



**High Speed Rail (London – West Midlands)  
Act 2017**

HS2 Ltd

London Borough of Camden

**Euston Scissor Box Roof Slab**

Schedule 17 Plans and Specifications Written  
Statement for Information

LBC.S112.PS.15

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# Abbreviations and definitions

CoCP – Code of Construction Practice

CSjv – Costain Skanska joint venture

EWC – Early Works Contractor

ES – Environmental Statement (as amended)

ESB – Euston Scissor Box

GWSI: HERDS – Generic Written Scheme of Investigation: Historic Environment Research and Delivery Strategy

HE – Historic England

HS2 – High Speed 2 Ltd.

LPA – Local Planning Authority

PFN – Planning Forum Note

SCS – Skanska Costain Strabag joint venture

S1 – HS2 Area South Lot 1 - Euston Tunnels and Approaches; extending from Euston Station to Old Oak Common (exclusive).

S2 – HS2 Area South Lot 2 - Northolt Tunnels; extending from Old Oak Common to Harvil Road (exclusive).

WCML – West Coast Mainline

# 1 Introduction

## 1.1 Background Information

Table 1: Schedule 17 Address Details and Description of Works

Site	Details
Scheme	High Speed Two
Applicant	High Speed Two (HS2) Limited
Applicant Address	<i>c/o Agent:</i> SCS Railways Joint Venture (SCS) Black Arrow House, 2 Chandos Road, London NW10 6NF
Site Address	Park Village East, London Borough of Camden. NW1 2DU
Description	Submission under Schedule 17 of the High Speed Rail (London-West Midlands) Act for approval of the Euston Scissor Box Roof Slab, a 226m x 32m concrete slab constructed of a pre-cast hollow core structure.

## 1.2 Terms of Reference

- 1.2.1 This Written Statement is compiled in accordance with the High Speed Two (HS2) Phase 1 Planning Memorandum and Planning Forum Notes (PFNs) as required by the planning regime established under Schedule 17 of the High Speed Rail (London – West Midlands) Act 2017 ('the Act').
- 1.2.2 This statement provides the London Borough of Camden with information to assist with the determination of the Plans and Specifications submission under Schedule 17, in relation to the above description of works.
- 1.2.3 The information in this Written Statement is provided for information to assist in determining the request for approval. It is not for approval.

## 1.3 Introduction to High Speed 2

- 1.3.1 HS2 is a new high-speed railway network that will 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 and so provide opportunities to improve existing commuter, regional passenger and freight services.

1.3.2 Phase One of HS2 will provide a dedicated high speed rail service 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.

1.3.3 For further information on HS2 and the route through the London Borough of Camden please refer to the Planning Context Report for the London Borough of Camden, deposited with the Council by HS2 Ltd.

## 1.4 High Speed Rail (London – West Midlands) Act 2017

1.4.1 The Act provides powers for the construction and operation of Phase 1 of High Speed Two. HS2 Ltd is the nominated undertaker in relation to the works subject to this Plans and Specifications submission.

1.4.2 Section 20 to the Act grants deemed planning approval for the works authorised by it, subject to the conditions set out in Schedule 17. Schedule 17 includes conditions requiring the following matters to be approved or agreed by the relevant LPA.

- Construction arrangements (including large goods vehicle routes);
- Plans and specifications;
- Bringing into use requests; and
- Site restoration schemes.

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

1.4.4 Schedule 17 of the Act sets out the grounds on which the LPA may impose conditions on approvals, or refuse requests for approval.

1.4.5 This Written Statement includes information supporting the Plans and Specifications submission in relation to the matters outlined in **Table 2** below.

Table 2: Schedule 17 Plans and Specifications Submission Details

Site	Details
Plans and Specifications (permanent works)	<p><b>Paragraph 2 (Buildings)</b> - Above ground elements of the Roof Slab Structure, comprising of eastern and western concrete upstands, the roof of the ESB Roof Slab constructed of pre-cast hollow core covered in a light grey colour polyurethane waterproof membrane, a fair faced concrete upstand at the interface with Granby Terrace Bridge, and the fair-faced concrete edge of the Roof Slab Structure that forms the eastern wall.</p> <p><b>Paragraph 3 (Fences and Walls)</b> – Edge protection fencing located along the top of the eastern upstand wall.</p> <p><b>Paragraph 3 (Earthworks)</b> – Earthworks to level ground to the west of the ESB Roof Slab, topped with graded gravel.</p>

- 1.4.6 The works to which this application relates, and the cumulative impact of the works in conjunction with other HS2 development, have been assessed and are compliant with paragraph 1.1.3 (bullet point 2) of the HS2 Phase 1 Environmental Minimum Requirements General Principles.<sup>1</sup>

## 1.5 High Speed Two: Code of Construction Practice

- 1.5.1 HS2 Ltd as the nominated undertaker is contractually bound to comply with the controls set out in the Environmental Minimum Requirements (EMRs). The EMRs include the HS2 Code of Construction Practice (CoCP).
- 1.5.2 The works subject to this request for approval of Plans and Specifications will be undertaken in accordance with the Code of Construction Practice, and with the Class Approval issued by the Secretary of State (March 2017).<sup>2</sup>
- 1.5.3 The Schedule 17 Statutory Guidance issued by the Secretary of State (May 2021) provides guidance to all planning authorities determining requests for approval under Schedule 17 to the Act. Paragraph 22 of the Statutory Guidance states that planning authorities should not through the exercise of Schedule 17 seek to modify or replicate controls already in place such as the Environmental Minimum Requirements.<sup>3</sup>

<sup>1</sup>

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/618074/General\\_principles.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/618074/General_principles.pdf)

<sup>2</sup> <https://www.gov.uk/government/publications/high-speed-rail-london-west-midlands-act-2017-class-approval>

<sup>3</sup> <https://www.gov.uk/government/publications/high-speed-rail-london-to-west-midlands-act-2017-schedule-17-statutory-guidance/high-speed-rail-london-west-midlands-act-2017-schedule-17-statutory-guidance>

## 1.6 Structure of Written Statement

1.6.1 This Written Statement is structured as follows:

- A description of the location and main characteristics of the area in which the works will be carried out is provided in **Section 2**;
- **Section 3** describes the main works being undertaken in the area, as set out in Schedule 1 of the Act, and those that are the subject of this Schedule 17 Plans and Specifications submission;
- The design approach and rationale for the works which are the subject of this Schedule 17 Plans and Specifications submission are described in **Section 4**;
- **Section 5** summarises the pre-submission consultations that were undertaken, including a list of the consultees, dates, attendees at meetings and a brief summary of the outcome of these discussions;
- A high-level programme for the works and how they fit into the wider programme for other works in the area, as set out in Schedule 1 of the Act, is provided in **Section 6**; and
- **Section 7** identifies any other main consents, or known forthcoming consents associated with the works.



## 2 Site Location and Characteristics

### 2.1 Site Location

2.1.1 The Euston Scissor Box (ESB) Roof Slab site is located within the West Coast Mainline (WCML) cutting to the north of Euston Station, to the west of the tracks and on land that was formerly occupied by the DB Schenker carriage sheds (now demolished). Adjacent to the west and above the level of the rail cutting is Park Village East, which is a residential road in the London Borough of Camden. Park Village East adjoins Granby Terrace in the south, and Gloucester Gate in the north, providing a link through the residential area on the eastern side of Regents Park.

2.1.2 The ESB Roof Slab is located south of Mornington Street Bridge and to the north of Granby Terrace Bridge (**Figure 1**). The relationship to HS2's alignment is displayed in **Figure 2**.

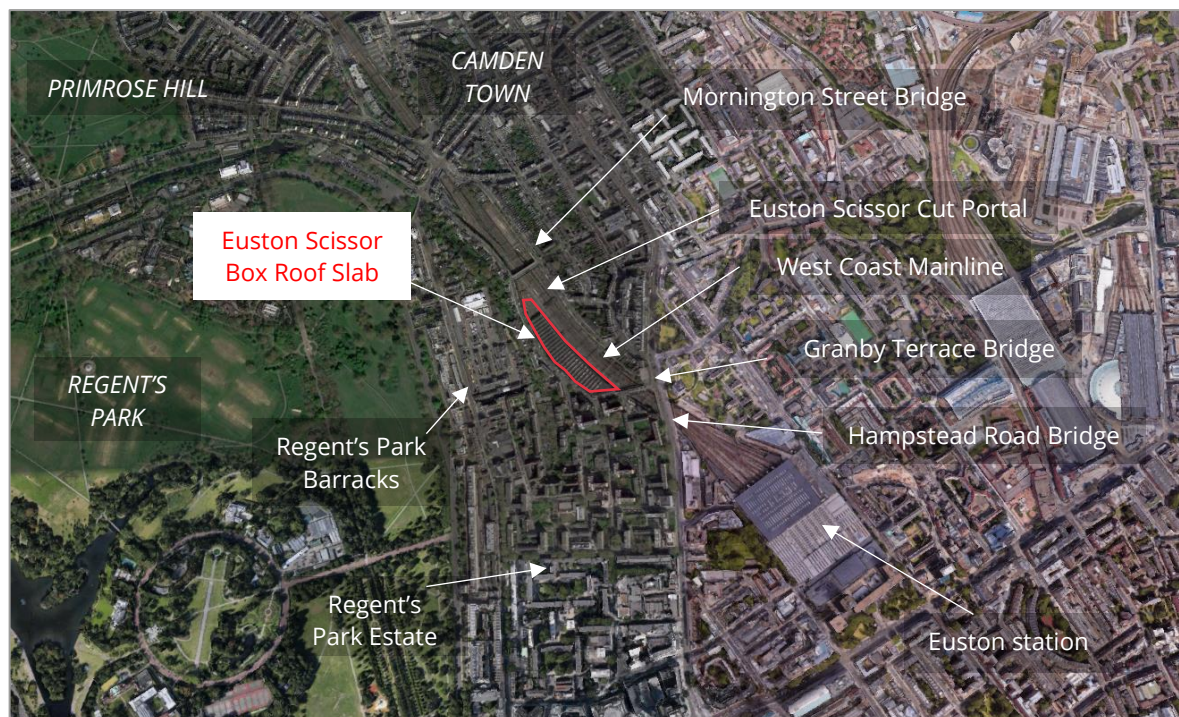


Figure 1 Aerial view of Euston and surrounding area. Approximate site location demarcated in red (Map data Google 2020)

