

CoCP Mitigation Register		
Document Number: 163390-JAC-REG-EEN-000002		Revision: A01
Code	Mitigation measure	Benefit/Outcome
Embedded		
E1	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).
E2	Western retaining wall southern end piling platform removed	Reduces the need for piling near to a largely residential area.
E3	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.
E4	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.
E5	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 of a modern building on the heritage of the surrounding area and of the wider Oxford city centre.
E6	Improved capacity at Oxford Station increasing journeys by rail.	Reduces the number of journeys by car and associated congestion and air quality issues.
E7	The track has been aligned to avoid any third-party land take from Osney Cemetery at the southern end of the Scheme	Limits the impact on the historic Osney Cemetery.
E8	Provision of a dual 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.
E9	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).
E10	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.
E11	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.
E12	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.
E13	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. 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 SPG.
E14	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.
E15	The walls aligning the realigned Botley Road are to be red and blue brick.	Ties in with existing retained Botley Road walls.

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E16	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.
E17	Botley Road footbridge would be powder coated/painted in a mid/dark grey.	Blends neutrally into the townscape fabric.
E18	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.
E19	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.
E20	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.
E21	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 Cripsey Road.
E22	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.
E23	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.
E24	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.
E25	The Scheme alignment has been designed to maintain access to the side of the Westgate Hotel.	Reduces socio-economic impacts to the Westgate Hotel.
E26	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.
E27	Botley Road Bridge has been designed to an efficient bridge deck depth.	Allows for shallower construction and therefore less intrusion into the water table. This limits potential impacts on the water environment and reduces the need for dewatering potentially contaminated groundwater. Otherwise could impact receptors such as surface water and humans.
E28	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.
E29	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.
E30	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
E31	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.
E32	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.

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E33	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.
E34	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 as surface water and humans. Dewatering/pumping may still be required however.
E35	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 as surface water and humans.
E36	Co-operative Childcare temporary facility in Becket Street 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).
E37	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.
E38	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.
Generic		
G1	Environmental Incident Control and Emergency Preparedness Plan to be prepared. To include: <ul style="list-style-type: none"> • Procedures in event of pollution event or emergency • Pollution prevention measures • Pro-active management practices for incidents • Criteria for implementing relevant measures 	Limits the risk of environmental pollution incidents as a result of events such as diesel spillage, flooding, contaminated soils etc.
G2	Stationary plant to be used with secondary containment measures such as plant nappies to retain any leakage of oil or fuel. These to be emptied at regular intervals to prevent overflow. Spill-kits shall be stored at key locations on-site and in particular at refuelling areas. Spill-kits shall also be kept with mobile bowzers. Staff shall be trained in their use. The Main Contractor(s) to keep a record of all spillage incidents and inform Network Rail of any spills which cause land contamination or pollution off-site.	Reduces the risk of spillage and resultant pollution incidents.
G3	Collection and appropriate treatment of wastewater generated by: vehicle washing; wheel washes; excess surface water; dewatering of underground structures and tanks; or lowering groundwater (dewatering) for geotechnical purposes.	Reduces the amount of contaminants such as sediment being released to surface or groundwater.
G4	Wheel washes to be located at the exit to all construction compounds. Vehicle washing to be made available. Water assisted road cleaners would be deployed on public roads where necessary.	Reduces the amount of mud tracking onto the road network. Also limits the amounts of dust generated.
G5	A robust pollution prevention strategy (covering air, surface and ground water, sedimentation etc) to be produced. Measures to be included in a Construction Environmental Management Plan (CEMP)	Limits the risk of environmental pollution incidents as a result of events such as diesel spillage, flooding, contaminated soils etc.

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G6	A communication strategy shall be established by the Main Contractor in collaboration with Network Rail, consisting of: <ul style="list-style-type: none"> •liaison with relevant local authorities, statutory bodies, relevant community groups and local residents; •provision of regular updates on the Scheme website; •notification of nearby communities of planned construction works that may affect them a minimum of 2 weeks in advance; •provision of a dedicated phone number / email address for members of communities close to the works to use should they have any enquiries or complaints and following an appropriate procedure to address these. 	Informs consultees and members of the public of the progress of the Scheme and to efficiently address any queries or concerns raised.
