

1MCo3 Main Works - Contract Lot S1

Schedule 17 Plans and Specifications Design and Access Statement - Canterbury Works Vent Shaft - S1

MDL Code:

Document no.: 1MCO3-SCJ-IN-STA-SS02_SL01-000004

Revision	Author	Checked by	Approved by		Date approved	Reason for revision
P01	Aoife Connaughton	Nigel Phelps	Mark Gaby	Christine Hoff	20/03/2018	For information
C01	Aoife Connaughton	Nigel Phelps	Mark Gaby	Christine Hoff	12/06/2018	For acceptance
C02	Ed Waters/ James Lambert/ Ulrich Vosloo	Nigel Phelps	Thomas Von Schmettow	Steven Bodenham	08/03/2021	For acceptance
						

SECURITY CLASSIFICATION: OFFICIAL

Handling instructions: None

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Revision changes, authorisation and reason for issue records:

Revision	Author	Date authored	Checked by	Date checked	Approved by	Date approved	Reason for revision
P01	Aoife Connaughton	20/03/2018	Nigel Phelps	20/03/2018	Mark Gaby	20/03/2018	For Information
C01	Aoife Connaughton	12/06/2018	Nigel Phelps	12/06/2018	Mark Gaby	12/06/2018	For acceptance
C02.1	Ed Waters/ James Lambert/ Ulrich Vosloo	11/09/2020	Nigel Phelps	11/09/2020	Mark Gaby	11/09/2020	For acceptance
C02.2	Ed Waters/ James Lambert/ Ulrich Vosloo	04/12/2020	Nigel Phelps	04/12/2020	Mark Gaby	04/12/2020	For acceptance
C02.3	Ed Waters/ James Lambert/ Ulrich Vosloo	25/02/2021	Nigel Phelps	25/02/2021	Thomas von Schmettow	25/02/2021	For acceptance
C02.4	Ed Waters/ James Lambert	08/03/2021	Nigel Phelps	08/03/2021	Thomas von Schmettow	08/03/2021	Final submission, for acceptance

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Schedule 17 Plans and Specifications Design and Access Statement - Canterbury Works Vent Shaft - S1

Document no.: 1MCo3-SCJ-IN-STA-SSo2_SL01-000004

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Introduction

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1. Introduction

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1.1 Background Information

Scheme	High Speed 2
Applicant	High Speed Two (HS2) Limited
Applicant Address	c/o Agent: SCS Railways Joint Venture (SCS) Black Arrow House, 2 Chandos Road, London, NW10 6NF
Site Address	Canterbury Road, North Maida Vale, London NW6 5ST The works are located at; X (Easting): 525,094, Y (Northing): 183,304
Description	Plans and Specifications submission under Schedule 17 to the High Speed Rail (London – West Midlands) Act 2017 for works for approval comprising: <ul style="list-style-type: none"> • Vent shaft headhouse building, comprising three principle connected headhouse elements (mechanical and electrical plant building, fan room and vent stacks); • Road vehicle parking within the compound with a hardstanding area; • Earthworks within the compound area for the headhouse building and associated hardstanding area; • Autotransformer station (location only); • Fencing (location only) encircling the headhouse building to create a secure compound; and • Artificial lighting equipment affixed to the headhouse building and within the compound.

1.2 Terms of Reference

This Design and Access Statement is compiled in accordance with the HS2 Planning Memorandum and Forum Notes as required by the planning regime established under Schedule 20 of the High Speed Rail (London – West Midlands) Act 2017. This asset was identified as a Key Design Element in the HS2 Design Paper D1.¹

This statement provides London Borough of Brent with information to assist with the determination of the vent shaft submission in relation to the above description of works. This statement is for information only and not for approval.

1.3 Introduction to High Speed 2

Phase One of HS2 will provide dedicated high speed rail services between London, Birmingham and the West Midlands. It will extend for approximately 230km (143 miles). Just north of Lichfield, high speed trains will join the West Coast Main Line for journeys to and from Manchester, the North West and Scotland.

Phase One of HS2 is the first phase of a new high speed railway network proposed by the Government to connect major cities in Britain. It will bring significant benefits for inter-urban rail travellers through increased capacity and improved connectivity between London, the Midlands and the North. It will release capacity on the existing rail network between London, Birmingham and the West Midlands and so provide opportunities to improve existing commuter, regional passenger and freight services.

1.4 High Speed Rail (London-West Midlands) Act 2017

The Act provides powers for the construction and operation of Phase One of HS2. Schedule 1 of the Act describes the 'scheduled works' that the nominated undertaker will be authorised to carry out.

For the works which are the subject of this Schedule 17 application HS2 Ltd is the nominated undertaker.

Section 20 of the Act deems planning permission to be granted for the development authorised by it, subject to the provisions of section 20 and conditions set out in Schedule 17.

Schedule 17 includes conditions requiring various matters to be approved by the relevant local planning authority.

This is therefore a different planning regime to that which usually applies in England (i.e. the Town and Country Planning Act 1990) and is different in terms of the nature of submissions and the issues that the local planning authorities (LPAs) can have regard to in determining requests for approval.

The Planning Conditions set out in Schedule 17 of the Act requires the nominated undertaker to submit requests for approval to qualifying authorities for:

- Plans and Specifications;
- Bringing into Use; and
- Site Restoration Schemes.

Schedule 17 of the Act sets out the grounds on which the qualifying authority may impose conditions on approvals, or refuse to approve the requests for approval.

1.5 Purpose and Structure of this document

The purpose of this Design & Access Statement (DAS) is to explain the design principles and concepts of the proposed scheme, demonstrating consideration of the specific characteristics of the application site and its wider setting. The DAS outlines the approach taken to access and details how any specific issues which might affect access to the proposed scheme have been addressed.

This document will cover the following sections:

- Section 2 sets out the background to the proposal;
- Section 3 outlines the site constraints and opportunities;
- Section 4 describes the evolution of the design and the alternatives considered;
- Section 5 provides more in-depth detail on the design proposals, focusing in particular on scale and appearance;
- Section 6 includes the landscape proposals relating the scheme
- Section 7 analyses the access issues, and
- Section 8 summarises the key messages from the report.

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¹ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/672265/D1_-_Design_Policy_v1.8.pdf

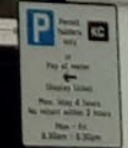
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CANTERBURY HOUSE



School



View facing Canterbury House on Canterbury Road

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2. Background

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2.1 Introduction

The HS2 Euston tunnels will comprise twin bored tunnels (one 'downline' for trains travelling in the direction of Birmingham, and one 'upline' for trains travelling towards Euston) extending from the new portal outside Euston station in the east to the proposed Old Oak Common station in the West.

The tunnels will be linked to the surface via two ventilation and intervention shafts at the Adelaide Road and Canterbury Works Vent Shaft sites, both emerging via sites close to the West Coast Mainline railway. The necessary legislative powers were included within the HS2 Act to construct a ventilation shaft on land adjacent to Canterbury Terrace and Canterbury Road, within the London Borough of Brent, known hereafter as 'The Canterbury Works Vent Shaft Site'. It will be the most westerly of the two vent shafts along the S1 route (Figure 1).

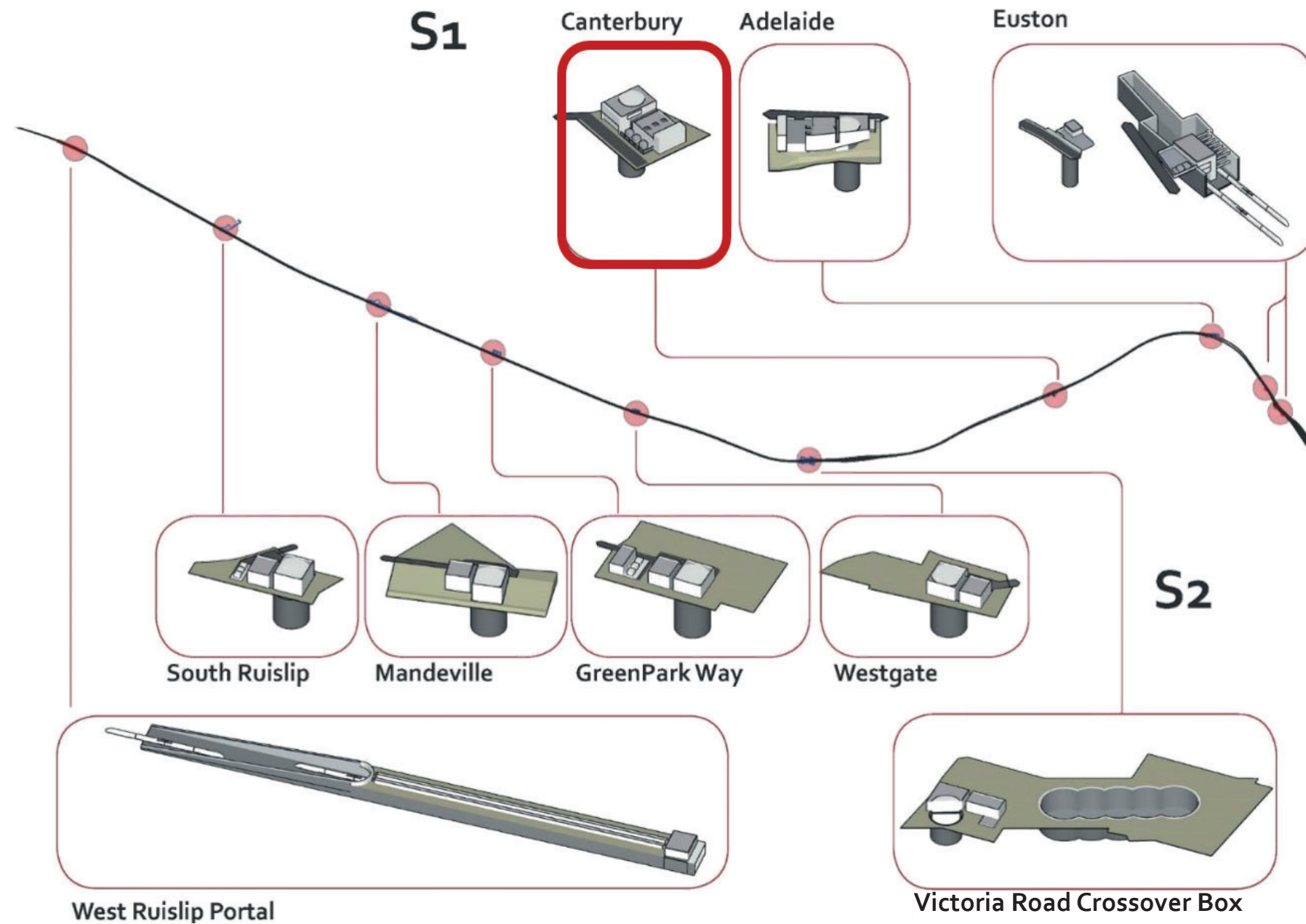


Figure 1: The location of the site relative to other assets along the Phase 1 route. (Illustrations of each site are illustrative only)

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2.2 Area Context

The area surrounding the Canterbury Works Vent Shaft site is predominantly residential with a mixture of housing types (Figure 2). The streets to the south, including Chichester Road, Princess Road and Granville Road, are largely formed of terraced rows that are more typical of an area of inner London and includes some blocks of flats. To the east, low rise blocks of flats are located along Canterbury Terrace, Denmark Road, and Albert road, including Carlton House which directly adjacent to the west of the site. Immediately to the east of the site is St Mary's Catholic Primary School, with the Royal Mail Kilburn Delivery Office further to east.

The area is severed by the West Coast Mainline railway, which is located on an east-west alignment, and acts very much as a constraint to north-south movement through the wider area, as well as 'hemming in' the Canterbury Works Vent Shaft site itself. Residential properties along the road Brondesbury Villas are also found to the north of the West Coast Mainline railway.

The site is in close proximity to the South Kilburn Studios, as well as a number of places of worship and community facilities, such as a St Augustine's Sports Centre and the Oxford Kilburn Youth Trust (OK CLUB).

Immediately adjacent to the site is the locally listed Canterbury House, which is a former Victorian Factory with a distinctive appearance, constructed primarily of brick. Canterbury House has recently been redeveloped to residential use comprising 21 apartments.

The site lies approximately 50m south of the Kilburn Conservation Area and 20m North of the South Kilburn Conservation Area, and there are several significant areas of open spaces in close proximity, including Queen's Park and Tiverton Green, as well as Kensal Green, which is slightly further away.

The site's location is illustrated in Figure 2.

2.3 Site Context

The vent shaft site is located on land previously occupied as a light industrial / business park. This has now been demolished in preparation for construction of the scheme. It is bounded by:

- A row of four storey, mid-twentieth century social housing blocks to the rear of Canterbury Terrace to the west;
- Canterbury House, a three storey Victorian apartment building of brick construction that fronts Canterbury Road to the south of the site;
- St. Mary's Primary School to the east, and
- National Rail lines to the north.

Figure 3, overleaf, provides views of the site from ground level (image locations shown in Figure 4).



Figure 2: Site Location

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1



View from Canterbury Road facing northeast. Location of site entrance via Canterbury Road located at point A, Canterbury house to the south of the site is at point B.

2



View from Canterbury Terrace facing southeast. Site entrance via Canterbury Terrace is located at point A, residential blocks to west of site are located at point B.

3



View from Canterbury Road facing southeast towards Canterbury House located at point A.

4



View of Network Rail tracks to the north of the site. Residential dwellings on Brondesbury Villas are located at point A and Network Rail tracks are located at B.

5



View from pedestrian path facing towards St Mary's school site. School located at point A.

6



View from Albert Road facing west. Residential block to west of the site located at point A.

Figure 3: Views of the site 's surroundings. Numbers correspond to those on the site map overleaf.

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Figure 4: Site location (approximate site boundary in red). Numbers correspond to site photos overleaf (Source: Google Earth Pro).



View facing site entrance on Canterbury Road

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3. Site Constraints and Opportunities

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The design of Canterbury Works Vent Shaft has taken into account relevant site constraints and opportunities as it has developed. Figure 5 illustrates some of the key considerations in relation to the site area.

3.1 Opportunities

The site presents the opportunity to:

- Embed the headhouse building into the site to reduce visual impacts;
- Integrate existing Network Rail access off Canterbury Terrace / Albert Street – no other permanent NR access is required;
- Provide streetscape enhancements in the locality;
- Provide open space enhancement on the east side to improve the environment fronting St Mary's School; and
- Facilitate potential future development on current Central Motors Garage site fronting Canterbury Road.

The proposal has also been developed to enable future opportunities outside of the application boundary, which could be brought forward by other parties in the future. These could include:

- Creating ecological connectivity along the Railway;
- Improving pedestrian connections in strategic locations by creating improved road crossing points;
- Mitigating and enhancing views from residential developments;
- Improving biodiversity of the local area and its surrounding context and creating further ecological stepping stones;
- Improvements to public realm along the Canterbury Road;
- Enhance the streetscape of Canterbury Road and Cathedral Walk in order to integrate the landscape design with the surrounding environment and provide wider benefits to local communities. These opportunities were discussed with the South Kilburn Regeneration Team; and
- Wider restoration and enhancement to public realm.

3.2 Constraints

The site's constraints, set out in Figure 5, are as follows:

- Presence of existing Network Rail corridor to the north of the site;
- Proximity of residential areas to the north, west and south of the site;
- Proximity of St Mary's School – a sensitive land use on the eastern side;
- The headhouse location and dimensions are fixed by the location of the tunnel shaft and functional requirements of the railway;
- Presence of listed building located approximately 18m to the south of the site; and
- The need to limit visual impacts on surrounding area.



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Figure 5: Schematic of the site's constraints



View from Canterbury Road facing Cathedral Walk

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4. Design Evolution and Alternatives

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4 | Design Evolution and Alternatives

4.1 Hybrid Bill / Reference Design

A reference design for the shaft and headhouse was included within the Hybrid Bill. This design, which was environmentally assessed, was based on the following key features:

- A shaft headhouse building, measuring approximately 700m² in footprint and approximately 9.5m high above existing ground level. It would provide access to the Euston tunnel below;
- An ATS (Auto Transformer Station) to supply power for the trains. The ATS will measure approximately 400m², with a height of approximately 5m; and
- An area of hard-standing, to allow for maintenance and emergency access.

The design included in the Hybrid Bill is illustrated in Figure 6.

4.2 Scheme design

Following the enactment of the Hybrid Bill, the design of the Canterbury Works Vent Shaft site was developed further during Scheme Design (2017 - 2019).¹ Scheme Design phase formed the basis for the Detailed Design undertaken ahead of this Schedule 17 submission. The following elements evolved in Scheme Design:

- A vertical circular shaft with the diameter reduced to 15m (from approximately 25m in the Employer's Reference Design), was proposed for tunneling and construction purposes, and to provide additional space for ventilation and intervention;
- The headhouse fans were proposed to be arranged horizontally rather than vertically, which had the following benefits:
 - Smaller shaft;
 - Less excavation, noise and dust, and fewer lorries required during construction;
 - Safer maintenance operations; and
 - An estimated 30% reduction in carbon footprint.
- Due to functional requirements, the Scheme Design for the headhouse was larger in size than seen in the Hybrid Bill, with a different shape and extending closer to residential properties on Canterbury Road, including Canterbury House. The headhouse consists of a two-storey structure, split into the main electrical/mechanical part of the building and the vent exhaust structure at the opposite end. The fan room, which is just a single storey and housing two fans, is located between the electrical/mechanical part of the building and the vent exhaust structure.

Figure 7 to Figure 10 provide various views of the scheme design.

