring properties in the existing baseline condition.

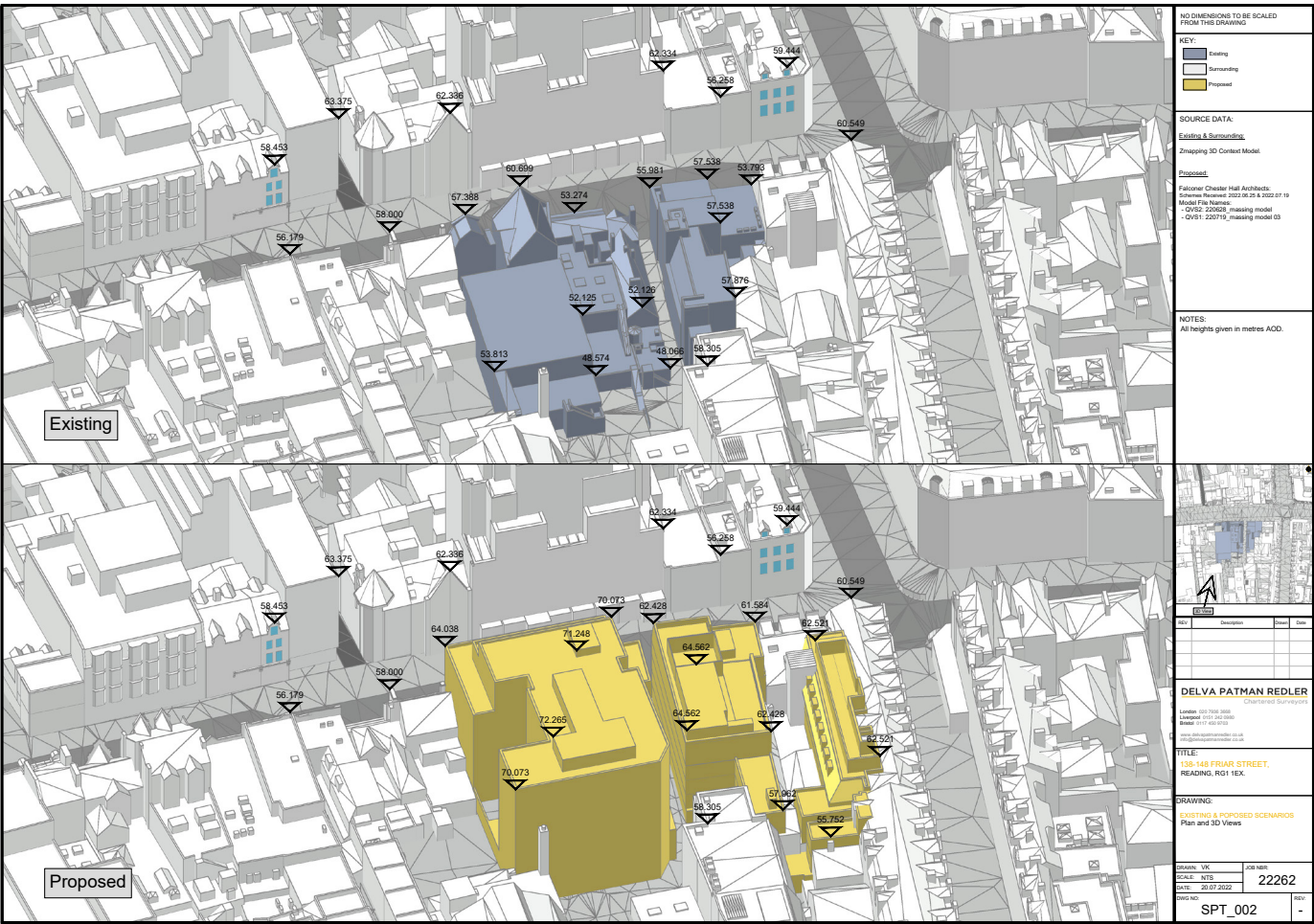
The neighbouring buildings/properties that were assessed are listed in below. Their daylight and sunlight levels in the existing baseline condition are shown in the results table in the columns headed “Exis.” (being an abbreviation of “Existing”).

Property, room & window attributes				VSC				NSL				APSH (room)							
Floor	Room	Room use	Window Ref./Orientation	Exis. (% VSC)	Prop. (% VSC)	Loss (% VSC)	Pro./Ex. ratio	Exis. (% rm)	Prop. (% rm)	Loss (m ²)	Pro./Ex. ratio	Annual (%APSH)				Winter (%APSH)			
												Exis.	Prop.	Loss	Pro./Ex.	Exis.	Prop.	Pro./Ex.	
Note: Red = outside BRE guidelines; Blue = gain in light																			
32 Friar Street																			
F02	R1	Living Room	W1	↓	35.5	33.2	N/A	N/A											
		Living Room	W2	↓	35.5	33.1	N/A	N/A	98%	98%	0.00	1.00	83	81	N/A	N/A	26	24	N/A
F03	R1	Bedroom	W1	↓	37.5	35.2	N/A	N/A	95%	95%	0.03	1.00	85	83	N/A	N/A	28	26	N/A
20-22 Friar Street & 1 Station Road																			
F01	R1	LK	W1	↓	30.5	27.7	N/A	N/A											
		LK	W2	↓	30.4	28.1	N/A	N/A	98%	98%	0.01	1.00	77	72	N/A	N/A	20	15	N/A
	R2	Bedroom	W3	↓	30.3	28.3	N/A	N/A	95%	95%	0.00	1.00	76	72	N/A	N/A	19	15	N/A
F02	R1	LK	W1	↓	34.8	31.9	N/A	N/A											
		LK	W2	↓	34.7	32.2	N/A	N/A	98%	98%	0.00	1.00	86	82	N/A	N/A	29	25	N/A
	R2	Bedroom	W3	↓	34.5	32.3	N/A	N/A	95%	95%	0.00	1.00	85	81	N/A	N/A	28	24	N/A
F03	R1	LK	W1	↓	36.0	33.6	N/A	N/A											
		LK	W3	↑	22.1	22.1	0.0	1.00	88%	87%	0.11	0.99	84	82	N/A	N/A	29	27	N/A
	R2	Bedroom	W2	↓	35.9	33.9	N/A	N/A	88%	88%	0.00	1.00	85	83	N/A	N/A	30	28	N/A

CONCLUSION:

- The Site is in an urban location in the centre of the city of Reading.
- We assessed the potential effects of the proposed development on daylight and sunlight to surrounding residential properties.
- We ran our assessments using methodologies recommended in the BRE guide.
- The advice contained in the BRE guide is not mandatory and its numerical guidelines should be interpreted flexibly.
- In daylight and sunlight terms, any proposed effects to neighbouring buildings will be negligible with all (100%) of the relevant neighbouring rooms/windows assessed, fully and comfortably complying with the BRE's numerical guidelines.
- In conclusion, it is submitted that the layout of the proposed development is consistent with the Council's local planning policy on daylight and sunlight.