G7	The Scheme to be resource efficient, minimising the use of materials, energy and other resources. A circular approach to be taken where products are kept in use for as long as possible and, after they reach the end of their useful life, they are recovered or regenerated to retain as much value as possible.	Reduces carbon footprint, waste and costs. Solutions that seek to minimise the consumption of materials and the generation of waste throughout the lifecycle of the Scheme.
G8	Resource efficient construction principles to be used throughout the design of the Scheme.	
G9	The required storage provision for waste to 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.	Allows for safe handling of wastes during operation.
G10	The Scheme would include areas for waste storage and incorporate pollution controls for dust, litter, odour and other statutory nuisances from waste receptacles.	Allows for the maintenance of a clean, healthy and safe station environment.
G11	Where practicable, construction materials would be delivered to the site by rail and construction waste would be exported by rail.	Transport of construction and waste materials by rail reduces road traffic, particularly HDV movements on the local road network. This would reduce impacts to traffic during construction. It would also limit traffic emissions within the Oxford City AQMA and nearby Botley AQMA on the A34.
G12	Welfare facilities and cabins would be located in the compound areas. No living accommodation would be provided in the compounds or the working areas.	Provides on-site facilities for the workforce but also limits the potential for overnight nuisance.
G13	Bonfires and the burning of waste material would be prohibited.	Reduces the incidents of nuisance due to dust and odour and potential for runoff into local drains and watercourses.
G14	Construction workers would undergo training to increase their awareness of environmental issues.	Reduces inadvertent impacts on environmental receptors such as biodiversity, watercourses, residents etc.
G15	Collaboration between Network Rail and the Main Contractor to ensure there is sufficient signage, way-finding and support for those with protected characteristics who would use the station during the construction period and when the works are complete.	Provides assistance for PRM and mitigate the potential for disproportionate impacts due to construction activities.

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G16	<ul style="list-style-type: none"> • Provide effective liaison with local residents wherever working outside of core hours is to be undertaken; • Programme and phase the works over a number of stages to restrict impacts within any one area to the minimum time; • Shut down equipment when not in use, i.e. maintain a 'no idling policy'; • Carry out toolbox talks to make sure that all those undertaking the works are aware of their environmental responsibilities and of the sensitivities of the vicinity. These would also ensure that BPM of control are delivered on the site; • Avoid double handling and therefore the overall number of tipping actions; 	Reduces nuisance for local residents.
Air Quality and Odour		
A1	<p>Robust dust management and control measures to be implemented during construction. Measures set out in the CoCP and dust risk assessment (appendix 6.2) are to be included in the CEMP. In summary, these include, but not limited to, the following:</p> <ul style="list-style-type: none"> • Procedure for recording and responding to dust complaints • Appropriate surveys and visual inspections of the site (including the site boundary) and works to increase compliance with dust management measures and effectiveness of the mitigation measures and dust controls • Site layout and activities to be as far as reasonably practicable from nearby sensitive locations • Comprehensive measures and working methods to prevent and reduce dust emissions at their source • Management of earthworks and stockpiles of materials • Measures for controlling dust emissions during demolition and construction activities • Measures for controlling dust emissions from vehicles travelling within the site and on the local road network • Development of action plans and contingency plans for adverse weather conditions / breakdown of dust suppression equipment • Mechanism for stakeholder liaison and performance review 	These measures to control the potential adverse effects of dust emissions during construction and the residual air quality effect with regard to affecting amenity or human health to be not significant.
A2	Measures within the CoCP to include strategy for identifying and managing suspected contaminated ground during the construction works and, if these are found to contain odourous contamination such as hydrocarbons and volatile organic compounds, implementing appropriate controls to reduce odour emissions during excavation and movement of the material	Implements appropriate controls to reduce the uncontrolled release of odours from areas of ground contamination which may be disturbed or excavated during the construction phase.
A3	Watching briefs, risk assessments and method statements to be produced. Control measures for working in or near to land affected by contamination to be implemented by the Main Contractor(s). Stockpiles of known or suspected contaminated materials to be segregated depending on the source of the material and nature of the contamination. If odourous, then stockpiles to be covered until transported off site for disposal/treatment.	Implements appropriate controls to reduce the uncontrolled release of odours from areas of ground contamination which may be disturbed or excavated during the construction phase.