¹ Scheme Design was environmentally assessed, see document 1MC03-SCJ-EV-NOT-SS02_SL01-000002

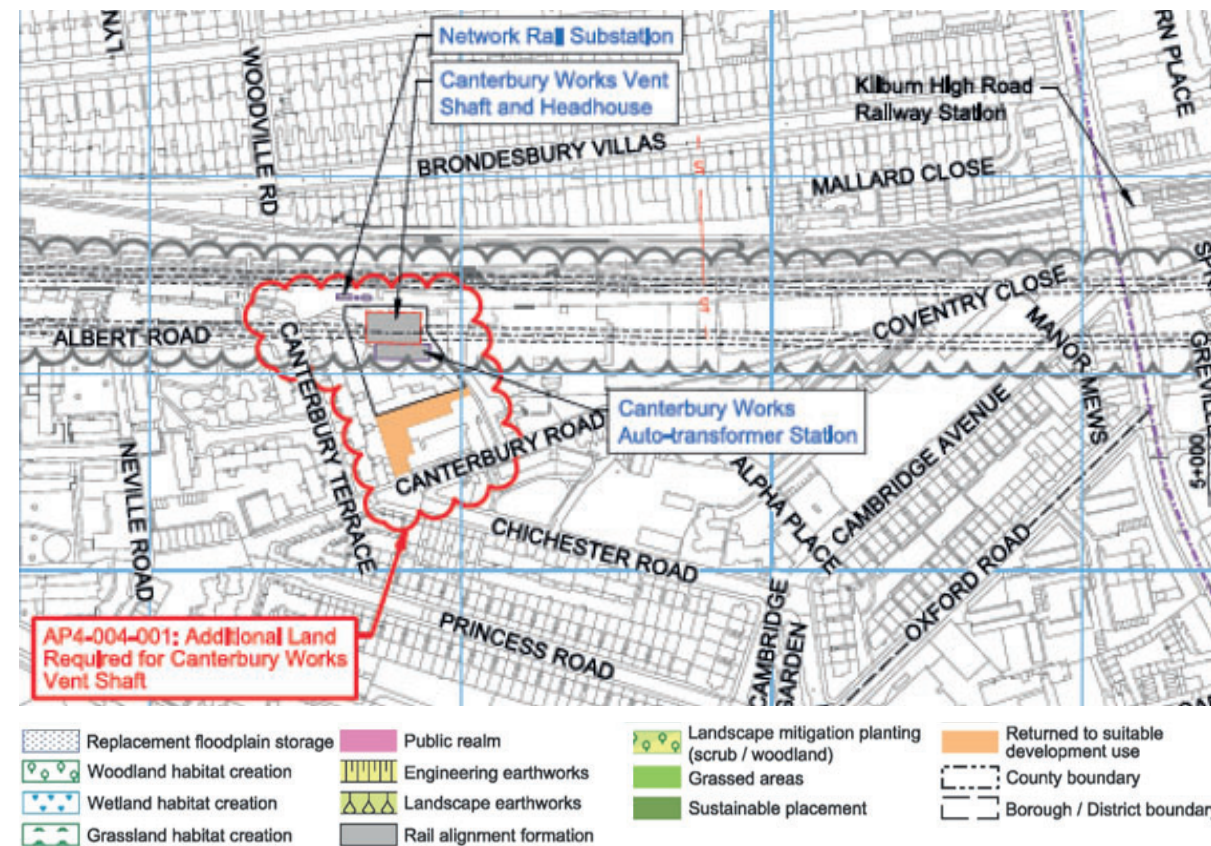


Figure 6: Hybrid Bill CT06 Map extract

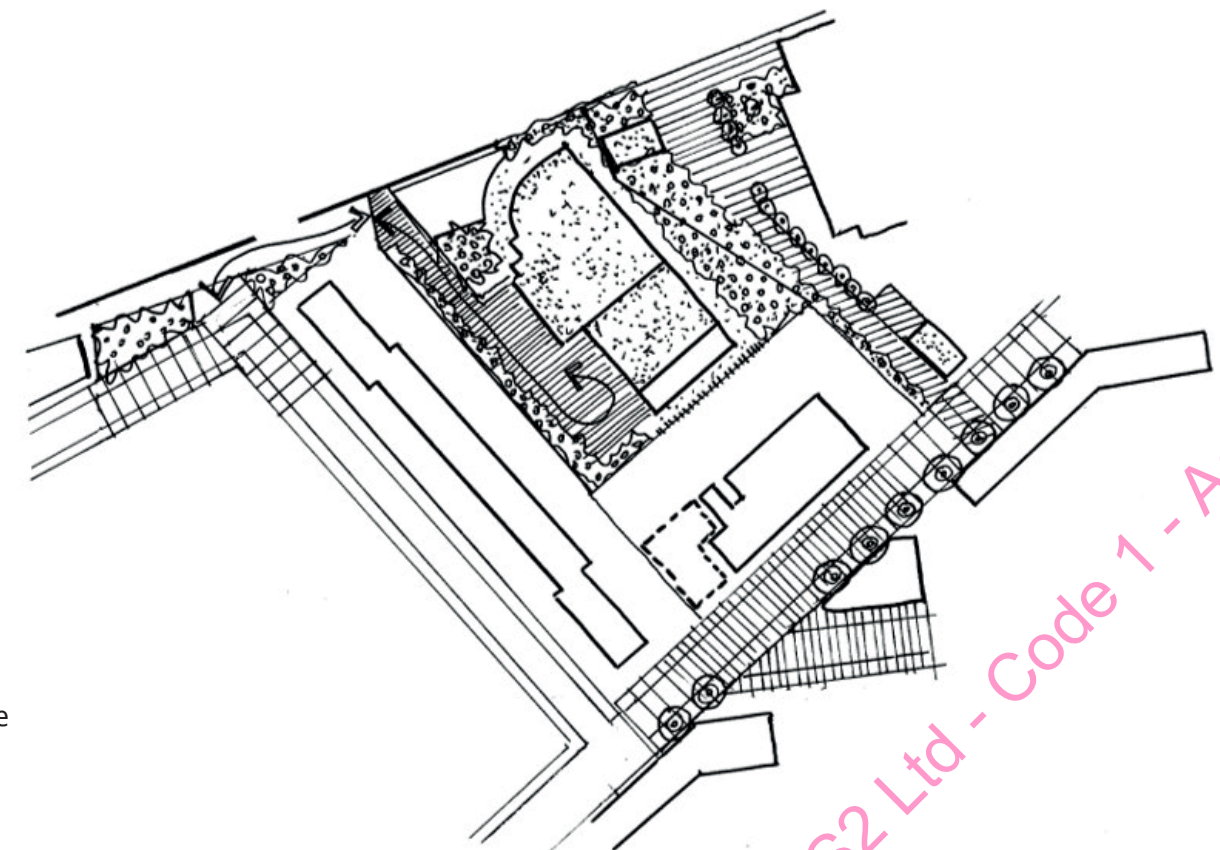


Figure 7: Early design sketch studies (2017) and design options illustrating the objective to embed the building into the site and reduce visual impact on surrounding receptors

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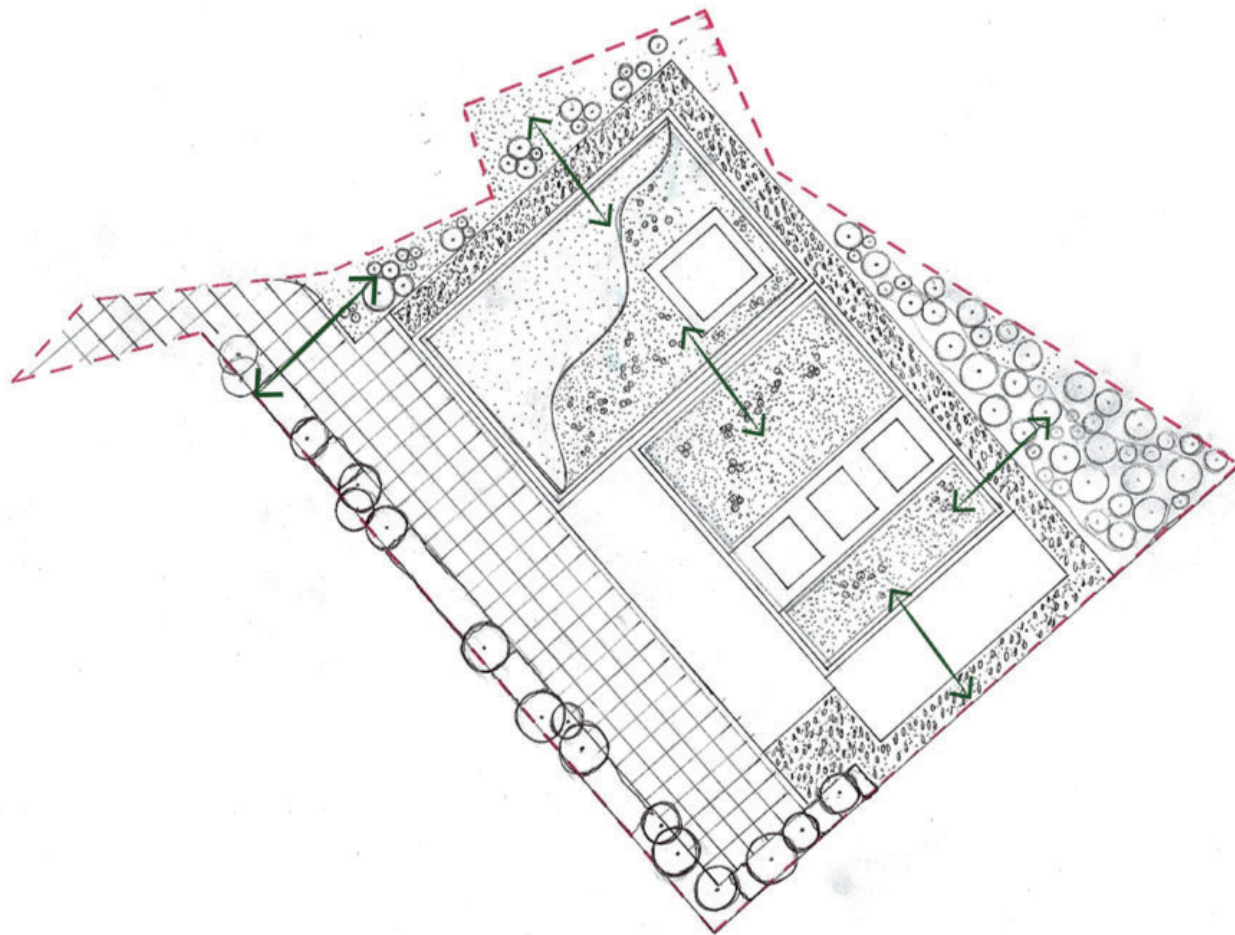


Figure 8: Design Sketch showing previous design from 2018 Scheme Design



Figure 10: Past design iteration from 2019 Scheme Design

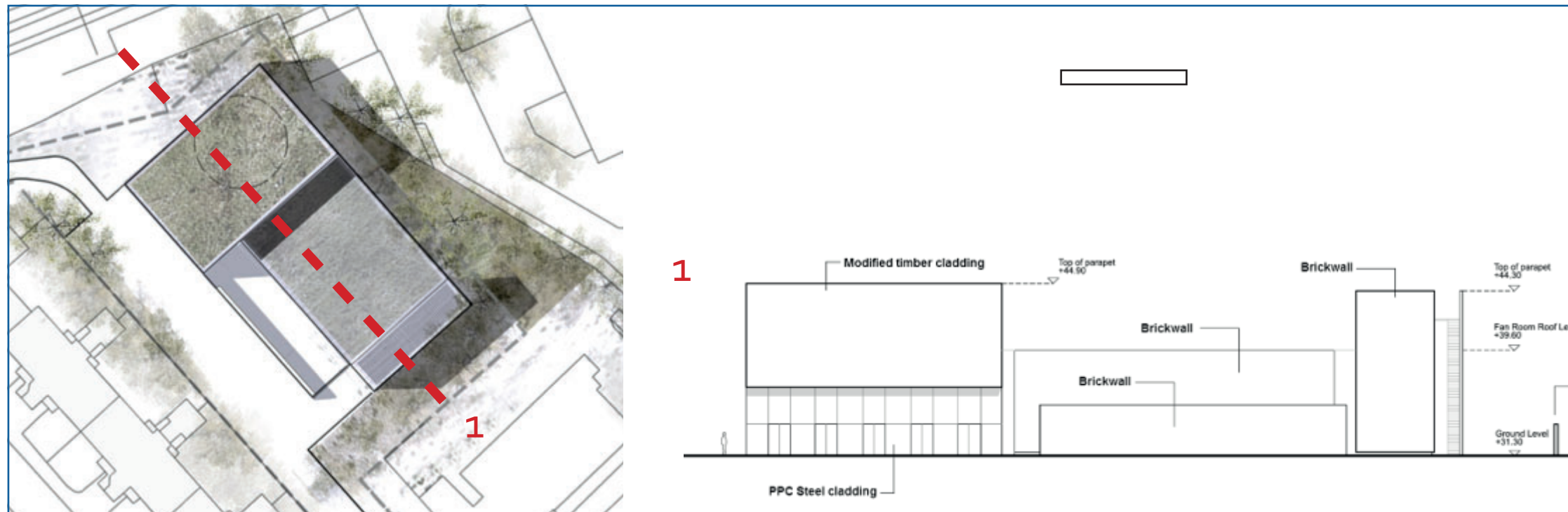


Figure 9: Elevations showing a previous design from 2018 Scheme design (right). View taken across the dotted line in the image to the left.

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4.3 Design Review Panel

The HS2 Design Review Panel is an independent body established to provide advice and critique of the ongoing development of HS2 to help achieve its design vision. The panel was set up in response to an Undertaking & Assurance (U&A) that the Secretary of State provided during the passage of the Bill through parliament, and its remit covers those sites that are deemed to comprise a particular sensitivity.

Presentations have been made to the panel during Scheme Design in January and June 2018, with positive feedback received on the proposals for the headhouse, with the design team taking on board key points from the early consultation when developing the scheme design.

A further presentation was made to the Design Review Panel during the Detailed Design phase at the beginning of October 2020. Feedback received from the panel was positive, and any proposals received were considered and where appropriate included in the final Schedule 17 application. Key comments received include:

- The headhouse was considered as having a high quality architectural design if materials and construction shown in the drawings is achieved;
- Support expressed for the concept of expressing the headhouses' function through architecture, but notes that this aspect of the design will only be visible from certain perspectives (e.g. the rail corridor);
- The landscape vision of embedding the scheme into its context was welcomed;
- The landscaping proposals for the parcel of land to be made accessible to the adjoining school were applauded;
- The inclusion of roof planting was positively received; and
- The panel supported the focus on subtle lighting.

A summary report of the Design Review Panel is included in the appendix.

4.4 Pre-application engagement with London Borough of Brent

Pre-application engagement has been undertaken throughout the design development of this asset. The London Borough of Brent Planning Officers have been generally positive in response to the headhouse building design, including its form and materiality. A key consideration from the London Borough of Brent is the materials used. These have been carefully chosen and opinions of Brent's urban design and heritage officers have been taken into consideration as the design was developed.

A summary of the key feedback received during pre-application engagement, along with how the design evolved in response, is provided in the following table:

Comment Summary	Design Evolution
The use of patterned brickwork should be considered to break up large areas of wall.	Perforate brickwork has been adopted towards the top of the chimneys, the lower part of the sides of the headhouse building, and within the headhouse cutaway.
Consider feasibility of additional landscaping in between the headhouse and Canterbury House to provide greater screening.	New tree species selected for planting in this area that will provide enhanced screening.
Interest expressed in feature lighting of textured brickwork to give sense of texture and shadow to the structure at night.	This was considered but discounted due to light pollution and ecological concerns.
For context, detail of the height of the surrounding buildings should be provided in the written documents.	This detail has been provided in section 5 of the DAS.

Further details on pre-application engagement with London Borough of Brent is provided in Section 6 of the Written Statement, submitted as part of this Schedule 17 application.

4.5 Public engagement

HS2 held public engagement on the design of the Canterbury Works Vent Shaft from 26 October to 20 November 2020. Information about the design was made available online at HS2inKilburn-Northolt.co.uk from 26 October 2020 (information remains available via this web-page).

Online information events regarding the design were held on 10 and 12 November 2020. This was not held as a physical event due to the ongoing Covid-19 pandemic. An invitation to these events was posted to more than 4,800 local residents, and was also sent via email to local community contacts.

Following the consultation event, an online survey was made available between 26 October and 20 November 2020. The survey sought the local community's feedback on the design. In particular, the community's views were sought on the following points:

- The proposed materials for Canterbury Works headhouse;
- The landscaping master-plan for the Canterbury Works compound;
- The permanent boundary wall for the Canterbury Works compound; and
- The views on the proposal to install a sensory garden and trees next to the boundary with St Mary's Catholic Primary School.

In total, 11 survey responses and additional comments were received. Overall, the majority of respondents stated that they liked the design, and felt it blended well with the wider area. The landscape design was well received, and all respondents liked the inclusion of the sensory garden for the adjacent school. Other queries received included:

- the feasibility of detailing on the wall facing Canterbury House;
- why the current location and orientation of the building had been selected; and
- whether more planting was possible in the area between the headhouse and Canterbury House.

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Responses were provided to any individual comments that were received. The consultation team also ran an online “You Said, We Did” style response session to detail how the feedback provided by the community was taken into account.

The design team’s response to the comments received included the following key points:

- The headhouse location is fixed by its relationship to the tunnel shaft and is as far to the north of the site as is possible;
- The length of the headhouse is determined by HS2 functional requirements for the fan room including requirements to limit noise outbreak and is as short as is possible;
- In response to feedback received during the virtual public and on-line consultation the design team reconsidered the design of the boundary wall along the southern and western boundary and has opted for a revised design which provides a mixture of solid brick with metal railings above (note: only location of fencing is for approval under Schedule 17 of the HS2 Act);
- The vertical ventilation stacks have been reduced in size to the minimum required both in plan dimensions and height;
- The set back from Canterbury House has been made as large as is possible whilst meeting functional requirements; and
- The visual impact of the headhouse and in particular vent stacks has been mitigated by :
 - a reduction in size and articulation of the chimneys
 - the choice of brick as the principle material;
 - the use of decorative brickwork to part of the walls; and
 - landscape screening.

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View facing site entrance on Canterbury Terrace

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5. Design Proposals

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5.1 HS2 Design Vision

The HS2 Design Vision is founded on the three themes of 'People, Place and Time', with the following objectives to be achieved:

People	<ul style="list-style-type: none"> • Collaborating with local community to understand their aspirations • Being a 'good neighbour' by minimising impacts • Enhancing local green amenity via access, education and the environment
Place	<ul style="list-style-type: none"> • Leaving the site a better place • Respecting local context • Minimising the environmental impact: <ul style="list-style-type: none"> • Protect local wildlife • Restore local ecosystems • Link areas of habitat
Time	<ul style="list-style-type: none"> • Built to last / resilient to change • Projecting a positive and lasting identity for HS2 • Providing a sustainable legacy: <ul style="list-style-type: none"> • Connecting local people with nature • Supporting sustainable national infrastructure • Helping transition to a low carbon economy

The architectural appearance of the building elements aligns with the wider HS2 Design Vision strategy for all head houses within S1 and S2 whilst also responding to the specific character of the immediate context. Brick, metal and timber are used to reinforce the line wide identity of the family of buildings whilst at the same time ensuring integration with the surrounding area.

5.2 Layout

The Canterbury Works Vent Shaft headhouse sits atop a 15m diameter circular shaft that is located in between the two Euston running tunnels, with separate intervention cross passages connecting both tunnels to an intervention core.

Figure 11 illustrates the functional requirements of the headhouse building for providing ventilation to the tunnels below. It shows that the air will travel up from the tunnel via the shaft, and the plenum conforms the airway that links the shaft to the fan room. The fan room itself contains the mechanical elements (large axial fans) that generate the required airflows. The ventilation stack directs the flow vertically to the outside atmosphere. The rationale behind the horizontal fan room layout is discussed in section 4.2.

Figure 12 illustrates that the location of the headhouse building is fixed by functional requirements of the headhouse and the dimensions of the site.

The above ground elements, submitted for approval comprise of the following elements:

- A headhouse building, including two above ground elements:
 - The main part of the building approximately (33.2m x 26.10m by 14m high) housing electrical and mechanical plant;
 - A secondary section of the building (approximately 25.7m x 20m by 9.7m high) housing tunnel ventilation fans;
- Two narrow sections of the buildings which will form the ventilation stacks, at the fan rooms eastern end (approximately 5.9m x 5.9m x 14m high);
- Earthworks within the compound area for the headhouse building and associated hardstanding area;
- Fencing (location only) encircling the headhouse building to create a secure compound;
- Pole-mounted artificial lighting equipment within the compound;
- A 1136m² hardstanding compound area, for maintenance vehicles to park and access the site; and
- The location only of an Auto Transformer Station (ATS) and associated fencing. Design details of the ATS will be the subject of a future Schedule 17 application.

