



# Didcot Garden Town HIF 1 Scheme

Environmental Statement

Volume I

Chapter 2 – The Scheme

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## 2. The Scheme

### 2.1 Need for the Scheme

- 2.1.1 The Housing Infrastructure Fund (HIF1) Scheme is essential for the economic and social prosperity of Science Vale UK, one of the first Enterprise Zones (EZ), in addition to other newer EZs in the area. Whilst the HIF1 programme is based on future growth, the HIF1 infrastructure will also help to ameliorate the issues resulting from historic housing and employment growth.
- 2.1.2 Didcot is a historic growth area in Oxfordshire, led by the growth and development of Didcot Parkway Railway Station, and continues to rapidly expand whilst quickly becoming a destination in its own right. With large urban extensions of the 1990s (Ladygrove) and planned housing and employment growth in the 21<sup>st</sup> Century, highway infrastructure has failed to keep pace. Additionally, the location of employment centres on historic and relatively remote military bases ((Harwell Innovation Campus and Culham Science Centre (CSC) and Milton Park)), compounds congestion in and around the town. The local vicinity is an important employment area recognised nationally by Enterprise Zone status. It forms part of the area known as the ‘Science Vale’ and is expected to deliver 20,000 additional jobs by 2031. The area is vitally important to the local and national economy. Didcot was awarded Garden Town status by the government in December 2015. Didcot and the surrounding area will deliver around 15,000 new homes up to 2040 in addition to circa 3,300 at Great Western Park.
- 2.1.3 Railway lines and the River Thames create severance to effective movement and barriers to connectivity between homes, jobs and amenities. Severe congestion is evident on the A4130, on the existing river crossings between Didcot and Culham/Clifton Hampden, and within Clifton Hampden. This has led to Oxfordshire County Council (OCC), as local highway authority (LHA), objecting to the applications of single dwellings on grounds of highway safety, convenience and sustainability. These objections have led to Local Planning Authority (LPA) refusals, which have been upheld at appeal by the Planning Inspectorate. Additionally, a Vale of White Horse District Council (VoWHDC) Local Plan<sup>1</sup> strategic allocation for 200 new homes has also been refused planning permission on similar grounds. It is evident that the constrained highway network has already adversely affected growth in the area.
- 2.1.4 The Scheme is deemed as essential to deliver future growth as identified within Local Plans for both South Oxfordshire District Council (SODC)<sup>2</sup> and the VoWHDC. The Scheme is also identified in OCC’s Local Transport Plan 4.
- 2.1.5 The infrastructure investment will help relieve pressure on local transport networks and will facilitate economic growth across the Science Vale area whilst accommodating the expanding communities in the local area. The provision of walking and cycling facilities offer real mode choice for work and leisure, helping to encourage modal shift. Improving local roads and providing new roads will lead to more reliable journey times, less congestion, more job opportunities, and better community links.

<sup>1</sup> <https://www.whitehorsedc.gov.uk/wp-content/uploads/sites/3/2020/10/Local-Plan-2031-Part-1.pdf>

<https://www.whitehorsedc.gov.uk/wp-content/uploads/sites/3/2021/03/VOWHDC-Master-1.pdf>

<sup>2</sup> <https://www.southoxon.gov.uk/wp-content/uploads/sites/2/2021/02/SODC-LP2035-Publication-Feb-2021.pdf>

2.1.6 The HIF1 scheme aims to address the following issues and opportunities:

- **Local and regional economy:** The historic road network in Didcot and the surrounding areas is not currently fit for purpose, this will be exacerbated by planned growth. There is congestion at key points, including where new and planned developments access the road network. The Scheme will unlock and support the delivery of circa 18,000 new homes in the area including affordable homes;
- **Local traffic issues:** Didcot is a centre for distribution meaning there are more Heavy Goods Vehicles (HGVs) on the transport network than in other areas, adding to congestion and delay. There is also a need to plan now for all forms of travel, including modes that are only just starting to be tested (e.g. autonomous vehicles). Transport connectivity is poor in the area with limited links making it difficult to travel between existing/ planned housing and employment sites;
- **Environment:** To uphold its “Garden Town” status, developments within Didcot should positively protect and enhance the natural, built and historic environment; including making effective use of land including using brownfield sites, helping to improve biodiversity, using natural resources prudently, providing green infrastructure, addressing issues such as flood risk, climate change and minimising waste and pollution; and
- **People and local communities:** There have been increasing traffic impacts in Didcot and the surrounding villages and their historic cores due to congestion, noise and air quality. The location of railway lines creates physical barriers between some housing and employment sites, including areas proposed for new development because of limited crossings, which are already reaching capacity. The River Thames is also a barrier with limited bridge crossings. The Scheme will facilitate new movements across the Science Vale area. The Scheme will provide direct, safe and convenient walking and cycling infrastructure across its full length and opens up opportunities for new and improved bus routes.

## 2.2 The Scheme

### Scheme location

2.2.1 The Scheme consists of four separate but interdependent highway schemes, namely: i) the A4130 Widening; ii) Didcot Science Bridge; iii) Didcot to Culham River Crossing; and iv) Clifton Hampden Bypass. The location of the Scheme is identified on Figure 1.1 of ES Chapter 1: Introduction. The area of land that the Scheme will occupy, during construction and operation, is referred to as the ‘Site’ and the red line boundary is referred to as the ‘Scheme boundary’.

### Overview of the Scheme

#### *A4130 Widening*

2.2.2 This part of the Scheme comprises a dual-carriageway from a point approximately 250 m east of Milton Interchange at the junction with Milton Gate, eastwards for approximately 1.6 km to the proposed eastern roundabouts connecting into the future development at Valley Park and the Didcot Science Bridge scheme. Dualling of the A4130 will consist of modifications to the existing single carriageway, establishment of a central reserve and provision of two additional lanes to the south. The existing single carriageway will form the eastbound carriageway towards Didcot and the newly constructed lanes will form the westbound carriageway to the A34 Milton Interchange.

2.2.3 A four-arm roundabout at the western end of the scheme is proposed to serve an area located immediately south-west of this roundabout, which has been subject to



approved outline development proposals for Roadside Services and Facilities (planning application reference P15/V2880/O). This 'Backhill roundabout' will also provide access to the 'North West of Valley Park' strategic housing allocation site, to the south and east.

- 2.2.4 A new signalised T-junction is proposed approximately 600 m east of the Backhill roundabout, which will provide access to the 'Valley Park' strategic housing allocation site, which is the subject of an outline planning application P14/V2873/O, with a resolution to grant permission subject to Section 106 agreement.
- 2.2.5 A new three-arm 'Old A4130' roundabout is proposed 600 m east of the signalised junction. The eastern arm will be the current A4130, that is to be retained as a single carriageway, providing access into Didcot. The south eastern arm is proposed to be an approximately 260 m single carriageway road connecting to the new Didcot Science Bridge three-arm roundabout. The Didcot Science Bridge roundabout will provide access to the new Didcot Science Bridge to the north, and Valley Park housing development to the south. Access at this location is already being secured through the outline planning application for Valley Park.
- 2.2.6 The road corridor will also include a bi-directional segregated cycleway and a footway on the southern side of the dual carriageway, as well as several formal crossing points and buffer.
- 2.2.7 The A4130 Widening proposed layout is shown on Figure 2.1 and on General Arrangement drawings submitted with the Planning Application.



**Figure 2.1: A4130 Widening Layout Plan**

### Didcot Science Bridge

- 2.2.8 This section of the proposed scheme is a new north-south bridge from the proposed Didcot Science Bridge roundabout, over the existing A4130, the Great Western Railway Mainline, and Milton Road, into the former Didcot A Power Station site. The proposed Science Bridge Link Road (SBLR) will connect the bridge with the A4130 Northern Perimeter Road north of the Purchas Road/Hawksworth roundabout, close to the existing Southmead Industrial Estate.
- 2.2.9 Planning permission (P15/S1880/O and P15/V1304/O) has been granted for a mixed-use development in the power station site and this includes the reservation of land for the SBLR and Didcot Science Bridge. There will be various embankments associated with the road bridge approaches, and they will vary in width. The road

bridge will be approximately 16m in width, including a single carriageway, a bi-directional segregated cycleway and a footway on one side of the road.

