# Town and Country Planning (Environmental Impact Assessment) Regulations 2017

## Network Rail

## Oxford Corridor Phase 2 Capacity Improvement Scheme

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# Environmental Impact Assessment – Environmental Statement: Chapter 2 – Description of the Scheme

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| Document Reference | 163390-JAC-REP-EEN-020000 |
| Author | Jacobs |
| Date | June 2021 |
| Revision Number | A01 |

# Environmental Impact Assessment – Environmental Statement: Chapter 2 – Description of the Scheme

## Document Version Control

| Version | Date | Author | Reviewer | Approver |
|---|---|---|---|---|
| A01 | Jun 2021 | M. Skeete | H. Kemm | A. Naik |
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**Report for:**

Network Rail
SN1
Station Road
Swindon
SN11DG

**Authored by:**

Jacobs
1180 Eskdale Rd
Winnersh
Reading
RG41 5TU

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# 2. DESCRIPTION OF THE SCHEME

## 2.1 Introduction

2.1.1 This chapter provides an overview of the permanent and temporary works that would be constructed as part of the Scheme, information on the operation and maintenance of the Scheme and a description of how the permanent works would be constructed and phased.

2.1.2 The Scheme has evolved through an iterative design process and option appraisal, described in Chapter 3 – Scheme Development and Alternatives Considered. The design for the Scheme has been developed in sufficient detail to allow the determining authority and stakeholders to understand the scope and extent of the Scheme, and to inform the Environmental Impact Assessment (EIA) reported in this Environmental Statement.

2.1.3 Further detailed design would take place after the receipt of 'Prior Approval', in line with the Governance for Railway Investment Projects (GRIP) process. GRIP is Network Rail's management and control process for the delivery of projects and is mandatory for all significant Network Rail projects.

2.1.4 In line with the 'Rochdale Envelope' approach this Environmental Statement considers appropriate parameters to ensure a robust level of realistic worst-case scenario assessment in relation to the developing design.

2.1.5 This chapter should be read in conjunction with the following figures, located in Volume 3 – Book of Figures;

- Figure 1.1 – Environmental Constraints;
- Figure 2.1 – Scheme Layout and Location; and
- Figure 2.2 – Western Entrance Layout.

2.1.6 Also associated with this chapter is Appendix 2.1 – Code of Construction Practice, located within Volume 4.

2.1.7 All technical terms used in this chapter are explained within Appendix 1.5 – Glossary and Acronyms.

## 2.2 Scheme Location

2.2.1 The Scheme is located within the local authority administrative boundary of Oxford City Council. Oxford Station is a mainline railway station serving the city of Oxford. It is approximately 0.5 miles west of the city centre, northwest of Frideswide Square and at the eastern end of Botley Road. The River Thames runs roughly parallel to the railway approximately 150m to the west.

The Castle Mill Stream is about 250m to the east of the main station buildings and joins to the Sheepwash Channel in the north of the Scheme. The layout of the Scheme is shown on Figure 2.1 in Volume 3 – Book of Figures.

2.2.2 Oxford Station is on the line for trains between London Paddington and Hereford via Worcester Shrub Hill. It is a starting point for fast and local trains to London Paddington and for local trains to Reading, Worcester and Bicester Town (and onwards to London Marylebone). It is also on the CrossCountry route linking Reading to Manchester Piccadilly and/or Newcastle Central via Birmingham New Street. The station is owned by Network Rail and operated by Great Western Railway (GWR). It is also served by CrossCountry and Chiltern Railways services.

## 2.3 Site Description

2.3.1 The station area is a mix of operational railway land, public highway, a Youth Hostel Association (YHA) building and the Becket Street station car park. Oxford Station consists of a main station building to the east of the railway, a secondary station building to the west, north and south bound platforms, associated buildings, canopies and structures, and a station forecourt which provides a taxi rank and bus interchange.

2.3.2 Directly to the north of the current station building is a staff and short stay car park and a GWR staff accommodation building. The station's main cycle parking area is currently located between the station forecourt and Botley Road to the south. This is partially screened from the highway by an area of trees and shrubs.

2.3.3 Botley Road (A420) to the southern end of the Scheme is the main route into Oxford from the west. The road is classed as a single two-lane carriageway with footway provision on both sides of the road. Botley Road passes beneath the Botley Road Bridge. This bridge currently has insufficient clearance to allow a normal height double decker bus to pass underneath.

2.3.4 The main station building is linked to Becket Street station car park by a purpose-built pedestrian/cycle bridge which crosses over Botley Road. The car park provides circa 480 spaces and caters mainly for rail users. The rectangular car park is situated between the railway line and Becket Street in parallel with them. The footbridge and associated ramps are linked to Becket Street station car park by an area of adopted highway. This area, located to the south of the existing pedestrian/cycle bridge, also provides access to an emergency level crossing, which is formally closed but not yet legally abolished. It is no longer accessible and not in active use.

2.3.5 The Saïd Business School, and Frideswide Square are to the east of the station.

2.3.6 The west of the station has various operational buildings including a peak hours only entrance. There is currently a large YHA building on the site and two small business units.

2.3.7 Roger Dudman Way to the west leads over the Sheepwash Bridge towards Castle Mill student accommodation, off site to the north. Roger Dudman Way is maintained by Network Rail. To the northern end of the Scheme is Sheepwash Bridge (for road and railway) which crosses over the Sheepwash Channel and a Public Right of Way (footpath 320 10/10). The Co-operative Childcare building is located adjacent to Roger Dudman Way just north of Sheepwash Bridge. The existing railway tracks run alongside Roger Dudman Way. The area of Cripley Road, to the west of the station, is largely a residential area.