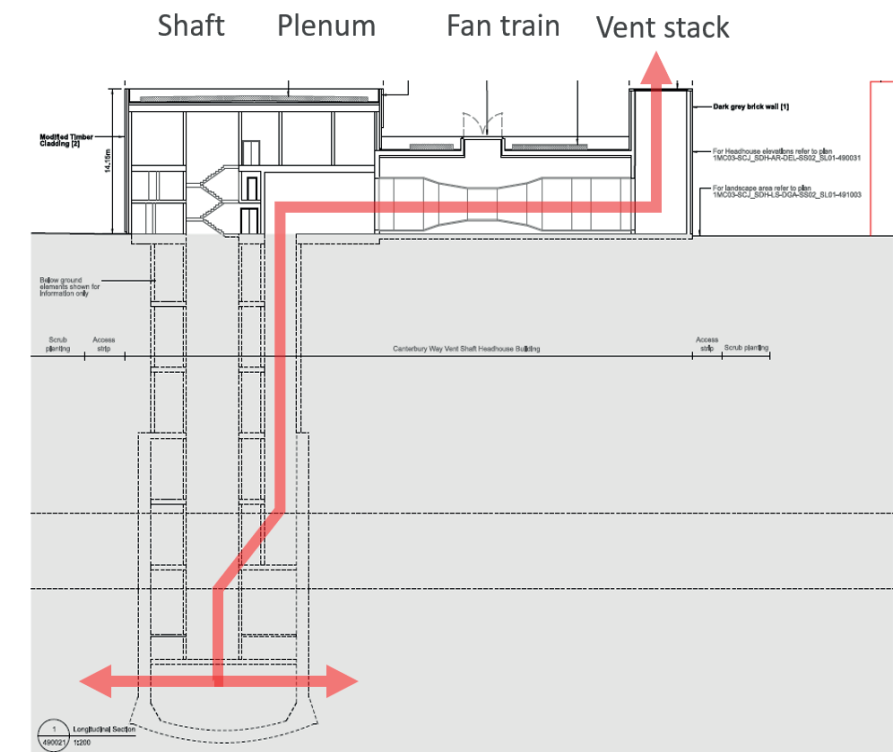


Figure 11: The red line illustrates the air path from the shaft below, through the headhouse fan room and exiting via the chimneys

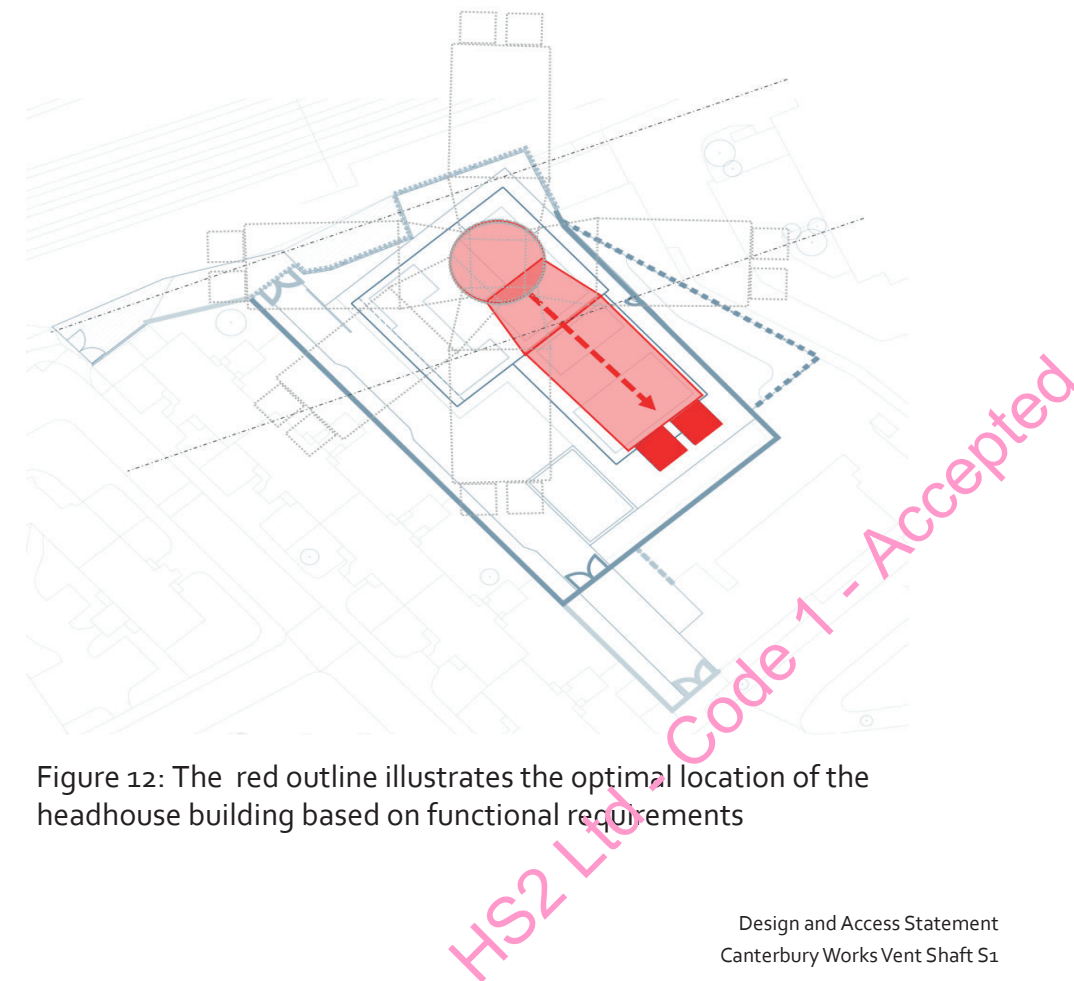


Figure 12: The red outline illustrates the optimal location of the headhouse building based on functional requirements

5.3 Scale

In terms of scale, the headhouse is approximate to a 4 storey building, and the fan room is approximate to a 3 storey building. The closest adjacent structures are Canterbury Terrace and Canterbury house, which are 4 and 5 storeys respectively.

The scale of the building will be mitigated by its “sculptural” design, including the use of techniques such as using a patterned brickwork treatment to sections of the elevations. In addition, the landscape design will provide a “green buffer” between the railway and adjacent receptors, further mitigating the scale of the structures. The Scale of the building is in line with the HS2 Design Vision as the design seeks to be a ‘good neighbour’ by minimising its impact.

The dimensions of the design element are set out in the following table:

Feature	Dimensions
Headhouse	Footprint: 56m x 33m
Hardstanding	Area: 804m ²

For context, the scale of the buildings surrounding the Canterbury Works Vent Shaft site are as follows:

- St Mary’s School (east) - 1 storey;
- Canterbury House (south) - 4 storeys (note - this is a historic building and heights of each floor may be greater than modern standards, as such the building is taller than surrounding buildings); and
- Carlton House (west) - 4 storeys.

Principle 5.1 of the Brent Design Guide (SPD1) relates to how future development affects the privacy and amenity of existing buildings. It applies a 30 degree rule to evaluate how the building envelope of a proposed development will affect existing buildings.

Figure 13 applies the 30 degree rule to the proposed headhouse and ventilation stacks and demonstrates that a portion of the ventilation stacks is non-compliant with the 30 degree rule. The highest point of the headhouse is 14.0m in height whereas compliance with the 30 degree rule would allow for only 12.39m in height. The extent of non-compliance is shown in Figure 13 and Figure 14.

As Figure 14 illustrates that only approximately 10m of the overall horizontal length of the façade is non-compliant, and this is split across two ventilation shafts. While the headhouse cannot be moved to a different site due to its fixed relationship with the tunnel shaft below ground, the design has taken all reasonably practicable measures to mitigate the impact of the headhouse on the privacy and amenity of the neighbouring buildings. These mitigation measures include:

- siting the headhouse as far to the north of the site as possible, thereby maximising the distance which it is setback from Canterbury House;
- designing the length of the headhouse to be as short as possible whilst remaining within HS2 functional requirements for the fan room and noise outbreak measures;
- designing the vertical ventilation shafts to the minimum required width and height;
- choosing brick as the principle material and using decorative brickwork on portions of the wall;
- using landscape screening and increasing the height of proposed trees from earlier proposals; and
- reducing the size and articulation of the ventilation shafts from the Scheme Design.

In summary, the design of the headhouse has taken all reasonably practicable measures to minimise the level of impact on the amenity for ground floor residents of Canterbury House. The combination of building layout, materials, the minimised horizontal length of the building, the reduced size of the ventilation chimneys and other mitigation measures will collectively result in a substantially lower impact on ground floor residences in Canterbury House. Figure 13 also shows that the Canterbury Works Headhouse falls entirely within the Limits of Deviation as approved in the HS2 Act.

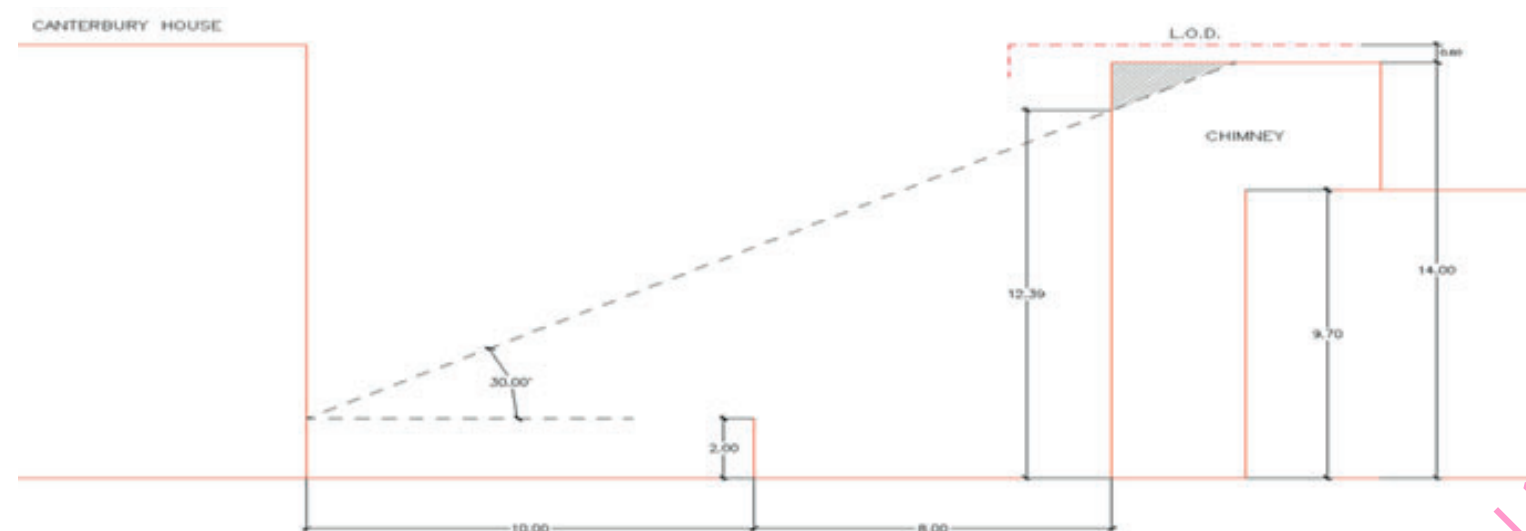


Figure 13: A Schematic illustrating the schemes compliance with the 30 degree rule set out in the Brent Design Guidance (SPD1)

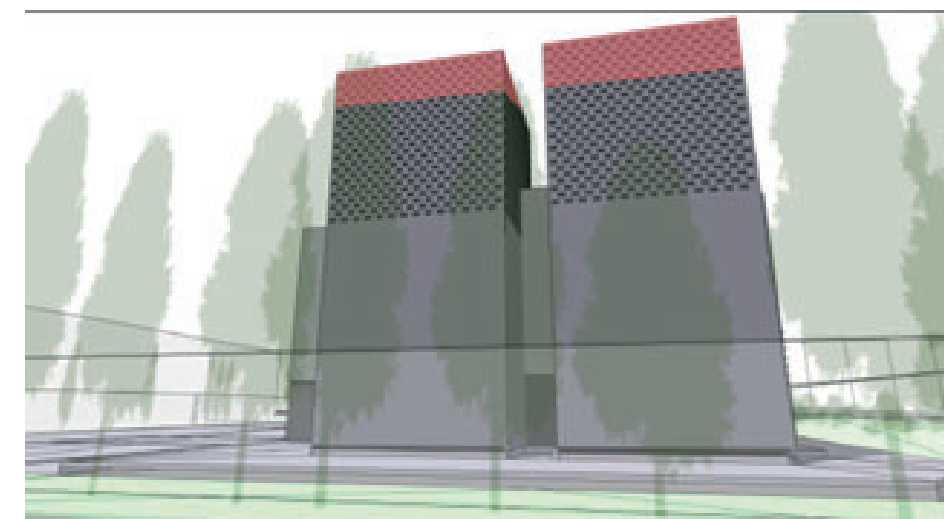


Figure 14: An indicative view showing the areas of the vent stacks not compliant with the 30 degree rule set out in the Brent Design Guidance (SPD1)

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5.4 Materiality

The location of the Canterbury Works Vent Shaft site within inner London has resulted in brick being the chosen predominant external material, as illustrated by Figure 15. Brick is used in the design as a wall element, including a treatment of integrating areas of patterned brickwork into areas of the façade. To the southeast of the building facing the adjacent residential area two vertical exhaust air shafts are clad in a combination of plain and projecting bricks. Brick is also the chosen material for paving and for the perimeter security wall which interfaces with the public realm.

Towards the railway, the larger element of the headhouse building is clad in naturally weathering timber which will fade to a silver grey; blending in with the proposed landscaping and reducing the visual weight and impact of the building.

Factory coated metal is used for technical elements such as security doors, louvres and steel panel cladding. An important element of the cladding materials selected is that they are long life durable resilient materials which weather with age and require little maintenance.

Integrated into the headhouse are green roofs on the higher-level roof and on the fan room roof, creating an interesting and ecologically rich 'fifth elevation'.

A key design theme is to reveal, albeit in a discrete way, the mechanical nature of the building so as to 'tell the story' of the structures. The head house is also conceived as a sculptural element within its immediate landscape setting (Figure 16). This softens the visual impact from neighbouring properties. This is in-line with the HS2 Design vision as the design is respecting the building's surroundings whilst seeking to minimise any impacts on neighbouring properties.

The materials board is illustrated in Figure 17.

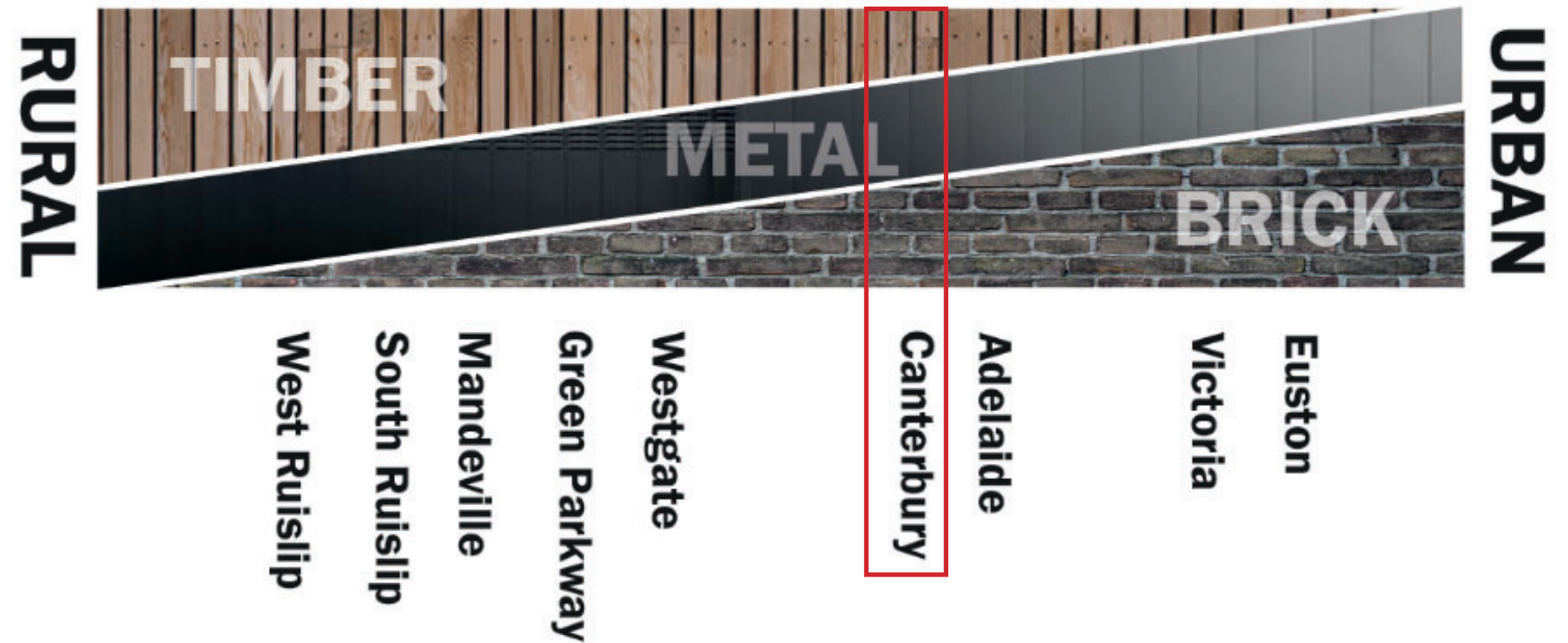


Figure 15: The S1 and S2 Materials Strategy



Figure 16: Conceptual site design approach





2. Timber

Accoya or similar modified softwood, naturally weathered to silver grey colour. The same timber will be used for both the timber fins and timber cladding.



3. Green Roof

Intensive Green Roof with deep growing substrate and biodiverse planting of grasses, herbaceous and shrub planting.



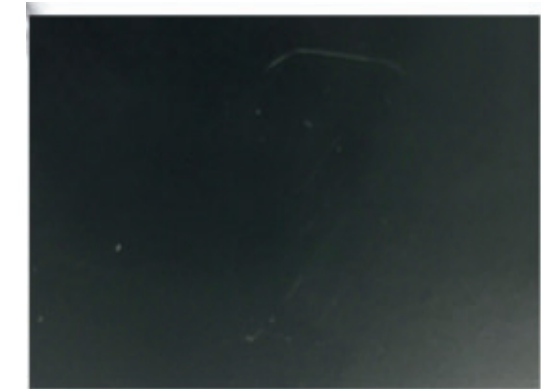
4. Stainless Steel

Kick plates, handles and special panels in brushed finished (n.b. not visible from this viewpoint).



1. Brick

Engineering brick for walls, retaining walls and pavements in dark grey or similar. The same bricks will be used for both normal and patterned brickwork.



5. Metal

Steel cladding panels, doors and louvre panels, polyester powder and coated dark grey (n.b. not visible from this viewpoint)

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Figure 17: Materials board. Note that the ATS shown for illustrative purpose only and is the subject of a future Schedule 17 application

5.5 Appearance

As with other HS2 vent shaft headhouses, the Canterbury Works Vent Shaft site is located adjacent to a Network Rail corridor, so an overarching theme is for the project to enhance the green corridor and for the buildings to be considered as sculptural elements within this enhanced landscape. In line with the HS2 Design Vision, the materials selected for the headhouse will integrate the structure into the local environment, aided by a landscape design that provides visual screening and ecological benefits. As such the design approach for the Canterbury Works Vent Shaft headhouse building and broader compound, ensures the preservation of the local environment and actively enhances local amenity.

The timber is a high performance, sustainably sourced softwood which has been modified to have a high level of durability and remain in good condition for more than 60 years. Naturally weathered to a silver grey, the parts of the building clad in timber will provide a finish that complements the landscape and environmental setting.

The main 14m high mechanical and electrical building is clad predominantly in timber which will appear as a lightweight element helping to reduce its visual impact. The timber 'box' is cut away to 'reveal the machine', another cross-cutting theme which enables the building to be expressive in a restrained way within its neighbourhood.

This will mainly be observed by passengers on trains passing on the adjacent West Coast Mainline. This is shown on Figure 20 and Figure 21 where the box is undercut at the northern corner revealing the geometry of the circular shaft sunk almost 50m into the ground which allows for air intake and exhaust into the plant-rooms whilst maintaining the visual integrity of the form.