- 2.2.10 The SBLR will be a single carriageway, with segregated footways and bi-directional cycleways on both sides of the road for most of its length. Various accesses are planned off the road alignment for the proposed development in the power station site (P15/S1880/O and P15/V1304/O). Other works required include the diversion of a watercourse, which will cross underneath the new road in a culvert, and provision of formal Non-Motorised User (NMU) crossings, including a toucan crossing where a National Cycle Route crosses the road alignment.
- 2.2.11 The Didcot Science Bridge proposed layout is shown on Figure 2.2 and on General Arrangement drawings submitted with the Planning Application.



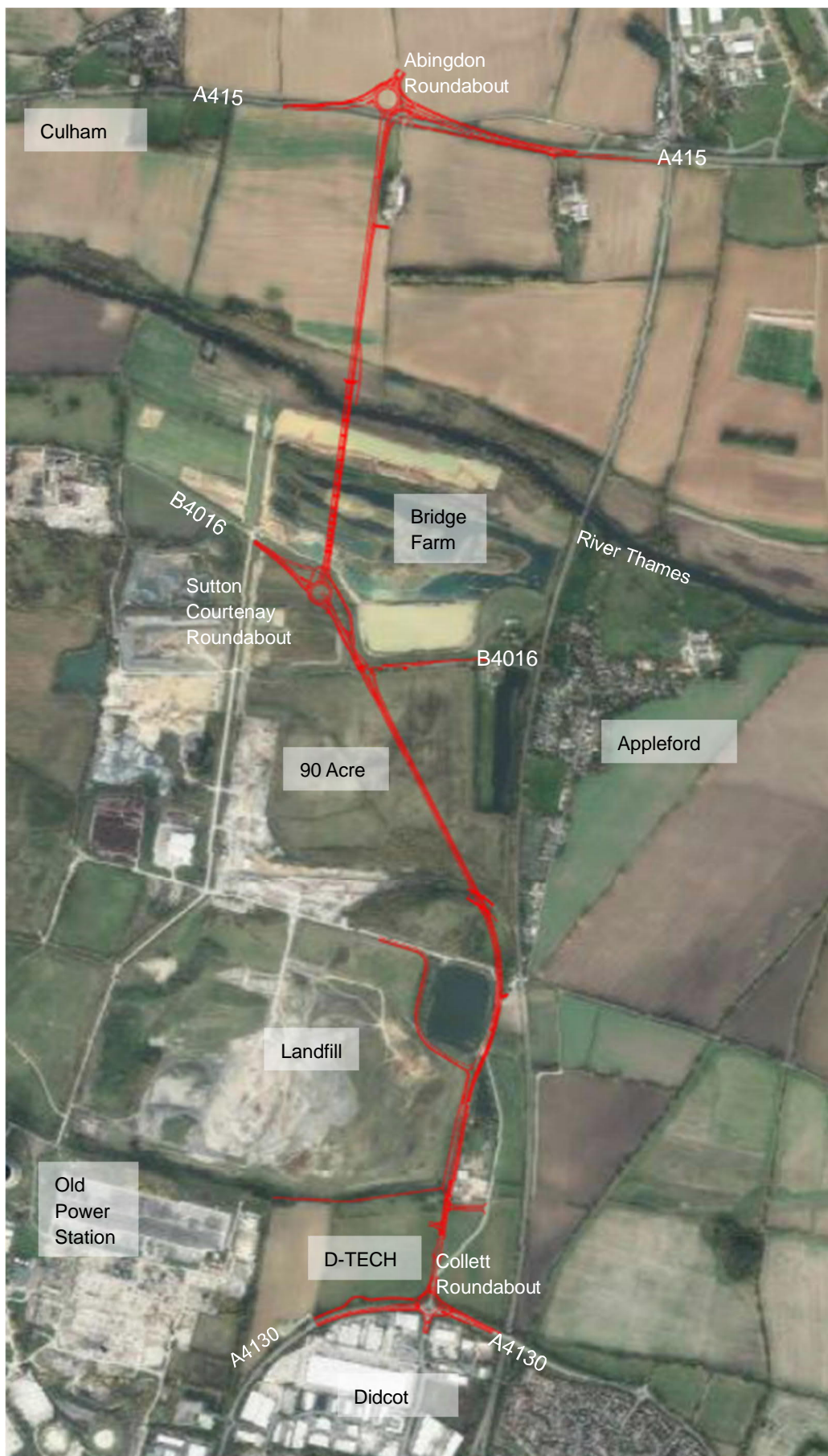
**Figure 2.2: Didcot Science Bridge Layout Plan**

*Didcot to Culham River Crossing*

- 2.2.12 This section of the Scheme will provide a new 3.6 km single carriageway link road west of the Cherwell Valley railway line and NMU facilities between Didcot and Culham. It will extend north from the A4130 Collett roundabout in Didcot to the A415 Abingdon Road west of CSC.
- 2.2.13 An improved and enlarged four-arm A4130 Collett roundabout will be provided. This will connect with the Didcot Science Bridge scheme to the west, the Didcot to Culham Link Road to the north, Southmead Industrial Estate to the south and to the existing A4130 to the east.
- 2.2.14 Agricultural land, private residential properties, a pallet and wood recycling centre, Sutton Courtenay landfill, and Hanson aggregate operations all lay north of Collett roundabout. A Local Development Order is being prepared to enable this agricultural area to become an employment site called D-Tech, in this 'Didcot Growth Accelerator' Enterprise Zone.
- 2.2.15 North of Collett roundabout to the southern edge of Sutton Courtenay Landfill the new single carriageway road will be approximately 20 m wide, with verges, hard strips, and segregated footways and bi-directional cycleways on both sides. Two accesses, one on either side of the proposed road, will be provided to maintain access to the adjacent agricultural land, private residential properties, and businesses.

- 2.2.16 The road will extend north along the east edge of Sutton Courtenay Landfill. In this area on the west side of the road a 3.0 m shared use bridleway is provided with the segregated footways and bi-directional cycleways and continues to the east side. On the west side of the road a new priority junction and access road will be provided to Sutton Courtenay Landfill (operated by FCC Environment), and Hanson Aggregates and Appleford Railway Sidings (operated by Hanson). This will replace the existing Portway Road access further north.
- 2.2.17 The road extends north to Appleford railway sidings passing along the eastern boundary of a large surface water management pond. The Cherwell Valley Line and Appleford Level Crossing is located to the east of the proposed road. Appleford Sidings bridge will be provided to bridge the road over the railway sidings and connect the north and south approach embankments.
- 2.2.18 The road will traverse 90 Acre Field, an area of restored historic landfill, and link to the B4016 to the west of Appleford. A priority T-junction with a ghost island right turn lane will be provided at this location. Sutton Courtenay roundabout will be provided to the north west with a severed section of the B4016 retained to be a footway cycleway. Sutton Courtenay roundabout will be an at grade, three-arm roundabout providing access to the crossing over the River Thames whilst maintaining links between Appleford, Sutton Courtenay and the surrounding areas.
- 2.2.19 Extending north from Sutton Courtenay roundabout, a 336 m approach viaduct will be provided to cross the River Thames flood plain with a 155 m bridge provided to span over the River Thames. The River Thames is navigable at this location the bridge height has been designed to accommodate river traffic.
- 2.2.20 North of the River Thames, the new link road will continue north through existing agricultural land towards A415 where a new at grade four-arm roundabout will be constructed to connect with the A415 and a new development to the north, which is an allocated site in the Local Plan.
- 2.2.21 The layout of the Didcot to Culham River Crossing is shown at Figure 2.3 and on General Arrangement drawings submitted with the Planning Application.