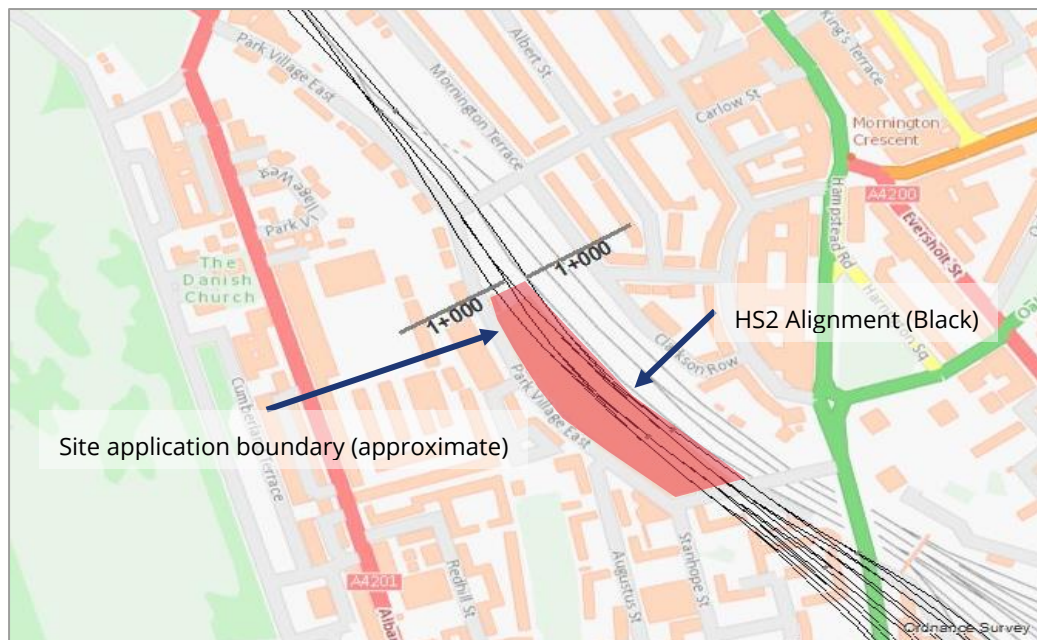


Figure 2 HS2 Track Alignment and Schedule 17 application boundary (demarcated in black and approximate site application boundary in red)

## 2.2 Adjacent Land Uses

- 2.2.1 The immediate vicinity of the ESB Roof Slab site is characterised by its proximity to the rail infrastructure associated with the WCML cutting.
- 2.2.2 The wider setting contains housing of varying styles, set at a level above the adjacent WCML railway corridor to the north and east. To the south, the Regent's Park Estate consists of medium to high rise mixed-tenure housing blocks. The area between Park Village East and Regents Park comprises terraced house forms from a variety of ages and appearances and the less formally laid out picturesque villas by John Nash along Park Village East and West. The existing WCML railway corridor forms a physical barrier which separates the villas on Park Village East from the later 'Palace front' terraced housing along Mornington Terrace to the east.
- 2.2.3 Railway tracks and associated operational land are located to the north and east. To the south east of the site is Euston Station which is one of Britain's busiest main line rail stations and provides connections to cities north of London (e.g. Birmingham, Liverpool, Manchester, Edinburgh and Glasgow).
- 2.2.4 Regents Park lies approximately 300m to the west of the site and is one of London's largest and most significant areas of open space. Closer to the site, there are other smaller open spaces and play areas throughout the residential areas immediately to the west. Regents Park Barracks is approximately 100m to the west of the site.

## 2.3 Environmental Characteristics

2.3.1 Regent's Park Site of Metropolitan Importance (SMI) lies approximately 300m to the west of the ESB Roof Slab. The park contains mature parkland trees, a small enclosed woodland, an ornamental lake and a grassland area managed specifically for wildlife.

2.3.2 There are several designated heritage assets in the area, summarised in **Table 3** and **Figure 3**.

Table 3 Designated heritage assets in proximity to the application site

Listed Asset	Type	Distance to Euston Scissor Cut Portal
Park Village East - numbers 2-16, 22-34, 36a and 36b and attached railings	Grade II*	Adjacent to west
Park Village West - numbers 1-8, 10-14 and 17-19 and attached railings	Grade II*	250m – 400m north west
Parkway Tunnel and Cutting	Grade II	Directly adjacent to north
Pair of stone piers with lamp standards to east end of Mornington Street railway bridge	Grade II	Directly adjacent to north
Pair of stone piers with lamp standards to west end of Mornington Street railway bridge	Grade II	Directly adjacent to north
Regents Park Barracks, block K (The Officers' Mess)	Grade II	100m west
Mornington Crescent Numbers 1, 2-35 and 261/263 and attached railings	Grade II	50 – 250m east/north east
York and Albany Public House	Grade II	280m north
Parkway Numbers 119- 123 and 125 and attached railings	Grade II	300m north
Other listed buildings towards Regents Park	Grade II*, II and I	Approximately 330m west
Regents Park Conservation Area	-	Adjacent to west
Camden Town Conservation Area	-	North-east of WCML cutting



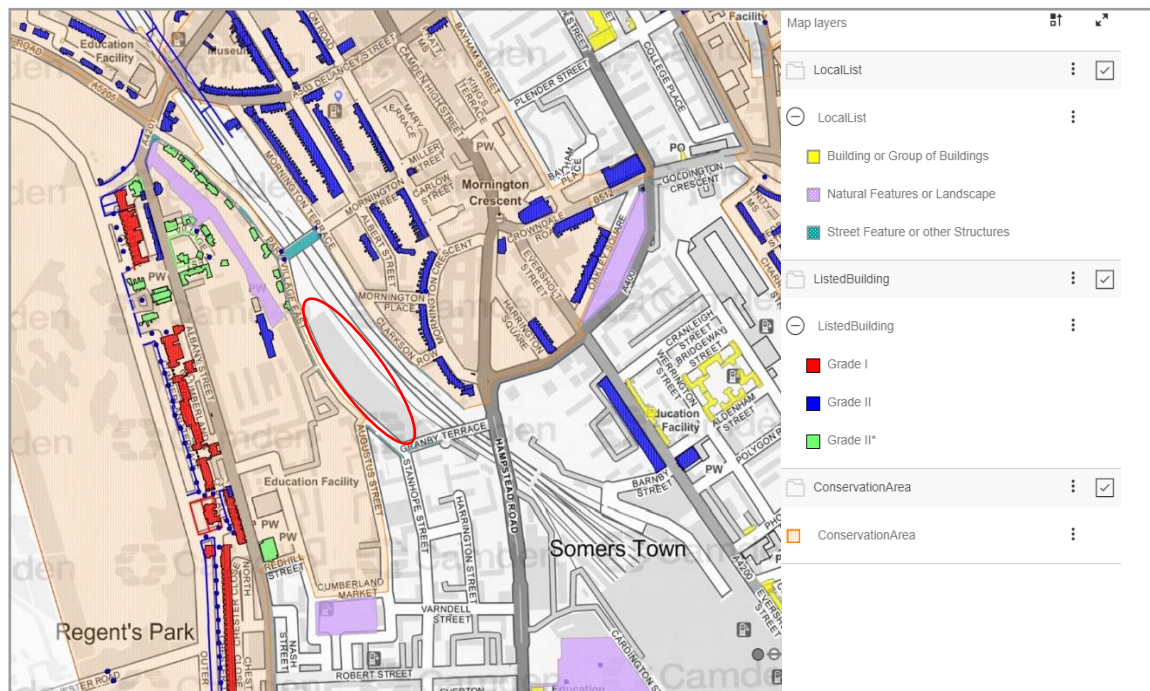


Figure 3 Heritage assets in the area surrounding the ESB Roof Slab (approximate site area circled in red) (source: Camden Local List)

- 2.3.3 There are also several non-designated heritage assets near the site which contribute to the special character of the area. These comprise the locally listed structures associated with the expansion of the London to Midland Railway at the beginning of the 20<sup>th</sup> century. These include Mornington Street Bridge, the wall to the west of the rail cutting which runs south from 1 Park Village East to Granby Terrace, and the wall to the east side of the cutting along Mornington Terrace and Clarkson Row.
- 2.3.4 The rail cutting itself in this area (north of Granby Terrace) is a significant asset, and remains largely as is since it was altered circa 1905, with elements of the original 1870s assets evident in some areas. The cutting retains its original rail character and is important in understanding the development of one of the first inter-city railways in the world as conceived by Robert Stephenson.
- 2.3.5 These features provide a strong historic character to the area and illustrate the development of rail engineering since the mid-19<sup>th</sup> century and the impact that this had on the character and appearance of the local area.
- 2.3.6 West of the site is Regent's Park Conservation Area which covers the eastern part of John Nash's Regent's Park masterplan development of the early 19<sup>th</sup> century. It comprises Nash's picturesque villas on Park Village East to its eastern boundary and part of Regent's Park.

- 2.3.7 These retaining walls are included as ‘street features or other structures’ on Camden’s Local List (adopted on 21 January 2015), which details non-designated heritage assets within the borough.
- 2.3.8 In addition to the nearby listed buildings outlined in **Table 3**, many heritage assets are located around Regents Park. The concept of development around Regent’s Park was established after a design competition in the early 1800’s, after which John Nash sold building leases for approved designs. Control over development was implemented for this area via the creation of the Regents Park Conservation Area, which is adjacent to the application site. The Camden Town Conservation Area is also within the vicinity of the application site.
- 2.3.9 Although the ESB Roof Slab is within proximity to several heritage assets, it will be located at and below street level within the railway cutting. This will reduce its visibility from street level.

