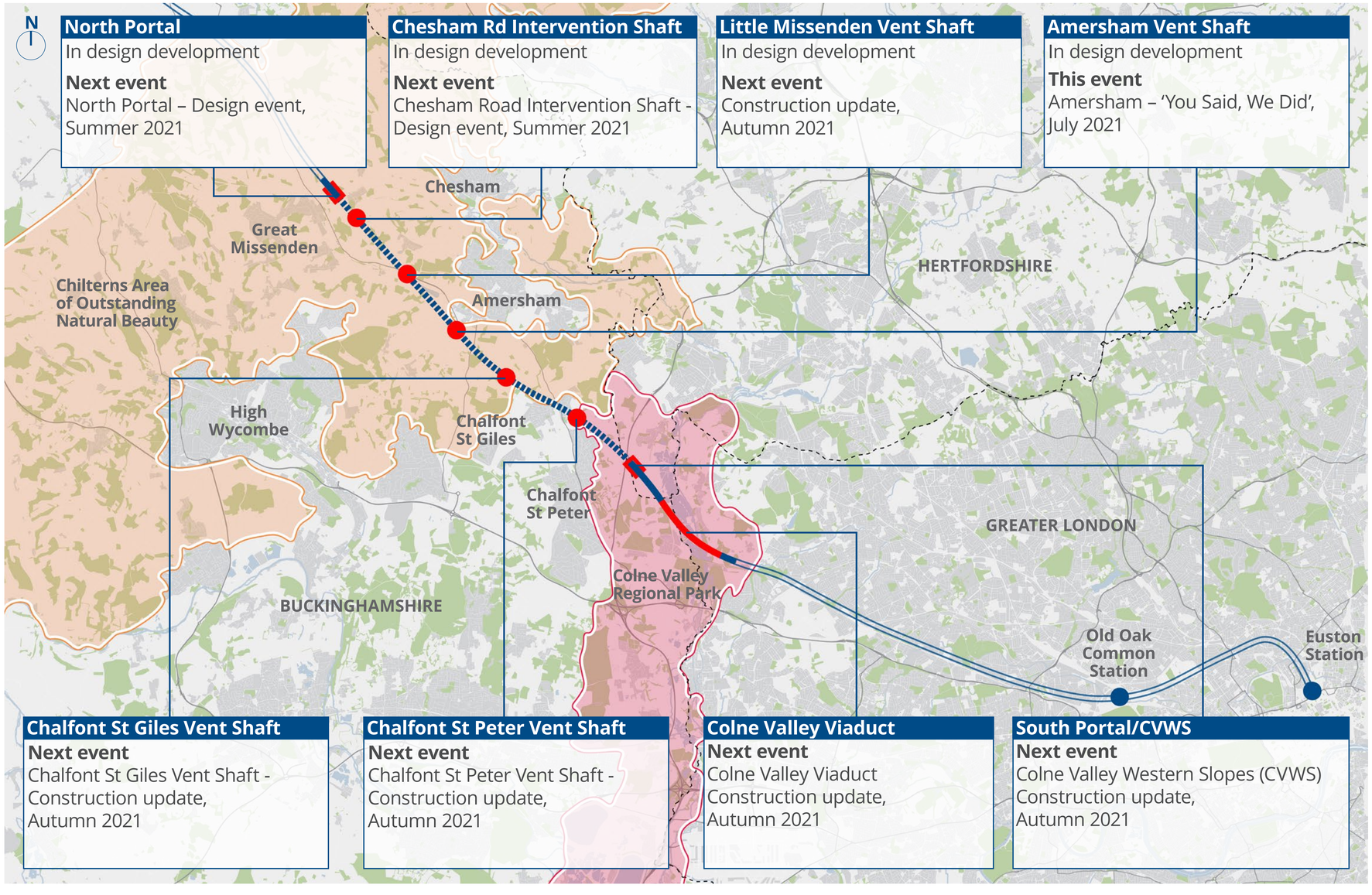
The HS2 route in the Chilterns and the Colne Valley

High Speed Two (HS2) is the new high speed railway for Britain.

What we are doing

Align are working on behalf of HS2 Ltd to build 22 kilometres of the high speed rail line, running between the Colne Valley and the Chilterns. It includes the 3.4 kilometre long Colne Valley Viaduct and the Chiltern tunnel with four ventilation (vent) shafts to regulate airflow, one intervention shaft and the shaft headhouses which contain electrical equipment.

Our main works programme is now underway and we are holding regular information events to share details on the progress of the designs, seek views and respond to feedback. Due to Covid-19 we have postponed all public face-to-face engagement events and meetings, but we will continue to find new ways to involve the community.



ALIGN Working in partnership with HS2

Introduction

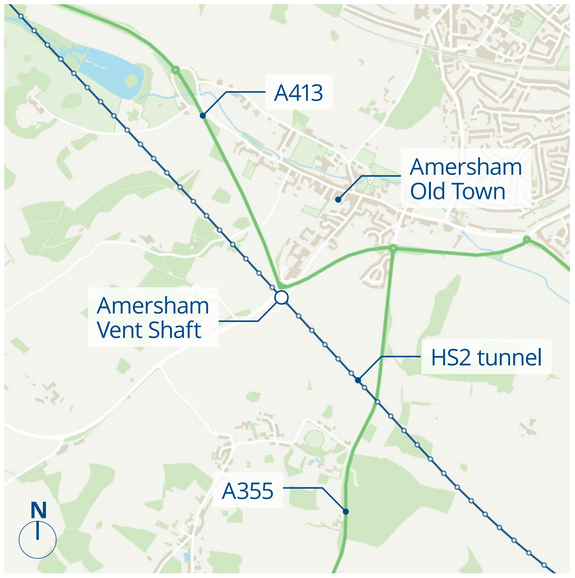
Welcome to our ‘You Said, We Did’ event for the Amersham vent shaft

In September 2020 we held an event to share our plans for the Amersham vent shaft, the construction processes, traffic management plans and the early plans for the design of the headhouse.

Now we would like to:

- Show you the feedback that we have received during design development, which has influenced our approach
- Share the final designs we will be seeking consent on from your local authority
- Provide information on the construction of the vent shaft and headhouse
- Show you how we plan to reduce the impact of our work on residents.

HS2 route through the Chilterns



Amersham vent shaft will provide air ventilation and access for emergency services. It will be located on the parcel of land at the junction of the A404 Whielden Lane and the A413, south of Amersham Hospital.