SOURCE: DELVA PATMAN REDLER



6.0 ACCESS AND MAINTAINACE

6.1 TRANSPORT & SERVICING

TRANSPORT AND PLANNING DOCUMENTS

Four documents have been developed to outline transport and servicing strategy:

1 - CONSTRUCTION METHOD PLAN (CMP)

The aim of the Outline CMP is to outline the strategy for the safe and efficient movement of construction traffic associated with the construction activity in associated with the development proposals. The strategy aims to minimise the impacts of construction traffic on the local highway network as well as minimising any environmental impacts as a result of the construction works taking place. In addition, care and due attention are given to the town centre location of the site in relation in neighbouring properties.

2 - DELIVERY AND SERVICING PLAN (DSP)

The purpose of the DSP document is to ensure that delivery and servicing activity associated with the hotel can take place in a safe, efficient and sustainable manner. It has been developed in accordance with best practice guidance and national and local policies. The DSP identifies the following aspects in relation to the future site operation:

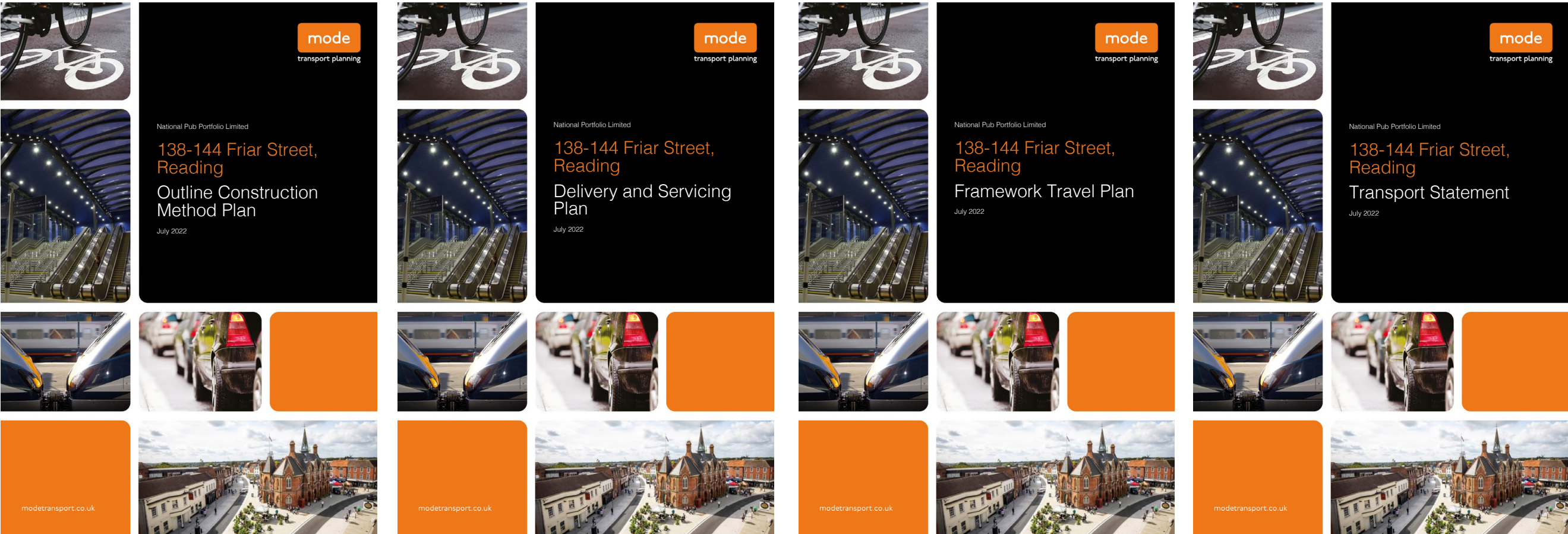
- Types of servicing vehicles accessing the site;
- Servicing arrangements;
- Frequency and timing of servicing activity;
- Proposed service vehicle routing; and
- Occupier management mechanisms to ensure efficient and safe servicing activity occurs at the site.

3 - FRAMEWORK TRAVEL PLAN

The purpose of the FTP is to set out both short and long-term strategies for reducing dependence on travel by private car and encourage sustainable travel choices primarily for staff. The objective is to reduce single-occupancy car journeys in favour of more sustainable modes of travel through the introduction of a package of measures that will assist and encourage staff to travel by more sustainable modes of transport.

4 - TRANSPORT STATEMENT

The purpose of the TS is to assess the implications of development-related travel for the application site on the surrounding highway and transport networks. The TS will demonstrate that in terms of sustainable access and traffic impact, the application site is capable of accommodating the scale of development proposed. The report considers the relevant national and local planning policy, existing conditions of the application site and local area, and the details of the development proposals.



6.0 ACCESS AND MAINTAINACE

6.2 PROPOSED ACCESS STRATEGY

The application site is situated in a location where walking provides a convenient mode of travel to a variety of local facilities. The adjacent road network contains a fully integrated network of footways that combine to provide direct and safe links to local facilities and transport links in the immediate area.

Key



Hotel entrance



Level access to lifts



Hotel delivery access



Refuse access



Plant maintenance access



Pedestrian Access to Site



Loading bay utilised for servicing of the proposal



Delivery Access Zone



6.0 ACCESS AND MAINTAINACE

6.3 PROPOSED VEHICLE ACCESS

Summary

This Delivery and Servicing Plan (DSP) has been prepared by mode transport planning on behalf of National Pub Portfolio Ltd and accompanies a planning application for a 163-bed hotel at 138- 144 Friar Street, Reading.

7The servicing and delivery operation for the development of the hotel will take place within existing restrictions and allowances on Friar Street.

The operator of the hotel will manage arrivals to ensure a low impact on the local highway network and efficient operation of servicing, in alignment with other commercial properties in the vicinity of the site on Friar Street. This includes the collection of waste.

It is considered that there is sufficient capacity on Friar Street to accommodate the delivery and servicing requirements generated by the development proposals.

Discussions are currently ongoing with RBC with regards to amending the existing loading restrictions to a single loading bay on Friar Street via a TRO to allow for an extended dwell time and a daytime loading window in order to effectively service the proposed hotel from Friar Street. This would rationalise all servicing movements associated with the hotel to a single loading bay.

The DSP has been drafted in accordance with local and national policy in relation to the movement of freight. It will remain a live document that will evolve over time to ensure that objectives are met in the most appropriate manner.

Conclusion

The measures set out within this DSP will ensure the successful and efficient operation of delivery and servicing activity on a day-to-day basis, minimising the impact of servicing movements on the road network.