## 2.4 Environmental Context

2.4.1 The main local environmental constraints are shown on Figure 1.1. Approximately 700m north of the Scheme there is a European designated ecological site: Oxford Meadows Special Area of Conservation (SAC). There are no Ramsar sites, Special Protection Areas (SPAs), National Nature Reserves (NNR) or Local Nature Reserves (LNR) within 2km of the Scheme. There are 5 Sites of Special Scientific Interest (SSSI) within 2km of the Scheme. Port Meadow with Wolvercote Common and Green SSSI is the closest, located approximately 700m north of the Scheme.

2.4.2 The whole of Oxford city centre is an Air Quality Management Area (AQMA). A total of 117 heritage assets were identified within 300m of the red line boundary, comprising 71 archaeological sites, 32 historic buildings (including three Scheduled Monuments), three Conservation Areas, and 11 historic urban character areas.

2.4.3 There are a number of main rivers within the area including the River Thames to the west and the Sheepwash Channel to the north of the Scheme. Five of the mature trees within the red line boundary are subject to a tree preservation order (TPO) and there are several additional TPO tree groups.

2.4.4 There are several Public Rights of Way (PRoW) and footpaths in the area surrounding the Scheme, including 320/10/10 (F1) a footpath which crosses beneath Sheepwash Bridge.

2.4.5 More information on the existing environmental conditions (baseline) and the receptors identified can be found within the topic-specific Chapters 6 to 15 of the Environmental Statement.

## 2.5 Scheme Description

Overview

2.5.1 The Oxford Corridor Phase 2 Capacity Improvement Scheme is scheduled to begin construction in November 2022 with opening of the Scheme expected in December 2024.

2.5.2 The Scheme is designed to increase the efficient operation of the station and would provide additional capacity for the rail network. This would facilitate reduction in journey times, reduce the potential for delays and enable an increase in the frequency of train services. As a result, it is expected that there would be some additional services including for East West Rail and Chiltern Trains (two to three per hour from 2024 and a further two per hour from 2027).

2.5.3 In addition to railway improvements the Scheme would deliver significant benefits to the city in improved and safer highway infrastructure along and adjacent to Botley Road.

2.5.4 The main Scheme elements listed below and shown on Figures 2.1 and 2.2 of Volume 3, would comprise:

- replacement of Botley Road Bridge which incorporates a deeper wider carriageway and improved pedestrian and cycle routes;
- new western entrance to the station with new gateline, ticket machines, retail units, station staff facilities, subway and new lifts to the platforms;
- new Platform 5 and platform buildings including waiting room, toilets, retail and extended canopy along the majority of the platform;
- a western retaining wall, to support the new western entrance and new track;
- alterations to Roger Dudman Way including the removal of the junction with Botley Road, and a new junction on to Cripley Road; and
- Sheepwash Bridge replacement.

2.5.5 Further works to the north, outside of Oxford Council area including level crossing closures, road, footpath, bridleway re-routing, track and signalling changes, are also required to provide the capacity improvements. However, these are geographically separate and do not form part of the current Scheme and therefore not assessed within the EIA or reported in this Environmental Statement.

Permanent Features

*Botley Road Bridge Replacement*

2.5.6 It is proposed to replace the existing 4-track railway bridge with a new wider span, approximately 18m. This would allow for two new approximately 4m wide combined footpath and cycle path routes under the bridge to improve pedestrian and cycle access and capacity.

2.5.7 Works to the highway under Botley Road Bridge would also be carried out to take account of the highway authority's (Oxfordshire County Council) requirements for improved headroom for buses (minimum 4.50m between road level and bridge). This would be achieved by lowering the existing ground level. To facilitate this highway work, ground water control measures would also be installed. New lighting under Botley Road Bridge and in the new foot/cycleways would be provided as part of the Scheme.

2.5.8 To improve the environment for users of the footpaths/cycleways under the Botley Road Bridge, the areas between the reinforced concrete boxes which form the bridge, would be open. This would increase the levels of natural light and make the area less threatening to the users. Vandal resistant cladding is also proposed in this location.

2.5.9 Retaining walls would be required between the bridge structures. In the north west corner of the bridge, the retaining wall would turn to run parallel to the tracks and tie into the proposed Platform 5 retaining wall. In the southwest corner of the bridge, the retaining wall would run in front of the Westgate Hotel following the existing ground profile. The reinforced concrete box side spans of the bridge would require piled foundations on either side of the existing railway.

2.5.10 Demolition would be required for the retaining walls currently running along the south side of Botley Road to accommodate the road widening, in addition to the south pier and abutment. All statutory undertaker services in the vicinity of the bridge would require relocation (or protection) prior to the bridge construction.

2.5.11 The proposed design of the new bridge along with the highway, footpaths and cycle paths beneath are shown in Plate 2.1.

**Plate 2.1: West of proposed new Botley Road Bridge with new combined footpaths and cycle paths, and highway beneath**

2.5.12 The existing embankments either side of Botley Road would be modified to accommodate a new, approximately 20m, (longer span) footbridge between Oxford Station and Becket Street station car park and a new bridge span for the Platform 5 track. The ground on either side of the footbridge would be infilled to footbridge level so the existing footbridge's ramp would not be replaced.

2.5.13 The proposed footbridge would provide 2.4m clear width between handrails. This would allow for unsegregated pedestrian and cycle traffic (cyclists would be required to dismount and walk across). The surface would be drained of surface water and have a non-slip waterproof surfacing layer.

