

HS2

ECRG Presentations & Slides

19 March 2024

Agenda

Time	Topic	Presenter
17:20	1. Welcome and Introductions	David Demolder
17:25	2. Minutes of the November meeting	David Demolder
17:30	3. Euston Economic Impact Assessment Report	Mary-Ann Lewis – Head of Regeneration, LB Camden
17:45	4. Project update	Jill Adam – Euston Director, Department for Transport
18:15	5. Meanwhile use – Euston Square Gardens West	Katie Fulcher – Senior Engagement and Interface Manager, HS2
	6. Flash report	To note only
18:30	7. HS2 Update	
	6.1 Mace Dragados	Natalie Kirkwood to take any questions
	6.2 Network Rail On Network Works	Harry Riley to take any questions

Agenda

Time	Topic	Presenter
	6.3 SCS	Neil Van Kervel, David Hannon and Amy Allen to take any questions
18:45	8. Actions Log	David Demolder
	9. Community Questions/AOB	David Demolder
19:00	Meeting dates for 2024 Thursday 6 June Tuesday 24 September Thursday 28 November	David Demolder

HS2

1. Welcome and introductions

David Demolder

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2. Minutes of the last meeting

David Demolder

- To APPROVE the minutes of the November 2023 meeting

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3. Euston Economic Impact Assessment Report

Mary-Ann Lewis

Head of Regeneration, LB Camden

- To receive a briefing on the report which can be found here [Euston and HS2 - Camden Council](#)



Euston at the heart of Britain's new economy

The Economic Impact of Euston's Regeneration



March 2024

Metro — Dynamics

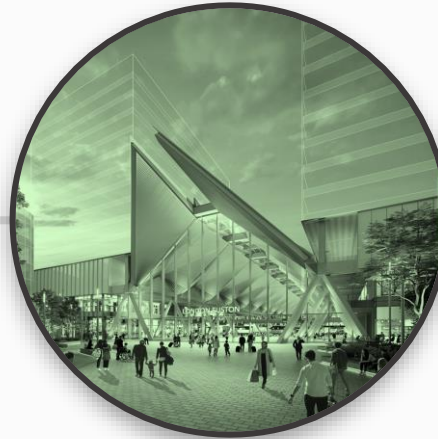
Regeneration at Euston is about...

UK GROWTH



Supporting growth throughout the 21st century in London's world-leading Life Sciences and Technology clusters concentrated around Euston in London's Knowledge Quarter.

INCLUSIVE PLACEMAKING



Delivering regeneration in a way which ensures genuine benefits for local communities and businesses, while creating a station worthy of Euston's significance and location.

CONNECTING OPPORTUNITY



Supporting national connectivity and delivering the intended benefits of the substantial investment already made in HS2 and Euston Station's redevelopment.

What investment in Euston's regeneration can deliver

£4.2bn of private and public investment, of which at least **£2.7bn** in Foreign Direct Investment (FDI) creating...



UK GROWTH



470,000 sqm high quality commercial development



Up to 30% of commercial space designated for the **life sciences sector**



INCLUSIVE PLACEMAKING



2,100-2,500 homes, including **750-1,200 affordable homes**



33,000 sqm high quality retail space ¹



Open space with new green spaces, walking and cycling routes



CONNECTING OPPORTUNITY



New HS2 and conventional **rail terminus**, supporting national connectivity



Improved **public transport Connectivity**

¹ The amount of retail space to be provided as part of any development is subject to a Retail Impact Assessment.

Benefits for the UK economy



21,000 jobs on site and 13,000 in the wider economy by 2053



Including **2,300 jobs in the Life Sciences sector**



£2.5bn GVA per year and £41bn accumulated GVA by 2053

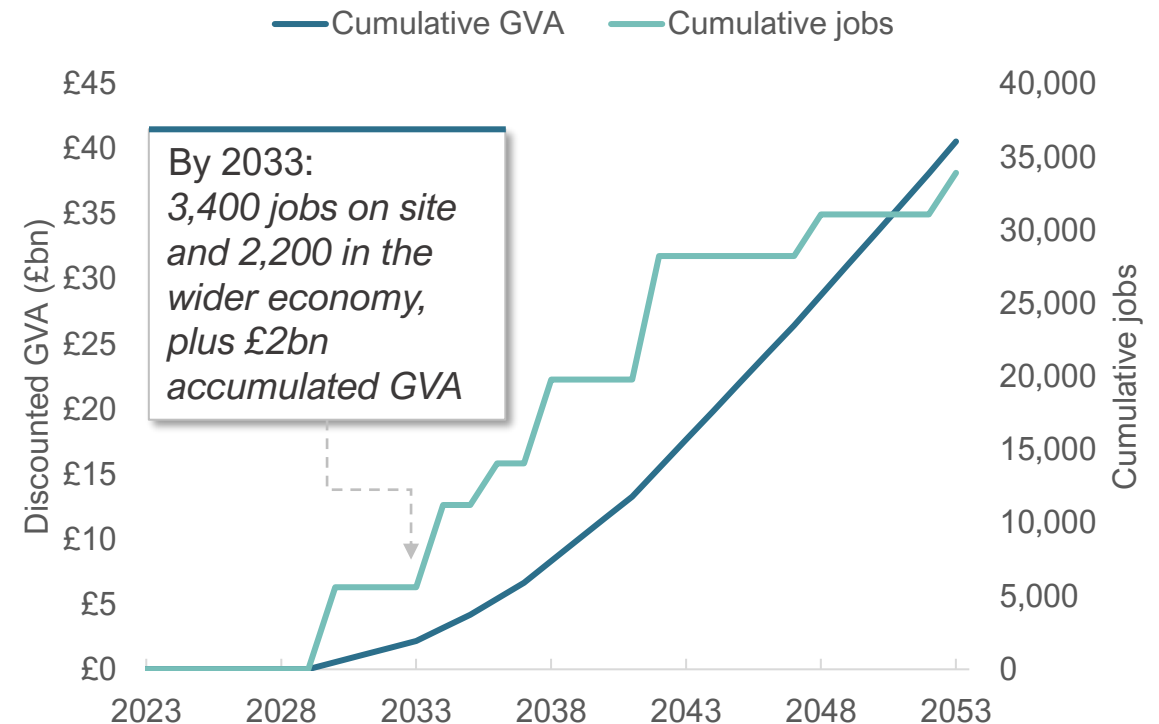


£1.4bn Land Value Uplift



£800m Business Rates receipts accumulated by 2053

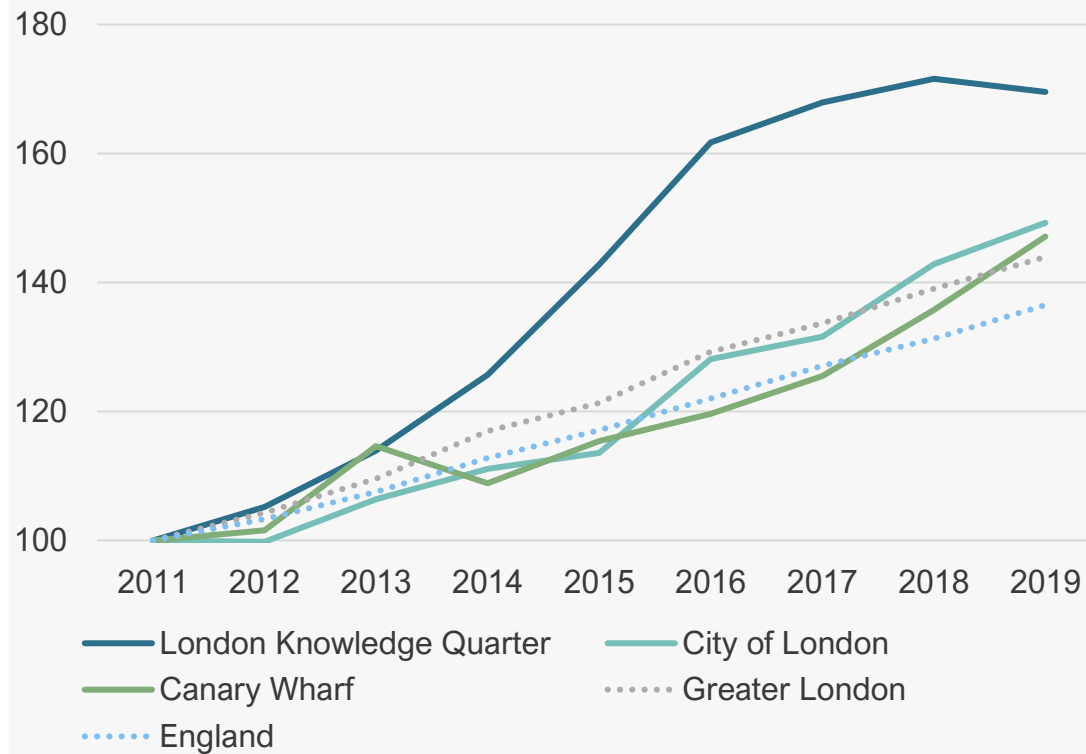
Cumulative GVA and Jobs, 2023-2053



The Knowledge Quarter opportunity

The Knowledge Quarter is a £35bn economy, larger than Canary Wharf (£26bn) and growing faster than the City of London (70% vs 49%, 2011-19).

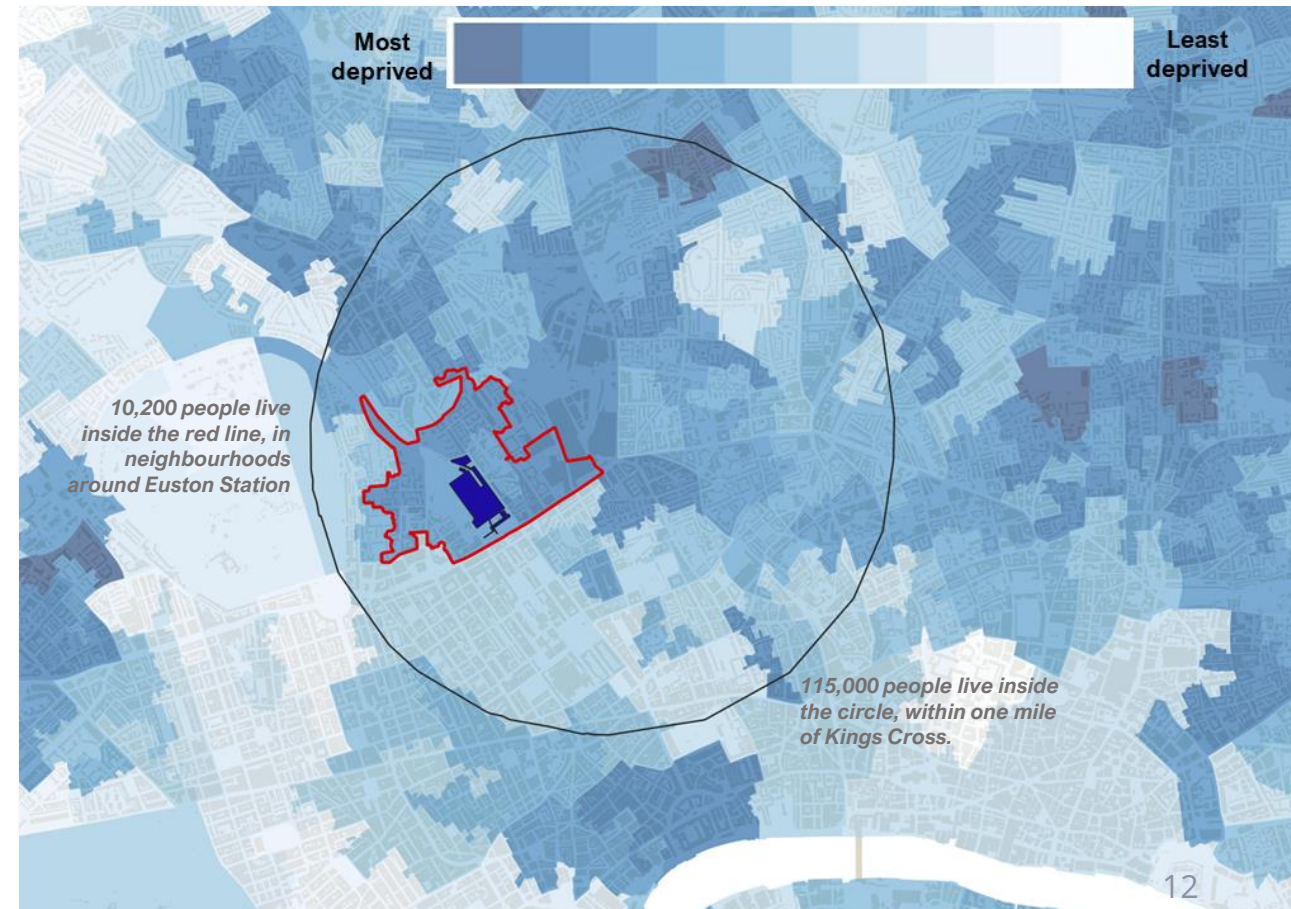
Economic growth rates, Knowledge Quarter vs comparators