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Public feedback

In September 2020, we held a public engagement event and you gave us feedback on four topics about our design. We asked you to rank our objectives in order of priority and provide comments. These objectives are shown below:

Landscape

- Use existing trees, hedgerows and new planting to conceal structures as far as possible
- Respond to the character of the site and surrounding landscape
- Replace lost trees which must be removed during construction, wherever possible
- Consider the long-term management of the site and appearance of the landscape
- Find ways of reusing soil and materials excavated from the vent shaft in the new landscape
- Consider ways to enhance public experience in places where people get close to the site (for example Whielden Lane)

Ecology

- Restore the area using planting or seeding of native and indigenous species
- Keep as many existing trees and hedgerows as possible
- Protect existing wildlife species on the site during construction
- Create habitats that support as many species as possible (biodiverse)
- Create habitats that are typical of the area but rare and declining – for example, chalk grassland
- Create habitats that are integrated with the surrounding area

Design of the headhouse

- Control visual impact by setting building into the landscape
- Keep the overall footprint (area) of the compound as small as possible
- Maintain a familiar scale and form to local buildings
- Choose materials and detailing inspired by the local landscape
- Reduce the operational impact of the proposed structure
- Design a unique structure at the gateway to the town

Construction

- Return the wider construction site to how it was before construction started
- Reduce noise and vibration on the construction site
- Minimise any visible impact of construction
- Let people know when noisy works are occurring and keep residents regularly updated
- Reduce HGV movements
- Minimise carbon footprint, and reduce noise and air pollution across construction fleet

Landscape

You said: "Respond to the character of the site and surrounding landscape"

"Use existing trees, hedgerows and new planting to conceal structures as far as possible"

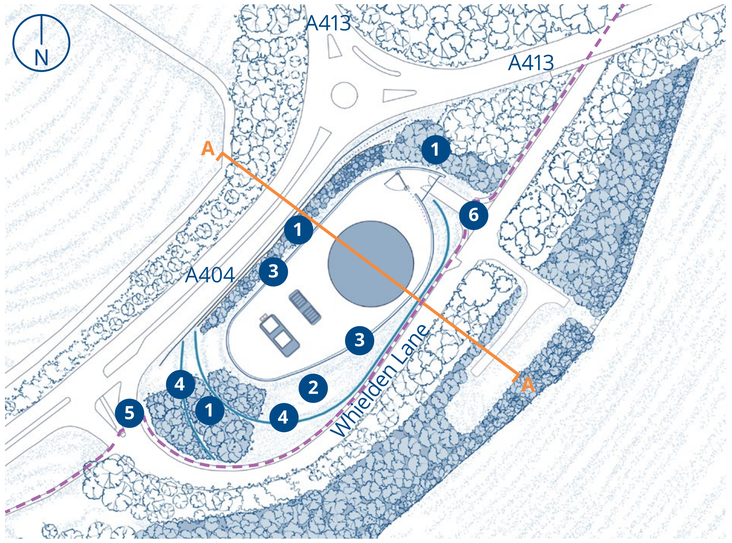
We did:

Landscape character

The earthworks will be shaped to integrate with the profile of the valley, whilst woodland and shrub planting and chalk grasslands will reinforce the semi-rural setting.

Managing views

We will retain as much of the existing vegetation along the A413 and A404 as possible. Following feedback, we have increased areas of native tree and shrub species to manage views of the building.

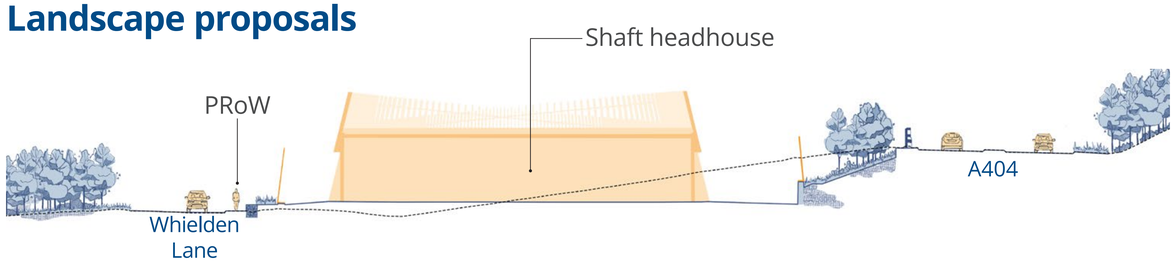


Landscape plan

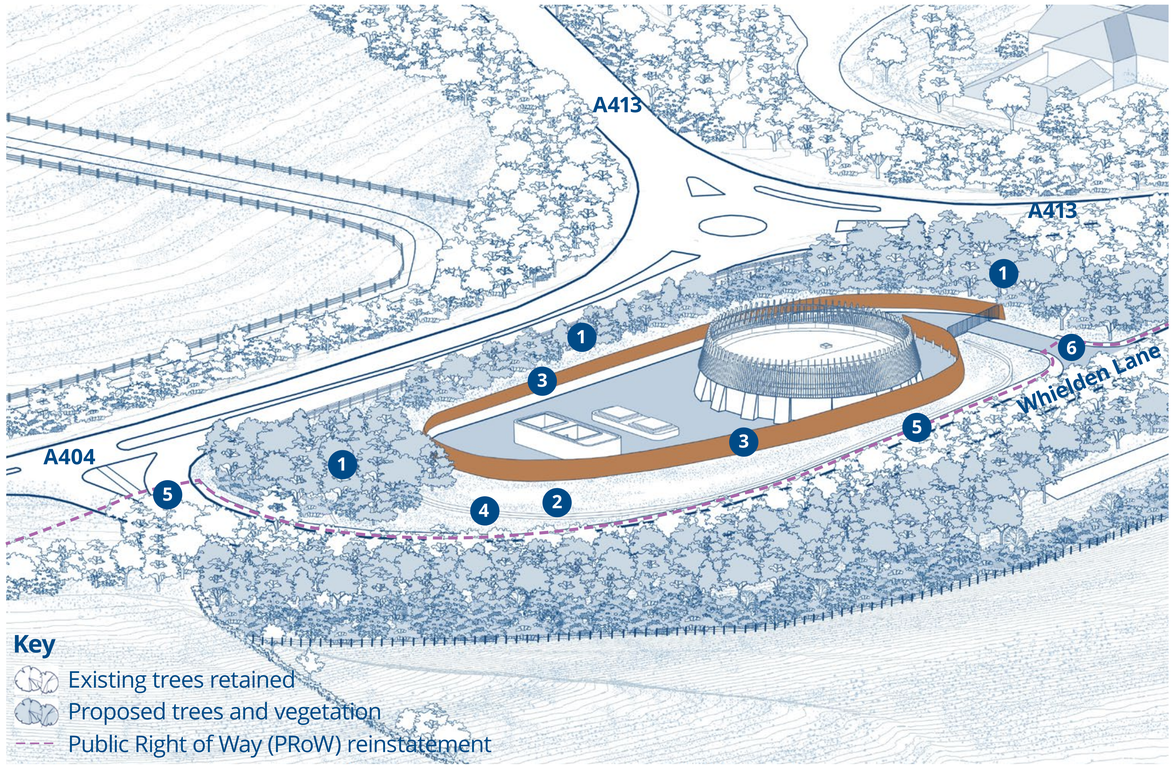
Key

1. Proposed woodland edge and scrub planting areas
2. Chalk grassland
3. Weathering steel fence
4. Low flint gabion wall
5. Reinstatement of Public Right of Way (PRoW)
6. Site access from Whielden Lane

Landscape proposals



Section A-A



Illustrative view of the site

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Ecology

You said: "Recreate the habitat and existing landscape as far as is possible"
"Keep as many existing trees and hedgerows as possible"

We did:

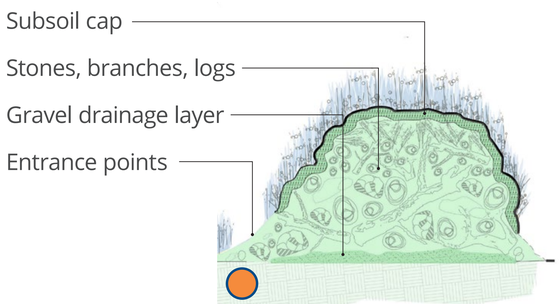
Propose new habitats and prepare management plans

We will create habitats using native plants and seeds to enhance the biodiversity value of the site.