2.5.14 Abutments for an additional future rail track would be installed as part of the current Scheme. This would be situated between the new footbridge and the existing Botley Road Bridge. It is expected that this would be commissioned at a future date to accommodate an extra track and footpath/cycleway.

2.5.15 One tree subject to a tree preservation order (TPO) would be removed as a result of the Botley Road Bridge improvements. Other trees would also be impacted. Further information can be found within Appendix 9.2 – Arboricultural Impact Assessment and Method Statement. This is currently the worst-case scenario and Network Rail is working to reduce impacts to these trees where practicable, through detailed design.

*Western Entrance*

2.5.16 It is proposed to create a new western entrance to the station facing onto Botley Road. This would provide access to the proposed Platform 5 (see Platform 5 and Platform Buildings section) via a subway. The western entrance would be located on the existing Oxford YHA site, on the junction

between the existing Roger Dudman Way and Botley Road. The building would stand at approximately 7m high above the associated forecourt. It would measure approximately 26m from east to west and 34m from north to south (not including the retaining wall).

2.5.17 The public areas within the western entrance would include a main concourse leading through gates towards the subway. There would be a seating area, a help desk, one retail space (60m$^2$), and welfare including an accessible baby change facility. Within the non-public access areas, there would also be welfare, retail and office space for Network Rail, GWR and British Transport Police (BTP) staff.

2.5.18 Externally there would be a large forecourt including a possible external concession area to one of the retail spaces. The forecourt would be bounded to the west by a retaining wall with a combined function of crash deflection and flood protection. The wall would tie into the western entrance at its northern extremity at a height of 2m on the eastern side to mirror the height of the Cripley Road to the west. It would then fall following the Cripley Road levels. The wall would be at 1.2m tall for the last 4m as it curves around the corner towards the east at the Botley Road. The wall would be a total of 12m long and maintain a 1.2m height on the Cripley Road side. The top of the wall would be planted with nectar-producing plants to promote biodiversity.

2.5.19 Four trees subject to TPO and part of a TPO group would be removed as a result of the western entrance works. Other trees and vegetation may also be impacted. Further information can be found within Appendix 9.2 – Arboricultural Implications Assessment and Method Statement. This is currently the worst-case scenario and Network Rail is working to reduce impacts to these trees where practicable, through detailed design.

2.5.20 Replacement trees and vegetation would be planted along Cripley Road. Additional trees would be located along the Botley Road in planters. The flat roof at the northern end of the western entrance would support a green roof planted with vegetation. Additional planting would line the eastern boundary of the forecourt beside the railway and a living wall would clad part of the western wall along Cripley Road.

2.5.21 Bike racks would be provided within the eastern part of the forecourt. It is expected that Sheffield type stands would be used. Further capacity would be possible if double decker units were installed.

2.5.22 A waste compound would back onto the western entrance to the north. The required storage provision for waste would be determined based on a number of factors, including: the size and planned uses (which will determine the

types and quantities of waste produced); the planned amount of segregation and treatment to be carried out on site (bailing, compaction, etc); and the intended frequency of collection.

2.5.23 The southern end of Roger Dudman Way would be removed; a new junction between Cripley Road and the truncated Roger Dudman Way would be installed south of Cripley Place (See 'Alterations to Roger Dudman Way' section). The existing YHA building, two small buildings and the small existing station entrance and associated buildings and signal box would be demolished.

2.5.24 The proposed design of the new western entrance is shown in Plate 2.2.

**Plate 2.2: Visualisation of the new western entrance from the south west**

*Platform 5 and Platform Buildings*

2.5.25 A new platform (Platform 5) is proposed, which would be achieved by building another platform face and track to the west of the existing Platform 4, creating an island platform. Platform 5 would have a canopy and include new customer facilities including a café, toilets, waiting room and train dispatch staff facilities.

2.5.26 The operating length of the new Platform 5 would be approximately 270m enabling the operation of through trains, up to 10 cars in length.

2.5.27 Step-free access to Platforms 4 and 5 would be provided via a subway from the proposed western entrance, through the proposed western retaining wall (see Western Retaining Wall section). This would give access to a new lift and stairs up to platform level at the southern end of the proposed platform

island. Platforms 4 and 5 would also remain accessible to the rest of the station and the existing eastern concourse via the existing footbridge and lifts.

2.5.28 The rainwater from the canopy would be collected for grey water use mainly within the toilets, with any residual surface water draining from the platform and into to the existing surface water drain.

2.5.29 Construction would require demolition of the existing waiting rooms, shelters and lighting columns on Platform 4.

2.5.30 The proposed design of Platform 5 is shown in Plate 2.3.

**Plate 2.3: Proposed Platform 5**

*Western Retaining Wall*

2.5.31 As part of the proposed works at Platform 5 and the western entrance, a vertical embedded retaining wall, approximately 120m in length varying from 1.5m to 4.25m in height, to match the platform, would be required. Its purpose would be to support the Platform 5 track alignment from the realigned Botley Road Bridge. This wall would be located west of the proposed new track from a point just north of the realigned Botley Road Bridge to approximately the midpoint of Platform 5.

2.5.32 An environmental noise barrier would be installed to a height of 2.2m above ground level to reduce the impacts of noise on residents along Cripley Road and Abbey Road. It would be mounted along the top of the western retaining wall.

*Alterations to Roger Dudman Way*

2.5.33 To accommodate the proposed western entrance and the new track which would service Platform 5, alterations would be made to Roger Dudman Way and a replacement to Sheepwash Bridge provided (see Sheepwash Bridge Replacement section). The Roger Dudman Way / Botley Road junction and approximately 150m of Roger Dudman Way north of the junction, would be closed and removed.