## 2.4 Surrounding Highway Network

- 2.4.1 The ESB Roof Slab is located adjacent to Park Village East, which is a residential road that runs north-south between Granby Terrace in the south and A4201 Gloucester Gate Bridge Road in the north.
- 2.4.2 Granby Terrace joins the A400 Hampstead Road at a signalled junction at the eastern end of the street. The A400 Hampstead Road is a key connecting route across this part of Inner London. It links with the A501 Euston Road to the south at a busy, split level, signalled interchange (adjacent to Warren Street London Underground Station), and to the north, joins with the southern end of Camden High Street at a signalled junction with Crowndale Road, adjacent to Mornington Crescent London Underground Station. Further south from this, at the junction adjacent to Harrington Square Gardens, Lidlington Place becomes the A400, which links to Crowndale Road a short distance to the north east.
- 2.4.3 Approximately 0.7km south of the junction with Granby Terrace, the A400 Hampstead Road has a junction with A501 Euston Road. The A501 extends westwards to join the A40 Westway, which in turn then links to the M25 and M40 motorways. Extending eastwards, the A501 connects to the A1, and to the A10 and the A11 via Commercial Street. To the west of the site, the A5205 links to the A41, which continues north to join the North Circular and M1 motorway. To the north of the site is Parkway A4201 which joins with the A5205.

2.4.4 **Figure 4** illustrates the highway network within the vicinity of the application site.

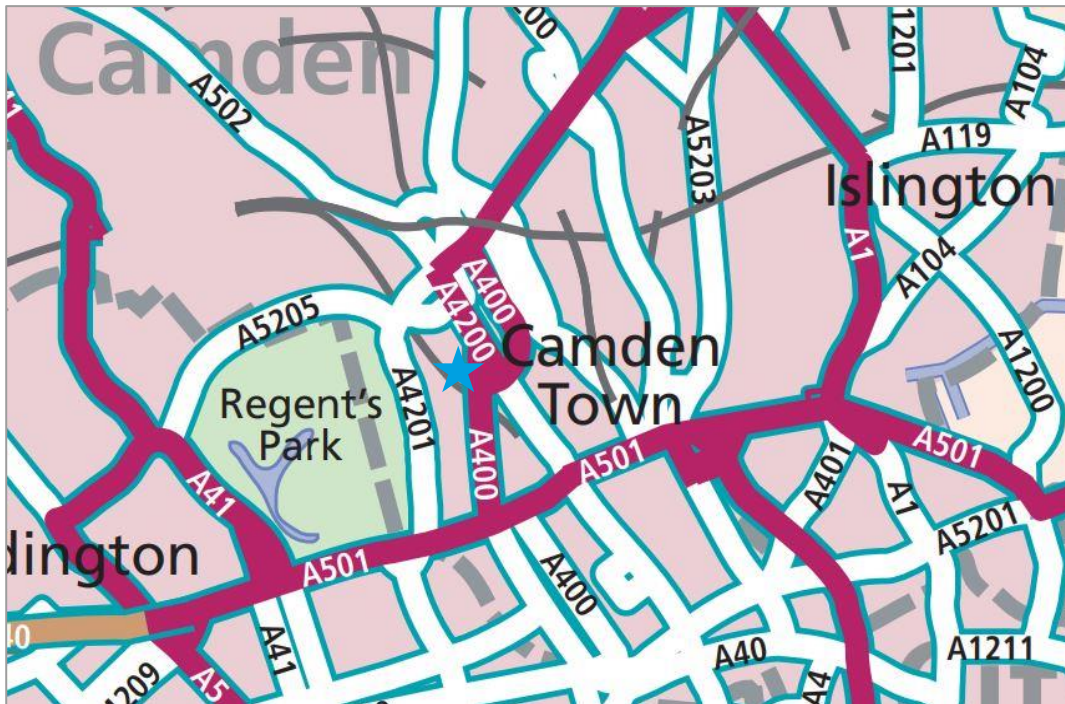


Figure 4 Highway network in area surrounding the application site. Approximate location marked by the blue star.  
(source: Transport for London Basemap)

## 3 Description of the Works

### 3.1 Introduction

- 3.1.1 This Written Statement supports the Schedule 17 submission for the approval of plans and specifications for the ESB Roof Slab located in the London Borough of Camden.
- 3.1.2 The Plans and Specifications submitted for approval are listed in the proforma accompanying the application. A summary of the proposed works for approval is provided in Section 3.2 below.
- 3.1.3 Section 3.5 summarises the indicative mitigation relevant to the works being submitted in accordance with paragraph 7.5.2 of the Planning Memorandum.
- 3.1.4 Sections 3.6 – 3.7 provide information on other aspects of the works to assist in understanding the context of planned construction methodology and how EMR controls apply to the works being submitted for approval. The information in Sections 3.6 – 3.7 is not for approval under Schedule 17.

### 3.2 Works for Approval

- 3.2.1 The relevant scheduled works as set out under Schedule 1 of the Act to which this Schedule 17 submission relates are:
- **Work No. 1/1** - A railway (23.48 kilometres in length) partly in tunnel, commencing at a point 235 metres east of the junction of North Gower Street with Drummond Street passing north-westwards and terminating beneath a point 80 metres north-west of the bridge carrying Ickenham Road over the Marylebone to Aylesbury Railway. Work No. 1/1 includes shafts at Cobourg Street, Mornington Street, Granby Terrace, Parkway, Adelaide Road, Alexandra Place, Canterbury Works and Greenpark Way, a station at Old Oak Common and a Crossover Box at Victoria Road.
  - **Work No. 1/16** - A railway (0.57 kilometres in length) partly in tunnel commencing by a junction with Works Nos. 1/1 and 1/15 at a point 40 metres north-east of the junction of Stanhope Street with Granby Terrace passing north westwards and terminating at a point 52 metres south-west of the junction of Delancey Street with Mornington Terrace.

- 3.2.2 The ESB Roof Slab structure is 226m long and 32m wide and is located within the existing Network Rail West Coast Mainline (WCML) cutting (**Figure 5**).

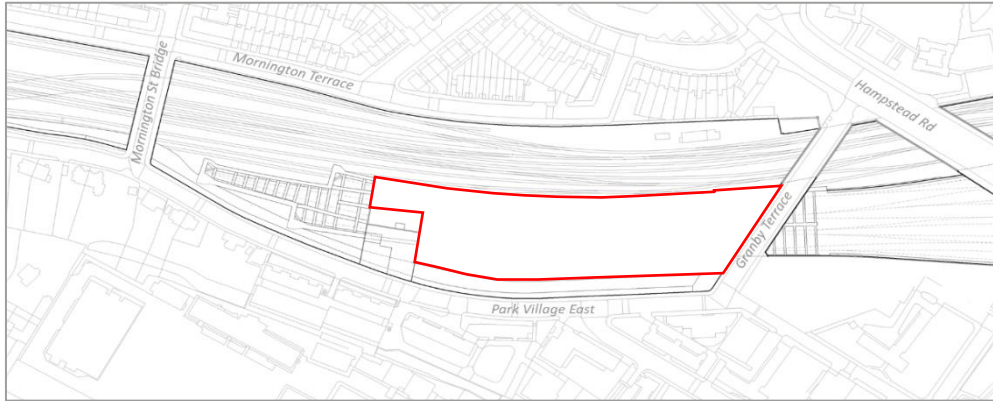


Figure 5 The ESB Roof Slab is within the red area (approximate)

- 3.2.3 This site was identified in the HS2 Environmental Statement (ES) as having potential for over-site development that would be brought forward in the future as a separate scheme.<sup>4</sup> The Euston Area Plan also identifies the site as a potential location for residential development on a deck above the railway.<sup>5</sup> As such, the design of the ESB Roof Slab has been developed to both meet the functional requirements of the HS2 railway without precluding any potential over-site development scheme that may come forward in the future.
- 3.2.4 Large parts of the ESB Roof Slab are below ground level. Below ground elements do not require approval by virtue of Schedule 17 (30) of the HS2 Act. **Figure 6** illustrates which elements of the ESB Roof Slab are above or below ground level, with above ground elements for approval shown in red.

<sup>4</sup> HS2 (2013) Phase 1 Environmental Statement Volume 2 – Community Forum Area Report Euston Station and Approach. Section 14 – Ancillary works for potential over-site development (pp. 255).

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/398103/Volume\\_2\\_CFA\\_1\\_Euston\\_Station\\_and\\_Approach.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/398103/Volume_2_CFA_1_Euston_Station_and_Approach.pdf)

<sup>5</sup> The Euston Area Plan (2015) was jointly prepared by the Greater London Authority, TfL, and LB Camden, and provides a planning framework for the Euston area. Figure 3.1 refers to residential development where the ESB Roof Slab is located.

<https://www.eustonareaplan.info/>



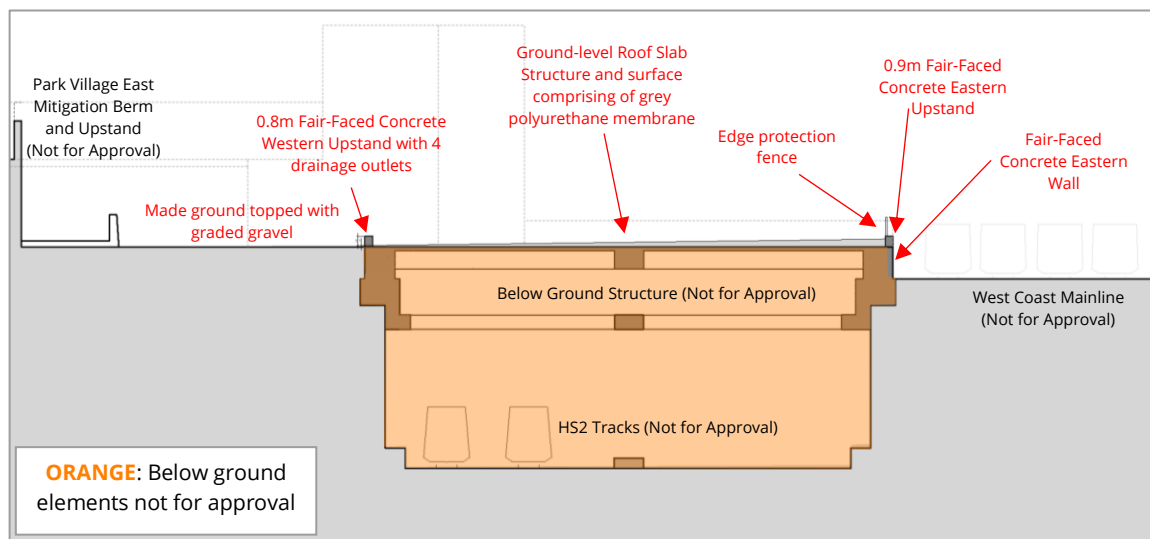


Figure 6: Indicative section through ESB Roof Slab structure. Elements below ground level are within the area of orange shading and are therefore not for approval. Elements for approval are labelled in red.