A6	Ground gas monitoring along northern portion of Roger Dudman Way.	<p>Assesses gas migration from the Down Carriage sidings compound and the Walton Well Road Allotments Historical Landfill.</p> <p>Gives early warning of potential contamination or ground gases which could be odourous if disturbed and exposed to the air and allow suitable management of odours.</p>
Geology and Soils		

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S1	A contaminated land risk assessment to be produced based on the proposed work to be undertaken at Becket Street car park to anticipate ground conditions. Temporary Co-operative Childcare would be housed in portacabins removing the need for foundations.	Portacabins reduce the need to excavate into Becket Street car park. Risks of contamination from additional excavation would be reduced by measures identified during risk assessment.
S4	Construction management measures to be included within the CEMP to control pathways for ground gas release and mobilisation of contaminants into the ground and groundwater in the Down Carriage sidings compound and Becket Street car park areas.	Reduces risk to human health, and groundwater.
S3	Measures within the CEMP to include use of cut-off ditches/traps around excavation works, exposed ground and stockpiles	Reduces risk of uncontrolled release of sediments or contaminants from accidental spillages to soil or groundwater.
S5	Representative sampling of imported materials and materials for re-use within the Scheme. This would include chemical contamination testing where required for a range of soil and soil leachate analytical suites including an assessment against appropriate limit values for protection of controlled waters and human health.	Prevents the importation or reuse of contaminated or unsuitable fill materials to site.
S6	The CEMP to include measures for suspected contaminated ground. If visual or olfactory evidence suggests contamination the following would be undertaken: <ul style="list-style-type: none"> • representative samples taken of the suspect material by a suitably qualified person and sent for laboratory analysis to assess the risk to potential receptors; or • if significant contamination were found where ground works could not be avoided, then the material would be removed for treatment or disposal and replaced with clean material prior to groundwork re-commencing where practicable. 	Controls the risk of contamination to the public and on-site workers.
S7	A piling risk assessment to include soil sampling to be undertaken prior to construction where piling would potentially impact aquifers.	Reduces the risk of opening migration pathways for contaminants to deeper strata.
S10	Targeted watching briefs, risk assessments and method statements to be produced. Control measures for working in or near to land affected by contamination shall be implemented by the Main Contractor(s).	Reduces the risk to construction workers and population.
S12	Stockpiling and testing of material suspected to be contaminated prior to reuse or disposal. Stockpiles to be segregated depending on the source of the material and nature of the contamination. Stockpiles to be placed on a low permeability liner or low permeability ground, suitably protected from damage by earthmoving plant. Testing of known or suspected contamination stockpile areas prior to and after use to assess for potential cross-contamination. Testing of site excavated material prior to reuse and assessment of test data against criteria for potential unacceptability in accordance with the MMP.	Reduces the risk of runoff of contaminants from stockpiles into surface water. Material should be tested for known contamination on site and waste suites provided by the waste contractor.
S13	Measures to be put in place to ensure pre-mixing of the required concrete would be undertaken off-site or in controlled areas of site compounds if practicable. Where this is not practicable the risks could be reduced by limiting the mixing and handling of wet concrete on site to designated areas where the release of runoff could be controlled and contained.	Reduces the risks of impacts from concrete preparation.
S14	Buried services which may be impacted by the Construction Works to be protected from the ingress of mobile and aggressive contaminants within areas of known or suspected contamination. Example services include but are not limited to: highways drainage; utilities; and telecom ducts;	Protects buried services from mobile and aggressive contaminants and to prevent migration of contaminants.

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S15	The Main Contractor(s) to undertake a desk top review of unexploded ordnance (UXO), review the UXO assessment reports available prior to construction and undertake any necessary recommendations presented in the reports. The results to be set out in a Detailed Remediation Strategy. Where further UXO surveys are required these will be undertaken by the Main Contractor(s).	Reduces the risk of encountering UXO during construction.
S16	Monitoring of groundwater and gases prior to, during and after construction. This would provide additional data to refine the on-site risk assessment and method statements. Targeted locations to be identified at next stage.	Key locations are: Down Carriage sidings to Sheepwash Bridge; Walton Well Road Allotments; south of Botley Road; and Botley Road Bridge. Reduces the risk to construction workers where ground gas is identified as a potential risk. Also to reduce the risk to construction workers, groundwater aquifers and surface waters where contamination is identified as a potential risk.
S17	Use of correct Personal Protective Equipment and watching brief for contaminated soil and groundwater during excavations.	Ensures the health and safety of workers.