2.5.34 Realignment of the entrance to Roger Dudman Way onto Cripley Road would be carried out to remove the existing complex 5-way road junction. This would create the larger footprint area required for the western entrance. Roger Dudman Way would connect directly to Cripley Road through a new junction. Between this junction and the Sheepwash Bridge replacement, there would also be need for realignment of Roger Dudman Way to accommodate the proposed railway track.

2.5.35 Two small buildings currently located between Cripley Road and Roger Dudman Way would require demolition.

2.5.36 An additional pedestrian footpath would be installed along the length of Roger Dudman Way with associated upgraded lighting.

*Sheepwash Bridge Replacement*

2.5.37 To facilitate the new Platform 5 track alignment, the western footpath and road spans of Sheepwash Bridge would be replaced on a new alignment. The replacement would be broadly similar in width to the existing bridge and use the existing abutments.

<u>Temporary Features</u>

*Co-operative Childcare Relocation*

2.5.38 Due to safety concerns, during construction, the existing Co-operative Childcare facility, located just north of Sheepwash Bridge on Roger Dudman Way, would be temporarily re-located to the south east of the Scheme, in the southern end of Becket Street station car park (for about three months).

2.5.39 The proposed temporary building would consist of portacabins which would maximise offsite fabrication and vastly reduce onsite activities. The temporary facility would be located so that it would not affect other structures to the south of the car park including the Osney Lane footbridge.

Drainage

*Highway Drainage*

2.5.40 It is recognised that Botley Road is an important corridor which connects west Oxford with central Oxford. The highway drainage design would have the primary objective of reducing the flood risk in this location.

2.5.41 The proposed design would replace the existing Botley Road pumping shaft with a new deeper one, cutting off drainage to highway gravity drains where possible. This would divert other lower level drainage direct to sewer. The rest would be collected at the new pumping shaft and pumped to the existing sewer connection. Roger Dudman Way would connect into Cripley Road gravity drainage. More information is available within Chapter 14 – Flood Risk and Water Resources.

*Track Drainage*

2.5.42 A track drain is proposed for the new western retaining wall as it may otherwise impede flow from the Platform 5 track. The track drainage would be installed after the construction of the western retaining wall super structure, and before the track is positioned. The track drainage would comprise high density polyethylene (HDPE) catch pits and pipes, geotextile trench-liner, and track ballast.

2.5.43 Rainwater from the Platform 5 line (Down Oxford Passenger Loop) would soak through the ballast to soakaway, east of the new retaining wall.

*Foul Drainage*

2.5.44 A separated foul water drainage system would be installed the on the island platform (Platforms 4 and 5) which would provide drainage for each building that generates wastewater. This system would outfall to the existing manhole which takes the outfall from the existing western station buildings into the Thames Water mains.

2.5.45 Detail of the foul water drainage system is not currently available for the new western entrance.

Lighting Proposals

2.5.46 New proposed external lighting would be designed to reduce up-lighting and light spillage and be installed in public spaces outside the western entrance building. It would mostly comprise post-top column mounted luminaires and wall mounted bulkhead type fixtures. All lighting would specify the use of low

energy, light emitting diode (LED) sources and would be controlled by a timeclock and photocell.

2.5.47 New internal lighting would comprise linear and circular recessed LED luminaires, controlled by wall switches and ceiling-mounted passive infrared sensors. A number of the luminaires would be used with integral 3-hour self-contained, non-maintained emergency packs for emergency lighting.

## 2.6 Embedded Mitigation

2.6.1 The Scheme has been developed to promote and allow for increased use of the railway, a sustainable alternative to car travel. The design incorporates improved pedestrian and cycling provision along Botley Road, Roger Dudman Way and around the western entrance. It also allows for standard double decker buses to pass under the Botley Road Bridge, allowing flexibility for this sustainable mode of transport. As part of the development of the Scheme, a number of further measures have also been incorporated into the design of the Scheme which have a positive environmental benefit. These design measures are known as ‘embedded mitigation’. Table 2.1 provides a summary of these measures with their likely benefit to the environment.

**Table 2.1: Embedded mitigation**

| Mitigation measure | Likely environmental benefit |
|---|---|
| Enhanced access arrangements (including new western entrance) and provision for cycling and walking. | Reduces the use of private car travel to the station and areas close to the station, encourages uptake of active travel and makes station more accessible for Persons with Reduced Mobility (PRM). |
| Western retaining wall southern end piling platform removed. | Reduces the need for piling near to a largely residential area. |
| Vibro piling used throughout site. | Allows for quicker less intrusive pile installation. Less removal of soil, meaning less risk of disturbing contaminated soils and associated risk of emitting odours which could affect amenity at nearby sensitive locations. |
| Design avoids works in identified historical landfills or within the Down Carriage siding compound. | Reduces likelihood of excavating into contaminated land with associated dust, health, groundwater and waste issues, and risk of emitting odours which could affect amenity at nearby sensitive locations. |
| Provision of good quality design of the proposed buildings and structures during detailed design. The design includes use of sympathetic materials in line with the local historic environment. | Reduces the impact on the heritage of the surrounding area and of the wider Oxford city centre. |
| Improved capacity at Oxford Station increasing journeys by rail. | Reduces the number of journeys by car and associated congestion and air quality issues. |
| The track has been aligned to avoid any third-party land take from Osney Cemetary at the southern end of the Scheme. | Reduces the impact on the historic cemetery. |
| Provision of a duel pedestrian cycleway on both sides of the Botley Road under Botley Road Bridge. | Removes pedestrians and cyclists from traffic under the Botley Road Bridge. Encourages sustainable modes of travel and reduces potential for road accidents. |
| Platform 5 canopy supports have been combined with future electrification support, therefore no additional masts would be needed in the same areas in future. | This has led to a more pleasing design, lower carbon and fewer platform area obstructions for Persons of Reduced Mobility (PRM) compliance. |
| Provision of new footpath along the length of Roger Dudman Way connecting to the Sheepwash Bridge. | Provides a safe route for pedestrians, also reducing the need to drive. |
| Botley Road Bridge has been designed to allow daylight to access the road and subways between spans. | Provides a more pleasing aspect for pedestrians and other users. |