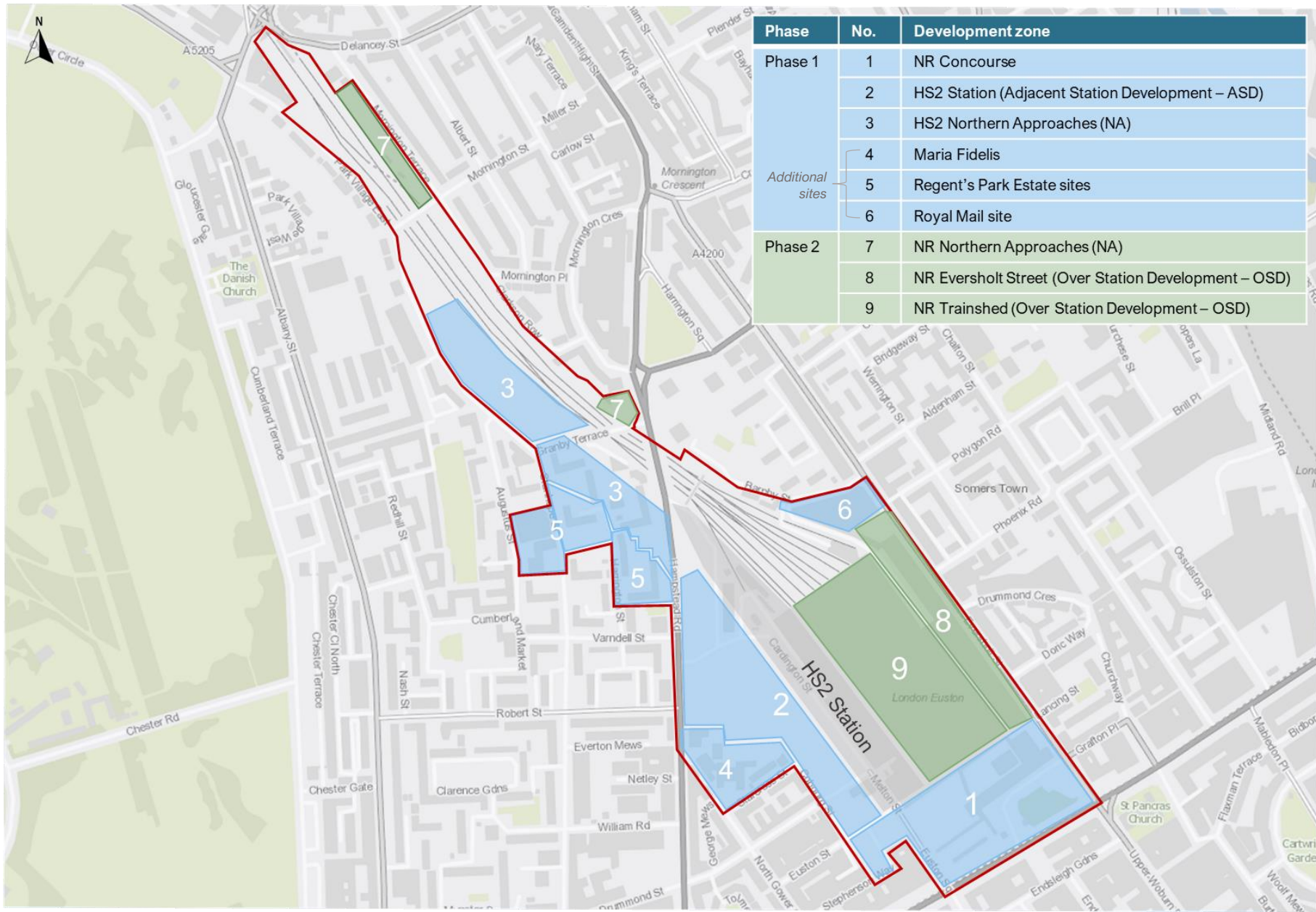
Inclusive innovation - Connecting residents to opportunities

- KQ internationally distinct for urban density - model for inclusive innovation.
- Inclusion baked into design & delivery, local people contributing to & benefitting from KQ
- At least 10,000 of 50,000 construction jobs local
- 1,3000 Apprenticeships, thousands of work placements
- Changing story of local opportunity - KQ jobs accessible to kids growing up

Index of Multiple Deprivation (IMD), 2019, showing neighbourhood-level deprivation

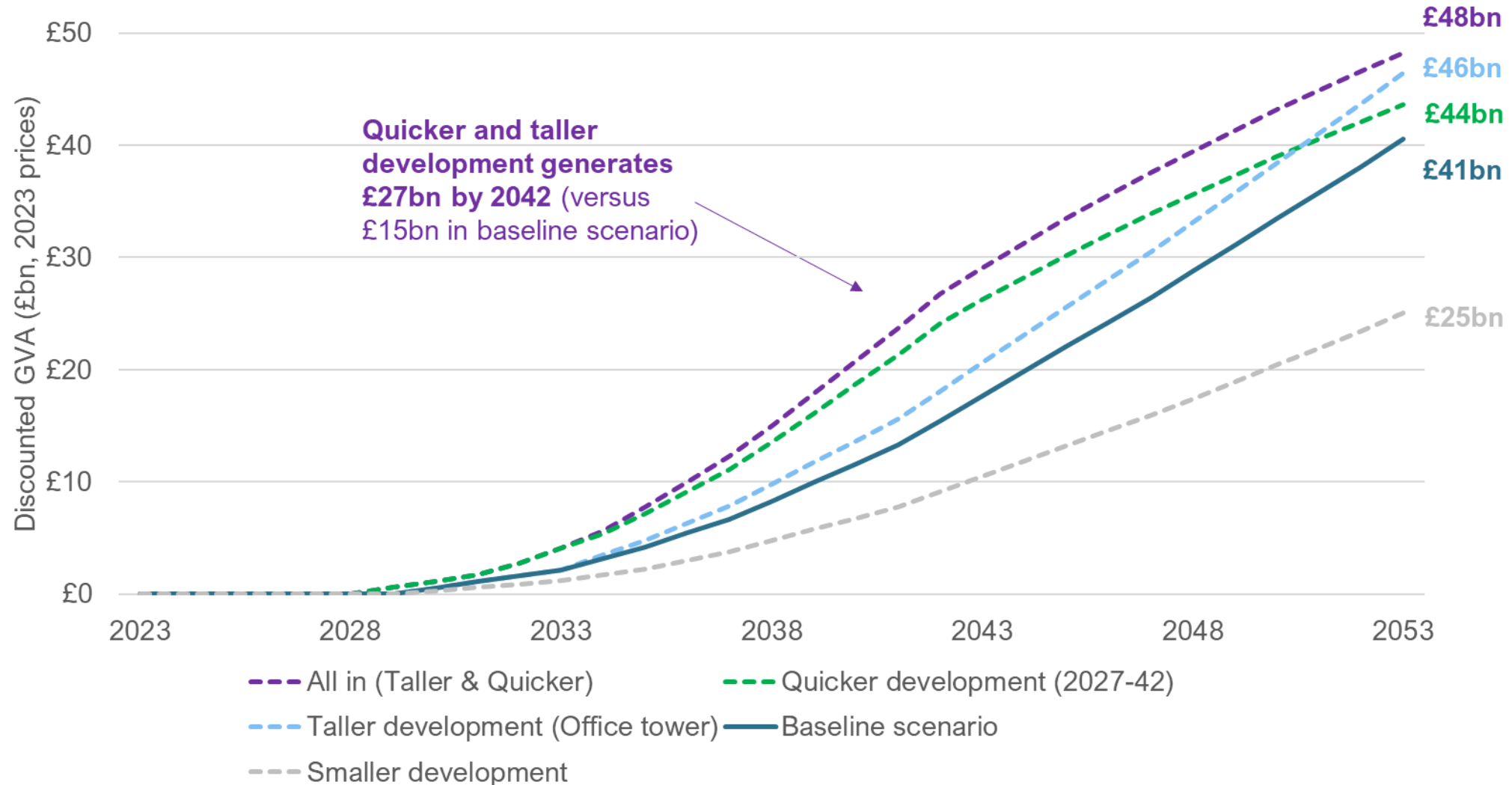


The core development scenario



Additional sites are purely notional and are not based on official planning policy or guidance. In line with the Inclusive Placemaking objective inherent in the design, approach and delivery of the Euston development, these sites would need to be developed in close consultation with the local community.

Alternative development scenarios



Now is the time to ensure the right plan is in place for Euston's regeneration

This means developing the opportunity in a way which:

- Strikes the right **balance between meeting transport requirements and wider regeneration objectives**
- Brings forward enough developable areas alongside and above the station for delivery to be **substantially privately financed**
- **Genuinely benefits local communities, both during construction and once completed**
- Results in **a single, integrated station design** that meets HS2, Network Rail and TfL requirements
- **Expedites delivery via a phased approach** to construction which reduces costs and delivers benefits sooner.



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138 Holborn
London
EC1N 2SW**

020 3865 3082

**Orega
1 Balloon Street
Manchester
M4 4BE**

0161 413 6440

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4. Project update

Jill Adam

Euston Director, Department for Transport

- To receive a verbal update

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5. Meanwhile temporary uses

Katie Fulcher - The Euston Partnership will be available to answer any questions

- To receive a briefing on
 - Progress of engagement and design development for Euston Square Gardens West

Meanwhile Use progress update

- Further projects approved for the Euston Meanwhile Use Fund
- Work to install community growing beds has begun
- Co-design project with local young people being taken forward for the expansion of the National Temperance Hospital temporary garden

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6. Flash Report

- To note the flash report

HS2

7. HS2 Update







- To note the previously circulated presentation slides
 - Please note that at the request of the Contact Group slides will not be presented
 - Members of the team will be available to take any questions

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7.1 Mace Dragados

Natalie Kirkwood to take any questions

Pause to MDjv works

Zone 5		Works paused
NTH		Works paused
Maria Fidelis		Construction of Camden construction skills centre – to complete, fit-out ongoing. Old School: fitout of ground floor only
TSS		Construction of a new LU Traction Sub Station and linking tunnels – to complete, fit out is ongoing
Two Towers		Works paused
ITR		Construction of interim taxi rank and assisted travel facility– construction works to complete and handover

In addition to the above:

- Station design paused
- Euston Road works paused
- Hampstead Road main utilities
- Some other utilities works have been restarted