S18	An appropriate biosecurity strategy to be produced and a non-native species management plan produced and implemented.	See also B1 to cross-ref
Historic Environment		
H1	Archaeological watching brief during construction of: <ul style="list-style-type: none"> •western entrance foundations; •platform canopy support foundations; •any excavations associated with Becket Street compound, pumping chamber compound, existing Network Rail compound, and temporary Co-operative Childcare relocation compound; •interim footbridge abutments; •Sheepwash Bridge replacement abutments; and •Botley Road drainage launch and receipt pits. 	Would confirm the presence or absence of unknown archaeological remains at these locations and provide an opportunity to ensure they were recorded.
H3	Use of best practice measures in line with the British Standards Institute Code of Practice for Noise and Vibration Control on Construction and Open Sites – Part 1: Noise (BS 5228; 2008)	Would reduce the effects of temporary short-term impacts on the setting of historic buildings during construction from aural and visual intrusion into their settings
H2	Should archaeological fieldwork be required, the Archaeology Fieldwork Strategy and Written Scheme of Investigation would be appended to the CEMP. Artifacts/remains would be reported appropriately.	A complete record of the area would be retained.
Landscape and Visual		
L1	A Tree and Hedgerow Protection Strategy to be prepared and implemented in advance of construction commencing in accordance with BS5837 Trees in relation to design, demolition and construction – Recommendations. This to be enforced and monitored through a Construction and Environmental Management Plan.	To limit the impacts to vegetation during construction.
L2	During clearance operations the contractor would be required to comply with HSE / Arboriculture and Forestry Advisory Group Safety Guides. Shrubs and smaller trees would be cut down and grubbed up. Larger trees would be felled as close to the ground as possible and stumps removed. The site would be cleared of all rubbish and debris.	Ensures compliance with HSE/Arboriculture and Forestry Advisory Group Safety Guides.

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L3	Retention of existing vegetation wherever practicable, to help preserve local landscape character and mitigate visual impact. Tree felling to be reduced to that necessary to allow the safe construction and operation of the Scheme. Protection of existing vegetation to be retained, including trees and hedgerows in accordance with BS5837 Trees in relation to design, demolition and construction - Recommendations. The effectiveness of the tree protection measures would be monitored throughout the construction period by a qualified arboriculturist. In the event that working within Root Protection Areas is necessary, the arboriculturist shall provide guidance to avoid unnecessary damage to root systems and to keep the plants intact and healthy.	Allows for safe removal of vegetation, and promotes healthy growth of new planting.
L4	All planting is would be carried out by an approved landscape contractor with BALI membership. All plant material would be procured well in advance of planting and reserved for planting by the contractor. Material would be undamaged, sturdy, healthy, and vigorous, of good shape and without elongated shoots. Grown in a suitable environment and hardened off, free from pests, diseases, discolouration, weeds and physiological disorders. All plants would have balanced root and branch systems, healthy fibrous root systems and be in a good condition. They would conform to the relevant part of the National Plant Specification. Plants would be handled with care in accordance with the Horticultural Trades Association 'Handling and establishing landscape plants.' Protect plants from frost and mechanical damage.	Promotes healthy growth of new planting.
L5	Where practicable topsoil would be stripped and stored in good condition, a maximum of 1.5m temporary high heaps kept weed free until it is required for use. Other material would not be placed on top of spoil heaps. This would reduce damage to soil and to facilitate re-use as a soil medium for new planting in accordance with best industry practice set out in BS3882:2015 Specification for Topsoil. No topsoil removal from below the spread of trees to be retained.	Limits the amount of new topsoil to be imported onto site due to deterioration of soil condition during storage.
L6	Re-instatement of ground used temporarily during construction to original condition, including existing vegetation, wherever practicable as a minimum and in some cases to an enhanced condition.	Retains the landscape and visual character of the area after construction.
Noise and Vibration		
N1	The CEMP would outline measures to be put in place to ensure that levels of noise and vibration are minimised during the construction phase of the Scheme. In particular, the CoCP and CEMP would detail pollution prevention and control measures, as well as contingency plans to deal with an exceedance of agreed construction noise limits.	Reduces the likelihood of residents or local populations experiencing nuisance due to increases in noise.