| Mitigation measure | Likely environmental benefit |
|---|---|
| The Botley Road Bridge design has a concrete bridge span with ballasted track. | Such a design reduces rail borne noise to the surrounding area compared to alternative materials by a small amount. |
| The Scheme has been designed to retain and refurbish the existing Co-operative Childcare building. The facility would be temporarily relocated nearby to ensure that childcare provision would continue throughout. | Maintains the provision of childcare for the community and enables continuation of the business throughout construction. |
| Station buildings and facilities comply with the 'Persons with Reduced Mobility' (PRM) requirements (European TSI legislation for lines on the European Network). | Improves accessibility and facilities for PRM. |
| The track alignment has been designed to avoid any third-party land take to Abbey Road house gardens at the north end of the Scheme. | Reduces impacts on residents, houses and gardens in the vicinity of the northern end of Cripley Road. |
| Use of the existing foundations for the Sheepwash Bridge removing the need for in-channel works. Temporary impacts have been reduced by using short duration closures only. | Removes the need for in-channel works and hence reduces the potential disruption to riparian biodiversity. It also removes the need for extensive dewatering of the Channel. |
| Provision of additional bike stands on the western entrance forecourt. | The new facilities promote sustainable transport use. This aligns with Oxford County Council policy and supports carbon reduction targets within the city. |
| The Sheepwash Bridge has been designed so that there is no permanent impact on the Sheepwash Channel, navigation or towpath headroom. | Enables existing use of the Sheepwash Channel to be continued after construction of the Scheme. Limits potential flood risk from the watercourse. |
| The Scheme alignment has been designed to maintain access to the side of the Westgate Hotel. | Reduces socio-economic impacts to the Westgate Hotel. |
| The Botley Road has been realigned including lowering of the road. | Allows standard double decker buses (with a chord length of 12m) to use the Botley Road underpass, thus promoting sustainable transport use for passengers accessing the station. |
| Botley Road Bridge has been designed to an efficient bridge deck depth. | To be able to accommodate standard double decker buses whilst limiting the amounts of raw materials used in construction. |

| Mitigation measure | Likely environmental benefit |
|---|---|
| Lighting has been designed sensitively to reduce upward illumination. Controllable LED lights would be installed on the platforms. | Reduces the impacts of lighting disturbance to local wildlife particularly bats, and to local residents. Low energy controllable lighting reduces the amount of time the lights are in use and their energy usage. |
| The construction compounds have been located outside of flood zone 2 where practicable. | Reduces the potential obstruction of water during a flood event. In addition, removes the potential for plant and materials to be moved by and contaminate flood waters. |
| The western entrance has been designed with shallow foundations to require no excavation into the water table for provision of the western retaining wall. | Reduces the need for dewatering and impacts on the groundwater in the area. Reduces the risk of groundwater flooding during construction. |
| The Western retaining wall has been designed to be of pre-cast construction. | Reduces on-site construction times and activities. Also limits the 'wet trade' activities which could otherwise increase the risk of spillage and pollution. |
| The Highway design has modified significantly to reduce intrusion into the water table. The highest practicable soffit height has been used, a reasonable compromise on road/soffit clearance and an efficient road foundation design below. | Allows for shallower construction into the water table. This limits potential impacts on the water environment and the need for dewatering potentially contaminated groundwater. Reduces risk to receptors such us surface water and humans. Dewatering/pumping may still be required. |
| Botley Road Bridge has been designed so that a grout curtain and sheet pile walls can be used. These act as a barrier to groundwater flow into the construction temporary works. | Reduces need for groundwater dewatering. This limits potential impacts on the water environment and the amounts of energy required for dewatering. This also limits the impact of dewatering potentially contaminated groundwater which could impact receptors such us surface water and humans. |
| Co-operative Childcare temporary facility in Becket Street station car park would be constructed from portacabins. This removes the need for significant foundations. | Removes the potential for a physical impact on Osney Cemetery and archaeological remains associated with the Site of Osney Abbey Precinct (Asset 101). |
| A Disability Impact Assessment has been undertaken by Network Rail. The findings have been incorporated into the design of the Scheme. An update to be produced once a contractor has been appointed, to include measures for construction effects. | Reduces the unequal impacts of the Scheme on persons with disabilities. |
| Design of the western entrance to be at a smaller scale and mass than the existing youth hostel. | Removes the potential for impacts on the settings of designated heritage assets, and on the Oxford Tall Buildings Zone. |