6.0 ACCESS AND MAINTAINACE

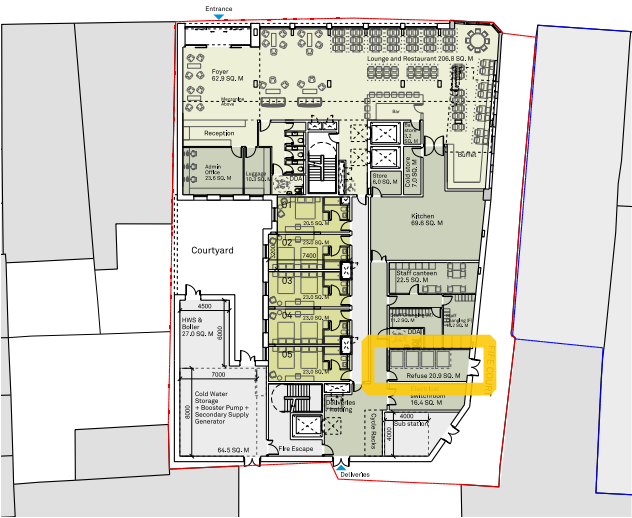
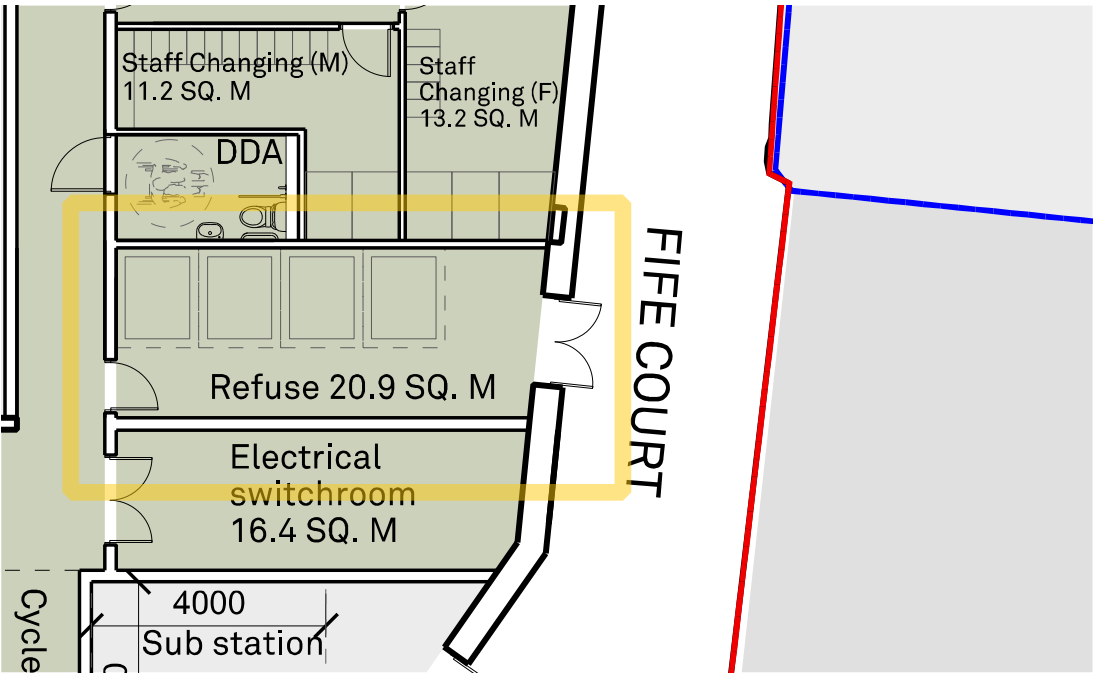
6.4 REFUSE STRATEGY

Refuse Collection

It is expected that refuse collection would take place from the loading bay on Friar Street to the east of the hotel, complying with the existing restrictions.

It is proposed that refuse collection would be undertaken by a private contractor. Bins will be wheeled from the designated refuse store on Fife Court to Friar Street and the collection arrangements and carry distances would be agreed with the appointed contractor.

Further details on the delivery and servicing arrangements are provided in the DSP accompanying the planning application.