N2	A noise barrier has been included as mitigation. The barrier has been modelled as being 2.2m high and absorptive. The barrier is 150m in length and runs along the west facing boundary of the station between the new Western Entrance and the Sheepwash Channel.	Reduces operational noise related to train movements and stationary noise sources adjacent to Roger Dudman Way new platform 5.
N3	Use of best practice measures in line with the British Standards Institute Code of Practice for Noise and Vibration Control on Construction and Open Sites – Part 1: Noise (BS5228; 2008)	Reduce the effects of temporary, short term noise impacts on residents, pedestrians/cyclists, businesses and the local historic setting.

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N4	<p>General noise mitigation measures</p> <ul style="list-style-type: none"> • Erect local hoarding, screens or barriers as necessary to shield particularly noisy activities, or around the site boundary if residential properties are located close to construction works. • Position equipment behind physical barriers, i.e. existing features, hoarding or purpose-built acoustic barriers; • Site static machines as far away as practicable from inhabited buildings or other noise sensitive locations; • Direct noise emissions from plant, including exhausts or engines, away from sensitive positions; • Handle all materials in a manner which limits noise, including reducing drop heights into hoppers and lorries; • Avoid double handling and therefore the overall number of tipping actions; • Avoid body and tailgate 'slap' from empty lorries; • Lubricate moving parts of working platforms and other equipment to control noise when being operated; • Remind all site employees of their obligation to limit noise on site by the use of signs and site inductions; and, • Engage in community liaison to explore ways of reducing noise impacts and increasing local tolerance to noise. 	Reduces the impacts of noise on the local community.
N5	The contractor would seek to obtain prior consent from the relevant local authority under Section 61 of the Control of Pollution Act 1974 for the proposed construction works.	Section 61 sets out the final Best Practical Means measures to minimise construction noise and vibration and describes procedures for monitoring of noise and vibration during construction as necessary.
Population		
P1	Measures for to reduce population effects included within other chapters	Reduces potential noise, air quality, traffic and visual impacts which may lead to wider amenity effects.
Human Health		
H1	The needs of Persons with Reduced Mobility (PRM) and other groups in need of additional support to be considered appropriately when planning temporary traffic management measures. Measures to be contained within the CTMP.	Improves safety and reduces stress during construction activities.
Traffic and Transport		
T1	<p>A Construction Traffic Management Plan is provided within the Transport Assessment and is summarised below. It provides a framework for which the appointed contractor would consider the following requirements:</p> <ul style="list-style-type: none"> •Preparation of site plans. •Construction access routes and movement including signage. •Traffic Management and Road Closures (i.e. those necessary when making alterations to the existing highway network). Traffic management measures would be specific to each access as required. •Site management (including site access, vehicle and pedestrian access arrangements, boundary demarcations, on-site parking and management of deliveries). •Construction vehicle requirements. •Debris and damage to the highway network (including pre-construction condition surveys and monitoring arrangements). •Staff travel (including a series of measures set out within a Travel Plan). •Diversion of NMU/ pedestrian, cyclist, and equestrian routes. 	Reduces delay and improves the flow of traffic during Scheme construction. Early communication of traffic diversions reduces the likelihood of traffic congestion and perception of driver delay.

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T2	A Transport Management Working Group (TMWG) would be established prior to commencement of construction and maintained for the duration of the works. The main responsibility of the group would be to monitor to the CTMP. It would also allow direct communication between, amongst others the contractor, the Local Highway Authority and Highways England. Parking would be monitored during construction and reported to the TMWG as required.	Allows buy in to the Scheme from all parties to ensure local residents and businesses are represented and have their concerns heard.
T3	A construction Travel Plan would be produced and implemented as part of the CTMP. This would encourage construction staff to use sustainable modes of travel (i.e. public transport, walking and cycling) wherever possible.	Maximises the benefits brought to Oxford Station by development of the Scheme.
T4	An operational Travel Plan would further reduce the traffic impact of the Scheme during construction, by encouraging a change in mode from the private car to sustainable travel.	Encourages a change in mode from the private car to sustainable travel options
T5	a highway condition study to be undertaken along the proposed delivery/construction route. It is proposed that a video survey is undertaken prior to the commencement of any works and again upon their completion.	Reviews the condition of the carriageway to identify any damage caused by the construction traffic.