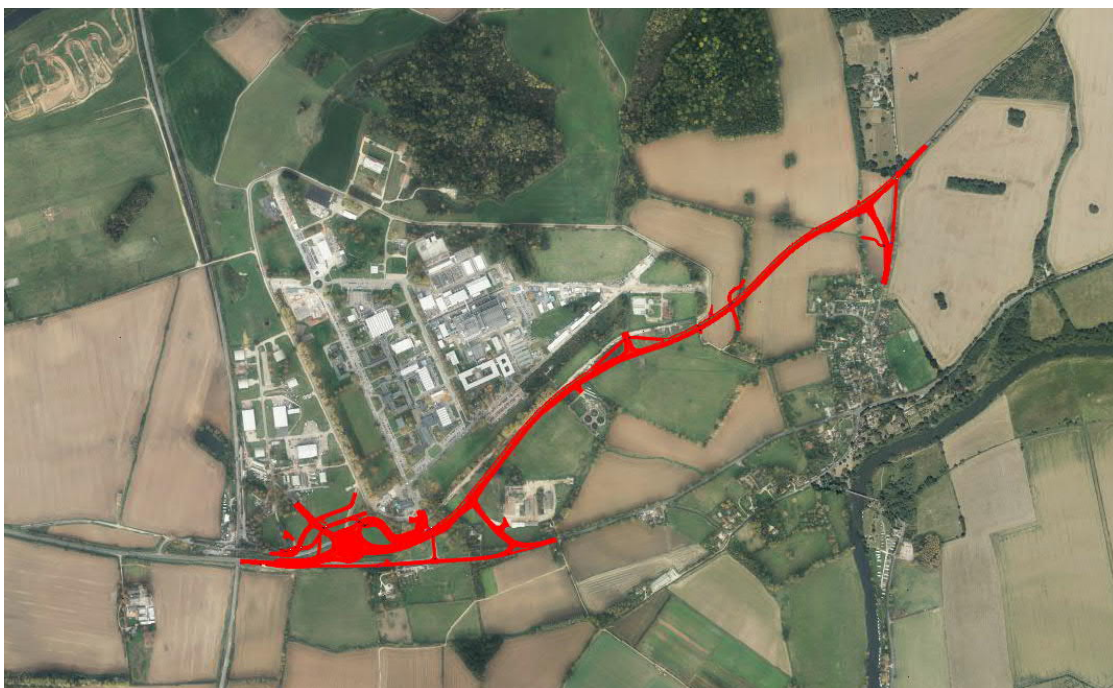


**Figure 2.3: Didcot to Culham River Crossing Layout Plan**

### Clifton Hampden Bypass

- 2.2.22 The Clifton Hampden Bypass will re-route traffic on the A415 around the village of Clifton Hampden, which currently experiences a large amount of through traffic as people travel between the A415 to A4074 northwest of the village.
- 2.2.23 The link road will provide a bypass northwest of Clifton Hampden village and will be approximately 2.2 km long. The new road will be a single carriageway with adjacent hard strips, grass verges, and a shared-use cycleway / footway. The bypass will be aligned in a south-west to north-east direction and will be a single carriageway, approximately 9.3 m in width including hard strips.
- 2.2.24 The proposed works also include the construction of a large four-arm roundabout at the western end of the Scheme, providing access to the SODC Local Plan allocated housing site, a railway station and LEDA owned farmland / businesses north of CSC coming off the northern arm, and CSC on the northeast arm. A new T-junction with a ghost island right turn lane connecting the existing B4015 Oxford Road is proposed at the eastern extent of the Scheme.
- 2.2.25 The current alignment of the A415 will be realigned north into the proposed bypass, with the existing A415 west of this point as a 'no through road' to serve existing residences. All roundabout exits will include one lane, except the eastern bypass arm which will have two lanes. The roundabout will have a segregated left turn lane from the eastern bypass arm to the western A415 arm.
- 2.2.26 Station Road will be realigned and will join with a new entrance to the industrial properties located northwest of the roundabout. The existing main access into the CSC will be converted into a shared use footway / cycleway. The northeast roundabout arm will provide access to CSC via the main gate, and a stub towards Perimeter Road for a potential future connection to be delivered by CSC.
- 2.2.27 The A415 connection road east of the roundabout will provide access from the bypass to the existing A415 and Clifton Hampden.
- 2.2.28 Along the bypass, four access points will be included on the south side of the road; one will link to the existing alignment of the A415 (as described); one to a Thames Water sewage treatment works; and one to an existing farm track. The bypass will tie-in with the current alignment of the B4015 Oxford Road (east) and a T-junction with a ghost island right turn will be included, to provide access to the current alignment of the B4015 Oxford Road (south-west).
- 2.2.29 On the north side of the road, two accesses will be created; one will be a new second access into the CSC, the other will link with an existing farm track. The Clifton Hampden Bypass proposed layout is shown on Figure 2.4 and General Arrangement drawings submitted with the Planning Application.