3.2.5 The elements of the ESB Roof Slab that are for approval under this Schedule 17 application are:

- **Paragraph 2 (Structures)** – Above ground elements of the Roof Slab Structure, comprising of eastern and western concrete upstands, the roof of the ESB Roof Slab constructed of pre-cast hollow core planks and is covered in a light grey colour polyurethane waterproof membrane, a fair faced concrete upstand at the interface with Granby Terrace Bridge, and the Fair-faced concrete edge of the Roof Slab Structure that forms the Eastern Wall.
- **Paragraph 3 (Fences and Walls)** – Edge protection fencing running the length of the ESB Roof Slab's eastern edge, located on top of the concrete upstand.
- **Paragraph 3 (Earthworks)** – Earthworks to level ground to the south of the ESB Roof Slab, topped with graded gravel.

## Paragraph 2 – Euston Scissor Box Roof Slab Structure

3.2.6 Ground level elements for approval as Building works under Schedule 17, Part 1, Paragraph 2 of the Act are illustrated by **Figure 7**.

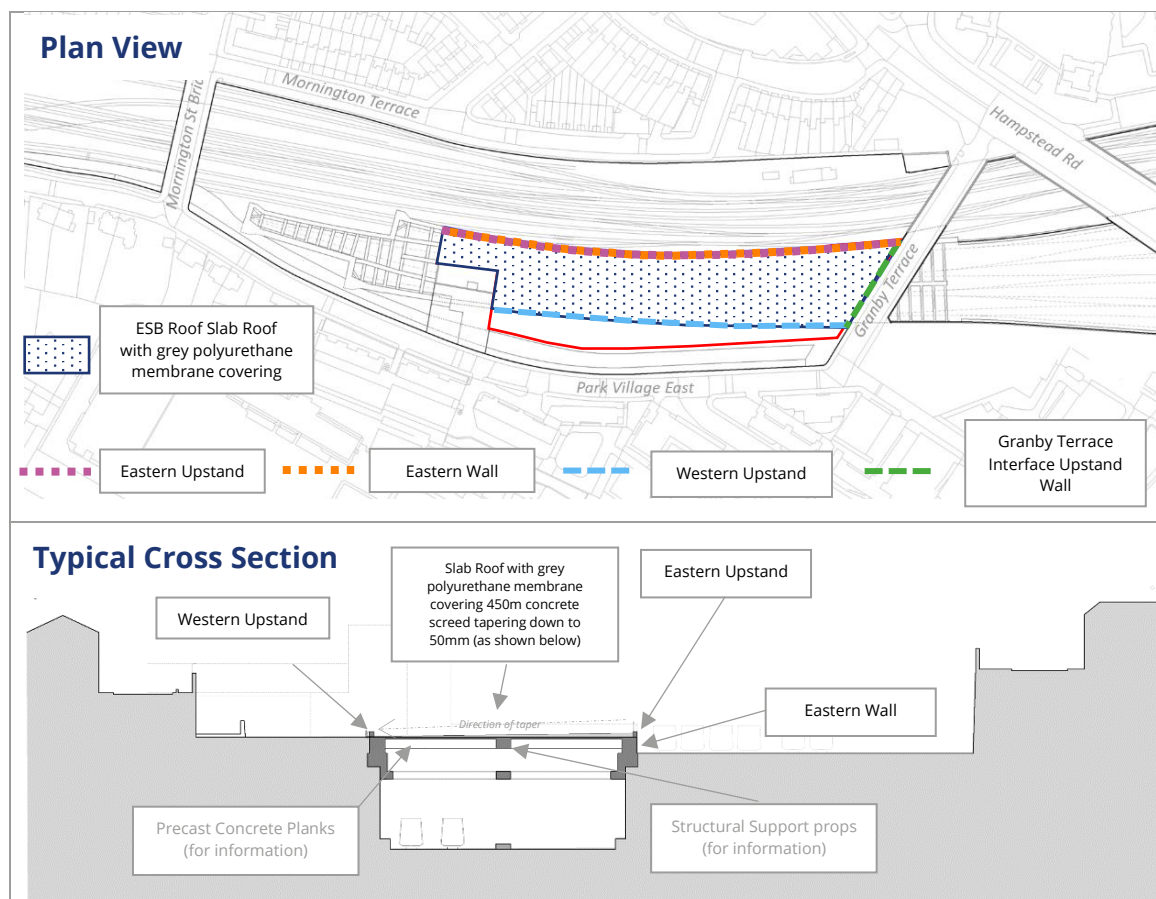


Figure 7 A Plan and a typical cross section illustrating the structural components of the ESB Roof Slab

3.2.7 The roof slab structure comprises of precast concrete planks which span longitudinally between the structural support props. The proposed 250mm thick hollow core slab supports a 450mm concrete screed which tapers down to 50mm across the width of the ESB Roof Slab (**Figure 7**).<sup>6</sup>

<sup>6</sup> A thin top layer of material laid over a concrete subfloor.

- 3.2.8 The screed will be covered with a light grey colour polyurethane waterproof membrane, forming a 'blue roof' drainage system.
- 3.2.9 The 'blue roof' is an open concrete tank with no 'lid'. The roof of the scissor box will have a concrete upstand around its perimeter to contain any rainwater falling into it. A screed will convey the rainwater towards the concrete upstand along the western edge of the ESB Roof Slab roof, where drainage outlets will then discharge the rainwater to a filter drain at a controlled rate (**Figure 8**). This controlled rate of discharge means the rainwater will build-up during more severe weather events and be controlled 'at source'. The blue roof therefore provides the attenuation storage required for the whole roof area and avoids the need for any buried attenuation elsewhere.

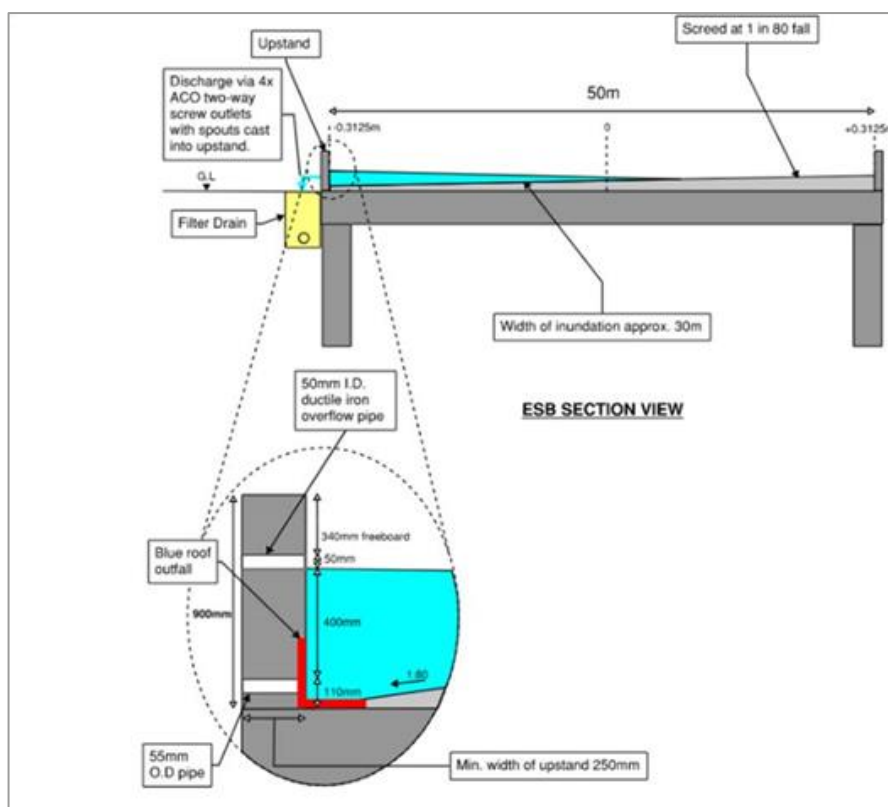


Figure 8 A cross section of the proposed Scissor Box 'blue roof'

- 3.2.10 The western upstand is 0.9m tall, and the eastern upstand is 0.8m tall. The difference in height is so that if the drainage outlets become blocked, water will overflow the western upstand and drain into the filter drain.
- 3.2.11 **Figure 9** is an illustrative section showing the design of the Eastern and Western Upstands.