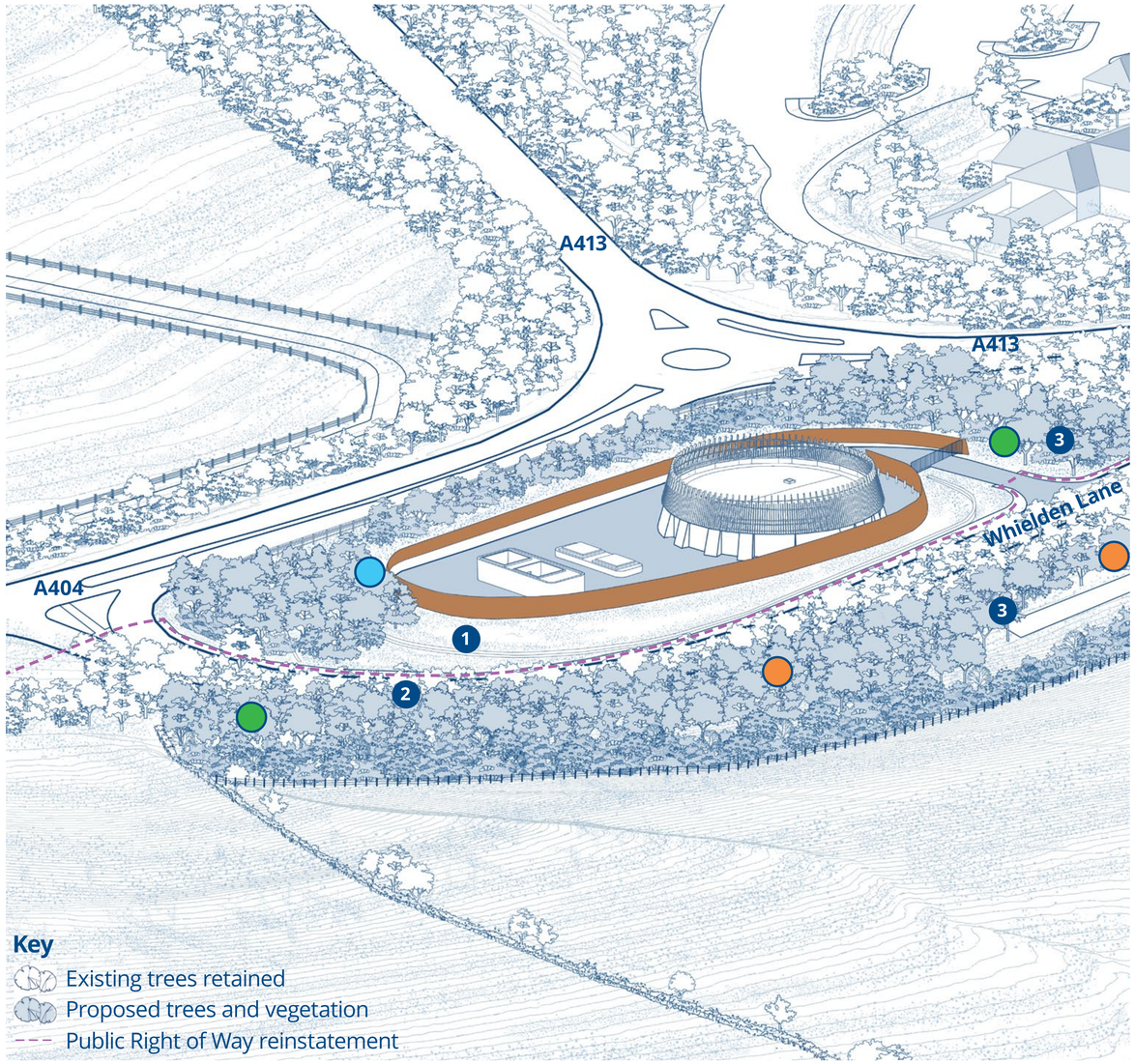
HS2 will undertake long-term management of land in its ownership guided by a Habitat Management Plan for the lifespan of HS2. Our plans include:

1. Creation of calcareous grassland habitat reflective of the Chilterns grassland
2. Retention and protection of existing habitat connectivity
3. New woodland edge and scrub planting used to allow animal foraging and movement
4. Incorporation of habitat features such as:
   - Hibernaculum
   - Reptile egg laying heaps
   - Reptile and invertebrate / basking bank

Calcareous grassland (target habitat)



Section - Typical hibernaculum



Habitat creation proposals

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Headhouse design

You said: "Do everything possible to hide the structure from public view"

We did:

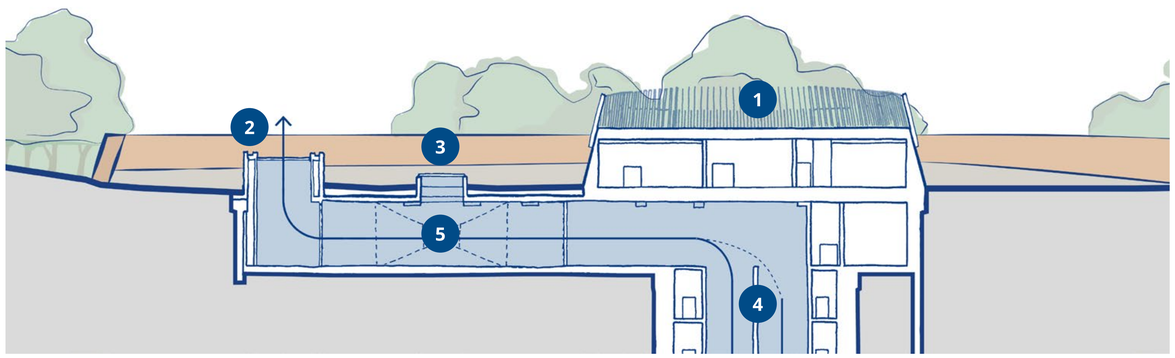
Keep as much of the building below ground as possible

The function of the headhouse is to provide:

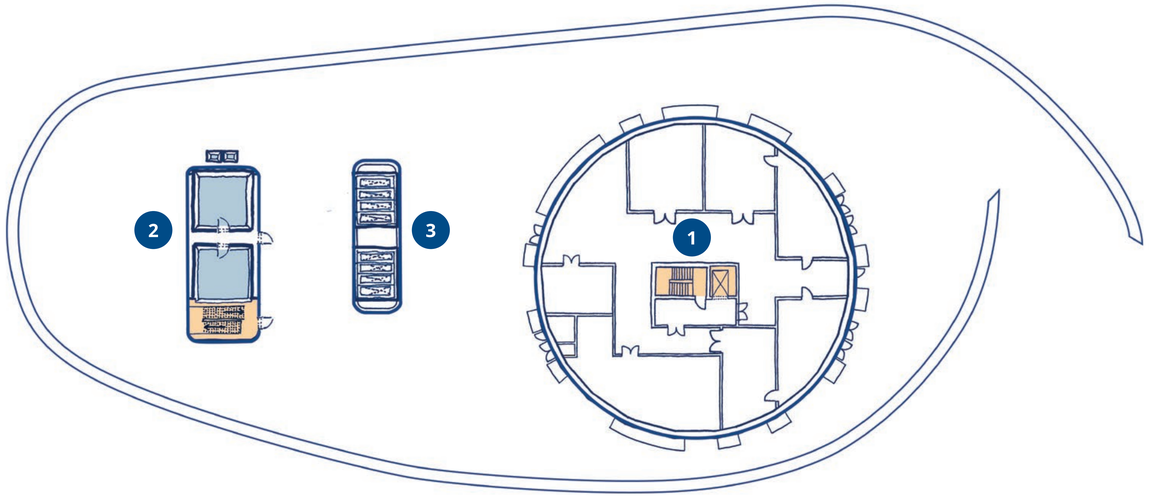
- Ventilation to control the tunnel environment
- Space for mechanical and electrical equipment to support the operation of the railway
- Access point for emergency services

The areas of the building above ground need ventilation or access directly from the compound. Where possible the functional areas are kept below ground.

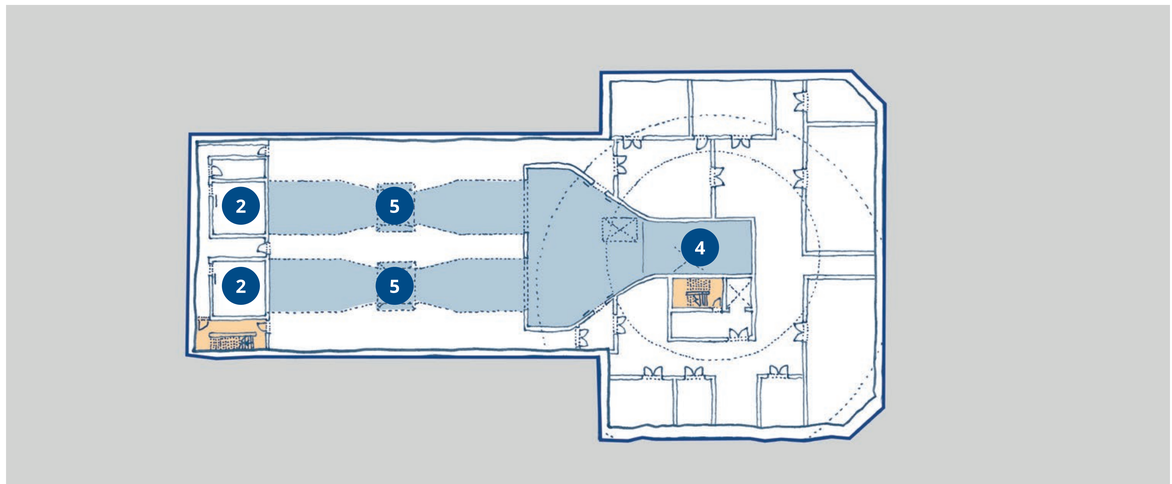
1. Main headhouse building
2. Ventilation inlet and outlets
3. Access hatches
4. Ventilation shaft
5. Fans within basement



Section - Headhouse and ventilation shaft



Plan - Ground floor level



Plan - Basement floor level

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Headhouse design

You said: "Please make it as unobtrusive as possible"

We did:

Designed a headhouse building that responds to the local context

The headhouse has been designed to complement the surrounding landscape. The materials proposed will embed the headhouse in its context, while the form reflects its valley setting.

The key design principles are:

- The headhouse building expresses the shape of the shaft below
- The compound reflects the shape of the site
- The profile of the building reflects the shape of the valley

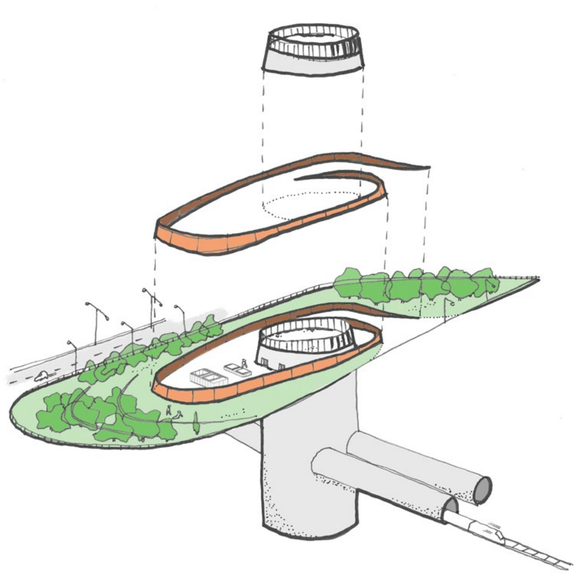

Diagram - Amersham headhouse

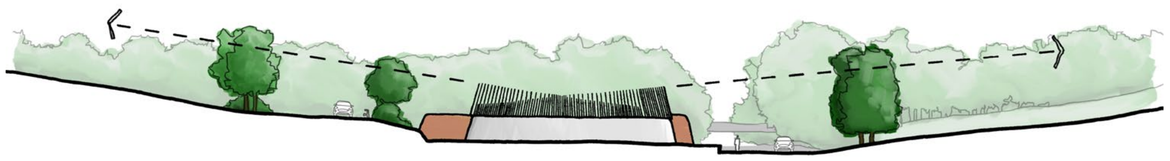

Diagram - Reflecting the shape of the valley

Visualisation - aerial view (Year 15)

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Headhouse design

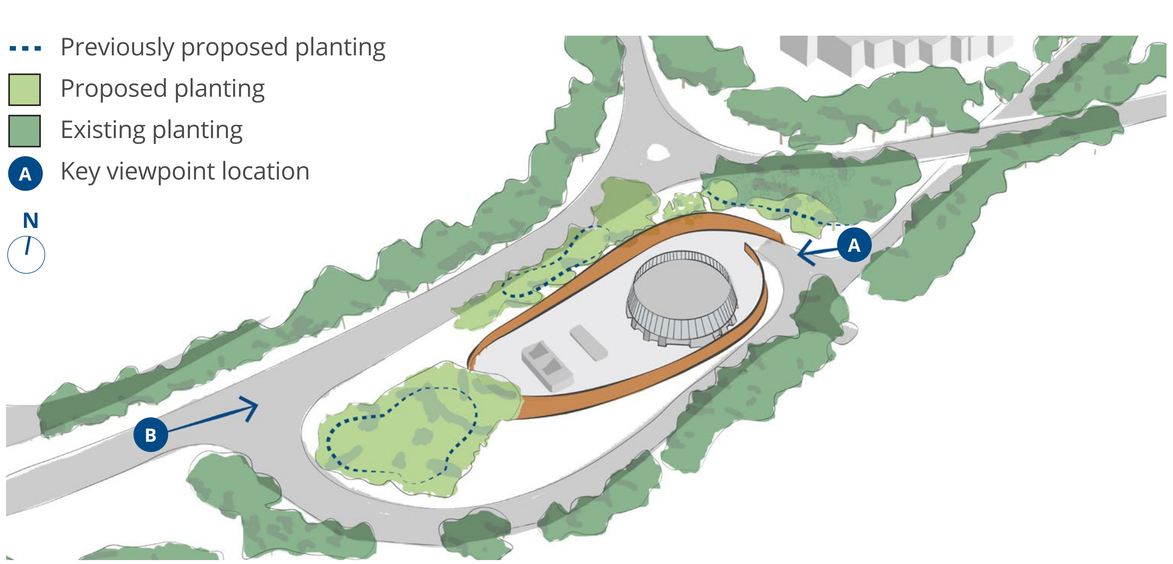
You said: "Once completed, the building should be 'lost' in the habitat"

We did:

Increase the visual screening with additional planting

The proposed landscaping and strengthening of existing planting will create a visual buffer between the site and its surrounding area.