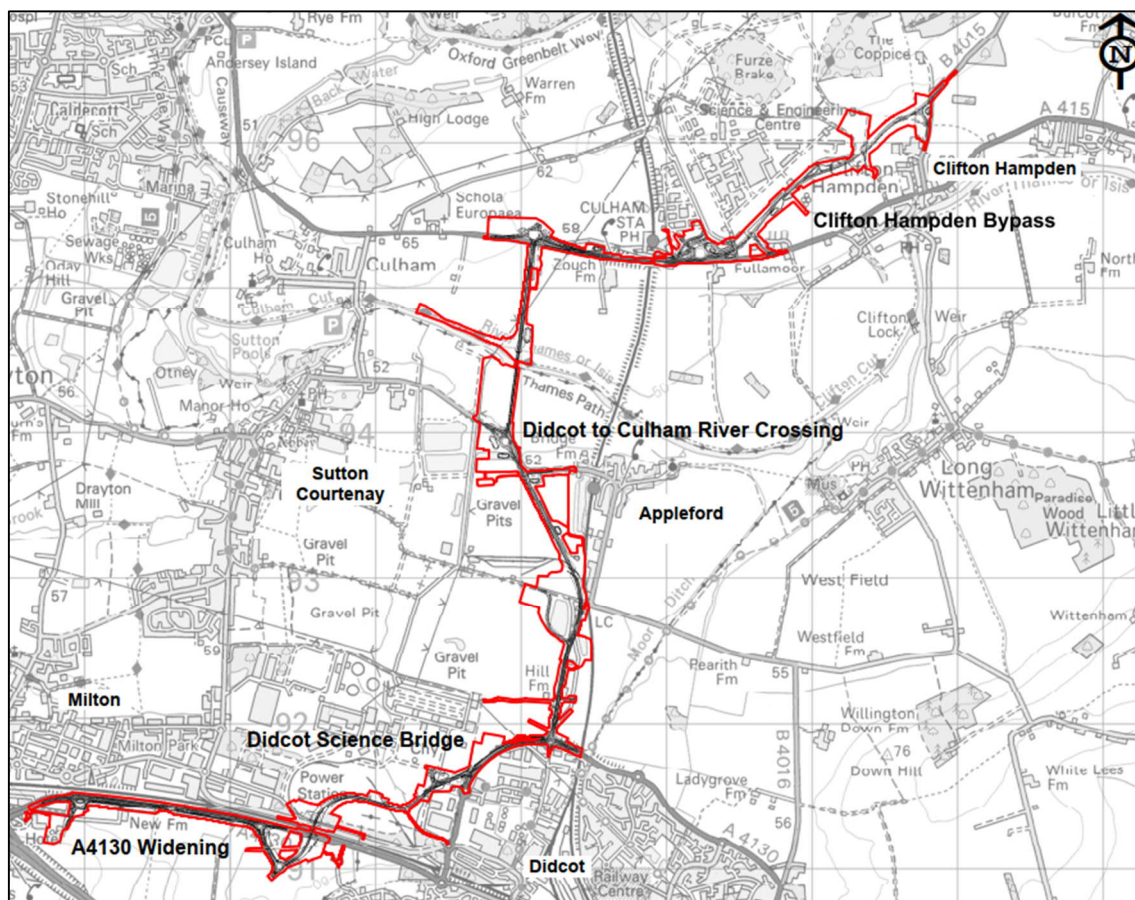




**Figure 2.4: Clifton Hampden Bypass Layout Plan**

Whole Scheme Area

2.2.30 The combined Scheme layout is illustrated in Figure 2.5.



**Figure 2.5: The Scheme**

## 2.3 Construction

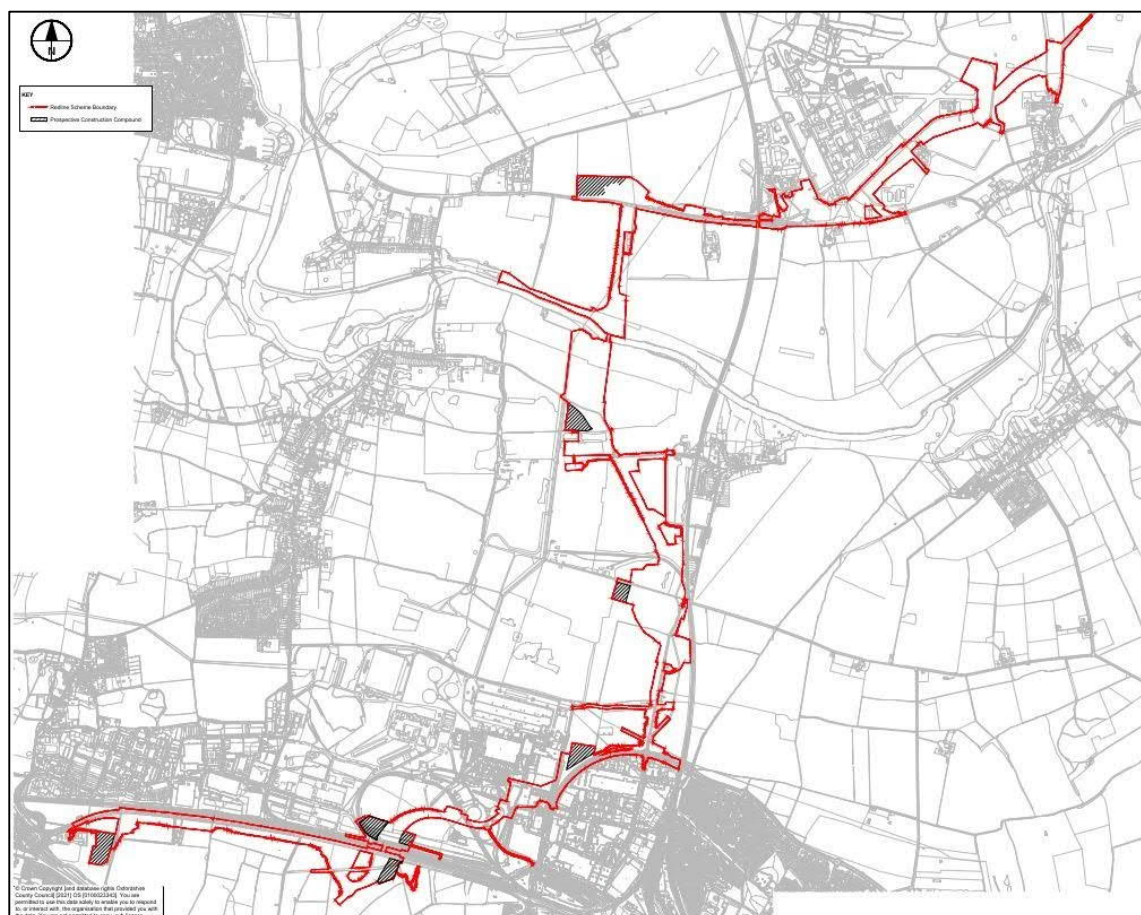
### Construction activities

- 2.3.1 The approach to construction described below is indicative and subject to change during detailed design but is considered representative of the approach to be adopted for the Scheme.
- 2.3.2 Scheme construction activities are anticipated to require the following activities: installation and use of temporary offices and welfare facilities; construction compounds; vehicle parking; material storage areas and worksites; installation and use of temporary accesses and haul routes; demolition of existing structures and buildings; removal of existing infrastructure; vegetation clearance and soil removal; works at or near to the banks of watercourses; ground and excavation works; piling; the use of large cranes required to construct bridges; infrastructure construction activities, installation of temporary traffic management and periodic traffic diversions; and routing of services and utilities.
- 2.3.3 The Scheme boundary, illustrated in Figure 2.5, will allow for temporary traffic management areas, temporary working and storage areas, material stockpiles, haul roads, and provision for site compounds to be used during the construction of the Scheme.

### Construction (temporary) land take

- 2.3.4 It is anticipated that most of the Scheme will be constructed offline, for example, part of the A4130 Widening will be constructed south of the existing hedgerows and trees that comprise the southern boundary and part of the Backhill roundabout. The Didcot Science Bridge roundabout and most of the 'Old A4130 roundabout' of the A4130, will be constructed offline, on agricultural land allocated for housing development in the SODC and VoWHDC local plans.
- 2.3.5 The Didcot Science Bridge will be generally constructed offline and mostly on brownfield land allocated for mixed use development in SODC and VoWHDC local plans; however, online construction will be required where it will tie-in with the A4130 Northern Perimeter Road.
- 2.3.6 The Didcot to Culham River Crossing will be mainly constructed offline, on agricultural land and restored land, and will only require online construction where it will tie-in with the A4130 Northern Perimeter Road, private access roads associated with the Hanson aggregate operations and FCC landfill, the B4016 Appleford Road and the A415 Abingdon Road. The proposed B4016 Sutton Courtenay roundabout and the A415 Abingdon roundabout will be constructed mostly offline.
- 2.3.7 Most of the Clifton Hampden Bypass will be constructed offline, except where the Scheme will tie-in with the A415, Station Road, private roads associated with the CSC and Culham No.1 Site, farm accesses and the B4015 Oxford Road.





**Figure 2.6: Indicative Construction Compounds**

### Demolition

- 2.3.8 A lagoon, owned by RWE and known as the RWE Lagoon 1, will require decommissioning and removal. This will be replaced, in a different location close to the Scheme. The impact of the Scheme on the lagoon is considered in the relevant chapters of the ES. However, the construction and operation of the new lagoon is not a component of the planning application for the Scheme, and therefore not assessed in this ES.
- 2.3.9 The SBLR will connect the bridge with the A4130 Northern Perimeter Road north of the Purchas Road/Hawksworth roundabout, adjacent to the existing Southmead Industrial Estate, where the Scheme continues as part of the Didcot to Culham River Crossing. Due to the proposed highway alignment, RWE lagoon 1 is to be demolished and relocated.
- 2.3.10 In addition, small areas of existing highways infrastructure will require removal, where it will tie-in with the Scheme, and where it is no longer required.

### Construction programme

- 2.3.11 Construction of the Scheme is anticipated to commence in 2023, subject to securing planning permission, land acquisition and the Compulsory Purchase Order (CPO). It is anticipated that the Scheme will become operational in 2024/25.



### **Construction compounds and materials storage**

- 2.3.12 Due to the length of the Scheme, there will be a need for several construction compounds located throughout the Site. It is anticipated that there will be at least nine compounds. The indicative site compound locations are illustrated on Figure 2.6.
- 2.3.13 Various stockpile areas will be required for topsoil and other materials, so they can be stored safely until they are required for re-use within the Site. These stockpile areas will be located close to the Scheme mainline and within the Scheme boundary. The height of stockpiles will be confirmed with the principal contractor during the detailed design. Land used temporarily for stockpiling will be returned to its former use.

### **Haul and access roads**

- 2.3.14 Haul roads for earthmoving equipment such as dump trucks will be required for the entire length of the Scheme. These will follow the alignment of the mainline of the Scheme to avoid the need for additional site clearance. Haul road maintenance and dust control measures will be adopted.

### **Construction traffic and management**

- 2.3.15 Appropriate access routes to site compounds for people, plant and material will be evaluated and designated by the principal contractor, in consultation with OCC as the relevant highway authority, to ensure that movements are restricted to appropriate routes to minimise local disruption.
- 2.3.16 Earthworks material will be retained and re-used within the Scheme boundary where practical, however, there is likely to be quantities of contaminated material that will need to be transported off site to licensed waste management facilities.
- 2.3.17 Other construction traffic will consist of vehicles delivering the products required for the construction of the Scheme, including concrete, bitumen, aggregates, pipes and steel. Some deliveries will arrive as abnormal loads, such as large construction plant.
- 2.3.18 Traffic management will be provided throughout the construction phase to minimise the need for traffic to divert onto alternative routes, minimise impacts on the local community and minimise delays and disruption to existing traffic.
- 2.3.19 A detailed Construction Traffic Management Plan (CTMP) will be prepared and implemented by the principal contractor. The CTMP will define measures to be used by the principal contractor to reduce the impacts from construction traffic.