Waste and Materials		
M2	A Site Waste Management Plan (SWMP) would be prepared and implemented, in a manner to suit the requirements of the Scheme. This would 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; and to plan, implement, monitor and review waste minimisation and management throughout the construction programme; and ensure compliance with waste duty of care.	Controls the management of waste to, on and from site. Promotes the reuse and recycling of materials. Prevents inappropriate disposal routes for waste particularly that which is potentially contaminated.
M4	The appointed Contractor to 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.	Allows efficient tracking of wastes during construction of the Scheme.
Biodiversity		
B1	An INNS management plan would be produced. The plan would identify invasive non-native animal and plant species that could be affected by the Scheme and identify species-specific control measures following best practice	Prevents an offence being committed and allows for correct disposal of contaminated vegetation and soils.
B2	Habitat clearance to avoid seasonal restrictions for fauna. Vegetation clearance for the Scheme to take place outside of the bird breeding season (March to August inclusive). Such works to be undertaken during the bird breeding season to be carried out under supervision by a suitably experienced ecologist. Structures and buildings requiring demolition to also be checked for breeding birds prior to demolition. Works must stop until breeding is concluded and chicks have fledged.	Prevents causing an offence under the Wildlife and Countryside Act 1981 (as amended)
B3	vegetation clearance and groundworks that include potential hibernation features would be undertaken under ecological supervision and a precautionary method statement, to reduce the risk of killing and injury of reptiles	Prevents causing an offence under the Wildlife and Countryside Act 1981 (as amended)
B4	Trees assessed as having low potential to support roosting bats and required to be removed would be soft-felled under supervision by an ecologist	
B5	Pre-construction survey to be carried out within 3 weeks of the start of construction in any given area.	Many animal species are mobile and able to move into an area post-survey. Pre-construction surveys limit the likelihood of an offence being committed.

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Code	Mitigation measure	Benefit/Outcome
B6	Requirements of and mitigation within any Natural England European Protected Species Mitigation Licence to be followed.	Prevents causing an offence under The Conservation of Habitats and Species Regulations 2017 (as amended) and the Wildlife and Countryside Act 1981 (as amended).
B7	The Scheme would implement proposed mitigation to reduce impacts to fish populations, by: <ul style="list-style-type: none"> •minimising in-channel works; •avoiding direct lighting of watercourses; •preventing excessive noise and vibration from land-based activities from entering the water; and •implementing best practice for pollution prevention (Environment Agency, 2019). 	Reduces the risk of adverse effects to fish within the Sheepwash Channel.
B8	Trees assessed as having low potential to support roosting bats and required to be removed to be soft-felled under supervision by an ecologist. Measure to be included in a CEMP	Prevents causing an offence under The Conservation of Habitats and Species Regulations 2017 (as amended) and the Wildlife and Countryside Act 1981 (as amended).
B9	Vegetation clearance and groundworks that include potential hibernation features for reptiles along the western side of the railway line south of Botley Bridge, to be undertaken under ecological supervision and a precautionary method statement.	Limits the risk of killing and injury of reptiles. Specific area defined after habitat suitability survey - along the western side of the railway line south of Botley Bridge.
B10	Native and locally sourced species to be specified for any planting requirements.	
B11	Provision to be included for replacement roosting and nesting opportunities for birds and bats.	12 bat boxes/bricks to replace loss of potential roosting features. Six bird boxes to replace loss of nesting opportunities.
B12	Additional bat sites to be installed as required by local policy in relation to size of floor space of the Scheme.	Two additional bat sites to be provided.
B13	Provision of one bird nest box per 1000 square meters of floor space for building-dependent birds as required by local policy.	A mixture of bird boxes for breeding swifts, house sparrows and house martins.
B14	Areas of retained vegetation would be clearly demarcated.	Avoids accidental incursion by construction works.
B15	Where there would be a risk of animal entrapment, a means of escape would be installed into all excavations left open overnights.	Reduces the likelihood of entrapment and potential death to local wildlife.
Water Resources and Flood Risk - Construction		
W1	The management of activities within floodplains and overland surface water flow paths (i.e. kept to a minimum) with construction works and storage areas to be located out of the floodplain as far as reasonably practicable or allowances made for floodplain control measures and contingency actions	Locating activities outside the floodplain reduces risk of flooding to construction areas which could result in injury to workers or loss of materials/plant. This also reduces the risk of construction activities interacting with flow paths and increasing the risk of flooding elsewhere.