Brickwork is another key material within the palette used for the Canterbury Vent Shaft Headhouse. Also used as paving, the brickwork extends up from the ground into the walls of the lower building elements, principally the tunnel ventilation fan room and then to the ventilation stacks where smoke from the tunnels will discharge in the event of an incident. The use of materials is again intended to help tell the story of the building in a way which will add to its interest. The brick is a robust dark grey engineering brick, selected to compliment the silver-grey timber cladding and features areas of projecting or perforated brickwork to visually break up large areas of wall. The use of brick for the headhouse building external façade is shown on Figure 18 to Figure 22.

Factory coated dark grey metal forms the third main material of the palette addressing the technical requirements of panels, doors, louvres and other metalwork components. Where the timber box is peeled away, the metal cladding is set back creating shadow and modelling, providing a 3-dimensional layered façade.

The palette of proposed materials, including timber, brick and metal finishes are shown on drawing 1MCo4-SCJ_SDH-AR-DPH-SSo3_SL05-180091 submitted for approval as part of the Schedule 17 Plans and Specifications application.

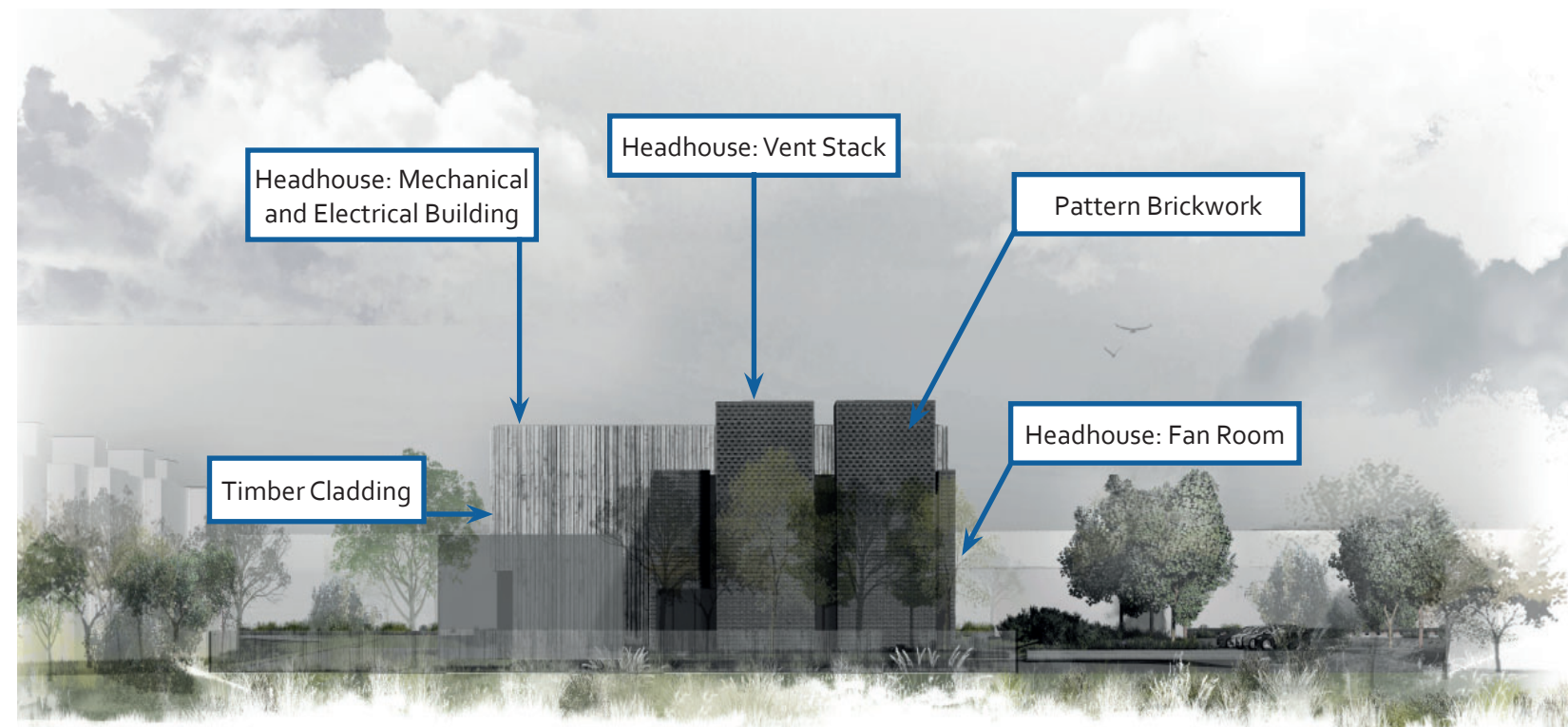


Figure 18: Indicative perspective view from the south east

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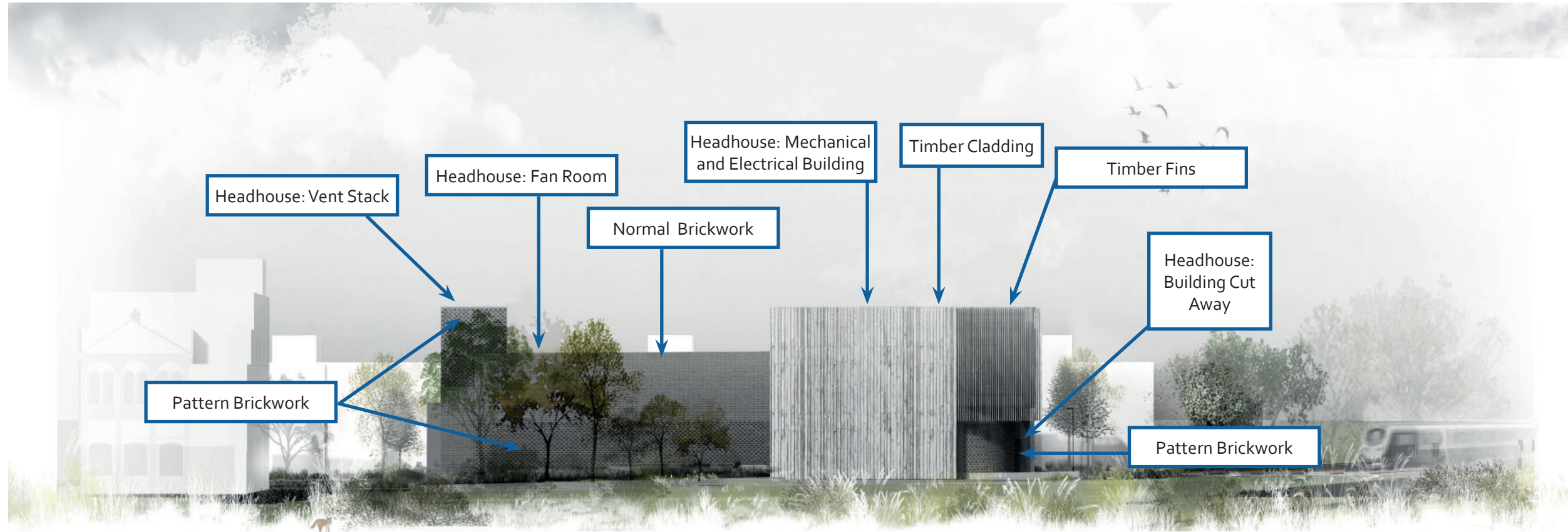


Figure 19: Indicative perspective view from the north east

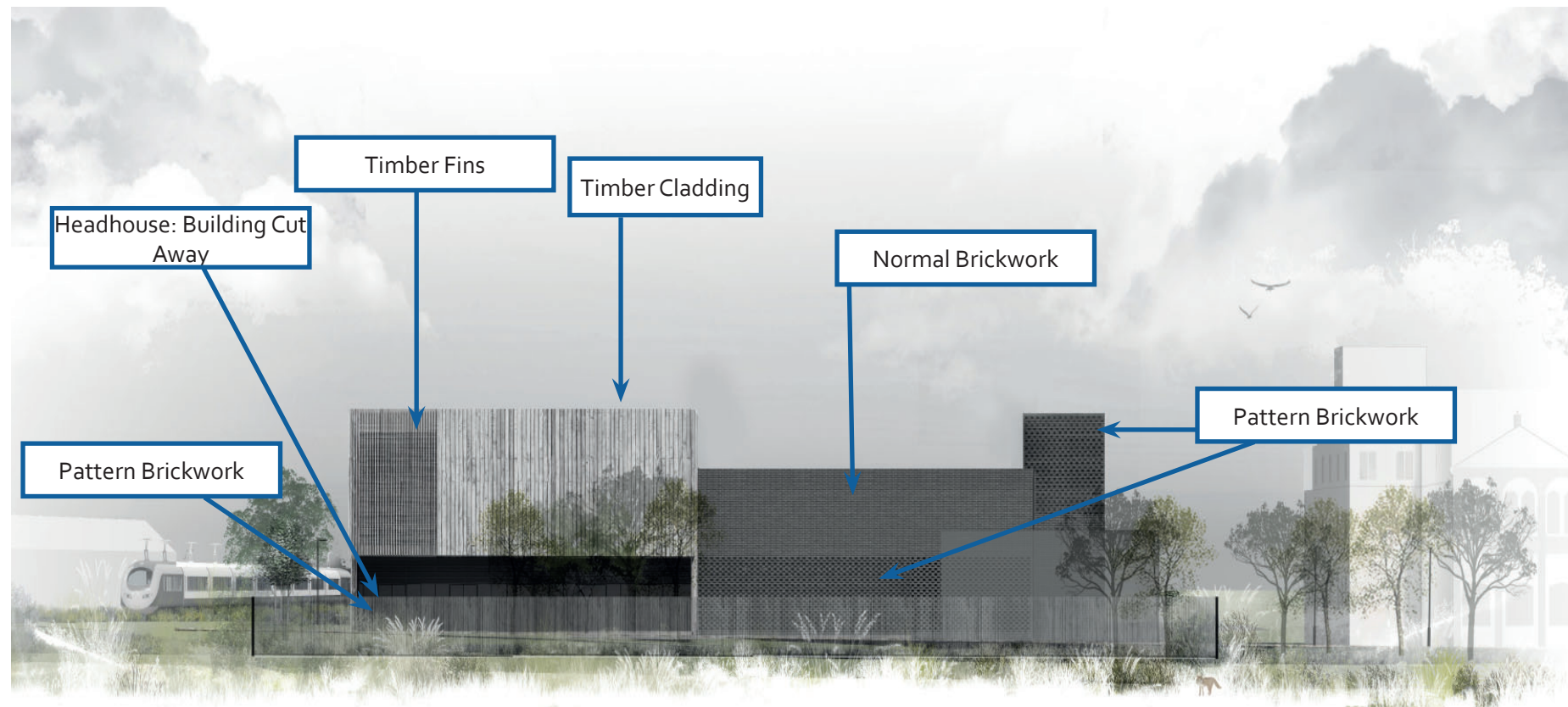


Figure 20: Indicative perspective view from the south west

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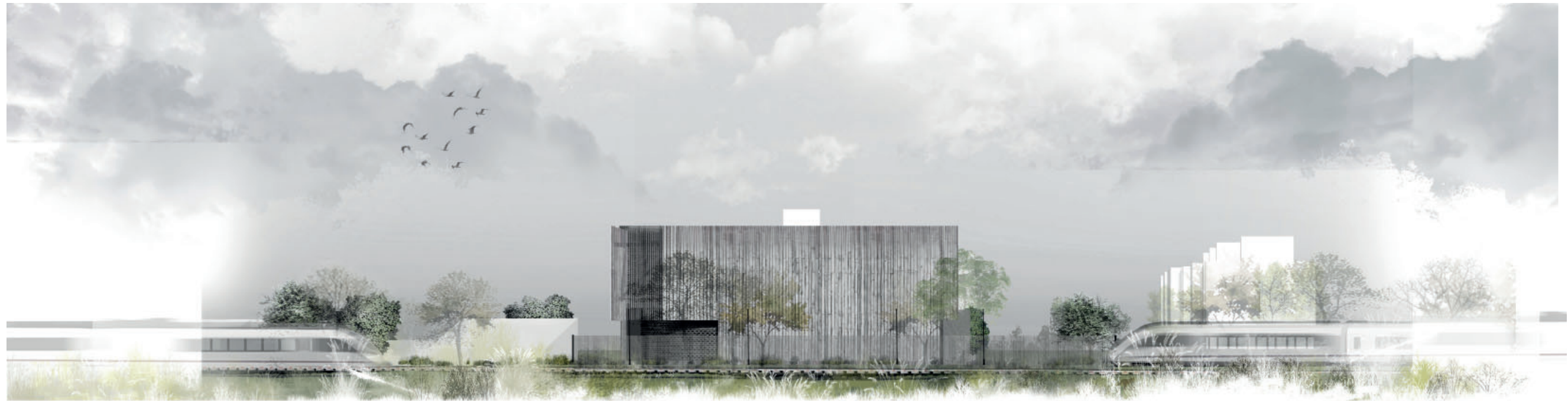


Figure 21: Indicative perspective view from the north west



Figure 22: Indicative perspective view facing west

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5.6 Photomontages

The following photomontages have been produced to provide an accurate, photo-realistic view of how the site will look in future. These images show the baseline (existing) views, in addition to how the site is expected to look in 1 and 15 years' time.

It should be noted that the auto-transformer station is not for approval as part of this Schedule 17 application. Therefore it is reflected in these photomontages as a grey box for illustrative purposes.

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Figure 23: Baseline view of the site entrance on Canterbury Road



Figure 24: View of the site entrance on Canterbury Road in year 1

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Figure 25: View of the site entrance on Canterbury Road in year 15

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Figure 26: Baseline view of the site entrance on Canterbury Terrace

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Figure 27: View of the site entrance on Canterbury Terrace in year 1

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Figure 28: View of the site entrance on Canterbury Terrace in year 15

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Figure 29: Baseline view facing the site from Cathedral Walk

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Figure 30: View of the site from Cathedral Walk in year 1



Figure 31: View of the site from Cathedral Walk in year 15

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6. Landscape

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6.1 Overview

The site is surrounded by the Network Rail lines to the north, residential properties to the south and west and St Mary's Catholic Primary School to the east. There are also a number of heritage assets within proximity of the site (Figure 30).

The design of the Canterbury Works Vent Shaft site landscape works has developed from the baseline design as part of the Hybrid Bill AP4 proposal. The landscape design proposal has been developed to enable future opportunities and considerations to happen outside of the application boundary.

The following key mitigation measures have been carefully incorporated to the design in line with the Environmental Statement:

- All lost habitats are mitigated through integration of tree planting and scrub habitat;
- Green roofs are proposed to all vent shaft buildings providing continuity of the green corridor and structure layered landscape;
- Bat roost features to be integrated within the vent shaft buildings.

Mitigation of the following landscape and visual effects have been considered in the design proposals through selection of appropriate materials, choice of paving, boundary treatment and additional soft landscape screening in line with the Environmental Statement:

- Views from Canterbury House;
- Views from the residential properties on Canterbury Terrace;
- Views from the residential properties on Albert Road;
- Views from the residential properties on Canterbury Road.

6.2 General landscape vision

The landscape design vision for HS2 is to create a common language, influenced by local distinctiveness, maximising landscape and ecological benefits while providing a catalyst for growth. To achieve this vision, three main concepts that have been applied to the design and materiality of the landscape proposals across each of the HS2 assets. These three concepts are: Urban to Rural, A Common Thread, and Multiple Character Areas (Figure 31).

The site's urban context is as follows:

- Smaller, constrained sites
- Sites commonly located within residential/commercial areas
- Share boundaries with multiple uses and landowners
- Predominantly 'hard' landscape character

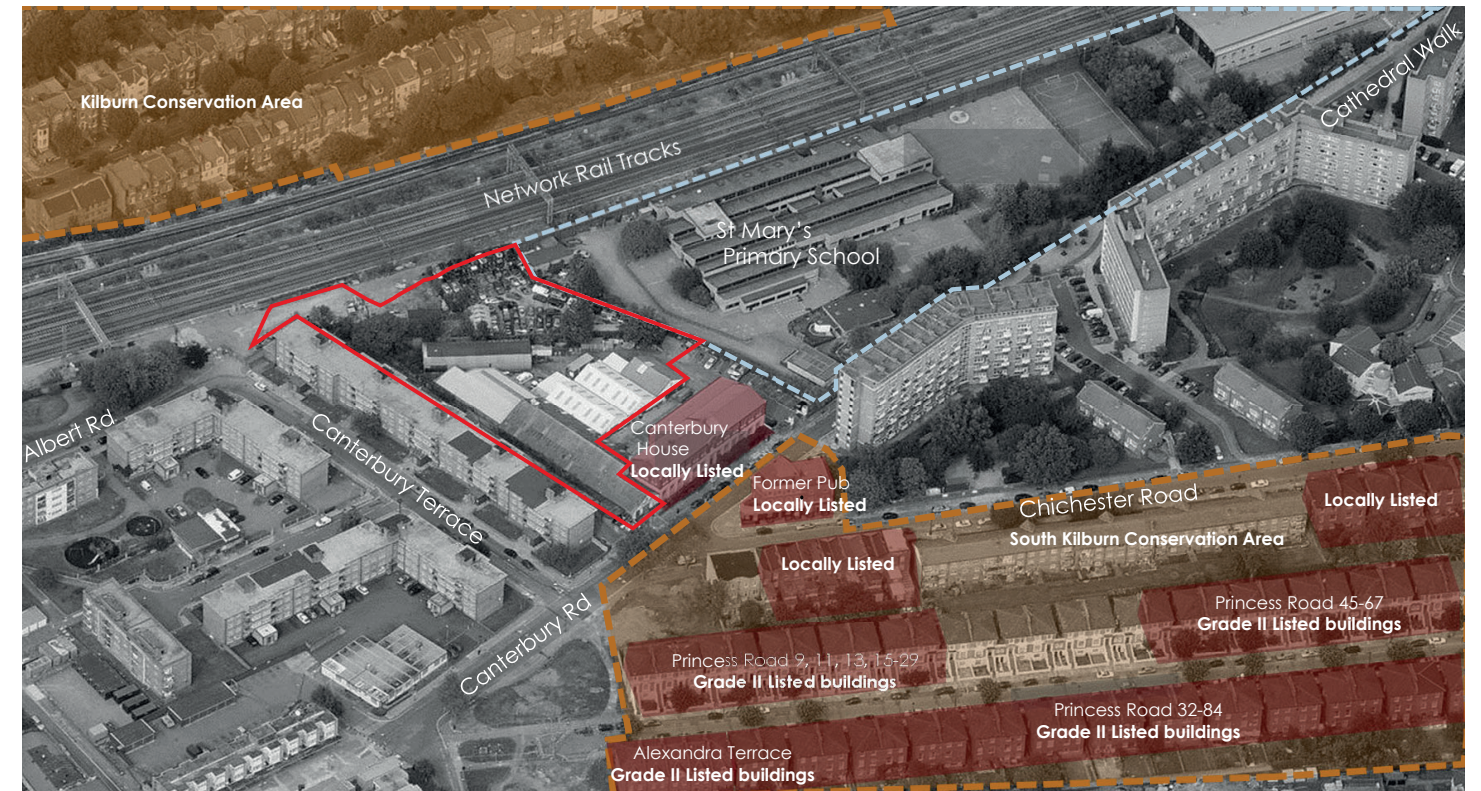
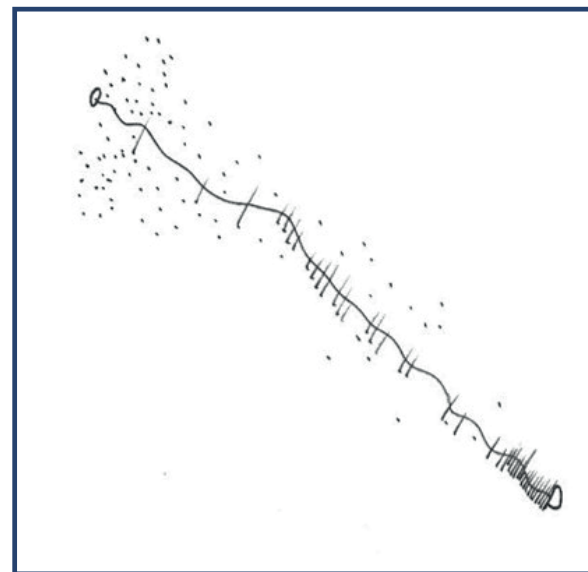
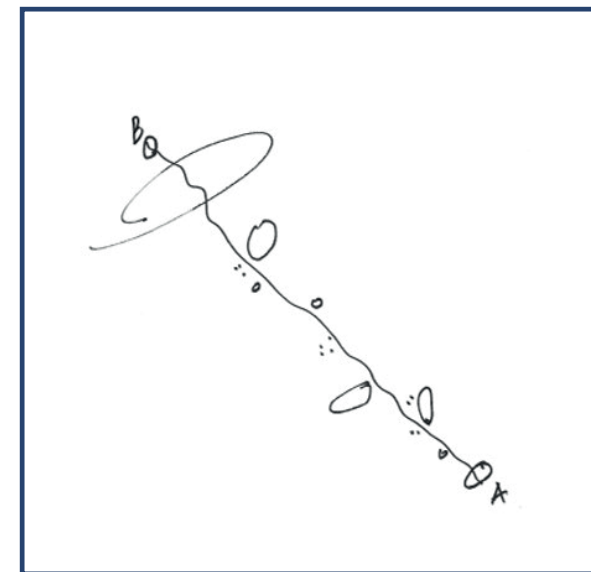