To reduce the headhouse visibility we have increased the amount of vegetation across the site.



Aerial sketch - Increased proposed planting

Visualisation - Whielden Lane (proposed scheme)

Visualisation - A404 approach (proposed scheme)

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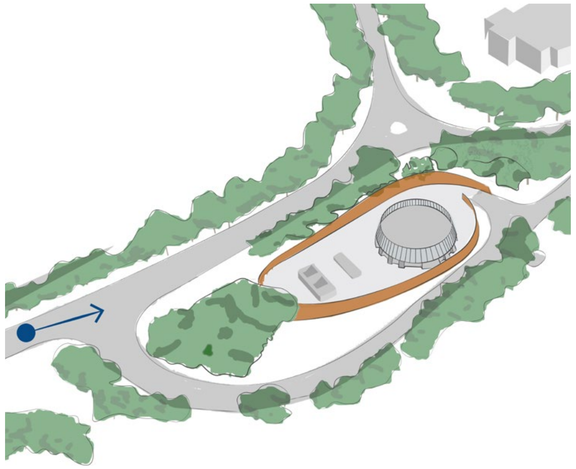
Headhouse design

View from A404 approach



Key plan - Location of viewpoint

Visualisation - A404 approach (Year 1)

Visualisation - A404 approach (Year 15)

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Headhouse design

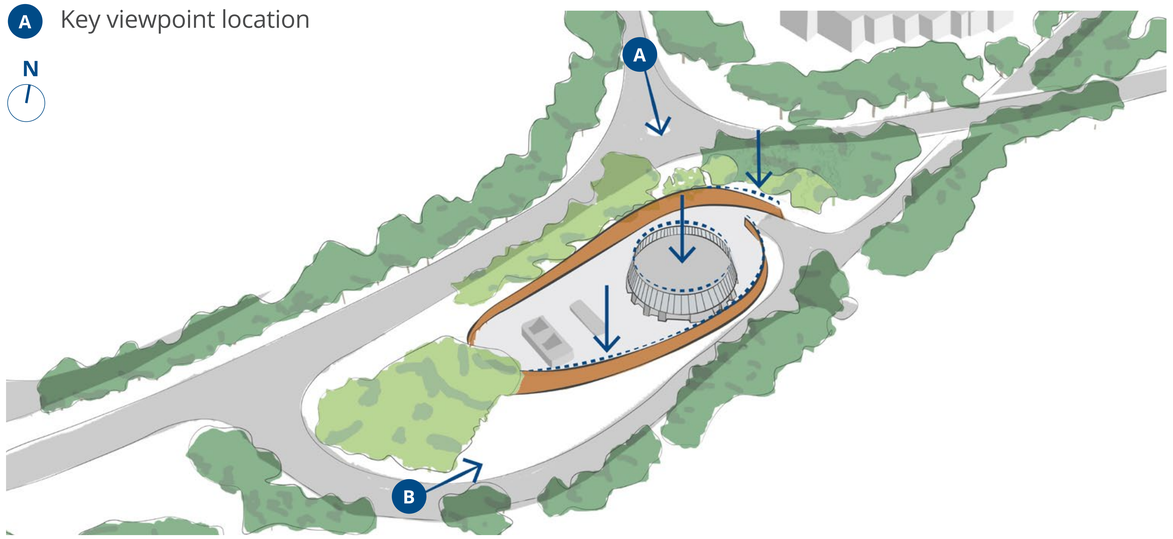
You said: "Reduce the visual impact"
"The building should blend into the environment as much as possible"

We did:

Reduce the height of the headhouse and compound wall

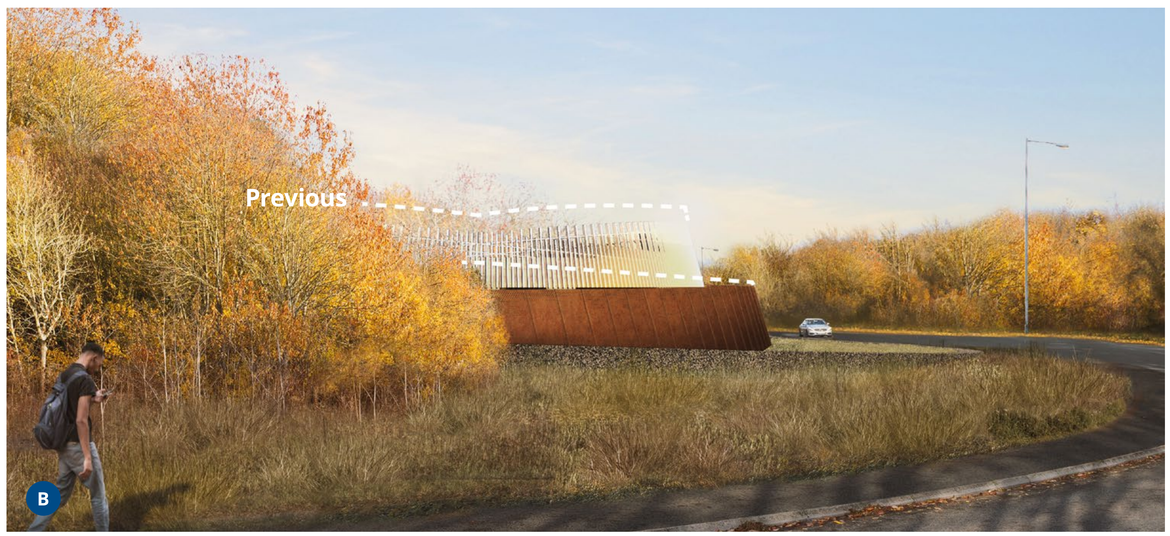
The compound wall follows the shape and topography of the site. The height has been lowered along Whielden Lane to reduce the visual impact of the wall.

The height of the headhouse has been lowered by 1m to reduce to overall visibility of the structure. The conical shape further helps to reduce the scale of the building.