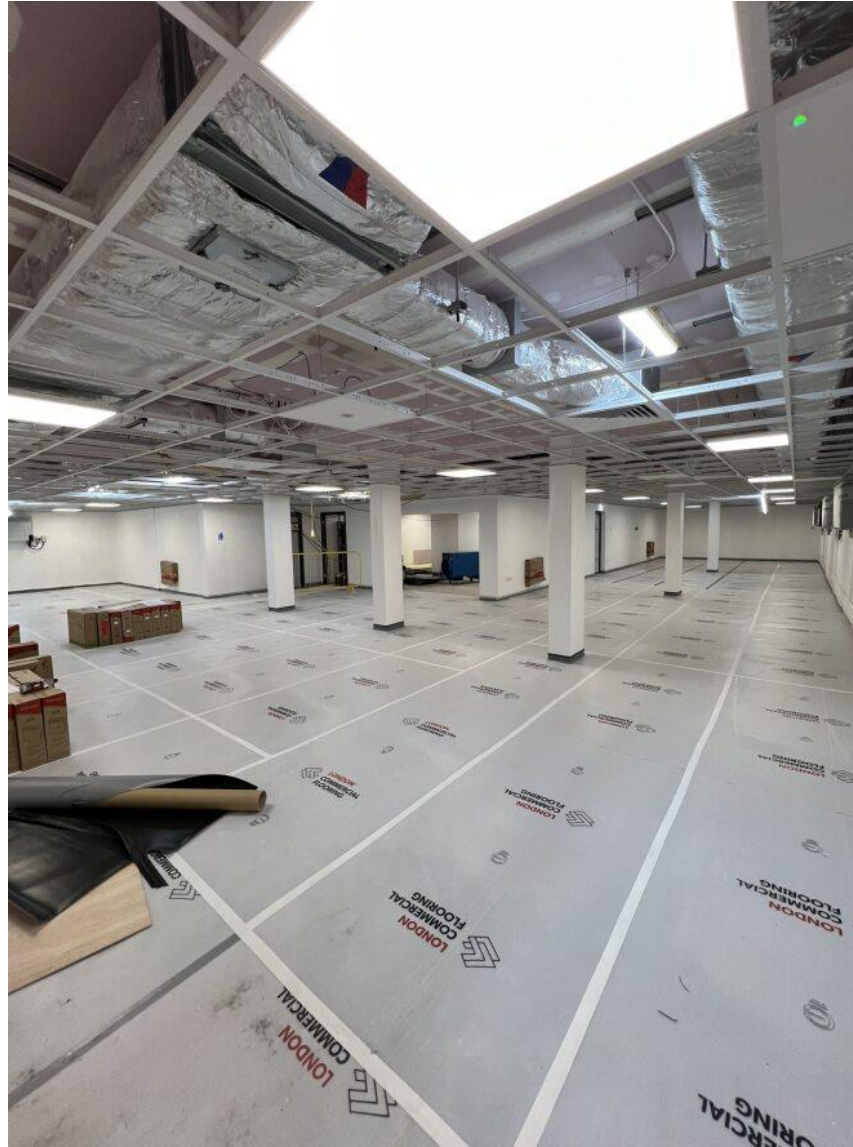
Interim Taxi Rank – ITR (former East Gardens)



- Road Safety Audit took place in December 2023
- Dry run of the full rank to enable further testing to take place between February / March 2024
- Operational date is 7th April 2024
- Assisted Travel Facility and Private Hire Vehicle drop off will remain in the northern end Western Taxi Rank until discussions with Network Rail conclude
- Southern end of West Taxi Rank to return as interim public space (meanwhile use)

Maria Fidelis

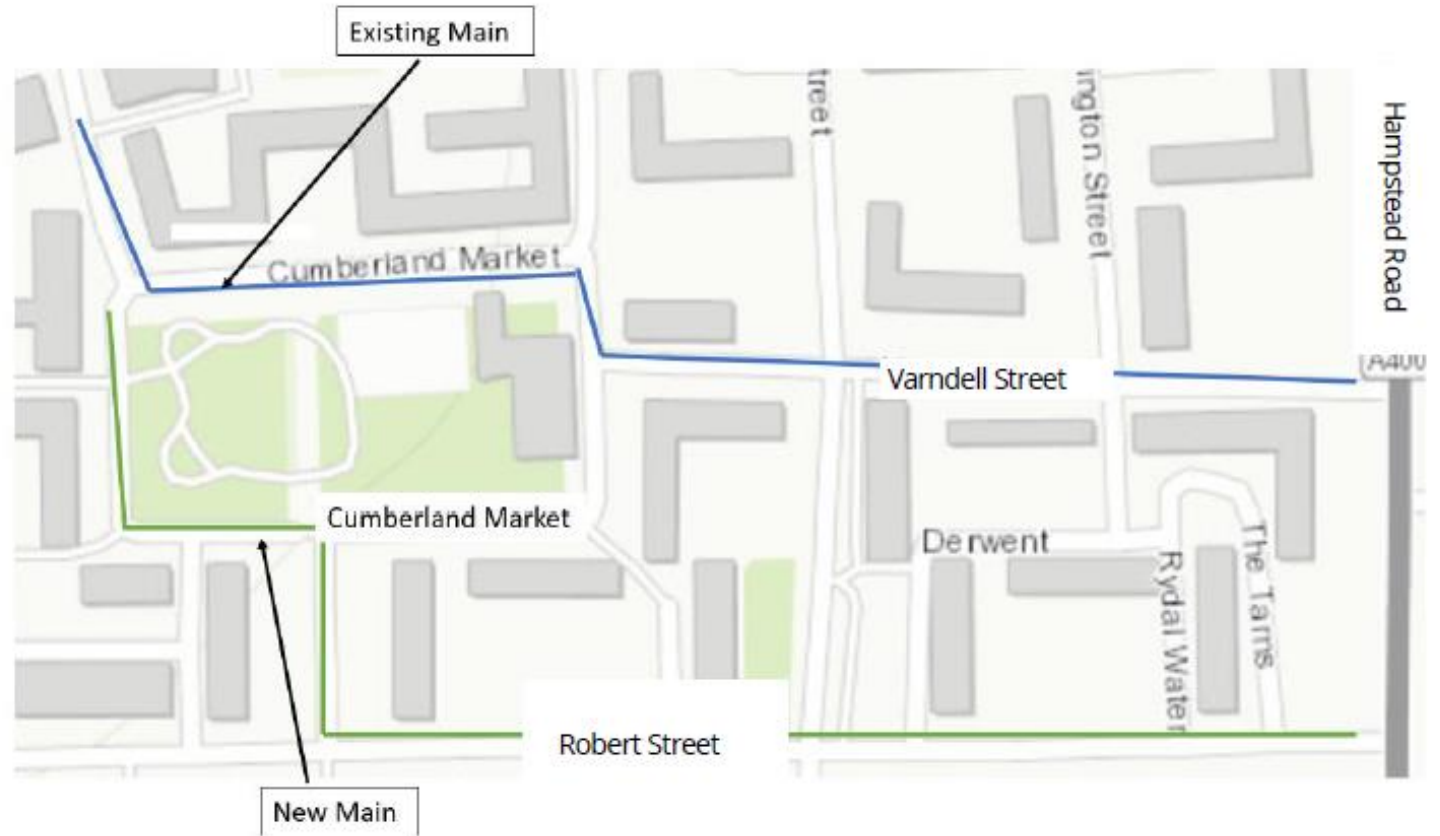
- Lift installation underway
- Energisation of power distribution and commissioning activities progressing
- Fitout including kitchenettes to all floors continues
- Furniture manufacture offsite with delivery due in March
- MDjv move in April 2024



Watermain Commissioning

Robert Street scheduled to close on 18th March.

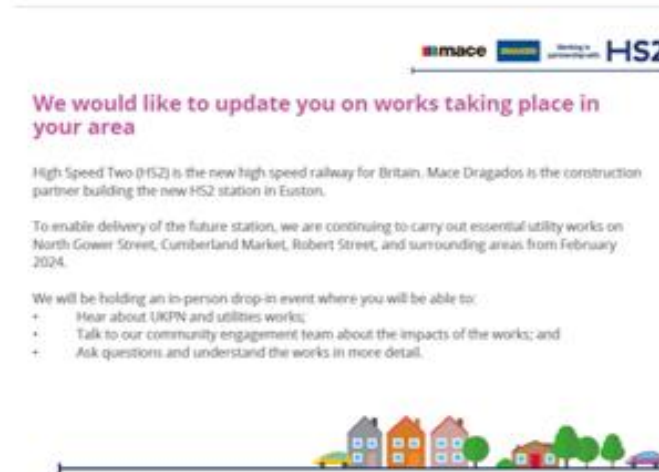
We are rearranging our work schedule so the commissioning on Robert Street can begin earlier, utilizing the emergency closure



Cumberland Market and Robert Street Drop-in Event

On Tuesday 13 February 2024 MDjv held an in-person drop in event to discuss the upcoming water main commissioning works taking place on Cumberland Market and Robert Street.

Further targeted event to take place on Tuesday 19 March 2024



Virtual Drop-in Sessions

Every month, MDjv's Engagement Team hosts a virtual drop-in session where individuals can book a 20min timeslot to find out about current and upcoming works.

In January 2024, all appointments were booked. Upcoming session dates are detailed below and can be booked via the HS2 website: <https://www.hs2.org.uk/events/hs2-mdjv-euston-station-virtual-drop-ins/>

Thursday 15 February (completed, one person signed up)	Thursday 21 March	Thursday 18 April
Thursday 16 May	Thursday 20 June	Thursday 18 July

6.2 Network Rail On Network Works Update To NOTE the works lookahead.

Harry Riley to take any questions

Euston station update

On Network Works



Working in
partnership with

HS2

19th March 2024 – Euston Community Representative Group

Euston station – parcel deck (above platforms)



Work to install a façade on the west side of Euston to protect the station building from the elements where work to prepare for the new HS2 station has been paused should be completed by the end of March.

The new façade is constructed from steel and will feature fabric panels.

New access point at Clarkson Row

As part of the On Network Works 'Stage A' project, Network Rail has started its construction of a new vehicle access point at Clarkson Row. This will enable maintenance to be carried out to railway equipment on the eastern side of the station.

After a small delay to our program work is progressing at street and track level and is due to be completed in the summer of 2024.



Piazza canopy works and immediate capacity measures



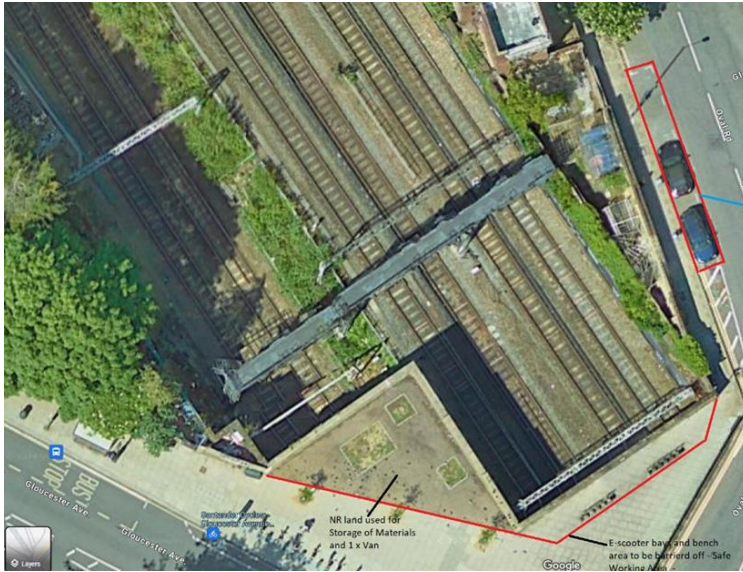
We are still working towards installing an interim canopy on the Euston station piazza.

The canopy will provide a partially sheltered route from the assisted travel drop off point to the station entrance.

Other improvements to improve passenger experience are ongoing:

The Euston Immediate Capacity Measures (EICM) project team are continuing to deliver their programme of work which has involved installing new and improved customer information screens on the concourse and piazza.

Easter weekend railway improvement work



Rail passengers in Network Rail's Northwest and Central region will benefit from a better, more reliable railway in 2024 thanks to upgrade and maintenance work taking place over Easter (Friday 29 March to Monday 1 April)

Over the Easter weekend, Euston station will be closed for all but London Overground services over the four days.

We sent out a notification to residents affected regarding some work where we will be repairing the brickwork on one of the walls above our tunnel where Gloucester Avenue meets Oval Road, as well as resurfacing the nearby area.

We will use small generators, tools, and battery lights. This will create a small amount of noise disruption, but our team will do what they can to keep noise to a minimum. We plan to work on the following dates but this is subject to change.

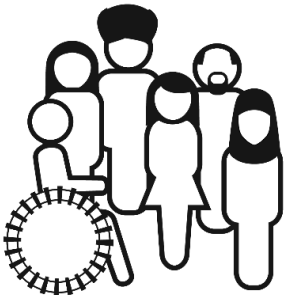
08:00 - 16:00 25 March 28 March (Setting up site)
 24/7 working 29 March 2024 - 1 April 2024 (Physical work)
 Resurfacing works 08:00 - 16:00 2 April 2024 - 19 April



Recent communications from Network Rail

Letters / postcards issued to our lineside neighbours:

- Three-month look ahead letter providing an overview of work in the Euston area covering March 2024 – May 2024 issued March 2024
- Easter Park Street tunnel work issued Feb 2024.