### **Plant and equipment**

- 2.3.20 Construction of the Scheme will require a large quantity of plant and equipment. The high volume of earth to be moved will require large excavators, dump trucks, cranes, bulldozers, compactors and stabilising plant. The impact of plant and equipment use on noise has been considered in the ES noise assessment as reported in ES Chapter 10: Noise and Vibration.

### **Construction methods**

- 2.3.21 The construction of the Scheme will use typical construction techniques associated with major infrastructure projects.

- 2.3.22 Earthworks, including cuttings and embankments will be required to construct the Scheme. Embankments will be constructed using site-won materials where possible. Pavement construction will use industry standard techniques, where appropriate.

#### Excavated material

- 2.3.23 Construction of the Scheme will require excavation of earth to achieve the desired levels across the Scheme. Where possible, this material will be used to form embankments, leading to roundabouts, bridges and along the mainline of the Scheme.
- 2.3.24 It is the intention that as much of the reusable cut material will be re-used on-site as feasible. Re-use of excavated material will minimise the need to transport this material on the highway network for re-use or disposing it off-site.
- 2.3.25 Should any such materials not be re-used on site, the principal contractor will seek to re-use material elsewhere, although some materials may require off-site disposal. The approach to materials and waste management is considered further in ES Chapter 12: Material Assets and Waste.

## 2.4 Scheme Design Details

### Highways infrastructure

- 2.4.1 This section describes the Scheme infrastructure for motor vehicles, however there are no proposals to ban non-motorised users (NMU) from using it. The description of the Scheme infrastructure specifically for non-motorised users (NMU) begins at paragraph 2.4.22.

#### *A4130 Widening*

- 2.4.2 The existing A4130 is the main access to Didcot from the strategic road network at the A34. It is dual carriageway which extends eastbound from the Milton Interchange reducing to single carriageway at the Milton Gate junction.
- 2.4.3 A new, at grade, four-arm roundabout (Backhill roundabout) will be created approximately 200 m to the east of the Milton Gate junction. This will include two lanes on its circulatory carriageway. The two mainline A4130 entry and exits will have two lanes. Two arms will be provided on the southern part of this roundabout, and these will provide access to planned developments on land to the south-west and south-east of the roundabout. Single lane entry and exits will be provided on these arms.
- 2.4.4 East of the new Backhill roundabout the A4130 will be dualled to two lanes in each direction. Most of the existing single carriageway, adjacent grass verges, ditches, hedgerows and trees will be retained. The existing single carriageway becoming the eastbound carriageway of the new dualled road. A new two-lane carriageway will be constructed south of the existing carriageway and will form the westbound carriageway of the new road. The highways infrastructure in this location will be approximately 35 m wide but may vary where the width of existing ditch varies, this has been considered using the limits of deviation (see Section 2.5).
- 2.4.5 Further east, an access into the land subject to planning permission (Valley Park Ref: P14/V2873/O, VoWHDC) will be included. This will be a signalised junction, with a dedicated right turn lane included on the eastbound carriageway and a dedicated left turn included on the westbound carriageway. The existing ditch and hedgerow south of the existing carriageway will be removed in the vicinity of this junction, to provide a safe layout including for the required visibility. The access will have a single exit

lane, and two approach lanes providing separate left turn and right turn lanes onto the new dualled A4130. Two bus lay-bys will be provided in this location, one east of the junction on the eastbound carriageway, and one to the west of the junction, on the westbound carriageway. A second roundabout (Old A4130 roundabout) will be created. This will be an at grade, three-arm roundabout with two lanes on its circulatory carriageway. It will provide access to the current alignment of the A4130 towards Didcot, and to a single carriageway which will connect with a third roundabout, the Didcot Science Bridge roundabout, to the south-east. All three arms will be marked as two-lane entries, the eastern and south-eastern arms flaring from a single lane approach. The western arm will be marked as a two-lane exit, while the other two arms will provide only a single lane exit. To the east of this roundabout, two bus stops will be created in the main traffic lanes, on the alignment of the existing A4130.

- 2.4.6 The eastern link road section between the proposed 'Old A4130 roundabout' and the Didcot Science Bridge roundabout is a single carriageway. The Scheme will be approximately 20.3 m wide in this location, including NMU provision as detailed in paragraph 2.4.22. Fencing and embankments will extend beyond.
- 2.4.7 The Didcot Science Bridge roundabout will be an at grade, three-arm roundabout, that will provide access between the A4130 and the Didcot Science Bridge, and to the planned development at Valley Park. All approaches will be single lanes flaring to two entry lanes. While all exits will provide only single lanes.

#### Didcot Science Bridge

- 2.4.8 The Didcot Science Bridge will consist of a single carriageway passing over the A4130, the Great Western mainline railway and Milton Road landing in the former Didcot A Power Station site. The bridge will be approximately 14.9 m in width, including NMU provisions.
- 2.4.9 This single carriageway road will continue as the Didcot Science Bridge Link Road, extending through the allocated development areas of the former Didcot A Power Station site. This part of the Scheme will be approximately 18.3 m in width, including NMU provision. These NMU provisions shall be continued into the Didcot to Culham River Crossing scheme. The link road ties-in with A4130 Northern Perimeter Road, north of the Hawskworth Roundabout. The northern arm of Hawskworth Roundabout (A4130 Northern Perimeter Road) connects to the link road, forming a new ghost junction with a right turn pocket is provided on the new link road into the old A4130 Northern Perimeter alignment, leading to Hawskworth Roundabout. Throughout the scheme extents, there are multiple side-roads which will provide direct access points into adjacent land located to the north and south of the Scheme. Side roads that lie within the Clowes development shall be provided by Clowes, all other side roads shall be provided by OCC.

#### Didcot to Culham River Crossing

- 2.4.10 The existing, at grade, four-arm roundabout (Collett roundabout) will be enlarged. It will include two lanes on its circulatory carriageway; currently there is one. All approaches to the roundabout will flare out to two lanes; all exits off the roundabout will merge from two lanes into one lane. Two bus stops will be included to the east of the roundabout, on both carriageways. The alignment continues north, along the current alignment of an access road to several private residential properties, with two offline bus stops provided opposite one another on either side of the carriageway.
- 2.4.11 Further north, the Scheme will continue as a single carriageway with two accesses; one to land located to the east of the Scheme and one to land located west of the Scheme, both serving the proposed Didcot Technology Park (D-Tech) site. The D-

Tech site will not be constructed in advance of the HIF1 Scheme therefore access to J James Pallets and Wood Recycling will be maintained, thereby ensuring that the business is able to operate during the construction of the Scheme. There will also be private accesses to Hartwright House and Hill Farm House. The Scheme will be approximately 20.3 m in width, including NMU provision and verges, but this will increase where bus stops and ghost island right turn lanes are provided (for example, to enable access to Hanson and FCC operations).