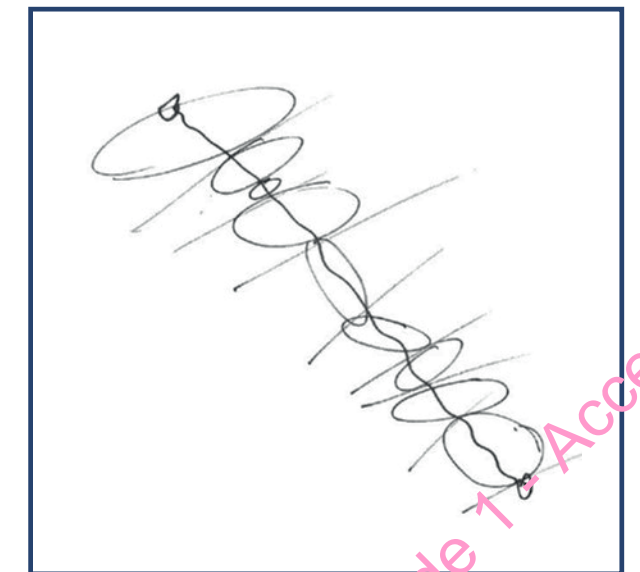
Figure 30: Heritage context



Urban to Rural - Transition from dense urban city to rural green belt within the landscape design of HS2 assets, as a mean of integration into their wider context



A Common Thread - Apply a common design language to elements of the landscape to create a recognisable family of assets along the HS2 route.



Multiple Character Areas - Understand the context and use landscape design as a tool to complement local distinctiveness and positively respond to neighbouring communities.

Figure 31: The HS2 landscape vision

6.3 Design Objectives

Our vision is to create a common language for HS2 with local distinctiveness maximising landscape and ecological benefits, and provide a catalyst for growth.

The landscape masterplan will provide:

- Ecological enhancement through diversified soft landscape;
- Creation of variety of habitats for wildlife (Figure 32);
- Embedded building in the landscape that aids ecological connectivity (;
- Integration of the site with surrounding St Mary's Primary School by providing natural transition with learning opportunities;
- Opportunity for land release for the St Mary's Primary School;
- Sets the secure HS2 compound boundary further back from Canterbury Road enabling better integration with adjacent streetscape and local character;
- Landscape design complements the local distinctiveness and character by selection of appropriate materials.

6.4 Key design considerations

In addition to the constraints/ opportunities detailed in Section 3, further constraints were identified that are specific to the landscape design. The main constraints of this site are:

- Visual impacts on the residential properties and other surrounding receptors including locally listed Canterbury House;
- Loss of existing trees and buildings with potential bat roost and breeding bird habitats;
- Existing topography across the site;
- Relatively small and constrained site;
- Proximity to existing railway line sets additional constraints on the proposed line side vegetation within the site and the security fencing to satisfy Network Rail requirements.

The main opportunities and goals of this landscape design are outlined below:

- Integration of the vent shaft building into the site to reduce the impact on surrounding visual receptors (Figure 33);
- Landscape works proposed to mitigate and reduce impacts on surrounding receptors;
- Creating ecological connectivity, ecological stepping stones and green corridor through the site (Figure 32);
- Opportunity to support the natural environment by creating an enhanced, biodiverse habitats for wildlife in and undisturbed area;
- Integration of the site access into an improved streetscape at the Canterbury Road through enhanced public realm;
- Opportunity to create a natural, learning environment for the children adjacent to the school.

Soft landscape elements identified will be subject to a future Schedule 17 Bring Into Use application with indicative mitigation plans submitted as part of this application for information and comment as design progresses.

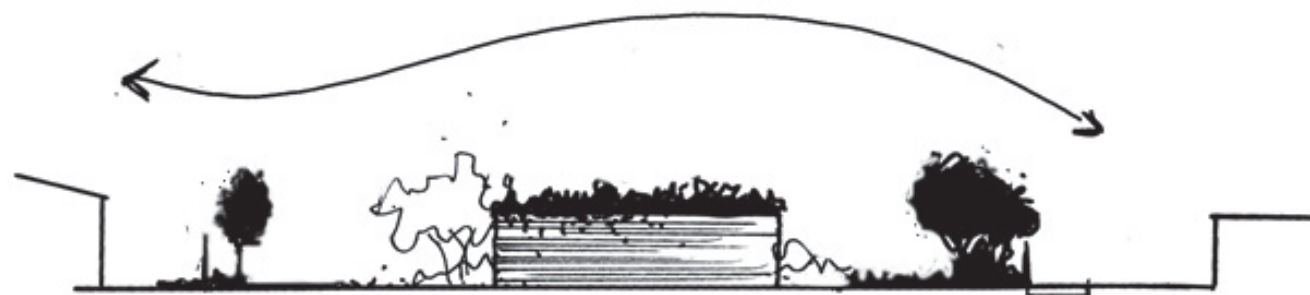


Figure 32: Different planting habitats - Section

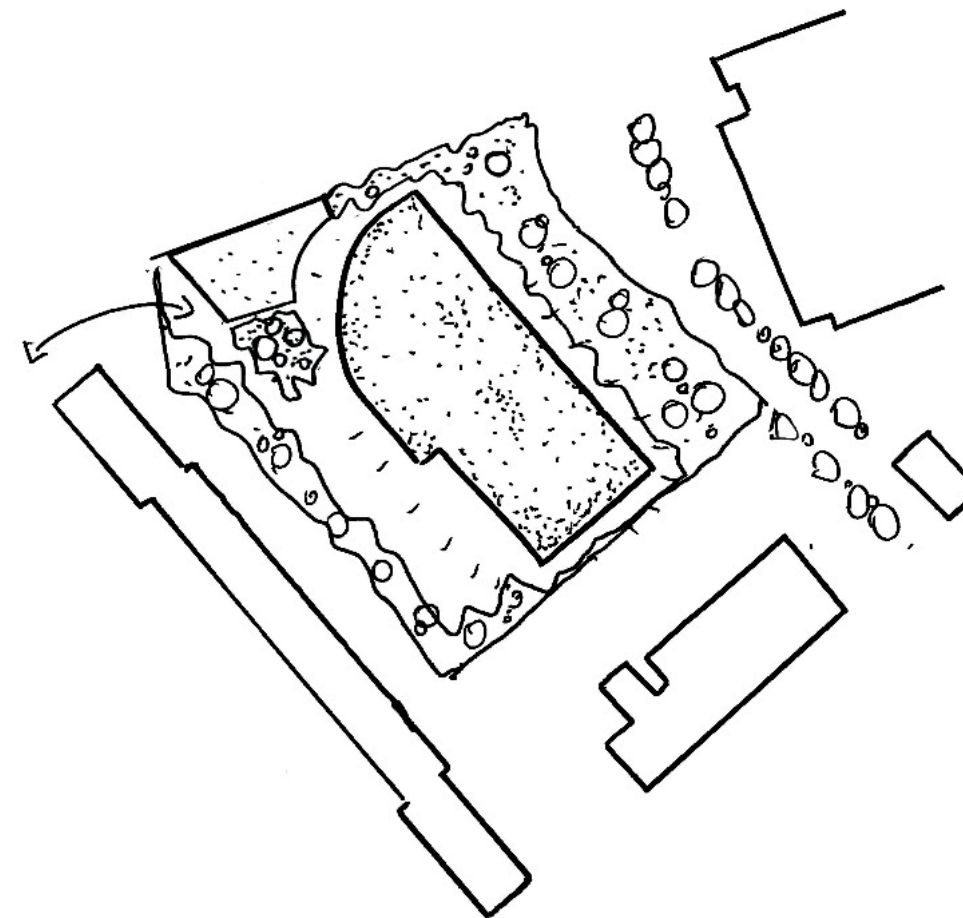


Figure 33: Sketch to illustrate embedding of the building into the landscape

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6.5 Urban Integration Opportunities

In addition to the landscape design proposals for the site, the design also facilitates additional urban integration opportunities outside of the site boundary. These could be brought forward by other parties in future. These include:

- Creating ecological connectivity along the Railway;
- Improving pedestrian connections in strategic locations by creating improved road crossing points;
- Improving biodiversity of the local area and its surrounding context and creating further ecological stepping stones;
- Improvements to public realm along the Canterbury Road;
- Enhance the streetscape of Canterbury Road and Cathedral Walk in order to integrate the landscape design with the surrounding environment and provide wider benefits to local communities;
- Wider restoration and enhancement to public realm;
- Mitigating and enhancing views from residential developments;
- Unlocking part of the site for the School without compromising the design goals;
- Further discussion with LBB is ongoing to explore further opportunities on how the site entrance on Canterbury Road could be better integrated more fully in the surrounding streetscape; and
- Access road to the HS2 as part of the integration with the existing context.

The points identified above relating to the wider urban area fall outside of the scope of this Schedule 17 application and are listed here as opportunities for other parties to undertake in relation to development in the local area of general improvements to public realm and highways.

These urban integration opportunities are illustrated by Figure 34.

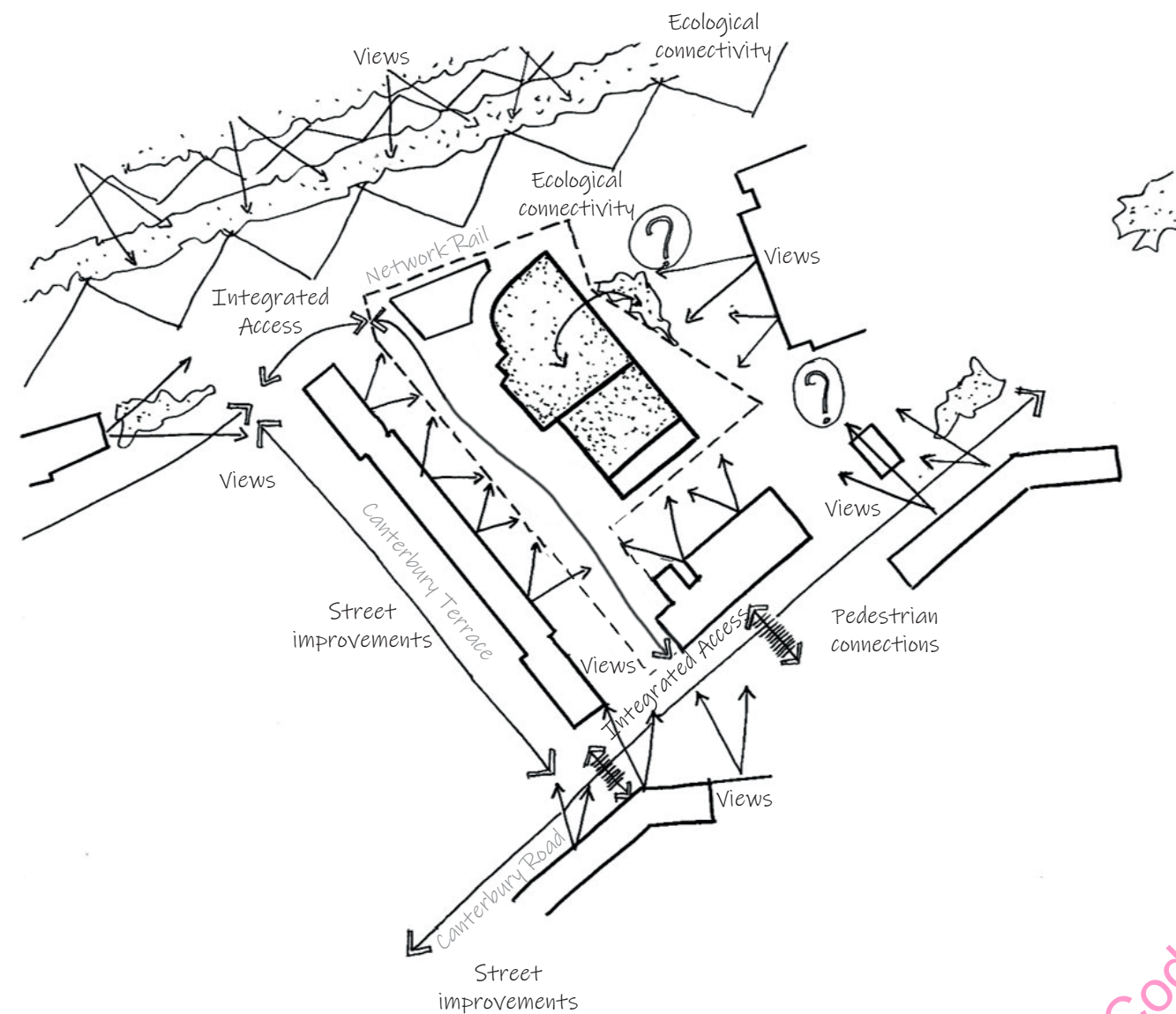


Figure 34: Opportunities beyond the boundary

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6.6 Landscape Masterplan

The landscape masterplan developed for this site illustrates the overall landscape proposal and the variety of habitats introduced, such as:

- Grassland planting that provides sources of pollen and nectar for pollinators, providing habitat and facilitating movement for pollinators through landscapes,
- Scrub planting that provides a great value for wildlife and aesthetic characteristics,
- Tree planting that provides a nesting and foraging habitat for birds and bats,
- Biodiverse green roof, that aims to maximise the diversity of ecological conditions on the roof;
- Deep substrate green roof, providing year-round visual interest, as well as extended biodiversity value,

Sections A-AA (Figure 35) and B-BB (Figure 36) illustrate embedded building within the site and also present different planting habitats on different levels.