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7.3 SCS

Amy Allen, Neil Van Kervel and David Hannon to take any questions

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Adelaide Road and Euston Approaches

SCSJV

Adelaide Road Headhouse & Vent Shaft (ARVS)



Construction programme 2024 – 25 *

Adelaide Road Headhouse & Vent Shaft	2024				2025			
	Jan - Mar	Apr - Jun	Jul - Sept	Oct - Dec	Jan - Mar	Apr - Jun	Jul - Sept	Oct - Dec
Headhouse								
Ground Slab construction incl. temporary under slab drainage, electrical earthing, waterproofing installation & reinforcement installation								
Vent Shaft								
Start of shaft – Pre-Cast Concrete (PCC) ring installation								
Site pause to works								
Prepare site for pause to works								
Headhouse & Vent Shaft works paused								
Prepare site to resume works								
Utility Works								
Eton Avenue, 29 Jan – 3 Feb (1 week) Surveys & Trial Holes of medium pressure gas main								
Loudoun Road 5 Feb – 10 Feb (1 week) Surveys and Trial Holes of medium pressure gas main								
Kilburn High Road, crossing junction of Oxford Rd & Greville Rd. Gas main diversion works								

*the dates for these phases might change. We'll provide updates at hs2.org.uk/in-your-area/

Pause to works

What to expect during the pause to works (from late June 2024)

In line with direction from the Government following its announcement in March 2023, work at the Adelaide Road site will be brought to a safe stop and paused between spring 2024 and spring 2025. These dates could be subject to change, and we will keep the community updated about any changes.

- Large machinery will be removed from site
- Hoarding and welfare cabins will remain in place
- 24/7 Security presence will continue
- Lighting on site will be reduced, but is required for security purposes
- Some works will continue, within and outside the site, including monitoring, surveys, and design work
- Environmental monitoring of noise, vibration & dust will continue
- The SCS JV engagement team will continue to be available to speak about our works, contactable via the HS2 Helpdesk (operational 24hrs, 365 days)

ARVS engagement lookahead 2024

Bespoke events

Complete

Tuesday 6 February 2024, 5 – 7pm face-to-face event at the ARVS site.

A presentation will be given at two time slots, 5.30 & 6.30pm. Time around the presentations will be for questions with specialists from the site team

Upcoming

- **Date TBC**, volunteering event: graffiti clean-up & litter pick. Various locations, Adelaide Road

Monthly virtual 1:1s RE: ARVS site

Sessions take place monthly, on the following dates **throughout 2024**:

Complete

Wednesday 21 February, 3pm to 6pm;

Upcoming

Wednesday 20 March, 3pm to 6pm;

Wednesday 17 April, 3pm to 6pm;

Wednesday 15 May, 3pm to 6pm;

Wednesday 19 June, 3pm to 6pm

Monthly virtual 1:1s RE: tunnelling (twin-bore Euston Tunnel)

Sessions take place monthly, on the following dates **throughout 2024**:

Complete

Tuesday 20 February, 3pm to 6pm;

Tuesday 19 March, 3pm to 6pm;

Upcoming

Tuesday 16 April, 3pm to 6pm;

Tuesday 21 May, 3pm to 6pm;

Tuesday 18 June, 3pm to 6pm;

Tuesday 16 July, 3pm to 6pm;

Tuesday 20 August, 3pm to 6pm;

Tuesday 17 September, 3pm to 6pm;

Other

- **Quarterly** 3 & 12 month construction look aheads published here: [HS2 in Camden - Construction forward looks](#)
- **Biannual** newsletters
- **As required** Advance Notification Letters issued ahead of new works activities
- **As required** local pop ups
- **As required** Factsheets & FAQs
- **Ongoing** enquiries & complaints via the HS2 Helpdesk
- **Ongoing** engagement RE: Noise Insulation installations

Future tunnelling works: Twin-bore Euston Tunnel



Euston Tunnel

The twin-bore Euston Tunnel will be approximately 7.2 km (4.5 miles) between the Old Oak Common Station and Euston. The depth of the Euston Tunnel between Old Oak Common Station and Euston will vary between 12 metres and 60 metres to the top of the tunnel.

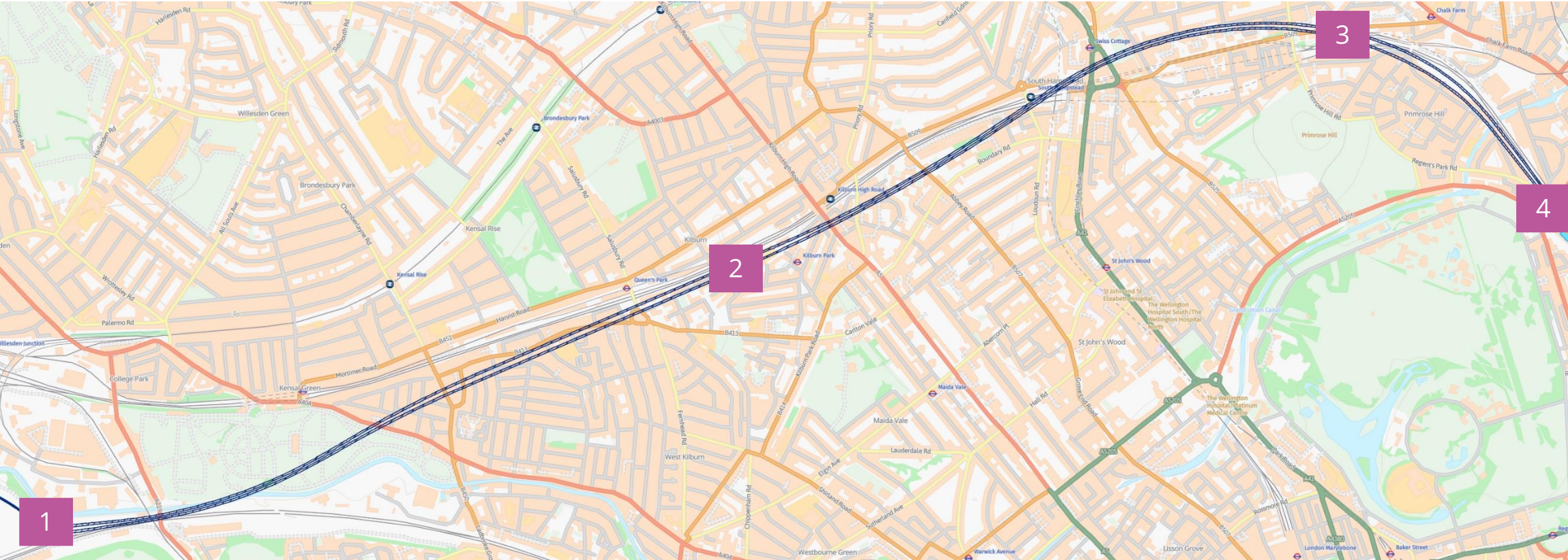
- Twin-bore Euston Tunnel
- 1

Old Oak Common Station (BBVS)
- 2

Canterbury Works Vent Shaft
- 3

Adelaide Road Vent Shaft
- 4

Euston Cavern Headhouse



Programme update

The Government updated Parliament on their transport capital investment programme in March 2023. The statement included an update on the HS2 project, recognising significant inflationary pressures facing all parts of the UK economy. In line with direction from the Government, we are pausing some construction activities between Euston and Old Oak Common which will be rephased along with other sections of the HS2 project. This includes the construction of the twin-bore Euston Tunnel and ventilation shafts at Adelaide Road and Canterbury Works.

Below are the new indicative construction dates for the Euston Tunnel.

Construction Activity	Date
Completion of the Atlas Road Logistics Tunnel	Winter 2023*
TBMs will be delivered	From spring 2024*
Adelaide Road and Canterbury Works Vent Shafts will be brought to a safe pause	Spring/ summer 2024*
TBMs will be placed ready to bore at Old Oak Common Station	From 2025*
Construction of the Euston Tunnel	From 2026*

*Dates mentioned are subject to change, we will provide updates at [hs2.org.uk](https://www.hs2.org.uk)

Euston Approaches Construction update



SKANSKA



STRABAG

Working in
partnership with

HS2

Euston Approaches Construction Update

March 2024

Design engagement for the Euston Portal headhouse

Involve

Community engagement on
the initial design of the
Euston Portal Headhouse
(Feb 2024)



Inform

You said, we did

Community engagement on the
final design of the
Euston Portal Headhouse
(Apr/May 2024)



Planning application

will be submitted to the London
Borough of Camden
(Jun 2024)



Aerial view of the Euston Portal headhouse



View from Park Village East looking north-east towards railway View all images at [Euston Portal Headhouse](#)

Euston Portal Headhouse design engagement

Engagement

- Pre-application meetings
 1. LBC
 2. The Crown Estate – Oct 2023
- Independent Design Panel – 12 Dec 2023
- Silsoe House meeting – 29 Jan 2024
- Community 'Involve' engagement
 1. In-person and Online community event - 27, 28, 29 Feb 2024
 2. Event notification – posters, leaflets, postcard invite - Feb 2024
- Community 'Inform' engagement – Apr/May 2024
 1. Event notification – posters, leaflets, postcard invite – Apr 2024
 2. In-person and Online community event – Apr/May 2024

"I attended the Euston head house portal design open house... it was excellent. Please get some relevant MPs to visit and meet your team so they are informed how well this work is managed and the reality of what you and your team are doing, it's professional and impressive."

"That was very interesting, I've been to a few of these before but that was really good, thank you for putting it on."

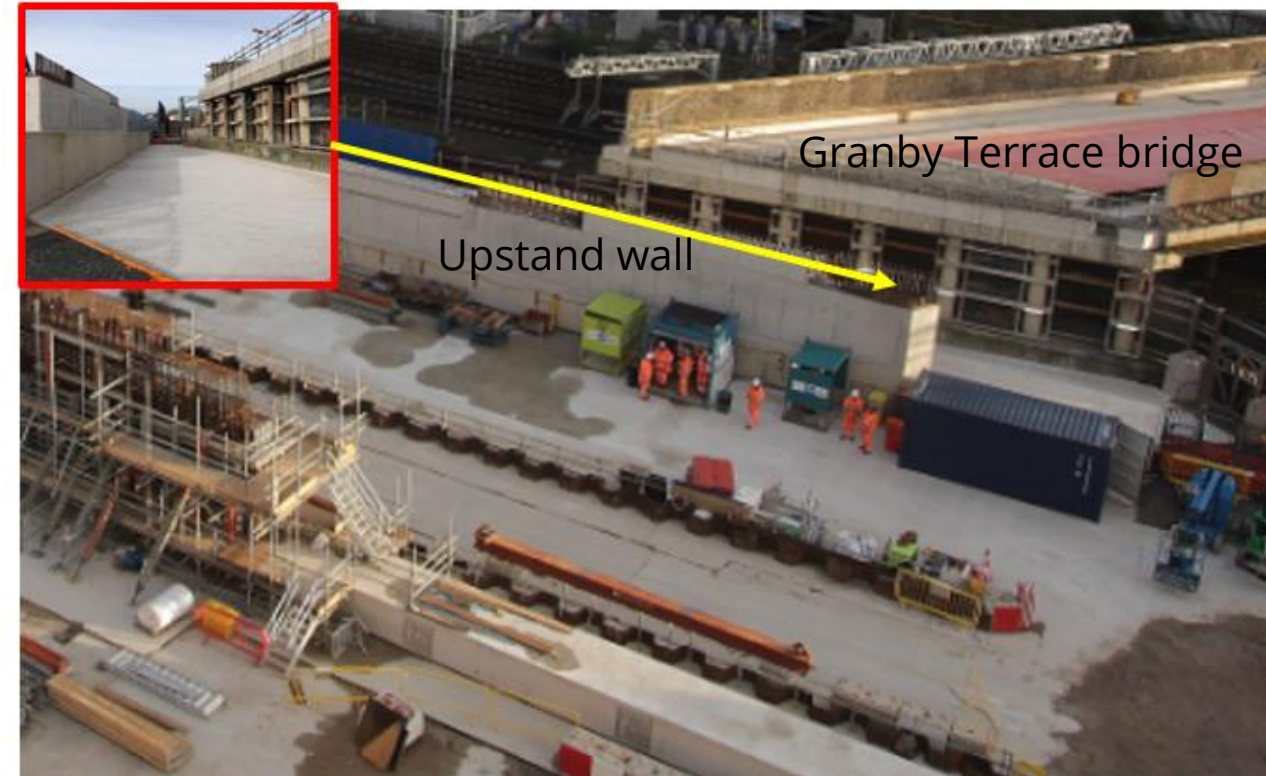
"Well prepared, fine people to speak with - they all knew the project, finish it please!"