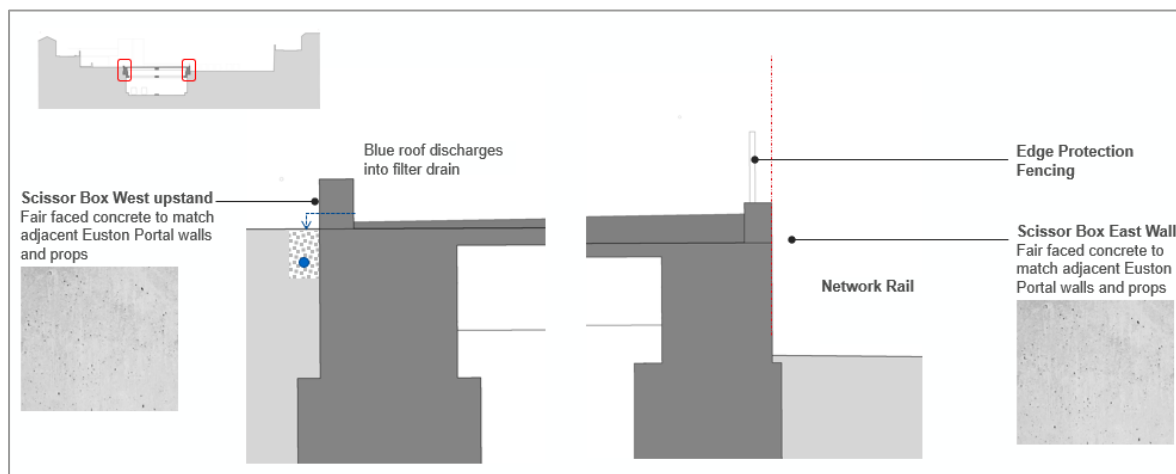


Figure 9 A section illustrating the edge details at the eastern and western perimeter. The upstands form part of the blue roof surface water attenuation system.

- 3.2.12 As illustrated in **Figure 9**, the Eastern Wall will form the boundary between the adjacent WCML tracks and the ESB Roof Slab. The wall will be in a fair-faced concrete finish to match the finish of the adjacent Euston Portal walls and props (subject to a separate Schedule 17 application).
- 3.2.13 To the south, the ESB Roof Slab interfaces with Granby Terrace Bridge.<sup>7</sup> This will be in the form of a fair faced concrete upstand wall positioned below the Granby Terrace Bridge structure. The red dashed line in **Figure 10** illustrates the boundary between Granby Terrace Bridge and the ESB roof slab upstand wall.

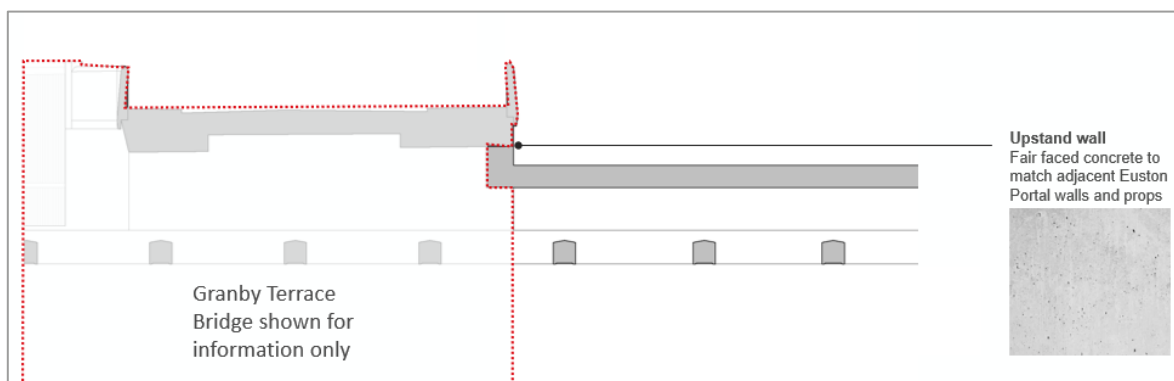


Figure 10 A long section illustrating the proposed interface with Granby Terrace Bridge

- 3.2.14 **Figure 11** provides a 'bird's eye view' of the southern portion of the ESB Roof slab, illustrating the interface with Granby Terrace Bridge, along with the Eastern and Western Upstands.

<sup>7</sup> Granby Terrace Bridge is subject to a separate Schedule 17 application

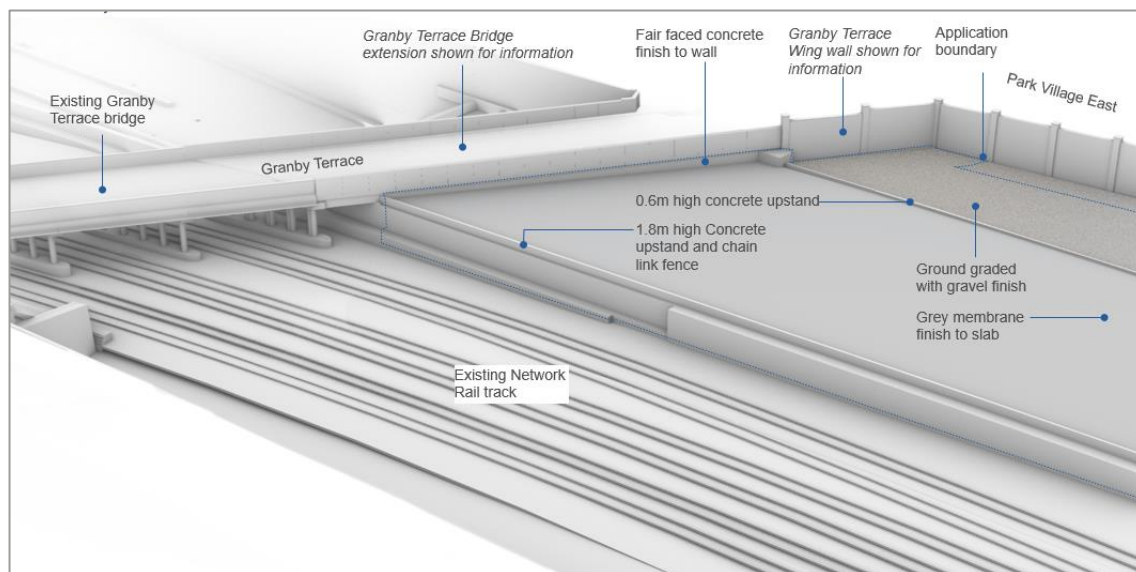


Figure 11 An indicative render showing a 'bird's eye' view of the interface with Granby Terrace Bridge, the southern portion of the ESB Roof Slab, and the eastern and western concrete upstands

### Paragraph 3 – Euston Scissor Box Roof Slab Fences and walls

- 3.2.15 A metal chain link edge protection fence is proposed on top of the reinforced concrete eastern upstand wall (**Figure 12**). As this side of the ESB Roof Slab is adjacent to the WCML, the fencing is required as fall protection to prevent access onto the tracks below.

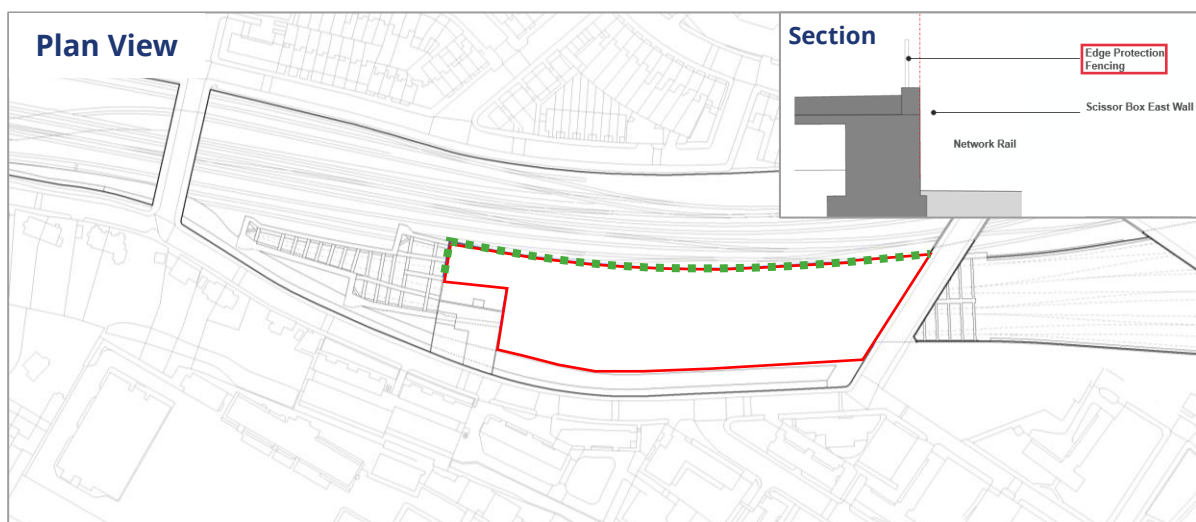


Figure 12 The location of fencing for approval is shown in green, with a section (inset top right) showing the fencing in relation to the eastern upstand.

- 3.2.16 The upstand wall ties into the capping beam and supports the roof structure and future oversite development. The edge protection will be designed such that it can be removed to allow future oversite development.



- 3.2.17 **Figure 13** illustrates how metal chain link fencing may look when placed on top of a fair-faced concrete upstand. Only the location (not the design and external appearance) of fencing requires approval under Schedule 17.



Figure 13 A Case study image of a metal chain link fence on top of a concrete upstand (this image is indicative only)

### Paragraph 3 - Earthworks

- 3.2.18 Earthworks will be required to level the ground adjacent to the ESB roof slab. This area will be topped with graded gravel. The extent of these earthworks is shown in **Figure 14**.

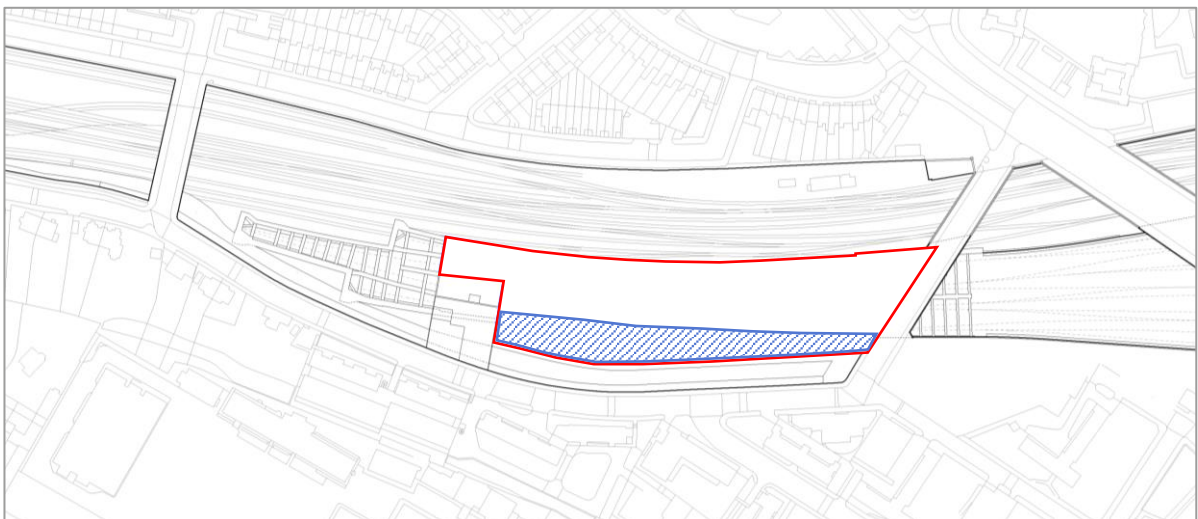


Figure 14 Earthworks are within the blue hatched area (approximate)

### Other HS2 consents in the vicinity

- 3.2.19 There are a number of related HS2 works requiring consent that are being undertaken within the vicinity of the ESB Roof Slab (**Figure 15** and **Figure 16**). The design of these other consents will be subject to a separate Schedule 17 submission, and any information contained in this application will be subject to change.