Aerial sketch - Reducing building and wall height

Visualisation - Whielden Lane looking south west (Year 15)



Visualisation - A413 approach (Year 15)

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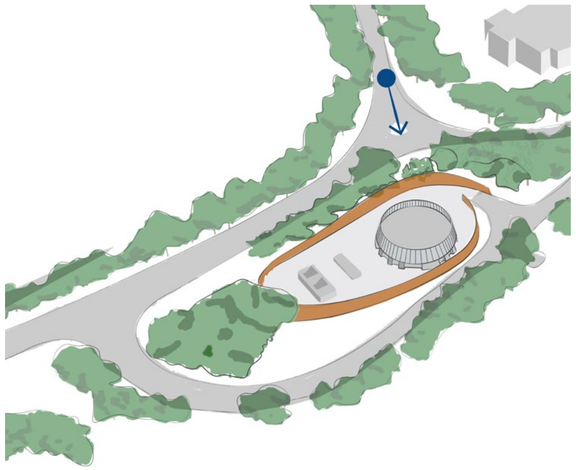
Headhouse design

View from A413 approach



Key plan - Location of viewpoint

Visualisation - A413 approach (Year 1)

Visualisation - A413 approach (Year 15)

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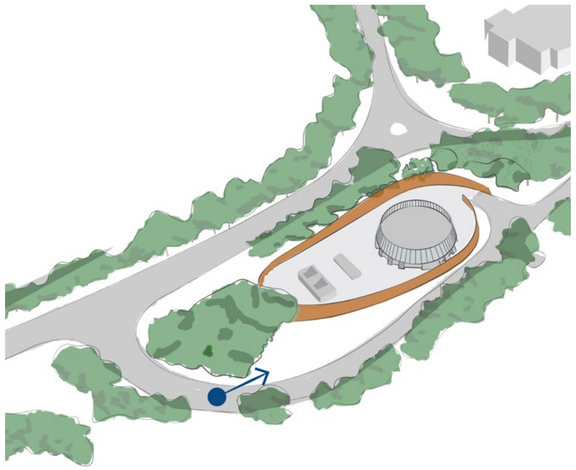
Headhouse design

View from Whielden Lane looking north east



Key plan - Location of viewpoint

Visualisation - Whielden Lane (Year 1)

Visualisation - Whielden Lane (Year 15)

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Headhouse design

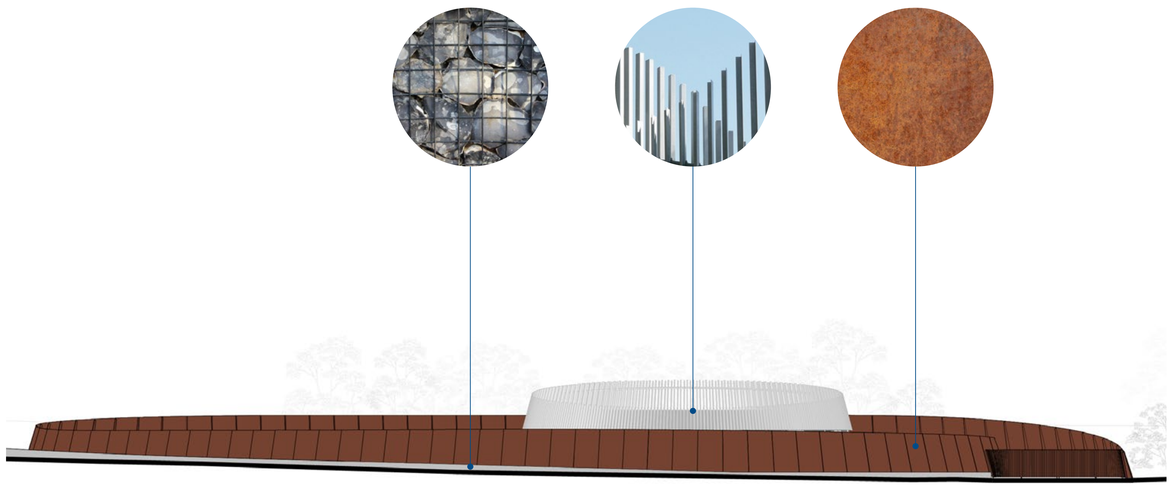
You said: "The material choice is interesting. Will it age well?"

We did:

Use materials that are appropriate for the surrounding area

The weathering steel wall will age over time and blend into the landscape. A surface layer of rust steadily builds up, creating a protective surface. It is a low-maintenance, self-healing material with a natural finish.

Naturally anodised aluminium fins crown the top of the building. The reflective nature of the material means that the fins visually respond to the surrounding context and changing environmental conditions.



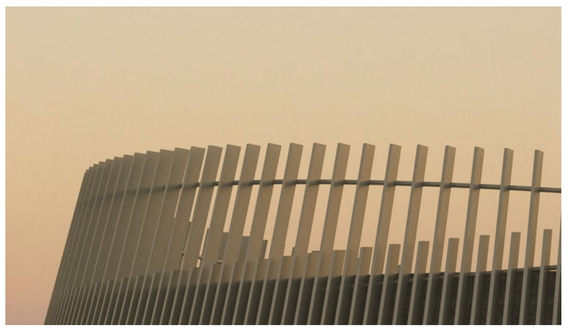
Elevation of headhouse

Visualisation - Fins when overcast

Visualisation - Public engagement design

Visualisation - Fins on a sunny day

Visualisation - Proposed (Year 1 pre-weathered)



Visualisation - Fins at dusk

Visualisation - Proposed (Year 25+)

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Headhouse design

Previously presented design

At the initial engagement event the full width of the headhouse was visible through the gap in the planting with filtered views to the trees beyond.

Visualisation - A413 approach (Year 15)

Current proposed design

The proposed design has the headhouse appearing to sit lower within its context due to the lowered height of the fins, with a clearer view of the trees beyond.

The planting that frames the view of the building has been brought in either side and low level planting introduced in the foreground so the building looks less prominent.

Visualisation - A413 approach (Year 15)

ALIGN Working in partnership with HS2

Headhouse design

Previously presented design

At the initial engagement event the full width of the headhouse was visible through the gap in the planting with filtered views to the trees beyond.

Visualisation - A404 approach (Year 15)

Current proposed design

The proposed scheme has the headhouse appearing to sit lower within its context due to the lowered height of the fins.

The planting has been brought in on the left hand side to screen part of the building from this view.