24/7 works on Granby Terrace bridge during Easter rail possession

29 March to 2 April 2024

- We will be working all day and night during this possession
- We will construct the temporary structure (falsework) which will support the existing Granby Terrace bridge during the bridge deck construction
- The temporary structure will be constructed between the East upstand wall and the existing bridge
- We will also be working on the existing bridge deck to remove the screed layer by planing and grit blasting the surface



These works can only be completed during a possession due to proximity to the existing railway

Granby Terrace bridge utilities works

Works on Park Village East/Stanhope Street junction

02 April to 28 June 2024

- We will install ducts in the carriage way and footpath on Stanhope Street
- We will install a set of 2-way traffic lights to facilitate these works
- Pedestrian ramps will be in place on both ends of the traffic management

The dates provided are indicative and subject to change



Hampstead Road utilities Phase 2



Temporary utility diversion

Hampstead Road utilities Phase 2

Phase 1 Complete

Temporary diversion of utilities from the footway into the carriageway for piling works (**red**)



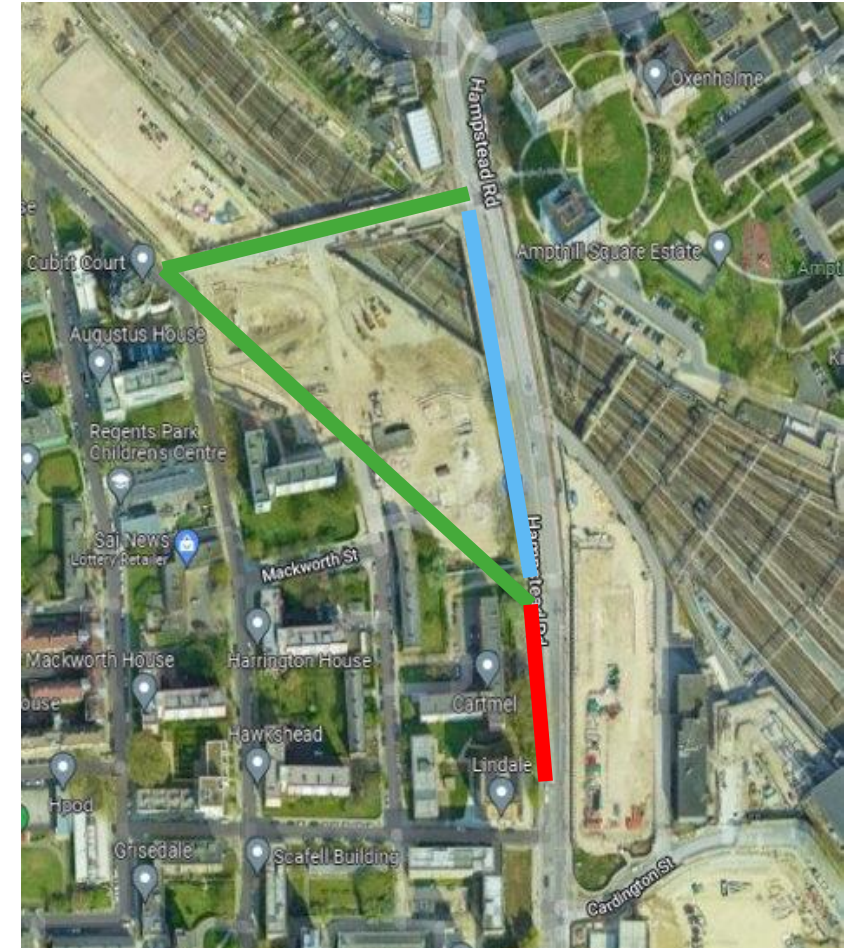
Phase 2 Apr 2024 – 2026

Temporary diversion over Granby Terrace bridge and new retaining wall (**green**)



Phase 3 2029

Reinstate utilities on newly extended Hampstead Road bridge (**blue**)
Final permanent route

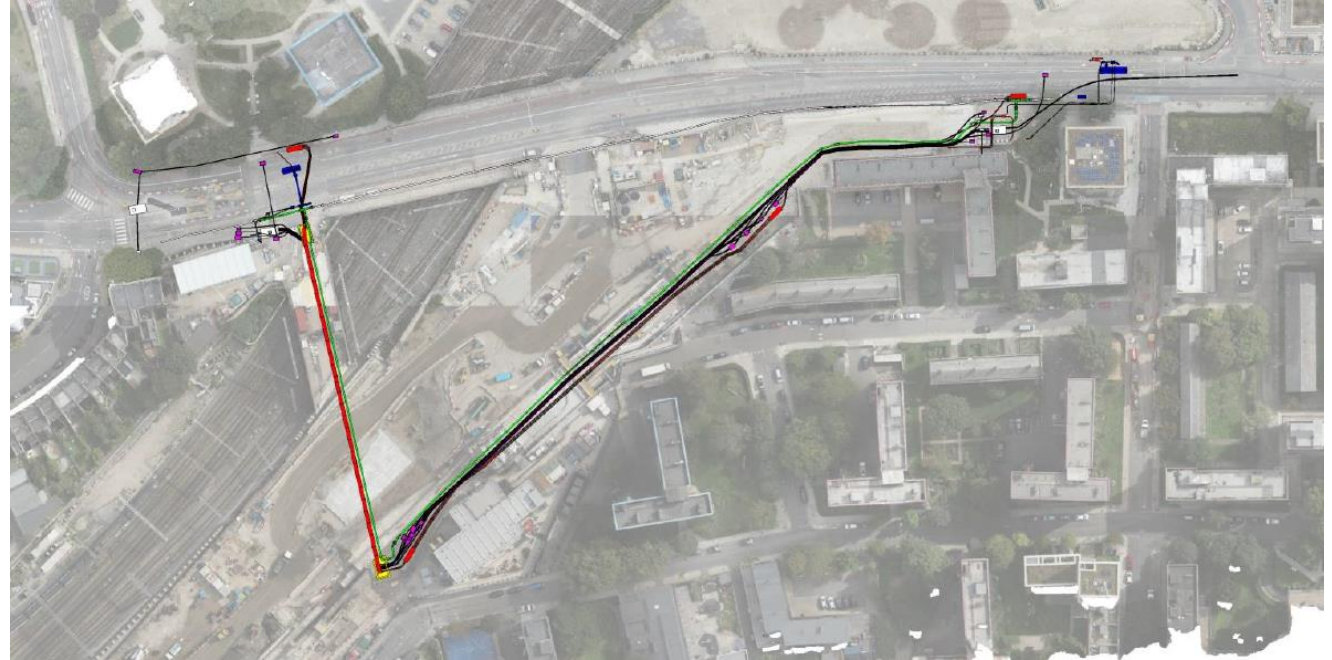


Temporary utility diversion works

Hampstead Road Utilities Phase 2

We will divert all the utilities from Hampstead Road Bridge via an On and Off chamber along an above ground service corridor on Granby Terrace Bridge and across the western retaining wall inside our site

We will excavate and lay ducts/cables in the carriageway for statutory undertakers and complete cross connections on the Gas and Water mains in the North and South of Hampstead Road



On chamber – within the SCS JV site at the junction of Park Village East and Granby Terrace bridge
Off chamber – at the junction of Granby Terrace bridge and Hampstead Road



Hampstead Road Bridge utilities staging

Stage 1	02 April – 17 June 2024
Stage 2	11 July – 22 October 2024 (near Granby Terrace)
	3 July – 06 November 2024 (near Lindale)
Stage 3	23 October 2024 – 13 February 2025 (near Ampthill)
	22 October – 06 November 2024 (near Lindale)
Stage 4	23 October 2024 – 13 February 2025 (near Ampthill)
	7 November 2024 – 9 April 2025 (near Lindale)
Stage 5	20 March – 26 April 2025 (near Ampthill)
	7 November 2024 – 9 April 2025 (near Lindale)
Stage 6	18 March 2025 – 26 February 2025 (near Granby Terrace)
	09 April 2025 – 12 June 2025 (near Ampthill)
Non-contestable works	12 August 2025 – 14 April 2026 (indicative dates)

Non-contestable works can only be completed by the statutory undertaker

Preparatory works

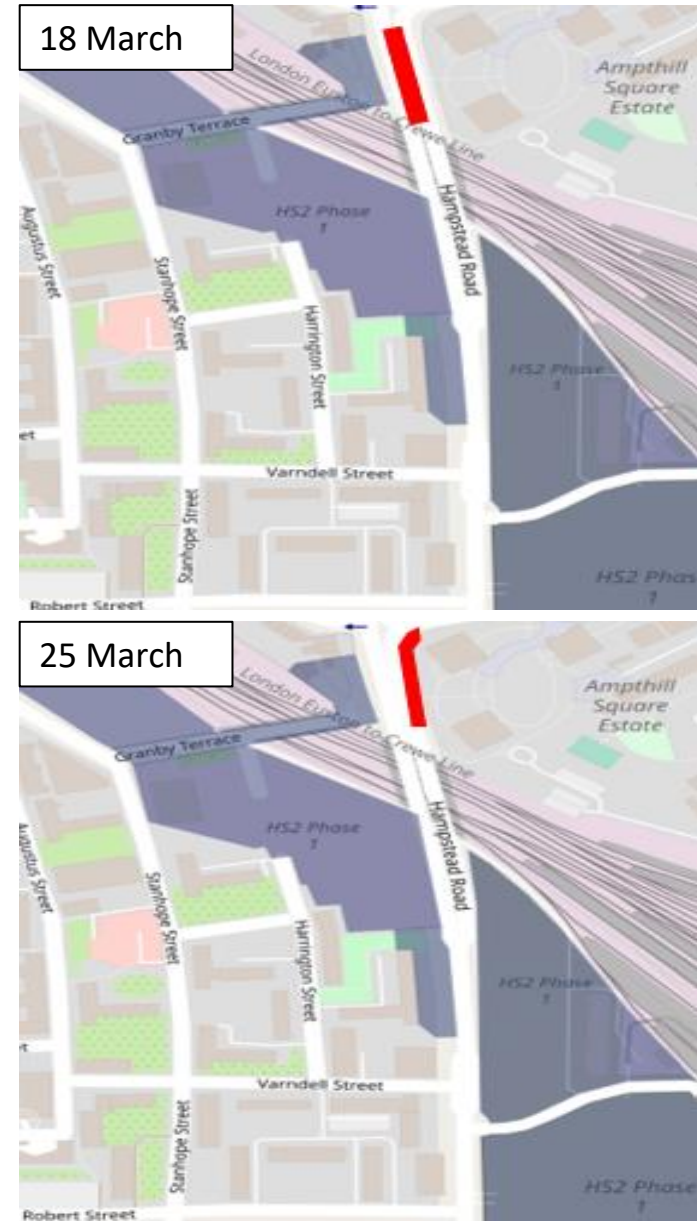
18 to 24 Mar 2024

- We need to temporarily relocate the pedestrian crossing on Hampstead Road near Ampthill Estate to just north of the existing pedestrian crossing to carry out the utilities work in this area.
- We will remove the central reservation to install the temporary pedestrian crossing.
- We will have a northbound and southbound lane closure either side of the central reservation to carry out this work. We will also make use of this traffic management to install a utility duct needed in this location.

25 Mar to 15 Apr 2024

- We will remove a section of the TFL cycle lane to install the temporary pedestrian crossing.
- We will close the southbound lane and footpath from the corner of Lidlington Place to Hampstead Road.
- We will maintain a walkway for pedestrians around our works.
- We will also work in two stages to ensure access is always maintained for Ampthill Estate residents.

The dates provided are indicative and subject to change



Stage 1 – 2 Apr to 17 Jun 2024

During this phase of works we will continue to install the utilities ducts.

Works on Hampstead Road near Granby Terrace bridge

- We are working within our northbound footpath and cycle lane closure on Hampstead Road near Granby Terrace Bridge.
- Pedestrians will be diverted onto our new temporary crossing 5m north of existing crossing.