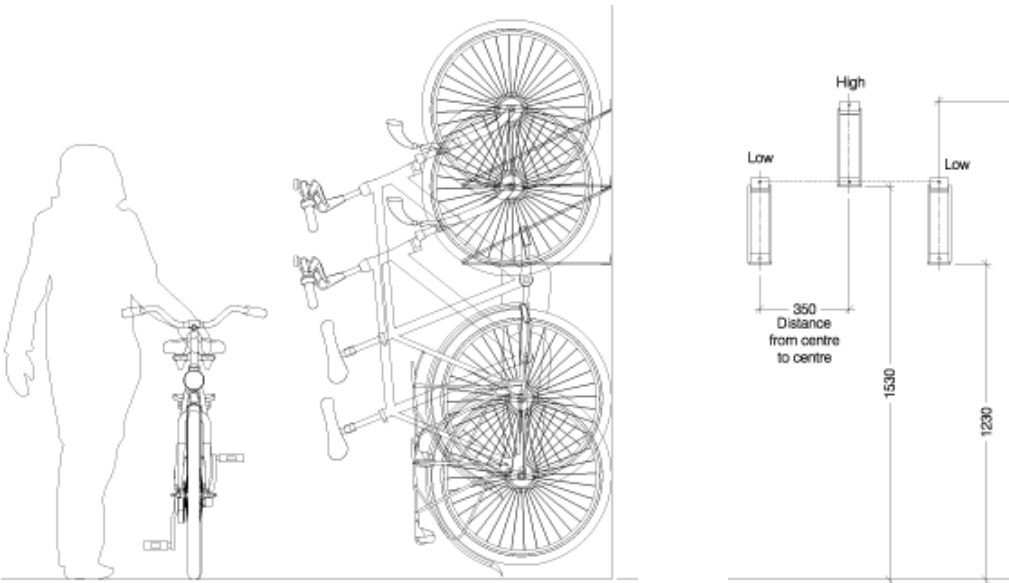


6.0 ACCESS AND MAINTAINACE

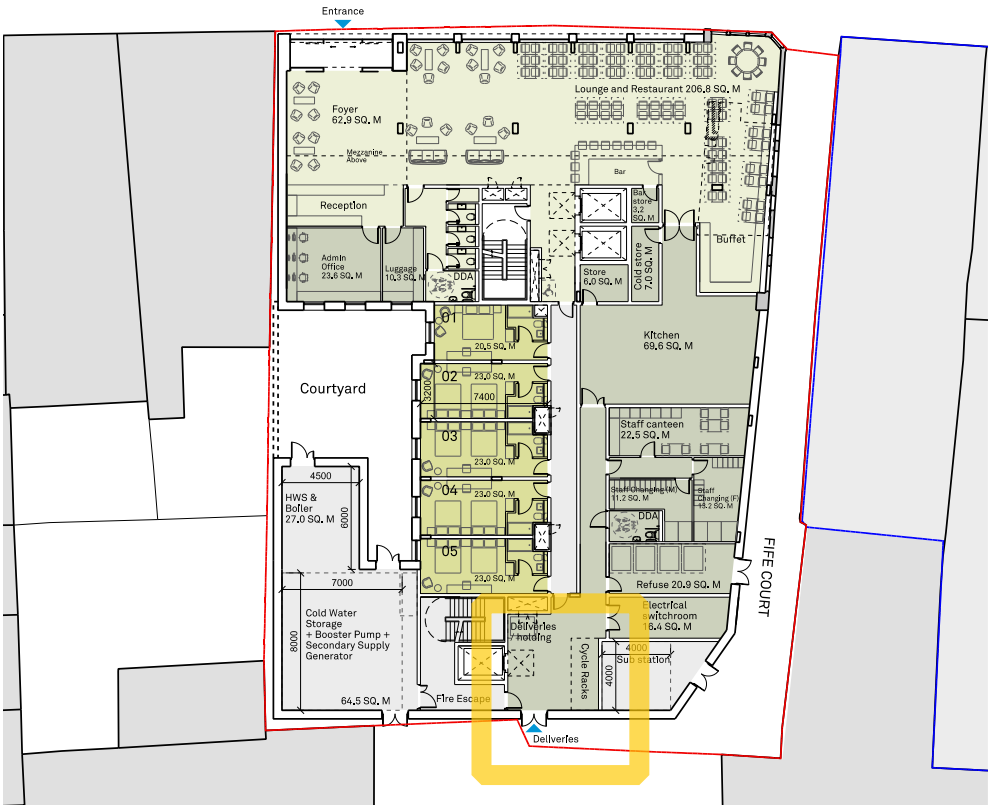
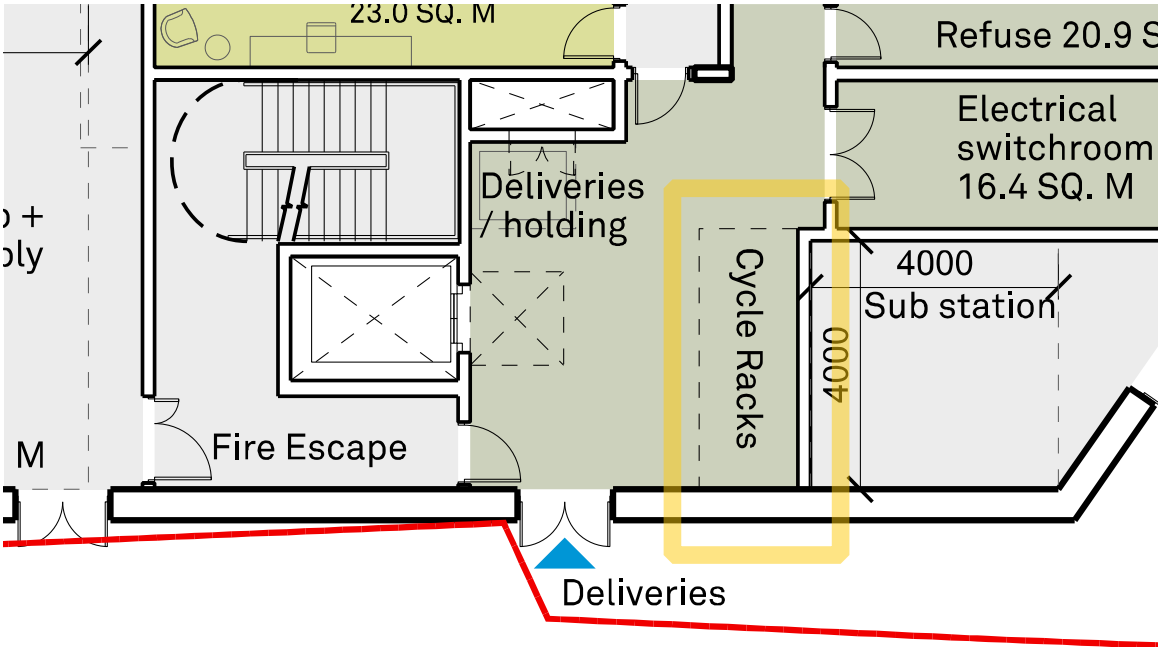
6.5 CYCLE ACCESSIBILITY

Pedestrian and Cycle Accessibility

Cycle parking will be provided on site following the local standards of 1 space per 6 staff as per the Reading Framework for hotel use. A designated staff cycle store will be located on the ground floor and is accessible via Fife Court. It is estimated approximately 33 staff will be on-site and have therefore assessed the need for 6 cycle spaces located to the rear of the ground floor.



Above: Illustration of vertical bike stand from side and front elevation.
Right: Ground floor plan highlighting location of staff cycle store in yellow.



6.0 ACCESS AND MAINTAINACE

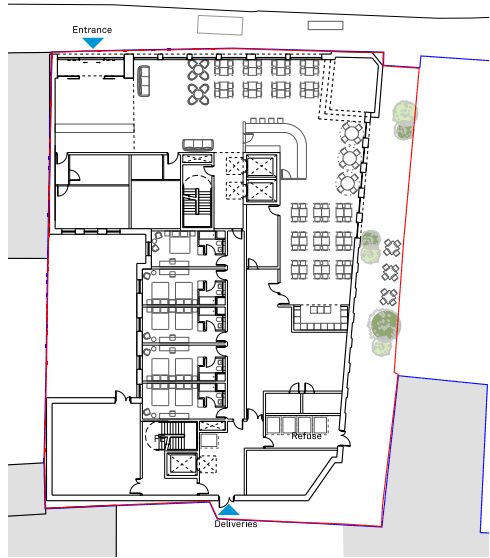
6.6 BUILDING MAINTENANCE

This section considers the strategy to allow for safe and efficient access for routine cleaning and light maintenance to the façades which form the Wellington block.

Strategies to allow safe means for major repairs such as replacement of glazing, cladding, brickwork and stonework along with other sections of the facade will besubject to ongoing detail design.

The general approach is for external facades to be cleaned and maintained from street level for areas that can be safely reached from the ground. At higher levels access will be via terraces or from a Mobile Elevated Working Platform (MEWP).

Glazed at upper levels will be cleaned internally, where practically possible, otherwise access will be via MEWP.