- 2.4.12 The Scheme is aligned between three ponds, located to the east and west. Small sections of two of the ponds will be infilled. At this location, to the west of the main carriageway a priority T junction and an access road will be constructed to replace the existing Portway Road access road further north. The priority junction will include a ghost island right turn lane for traffic travelling from the north. The minor arm will incorporate a widened exit so that traffic turning left to the north can filter past vehicles waiting to turn right. The severed section of the Portway Road will be retained as an access for maintenance and operational purposes.
- 2.4.13 Further north, the Scheme will cross Appleford railway sidings, a private railway siding for the Hanson aggregate operations and FCC Landfill Site. The Scheme will remain as a single carriageway and will continue through an area of historic restored landfill (known as the 90-acre field). There will be a priority junction on the B4016 to the north and west of Appleford including a dedicated ghost island right turn lane for traffic travelling north. Further north, two bus stops located opposite each other will be provided offline from the mainline of the Scheme. The proposed Sutton Courtenay roundabout will be an at grade, three-arm roundabout with two lanes on its circulatory carriageway. Two lanes will be included on all exits, these will merge to one lane once off the roundabout. This roundabout will provide access to the crossing over the River Thames and maintain links between Appleford and Sutton Courtenay and the surrounding areas.
- 2.4.14 Extending north from Sutton Courtenay roundabout, a viaduct 336 m in length is provided to cross the River Thames flood plain, with a bridge 155 m in length over the River Thames. The bridge over the River Thames will comprise two 45 m side spans and a 65 m main span. The River Thames is navigable at this location so the bridge height about water level has been designed to accommodate river traffic. The crossing over the River Thames will be a single carriageway, approximately 16.9 m in width including the NMU provisions.
- 2.4.15 To the north of the River Thames crossing, private accesses will be created to a farm property located to the east of the alignment. Where the new link road interfaces with the A415 Abingdon Road a new four-arm at grade roundabout is constructed to the north of the existing road alignment. This connects the A415 Abingdon Road, the new road and a new stub to the north for future development access.
- 2.4.16 The A415 Abingdon Roundabout has two lanes on its southern circulatory carriageway and three on its northern side. This will ensure three lanes are provided at the A415 eastbound access onto the roundabout. Two-lane approaches will be included on all other entries, except for the A415 westbound, which will also include a segregated left turn lane. To the east of the roundabout, the A415 will return to a single carriageway.

#### Clifton Hampden Bypass

- 2.4.17 The Clifton Hampden Bypass will re-route traffic on the A415 around the village of Clifton Hampden, which currently experiences a large amount of through traffic as people travel between the A415 to A4074.

- 2.4.18 The existing A415 will be realigned south of the CSC and a roundabout will be created. The proposed works also include the construction of a large four-arm roundabout at the western end of the Scheme, providing access to the SODC Local Plan allocated housing site, a railway station and LEDA owned farmland / businesses north of CSC coming off the northern arm, and CSC on the northeast arm. Station Road will be realigned and will join with a new entrance to the industrial properties (Culham No.1 site) located north west of the roundabout. An existing access road into the CSC will be terminated and converted into a footway and cycleway. The other exit from the roundabout into the CSC will provide two access points to CSC (main gate and perimeter road). The bypass will be aligned in a south-west to north-east direction and will be a single carriageway, approximately 11.3 m in width including segregation strip and hard strip, but this will increase in some cases for example, where dedicated ghost island right turn lanes are provided. There will be a dedicated, ghost island, right turn lane that will connect with a new single carriageway, which will connect with the current alignment of the A415. This will provide access to the village of Clifton Hampden.
- 2.4.19 Two bus stops are proposed on the bypass, outside CSC, to link public transport to this employment centre. The westbound bus stop will be in a lay-by, while the eastbound bus stop will be on-carriageway. A second pair of bus stops are proposed near the B4015 Connection junction, as a provision for future use by local bus companies to connect with Clifton Hampden Village. The westbound bus stop will be in a lay-by, while the eastbound bus stop will be on-carriageway. Both sets of bus stops will be equipped with a bus shelter and Sheffield stands (cost effective solution for bike parking).

### Structures

- 2.4.20 In the context of this ES, the term ‘structures’ generally refers to bridging structures. There will be three structures built as part of the Scheme. These comprise:
- the Science Bridge, which will be approximately 9.1 m (to the top of the carriageway) above the ground;
  - the bridge over Hanson’s private railway sidings, which will be approximately 8 m (to the top of the carriageway) above the ground level on either side; and
  - the bridge over the River Thames, which will be approximately 6.50 m (to the top of the carriageway) above the average water level (equal to the standard headwater at Clifton Lock of 46.802 m AOD) on the River Thames.
- 2.4.21 These structures will require the creation of earth embankments to ensure that the bridges are elevated to a level which is suitable for their intended purpose.

### Walking and cycling opportunities

#### A4130 Widening

- 2.4.22 Along the length of this section of the Scheme, segregated two-way, off-road, cycling and walking facilities will be provided. East of the Milton Gate junction, the Scheme will include a shared use cycle and footway adjacent to the eastbound and westbound carriageways. This will link to the existing NMU only Backhill Lane Tunnel, and extend around the northern side of Backhill roundabout, where a two stage Toucan crossing (east of the roundabout) will be provided allowing users to cross both carriageways. Segregated cycling and walking facilities and raised Parallel crossings will also be included around the southern side of Backhill roundabout. The existing toucan crossing by Backhill Lane Tunnel will be replaced by a two stage Toucan crossing over the new dual carriageway. To the east of Backhill roundabout, a segregated two-way cycleway and new footway will be provided to the south of the widened and new



sections of the road, up to and including the Didcot Science Bridge roundabout, and will continue over the Didcot Science Bridge and links to the Public Rights of Way and future developments located to the south of the A4130 will be provided.

- 2.4.23 A parallel crossing will be included at the western access to the Valley Park development. Additionally, an uncontrolled crossing will be provided east of the Old A4130 roundabout, which will provide access to the eastbound bus stop (with bus shelter). A Toucan crossing will be included across the new A4130 immediately south of the Old A4130 roundabout. This will provide access to the existing shared path for cyclists and pedestrians along the current alignment of the A4130 linking to Didcot.

#### Didcot Science Bridge

- 2.4.24 A segregated two-way cycleway and footway will be provided over the Didcot Science Bridge on the eastern side of the bridge.
- 2.4.25 East of the northern approach embankment to the Didcot Science Bridge segregated bi-directional cycleways and adjacent footways are to be provided on both sides of the road. Three parallel crossings will allow users to cross the Science Bridge Link Road, additionally one parallel crossing will allow users to cross the old A4130 leading to Purchas Road/Hawksworth Roundabout. Where the Scheme ties-in with the existing A4130 Northern Perimeter Road, a Toucan crossing will be provided to allow those using the north-south Public Right of Way (and National Cycle Network Route 5 (NCN5)) to safely cross the new road on a new alignment. In this locality, a segregated two-way cycleway and adjacent footway will be located away from the carriageway to provide a continuous NMU link to the Didcot to Culham River Crossing. The existing footway on the southern side of the A4130 will be realigned to the new carriageway.

#### Didcot to Culham River Crossing

- 2.4.26 Shared-use footway/cycleways are proposed at the Collett roundabout with an inline Toucan crossing on the eastern arm, a raised parallel crossing on the southern arm plus uncontrolled crossing points on the western and northern arms. An off-road segregated footway/cycleway will be provided to the north side of the A4130 west of Collett Roundabout to connect to the same provision in the adjacent Didcot Science Bridge section of the Scheme.
- 2.4.27 North of the Collett roundabout, there will be dedicated, off-road, segregated two-way cycleways and footways either side of the highway. The facilities on the northbound side will cease at a parallel crossing located north of the accesses to the proposed D-Tech development site. These facilities will continue adjacent to the southbound carriageway leading up to the Abingdon roundabout.
- 2.4.28 A Toucan crossing will be provided for pedestrians and cyclists to cross the mainline immediately south of the FCC/Hanson access road junction. The crossing will connect to a shared-use bridleway along the west side of the Scheme. An additional bridleway link to connect with an existing cycle route (NCN5) west of Hill Farm could be delivered by other parties. The restricted byway through the FCC landfill and Hanson quarries area will continue along the new access road alignment where a new shared use path will be provided.
- 2.4.29 After the point at which the Scheme ties-in with the B4016 Appleford Road, the mainline cycleway and footway will continue separately from the proposed carriageway by using a section of the existing B4016 carriageway alignment. A raised parallel crossing will be provided across the B4016 arm of the junction and a shared-use footway/cycleway will be created adjacent to the eastbound lane of the B4016, to connect the Scheme with the village of Appleford.