The dates provided are indicative and subject to change

Stage 2 – 3 Jul to 06 Nov 2024

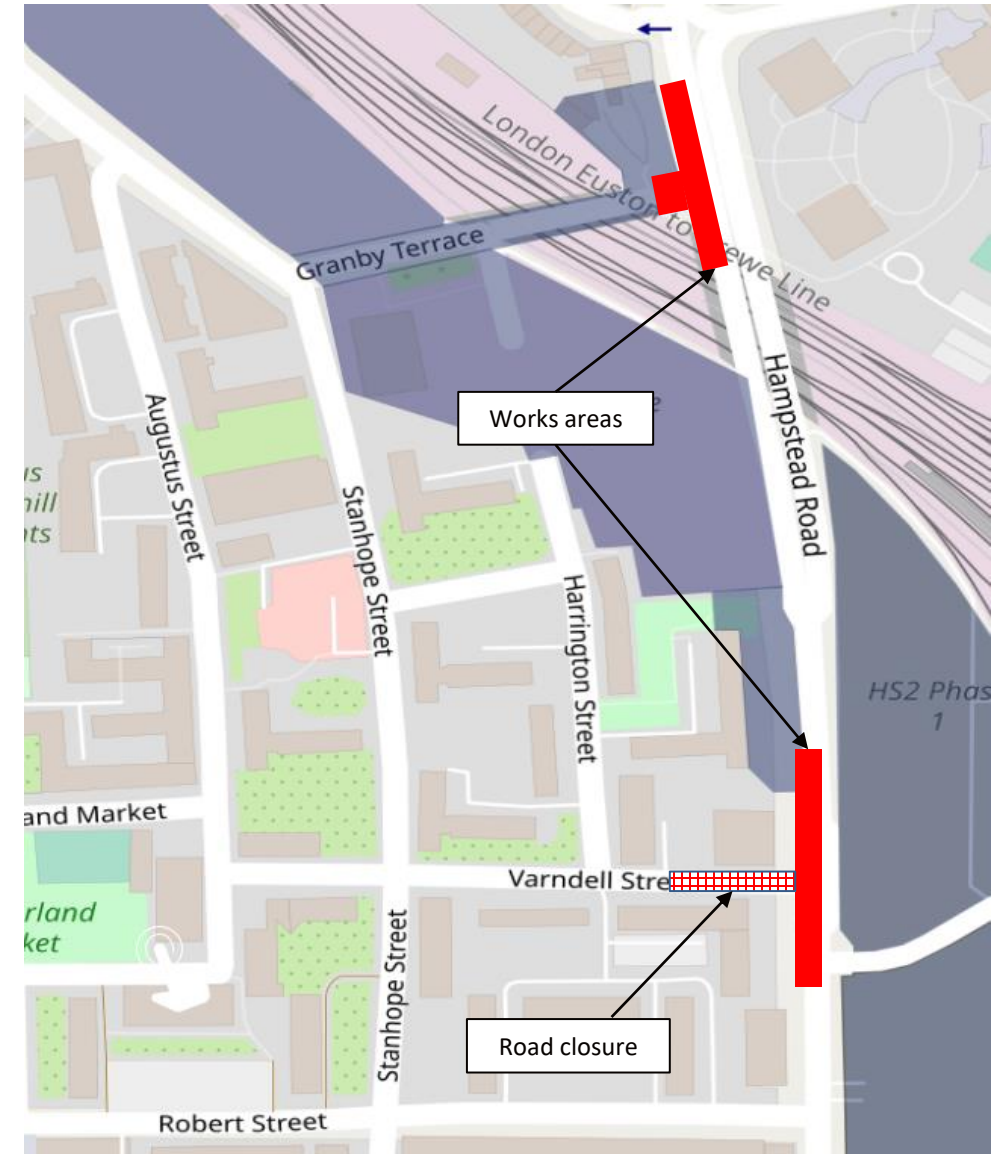
During this phase of works we will install a gas main connection and continue to install the utilities ducts.

Works on Hampstead Road at Granby Terrace Bridge 11 Jul to 22 Oct

- We will extend the northbound cycle lane closure toward Mornington Crescent

Works on Hampstead Road near Varndell Street 3 Jul to 06 Nov 2024

- We will close the northbound lane on Hampstead Road between Varndell Street and the start of our site hoarding
- We will close Varndell Street during these works
- The pedestrian crossing on Hampstead Road will move south of Cardington Street



The dates provided are indicative and subject to change

Stage 3 – 23 Oct 2024 to 13 Feb 2025

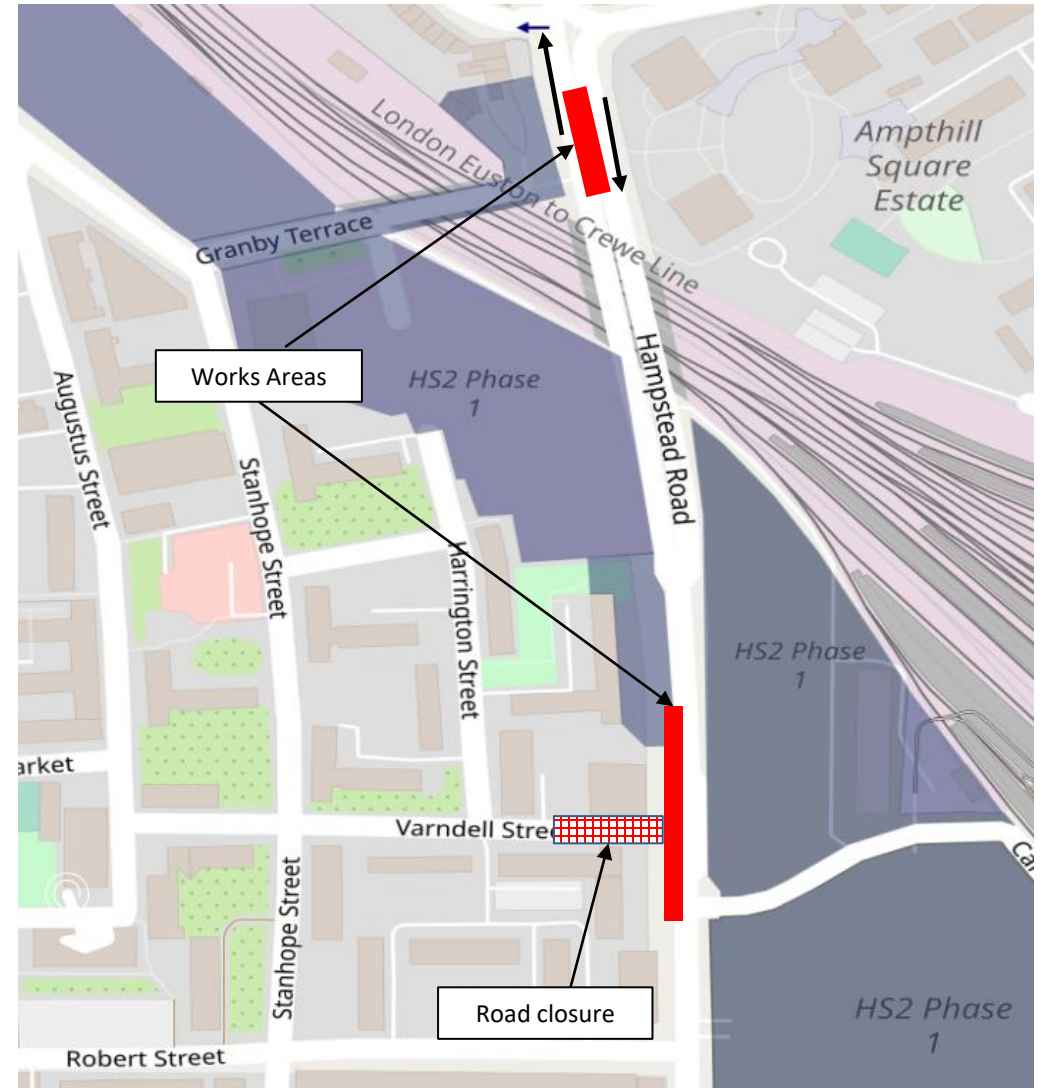
During this phase of works we will continue to install the utilities ducts.

Works on Hampstead Road near Ampthill Estate

- We will close the northbound and southbound inner lanes with a single lane shuttle running in each direction

Works on Hampstead Road near Varndell Street 22 Oct to 6 Nov 2024

- The northbound lane closure on Hampstead Road will be extended toward Cardington Street
- Varndell Street will remain closed
- The pedestrian crossing on Hampstead Road will move south of Cardington Street



The dates provided are indicative and subject to change

Stage 4 – 23 Oct 2024 to 9 Apr 2025

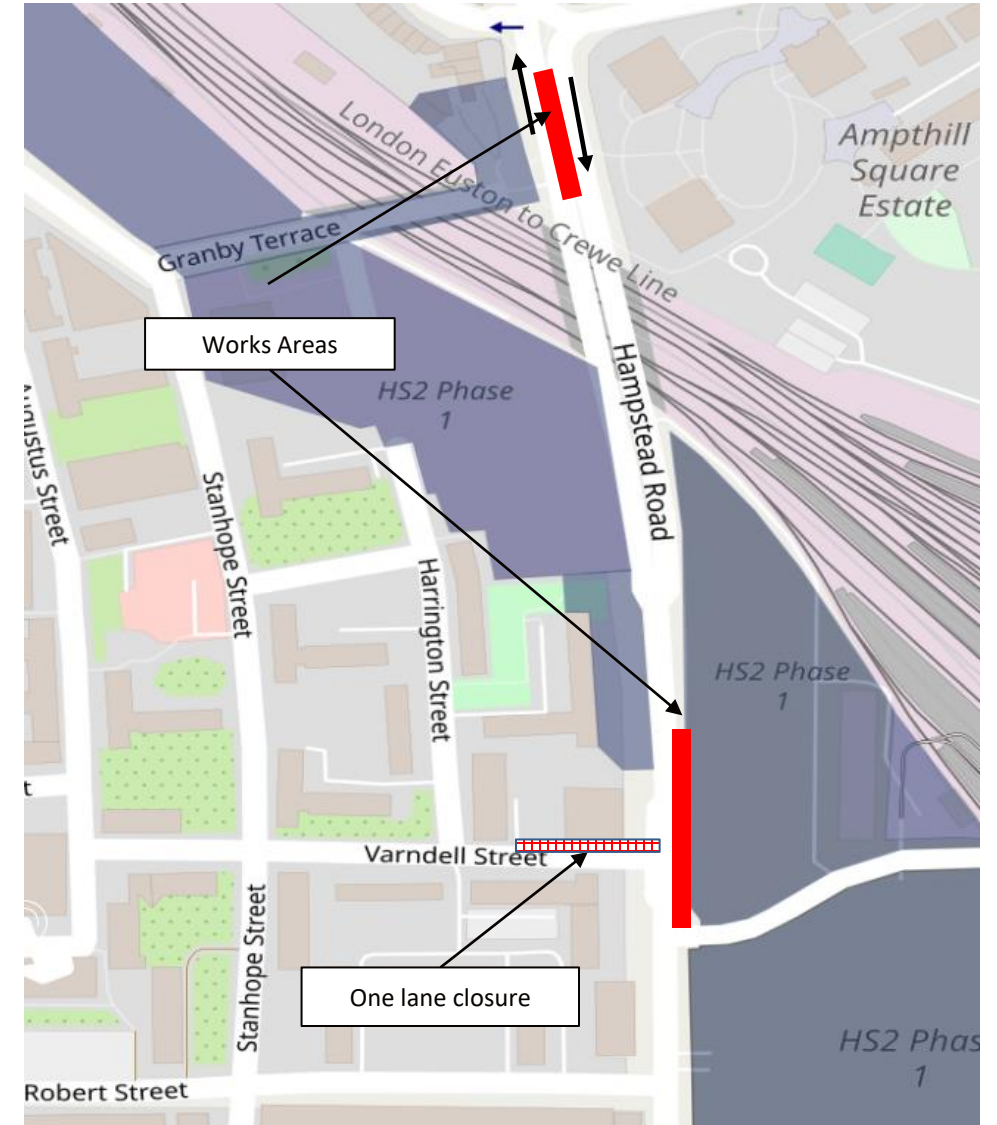
During this phase of works we will construct a new manhole and continue to install the utilities ducts.

Works on Hampstead Road near Ampthill Estate – 23 Oct 2024 to 13 Feb 2025

- Both inner lanes remain closed with a single lane shuttle running in each direction.