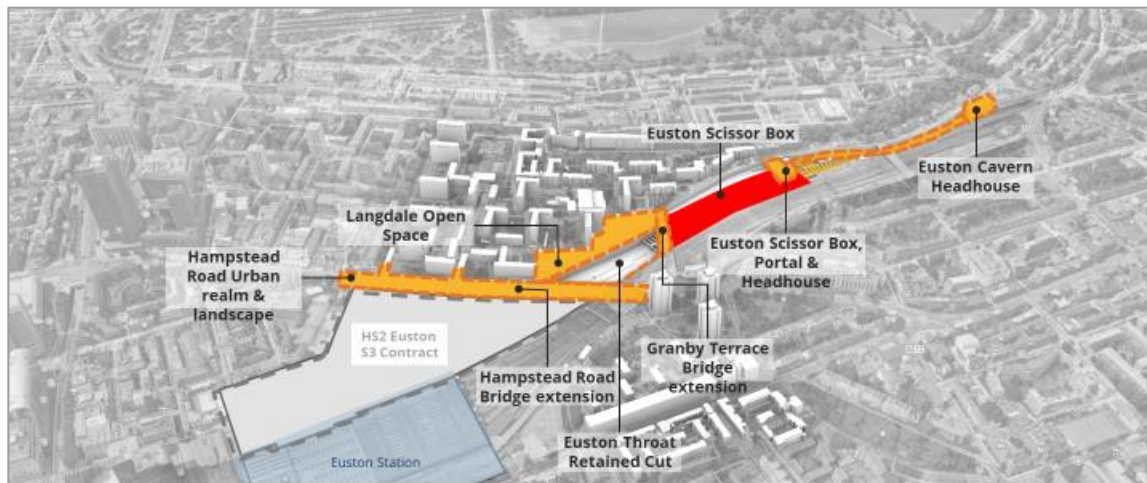


Figure 15 HS2 Schedule 17 works within the vicinity of the ESB Roof Slab (Note: Boundaries are indicative only)

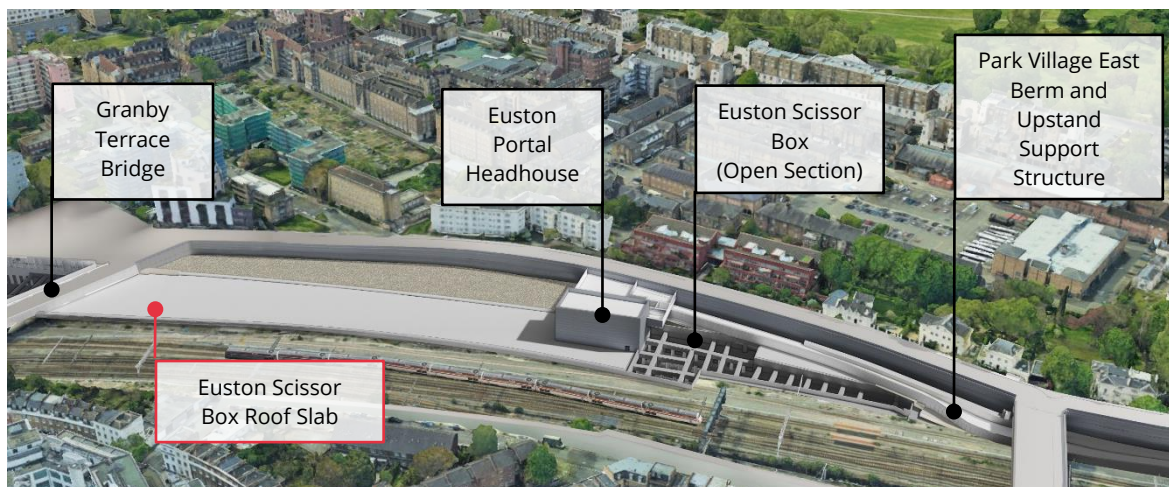


Figure 16 HS2 assets within the immediate vicinity of the ESB Roof Slab

### Euston Portal Headhouse

- 3.2.20 Euston Portal Headhouse is located within the footprint of the Euston Scissor Box, adjacent to Park Village East. As shown by **Figure 16**, it is bounded to the north by the Euston Scissor Box (Open Section) (see below), to the east and south by the ESB Roof Slab, and to the west by the Park Village East Wall Berm and Upstand Support Structure (See below). The Euston Portal Headhouse is subject to a separate Schedule 17 application.

### Euston Scissor Box (Open Section)

- 3.2.21 The Euston Scissor Box Open Section forms the northern portion of the Euston Scissor Box. It is directly north of the Euston Scissor Box Roof Slab (**Figure 16**). This part of the structure is exposed to provide an air gap between the Euston Portal and the covered section of the Scissor Cut. This is for two reasons; firstly, to ensure that the two tunnels can be considered as separate tunnels for fire and ventilation design, and secondly to allow warm air pulled through the upline tunnel by trains approaching Euston to escape to the atmosphere and thus avoid recycling of warm air back into the Euston Tunnels by downline trains. The open areas meet space proofing requirements agreed with the Rail Systems designers for tunnel ventilation.
- 3.2.22 The Euston Scissor Box Open Section was included for Schedule 17 approval in the Park Village East Berm Wall and Euston Scissor Cut application (approved 17 March 2021, ref: 2021/0126/HS2).



### **Park Village East Berm and Upstand Support Structure**

- 3.2.23 The Park Village East Berm and Upstand Support Structure will be located along the foot of the existing Victorian-era retaining wall on the western edge of the rail cutting between Granby Terrace Bridge and the Parkway Tunnel. It will provide structural support to the existing wall. It is directly adjacent to the west of the ESB Roof Slab (**Figure 16**). It was included for Schedule 17 approval in the Park Village East Berm Wall and Euston Scissor Cut application (approved 17 March 2021, ref: 2021/0126/HS2).

### **Granby Terrace Bridge**

- 3.2.24 Directly to the south, the existing Granby Terrace Bridge is proposed to be extended to the west over the new HS2 corridor. A Schedule 17 application for the bridge structure was granted approval on 24 March 2021 (ref 2021/0356/HS2). A further Schedule 17 will be submitted for the lighting design, in addition to a Schedule 4 application for the highway design.

### **Granby Terrace Bridge North West Wingwall**

- 3.2.25 A new section of wingwall is required to join the Granby Terrace Bridge parapets to the Park Village East parapet wall. This is subject to a separate Schedule 17 Plans and Specifications application which will be submitted in the future.
- 3.2.26 The road-side face of the wingwall will have a red brick facing with cement coping and pilaster tops to match the existing Park Village East parapet walls. Blue grey engineering brick will be used for the face on the side of the railway cutting to reflect the historic railway environment.

### **Hampstead Road Bridge**

- 3.2.27 To the east of Granby Terrace Bridge, Hampstead Road Bridge is proposed to be extended southwards over the new HS2 track alignment. This is subject to a separate Schedule 17 application which will be submitted in the future. Associated highways design will be included in a Schedule 4 application to be submitted to LB Camden for the area between the Hampstead Road / Granby Terrace junction and Varndell Street.

### **Euston Throat Retained Cut**

- 3.2.28 To the south between Granby Terrace Bridge and Hampstead Road Bridge is the Euston Throat Retained Cut package of works. This package comprises an open trough structure that will accommodate a section of the new High Speed Railway, built on a concrete slab base. It will be bound by retaining walls with reinforced concrete containment parapets. The Schedule 17 plans and specifications consent

for the Euston Throat Retained Cut was granted on appeal (PINS ref: APP/ HS2/ 6, application ref: 2019/6302/HS2) on 27 July 2020.

- 3.2.29 Directly south-west of the proposed Hampstead Road Bridge, there will be the entrance to an open space adjacent to the Euston Throat Retained Cut western retaining wall (known as Langdale Open Space).
- 3.2.30 In the short-term, this area is required for carrying out operations ancillary to the construction of the scheduled works. In the long-term, HS2 Ltd are required to restore the site (as per Paragraph 12(1) of Schedule 17 of the HS2 Act) in accordance with a scheme agreed with the relevant planning authority. This scheme must be submitted for agreement within 4 months of the discontinuation of the use of the site.

### 3.3 Ecology

- 3.3.1 There is no additional loss of habitats or impacts on species as a result of the works for approval when compared to the impacts as assessed in the Environmental Statement (as amended).

### 3.4 Operational Noise

- 3.4.1 The design of the ESB Roof Slab will not result in new or increased airborne noise impacts at receptors from those assessed within the Environmental Statement.
- 3.4.2 Within the Euston Scissor Cut area, the relocation of the tunnel portal south of Mornington Street Bridge and the introduction of the cut and cover box over the scissor cutting is significantly beneficial in reducing airborne noise levels from the high speed railway as the track is mostly enclosed by the tunnel and scissor box. <sup>[1]</sup> This is effective in minimising airborne noise, such that predicted railway noise levels at the nearest sensitive receptors to the ESB Roof Slab are below the lowest observed adverse effect levels set out in Table 1 of Appendix B of Information Paper E20. As such, all reasonable steps have been taken to reduce noise from the operational railway and no further mitigation is required.