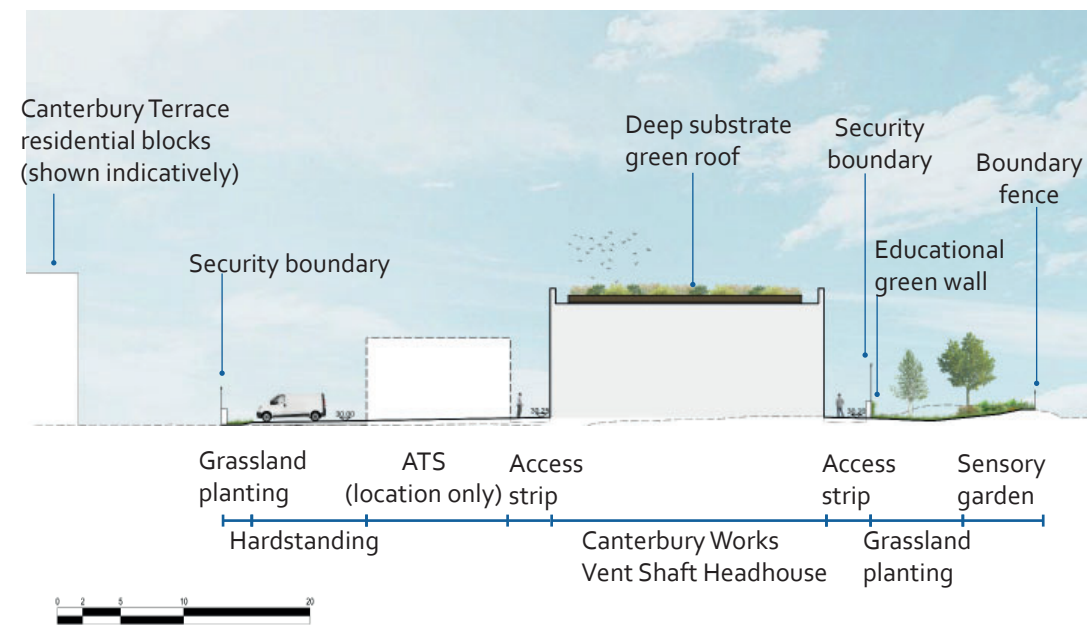


Figure 35: Landscape Section A-AA

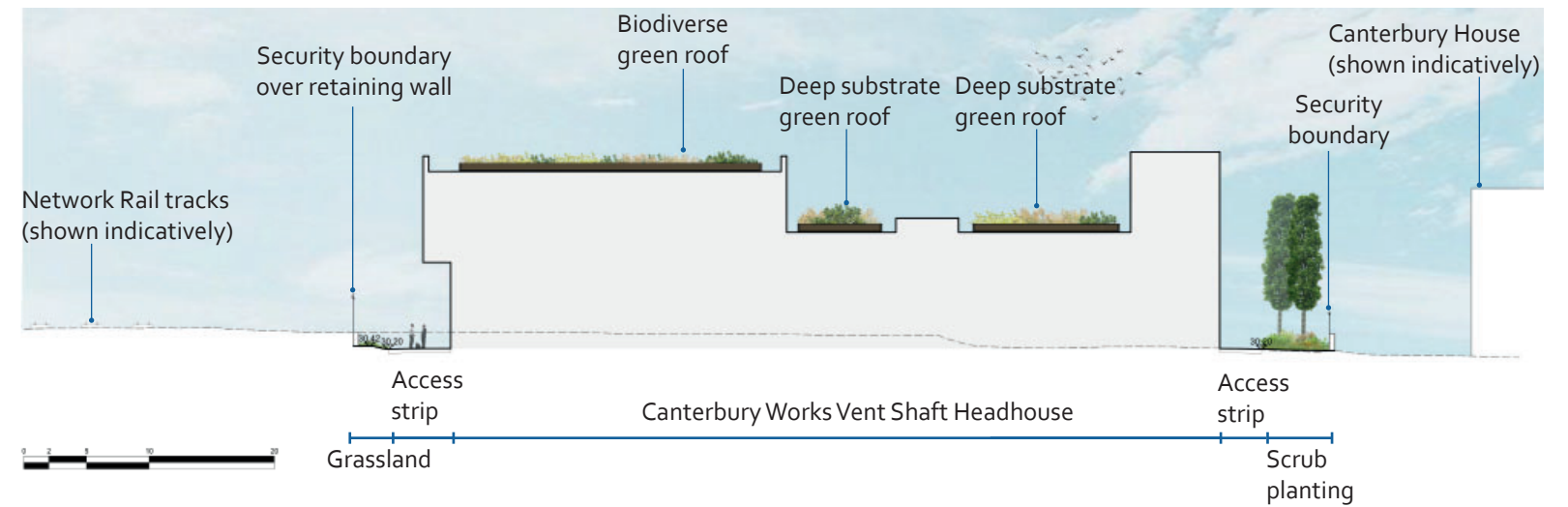


Figure 36: Landscape Section B-BB

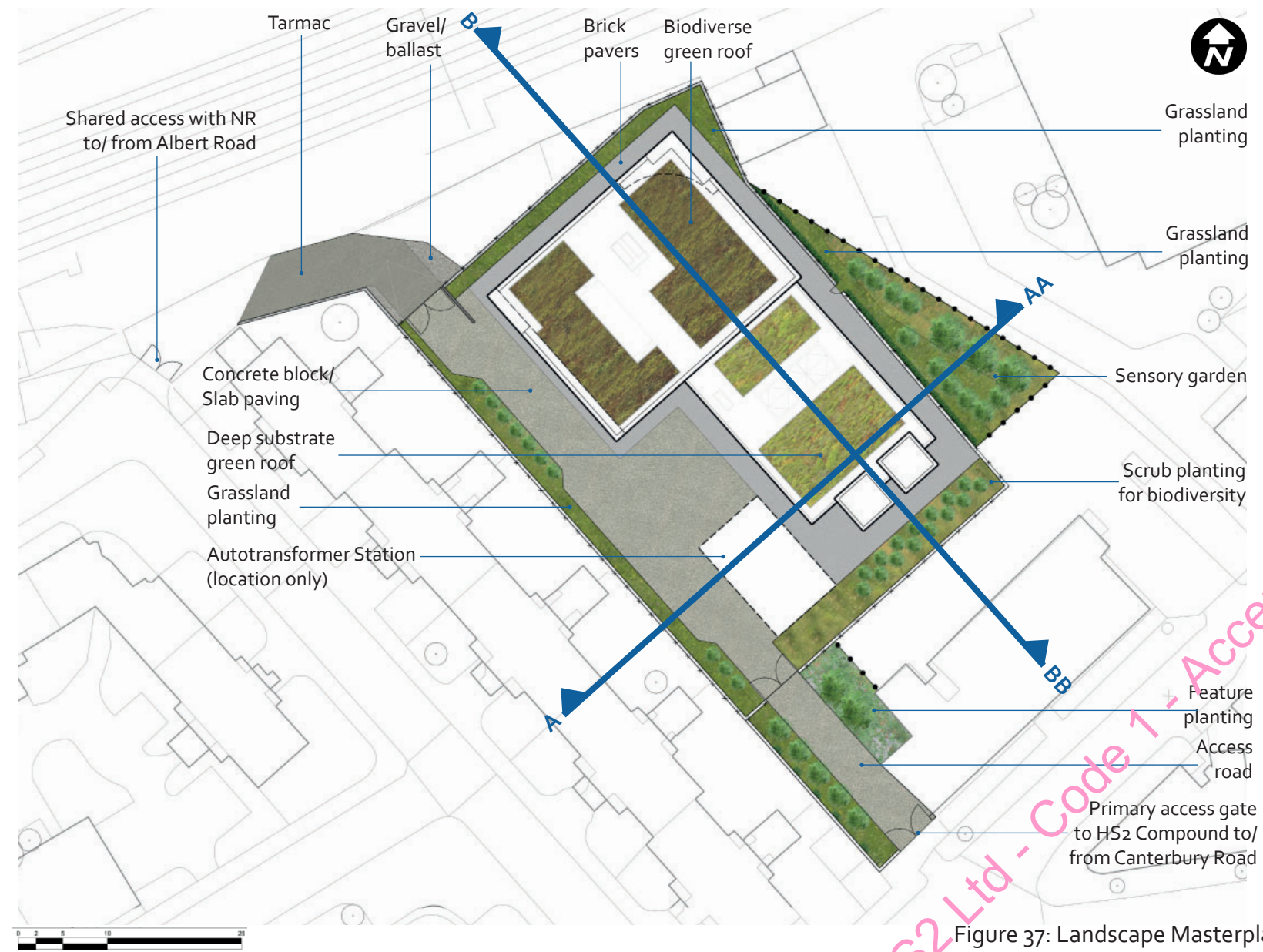


Figure 37: Landscape Masterplan

Design and Access Statement
Canterbury Works Vent Shaft S1

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6.7 Local Materiality

In line with the HS2 Landscape Design Approach, a Landscape Materials Strategy has been produced for Phase 1 of the HS2 route (London to Ruislip). The strategy aims to help create a strong identity across the scheme as well as informing the design through the understanding of local context and character along the route.

The strategy includes a suite of design principles and materials palettes to be considered for each of the assets in response to their setting (urban, suburban and rural). The strategy also provides guidance from relevant local authorities on hard and soft landscape, street furniture and lighting.

A site specific materials palette has been developed for the Canterbury Works Vent Shaft site which takes into account the 'urban' design principles and Brent Council's streetscape guidance as set out in the Landscape Materials Strategy.

Figure 38 is a photographic survey which provides materiality examples in a variety of colours and local context of the area surrounding the Canterbury Works Vent Shaft site.

The area demonstrates a varied mix of architectural styles, including terraced and semi-detached villas, high-rise social housing and modern mid-rise apartments and town-houses. This gives rise to diversity in the materiality and character of the area surrounding the Canterbury Works Vent Shaft site. The presence of the wide rail corridor and a small number of warehouses give rise to an urban character that is softened by urban tree planting.

Principle existing building materials

- Brick / rendered brick
- Metal cladding

Principle existing paving materials

- Concrete slab / block paving
- Concrete / granite kerbs

Principle existing boundary treatments

- Brick walls
- Metal fencing

Principle existing vegetation types

- Street trees
- Ornamental / amenity planting

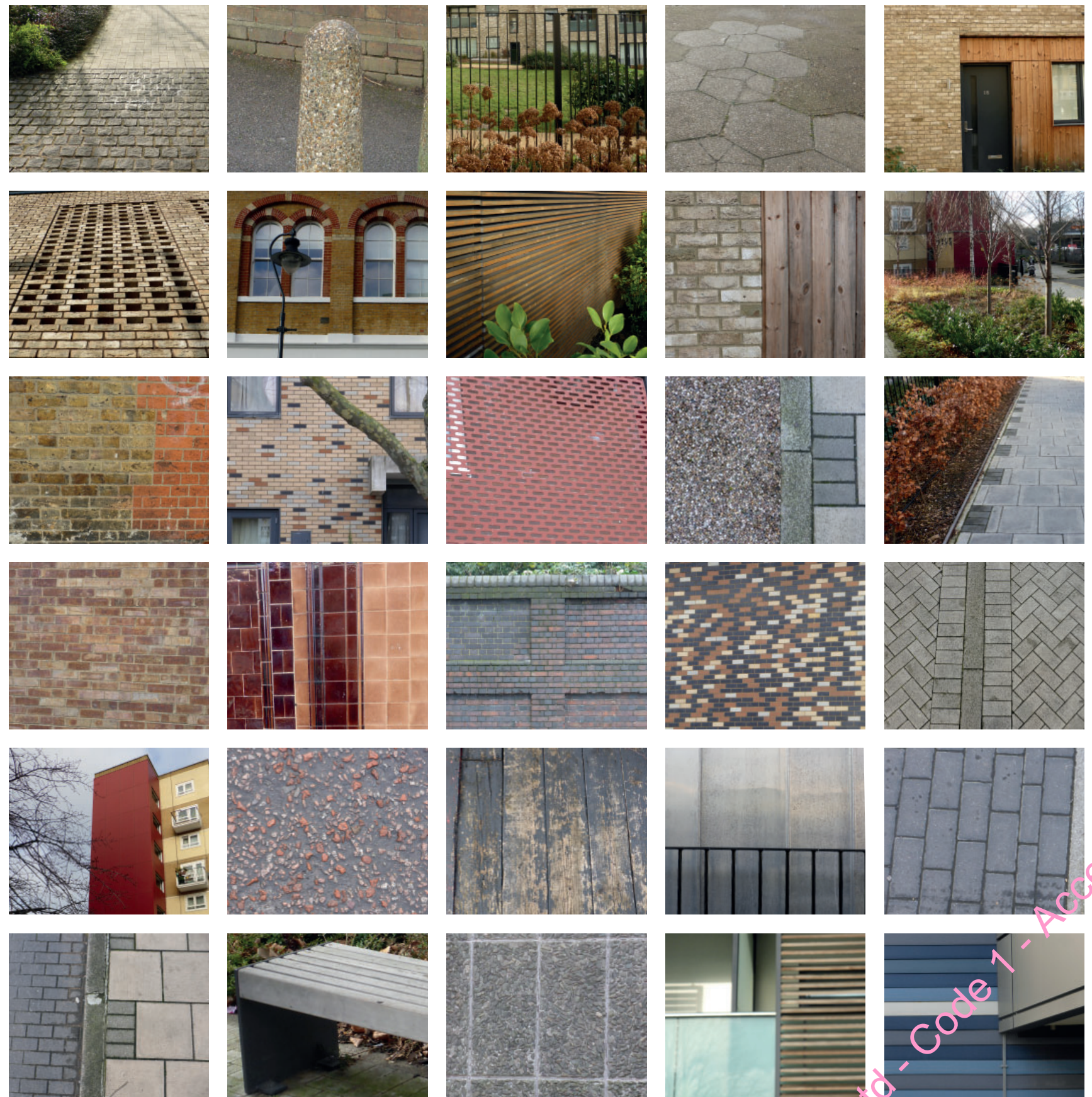


Figure 38: Local materials palette

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6.8 Hard Materials Palette

The hard materials palette considers the requirements of the HS2 Landscape Design Approach to ensure that the *"finishes and materials that will suit local character"* and attention to detail is considered to *"help fit these components in well with their particular rural or urban location."* Particular requirements around service areas and car parking areas are considered to ensure that *"the design will look to avoid over-large areas of hard standing and where practicable permeable surfacing will be used."*

In accordance with London Borough of Brent's Design Guidance and Policy, The standard material for footways is silver grey artificial stone paving with a textured finish. The standard unit size is 600x750x63 although 900x600x63 units may also be used. Paving units should be laid perpendicular to the pedestrian flow in a traditional stagger bond with consistent mortared joint alignment. Granite kerbs should be considered where feasible or where granite kerbs are already in place. The use of small element paving is historically inappropriate for Brent and results in footways looking too 'busy' due to the high number of paving joints.

Hard landscape within the vent shaft sites will use complementary combinations of high quality materials to produce a durable, long lasting and easily maintainable finish that positively contributes to the visual aesthetics of the site's surrounding context. Surface finishes will look to recycle materials accumulated from the wider HS2 construction (demolished material as aggregate in concrete etc.) or source materials as locally as possible to minimise carbon footprint. A hard landscape plan is shown at Figure 399.

Principle proposed paving materials:

- Concrete block/ slab paving, with textured finish that will be suitable for vehicular purposes;
- Brick paviours to correspond with the headhouse design and materiality;
- Tarmac;
- Gravel/ballast.

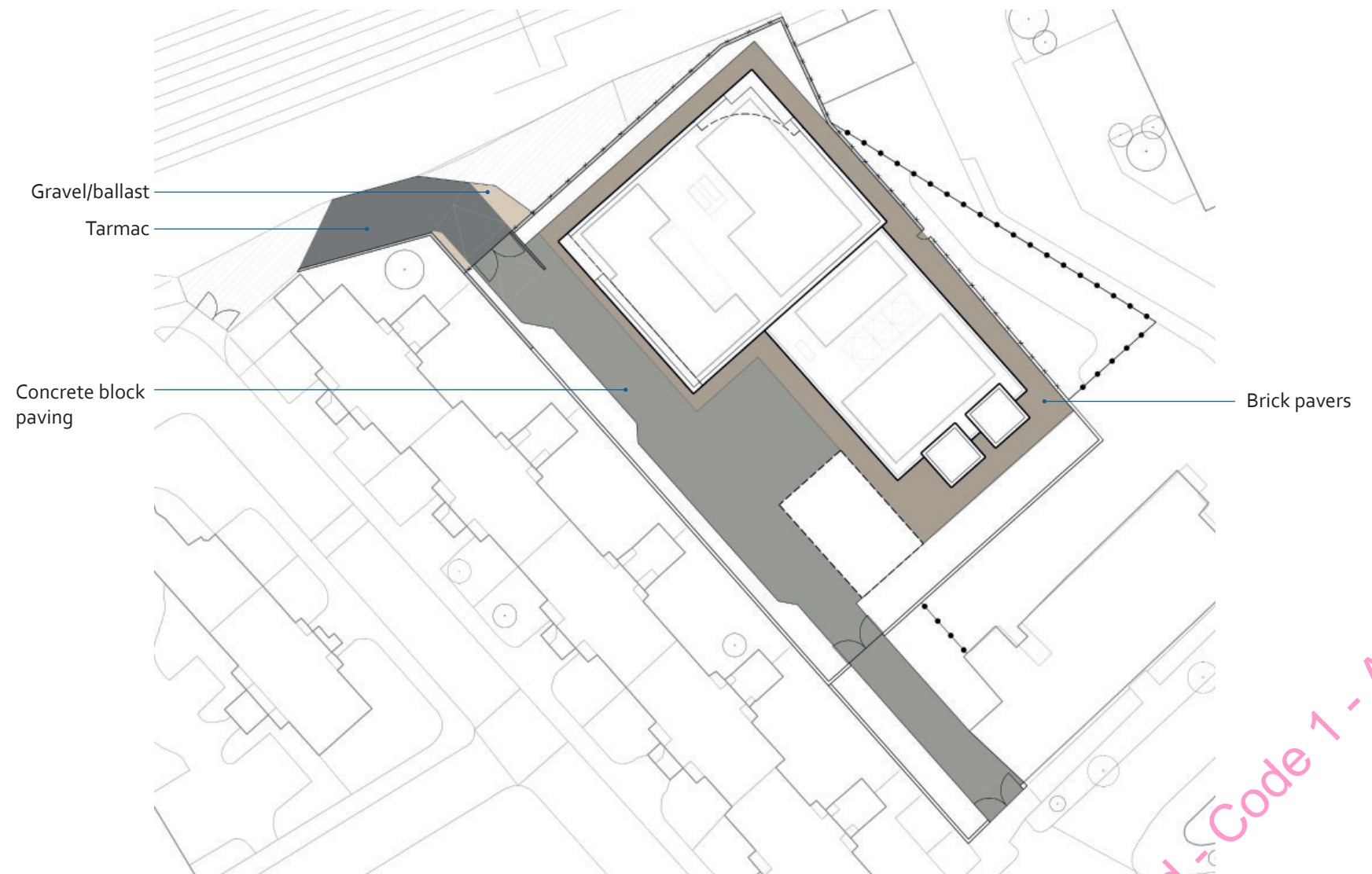
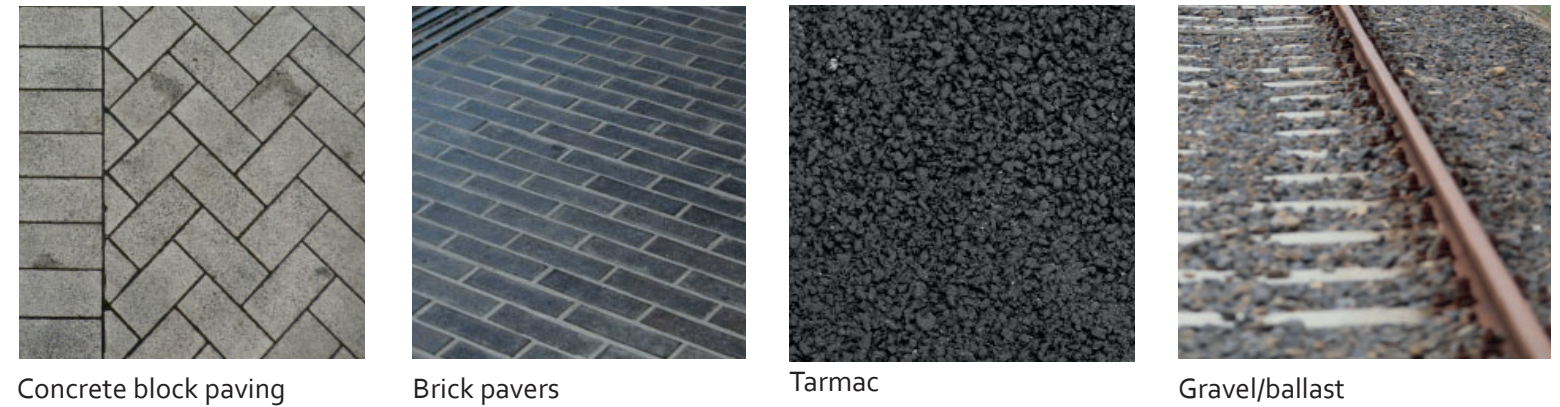


Figure 39: Hard Landscape Plan

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6.9 Soft Materials Palette

The principle element of the landscape design will be a sensory garden between the HS2 site and St Mary's Catholic Primary School. This will ensure a rich quality of biodiversity to the local area, as well as provide a visual screening for the vent shaft headhouse when viewed from the School. Introduced planting softens the built form, improves the local micro-climate and provides benefits to wildlife. Selection of species aims to maximise benefits to ecology, provide a seasonal interest with year-round colour and variety of forms.

Being adjacent to the Network Rail lines, the planting scheme will be designed in accordance with the HS2 Technical Standards for Line-side Vegetation. The standard encompasses the Network Rail guidance for planting and provides good practice guidelines for planting adjacent to railways for safety and maintenance. A variety of habitats will be introduced to include feature planting, grassland, climber planting and scrub planting.

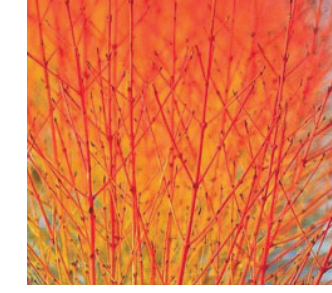
Sensory Garden



Prunus spinosa
Blackthorn



Viburnum lantana
Wyfaring tree



Cornus sanguinea
Dogwood



Vinca minor
Periwinkle



Stachys bizantina
Lamb's Ear



Lavandula angustifolia
Lavender



Rosmarinus officinalis
Rosemary



Primula vulgaris
Primrose

Feature Planting



Buddleja davidii
Butterfly bush



Sarcococca confusa
Sweet Box



Bergenia 'Bressingham's White'
Elephant's Ears 'Bressingham's White'



Calamagrostis brachytricha
Korean feather reed grass



Perovskia atriplicifolia
Russian Sage

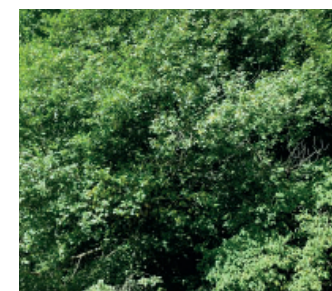


Narcissus 'Thalia'
Daffodil 'Thalia'

Climbers



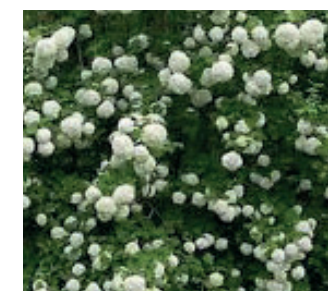
Lonicera periclymenum
Common Honeysuckle



Frangula alnus
Alder buckthorn



Ligustrum vulgare
Wild pivet



Viburnum opulus
Guelder rose



Rosa canina
Dog rose



Rubus fruticosus
Blackberry



Silene dioica
Red campion

Scrub Planting for Biodiversity

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6 | Design Proposals: Landscape

The scheme has incorporated green roofs into the design of the headhouse buildings. Two types of green roofs will be used. Deep substrate green roof provides the following:

- Opportunity for a mix of shrub and herbaceous planting;
- To maximise the visual aesthetic appearance; and
- Opportunities for storm water retention.