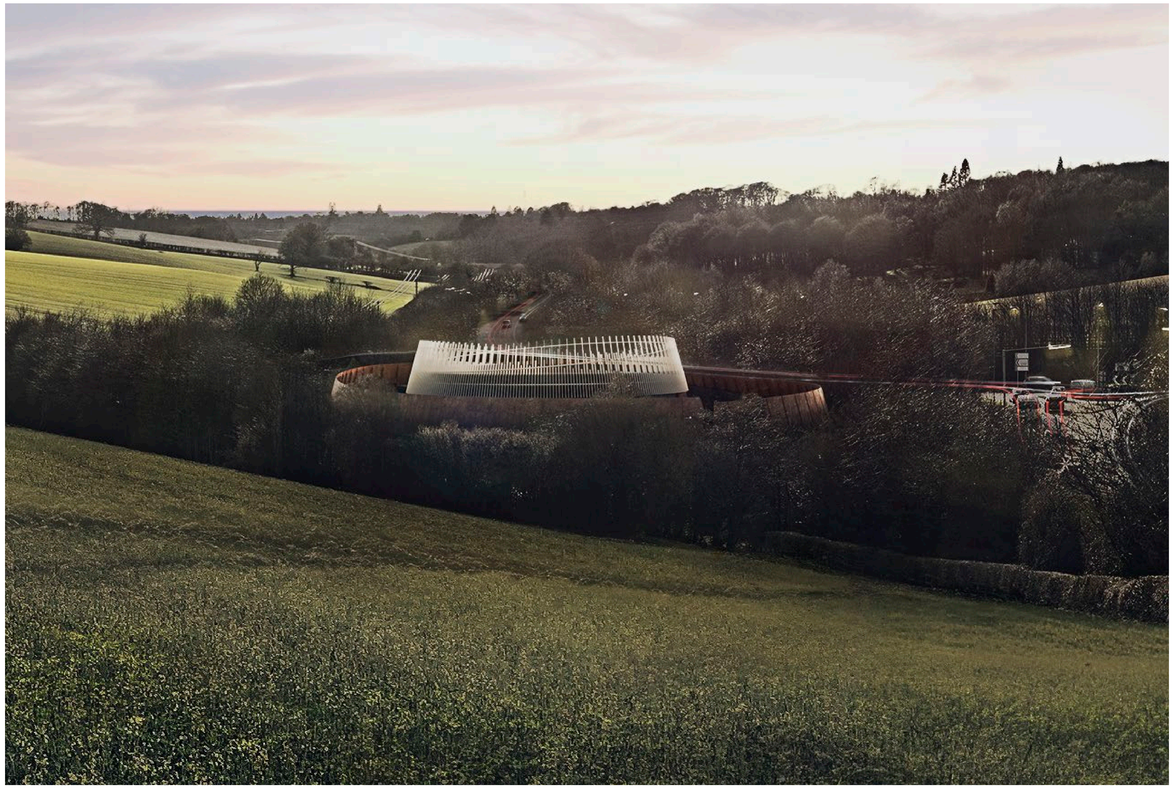
Visualisation - A404 approach (Year 15)

ALIGN Working in partnership with HS2

Headhouse design

Previously presented design

At the initial engagement event the full width of the headhouse was visible above the foreground trees.



Visualisation - View from the public right of way (Year 15)

Current proposed design

The proposed scheme has the headhouse appearing to sit lower within its context due to the lowered height of the fins.

Additional planting has been proposed in the foreground to partially screen the building from this view.

Visualisation - View from the public right of way (Year 15)

ALIGN Working in partnership with HS2

Headhouse design

Previously presented design

This view was not presented at the initial engagement but is representative of the design at this time. At the time of the initial engagement event the full width of the headhouse were visible.

Visualisation - Whielden Lane (Year 15)

Current proposed design

The proposed scheme has the lowered height of the fins and a lower compound wall in the foreground.

The planting has been brought in on the right hand side to give a more partial view of the headhouse until you get closer.

Visualisation - Whielden Lane (Year 15)

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Headhouse design

Visualisation - View from the public right of way (Year 15)

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Traffic management and planning

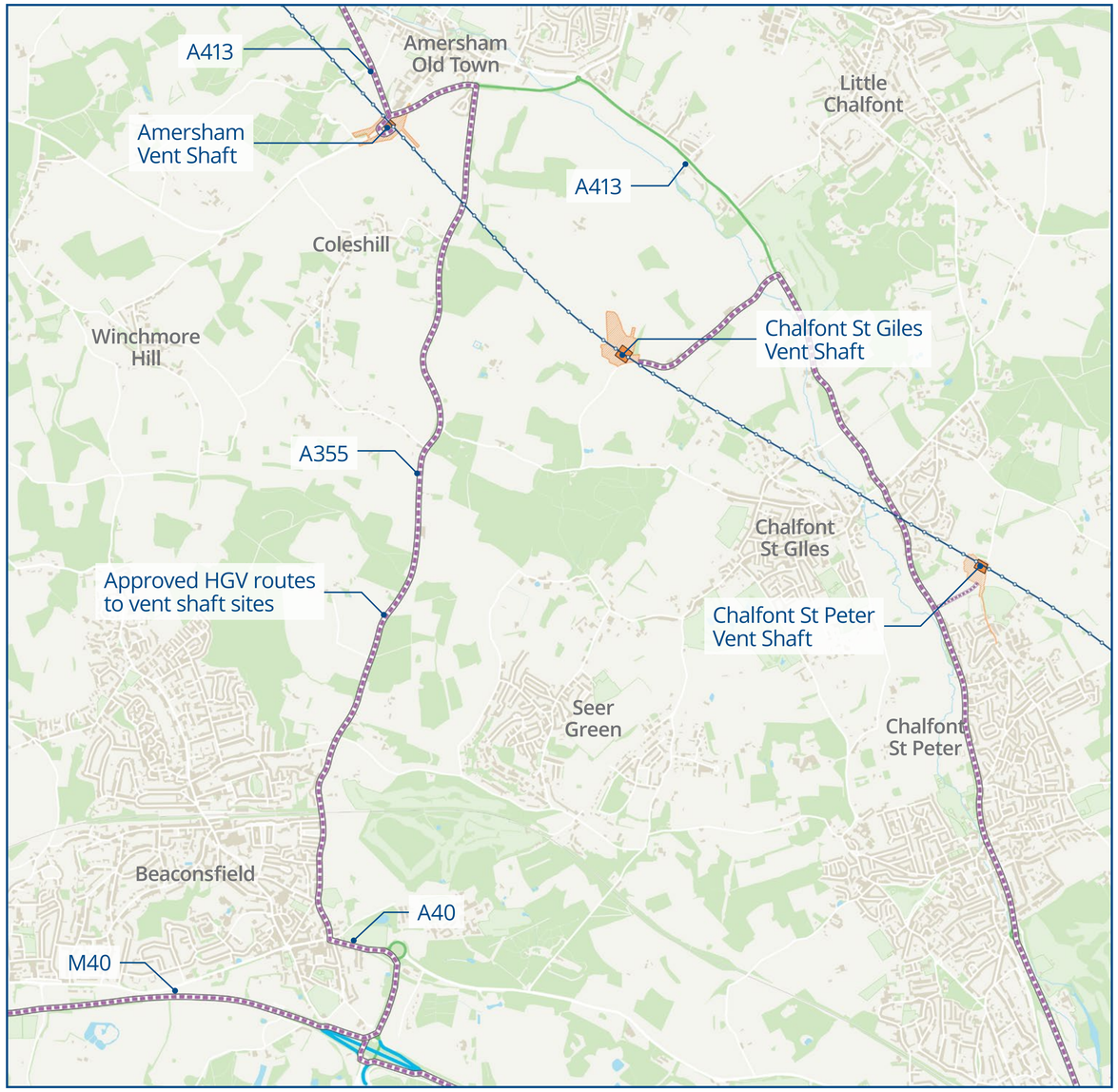
We recognise that there are concerns regarding Heavy Goods Vehicles using the A413 and A355 not only by Align but from our adjacent main works contractor, EKFB. The routes to each site are carefully planned to reduce our impact on local communities.

You said: "Minimise the impact of HGV movements to and from the site."