KEY PLAN

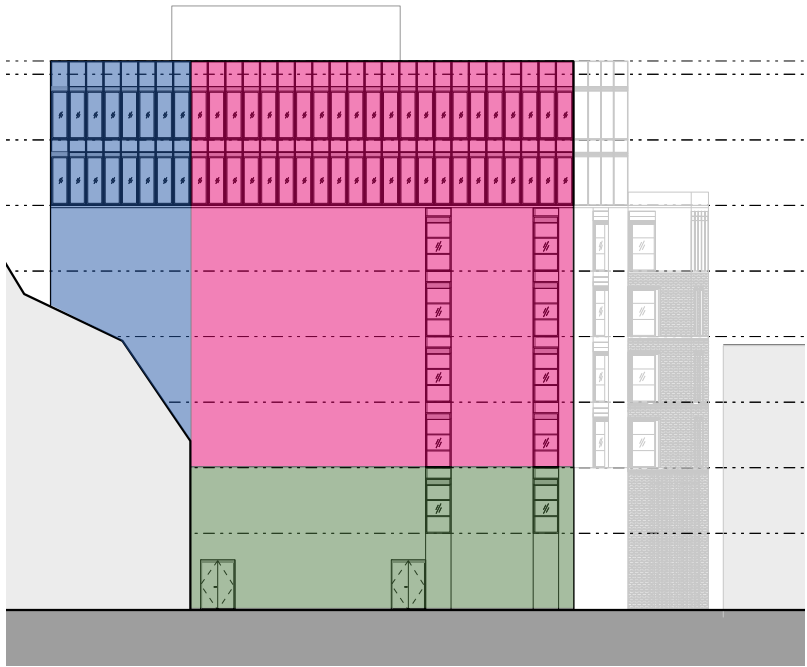
- CLEAN FROM STREET LEVEL OR INTERNALLY
- CLEAN BY MEWP
- CLEAN BY ABSAILING
- CLEAN FROM TERRACE



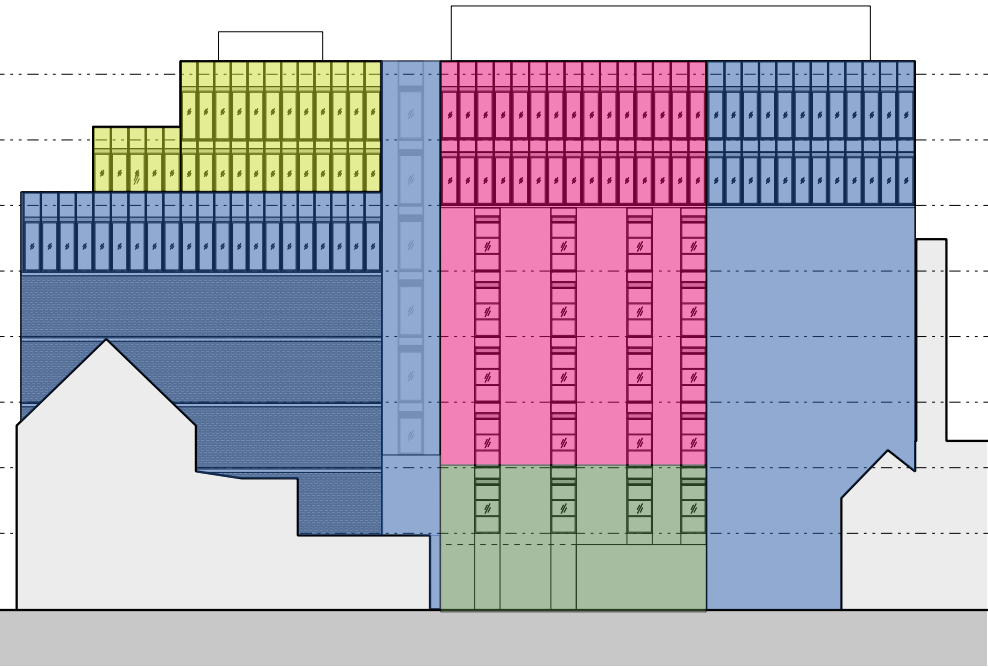
FRONT ELEVATION



EAST ELEVATION



REAR ELEVATION



WEST ELEVATION

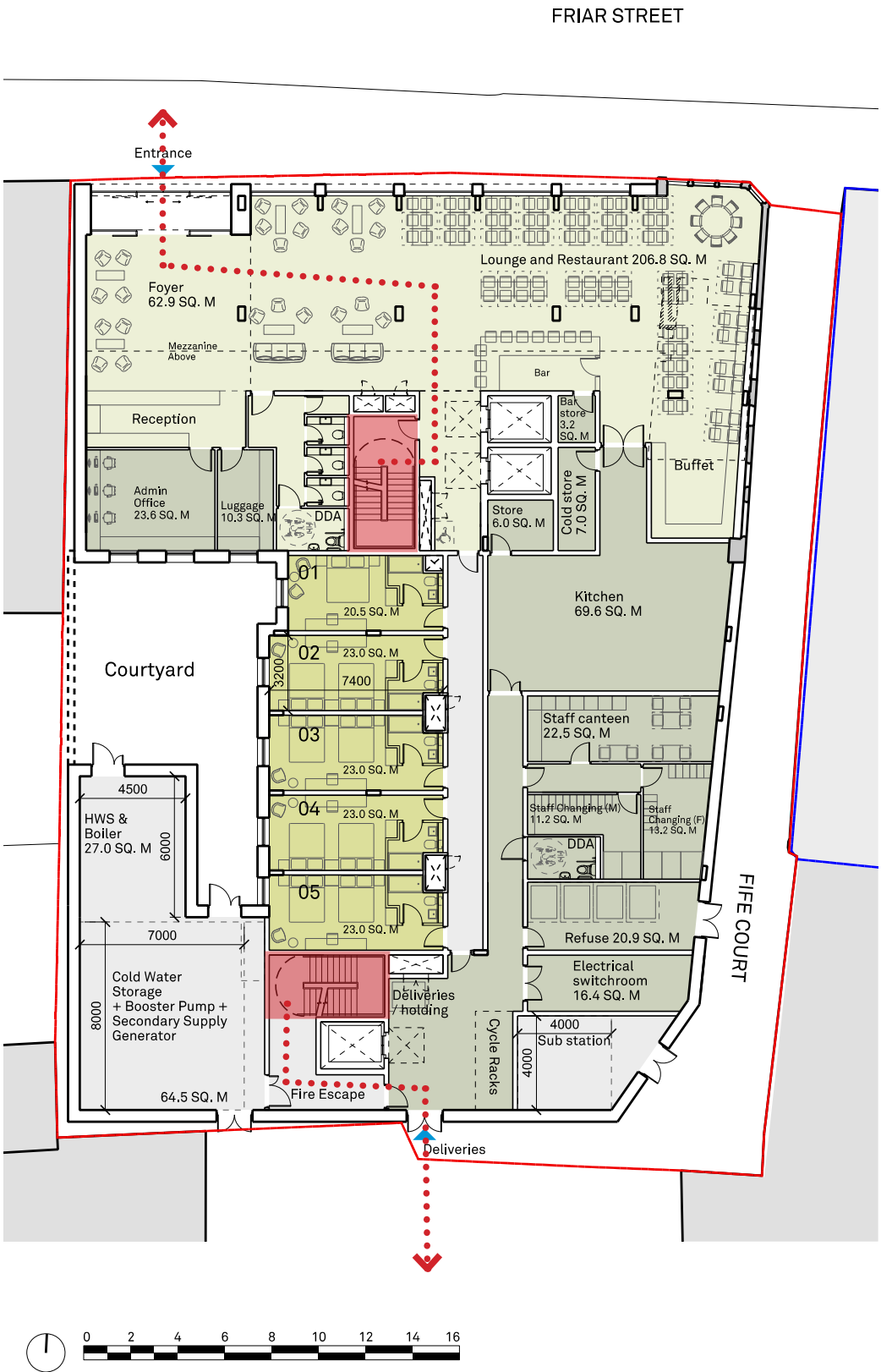
6.0 ACCESS AND MAINTAINACE

6.7 FIRE STRATEGY

The scheme has been devolped in compliance with fire safety approved document. Fire safety objective are listed in table below:

	Information/Requirement			AD B2 Ref
Scope of Building Work	Construction of a 157 room hotel			
Design Standards	Approved Document B Volume 2 Buildings other than dwellings			
Deviations from Approved Document	None			
Purpose Group	2(b) Residential (other)			
Number of Storeys	8			
No of Basement Storeys	None			
Height to Top Storey FFL	20.6m			
Storey Hights and Use	Ground	0	Reception, dining, BoH, 5 bedrooms	
	Mezzanine	2.95	11 Bedrooms	
	1 st Floor	5.908	26 Bedrooms	
	2 nd Floor	85	26 Bedrooms	
	3 rd Floor	11.80	26 Bedrooms	
	4 th Floor	14.75	26 Bedrooms	
	5 th Floor	17.70	20 Bedrooms	
	6 th Floor	20.60	17 Bedrooms	
	Total		157 Bedrooms	
Approx Floor Area per Floor	840.00 m²			
Approx Total Gross Floor Area	6,155 m²			
Total Proposed Number of Occupants	Sleeping Guests 157 x 2 = 314 Staff 60 Total 374			
Evacuation Strategy	Simultaneous			
Travel Distances	Within Bedrooms Single direction - 9m			Table 2.1

	Information/Requirement	AD B2 Ref
	Bedroom Corridors Single direction – 9m More than one direction - 35m Elsewhere Single direction – 18m More than one direction - 35m	
Minimum Number of Protected Stairways	Minimum of two stairs (building >11m & travel distances >9m)	3.3
Stairway Widths	1,000mm for simultaneous evacuation Firefighting stairs 1,10mm	Table 3.2 BS9999 clause 20.20.4
Refuges	One refuge required per protected stairway	3.4
Fire Resistance of Structure	90 minutes	
Compartment Walls	60 minutes (each side separately)	Table B3
Compartment Floors	90 minutes (from underside)	Table B3/B4
Fire Fighting Shaft	Required, building >18m	17.2
Number of Firefighting Shafts	One (Building height 18m, floor area/storey <900m²)	17.5
Firefighting Lift	Required building >18m	17.2
Firefighting Lobby	Required Between firefighting stairs and bedroom corridor serving the fire fighting lift – minimum area 5m²	Diagram 17.1 BS9999 clause 20.2.5
Dry/Wet Riser	Required in firefighting shaft	16.2
Fire Alarm System	Category L1 or L2 (all areas with more than 1m² floor area covered)	1.4 BS5839 Part 1 Annex A
Sprinklers	Not required building height However this is recommended to enhance the fire protection for the building, improving occupant safety and building protection	8.14
Smoke Control	Required for firefighting stairs and firefighting lobby	17.9
	Good practice to consider smoke ventilation from the top of other stairways	
Fire Suppression	Not required	
Emergency Escape Lighting	Required to BSS266 Part 1	5.25



7.0 SUSTAINABILITY

7.1 SUSTAINABILITY & ENERGY USE

Key Sustainability features

- BREEAM Excellent target
- Potential risk of overheating will be mitigated by incorporating passive and active design measures
- Incorporation of water saving fixtures and fittings;
- To reduce air pollution from vehicular transport, the development has been designed to encourage cycling via dedicated cycle storage;
- Specification of high-performance fabric and glazing to minimise heat loss;
- The incorporation of renewable technologies via the specification of air source heat pumps and PVs;
- Sustainable urban drainage systems (SUDS) to be incorporated on site and the buildings' fabric and structure will be designed to minimise risk of infiltration and damage via flooding where possible;
- Planted green roofs
- Water efficient



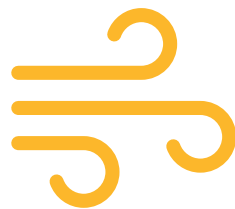
Daylight

Bespoke designed bedrooms to allow for maximum daylight penetration to living and sleeping areas.



Acoustics

Acoustic upgrade to internal partitions and attenuated Mechanical Ventilation with Heat Recovery (MVHR) so windows don't need to be open whilst asleep.



Air Quality

By adopting an MVHR strategy, we can filter the air and choose to intake from the south side of the building where the environment is less exposed to air pollution from vehicle fumes



Community

We have taken steps to reduce the amount of corridors, enliven communal facilities, offer added visual amenity and provide 'green' space to promote a healthier lifestyle, creating social opportunities and enabling self development.



7.0 SUSTAINABILITY

7.2 M+E PRINCIPLES

Mechanical Services Overview

The mechanical services within the development will generally comprise of the following:

- Space heating and cooling via ducted fan coil units located within ceiling voids and bulkheads. Primary heating and cooling will provided by roof mounted VRF condenser units.
- Mechanical ventilation to each bedroom will be afforded by local Mechanical vent heat recovery (MVHR) units located within the lobby bulkhead.
- Ventilation of Foyer, lounge and restaurant on the ground floor will be provided via MVHR units within the ceiling void.
- Kitchen ventilation will be provided central extract fan and supply air handling unit located at roof level
- Hot water generation via ASHP with gas boiler top up.

Heating / Cooling

Heating / cooling will be provided via roof mounted VRF / air source heat pumps (ASHPs).

Heating and cooling to each guest room, all public areas, kitchen, restaurant, gym and offices will be provided by fan coils units located within bulkheads and ceiling voids.

The cooling systems will be capable of maintaining an internal temperature of 22oC at the design external ambient temperature within the guest rooms and all public areas.

Comfort cooling will be provided within the ICT hub rooms and will consist of wall mounted cassettes connected to the external condenser units via refrigerant pipework.

Refrigerant pipework will generally run within ceiling voids and risers.

Condensate from the internal cassette units will run via gravity drainage system where possible to the local above ground drainage system via waterless, self-sealing, waste valves.

Ventilation

Ventilation will be provided within all enclosed spaces, such as corridors, guest bathrooms, food prep area, internal rooms, back of house areas.