### 3.5 Indicative Mitigation

- 3.5.1 No mitigation is required as part of this submission as the works are located entirely within the existing railway cutting.

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<sup>[1]</sup> The reference design for the HS2 scheme that supported the HS2 Hybrid Bill included the Euston Portal north of Mornington Street Bridge.

## 3.6 Construction Method

3.6.1 This section summarises the general construction methodology and the main temporary works arrangements. The arrangements described may alter, are intended as contextual information only and do not form part of this application for approval.

3.6.2 There are two different sequences for installation of the sub-surface structure of the ESB Roof Slab, including the supporting props. They are as follows:

- **For the northern end of the ESB Roof Slab:** Construction/ installation of props and the top portion of the wall takes place before the excavation of the base slab. The remaining wall is to be constructed from the base slab. Alternatively, the top portion of the wall may be constructed from a deck situated on the props after the base slab has been constructed.
- **For the southern end of the ESB Roof:** Excavation of the underside of the prop location will allow for the erection of the props, and make way for the construction of the reinforced concrete wall situated on the eastern pile cap. The top props and wall will then be constructed, and the excavation of the base slab can begin. The remaining wall will be constructed from the base slab. Alternatively, the top liner wall may be constructed from a deck situated on the props after the base slab has been constructed.

3.6.3 Two of the permanent props (roof level and intermediate) are omitted from the above sequences to allow for adequate space in the permanent structure for access to the space below during construction. These two props will be infilled once the excavation has been completed and all the walls, slabs, beams, and props have been installed.

3.6.4 Reinforced concrete upstands and precast roof slab sections shall be installed towards the end of the construction programme utilising a tower crane or smaller item of plant such as a spider crane. There may be a requirement for a composite solution, i.e. in situ concrete to be poured on top of the precast elements between each roof prop. The screeding and polyurethane membrane for the 'blue roof' will also be installed towards the end of the construction programme.

3.6.5 The ESB Roof Slab will be located within the wider Euston Approaches Worksite, which runs the full extent of Park Village East which forms the western boundary. The eastern boundary is governed by the Network Rail train line located within the rail corridor (**Figure 17**). The Euston Approaches Worksite will have site storage areas and a haul road.

- 3.6.6 The Euston Approaches Worksite benefits from four access / egress points located around the worksite. These are located at the northern end of Park Village East, on Granby Terrace at the junction of Stanhope Street / Park Village East, and two on Hampstead Road. These access points are set out in **Figure 17**. These access points will be utilised by the MWCC as far as reasonably practicable to access / egress the site and as the works inside the site allow. The access point most likely to be used for the ESB Roof Slab will be Granby Terrace / PVE / Stanhope Street junction.



Figure 17 Euston Approaches Worksite access / egress

## 3.7 Historic Environment

### Archaeology

- 3.7.1 The HS2 Heritage Memorandum (part of the HS2 Environmental Minimum Requirements) explains that a route-wide generic written scheme of investigation: Historic Environment Research and Delivery Strategy (GWSI: HERDS) has been prepared in consultation with Historic England (HE) and all local planning authorities along the route. It sets out the research framework and general principles for design, evaluation, investigation, recording, analysis, reporting and archive deposition to be adopted for the design development and construction.
- 3.7.2 The arrangements for the management of archaeology during construction are not a matter for approval under Schedule 17.
- 3.7.3 Archaeological potential within the footprint of the now demolished cargo shed area and Euston Throat was examined through a desk-based assessment and an assessment of evidence recorded during the recording and demolition of the structures. This concluded that any further archaeological investigation and monitoring was not required. It was determined that the expansion and excavation of the railway cutting and subsequently railway engineering works would have

removed any previous Georgian structures and associated garden soils which may have contained any in situ archaeological features. The demolished cargo shed itself has been subject of a historic building record (non-designated heritage asset).<sup>8</sup> This has included detailed recording of Park Village East parapet wall and planter. Consultation with GLAAS and Historic England on these aspects was undertaken on 19 Jan 2017 and Feb 2017.

- 3.7.4 A Decision Record Notice has been developed for the area.<sup>9</sup> It notes that the footprint of the former Euston downside carriage shed sits within a man-made cutting with an average depth of 7m, forming the Euston Throat. Site clearance activities and works to the site indicate that the site is founded on natural London clay. It is highly unlikely that any archaeological features would be preserved in situ.

### Heritage

- 3.7.5 The HS2 Heritage Memorandum also sets out how the historic environment (including heritage assets and their setting) will be addressed during design. The HS2 Environmental Memorandum sets out the approach to landscape and visual mitigation which takes account of the historic environment.
- 3.7.6 The ES (as amended) reported a temporary major adverse significant effect on the setting of the Grade II\* villas along Park village East as a result of construction activities in the area, including the construction of the high-speed dive under. However, it did not report any permanent significant effects during operation in relation to these works or the associated deck, which is proposed to facilitate OSD.
- 3.7.7 The proposed ESB Roof Slab will occupy the approximate site within the rail cutting where the DB Schenker carriage shed stood prior to its demolition. The site is nearby several designated and non-designated heritage assets, including the Grade II\* Nash villas along Park Village East, Regent's Park Conservation Area (CA), Camden Town CA, Grade II properties along Mornington Crescent and the two pairs of Grade II piers and lamp stands on Mornington Street Bridge.
- 3.7.8 The cutting retaining wall located along Mornington Terrace blocks views from street level across the cutting and towards the neighbouring conservation area to the east of the cutting. Views into the cutting from Mornington Terrace and Park Village East are limited due to high parapet walls on either side of the cutting and so the proposed development will be largely screened from view from these areas at eye level. The only other views that would be affected would be from the upper levels of the Mornington Terrace properties. At that height, the views would be down into the

<sup>8</sup> Project Plan for Historic Building Recording of DB Schenker Shed, Euston Document No. 1D037-EDV-EV-REP-020-000002 and Historic Building Record of DB Cargo Shed: Interim Report. Document No. 1EW02-CSJ-EV-REP-S001-000011

<sup>9</sup> 1EW02-CSJ-NOT-S001-000001- DB Cargo Shed

cutting and onto the berm wall which would be appreciated in the context of the new railway structures, and not a structure sitting within the setting of the listed buildings at street level above.

- 3.7.9 Although likely to be visible in some views towards Park Village East, the new slab will not adversely impact the ability to appreciate the significance of the villas along this road. The aspects of the villas' setting which contributes to their significance as a group is concerned with the picturesque landscaping to the rear of the villas, surrounding greenery, and visual separation from the rail tracks.
- 3.7.10 However, there may be some temporary impacts from vibration during construction which will be assessed and managed under the Environmental Minimum Requirements and Code of Construction Practice (as set out in Section 3.9 below). The Enabling Works Contractor (EWC) has undertaken monitoring of the existing retaining wall to record any movement which will continue during construction. The existing Park Village East retaining wall, the road behind and the listed buildings within 1mm settlement contour will be monitored during the construction phase. The monitoring instruments on the wall will include conventional optical survey targets to measure vertical and horizontal displacements and electronic tiltmeters that transmit data automatically. A heritage review will also be undertaken with the site team to confirm any requirements for working with and around heritage assets.
- 3.7.11 Is it anticipated that the proposed slab will not be visible in the key view along Mornington Street Bridge towards the Regents Park Conservation area, from the Camden Town Conservation Area, or from the listed Parkway Tunnel and Cutting, and it will not impact the appreciation of the asset's significance. Nor will the slab be likely to impact the ability to appreciate the significance of the listed properties along Mornington Terrace which is derived from the 'Palace' façade along the terrace and formal tree planting to the front of the properties. The slab may be visible in views across the cutting from the higher floors of the Mornington Terrace properties but will not adversely affect the appreciation of this asset.
- 3.7.12 The EWC has undertaken a programme of desk-based research and historic building recording which included the non-designated Railway cutting Euston Station to Parkway. The Project Plans setting out the methodologies for these works have been shared with GLAAS.
- 3.7.13 The detailing and colour of the finish will be carefully considered to ensure the slab does not detract from the existing historic character of this area. The proposed works are therefore not anticipated to introduce any new or different significant effects than those proposed in the ES (as amended).



## 4 Design Approach and Rationale

### 4.1 Context

- 4.1.1 The wider context of the area consists of many layers of history and development going back several hundred years. One of the largest factors has been the introduction of the railway in the 19<sup>th</sup> century and the construction and then expansion of the Euston rail cutting. At present the HS2 project further expands both Euston station as well as the area in the cutting used for the railway.
- 4.1.2 The northern part of the Euston approaches is characterised by mostly residential buildings such as the Nash Villas along Park Village East to the west and Mornington Terrace residences on the eastern side. Further south towards the station is characterised more by post-war tower blocks, railway infrastructure and commercial and industrial buildings. This gives both parts a distinctly different character.
- 4.1.3 Repurposing the area of the former DB Schenker carriage sheds to house the ESB Roof Slab then enables the opportunity for future oversite development.

### 4.2 Design Vision

- 4.2.1 As part of the wider HS2 Design vision of People, Place and Time, a design aspiration for the Euston Approaches is to create a link between the future HS2 Euston Station and Regent's Park (**Figure 18**). The ESB Roof Slab and the associated future development proposed by the over-site development partner is sited along this proposed route and provides key placemaking opportunities in the regeneration of the area.