| Mitigation measure | Likely environmental benefit |
|---|---|
| A pre-existing long-term groundwater management system is currently in place at Botley Road. As Botley Road would be lowered further, a new pump would be put in place to continue to manage local groundwater conditions. | Reduces the risk of groundwater flooding during operation phase. |
| Before track run-off water is discharged it would undergo treatment via oil interceptors/ silt traps. | Provides treatment of track run-off prior to drainage. Limits the potential impact on the water environment. |
| This building is to be designed to a high quality using a buff brick type and natural limestone typical of the local area, with timber components and clear station entrance signing. Roof material would be a dark colour which contrasts the stone/brick work and corresponds to built form within the context of the Scheme. There would be a section of green roof (sedum type) on the rear portion of the building. Walls would be downlit.<br>The plaza space to the front and side of the building would be a combination of limestone/and granite. to provide a continuation of the quality of the plaza space on Frideswide Square to the east of the station -– to create a commonality of materiality in the public realm in and around the station area. Planters on the plaza would be faced in a dark stone like Frideswide Square. The low retaining wall around the plaza would be in buff brick/stone to tie in with the western entrance. | Improves the western approach into Oxford meeting the aims of both the existing landscape character assessments and the Oxford Station Supplementary Planning Document. |
| Areas of the western retaining wall along the western side of the new track that are within public view are to be faced with a natural limestone/buff brick typical to the area and include tensioned wires for climbing ornamental planting. | As above – provides improvements on character and public realm. |
| The walls aligning the realigned Botley Road are to be red and blue brick. | Ties in with existing retained Botley Road walls. |
| Botley Road Bridge subway and bridge sides would be concrete. Steelwork balustrade powder coated/painted in a dark colour. For functional and maintenance reasons. | Blends neutrally into the townscape fabric. |

| Mitigation measure | Likely environmental benefit |
|---|---|
| Botley Road footbridge would be powder coated/painted in a mid/dark grey. | Blends neutrally into the townscape fabric. |
| Exposed steel girders and parapet with balustrading on the Sheepwash Bridge would be powder coated/painted in a dark colour. Keep basic and functional. Dark finish to reduce staining. | Blends neutrally into the townscape fabric. |

## 2.7 Construction

Construction Overview

2.7.1 This section summarises the proposed strategy to build the Scheme. It provides a description of key features of the construction activities. This includes construction compounds, traffic routes and construction traffic numbers that would be required to construct the permanent and temporary features of the Scheme. It also sets out a sequence for the construction of the Scheme.

2.7.2 The construction methodology presented provides a viable approach to building the Scheme. The approach would be refined during the detailed design phase of the Scheme and is therefore subject to change. However, the methodology is considered robust for the purposes of the assessment which takes a reasonable worst-case scenario approach in the assessment of likely, significant environmental effects.

Proposed Construction Programme

2.7.3 The proposed construction programme is shown in Table 2.2. It should be noted that this is indicative and may be subject to change when the Principal Contractor for the Scheme is appointed. Enabling works would be carried out prior to main works.

**Table 2.2: Proposed construction programme**

| Construction Area | Anticipated Start Date | Anticipated Finish Date |
|---|---|---|
| Start on site | November 2022 | N/A |
| Roger Dudman Way and Sheepwash Bridge replacement | November 2022 | September 2023 |
| Platform 5 and new buildings | December 2022 | November 2024 |
| Botley Road works | April 2023 | December 2023 |
| Botley Road span replacement (100 hour possession) | August 2023 | August 2023 |
| Western retaining wall | October 2023 | November 2023 |
| New western entrance building | November 2023 | November 2024 |
| Entry into service | December 2024 | N/A |

Construction Activities

2.7.4 The key activities for each of the various construction activities are listed in Table 2.3.

**Table 2.3: Key construction activities**

| Construction activity | Key works / activities |
|---|---|
| Enabling works (to prepare for the main works) | • The temporary relocation of the Co-operative Childcare facility from its existing site, just north of Sheepwash Bridge, to a site to the southern end of Becket Street station car park;<br>• Demolition of two buildings west of existing youth hostel;<br>• Demolition of the existing signal box /relay room;<br>• Relocation of point heating SSE supply cabinet away from the north west corner of the Becket Street station car park;<br>• Set up of temporary construction compounds;<br>• Tree and vegetation clearance; and<br>• Diversion of utilities at Botley Road Bridge. |
| Roger Dudman Way/ Cripley Road Junction works | • Set up of a small construction compound around new junction location;<br>• Removal of on road parking spaces;<br>• Tree and vegetation clearance;<br>• Installation of new kerb line along Cripley Road to allow traffic to still pass by the marked-out parking spaces;<br>• Open new junction and divert traffic, closing the Roger Dudman Way/ Botley Road junction;<br>• Divert foot traffic over new kerb line;<br>• Install new temporary aligned kerb line; and<br>• Open up new the new footpath alignment. |
| Sheepwash Bridge replacement | • Installation of new retaining wall, to allow new road alignment;<br>• Alterations to Co-operative Childcare building;<br>• Bailey bridge installation;<br>• Road bridge removal;<br>• Sheepwash Bridge installation;<br>• Bailey bridge removal; and<br>• Final road alignment. |
| Platform 5, new buildings and retaining wall | • Site establishment;<br>• Platform 5 Subway installation;<br>• Platform 5 construction (north);<br>• Canopy foundation - piling and installation followed by canopy installation (north);<br>• Installation of train dispatch building (north);<br>• Platform 4 building demolition;<br>• Retaining wall installation;<br>• Platform 5 construction (south);<br>• Canopy foundation - piling and installation followed by canopy installation (south);<br>• Platform building installation (south);<br>• Track installation; and<br>• Platform 4 works. |

| Construction activity | Key works / activities |
|---|---|
| Botley Road Bridge works and span replacement | • Protection or relocation (if necessary) of mobile phone mast;<br>• Site establishment;<br>• Utility service diversion;<br>• Footbridge installation;<br>• Rodger Dudman Way/Cripley Road junction works;<br>• Northern abutment subway installation;<br>• Southern abutment subway installation;<br>• Bridge span replacement (Botley Road closure);<br>• Road drainage installation;<br>• Pedestrian and cycleway provision installation; and<br>• Botley Road carriageway installation. |
| Western entrance | • Site establishment;<br>• Demolition of existing buildings including YHA;<br>• Utility service diversion;<br>• Foul and surface water drainage installation;<br>• Construction of western entrance building including retaining wall;<br>• Installation of Sheffield bike stands; and<br>• Landscape planting including green roof and living wall. |

Working Hours

2.7.5 Core working hours during the construction period would be:

- Monday to Friday 07:00 to 18:00
- Saturdays 07:00 to 13:00

2.7.6 Certain construction activities would require additional working hours, including at night-time, this would be managed through Section 61 applications.