We did: Built a signalised junction to allow safe and managed access for HGVs

During stages of high activity on site, such as D-walling, shaft excavation, ground treatment and piling works, there will be an increase in Heavy Goods Vehicles (HGV) movements from the site. There will also be periods where the need for HGVs will be lower. To reduce these impacts, we:

- Have built a signalised junction on the A404/Whielden Lane to allow HGVs to safely access our site
- Minimised the number of HGV movements by reducing the size of the vent shaft excavation
- Created a Construction Consolidation Centre at the South Portal to act as a central hub to manage all the deliveries out to our sites, cutting down the number of vehicle trips made
- Plan our HGV movements as much as possible to avoid peak time wherever possible and holding them back so that only a certain number are on our logistics route at any one time.



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Construction site map

We will build the vent shaft as quickly and safely as possible, and minimise our impact on the local community.

Air quality

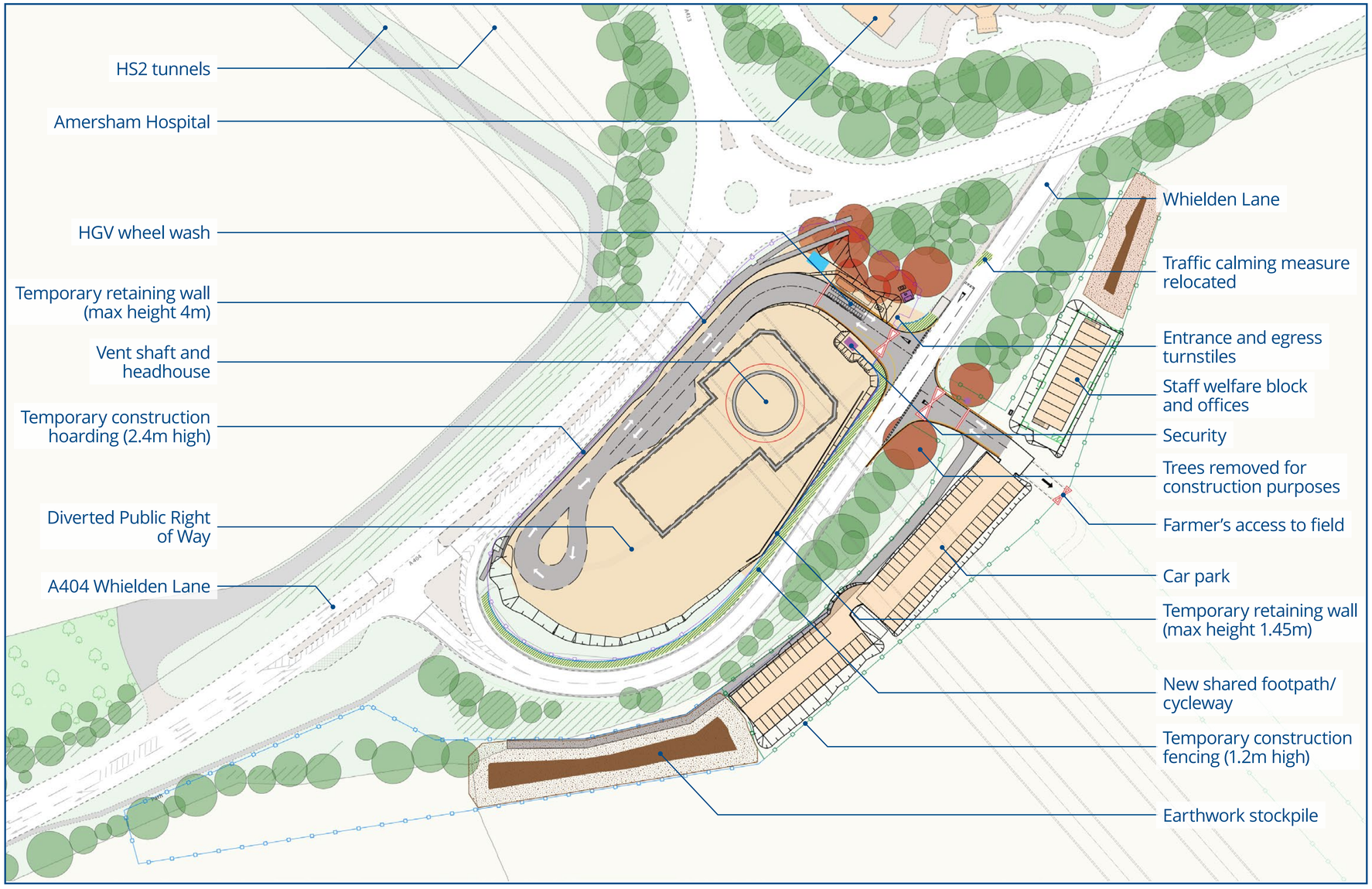
We will manage air quality by:

- Regularly inspecting and monitoring site and equipment
- Cleaning onsite roads and vehicles
- Managing earthworks to contain dust
- Monitoring air quality on site

Noise

We will control noise and vibration by:

- Monitoring noise using automatic monitoring equipment
- Tackling noise at source and reviewing location of equipment
- Screening and enclosing noisy activities



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Amersham Construction Programme

To minimise our impact on the local community, we will build the vent shaft and headhouse as quickly and safely as possible. Below is an indicative timeline of construction activities. We have highlighted those which may be more noticeable to local residents.

April 2021
Site set up with internal haul roads, site accommodation and groundworks.

June 2021
D-wall construction.

Visual impact:
Cranes, cutters, and D-wall rigs may be visible on site.

Traffic impact:
This will be one of the busiest periods for site traffic with increased HGV movements to and from site for D-walling concrete pours.

Noise impact:
Earthworks and stockpiling activities at surface and D-walling concrete pours.

September 2021
Post treatment works following D-wall completion in readiness for excavation of the vent shaft.

September 2021
Excavation of vent shaft.

Creation of vent shaft connection with tunnel prior to Tunnel Boring Machines arrival.

Noise impact:
Short periods of piling will occur. Earthworks and stockpiling activities. Extended working hours may be required on some days and weekends.

March 2022
Shaft base slab.

Noise impact:
Short periods of piling will occur. Earthworks and stockpiling activities. Extended working hours may be required on some days and weekends.

June 2022
Construction of internal vent shaft structures (floors and access).

January 2023
Tunnel Boring Machines arrive underneath the vent shaft and connection is established.

April 2024
Construction of the headhouse and surface structures.

Electrical outfitting and machinery installation.

Landscaping.

April 2025
Construction complete.

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Thank you

Thank you for viewing our online exhibition.

Next steps

We will continue engagement with the local community to provide regular updates on the progress of construction.

Information events

As part of our commitment to keeping you informed, we will be holding exhibitions and events for local residents.

Due to the Covid-19 pandemic we are not currently able to hold face-to-face public events, to share information about the design and construction of the Amersham vent shaft.

For more information and to find out how to receive regular updates, please visit: www.hs2inbucksandox.org.uk

If you have a question about HS2 or our works, please contact our HS2 Helpdesk team on 08081 434 434 or email hs2enquiries@hs2.org.uk

Amersham visualisation - A413 approach (Year 15)

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