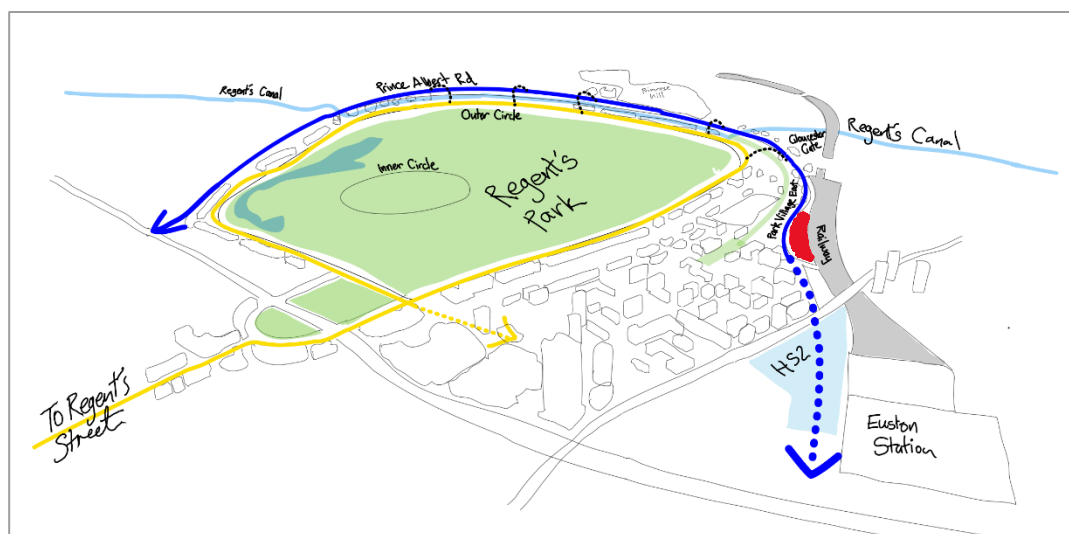


Figure 18 Wider context of the area Illustration showing design aspiration to connect Regent's Park to HS2 Euston Station. The ESB Roof slab is shown in red.

## 4.3 Design Constraints

4.3.1 The primary constraint on the design is the functional requirement of the structure below the ESB Roof Slab which is determined by the requirements of the railway below. The other primary constraint is the interface with the future over-site development. During the design process the design team has regularly held meetings with the over-site development partner. This was to ensure that the design of the ESB Roof Slab and the railway beneath it would not preclude any over-site development that could be brought forward in the future. **Figure 19** illustrates the design of the ESB Roof Slab.

4.3.2 Access to the slab also forms a constraint and informs the design. The ESB Roof Slab will not be accessible by the public, this will be achieved by a security perimeter created by fencing and existing walls along the western edge and parapets along the southern edge.



Figure 19 An architectural render of the ESB Roof Slab

4.3.3 The interface with the adjoining sides also provided constraints to the design. To the south is an interface with Granby Terrace Bridge, to the east is a boundary with the existing Network Rail tracks and to the west the interface with the existing Park Village East retaining wall. The ESB Roof Slab has to take into account the requirements of these assets.

## 4.4 Options Considered

### Structural Options

4.4.1 The initial design for the ESB Roof Slab comprised of in-situ solid concrete slabs constructed on permanent formwork spanning between the props. This option was considered unviable as the available deck planking from suppliers would be insufficient to support the concrete load over the required span.



- 4.4.2 The chosen roof design comprises of precast slabs which are supported by corbels (a type of bracket) either side of the horizontal props. The pre-cast planks sufficiently support the required design load and is more feasible to construct. The top of the slab aligns flush with the top on the roof props for the construction of the 'blue roof'.

#### **'Blue Roof' Options**

- 4.4.3 A 'blue roof' will span the entire roof of the ESB Roof Slab and will be designed to retain the amount of rainwater required, to achieve a maximum discharge rate equivalent to the Greenfield rate, to the existing Thames Water sewer, for the respective catchment area. This complies with the HS2 Technical Standard for Railway Drainage (HS2-HS2-DR-STD-000-000003) requiring the design of HS2 related drainage systems in Greater London to comply with policy S1 'Sustainable Drainage' of The London Plan (2021) where reasonably practicable.<sup>10</sup> Please refer to paragraph 3.2.10 and Figure 9 for a detailed description of the 'blue roof' feature.
- 4.4.4 Other options considered included the use of a permeable pavement build-up on the roof, as well as a large (1,100m<sup>3</sup>) gravel filled trench adjacent to the ESB Roof Slab.
- 4.4.5 The permeable pavement was considered unsuitable as it is prone to silting and blockages. This would be detrimental to the overall drainage performance and would necessitate onerous maintenance requirements. The gravel trench was deemed unsuitable as the required size of the trench was found to be impractical, and it would also be prone to groundwater ingress.
- 4.4.6 A screed finish on the roof slab is the chosen design, which falls towards a filter drain running in parallel to the west of the ESB Roof Slab. The screed will be covered by a grey coloured polyurethane membrane. Outlets from the blue roof, proposed to be cast into the upstand along the western edge of the ESB Roof Slab, will be designed to discharge at the Greenfield rate.

#### **Boundary Options**

- 4.4.7 The eastern edge of the ESB Roof Slab features a long boundary with the existing Network Rail railway. An edge is required to segregate the ESB Roof Slab from this side as well as to protect from falls of up to several metres. Several options were considered including a steel railing and a concrete parapet. However, a removable solution is required to ensure any future oversite development is not precluded. To

<sup>10</sup> [https://www.london.gov.uk/sites/default/files/the\\_london\\_plan\\_2021.pdf](https://www.london.gov.uk/sites/default/files/the_london_plan_2021.pdf)

provide adequate protection and segregation whilst being removeable at a later date, a metal chain link edge protection fence is proposed.

## 4.5 Summary

- 4.5.1 The proposed design for the ESB Roof Slab will comprise of pre-cast hollow core slabs, supported by corbels either side of the horizontal props. The top of the ESB Roof Slab is a 'blue roof', designed to manage run-off from the slab. This will consist of a screed finish. The design of the ESB Roof Slab has been developed to not preclude any future OSD.
- 4.5.2 The design of the ESB Roof Slab maintains local amenity by proposing a design that meets both the operational requirements of the railway, whilst remaining unobtrusive and discrete within its wider setting.

## 5 Pre-submission Consultation

5.1.1 Pre-submission consultation with the Local Planning Authority, statutory consultees and other relevant stakeholders is summarised in **Table 4** below.

Table 4: Pre-submission Consultation with LPA and Statutory Consultees

Consultee Name	Consultation Date	Method of Consultation / Attended by	Summary of Consultation Outcome
London Borough of Camden	21/03/2021	Pre-application engagement attended by LB Camden, SCS JV, and SCS Design House	SCS gave a presentation summarising the application context, the scope of the application and its key deliverables, programme, key design considerations, and design progress to date. LBC didn't raise any objections in relation to the principle of the design. Further details were sought on: the key interfaces with adjacent HS2 assets (particularly GTB), materiality of the roof slab, the level difference between the level difference between the WCML and the ESB Roof Slab, and details of previous engagement undertaken. These clarifications will be addressed in the Schedule 17 submission or at a subsequent pre-application meeting.
	24/08/2021	Pre-application engagement attended by LB Camden, SCS JV, and SCS Design House	SCS presentation summarised key design developments, and details of key elements such as the 'blue roof', the interface with Granby Terrace Bridge, and materiality. LBC raised questions about the materiality and how this related to the wider HS2 works within the

Consultee Name	Consultation Date	Method of Consultation / Attended by	Summary of Consultation Outcome
			cutting. Further details requested on interface with the proposed Euston Portal HH.
	22/03/2022	Pre-application engagement attended by LB Camden, HS2 Ltd, SCS JV, and SCS Design House	SCS presentation on how the design team has responded to the comments provided by LB Camden on a draft of the Schedule 17 submission. Based on this meeting, additional information was added into the Written Statement on how the edge protection fencing will look.
Historic England	08/05/2018	Meeting between Historic England and HS2 Ltd	An overview of the Euston area structures and Schedule works including an overview of the heritage assets in the Euston area.
Greater London Archaeological Advisory Service	30/09/2020	Statutory Consultee Meeting	GLAAS confirmed no archaeological interest that affected the ESB ESB Roof Slab design.
Master Development Partner (Lendlease)	From 01/03/2018 - 13/09/2021	Presentation (online)	There has been ongoing consultation with MDP including attendance at design meetings. A presentation was also delivered the MDP town planning team.

## 6 Construction Programme

- 6.1.1 A high level programme for the works subject to this submission and how they fit into the overall programme for other works in the area is contained in **Table 5** below. The programme for works on site may vary from the indicative dates shown.

Table 5: Proposed Programme and Sequence of Works

Anticipated Start on Site Date (quarter/year)	Activity	Estimated Completion of Works (quarter/year)
Q4 2019	Euston Scissor Box site mobilisation	Q2 2020
Q2 2022	Prop construction (top and intermediate)	Q2 2023
Q4 2023	Roof slab construction	Q4 2024
Q4 2024	Blue roof and upstand construction	Q1 2025
Q1 2026	Demobilise	Q1 2026

## 7 Other Consents

- 7.1.1 Other main consents likely to be required for the works are summarised in **Table 6** below. Consent requirements may alter during design development and further consents not identified in Table 5 may be required.
- 7.1.2 Consents within the vicinity of the ESB Roof Slab are summarised in section 3.2.

Table 6: Other Consent Requirements

Consent	Works Requiring Consent	Status
Schedule 17: Bringing into Use	Bringing into use of the railway (Work Nos. 1/1 and 1/16)	To be submitted
Any other relevant Schedule 17 Plans and Specifications submissions for adjacent or associated works	Plans and Specifications– Euston Cavern Headhouse	To be submitted
	Plans and Specifications -Euston Portal Headhouse	
	Plans and Specifications– Hampstead Road Bridge.	
	Plans and Specification – Park Village East parapet wall	
	Plans and Specification - Granby Terrace Bridge Retaining Wall	
	Site Restoration – Park Village East	
	Plans and Specifications – Euston Throat Retained Cut.	Application 2019/6302/HS2 was approved by the inspector via the recent appeal decision (PINS ref: APP/ HS2/ 6).
	Plans and Specifications – Park Village East Berm Wall and Euston Scissor Cut Portal	Application 2021/0126/HS2 was approved on 17 March 2021
	Plans and Specifications – Granby Terrace Bridge	Application 2021/0356/HS2 was approved on 24 March 2021.