Works on Hampstead Road near Lindale – 7 Nov 2024 to 9 Apr 2025

- We will reopen the entrance onto Varndell Street with no exit onto Hampstead Road
- We will close the Southbound lane on Hampstead Road
- The pedestrian crossing on Hampstead Road will move south of Cardington Street



The dates provided are indicative and subject to change

Stage 5 – 14 Feb 2024 to 26 Apr 2025

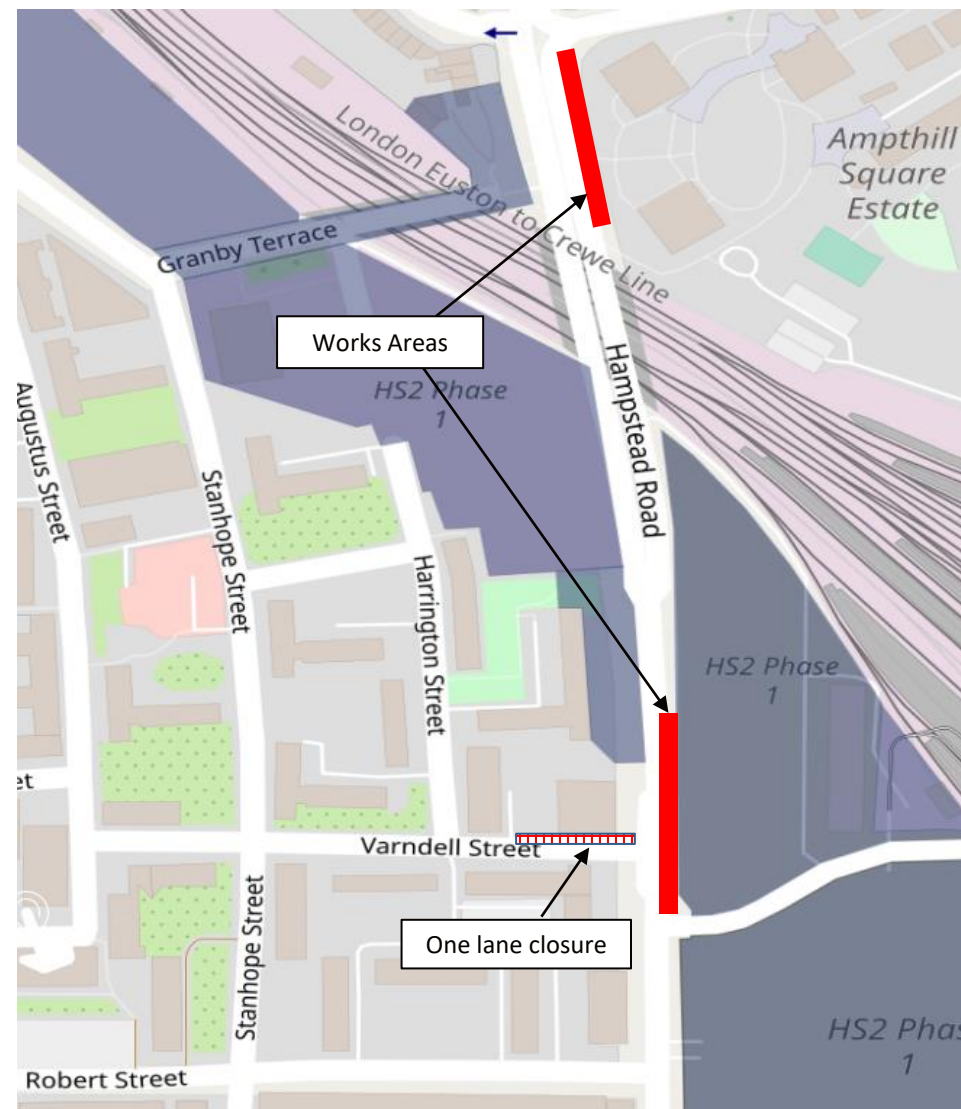
Works on Hampstead Road near Ampthill Estate 14 Feb to 26 Apr 2025

- We will close the southbound footpath and cycle lane.
- We will maintain a narrow pedestrian lane around works area
- Access to Ampthill Estate will be maintained at all times

Works on Hampstead Road near Varndell Street 7 Nov 2024 to 9 Apr 2025

- The entrance onto Varndell Street remain open with no exit onto Hampstead Rd
- We will close the southbound lane on Hampstead Road
- Pedestrian crossing on Hampstead Road moved south of Cardington Street

The dates provided are indicative and subject to change



Stage 6 – 18 Mar 2025 to 12 Jun 2025

During this phase of works we will construct various utilities chambers and continue to install the utilities ducts.

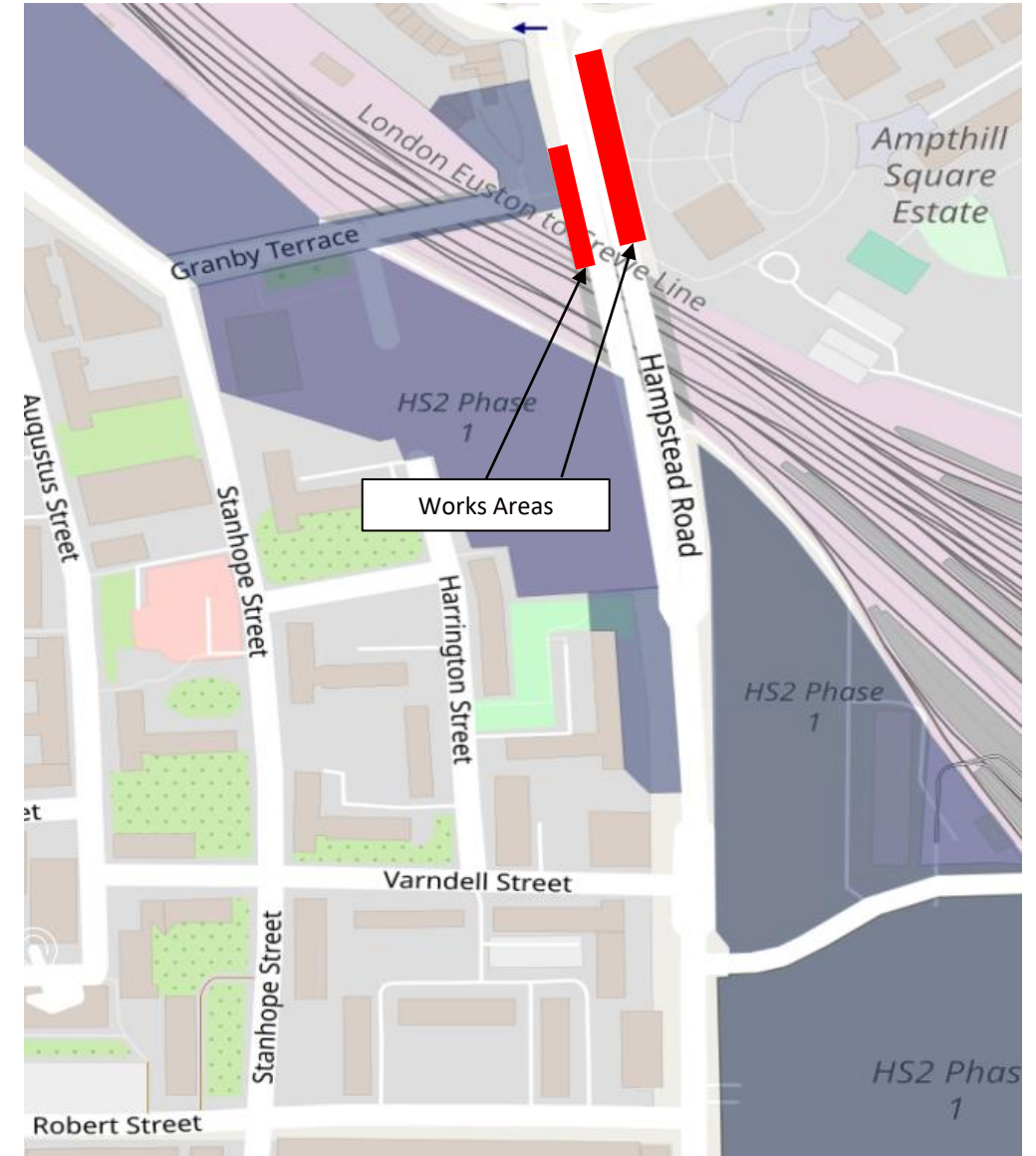
Works on Hampstead Road near Granby Terrace bridge 18 Mar to 26 Apr 2025

- We will close the northbound footpath and cycle lane
- We will maintain a narrow pedestrian lane around the works area

Works on Hampstead Road on Ampthill Estate side 09 Apr to 12 Jun 2025

- We will close the southbound footpath and cycle lane
- We will maintain a narrow pedestrian lane around the works area
- Access to Ampthill Estate will be maintained at all times

The dates provided are indicative and subject to change



Ground movement assessments (GMA)



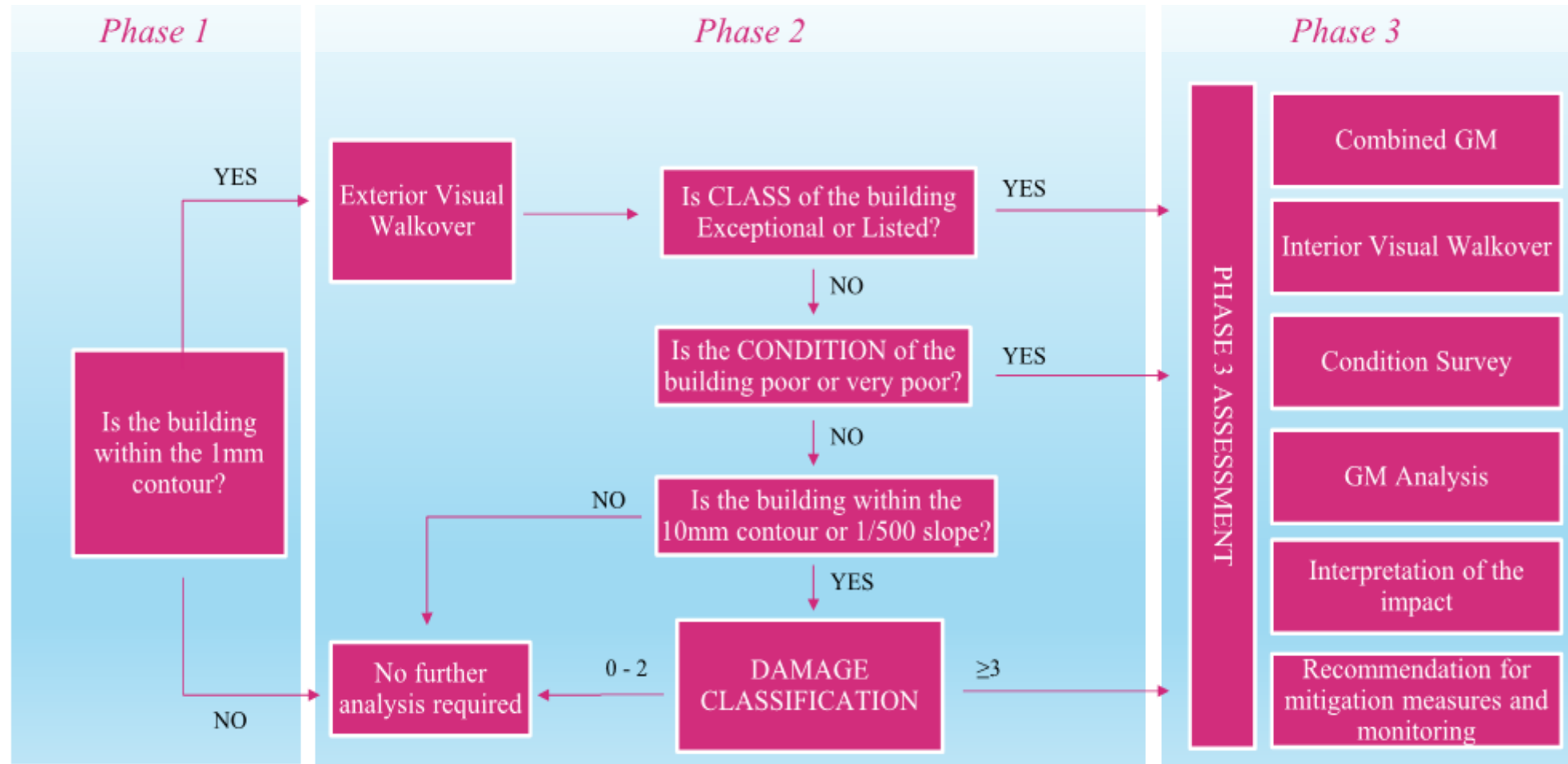
Schedule of information provided to ECRG to date