The ventilation will be provided generally via local MVHR units with ductwork running horizontally to external wall louvres.

Each guest room will be provided with an individual MVHR unit located within the entrance bulkhead and operate at trickle via the master card switch and boost via the bathroom light switch.

The ground floor spaces including lounge, restaurant, foyer and reception will be provided with local MVHR units within ceiling voids. The units will provide trickle ventilation with options for boost via local controls within staff occupied areas.

The gym will be provided with local MVHR units. The units will provide trickle ventilation with options for boost via local controls within staff occupied areas.

The kitchen will be provided with dedicated ventilation system comprising of extract fan located at roof level with fire rated ductwork and suitable cleaning access points along the entire route to the kitchen. A supply air handling unit will provide the required make up air to the kitchen area with heating and cooling coils to maintain the require internal temperature within the area.

All ventilation plant will be linked back to the central BMS for monitoring and central control.

Building energy management system

The heating, cooling, ventilation and electrical systems will be provided with dedicated controls with each system being monitored by a central BMS.

Energy metering

Energy metering will be afforded in accordance with Approved Document Part L and the general principles of CIBSE Document TM39.

Each meter will be of the digital type.

The automated metering / monitoring system will form part of the development's BEMS.

Fire fighting

Existing fire hydrants will serve the new development. It is currently anticipated that no new hydrants are required subject to confirmation by the Fire Engineer.

Future District Heating Network

The development is located within the 'Station Hill and Around' clusters that will make up the core Reading Borough Council district heating network as indicated with the Reading Council SPD. It may be a requirement that the site is connected to a district heating network in the future as the proposed plant nears the end of it's life expectancy. In this event it is proposed that the boilers within the ground sfloor plantroom will be removed (together with the roof mounted ASHPs) and the ground floor plantroom used as an energy centre for connection into the district heating network



7.0 SUSTAINABILITY

7.3 ENERGY AND BREEAM STATEMENT

Executive Summary

The energy strategy for the 138-144 Friar Street development has been developed to comply with Building Regulations Part L 2013 and the policies of Reading Borough Council (RBC). The RBC sustainable Design and Construction SPD 2019 requires new developments above 1000m2 to achieve BREEAM Excellent. The development comprises a new building and a refurbishment of a small corner building. It will be assessed as BREEAM 2018 New Construction. This report assesses the Part L and BREEAM Ene01 energy performance of the development and reports the results of the BREEAM New Construction 2018 pre-assessment. Low and zero carbon (LZC) measures were assessed and are reported in detail in a separate report [TBA-Q2-XX-RP-N-00003]. The recommendations of the report were integrated into the energy strategy. In summary, the proposed energy strategy includes:

- High performing fabric for new build and refurbished elements
- High performance VRF heat pump heating and cooling
- Heat pumps for DHW with gas top up
- MVHR for ventilation
- High performance LEDs throughout with presence/absence detection and daylight dimming
- 130m2 PV on the roof

BREEAM Scope and Scheme Definition

It is recommended the building should be registered under the BREEAM New Construction 2018 scheme and assessed using the New Construction Residential Institution (short term stay)-hotel criteria. BREEAM New Construction 2018 pre-assessment was carried out for the proposed development to demonstrate how the BREEAM Excellent target can be achieved.

Energy Strategy

This section describes the predicted energy performance and carbon dioxide emissions of the proposed development based on the information provided by the design team. The methodology set out by the Department of Energy and Climate Change (DECC) for assessing the energy use of is the Simplified Building Energy Model (SBEM). The current version of SBEM utilises out of date Part L2013 SAP2012 carbon factors. The scheme has also been assessed against SAP10.2 Carbon factors in order to present more meaningful figures.

Methodology

Dynamic thermal modelling software IES 2022 was used to determine regulated energy consumption and CO2 emissions under Part L 2013 in accordance with the following energy hierarchy:

- Passive Design Measures
- Active Design Measures
- Decentralised Energy
- Low and Zero Carbon Energy

Active Design Measures

The development intends to incorporate low energy lighting fittings throughout the spaces. All light fittings will be specified as low energy lighting with an average lighting efficacy of 100 lum/W.

Mechanical ventilation with heat recovery (MVHR) is proposed for all occupied spaces. MVHR units will have 85% heat recovery and average SFPs of 0.9W/l/s. Heating, Cooling and DHW A condensing gas boiler is assumed for this scenario.

Monitoring

Apart from the above design measures, the development will incorporate monitoring equipment and systems to enable building users to monitor and reduce their energy use.

Decentralised heating

The hybrid VRF system proposed for space heating in the Low and zero carbon section below can be adapted to work with a water-based energy source. The ASHP for DHW could be replaced by a water-to-water system in due course. However, as the DHN proposals are at a very early stage with unknown flow temperatures and carbon factors, at present no regulated carbon savings can be calculated in this step.

Low and zero carbon energy

An LZC study has been carried out and is reported in document TBA-Q2-XX-RP-N-00003. The following technologies are recommended in the report:

- + VRF heat pumps for heating and cooling and DHW preheat
- + 130m2 PV on the roof

The following technologies were discounted on account of technical or economic issues:

- Ground source heat pump
- Biomass
- Solar thermal
- Wind turbines
- District Heating

Following the recommendations of the report, heat pumps and PV were implemented in the design. Heat pumps A high efficiency VRF heat pump system will provide space heating (and cooling where required). A separate heat pump will provide the DHW with 10% top up from gas-fired water heaters.

Photovoltaics

An 130m2 (22.2 kWp) south-facing array will be mounted on the roof of the building.

Conclusions

Dynamic thermal modelling was undertaken to develop an energy strategy suitable for the needs of the building while also achieving the mandatory credits for a BREEAM Excellent rating. Table 6 shows the cumulative energy and carbon savings after each step relative to the Ene04 Standard building, leading to achievement of four BREEAM Ene01 credits.

	Energy Savings		CO ₂ Emissions Savings			
	in %	in MWh/year	Part L		SAP10.2	
			in %	in tons CO ₂ /year	in %	in tons CO ₂ /year
After passive design	42%	1,328.1	40%	365.9	43%	259.6
After active design	54%	1,698.8	62%	559.4	51%	309.7
After LZC	80%	2,513.7	68%	618.4	84%	509.9

Table 5 Summary of impact of energy performance measures relative to the Ene04 Standard building baseline.

Table 6 shows summarises the design measures taken to achieve the four mandatory Ene01 credits.