W2	Where necessary, implementation of measures to mitigate for any flood waters displaced during temporary construction works (provision of temporary compensation areas if required)	Reduces impacts of loss of floodplain during construction works.
W3	Incorporating sustainable drainage mitigation for construction work with drainage implications (e.g. increasing surface water flood risk as a result of increased impermeable area)	Providing temporary SuDs reduces the risk of surface water flooding to the site or increase in flood risk elsewhere. No increase in impermeable area is currently anticipated so this measure may not be required.
W4	Adopting the Environment Agency flood warning system during construction and developing a suitable plan which would ensure effective and safe evacuation of personnel and plant from areas at risk on receipt of a flood warning	Adopting the Environment Agency flood warning system allows for emergency plans and flood prevention measures to be implemented in time to reduce impacts of flooding such as injury and loss of materials/plant
W5	Managing the risk from groundwater flooding (during excavation) through appropriate working practices and with adequate plans and equipment in place for dewatering to ensure safe dry working environments. Management of the water removed by dewatering activities before discharge.	Managing risk of groundwater flooding would reduce the likelihood of groundwater flooding which could lead to injury and loss of materials/plant.

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W6	Specific measures to control silt would be implemented, with silt laden surface water runoff at the construction sites (specifically the Sheepwash Channel) being managed to prevent flowing into any surface water receptors (drawing on CIRIA532)	To reduce contaminants such as sediment being released to surface waters
W7	If a discharge to a watercourse or groundwater is necessary, the water should be treated and controlled in accordance with any legislative requirements and environmental permits.	To reduce the levels of contaminants including suspended solids being released to surface waters
W8	Environmental permits for any temporary or permanent dewatering of excavations would be obtained by the Contractor from the Environment Agency prior to undertaking any dewatering activities.	To comply with government legislation and control volumes abstracted through dewatering to reduce any adverse effects to the groundwater environment.
W9	Where required, Environmental Permits for any temporary or permanent water discharges or dewatering of excavations to be obtained by the Contractor from the Environment Agency prior to undertaking any dewatering activities.	Ensures compliance with regulations.
W10	Installation of permanent low permeability cut-off walls for dewatering at Botley Road by use of a grout curtain and sheet piling.	Limits potential impacts on groundwater and the need for extensive dewatering. Reduces the volume of potentially contaminated water to discharge. Reduces the risk of groundwater flooding during construction.
W11	Where required as a result of ground investigation, long-term monitoring of water discharged to the ground via a soakaway should be undertaken by the contractor. If the quality of the water deteriorates below acceptable levels, the water should not be discharged to groundwater and treatment should be reviewed.	Ensures that groundwater quality does not deteriorate below acceptable levels due to the discharge of wastewater from surface runoff and dewatering.
W12	CIRIA guidance would be adopted as standard mitigation as appropriate from the following publications: <ul style="list-style-type: none"> •Environmental Handbook for Building and Civil Engineering Projects (3 Parts: C512, C528 and C529) (CIRIA, 2000) •Control of water pollution from construction sites. Guidance for consultants and contractors (C532) (CIRIA, 2001) •Control of water pollution from linear construction projects. Site guide (C649) (CIRIA, 2006) •Groundwater control: design and practice, second edition (C750) (CIRIA, 2016) Environmental good practice on site guide (fourth edition) (C741) (CIRIA, 2015) 	Reduces the contamination of soils, groundwater and surface water
W13	Managing the risk of pollution and fine sediment entering local water bodies designated under the Water Environment (Water Framework directive (WFD)) (England and Wales) Regulations 2017 (the regulations) would be outlined in a CEMP. This would include a robust pollution prevention strategy (covering surface water, fine sediment release and other pollutants etc). Designated areas for vehicles to be washed would be used with resultant surface water appropriately treated prior to entering adjacent watercourses. Silt mattresses would also be considered where surface water from excess road usage by construction vehicles enters local watercourses.	Reduces the contamination of surface water bodies designated under the regulations
W14	The CEMP would outline measures to be put in place to ensure that levels of noise and vibration are minimised during the construction phase of the Scheme.	Reduces the impact on biological quality elements of water bodies designated under the regulations.
Water Resources and Flood Risk - Operation		
W15	An emergency plan to be required for flood events. This is required for both the western entrance to the station and Botley Road. This to include sign up to the Environment Agency's Floodline flood alert and flood warning system.	Flooding would still occur but impacts would be lessened.