What?	When?	Who?
Tunnel design presentation	Mar-22	ECRG
Tunnel design presentation (web and online event)	Mar-22	Construction update
Major excavations and tunnelling presentation (web and online event)	Sep-22	Construction update
Major excavations and tunnelling presentation	Sep-22	ECRG
Major excavations and tunnelling presentation	Mar-23	Construction update
Major excavations and tunnelling presentation	Mar-23	ECRG
Tunnel design enquiry	May-23	Robert Latham
Tunnel design presentation	Jun-23	ECRG
Major excavations and tunnelling presentation (web online event)	Jul-23	Construction update
Tunnel design drawings (appendices)	Sep-23	ECRG
Tunnelling presentation including cross sections	Sep-23	ECRG
Tunnelling presentations including cross section (web and online event)	Sep-23	Construction update
Additional design drawings Euston - Kilburn Park	Nov-23	ECRG
Major excavations and tunnelling presentation	Mar-24	Construction update

Understanding ground movement assessments

- SCS have been undertaking a programme of detailed investigations to understand our impact on Third Party Assets
 - We have been doing this for some time, alongside the design of the new infrastructure
 - We use tried and tested methods to assess the effects of ground movement
 - Our method has been used on similar large-scale subsurface projects such as Jubilee Line Extension, Channel Tunnel Rail Link, and Crossrail
 - We use a 3 phased and conservative approach that increases in detail at each phase
 - **Phase 1:** empirical ground movement predictions resulting from the construction works to identify limits of the area to consider
 - **Phase 2:** studies of ground movement at buildings within 10mm contour
 - **Phase 3:** these studies are the most detailed, and consider specific geometry, features and condition of the building
 - Any buildings at risk of damage category 3 (DC3) damage on Burland scale, along with all “exceptional” structures and listed buildings, automatically qualify for Phase 3 studies
 - Inspections for Assessments (visual structural surveys) feed into the Phase 3 settlement assessments
-

GMA Phases



GMA phases overview

Phase 1

- Assessment based on greenfield site conditions
- The effects of building foundations on the pattern of settlement is ignored
- Where predicted settlement is 10mm or more and slope is 1/500 or more are subject to a Phase 2 assessment
- We had over **2000** properties within the zone of influence

Phase 2

- The settlement calculated for greenfield conditions are imposed on the buildings within the zone of influence
- A generic area-wide assessment of settlement identifies the zones in which buildings might be at risk of DC3 or above damage.
- *These properties require an individual assessment in Phase 3
- We assessed approximately **240** properties within this phase

Phase 3

- Each building is considered individually
- The assessment consists of several sub-steps which refines the building the tunnel model to a higher degree
- Structural survey are undertaken to determine the structural form and condition where reasonably necessary.
- The risk/damage category is assessed and requirement for any protective works is established. The design and implementation of the protectives works and any additional monitoring is determined
- We reduced the number of properties within this phase to **15**

*For exceptions to this rule please read paragraph 4.12 in [C3: Ground Settlement paper](#)

Damage Categories (Burland scale)

Category of damage (DC)	Normal degree of severity	Description of typical damage (ease of repair is underlined)	Crack width (mm)
0	Negligible	Hairline cracks	< 0.1
1	Very slight	<u>Fine cracks which are easily treated during normal decoration.</u> Damage generally restricted to internal wall finishes. Close inspection may reveal some cracks in external brickwork or masonry.	0.1 to 1
2	Slight	<u>Cracks easily filled. Re-decoration probably required. Recurrent cracks can be masked by suitable linings.</u> Cracks may be visible externally <u>and some repointing may be required to ensure weathertightness.</u> Doors and windows may stick slightly.	1 to 5
3	Moderate	<u>The cracks require some opening up and can be patched by a mason. Repointing of external brickwork and possibly a small amount of brickwork to be replaced.</u> Doors and windows sticking. Service pipes may fracture. Weathertightness often impaired.	5 to 15 or a number of cracks greater than 3
4	Severe	<u>Extensive repair work involving breaking-out and replacing sections of wall, especially over doors and windows.</u> Windows and door frames distorted, floor sloping noticeably ¹ . Walls leaning ¹ or bulging noticeably, some loss of bearing in beams. Service pipes disrupted.	15 to 25 but also depends on number of cracks
5	Very severe	<u>This requires a major repair job involving partial or complete rebuilding.</u> Beams lose bearing, walls lean badly and require shoring. Windows broken with distortion. Danger of instability.	Usually > 25 but depends on number of cracks

Protective measure design

- The process to protect Third Party structures follows a standard process, aligning with the public information available under the HS2 Information Paper: [C3: Ground settlement](#)
- Our Phase 3 Ground Movement Assessment work produces recommendations as to whether monitoring and/or protective measures may be required to limit impacts
- Where a building falls into Damage Category 3 or higher, we consider the requirement for protective measures. We also do this if we are aware of specific issues or sensitivities specific to a particular building, such as its heritage significance
- We completed a number of surveys on the individual buildings to inform our mitigation design
- Where protective measures are implemented, the associated damage category for the building will be reduced below Damage Category 3 (DC3). Mitigation measures are not typically required for buildings with a damage category less than DC3. Instrumentation and monitoring may be specified, and repairs may be required.
- We will provide temporary rehousing during intrusive internal property surveys and the installation of the protective measures where required in line with the [Prolonged disruption and compensation scheme](#)
- *Where the stakeholder has a Settlement deed in place, they will receive a Settlement Assessment report which includes the proposed protective works.

***HS2 will reimburse you for the reasonable costs, charges and expenses incurred by stakeholders for the professional services of an Owner's Engineer, in line with the requirements of the settlement deed**

Typical examples of monitoring and surveys

Investigations to best understand buildings and design any preparation may include (but not limited to):

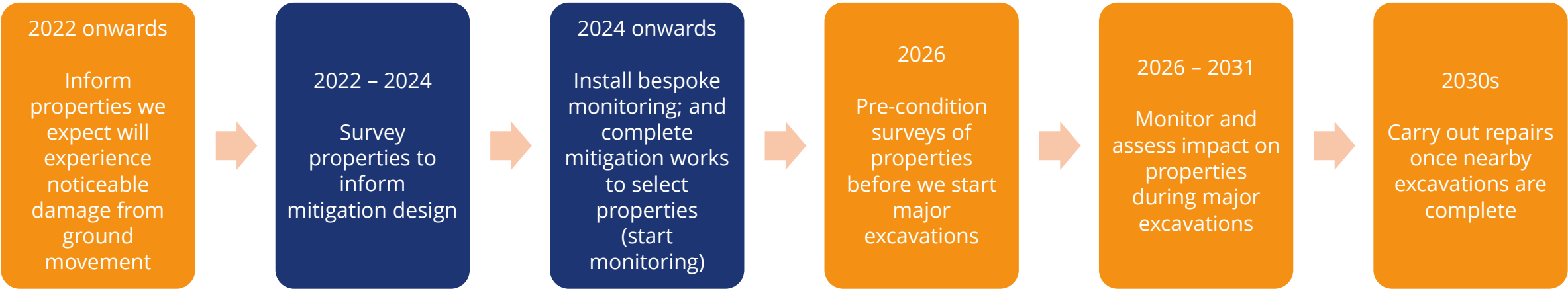
- CCTV survey of drains/utilities
- Laser surveys to accurately measure the building
- Physical inspections of the structure or ground in or near the building
- Pre and post condition surveys

Monitoring instruments to carefully track building movements may include (but not limited to):

- Settlement Levelling (Manual)
- 3D Prisms Monitoring (Manual/Automated)
- Tiltmeters (Automated)
- Patch scanning (non-intrusive)
- Levelling studs and bolts
- Piezometers
- Inclinoimeters
- Distometers



Engagement with properties most affected by ground movement



We will continue to engage with affected properties throughout each phase of the asset protection process

**Planned dates are indicative and subject to change*
**Settlement deeds offered to all properties within 30m of major excavations as standard*

Settlement deeds

What is a settlement deed and who can have one?

- A settlement deed is a formal legal agreement between you (the property owner) and HS2, which you may find useful if selling your property or changing insurers for example
 - We will put right any damage we cause to your property whether you have a deed or not. This is a legal commitment under the HS2 Act
 - We offer property owners a Settlement Deed if their property is within 30m of tunnels or other major excavations (tunnels, retained cuttings, shafts and boxes) which are 3m or deeper
 - This records the protection we provide for your property in a formal document, although you don't need a deed to benefit from the protection, you are covered by the High-Speed Rail Act
 - Owners that enter into a settlement deed will receive a **settlement assessment report (SAR)** in advance of the major excavation works. The SAR includes the GMA information specific to these properties
 - If your property is DC3 or higher, you will automatically receive this report as well
-

What is in a settlement deed?

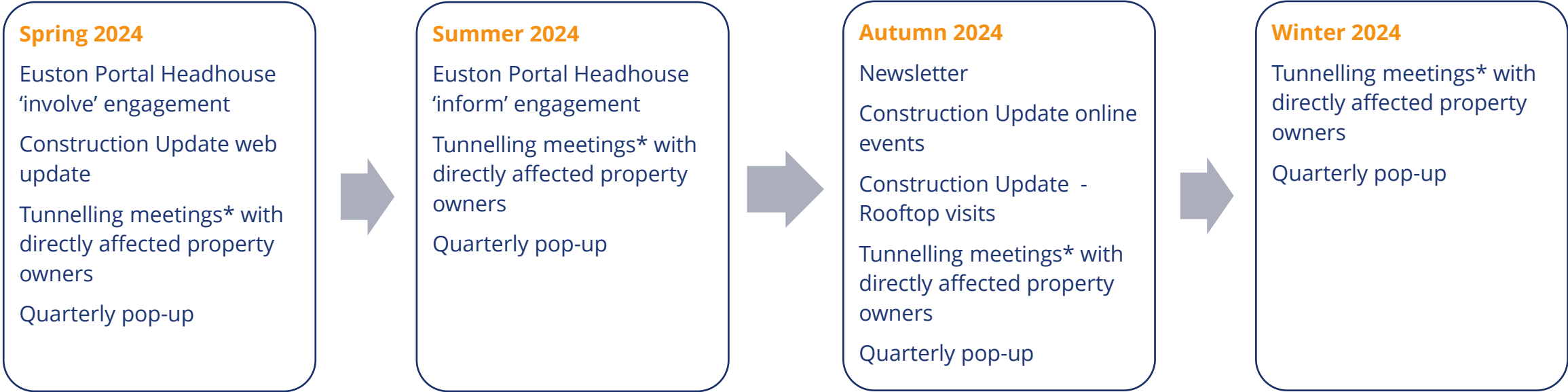
A settlement deed entitles eligible properties to:

- A counter signed deed describing HS2s obligation to repair any impact we may have upon the property, via ground movement
- A short report of our impact on the property
- Under the Settlement Deed process, there is an offer of technical support to explain the report
- HS2 will reimburse you for the reasonable costs, charges and expenses incurred by stakeholders for the professional services of an Owner's Engineer, in line with the requirements of the settlement deed
- We have sent **267** of the eligible properties an offer letter in 2020. The offer letters will be resent to those who have not taken up the offer ahead of major excavations and tunnelling in 2026

These meetings and the associated reports or presentations are property specific and therefore cannot be shared with the ECRG due to Data Protection guidelines



Engagement – Spring 2024 to Winter 2024



How we keep you up to date with our works



* Tunnelling to start in 2026



Appendices



Euston Approaches - works paused

- Parkway utility works
- Cavern welfare installation in Camden Cutting north
- 24/7 tunneling and major excavations within the following areas
 - Cavern shaft excavation in Camden Cutting north
 - Mechanical excavation of tunnels in Camden Cutting north
 - Euston Scissor box south of Mornington Street Bridge
 - Railway cutting between Granby Terrace and Hampstead Road
- Park Village East southern lay-by installation

HS2

8. Actions Log

David Demolder

- To review the Actions Log noting
 - Updated responses
 - Items proposed to be closed

HS2

9. Community Questions/AOB

David Demolder

- Questions received in advance of the meeting
- Questions not related to agenda items
- Questions relating to agenda items not dealt with in the time allocated.

We would welcome your feedback about this meeting. You can provide this by scanning the QR code or clicking [here](#)

Many thanks



HS2

Meetings dates for 2024

Thursday 6 June

Tuesday 24 September

Thursday 28 November