Design measure		
Fabric improvements	U value	See Table 1
	Air permeability	
MEP	Heating	VRF system with heat recovery, SCOP5.5
	DHW	90% ASHP with SCOP=2.85, 10% gas-fired water heater, 935
	Cooling	VRF system, SEER=6.5
	MVHR	SFP0.9W/l/s, 85%HR
	Lighting	100lm/W
Renewables	PV	100m ² , 22% efficient, 10° inclination, south-facing

Table 6 Summary of applied energy performance measures



7.0 SUSTAINABILITY

7.4 SUDS & URBAN GREENING

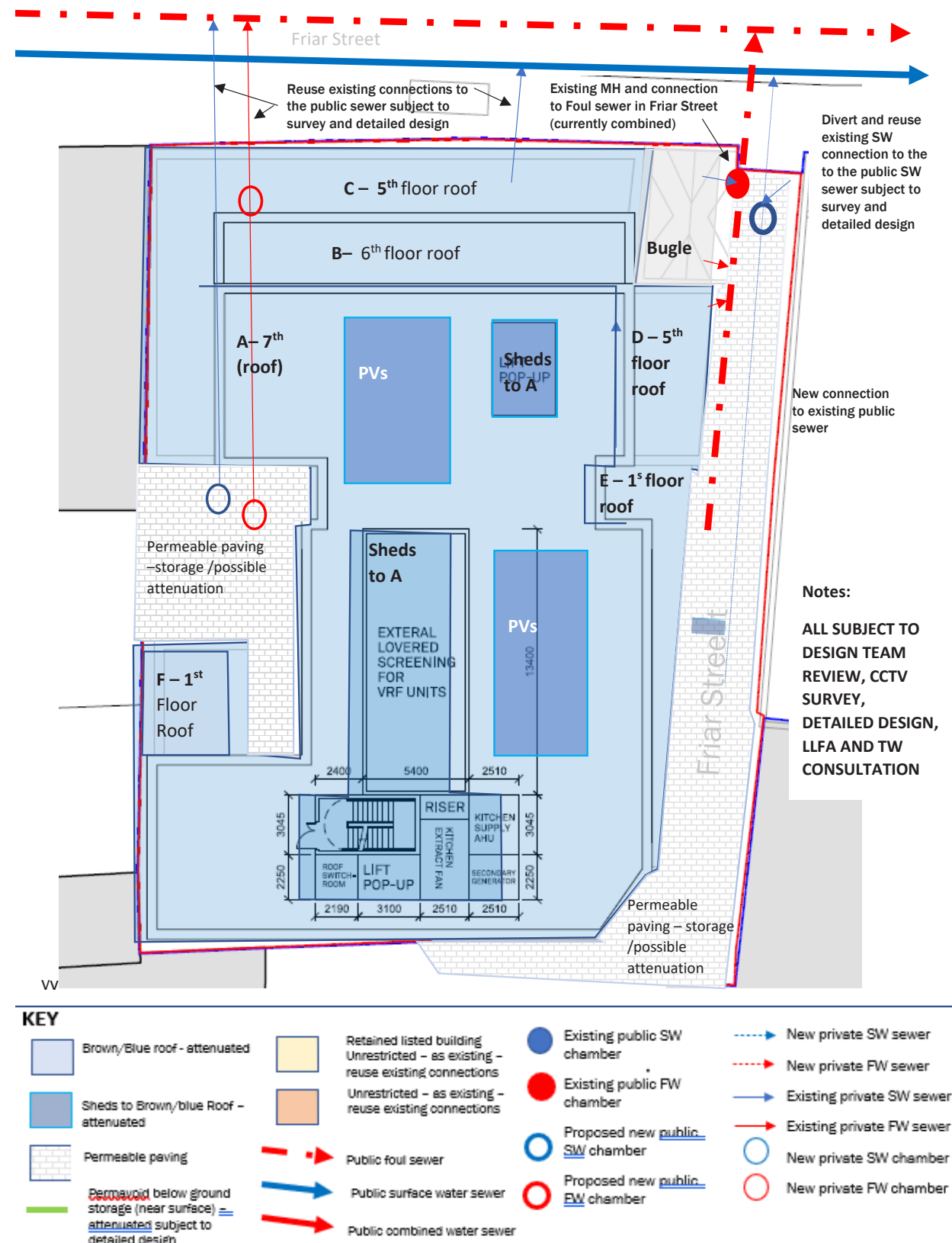
Flood Risk Assessment

A flood risk assessment (including drainage assessment) has been undertaken for the proposed development.

To inform the FRA, a drainage strategy has been prepared for the proposed development following a review of relevant planning policy and guidance. To comply, the drainage hierarchy has been followed and SUDS have been considered from the outset of the design process. This has enabled significant areas of brown/blue roofs (640m²) to be included across the roof at 6 locations and permeable paving (including permavoid) across 255m² of courtyard and access road at ground level. This will result in 96% of the site draining via SUDS which has the opportunity to more than offset the surface water and foul increases arising from the development (+1 l/s compared to existing) as long as the receiving sewers are carefully considered and agreed with Thames Water. By attenuating the surface water flows significantly and by removing surface water flows from the foul sewer in Friar Street where practicable there will be an overall positive impact on the receiving sewers.

It is considered that the development can be operated safely and without significantly increasing flood risk elsewhere with the inclusion of SUDS and the mitigation measures.

A number of residual risks have been identified, associated with flooding from blockage/pump failure/surcharge of public sewers, site drainage and burst water supply pipes, groundwater and surface water flooding following intense rainfall. These risks are typical of a site like this in an urban area. Appropriate mitigation measures have been provided to address and manage the residual risk from these forms of flooding. As long as the mitigation measures are implemented and public sewer networks, site drainage/water supply infrastructure are regularly inspected and maintained by the responsible authority, then the residual risk will be minimised.



7.0 SUSTAINABILITY

7.4 SUDS & URBAN GREENING

Urban Greening Factor

A c.400sqm brown roof will be provided, split between the main roof space and the stepped back roof at level 6.

To maximise the ecological value of the proposed new brown roof a log pile will be created on the roof. The log pile will be created using thick logs (larger than 10cm in diameter) from native broad-leaved trees with the bark retained. The log pile will be secured to ensure it does not blow off the roof. The log pile will naturally rot down creating habitat for invertebrates which in turn will create a food resource for birds.



Brown planted roof precedent imagery



8.0 CONCLUSION

8.1 SUMMARY

The Development will create a new town centre destination in Reading providing a high quality hotel and delivering a vibrant and attractive place to visit and stay.

The Applicant has been working corroboratively with Reading Council to to bring forward a high quality and vibrant development that meets the Council's aspiration for this site that will improve the area.

In summary the proposed scheme will bring the following benefits:

- Creation of Exciting New Reading Quarter
- High quality to design that respects heritage assets and strikes the right balance between conservation heritage and imagination
- High quality hotel development that respects street scene through intensive townscape assessments
- Active frontage to Friar Street & Fife Court
- 163 bedroom international hotel brand
- Reinvigorating Fife Court (historic laneway)
- Highly sustainable and highly accessible development offering inclusive design & access
- Significant investment into Town Centre and economic benefits – job creation



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