Temporary Construction Compounds

2.7.7 A number of temporary construction compounds are required to facilitate and manage construction. The construction compounds would provide temporary facilities for accommodating and supporting the workforce and the temporary works, enabling works and construction of permanent works. These would vary in size and function, but would typically include the following:

- temporary construction management offices;
- plant and vehicle parking;
- secure area for storing and servicing plant and equipment;

- materials storage;
- staff welfare facilities; and
- security.

2.7.8 The temporary construction compounds are close to the principal engineering works. The compounds are listed in Table 2.4 and are shown on Figure 2.1 – Scheme Layout and Location.

**Table 2.4: Temporary construction compounds**

| Compound | Location | Purpose/use/principal facilities |
|---|---|---|
| Existing Network Rail Maintenance compound | Located to the southwest of the Botley Road Bridge. | Botley Road construction works. |
| Roger Dudman Way compound | The former Oxford YHA site would be used as a temporary construction compound. | Western entrance/Roger Dudman Way realignment and storage of Botley Road Bridge construction materials. |
| Becket Street compound | Part of Becket Street station car park. | Botley Road Bridge construction works. |
| Pumping chamber compound | To the north east of Botley Road bridge. | Botley Road pumping chamber installation. |
| Temporary Co-operative Childcare re-location compound | South end of Becket Street station car park. | Houses Co-operative Childcare facility on a temporary basis. |

Construction Access

2.7.9 The proposed access route for construction traffic would be from the A34 eastwards along the Botley Road and the reverse direction for the removal of waste by HGV. Much of the construction and waste material for and from works to the railway would be brought to and removed from site by train.

Construction Traffic Management

2.7.10 The construction of the Scheme would affect road infrastructure in terms of temporary road closures and diversions. The number and duration of these temporary closures and diversions would be kept to a minimum and would be subject to further discussion and agreement with the transport authority. They would include the following:

- During construction of the proposed new Sheepwash Bridge, there would be a requirement to close Rodger Dudman Way to traffic overnight for plant access. Traffic would likely be diverted along Walton Well Road (to the north), over the railway bridge and through Walton Well Road carpark.

From the carpark, access would be required over the Castle Mill Stream Bridge which leads to Cripley Meadow allotments and through to the north end of Roger Dudman Way.

- A minimum one-hundred-hour railway blockade (4 days) and road closure would be required to undertake the Botley Road Bridge deck replacement. Traffic to the west of the Botley Road Bridge would be diverted west along Botley Road, and on to the A34 'Southern Bypass Road' and south to the A423. It would then be diverted north onto the A4144 Abingdon Road. From Abingdon Road traffic would be diverted west onto Thames Street and then Oxpens Road. This leads to Frideswide Square and to the eastern side of Botley Road Bridge.

- Traffic would be reduced to a single lane along Botley Road into Oxford for a six-month duration.

- The northern footway along Botley Road would be closed but the closure would be alternated with the southern footway when works allowed.

Public Rights of Way

2.7.11 The Sheepwash Channel tow path (320/10/10) would be temporarily diverted during the construction of the Sheepwash Bridge replacement. The diversion would be south along the Thames Path (320/3/40) towards Abbey Road and Cripley Road. It would then cross the rail line under Botley Road Bridge.

2.7.12 The Osney Lane footbridge crosses the Scheme to the north of the Co-operative Childcare temporary site. It is unclear as to whether this footpath is a public right of way. It would be diverted for a short time whilst works to its abutment are completed.

Utilities

2.7.13 A number of utilities diversion works would be carried out as part of the enabling works before construction activities could commence. These are anticipated to be diverted or protected *in-situ* using the utility providers own powers.

Code of Construction Practice

2.7.14 Construction activities would be managed through the framework of a Code of Construction Practice (CoCP). The CoCP can be found within Volume 4 – Appendix 2.1. The CoCP sets out environmental mitigation, objectives and measures to be applied throughout the construction of the Scheme in terms of management and operation of the works. It includes environmental protection measures and limits to disturbance from construction activities. It also outlines how stakeholders, including both local authorities and statutory

environmental bodies, would be engaged and consulted during the construction phase.

2.7.15 The CoCP would be the mechanism by which the mitigation measures relating to construction set out in this Environmental Statement would be secured. Prior to construction the CoCP would be updated to take account of the latest mitigation measures and planning conditions agreed, thereby securing their implementation.

2.7.16 A Construction Environmental Management Plan (CEMP) would be produced in advance of and implemented during construction of the Scheme by the appointed contractor(s). The CEMP would comply with the requirements of the CoCP and would form the basis for the management of construction activities, particularly in relation to the environment.

Construction Waste Management

*Waste Generation and Management*

2.7.17 The assessment of wastes and materials has been scoped out of this Environmental Statement (see Volume 4 – Appendix 1.1 – Scoping Opinion). Most of the waste generated by the Scheme would be Construction and Demolition (C&D) waste.