- 2.4.30 There will be an uncontrolled crossing of the mainline immediately north of the junction with the B4016. This will connect with a shared-use pedestrian and cycleway facility, which will extend alongside the northbound lane of the Scheme and continue beside the westbound lane of the B4016 from the Sutton Courtenay roundabout. A shared-use facility will also be located alongside the eastbound lane of the B4016 Sutton Courtenay link, which will be accessed via a Toucan crossing located across the north arm of Sutton Courtenay Roundabout for the River Thames bridge. There will also be an uncontrolled crossing point on the west (B4016) arm of the roundabout.
- 2.4.31 There will be dedicated, off-road, two-way cycleway and footway facilities located adjacent to the southbound lane on the bridge across the River Thames. North of the River Thames a footpath will be provided to connect with the Thames path. The two-way cycleway and footway will continue to the Abingdon roundabout, where they will extend east adjacent to the westbound lane of the A415, linking back to the existing NMU facilities that lead into the Clifton Hampden Bypass. Access to Toucan crossing across the eastern arm of Abingdon roundabout will be provided from the cycleway and footway. This will provide access to dedicated, off-road, segregated two-way cycleway and footway facilities located adjacent to the eastbound lane of the A415. A raised parallel crossing will be provided across the northern arm of the roundabout.
- 2.4.32 The proposed NMU facilities on the northern arm will lead into land allocated for future development. A two-way cycle way and footway will be provided on the western arm adjacent to the east bound carriageway.

#### Clifton Hampden Bypass

- 2.4.33 A dedicated, off-road, shared use cycleway / footway will be provided adjacent to both sides of the A415, west of the roundabout.
- 2.4.34 There will be several shared and segregated cycleways and footways, with crossings, created around the roundabout with the CSC and Clifton Hampden Bypass. A new segregated cycleway / footway is proposed to link Culham Station and CSC. This route is designed wide enough in anticipation of heavy NMU demand between these two points. Raised parallel crossings have been provided along this route to allow priority for NMUs over vehicular traffic. The existing A415 carriageway that will no longer be required for vehicular traffic will be used as a shared-use footway / cycleway, which links up to a new shared-use footway / cycleway on the south side of the A415. This new route extends west across the existing rail bridge and into the River Crossing scheme. The existing main entrance to the CSC will be repurposed as a shared-use cycleway / footway to connect the existing A415 and the new bypass. A toucan crossing is proposed where this route meets the bypass.
- 2.4.35 Along the bypass, a shared-use cycleway / footway will be provided along the north side of the road. Several crossings at adjoining roads will be provided and links to existing footpaths will be provided. Additionally, two uncontrolled crossings across the bypass will be provided to maintain connectivity of local Public Rights of Way.
- 2.4.36 A shared-use cycleway / footway will be provided along the west side of the realigned B4015 at the northern end of the Clifton Hampden Village. The existing B4015 carriageway that will no longer be required for vehicular traffic will be used as a shared-use footway / cycleway, which links to the existing B4015 to the north.

#### **Drainage and flooding**

- 2.4.37 The drainage design has been developed in accordance with the Design Manual for Roads and Bridges (DMRB), OCC's Local Standards and Guidance for Surface Water Drainage on Major Development in Oxfordshire, and the requirements of the National Planning Policy Framework (NPPF), alongside advice from environmental

practitioners responsible for undertaking water related assessments reported in ES Chapter 14: Road Drainage and the Water Environment. The drainage design aims to minimise:

- Effects on water quality by using natural storage, treatment and discharge solutions where appropriate to manage surface water drainage during the construction and operational phases of the Scheme, including:
  - A combination of swales and ponds will be provided where possible for large catchments.
  - At some locations, only swales and grassed ditches will be used for attenuation and treatment. Hydrodynamic Vortex Separators will be provided at outfalls as an additional mitigation measure for treatment at these locations.
- Changes to watercourse and ditch alignments, by incorporating solutions into the design of the Scheme that will not result in changes to hydro-morphology. Overland surface water flows will be diverted into proposed overland ditches between the CSC and the bypass, whilst another one will be realigned where it crosses beneath the realigned A415. A new culvert will be constructed at this crossing. Footbridges will be included where new footpaths cross watercourses.
- Land take within areas identified as being at risk of flooding, by directing development away from such areas where possible. Other measures to minimise flood risks include:
  - Flood compensation has been designed and included in the Scheme design.
  - Culverts have been designed to capture the exceedance flow across the Scheme.

2.4.38 Refer to the Drainage Strategy (AECOM, 2021) developed for the preliminary design of the Scheme for details on the drainage design. The Drainage Strategy has been undertaken in consultation with the Environment Agency and the Lead Local Flood Authority (LLFA) and has been designed to account for the impact of climate change on the Scheme, for example extreme rainfall events. An assessment of the impact of climate change on the Scheme and of the Scheme on the climate change is provided in ES Chapter 15: Climate.

2.4.39 Flood modelling has been undertaken in consultation with the Environment Agency and the LLFA for the Scheme and reported in the Moor Ditch Flood Hydraulic Modelling Report (AECOM, 2021), River Thames Hydraulic Modelling Report (AECOM, 2021) and the Clifton Hampden Bypass Hydraulic Modelling Report (AECOM, 2021). The flood risk assessment (FRA) for the Scheme is reported in Appendix 14.1 of ES Chapter 14: Road Drainage and the Water Environment. The flood modelling and the flood risk assessment have been agreed and signed off by the Environment Agency.

## Lighting and signage

### A4130 Widening

2.4.40 As most of the A4130 widening site passes over existing highway there are limited environmental considerations or ecological constraints. There is one section of bat activity along a hedgerow by the Meadow Lane track that intersects with the proposed link between the Northern Roundabout and the Science Bridge Roundabout. This area also has several trees that will be suitable as bat roosts. Whilst this section of highway is being lit, the lighting is provided to the lowest practicable level and it is likely that some of the hedgerow and trees will require removal due to the introduction

of the highway itself. Along the segregated footway / cycleway sections the columns are located between the carriageway and cycleway set back 0.5 m from the northern edge of the cycleway.

#### Didcot Science Bridge

- 2.4.41 For the newly proposed bridge which crosses over the rail line (and the southern and northern approaches), the footway/cycleway on the eastern side of the carriageway will be lit in its entirety. This also means lighting will be required on the bridge approaches and onto the structure, although lighting equipment will not be positioned over the rail lines or over Network Rail land. This is to minimise the risk of glare to train drivers. The cycle paths are designed to lighting class P3 with the exception of the centre (rail) span of the bridge which will remain unlit.
- 2.4.42 Between the proposed northern bridge approach and the Moor Ditch culvert, the lighting has been designed by the OCC Street Lighting Team on behalf of the developer, Clowes. The initial layout of this section provided by OCC has been included in the lighting submission for reference purposes.
- 2.4.43 The proposed shared use path to the southeast of the old A4130 junction has not been included in the conflict area extents as it is remote and located behind a large portion of grassed verge. As a result, this area has been calculated separately to ensure it achieves the minimum required lighting class for a cycle path of P3.
- 2.4.44 The segregated footway/cycleway within the agricultural land allocated for development, located east of bridleway (Ref373/24/40) and north of the alignment, has been lit to lighting class P3.
- 2.4.45 The existing lighting on site (along the Northern Perimeter Road) is all being upgraded as part of a 1-for-1 lantern renewal scheme being carried out by OCC. Therefore, the AECOM lighting design proposals for DSB incorporate tie in points with the new upgraded luminaires.

#### Didcot to Culham River Crossing

- 2.4.46 Much of the River Crossing site passes through private fields with various environmental considerations including ecological constraints. There are several areas of quality habitat for bats along with buildings supporting numerous roosts. In addition, there is high bat foraging activity over the large body of water just south of the Appleford Level Crossing.
- 2.4.47 The extent of lighting at the junction is being kept to a minimum with most of the link sections remaining unlit apart from the required cyclepath lighting equipment. Lighting stops just north of the Sutton Courtenay Roundabout and does not start again until the approach of the Abingdon Roundabout. The river crossing is the most sensitive area of this section where there has been bat activity monitored along the river therefore lighting has not been included here for the carriageway or cyclepath.
- 2.4.48 There are three stand-alone crossings north of the junction with the A4130 (Collett Roundabout) that require lighting. Lighting is required here for safety reasons but is kept to the lowest practicable level along with the use of lower mounting heights (6m) and G6 glare rated lanterns to minimise potential spill light. In addition, there is a crossing point set back from a point east of the Appleford priority T- junction on the B4016. The lighting equipment used here is the same type and height (10 m) as used elsewhere on the scheme.
- 2.4.49 Lighting has been designed to provide a lit footway/cycleway route through the scheme between the A4130 (W) tie-in with the Didcot Science Bridge scheme and

the A415(E) tie-in with Clifton Hampden Bypass. This lighting passes through sections of unlit carriageway and is designed to class P3 as directed by OCC HIF1 Team. The footway/cycleway lighting columns are 5 m high.