The other type - biodiverse green roof provides the following:

- Maximize ecological benefits;
- A mosaic of habitat opportunities for important invertebrate and bird species.

The green roofs have been designed to incorporate low maintenance planting to reduce the frequency of maintenance visits. The removal of weeds, drainage clearance and replanting will be required at limited intervals.

Principle proposed vegetation types:

- Scrub planting to include shrub and ground cover planting;
- Feature planting to include ornamental shrub planting, herbaceous and bulbs;
- Grassland habitat planting to include to include biodiversity rich wildflower meadow mix.

6.10 Trees

The proposed tree species provide a wide range of native trees for the wildlife benefit and to improve biodiversity of the site. Tree species have been carefully designed in response to the local context and to provide physical and visual connectivity. A tree planting plan is shown in Figure 4040.

Species selection has been developed by the landscape design team and ecologists to ensure that the palette is appropriate to the local context and that it provides a range of complementary values to adjacent public realm and green spaces. SCS will explore further opportunities for engagement on these proposals as they develop to detailed design.

Selected species consider the following aspects:

- Visual impacts: attractive foliage, attractive blossom and attractive fruits;
- Conservation factors such as value to birds, mammals and insect;
- Safety such as light leaf-fall or non-brittle branches.



Figure 40: Tree planting plan



● *Liquidambar*
'Slender Silhouette'
Sweetgum
'Slender Silhouette'



● *Acer campestre*
'Streetwise'
Field Maple
'Streetwise'



● *Carpinus betulus*
Common
Hornbeam



● *Betula pendula*
Silver Birch



● *Coryllus avellana*
Hazel



● *Ilex aquifolium*
Holly



● *Sorbus aria*
Whitebeam

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6.11 Ecology

The landscape approach to ecology ensures opportunities for ecological gain to benefit biodiversity and habitat creation considered within the design. The ecology palette ensures that diverse planting and seed mixes are proposed to maximise habitat types. Hard landscape materials will also be selected to provide ecological links and strengthen habitat connectivity.

Ecological interventions have been fully integrated within all appropriate elements in the design of the landscape. Creation of biodiverse green roofs and scrub planting area by the School gives multiple opportunities to introduce variety of ecological enhancements such as rock piles, log piles, bug hotels and spaces for animals to hibernate. Interventions will be co-ordinated with qualified ecologists to make sure that these will be appropriate for local species and surrounding context.



Reuse of natural materials for habitat creation on biodiverse green roof



Ecological habitat creation, log piles and rock piles on biodiverse green roof



Creation of low maintenance habitats on deep substrate green roof



Ecological species rich grassland

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6.12 Learning Opportunities

The proximity of the St Mary's Catholic Primary School to the site's eastern boundary opens opportunities to provide a new pocket park that provides educational opportunities to the school's students (Figure 41). This could include:

- Ecological features: bird features, insect hotels - opportunities for children to learn more about the importance of biodiversity
- Introducing specific plant species that have an ecological value and support local wildlife - butterflies, bees and bird species
- Sustainable drainage system in a form of a small detention basin
- Sensory garden with items and planting species that stimulate the senses with vibrant colours, scented, textured and edible plants
- Play features that are interactive for children and fun to use
- Green wall which will introduce educational opportunities which was a primary choice following the public consultation's response.

The main benefits include:

- Comfortable and convenient space for children to rest, connect and socialise with each others
- Reduction of air pollution at street level
- Interactive spaces that children can engage with and learn from
- Introducing more natural spaces into urban areas brings numerous ecological benefits as well as health and well-being benefits
- By introducing features such as a small detention basin, that can absorb rainfall and storm-water runoff will reduce flooding impacts and strengthen the area's resilience
- A catalyst for improving cities - activating spaces at a local level contributes to community engagement and will benefit local School by making use of space that can support educational and outreach programmes for school children.
- Open space for children, this will contribute to the visual attractiveness and promote greater social value and further stimulate regeneration in the local neighbourhood.



Insect hotel to improve biodiversity and provide learning opportunities



Ecological benefits by appropriate selection of planting species



Sensory garden within the meandering paths



Sustainable urban drainage systems



Educational green wall

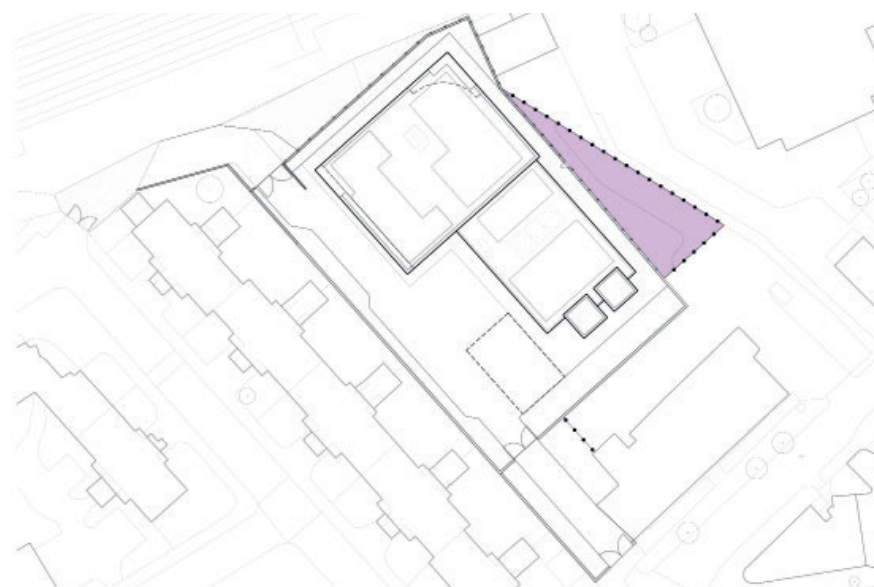


Figure 41: Location Plan

6.13 Boundaries

The HS2 compound will be secured with fencing and a combination of wall with fencing over it. The proposal is in line with comments received during public engagement where local residents preferred a combination of wall and fencing to provide visual permeability.

The design and materiality of boundaries will correspond to local context wherever suitable and proposed headhouse building.

Wall to the north-western side of the permanent compound will be designed to meet Network Rail (NR) requirements and to respond to the local context.

The southern section of the boundary with access gate, by the Canterbury Road, will be designed to correspond with Canterbury Road Streetscape.

Boundaries are illustrated by Figure 42.

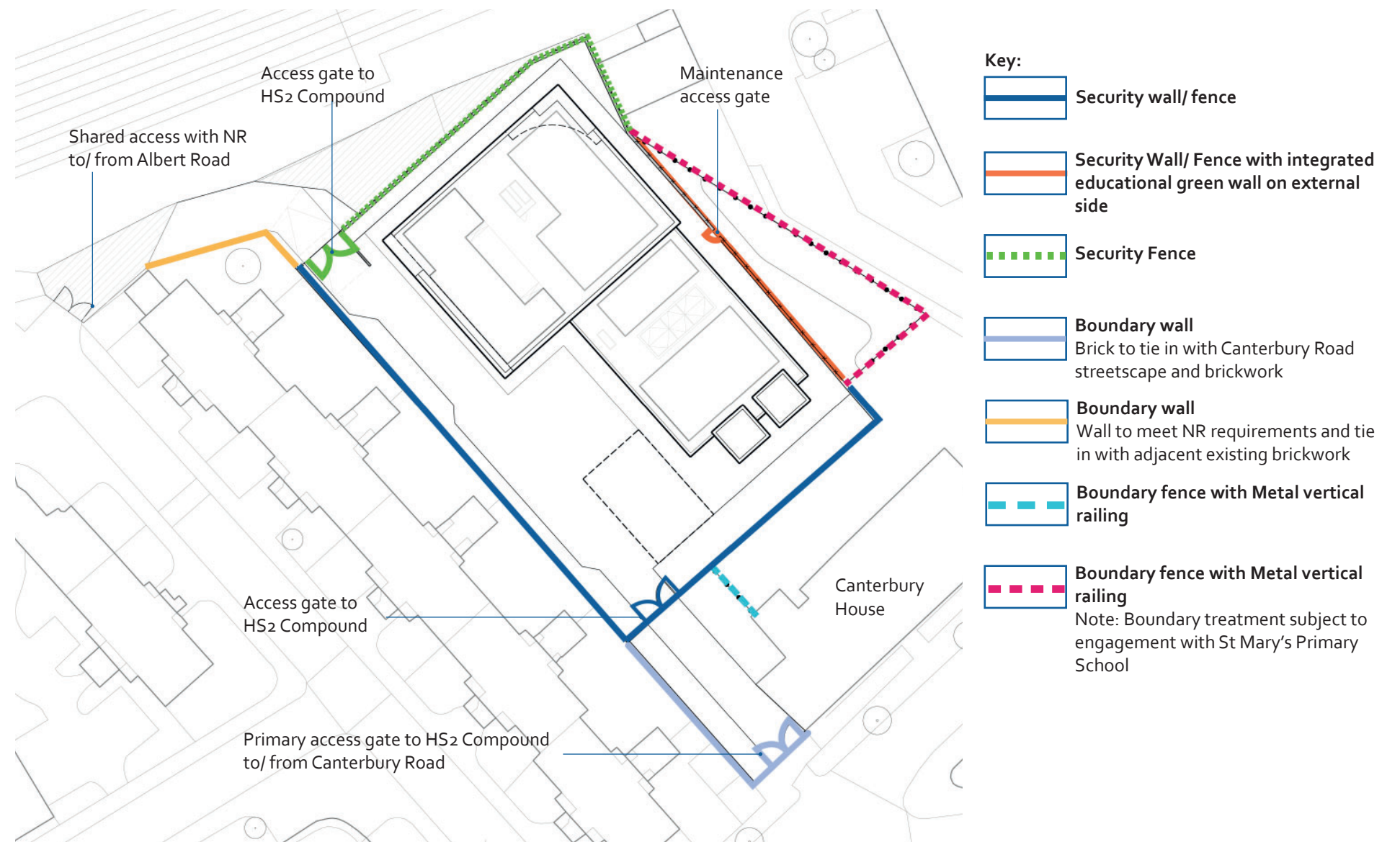


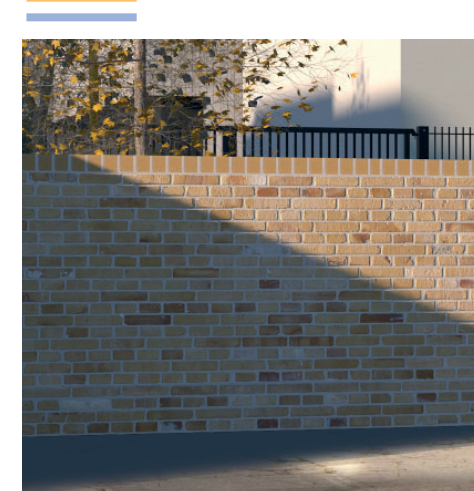
Figure 42: Boundaries diagram



Metal vertical railing



Metal vertical railing



Brick walls to respond to the proposal and local context



Educational green wall

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View facing north west along Cathedral Walk towards St Mary's Primary School

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7. Sustainability

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7 | Sustainability

7.1 Architecture and Engineering

The proposed scheme provides an opportunity for the regeneration of a site previously occupied by car parking and light industrial activities. The architectural approach has sought to maximise the site's regeneration potential by developing a design that fully incorporated sustainability into the proposed scheme. This was achieved by:

- The architectural design and materiality providing a balance between the site's heritage context, urban environment, and the functional requirements of railway;
- A site-specific materials palette takes into account the design principles and London Borough of Brent Council's streetscape guidance as set out in the Landscape Materials Strategy;
- The headhouse building finishes will be finished in neutral and natural colours that will blend the buildings into their surroundings;
- The headhouse has been reduced in size where possible and articulated to minimise the visual impact e.g. vent stacks;
- The use of green roofs and peripheral soft landscape planting around the site mitigate potential adverse the landscape and visual effects of the design;
- A coherent architectural and landscape design has mitigated potential adverse effects on the amenity value of the residential properties in the vicinities and the Cultural Heritage asset Canterbury House; and
- The design includes an attenuation tank and drainage systems to reduce the rate and volume of run-off from the railway infrastructure to prevent an increase in flood risk. Surface water run-off from permanent infrastructure at the vent shaft will be attenuated to rates agreed with TW before discharge.

The design has also sought to reduce airborne noise 'as far as reasonably practicable' at this design stage. This includes:

- providing sufficient sound insulating construction of the headhouse walls, ceilings, doors and access hatches to minimise the amount of sound from the tunnel ventilation fans and other stationary systems equipment breaking out through the headhouse structure;
- providing sufficient space-proofing in the headhouse for tunnel ventilation noise attenuators;
- orientation of the outlets to reduce impacts on local receptors; and
- providing space-proofing for mitigation, in the form of 150mm absorptive lining in the headhouse chimneys to be specified and installed.

The design of the headhouse has also achieved an estimated 30% reduction in the asset's carbon footprint. This has been achieved through:¹

- Change in the shaft configuration and shape (from rectangular to circular) and a reduction in internal diameter;
- Contribution to Interim Assessment stage score of 82.6% ('Excellent') in BRE's BREEAM Infrastructure (Pilot) sustainability assessment scheme for major infrastructure projects;
- Change in construction methodology from diaphragm walls to sprayed concrete lining and pre-cast concrete rings; and
- Revised ventilation strategy – reduction in the number of fans and their arrangement.

7.2 Environment

During construction, sustainability has been considered by the construction methodology and associated mitigation, which will be implemented in line with the HS2 Code of Construction Practice and the HS2 London Borough of Brent Local Environmental Management Plan. A revised construction vehicle route has also been implemented to ensure safe site access during construction in line with the TfL design standards; protecting the construction team and local community.

During operation of the headhouse, mitigation of noise during periods when the ventilation fans in the headhouse are operational has been achieved to avoid any significant adverse impacts on health and quality of life for the neighbouring school and local residents. Further detail is provided in section 3.3 of the Written Statement submitted with this application.

7.3 Landscaping

The landscape design has considered sustainability in the following

¹ This is a provisional figure at detailed design compared to the baseline agreed with HS2 and will continue to be assessed as the design develops.

ways:

- The soft landscape strategy includes shrub and tree planting to provide visual screening of the asset from sensitive receptors;
- Soft landscape areas will provide storm-water retention where possible;
- The triangular area to the east of the site to provide benefits and educational opportunities for local School;
- Soft landscaping will improve urban biodiversity, reduce air pollution and provide benefits for local community health and well-being; and
- Supporting the achievement of the target of no net loss in biodiversity, several green areas have been introduced, including a green roof, climbing plants to internal brick walls, and dense species rich buffer planting to enhance the local habitat.

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View facing south along Canterbury Terrace

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8. Access

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8.1 Existing Site Access and Movement

The Canterbury Works Vent Shaft site will not be accessible to the general public. This will be achieved via the construction of a boundary wall around the west, south and eastern edges, and security fencing along the northern edge, adjacent to the national rail lines.

Although powers were included within the HS2 Act to use the existing access during construction, these will not be used, due principally to its proximity to St. Mary's School, immediately to the east.

The site will be accessed via two entrance gates, one to the south of the main building, and one in the north west corner, both of which will be secured by an entrance gate. The access to the south will link directly onto Canterbury Road. Beyond this entrance to the east is the limit to all vehicular traffic, as Canterbury Road becomes Canterbury Walk, a pedestrianised thoroughfare that provides a link to Kilburn High Road further to the east. The access to the north west will link directly to the shared Network Rail access onto Canterbury Terrace and Albert Road to the west.

8.2 Public Transport

The closest station to the Canterbury Works Vent Shaft site is Kilburn Park, which is served by the London Underground Bakerloo Line and is accessed from Cambridge Avenue. Also in close proximity to the site are Kilburn High Road and Queen's Park stations, which are both served by the London Overground.

There are a number of bus stops in the surrounding area to the site along the A5 Kilburn High Road/Maida Vale, Carlton Vale and Salusbury Road. The main bus routes in this area are: 6, 16, 32, 36, 98, 187, 189, 206, 328, 332, 632, N16, N28, N31, N98.

Public transport connections within the vicinity of the site are illustrated in Figure 43.

8.3 Cycle Routes

There are a number of on-road cycle routes in the area surrounding the vent shaft site, including along Kilburn High Road, Brondesbury Villas, Brondesbury Road and Salusbury Road; these are generally unsegregated.

8.4 Pedestrian Routes

The vent shaft site will be bounded by Canterbury Road and Canterbury Terrace, which are local roads with 30mph speed limits. Adjacent to the site and on approach to St Mary's Catholic Primary School is a pedestrianized street, Cathedral Walk, which connects Canterbury Road and Coventry Close. Coventry Close extends Eastwards and ends at a T-junction with A5 Kilburn High Road. All the roads in the area surrounding the site have pedestrian footways on both sides.

Within the London Borough of Brent there are approximately 16km of Public Rights of Way (PROWs). All PROWs in the borough are footpaths and the majority are either adopted as public highway or fall within Brent's freehold interest as parkland.

8.5 Construction Access

Two new accesses into the site will be created to enable the construction of the shaft and headhouse. The first will be in the north west corner, via the existing Network Rail access point at the corner of Albert Road and Canterbury Terrace, with the second in the south west corner off Canterbury Road, to the west of Canterbury Terrace. The creation of this 'in-out' arrangement for vehicles will be extremely important given the tight, constrained nature of the working area.

8.6 Headhouse and Shaft Access

There will be a single principle entrance into the building from the site compound area on the west side.

Measures for inclusive and accessible design include:

- Strobes will be included as part of the fire alarm system;
- Induction loop for hearing aids;
- Threshold levels at ground floor and entrances and exists will be provided to 15mm in accordance with standards;
- Accessible WCs (dimensions) are provided on the ground floor level;
- Corridor widths - minimum corridor widths of 1800mm required by BS8300; and
- Lift inclusive design.

8.7 Future Access Opportunities and Constraints

Upon completion of the shaft and headhouse works, the compound will be fully secured, with new boundary walls / fencing implemented around the perimeter of the site, and the two access points created for construction being upgraded to permanent, gated access points. As a result, as was the case prior to the commencement of the works, public access through the site will not be possible.