2.7.18 Network Rail's (2019) 'Annual Report and Accounts' reports that Network Rail is a major recycler of waste and generates a wide range of waste types including construction, commercial and hazardous wastes. In 2018/19, it generated over 2.1 Mt of waste of which 98% was diverted from landfill through reuse, recycling and other recovery – exceeding its target of 95%.

2.7.19 Network Rail's Route Services logistics function handles more than 1.5 Mt of redundant track materials nationally per annum (e.g. track, sleepers, switches, crossings and ballast), of which the clear majority is reused, recycled and recovered through a network of National Track Materials Recycling Centres.

2.7.20 In the Scoping Report (Network Rail, 2020) it was concluded that there would be opportunity for wastes arising during the construction and operation of the Scheme to be recycled or subject to other recovery via appropriate means, subject to the waste hierarchy.

2.7.21 For wastes which cannot be reused, recycled or otherwise recovered, disposal to landfill would be required. Defra (2019) 'Statistical data set ENV23 - UK statistics on waste' confirms that the construction sector in England

generated a total of 120.3 Mt of C&D waste in 2016[1], and that 92% of this waste was recovered from landfill.

2.7.22 The appointed Contractor would be responsible for obtaining, where required, all necessary waste carrier, broker and dealer registrations, environmental permits, mobile plant deployments or registerable waste exemptions in relation to the storage, sorting, treatment, use, disposal and transportation of waste in the course of constructing the Scheme.

2.7.23 The Scheme would include areas for waste storage and incorporate pollution controls for dust, litter, odour and other statutory nuisances from waste receptacles.

*Preparing a Construction Site Waste Management Plan*

2.7.24 A Site Waste Management Plan (SWMP) would be prepared and implemented by the principle contractor, in a manner to suit the requirements of the Scheme: to ensure that each potential waste stream is evaluated against the waste hierarchy (of prevention, preparing for reuse, recycling, other recovery and disposal); to derive management options that reflect the highest possible level within the hierarchy; to plan, implement, monitor and review waste minimisation and management throughout the construction programme; and ensure compliance with the waste Duty of Care (Environmental Protection Act, 1990).

2.7.25 The SWMP would set out how all construction materials would be managed and would reference any specific materials management plans developed under relevant statutory and industry codes of practice (e.g. CL:AIRE 'Definition of Waste Code of Practice' and/or Waste and Resources Action Programme Quality Protocol for Aggregates from Inert Waste').

## 2.8 Operation and Maintenance

2.8.1 Once the Scheme is operational, it would be inspected and maintained as per the standard maintenance regime elsewhere on the rail network. Frequent maintenance and safety checks would be carried out to ensure the daily operability of the infrastructure.

2.8.2 Regular maintenance would be required in the first three years to establish the new planting including trees, shrubs and a living wall and green roof. After this time, the maintenance of the living wall and green roof would continue

[1] Mineral waste and soils currently make up the vast majority (>90%) of C&D waste generated in England. Mineral waste includes concrete, bricks and gypsum waste; bituminous / tar bound road-surfacing waste; and certain mixed C&D streams.

regularly for the life of those features. The remaining vegetation would require more minimal maintenance.

2.8.3 The station would operate in a way typical of stations of its size including passenger and freight trains arriving and departing with associated public announcements. No additional railway related activities are expected to occur over and above those already at the site.

2.8.4 There would be an additional retail facility located at the western entrance. This would have associated waste disposal requirements (to the rear of the western entrance building).

2.8.5 Passengers would move in and around the site on foot. The Scheme is designed to encourage use of sustainable transport. The small decrease in parking spaces and the increase in numbers of cycle parking locations would encourage this shift. The Transport Police, Great Western Railways and other staff associated with the station would also access around the site.

2.8.6 As a result of the upgrade to Oxford Station, it is expected that additional services would run, approximately 4-5 per hour from 2027. This would produce an increase in footfall at the station. However, due to the lack of additional car parking spaces this is not expected to result in an increase in road traffic.

## 2.9 Decommissioning

2.9.1 The closure of railways is a regulated process, overseen by the Office of Rail and Road. Disposal of railway assets is also regulated by the Office of Rail and Road under the terms of Network Rail's licence.

2.9.2 The Scheme has been developed in line with Network Rail's design standards and is designed for quick and easy installation and replacement. This is dictated by the need to keep the railway operational, which limits available track closure times.

2.9.3 The design life is different for different elements of the infrastructure making up the Scheme and would be replaced as required, determined by the findings of routine maintenance and asset surveys. For example, the design life in normal service conditions for rail, sleepers and formation is 60 years, whilst the design life for ballast and switches and crossings is 30 years. Bridges have a finite operational lifetime of 120 years.

2.9.4 Railways are not designed to be decommissioned and it is not intended that the Scheme would be decommissioned in the foreseeable future.

Decommissioning is not considered further within this Environmental Statement.

## References

Department for Environment, Food & Rural Affairs (Defra). (2019). https://www.gov.uk/government/statistical-data-sets/env23-uk-waste-data-and-management. Accessed February 2019.

*Environmental Protection Act*, (1990). URL http://www.legislation.gov.uk/ukpga/1990/43/contents. Accessed November 2019.

Network Rail. (2020). *Oxford Corridor Phase 2 Capacity Improvement Scheme Environmental Impact Assessment Scoping Report*.

Network Rail. (2019). *Annual Report and Accounts.* URL*:* https://cdn.networkrail.co.uk/wp-content/uploads/2019/07/Annual-report-and-accounts-2019.pdf. Accessed March 2020

Network Rail

SN1

Station Road

Swindon SN1 1DG

networkrail.co.uk