- 2.4.50 Appleford Sidings Bridge, the Didcot to Culham River Thames Viaduct and Bridge and agricultural land north of the River Thames will be unlit to mitigate impacts of the scheme on protected species and reduce visual impacts.

#### Clifton Hampden Bypass

- 2.4.51 For CHB, the southern section of the bypass, from the existing rail bridge to the A415 Connection junction, will be lit and ted on 10m columns. The remainder of the bypass will be unlit.
- 2.4.52 The NMU route along the north edge of the bypass will be lit and ed on 5 m columns to OCC specification.
- 2.4.53 For the carriageway extents, the target lighting class is M3. The ‘M’ lighting classes are ‘luminance’ requirements and for these to be accurately calculated the column spacing’s and arrangement need to be consistent. Due to the nature of the scheme extents with crossings, the lighting proposals here instead use ‘illuminance’ calculations and have been designed to the comparable ‘C’ lighting class. The comparable conflict area lighting class for traffic route class M3 is conflict class C3.
- 2.4.54 The NMU crossing area nearest the northern junction is located within the lit section of the carriageway, this has been lit to the conflict area lighting class C3 to highlight the area, this approach has been agreed with OCC. This grid area includes lighting to the back of the path at the crossing.
- 2.4.55 The proposed lighting design generally consists of columns located at the back of the path with new LED luminaires positioned in staggered arrangement.

#### Environmental Lighting Considerations

- 2.4.56 Bat activity has been noted along a hedgerow by the Meadow Lane track, which intersects with the proposed link between the Old A4130 and Didcot Science Bridge Roundabout, along the corridors of the Didcot to Culham River Crossing, the northern section of the Clifton Hampden bypass which passes through private fields. Whilst these sections of highway will be lit, the lighting is provided to the lowest practicable level to minimise the impact on bats.
- 2.4.57 Columns have been positioned at the back of the path where possible to minimise obstructions for NMU users. Vehicle restraint barrier is indicatively proposed through much of the section and in many locations is located at the back of path. As the final location of this barrier is not yet agreed additional co-ordination of the lighting columns will be required at a later design stage to ensure required clearances are achieved. Along the footpath/cycleway sections the columns are located between the carriageway and cycleway set back 0.5 m from the edge of the cycleway. The lowest possible output luminaires have been selected to avoid over-lighting the scheme whilst achieving target lighting levels.
- 2.4.58 Whilst lighting is required along the footpath/cycleway section where it is remote from the junctions it has been kept to the lowest practicable level along with the use of lower mounting heights (5 m). By considering the remote location and ecological considerations in the area, a G3 glare rated luminaire has been proposed for use to maximise the spacings of columns and reduce the overall energy and maintenance requirements of the scheme. A 30 m single sided spacing is achievable within these constraints.



- 2.4.59 Where luminaires are located, if light spill is deemed significant then louvres and shields can subsequently be fitted to luminaires to mitigate against this. However, this will need to be balanced with the requirement to achieve compliant light levels over the site.
- 2.4.60 All proposed luminaires utilise a correlated colour temperature (CCT) of 3000K, other than towards the eastern end of the scheme where a 2700K has been proposed due to bat activity in the vicinity of the northern junction of the Clifton Hampden Bypass and Didcot to Culham River Crossing. Although, warmer colour temperatures for LED light sources generally have a reduced light level output when compared to the 4000k model, they are more environmentally friendly and suited to areas with bat flight paths.
- 2.4.61 As agreed with OCC, the lighting will be dimmed to 75% output between the hours of 00:00 and 06:00. This method of dimming not only reduces energy consumption but can further mitigate potential light intrusion and the impact of light on bats and the impact of light on bats, where bats have been identified for example in areas of the Didcot to Culham River Crossing and the Clifton Hampden Bypass.

### Signage

- 2.4.62 A signage strategy is being prepared for the Scheme which will be further developed during detailed Design. It is proposed that appropriate highway and pedestrian/cyclist signage will be provided at numerous points along the Scheme. These will be limited to roadside signage. No overhead gantries are included within the Scheme design.

## 2.5 Rochdale Envelope

- 2.5.1 The 'Rochdale Envelope' approach is employed where the nature of a project means that some details have not been confirmed (for instance the precise dimensions of structures) when a planning application is submitted, and flexibility is sought to address this uncertainty. This approach arises from two cases of planning law: R. v Rochdale MBC ex parte Milne (No. 1) and R. v Rochdale MBC ex parte Tew [1999] and R. v Rochdale MBC ex parte Milne (No. 2) [2000]. These cases dealt with outline planning applications for a proposed business park in Rochdale. The decision maker, in this case OCC as the relevant planning authority, is to determine what degree of flexibility can be permitted having regard to the specific facts of a planning application. This approach has been utilised within this ES and the technical assessments have considered defined limits of deviation.
- 2.5.2 The assessments set out within this ES are based on the design of the Scheme, as described in this chapter, and as illustrated in the General Arrangement drawings. (Works in relation to the Scheme will be contained within the redline boundary of the Scheme, as assumed by the assessments presented within this ES. The limits of deviation for the Scheme include defined lateral and vertical limits of deviation for all infrastructure and road elements within the Scheme.
- 2.5.3 The limits of deviation have been defined using lateral limits of deviation for all infrastructure elements within the Scheme, and vertical limits of deviation for all the road elements. The extents of the lateral limits of deviation have been used to identify the amount of land to be acquired permanently as part of the Scheme. The vertical limits of deviation are referenced against the vertical profile levels indicated on the drawings that will be submitted with the Planning Application.
- 2.5.4 The defined limits of deviation include:
- The vertical limit of deviation for the Scheme is 2 m;

- The new carriageway will not deviate horizontally by more than 3.0 m;
- In no case will the Scheme extend beyond the defined Planning Application Boundary;
- Structures will not deviate +/- 1 m vertically;
- Surface water outfalls will not deviate horizontally by more than 200 m;
- The lengths of the culverts may change by up to 10% from pre planning submission to post planning submission; and
- Access roads will not deviate horizontally more than 10 m, and vertically by 0.5 m.

2.5.5 In instances where uncertainty exists and limits of deviation applied (as above) to facilitate flexibility, throughout the ES a precautionary approach assuming a worst-case impact has been adopted for assessment purposes.

## 2.6 Long term maintenance

2.6.1 Once the Scheme is complete and operational, long-term management and maintenance will be absorbed under the duties of OCC as the relevant Highways Authority. This is standard practice and therefore should be agreed between the promotor of the Scheme (OCC) the Local Highway Authority asset team.

2.6.2 Maintenance is defined as actions needed to inspect, repair, adjust, alter, remove, replace or reconstruct all aspects that relate to the Scheme. Typical maintenance activities include: the inspection and repair of safety barriers; signage; drainage infrastructure; lighting; environmental barriers; structures; repairs to the carriageway surface; renewal of road markings; maintenance of highway verges and boundaries; management of the soft estate; and the inspection and clearance of road drains.

2.6.3 The Scheme has been designed to minimise the frequency of future maintenance interventions through the incorporation of low maintenance materials, equipment and features that reduce the number of repairs required. Equipment requiring maintenance has been located in areas where access is available for routine inspections. Accordingly, no significant maintenance activities are anticipated to be required within the first five years of the Scheme being operational.

2.6.4 Landscape planting will require ongoing maintenance in accordance with any overarching plan developed for the long-term management of the Scheme soft estate. This includes grass strimming, watering and weed control. Maintenance will be more intensive during the first three to five years after Scheme opening to ensure the successful establishment of planting. It is recommended that maintenance operations will then be reduced to following this period to ensure that the landscape planting maintains its mitigation function. A detailed landscape specification and maintenance schedule will be produced at the detailed design stage.

## 2.7 Decommissioning

2.7.1 It is considered very unlikely that the Scheme will be demolished after its design life as the road will become an integral part of the transport network within Didcot. Decommissioning or demolition of the Scheme is therefore not assessed in this ES.