Nevertheless, the positive aspects of HS2 in relation to access will be:

- The potential 'opening up' for future development of the area of land immediately adjacent to Canterbury House, that formed part of the south / south east corner of the shaft construction site;
- The potential to implement public realm improvements to the streetscape outside of the site boundary, in particular parcels of land adjacent to the existing Network Rail Access at the corner of Albert Road and Canterbury Terrace

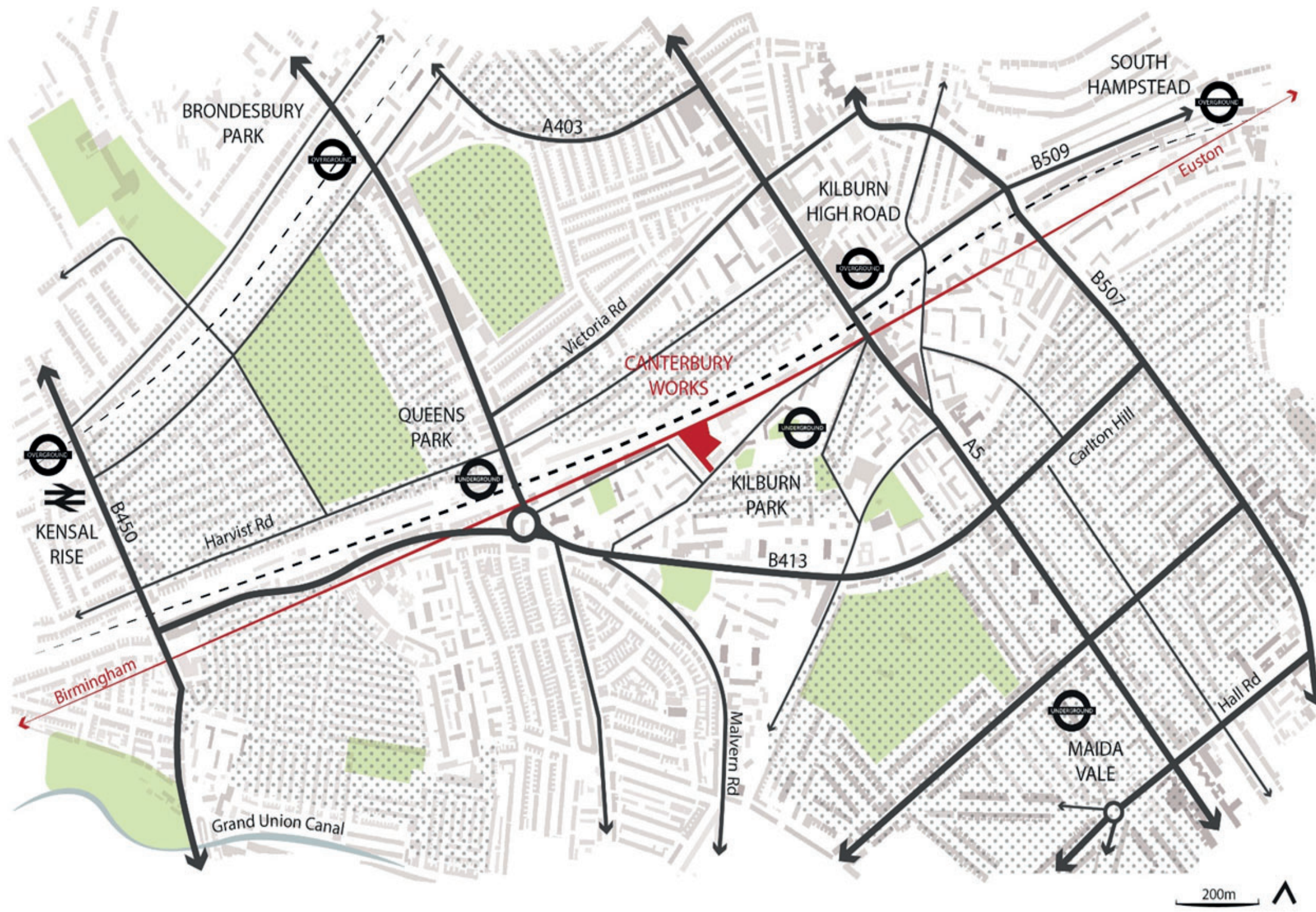


Figure 43: Key Roads and Transport Links

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View north of the site facing towards the West Coast Mainline

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9. Summary

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This Design and Access Statement (DAS) has described how the design principles and concepts of the proposed scheme have been applied to the site. The DAS has demonstrated consideration of the specific characteristics of the application site and its wider setting and outlined the approach taken to access and details how any specific issues which might affect access to the proposed scheme have been addressed.

The following table summarises how each of the objectives contained within the HS2 Design Vision have been achieved:

Theme	Objective	Evidence
People	<ul style="list-style-type: none"> Collaborating with local community to understand their aspirations Being a 'good neighbour' by minimising impacts Enhancing local green amenity via access, education and the environment 	<ul style="list-style-type: none"> Online public consultation has been held. Headhouse designed to be sympathetic to its surroundings. Hard and soft landscaping will be provided to mitigate visual impact and provide local greening. Pre- application engagement held with London Borough of Brent Engagement with St Mary's Catholic Primary School
Place	<ul style="list-style-type: none"> Leaving the site a better place Respecting local context Minimising the environmental impact: Protect local wildlife Restore local ecosystems Link areas of habitat 	<ul style="list-style-type: none"> Sensitive design of headhouse building, including use of materials to respond to local and railway context. Ecological connectivity maintained across the site via the headhouse green roof. All possible areas for ecological enhancement and habitat creation enhanced.
Time	<ul style="list-style-type: none"> Built to last / resilient to change Projecting a positive and lasting identity for HS2 Providing a sustainable legacy: Connecting local people with nature Supporting sustainable national infrastructure Helping transition to a low carbon economy 	<ul style="list-style-type: none"> Durable and long-lasting material palette selected for headhouse building finish. Sustainable features such as biodiverse green roofs, and low embodied energy materials used. Landscaping areas maximised in order to help achieve HS2' Green Corridor'. A visually integrated development that improves the area's urban design.

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10. Appendices

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10.1 Independent Design Review Panel Report

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REPORT

HS2 Independent Design Panel Meeting to discuss the Schedule 17 stage designs for Canterbury Works Shaft Headhouse

10.00 – 12.30 Wednesday 7 October 2020
Via Microsoft Teams

HS2 Independent Design Panel

Tony Burton	Vice chair of the HS2 Independent Design Panel
Mike Martin	HS2 Independent Design Panel
Jonathan McDowell	HS2 Independent Design Panel
Sam Richards	HS2 Independent Design Panel

Attendees

Dan Ashmore	Assistant Project Manager, HS2 Ltd
James Dearing	Design Panel Manager, HS2 Ltd
Rebecca Poll	Consultant, Infrastructure Directorate, HS2 Ltd
Ravi Raveendiraraj	Project Engineer, HS2 Ltd
Joyce Tang	Town Planning Manager, HS2 Ltd
Joaquin Beltran	Deputy Package Manager, Design House
Vinicius de Siqueira	Deputy Discipline Lead - Architecture, Design House
Mark Fisher	Discipline Lead Architecture, Design House
Luis Maximiliano Gonzalez	Architect ECW, Design House
Paul Gully	Lead Design Manager, SCS Railways
Javier Gutierrez	Architect ECW, Design House
Marie Claire Lhoest	Asset Owner, Design House
Aneta Mika	Landscape Team, Design House
Lucy Neal	Town Planning Interface Manager, SCS Railways
Wouter Ombregt	Landscape Lead ECW, Design House
Juan Jose Varillas	Architect Lead ECW, Design House
Vega Vanacore	Canterbury Package Manager, Design House
Ulrich Vosloo	Consents Team, Design House
Paige Ireland	Planning Officer, London Borough of Brent (LBB)
John Stiles	Principal Urban Design Officer, LBB
Edward Bailey	Frame Projects
Lana Elworthy	Frame Projects

Apologies / copied to

Swati Singh	Sustainability Manager, HS2 Ltd
Robert Howard	Landscape Manager, HS2 Ltd



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Pippa Whittaker	Senior Communications Manager, HS2 Ltd
Nia Griffiths	Head of Consents & Engagement, SCS Railways
Martin Short	Landscape Manager, HS2 Ltd
Kay Hughes	Design Director, HS2 Ltd
Alex Pendleton	Head of Engineering & Environment, HS2 Ltd
David Glover	Development Management Manager, LBB
Leah Wright	Officer, LBB
Damian Manhertz	Area Planning Team Manager, LBB
Christoph Brintrup	Head of Landscape, HS2 Ltd
David Cochrane	Head of Engineering and Environment, HS2 Ltd
Chelsea Evans	Apprentice Project Manager, HS2 Ltd
Paul Gilfedder	Town Planning Manager, HS2 Ltd
Bernadette Hurd	Head of Benefits, HS2 Ltd
Nicole Linney	PA to Design Director, HS2 Ltd
James Mumby	Town Planning Manager, HS2 Ltd
Giles Thomas	Phase One Engineering Director, HS2 Ltd
Deborah Denner	Frame Projects
Design Inbox	HS2 Ltd

Note on Design Panel process

The HS2 Independent Design Panel was established in 2015 at the request of the Department for Transport to help ensure that, through great design, HS2 delivers real economic, social and environmental benefits for the whole country.

The HS2 Design Vision sets out nine principles grouped around three themes: People; Place; and Time. The design uses this framework to help the HS2 Ltd leadership, project teams and other partners to make the right design choices – and this also informs its advice on designs that are to be submitted under Schedule 17 of the High Speed Rail (London – West Midlands) Act 2017.

The panel plays an advisory role, providing impartial and objective advice, to support the design process. At a pre-application stage it is for HS2 Ltd to decide what weight to place on the panel's comments balanced with other considerations. Once a Schedule 17 application is submitted, the panel's advice may inform the local planning authority's decision making process.

Further details of panel membership and process are available at:
<https://www.gov.uk/government/publications/hs2-design-panel>

The HS2 Design Vision is available at:
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/607020/HS2_Design_Vision_Booklet.pdf

The HS2 Independent Design Panel comments below follow on from three pre-application reviews which included the Canterbury Works Shaft Headhouse.

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Timing of Schedule 17 meeting

This meeting took place in advance of a Schedule 17 submission for the Canterbury Works Shaft Headhouse – which will be submitted around December 2020. The application will also include indicative mitigation proposals, including soft landscaping measures, which will be formalised in later ‘bringing into use’ and ‘site restoration’ submissions.

HS2 Ltd indicates that it is satisfied that the proposal would meet the aspirations of the HS2 Design Vision and the Sustainability Approach.

HS2 Ltd confirmed that will be no significant design changes, except some minor changes as a result of ongoing design development.

Local planning authority views

London Borough of Brent

To date there have been two pre-application meetings, at which London Borough of Brent provided feedback on the proposals for Canterbury Works Shaft Headhouse. The most recent meeting was held on Friday 1 October 2020.

In general, the Council is supportive of the way the designs have evolved. It notes that there are a number of sensitive receptors around the site, and it would therefore welcome further information on views of the site, including views from elevated positions.

The Council also requests further information on materials, textures and the potential inclusion of feature lighting. It asks the team to consider whether these elements could be used to help express the function of the building visually, in different elevations. It supports the proposals to create a new piece of amenity space for the school, and asks for further information on this as well.

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HS2 Independent Design Panel's views

Summary

The HS2 Independent Design Panel considers that the Schedule 17 stage proposals for the Canterbury Works Shaft Headhouse building have the potential to meet the aspirations of the HS2 Design Vision and the HS2 Sustainability Approach – subject to the quality of its detailed design and landscape. It notes that a substantial amount of work is still required as part of subsequent approval processes, including the design of the ATS building, landscaping and materials. The designs for the head house building promise architecture of a high quality if the materials and construction shown in the drawings provided 'for information' can be achieved. The panel supports the intention to include illustrative information on the landscape design in the Schedule 17 submission, although this will be dealt with formally through later 'bringing into use' and 'site restoration' applications. The design of the landscape will play a fundamental role in determining whether the Canterbury Works Shaft Headhouse meets the aspirations of the HS2 Design Vision, and the panel would welcome continuing involvement in this aspect of the scheme. It is pleased to see that an urban integration study has been completed for the site. Translating this vision into reality will require leadership by HS2 Ltd to catalyse partnership working and identify funding opportunities. The panel considers there is a tension between security requirements and the landscape vision with, for example, the scale and nature of the boundary walls impacting on the public benefit and viability of the proposed planting. It asks the team to revisit security requirements and assumptions made to date, and to explore opportunities to introduce alternative approaches. Integrating HS2 with the surrounding context in a subtle way should remain the priority for the site, including any consideration of lighting and changes to the street. These comments are expanded below.

Head house building

The panel considers the Schedule 17 stage designs for the head house promise to deliver a high quality building. As noted at previous meetings, the panel highlights that the level of detail on materials and construction is limited in the drawings intended for approval, and that more detail is included in those provided 'for information'. The panel's support for the proposals is dependent on the quality promised by the 'for information' drawings being delivered.

The panel supports the concept of expressing the headhouse's function through its architecture, but notes that this aspect of the design will only be seen from certain perspectives, from the railway in particular. The articulation of this aspect of the building is therefore very important.

The view of 'the machine' within the building from the train will be briefer than for some of the other headhouses along the Area South section of the Phase One route, which provide a more complete view. It suggests that the team further considers how the building will be seen from the north, particularly from the train, and how the designs for the northern side of Canterbury Works Headhouse could be refined to more clearly express its function. For example, a more expressive and bolder

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element, such as greater verticality to the section above the shaft, could be introduced.

Surrounding residents will have a fixed relationship with Canterbury Works Headhouse. Therefore, the intricacy of the design detailing will be crucial to the scheme's success. It will be important to explore opportunities for the information submitted as part of the 'plans and specifications' Schedule 17 submission to help convey the commitment to design detail and quality and ensure its delivery.

The panel notes that the chosen material palette does not appear to reflect the conclusions of the context analysis as presented. It highlights the need to carefully consider how the submission information can clearly describe the design choices which have been made to date, including how the character of the surrounding context has influenced the designs.

The panel suggests the team provides further information on how the proposals are expected to weather over time, and how the quality of the detailing will provide assurances on weathering. For example, the use of Accoya is welcomed by the panel but it notes that how this material is detailed and installed will be fundamental to achieving a high quality finish.

Automated Transformer Station (ATS) building

The ATS building is important to the acceptability of the overall scheme. The panel encourages the team to identify opportunities to include this as part of (or alongside) the Canterbury Works Headhouse Schedule 17 "plans and specifications" submission.

In principle, the panel considers the approach taken to the design of the ATS building to be acceptable. However, it is essential that the submission information provides a clear and accurate impression of the impact of the ATS building, including assurances on how it will integrate with the rest of the site to create a holistic scheme.

Landscape

The design of the landscape will play a crucial role in determining whether the designs for the Canterbury Works Headhouse meet the aspirations of the HS2 Design Vision. Consent for the details of the landscape design will not be sought through the 'plans and specifications' Schedule 17 application, but will be further defined during the 'bringing into use' and 'site restoration' stage.

The panel notes that the Canterbury Works Headhouse site offers a significant opportunity to add to the character of the area and to create new public benefits - alongside the need to respond to the different sensitivities of the surrounding context. The panel therefore welcomes the landscape vision and the focus on embedding the proposals within the surrounding context. It also welcomes the confirmation that the landscape proposals will be included within this submission (for information only) to demonstrate the commitment to delivering a high quality landscape.

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It also welcomes the intention to simplify the northern boundary of the scheme and share an access route with Network Rail to avoid overly complicated and unnecessary boundary treatments. It is important that the team continues to engage with Network Rail on the designs for this northern edge to ensure designs for Network Rail and HS2 land successfully integrate and complement each other.

The panel applauds the proposal to create a new piece of landscape for the school. It strongly encourages the team to collaborate with the school regarding the designs for this space. As detailed design work continues, careful consideration will need to be given to its long term use, ownership, access, management and maintenance. It is important that this space feels part of the school and avoids any unnecessary boundary treatments which may diminish this sense of ownership. If required, the panel encourages the team to integrate any boundary requirements as part of the landscape.

There are a number of questions which are yet to be answered and the detailed aspects landscape proposals will be absolutely crucial to the scheme's success. For example, the panel questions how successful the planting proposed adjacent to the wall on the western side of the site will be given the likely impact of the concrete wall. Careful thought will need to be given to species selection, maturity of planting and how the long term life and quality of the planting will be secured. The panel suggests another option could be to relocate the planting to the other side of the wall where there is more space available, and where residents of the adjacent housing would gain more value from any new planting introduced.

As a general point, the panel highlights the importance of committing to the inclusion of mature planting, particularly for trees and in the areas alongside boundaries with surrounding neighbours. It also suggests the team includes tree cells to help maximise their potential growth. The panel also urges the team to include a range of indigenous species, and to consider how species selection may help soften the proposed boundary treatments.

The panel welcomes the inclusion of planting to the roofs of the buildings and the intention to maximise the biodiversity net gain opportunities the site presents. It urges the team to consider how the layout and planting of these could be designed to respond to the views of residents who will look down onto these. It also notes the importance of including precedent images in the submission information to reflect the scale and nature of the proposals for Canterbury Works Headhouse building.

The panel suggests that the team, at detailed design stage, further considers whether art opportunities could be integrated as part of the scheme.

Security

The panel welcomes the further information presented on proposed boundary treatments, and the clarification that the Schedule 17 submission will only seek approval for their location. The scale and design of the boundary treatments will be subject to further design development and subsequent approval processes.

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As part of ongoing detailed design work, the panel encourages the team to carefully scrutinise the nature and scale of the boundary treatments, including the way they integrate and connect with each other, and with the other elements of the scheme. For example, the concrete and brick wall that encloses some of the site is specified to respond to vehicle mitigation requirements, but the panel asks the team to interrogate this further to ensure this level of specification is only included where necessary. Reducing this specification could help improve the viability of the proposed planting areas, lessen material use and help reduce the visual impact of the wall.

It is important that any proposed boundary treatments are appropriately designed for the context, and as part of the envisaged family of elements along this section of the route. The panel suggests details could be incorporated within the boundary treatments, such as different bonding techniques, glazed finishes, and textured brickwork. This would help introduce a greater sense of craft and help reduce the impact of their scale. It asks for this to be explored further at detailed design stage, particularly on the walls to the southern, eastern and western boundaries.

Urban integration

The panel is pleased to see that an urban integration study has been carried out for the site, as for other key design elements along the Area South section of the route. This aspect of the project will be a crucial element in ensuring HS2 offers real benefits to the communities impacted by the construction of HS2.

There is, however, uncertainty around whether these ideas, or others which are as yet unidentified, will ever become a reality. The panel urges the team to give further thought to how it can provide leadership to ensure they can be realised. Ongoing partnership working will be essential to identify long-term management and maintenance mechanisms and connect with potential funding streams.

Views

While views into the site at ground level will be limited, there will be a number of elevated views and potentially long distance views (over the railway corridor) as well as views from passing trains. The panel highlights that the Schedule 17 stage submission should provide a range of clear and accurate views, including views from surrounding residential units (e.g. Canterbury Terrace) at ground and elevated levels.

The panel highlights that views and drawings of the proposals, such as cross-sections, should also include the surrounding context to help people better understand the scheme's impact and its relationship to the context.

Access road design

The panel welcomes the confirmation that the site access will be subtle and will respond to the existing character of the street. For example, it supports the intention to mirror the existing brick pillars adjacent to Canterbury House on the HS2 site entrance. It considers that any alterations to the street, including any entrance splay, should prioritise pedestrians.

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Lighting

The panel supports the focus on integrating subtle lighting and avoiding feature lighting. It suggests that it would be helpful to provide further information on the likely impact of the lighting proposed and, in particular, how it will impact on views for residents and neighbours, as part of the information submitted.

The panel notes that there may be an opportunity to include feature lighting on the railway side of the scheme. It asks the team to engage with a lighting designer as design development continues for this aspect of the proposals.

Next steps

The panel feels that the Canterbury Works Headhouse building has the potential to meet the aspirations of the HS2 Design Vision and HS2 Sustainability Approach at Schedule 17 stage – subject to the design of the ATS building and the quality of the detailed design and landscape.

The design of the landscape will play a fundamental role in determining whether the designs for Canterbury Works Headhouse meet the aspirations of the HS2 Design Vision. The panel therefore asks for an opportunity to comment on the landscape design at the 'bringing into use' submission stage. This should include information around the design of the proposed pocket park, planting, urban integration opportunities, and the long term management and maintenance of the landscape.

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