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W16	As part of the emergency plan, Botley Road should not be used when inundated. It is assumed that the council will have an existing emergency plan given the existing flood risk to the road, this should be updated if the Scheme is constructed.	
W17	As part of the emergency plan for the western entrance of the station, closure required in periods of significant flooding.	
Code	Secondary Mitigation Measure	Benefit/Outcome
ADD1	Various options be explored to mitigate flooding to the development. Options could involve providing a retaining wall to the west of the western entrance or flood resilience measures.	Reduces the risk of flooding for the Scheme without increasing flood risk elsewhere.
ADD2	Following completion of the GI and finalisation of the grout curtain design details, a settlement risk assessment may be required for the existing infrastructure and buildings located in proximity of Botley Road.	Identifies whether additional mitigation measures would be required, such as monitoring of groundwater levels during construction and / or re-enforcement of structures with a residual risk.
ADD3	For areas across the Scheme with uncertainty as to whether dewatering will take place such as the subway, a detailed dewatering assessment would be undertaken where groundwater is confirmed as being intercepted. This would include an assessment of the risk of subsidence effects on nearby buildings. If significant effects are predicted, further mitigation such as a cut-off wall (sheet piling or a grout curtain) may be required to limit drawdown of groundwater outside of the cut-off.	Ensures an appropriate assessment of dewatering impacts across the Scheme for areas of concern including the subway construction site.
ADD4	Should any groundwater flood risks be identified outside the Botley Road grout curtain, an additional drainage strategy may be required to manage shallow groundwater levels and avoid groundwater reaching the sub-surface.	
ADD5	Flooding of the western entrance and Botley Road occurs. Mitigation would be an emergency plan is therefore required for flood events. This is required for both the western entrance to the station and Botley Road. This will include signing up to the Environment Agency's Floodline flood alert and flood warning system and potential road and facility closures.	Flooding would still occur to development, but impacts would be reduced.
ADD6	Drainage to prevent surface water flooding on Botley Road has been designed to prevent up to a 3.33% (1 in 30) AEP (Annual Exceedance Probability) however EA mapping suggests that flooding occurs in the 0.1% (1 in 1000) AEP in this location. Drainage should be designed for the 1% (1 in 100) AEP plus 40% allowance for climate change and to prevent surface water flooding in this location. If this cannot be achieved additional mitigation measures such as road closure should be implemented.	Impacts of flooding from surface water would be reduced.
ADD7	A site-specific ground investigation (GI) would be required to refine the characterisation of ground and groundwater conditions at the site, in particular targeting the Botley Road area and the location for the proposed soakaway discharge. The GI should confirm groundwater levels and quality and also include permeability tests at Botley Road tests and percolation tests at the proposed soakaway location. The network of boreholes around Botley Road should be extensive enough to support an analysis of groundwater levels and potential rebound / long term variation immediately out-with the grouting curtain.	
ADD8	compounds are set up to keep buildings and storage areas outside of areas at risk. Also, that construction best-practise for working in floodplains is followed	Reduces impacts of flooding

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ADD9	Ground investigation should be carried out to ascertain the impacts of the provision of a grout curtain on groundwater levels in the surrounding areas. Additional mitigation such as an additional pump to manage groundwater levels outside of the grout curtain may be required following the results of the ground investigation	Reduce the risk of groundwater flooding in the Botley Road area.
ADD10	Historic building recording of Botley Road pedestrian tunnel (Asset 101) to be undertaken to Historic England Level 3.	Ensures a record of the heritage asset is made before its removal during construction of the proposed Botley Road Bridge.
Code	Biodiversity net gain/OCC planning measures	Benefit/Outcome
BNG1	1 bug hotel per 2000m2 floor space plus 25% of soft landscaping to provide nectar sources	Meet OCC targets Technical Advice Note (TAN) 8
BNG2	1 bird box per 1000m2 floor space	Meet OCC targets Technical Advice Note (TAN) 8
BNG3	1 bat box per 2000m2 floor space	Meet OCC targets Technical Advice Note (TAN) 8
BNG4	1 artificial swift roost sites	Meet OCC targets Technical Advice Note (TAN) 8
BNG5	Green roof	Improves biodiversity net gain
BNG6	Living wall	Improves biodiversity net gain